Technical Report

Study of Market Prices: Validating Child Care Market Rate Surveys

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Introduction

What is a Child Care Market Rate Study?

Child care market rate studies emerged in the late 1980s as Congress adopted a market-based approach to funding child care. In 1990, the federal government began a major investment in child care with the passage of the Child Care and Development Block Grant Act (42 U.S.C 9858 et. seq.). In 1996, Congress combined multiple funding streams into the Child Care and Development Fund (CCDF) and increased its investment in child care. Since 1998, the Department of Human Services' rule for receipt of CCDF funds has included a requirement that states, territories, and tribes demonstrate access to child care for parents who receive a subsidy by referring to a market rate survey "conducted no earlier than two years prior to the effective date of the current Plan" (Department of Health and Human Services [DHHS], 1998, p. 39958). Tribes are encouraged to conduct their own study, but may rely on that of the state in which they are located if their service area is included in that state's survey (ibid, p. 39977).

Despite the federal mandate to conduct market rate surveys, little guidance on how to produce valid price findings has been available. Drawing from over a decade of experience conducting market rate studies, state child care administrators and their partners involved in conducting market rate surveys have identified challenges that threaten the validity of survey findings. The *Guidance for Validating Child Care Market Rate Surveys* research project addresses these challenges. This paper reports the findings from a study of how to negotiate the complexities of the child care system and thereby increase the validity of market rate survey price findings. It includes analyses of data from six diverse states that address the challenges made to market rate study validity.

Guidance for Validating Child Care Market Rate Surveys Research Project

The Child Care Bureau funded the *Guidance for Validating Child Care Market Rate Surveys* research project in order to provide information on market price studies that states and territories are required to conduct every two years and that tribes are encouraged to conduct in the same time frame. The project includes three related studies with the following goals:

- *Study 1:* Describe key elements of market rate survey methods, policies, and practices in order to capture the current practice of states, tribes and territories, and refine the proposed research design for validating market price survey findings (Weber, Grobe, Davis, Kreader, & Pratt, 2007). A survey of tribal CCDF grantees was included in this study (Weber & Grobe, 2007).
- *Study 2*: Evaluate the effect of using various data sources and data collection methods on market representation, market price findings, and cost effectiveness on producing child care market price findings. This paper reports on the findings from Study 2.
- *Study 3*: Explore the effects of subsidies on child care prices in different policy environments.

To guide this national research project, a 28-member national Research Project Advisory Committee (see Appendix A) was formed with representatives of child care agencies from various states, territories, and tribes (thereafter referred to as *states*), as well as child care researchers, advocates, and representatives of

provider organizations. The Advisory Committee met annually and periodically reviewed research plans, measures, and reports to assure that significant methodological and policy issues were addressed.

Child Care Market Rate Survey Validity Study

In this paper we report the findings from the second study of the *Guidance for Validating Child Care Market Rate Surveys* research project, the Child Care Market Rate Survey Validity Study. The primary objectives of the study were to:

(a) assess how data sources, sampling, and data collection methods affect representativeness of market price study findings,

(b) evaluate the effect of using various data sources and data collection methods on the consistency of findings on market prices,

(c) address a series of challenging validity issues that confront market survey researchers, and

(d) explore the cost effectiveness of market study methods to produce valid market price findings.

Validity Applied to Child Care Market Rate Survey Findings

Validity is the "extent to which an empirical measure adequately reflects the real meaning of the concept under consideration" (Rubin and Babbie, 1997, p.177). Market rate survey findings are valid to the extent that they match the prices that families find when searching for child care in their community. The complexity of how child care operates challenges efforts to produce valid price findings. In the fable about the blind men's attempts to describe the elephant, each description fell short because it captured only one part. In the case of child care, the issue is not that we are blind, but that what we view is complex and difficult to understand. Rather than a single service with a single price, child care involves multiple services, often delivered by the same organization. Various characteristics of children, providers, and communities affect child care prices. The ability to measure prices accurately requires a basic understanding of how child care operates and what factors affect child care prices.

Child Care Market Rate Studies and Subsidy Rate Setting

Although most child care price studies are done to inform the setting of maximum subsidy rates (hereafter referred to as *rate setting* or *setting rates*), studying child care market prices is distinct from rate setting. States are the only ones that can set rates. Other organizations can conduct market rate studies, but they cannot set rates. Many states consider more than study findings when setting rates. As reported in *Child Care Market Rate Survey Practices of State, Territories, and Tribes* (Weber et al, 2007), federal and state budgets heavily influence rate setting. The best market rate survey design is unconstrained by what will be used in rate setting. For example, if price information is collected about the way facilities charge (hourly, daily, weekly, and monthly), one can determine the dominant pricing mode used. However, if in the study facilities can only report in the pricing mode(s) the state uses in rate setting, some facilities may not be able to report prices because they do not charge in that mode. The state then misses the opportunity to learn an important piece of information; how facilities charge parents in their state. Knowing all the pricing modes used by facilities does not require the state to set rates in all modes. The market rate study and rate setting are separate activities and perceiving them separately can strengthen both the study and rate setting.

Providing valid price findings for use in setting maximum subsidy payment rates is the primary purpose of a market rate study, but the study serves more purposes than informing rate setting. For instance, charting changes in market rate study findings enables policy makers and others to measure the percent change in child care prices over time. A study can document what pricing modes facilities in the state use, and if they vary across the state. Market rate studies provide insight into how the child care system operates. A rigorously designed and conducted study is critical to the ability to accurately describe prices that parents will encounter when seeking child care in their community.

Valid Child Care Market Rate Study Findings Matter

The validity of market rate survey price findings matters. The Department of Health and Human Services mandated market rate surveys as a tool to ensure low-income families using a subsidy have access to the child care supply in their community. Although multiple factors affect where states set rates, valid market rate survey findings provide a solid basis to measure how much access subsidized families actually have. Low-income families in the paid workforce need to find arrangements that meet both their employment needs and their children's developmental needs. Where maximum subsidy rates are set determines an eligible parent's access to the child care in a community, and is therefore fundamental to the promotion of financial independence, parental choice, and child care quality.

State allocations of resources are strongly influenced by market rate study findings. Therefore, the validity of the price findings may affect the credibility of budget requests. A Minnesota legislator, concerned with rising child care subsidy costs, requested an audit of that state's market price survey methodology. To measure the validity of reported prices, California asked for similar information, and the District of Columbia asked providers to report their prices and carefully checked for discrepancies between previously known and reported prices (Schock & Daughtery, 2001). In addition to impacts on family and child outcomes, the validity of market rate survey findings affects the credibility of maximum rates and the budgets needed to fund them.

Prior Studies of Validity Issues

Researchers as well as child care administrators and policymakers have identified numerous challenges to the validity of market rate studies (Child Care Administration Project, 2001; Grobe, Weber, Pratt, & Emlen, 2003; Hardy, 1999; Karolak, Collins, & Stoney, 2001; Schock & Daugherty, 2001; Stoney, 1994; United States Association for Child Care [USACC], 2000). Validity issues include: (a) defining characteristics of facilities in the child care market to be included in a market price study, (b) identifying prices that are differentiated by key characteristics such as age of child and type of care (we will refer to these as *submarkets*), (c) capturing geographic definition of community, (d) dealing with differences in pricing modes, (e) deciding what to use as the unit of analysis, and (f) identifying standards for data collection and analysis (Emlen, 2005). The cost effectiveness associated with different methods has implications for policy and practice. Only limited information about these issues is currently available. The following review summarizes what is known from existing state surveys, reports by agencies that provide technical assistance on market price surveys, and relevant published studies of validity in market rate studies.

The Child Care Market

Defining the child care market. How well the child care market is represented by the findings of a market rate study is a key validity issue. Although the study of child care market prices assumes consistent definitions of that care market and of market prices, the child care field struggles with clear definitions of both. Throughout this paper we use the term *child care* to describe the array of care and early education services offered for children from birth through age 12. Yet there is no consensus on the types of nonparental care that should be included in a definition of the child care market. Researchers describe child care along a continuum ranging from informal, such as that given by relatives, to formal such as that given in licensed family child care homes and centers (Brandon, Maher, Joesch, & Doyle, 2002; Porter, Rice, & Mabon, 2003; Porter, 2005; Whitebook et al., 2003). Although parents are more likely to pay for care in family child care homes and centers, some parents pay for less formal care (Brandon et al., 2002; Hofferth, Shauman, & Henke, 1998; Smith, 2002). Along this continuum, not all facilities charge parents a price for child care and education services. For example, publicly funded programs such as Head Start do not charge parents. In the CCDF Final Rule, the Department of Health and Human Services (DHHS) requires that child care lead agencies provide equal access for families eligible for subsidies that are comparable to those provided to unsubsidized families and that equal access will include a choice of the full range of providers (e.g., center, group, family, and in-home care). The rule also mandates that access be demonstrated by reference to a local market price survey no earlier than two years prior to the effective date of the current state child care plan (DHHS, 1998). Determining which facilities are in the market and therefore should be included in a market price study has not yet been resolved.

The priced child care market. To study the validity of market rate study findings, we need a definition of the universe of child care facilities to be included in a child care market rate study. Having a price is a necessary characteristic of a facility to be included in a price study, but charging parents may not be the same as having a market price. A caregiver may charge a relative or friend a much lower amount than she would charge a parent with whom she has no prior relationship. Economists[1] use the term "arm's length" to describe a transaction in which none of the parties are related or share membership in an organization. Further, an arm's length transaction is assumed to establish a market price because the price is not likely to be affected by a prior relationship. This concept is used in housing in establishing market value. If the seller is the father and the buyer his son, it is assumed that the father's price is affected by his relationship with his son. He may want to offer the lowest amount at which he can afford to sell or, if there are multiple children, he may offer a higher price in order to treat all children fairly. In either case, the relationship may affect the price; therefore, that price would not be included in establishing market housing prices.

Applying these concepts to child care, we propose the term "priced child care market" to describe child care facilities to be included in a market rate study. Facilities in the priced child care market conduct arm's length transactions; they have a price established through selling their care and education services to persons with whom they do not have prior relationships or shared memberships that would affect the price, such as would be the case in campus-based or employer-sponsored child care open only

[1] Ann Witte, an economist from Wellesley College, applied the concept of "arm's length transaction" to child care in her work on the National Child Care Study of Supply and Demand. We then used this construct in developing our concept of the priced child care market. Our discussion was further informed by a review of glossaries of economic terms.

to organization members. Throughout the rest of this paper we use the term *priced child care market* to define the child care facilities to be included in a market rate study. Having a definition of the universe to be studied is essential as it identifies which facilities are to be surveyed (either all or a randomly selected representative sample of them). We also will use the term *price* to define the amount that the facility charges the parent and the term *maximum subsidy rate* or *rate* to define the amount the state determines is the highest amount it will pay. For this paper, we will use the term *child care market price study* so as to be clear that these are studies of prices charged by facilities in the priced child care market.

For the most part, family, friend, and neighbor care, as well as care in the child's home, do not appear to fit within the description of the priced child care market. As previously noted, there are two facility characteristics that determine whether or not the facility is within the priced market: it has a price and that price is established through an arm's length transaction. Even when purchased, relative care prices are not likely to have been established through an arm's length transaction because of the prior relationship between parent and caregiver. The same is likely to be true of friend and neighbor care. In-home care presents a number of complicating issues. The service provided may include a mix of child care and other services such as cooking and laundry. Amounts paid for in-home care are considered employee wages and are affected by Federal labor and tax rules regarding domestic employees. If the family purchases care from a nanny service, the nanny is an employee of that organization. We conclude that relative, family and neighbor, and in-home care are not part of the priced child care market.

The priced child care market is part of child care and early education. Government's growing role in child care affects how child care operates. Many organizations offer some services in the priced child care market and others that are publicly funded. An organization may be a Head Start grantee and also operate facilities that are funded with parent fees. As is the case in states where community programs offer universal prekindergarten services, a single facility may have both publicly funded and fee-based services. CCDF funds may be expended as contracted services as well as through subsidies. Terms such as blended funding and mixed markets have been used in describing the complex system that provides child care and early education services.

Child care facilities vary in the complexity of their pricing strategies. As in shown in Section III – Pricing Modes and Price Conversions, family child care homes tend to charge a simple hourly price, but higher priced family child care and centers are more likely to have a complex pricing system that includes volume or quantity pricing. For example, the facility may offer hourly and weekly prices, but because it is better for a facility to have children in care for the full week, they will offer a weekly price that is less than the hourly price times 40 or 50 hours. This pricing allows the facility to serve families who need a limited number of hours, but also to encourage parents to purchase a full-time slot.

Market Representation

Most states rely on one or more of three databases to define the universe of providers whose prices are included in market price studies. The three databases include those maintained by (1) regulatory agencies (licensing), (2) child care resource and referral (R&R) agencies, or (3) subsidy agencies (Karolak et al., 2001; National Child Care Information Center, 2004; Stoney, 1994; USACC, 2000; Weber et al., 2007). In Oregon, Emlen and Associates (1992) studied which portions of the child care market were represented in R&R databases. Using Census data, he compared the percent of the average county's population of children under 18 to the percent of the average county's number of facilities enrolled in the R&R database. He was interested in how accurately the R&R database represented the supply of facilities

geographically. He found the 1992 prices based on the R&R database to be consistent with previous studies, and that the prices appeared to represent facilities in proportion to their presence in the geographic area.

Variation across states adds another layer of complexity. Most states rely on licensing or R&R data to create the list of facilities to survey (Weber et al., 2007). Licensing is a state function and varies widely; types of care licensed in one state are not licensed in another. The percentage of the priced market that is captured in lists of licensed facilities is affected by states' determination of which facilities need to be regulated. Similarly, child care resource and referral systems vary by state. Although some cover the whole state and have a solidly funded data capacity, others operate with minimal funding and have less capacity for collecting and storing current and complete data. The completeness and currency of licensing and R&R lists of providers varies by state. Other issues related to representativeness of market rate survey findings include response rate, and currency (Emlen, 2005).

Reported Prices in Market Price Studies

A key question about the validity of market price study findings is the stability of provider-reported prices (Schock & Daugherty 2001, Karolak et al., 2001). The basic question is whether or not providers report different prices to different entities (e.g., directly to parents, to an R&R representative who is asking what prices the provider wants advertised, or to a professional survey interviewer who is gathering price information in order to inform maximum subsidy rate setting). Child care provider representatives participating in a Child Care Bureau forum on maximum rate setting policies expressed concern that R&R data could under represent prices because providers want to be competitive and feared that reporting "high" prices would limit the number of parents who contacted them for more information (Schock & Daugherty, 2001). In Oregon, Tvedt (1999) looked at the stability of reported prices over two data collection methods in the same time period; telephone survey and R&R reported prices. She found no significant differences in the two sets of prices; thus, she concluded that providers reported the same prices to the R&R and to telephone surveyors.

Geographic Definition of Community

Market price survey experts have concluded that political boundaries (such as cities and counties) do not accurately capture geographic price areas (Emlen, 1992, 1995; Karalok et al., 2001; Stoney, 1994); however, there may be practical and political reasons to set rates based on commonly used geographic areas. Emlen found that starting with zip codes and building to clusters of like-price geographic areas produced meaningful price areas (i.e., areas in which prices were similar). The validity of the price areas based on this method was supported by later market price studies that found equivalency of access (the percent of care in a rate area that maximum subsidy rates can purchase) across price areas (Grobe, Weber, & Pratt, 2006). Two other states that have adopted different approaches to creating geographic groups are Ohio and California. Ohio uses a nonhierarchical clustering method to group counties into six clusters based on child care prices. In California a complex methodology was developed to identify zip codes with similar characteristics and to use these to define "market profiles." The statistical approach used was binary recursive partitioning, a hierarchical clustering method based on a large number of zip-code level economic and demographic characteristics. The output of the analysis is a classification of California zip codes into "markets" in which the zip codes are not geographically contiguous but rather grouped together based on having similar socioeconomic characteristics (for further details see Davis, Weber, Albright, Maiga, & Grobe, forthcoming). Recent work in Minnesota has examined a number of different

methods for creating geographic groupings (Davis et al., forthcoming). A summary of these methods and corresponding findings are described in this report.

Pricing Modes

Some market price studies convert prices into a single price mode (hourly, weekly, and monthly) in order to facilitate analysis and comparison. Emlen and Associates (1995) studied conversion formulas and concluded that conversion reduces validity. That is, if a provider charges by the hour, converting that hourly price to a weekly or monthly price by multiplying the hourly price by the hours in a week or month creates a price that likely does not exist in the market. Similarly dividing a monthly price by 4.33 weeks to create a weekly price also creates a price that likely does not exist in the actual market. Emlen and Associates also compared the prices of providers who charged in multiple modes and found that monthly prices did not represent their hourly price multiplied by the total hours of care in a month. They concluded that providers who charged in different modes represented a different child care market than those who charged by the week or month. In addition, they found that mode of pricing is confounded with geography; that is, mode of pricing varied by geographic area. Tvedt (1999) examined this same phenomenon using a telephone survey and found that through the detailed questioning made possible by a phone interview, providers could produce prices in both hourly and monthly modes. However, these multiple price modes were not simply mathematical conversions. Rather, facilities had their own methods of determining what amount to charge in each mode. This report studies this issue in detail.

Terms Used in This Report

Throughout this report, the term *validity* is defined as the "extent to which an empirical measure adequately reflects the real meaning of the concept under consideration" (Rubin & Babbie, 1997, p.177). *Prices*[2] is used to describe fees set by child care facilities and *maximum subsidy rate* is used to describe the subsidy rate or maximum rate state subsidy agencies will pay a child care facility that provides care for an eligible child. The maximum subsidy rate establishes a ceiling; states pay the facility's "usual" charge up to the ceiling established by the maximum rate. The usual charge is the fee per child paid by families who do not receive a subsidy.

The term *R&R* refers to child care resource and referral agencies, the local nonprofit organizations which create databases of child care facilities in communities across the United States. The term *facility* is used to describe a center or home in which care and education services are provided to children. The records of such functions of R&R, licensing, and subsidy agencies are referred to as *administrative data*. These records have been used in some states to analyze market prices for child care when prices are available. The term *administrative data update* is used to describe the process of updating price data and storing this information in the administrative database for use in the market price survey.

The universe to be studied through a market price study is the *priced child care market*. Facilities within the priced child care market have two characteristics: (1) they charge parents a price, and (2) the price is established through an arm's length transaction, previously defined as when the buyer and seller do not

[2] It should be noted that federal rule requires a survey of the *prices* charged for child care, not a survey of the *costs* of child care. The cost of child care is typically greater than the price charged because providers supplement costs through grants, donations, and low pay and benefits (Cost, Quality, and Child Outcomes Study Team, 1995).

have a prior relationship or shared membership that is likely to affect the price charged.

Market price study is used in this report to describe an entire market price survey process including sample selection, data collection, data analysis, and report writing. The process by which the market price study's results are used, in part, to set maximum subsidy rates is referred to as *rate setting*. This process is enhanced by information about current prices provided by the market price study. Other influences on rate setting are federal and state funding, state budget, subsidy access, and other state policy considerations (Weber et al., 2007).

States, territories, and tribes are responsible for the *regulation* of child care and early education within their jurisdiction. Licensing, certification, and registration represent different types of regulation and states, territories, and tribes vary in both definitions of what care is regulated and the type of regulation required for the different types of care.

Terminology

Validity – "extent to which an empirical measure adequately reflects the real meaning of the concept under consideration" (Rubin and Babbie, 1997, p.177)

Prices – provider fees set in the market by child care facilities

Maximum subsidy rate – rate of payment established by state child care agencies for reimbursing child care facilities

R&R – child care resource and referral agencies

Facility – a child care center or home used to provide care and education services

Administrative data – records which document the functions of the particular agency (e.g., Resource and referral agency records, licensing records, and subsidy records)

Administrative data update – process of updating price data and storing this information in the administrative database for use in the market price survey

Priced child care market – the child care universe to be studied, comprising two characteristics: (1) parents are charged a price, and (2) the price is established through an arm's length transaction

Market price study – term used to describe an entire process to learn about child care prices throughout communities (although these surveys are described as market *rate* surveys in federal language, we use market *price* survey because it clearly distinguishes the process of collecting price data from setting rates)

Rate setting – process by which the results of the market price study are used, in part, to set maximum subsidy rates in order to provide low-income parents access to child care in their community within the resources available for this purpose

Regulation – licensing, certification, and registration represent different types of regulation and states, territories, and tribes vary in both definitions of what care is regulated and the type of regulation required for the different types of care

What's Inside This Report

Research Questions and Design outlines how this study uses multiple methods to capture the complexity of the child care market and the diversity of survey samples and methods used by states across the nation.

Data Sources discusses the purposes in using each of the data sources, as well as how the data were originally obtained, and the information they contain.

Data Collection Methods describes the three different strategies used to collect price data in child care market price studies (a) administrative data update by R&R, (b) mail survey, and (c) telephone survey.

Summary of Overall Findings by Section lists all the questions and findings contained in the body of this study.

Findings details the findings by the three sections: market representation (criterion-related validity), comparison of findings by data sources and data collection methods (convergent validity), and validity issues. The methods are described along with the findings, and in many places include the analysis steps that could be used to replicate these findings in other states.

Guidance on Conducting Child Care Market Price Surveys presents the guidance and recommendations that follow from the findings described in the previous section. The guidance is structured from the market price survey process that begins with conceptualization of how the priced market operates and moves through to a report of findings of child care prices.

Cost Effectiveness this section considers both the costs and effectiveness (i.e., producing accurate price findings) when conducting a child care market price survey. Included is a cost effectiveness self-assessment tool that states can complete for their most recently completed market price survey.

Research Questions and Design

Research Questions

1. How do data sources, sampling, and data collection methods affect the representativeness of market price study findings?
2. How consistent are the market prices from various data sources?
3. Do different data collection methods produce different market price findings?
4. How cost effective are different approaches to obtaining valid market price findings?

Research Design

The research design for this study uses multiple methods to capture the complexity of the child care market and the diversity of survey samples and methods used by states across the nation. The two key design variables are (a) data source and (b) data collection methods. These key variables are operationalized based on the findings of a 2005 nationwide survey of market price studies (Weber et al., 2007). Three data sources were identified from which states draw study samples in a variety of ways. Data from the following three sources are used in this study:

(a) R&R databases of enrolled facilities,
(b) state licensing database of regulated facilities, and
(c) state subsidy agency database of facilities that received a payment.

Also, to assess validity, the study uses data from statewide household surveys on child care facility characteristics and families reported child care usage.

Three data collection methods[3] are also examined in this study:

(a) administrative data update by R&Rs,
(b) mail survey of facilities regarding prices, and
(c) telephone survey of facilities regarding prices.

The first includes the universe of facilities in the priced child care market. The other two represent stratified facility samples from the data sources shown above.

This study examines these different data sources and data collection methods to assess market representation, the validity of market price findings, and the cost effectiveness of various market study approaches. Table 1 illustrates the data sources and data collection methods. In addition, we address a series of challenging validity issues that confront market survey researchers. These include determining whether different age groups, types of care, schedules, and locations of child care operate as submarkets,

[3] Other viable data collection methods include mix method and Web-based surveys. Although a few states used these other methods, this study focused on those methods most commonly indicated during the 2005 nationwide survey of market price survey practices and policies (Weber, et al., 2007).

documenting the effects of converting prices (pricing issues), and comparing the price per child slot vs. price per facility (unit of analysis) using the different data sources and data collection methods. Further, the research design incorporates single-state and multistate analyses to answer the research questions. Table 1 identifies data used from six different states throughout this report (Kansas, Minnesota, Oregon, South Carolina, Washington, and Wisconsin). These states were chosen for various reasons. Oregon, Minnesota, and South Carolina had both R&R administrative update data and household survey data available within the same year. Kansas, Oregon, Washington, and Wisconsin each had R&R administrative update data and a telephone or mail survey in the same timeframe, enabling us to compare market price findings by data collection methods. They also represent different regions of the U.S. One limitation is the absence of a state with a very large urban area (e.g., Chicago, New York) that may differ from the states chosen because of a submarket of high-density subsidized care and contracted slots.

Table 1. Data Sources, Data Collection Methods, and Validity Measures

Data Sources	**Data Collection Methods**		
	Administrative data update	*Telephone survey*	*Mail survey*
R&R enrolled facilities	X [1]	X [2]	X [2]
State regulated listed facilities	X [3]	X [2]	
State subsidized facilities	X [3]	X [2]	
Statewide household survey – facility characteristics		X [4]	
Statewide household survey – child care usage		X [4]	

Convergent validity – how do the results compare when using different data sources and data collection methods?

Criterion-related validity – how well do these data sources represent the child care market?

[1] R&R data were downloaded for Kansas, Minnesota, Oregon, South Carolina, Washington and Wisconsin.
[2] Oregon provided the sample frames for telephone and mail survey data. Kansas's and Wisconsin's mail survey and Washington's telephone survey provided actual price information.
[3] Oregon data on state regulated listed facilities and state subsidized facilities were used.
[4] Data from Wilder Foundation 2004 Minnesota Household Survey, Oregon Progress Board's 2006 Oregon Population Survey, and 2002 South Carolina Household Survey were used.

Table 1 identifies the two types of validity of interest in this study: convergent and criterion-related validity. A measure has *convergent validity* when the results correspond to the results of other data sources and methods that measure that same construct. In this study, convergent validity is based on the degree to which the three data sources (R&R, licensing, and subsidy) and data collection methods (administrative data update, telephone survey, and mail survey) produce similar price findings.

Criterion-related validity is based on some external criterion. In this case, we explore data completeness, geographic representativeness, response rate, and data currency in multiple states to develop criteria for market price validity. In short, the data collected (Table 1) allows us to evaluate whether different survey methods produce different findings (convergent validity) and to identify criteria for market representativeness (criterion-related validity). A major challenge in producing valid market price surveys is understanding what is being measured. Understanding the complexity of the priced child care market is fundamental to understanding what survey findings represent and the validity of market price survey findings.

Cost Effectiveness of Market Price Surveys

Cost effectiveness is defined as the comparison of the relative costs of achieving a given result by different methods. The question is whether there is a way of conducting the market price study that produces results similar to other ways of studying the market but using fewer resources. Market price study costs and the relative cost effectiveness of different data collection methods have not been known. Testing cost effectiveness requires consideration of both cost and validity of findings.

Because the most costly portion of a market price survey is data collection (Weber et al., 2007), it is reasonable that a method with lower data collection costs and valid findings would be cost effective. Karolak et al. (2002) argue that using existing databases with price data (such as those maintained by R&R) would cost less than using telephone or mail surveys for data collection. For a data collection method to be cost effective, though, it is as important that findings be valid as it is that costs be lower. However, few cost comparisons of data collection methods have been done. Emlen and Associates (1990) conducted a mail survey using multiple data sets of facilities and compared price findings to those obtained through analysis of administrative data update by R&Rs. They found that the price findings obtained from R&R records were very close to the family child care price findings obtained from mail surveys using other databases. They then concluded that use of R&R data was especially cost effective.

The current study collected cost information in order to assess costs for each data collection method. The study defines effectiveness as producing accurate price findings and identifies effectiveness standards throughout the guidance section. Discussed further in this report are sixteen of these standards that have been compiled into a costs effectiveness self-assessment tool for states to complete.

Data Sources

Following the research design described in the previous section, this study uses multiple sources of data from various states:

- administrative data updates sources from Kansas, Minnesota, Oregon, Washington, and Wisconsin,
- facility sample sources from Kansas, Oregon, Washington, and Wisconsin, and
- statewide household survey sources from Minnesota, Oregon, and South Carolina.

The details of our purpose in using each of these data sources, as well as how the data were originally obtained, and the information they contain can be found in Appendix B. Below we describe the facility sample used for Oregon because of its relevancy for understanding what samples were used for the data collection methods discussed in the next section.

Oregon

In order to compare findings from different sources, four samples were drawn from the three data sources available in Oregon. Data from the R&R database of enrolled facilities, Child Care Division (CCD) regulated facilities, and Department of Human Services (DHS) subsidized facilities composed the sampling frames from which we drew four facility samples. The R&R database was divided and used to select both a stratified sample of facilities to complete a telephone survey and a similar survey administered by mail. The licensing and subsidy facility samples were used in the telephone survey along with the R&R sample. All samples were drawn concurrently in January 2006.

A child care facility could be in all three databases (i.e., it could be enrolled with an R&R, licensed, and have received a subsidy payment). To eliminate duplication of facilities across the samples, we first checked for duplication. If a facility was in more than one data source, it was randomly assigned to represent only one of those data sources. The Oregon Child Care Resource and Referral Network (OCCRRN) provided a unique identification number for each facility across the data sources to assist in the elimination of duplicates. The duplication rate across the stratified samples was 35% (Table 2).

Table 2. Duplicates Across Facility Samples

Data Sources	**Number**
Facility was in R&R, licensing, and subsidy	2,359
Facility was in R&R and licensing	1,885
Facility was in R&R and subsidy	537
Facility was in licensing and subsidy	111
Facility was in R&R only	1,472
Facility was in licensing only	325
Facility was in subsidy only	5901

Duplication Rate

Started with 19,476 facilities and after accounting for duplicates had 12,590 facilities.
19,476 - 12,590 = 6,886 / 19,476 = 35.3%

Based on analyses of prices by zip codes, Oregon has three distinct clusters of prices. The state uses these zip code clusters—known as rate areas A, B, and C—in rate setting. We stratified our samples by these geographic regions/rate areas and by facility type (family child care and center including large family child care). These strata specifications are consistent with what other states used when conducting market price studies (Weber et al., 2007). Table 3 shows the stratified and total sample sizes for our four sample frames.

Table 3. Sizes of the Four Stratified Facility Samples

Facility Type	**R&R (Telephone)**	**Licensing**	**Subsidy**	**R&R (Mail)**
Center – rate area A	237	395	197	241
Center – rate area B	100	101	63	116
Center – rate area C	115	89	44	124
Family – rate area A	580	768	2971	582
Family – rate area B	307	365	1858	315
Family – rate area C	405	340	1866	411
Total Sample Sizes	**1,744**	**2,058**	**6,999**	**1,789**

Data Collection Methods

This study used three different strategies to collect price data (a) R&R administrative data update, (b) mail survey, and (c) telephone survey. Comparison of findings across these methods allowed us to evaluate the overarching question of whether different data collection methods produce different price findings (convergent validity) and how well these data collection methods represent the child care market (criterion-related validity). The data were also used to explore several validity issues of concern with market price studies.

Analysis of Administrative Data Update Records

The OCCRRN administrative update data records were downloaded in January 2006 and used to conduct the *2006 Oregon Child Care Market Rate Survey*. Grobe et al. (2006) provides a detailed description of these data.

Mail and Telephone Survey

Survey Instrument

We designed a survey instrument to use for both the mail and telephone survey (see Appendix C for a generic version of the survey instrument). The design was guided by what states have included in their market price studies, as well as literature that has discussed how to plan and conduct market price studies (Child Care Administration Project, 2001; Grobe, Pratt, & Weber, 2003; Karolak et al., 2001; Stoney, 1994; USACC, 2000). The final survey instrument was formatted to correspond with both the mail and telephone survey method. One substantial difference between the mail and telephone versions was the addition of price conversion questions to the telephone survey. Because telephone surveys offer greater flexibility in the sequence of questions, we were able to ask facilities how they would charge in modes other than their most common (see Appendix D for specific question wording). The telephone survey was translated into Spanish to allow Spanish-speaking providers to participate in the study. In addition, we created separate mail and telephone surveys for center and family facilities. Although the majority of questions were the same for both, some nuances were worth capturing (e.g., the difference between part-time, preschool-only programs and full-day preschool programs within the center survey). The Research Project Advisory Committee reviewed an early draft of the instrument.

Mail Survey Data Collection

For the statewide mail survey conducted in Oregon, we implemented Dillman's (2000) multicontact method for improving mail response rates. These contacts included: (a) a prenotice letter mailed to all facilities explaining the project, including a statement on informed consent, and asking for their participation in the study; (b) a similar letter mailed along with the appropriate survey instrument (family or center version) and a financial token of $2 a few days after the prenotice letter; (c) a postcard reminder mailed to thank the facility if they had already responded to the survey or to encourage them to complete the survey one week after the second contact; (d) another hard copy version of the survey and a self-addressed envelope mailed to each facility that had yet to respond two weeks after the third contact (47% of initial sample frame); and (e) a final hard copy of the survey sent by priority mail to facilities that had

yet to respond two weeks after the fourth contact (34% of initial sample frame). Once a facility returned a completed survey we made no further contact. We tracked providers with unique identification numbers that linked them to the original sample frame. Data collection was completed October 2006. The number of completed surveys included 287 centers and 646 family facilities for a total of 933 (Table 4). The overall response rate was 66%.[4]

Table 4. Total Sample Disposition for Mail Survey Data Collection

Disposition	**Total**
Completed interviews	933
Total known eligible (refusals)	41
Total eligible facilities that did not respond	438
Total unknown eligible (language barrier)	27
Non working (insufficient address; attempted, not known; moved; no mail receptacle; no such number; not deliverable; temporarily away; box closed; vacant)	112
Ineligible respondents (no longer in business)	226
Total	**1,777**
Response Rate	66.1%

Telephone Survey Data Collection

The Social and Economic Sciences Research Center (SESRC) at Washington State University was contracted to conduct the Oregon statewide telephone surveys with child care facilities. The research team provided the sampling frames to the survey lab. The lists were developed from three separate data sources: R&R, licensing, and subsidy. After removing the duplicates a total of 10,776 cases were available. SESRC used Total Design Method (TDM) principles to design and implement the phone survey (Dillman, 2000). This included pilot testing the survey instrument and sending a prenotice letter to all facilities in the sample frame. Interviews began on April 20, 2006 and were completed on June 15, 2006. The surveys were conducted using a Computer Assisted Telephone Interview (CATI) system and averaged 13 minutes in length. The interviews were conducted in both English and Spanish.

The final sample included 2,863 completed interviews (including mail completes from some multisite centers: see below for more information), 60 partially completed interviews and 3,359 ineligible respondents (Table 5). Ineligible respondents were described as those facilities that did not meet the study criteria of "currently providing care for any children other than your own, on a regular paying basis." The total number of eligible respondents was 7,417 (included unknown eligible); a minimum of 6 calls were

[4] A response rate measures the proportion of the sample frame (i.e., the total number of facilities a state tried to reach) represented by the facilities that completed the survey. We calculated the response rate as: (Completed surveys) / (Completed surveys + Refusals + Eligible facilities that did not respond) = 933 / (933 + 41 + 438) = 66.1%.

made to reach all eligible respondents. The adjusted response rate[5] was 56.9% with a cooperation rate[6] of 92.2%.

Table 5. Total Sample Disposition for Telephone Survey Data Collection

Disposition	**Subsidy**	**Licensing**	**R&R**	**Total**
Completed interviews	1,093	984	739	2,816
Mail completes (multi-center sites)	9	13	25	47
Subtotal of completes	*1,102*	*997*	*764*	*2,863*
Partials[a]	*33*	*14*	*13*	*60*
Total known eligible (soft refusals, call backs, R not available, mentally or physically unable)	*397*	*215*	*122*	*734*
Total unknown eligible (busy, no answer, answer machines, language barriers)	*1,419*	*434*	*292*	*2,145*
Non working (disconnected, wrong number, out of service)	*1,369*	*126*	*120*	*1,615*
Ineligible respondents				
No longer in business	10	3	4	17
Not a child care business[b]	2,333	171	297	2,801
Does not charge parents	261	44	75	380
Other	75	29	57	161
Subtotal of ineligible respondents	***2,679***	***247***	***433***	***3,359***
Total	**6,999**	**2,033**	**1,744**	**10,776**
Adjusted response rate	47.1%	62.9%	69.5%	56.9%

[a] Not all partials were included in the final data set. Only those facilities that completed all the price questions were included in the final data set (subsidy = 5, licensing = 3, R&R = 6).

b Respondent answered no to the question "Are you currently providing care for any children other than your own, on a regular paying basis?"

[5] Adjusted response rate is the ratio of the number of completed and partially completed interviews to the total number of potential respondents who are deemed eligible to complete the interview. For this survey, a conservative estimate of ineligibility was applied. Thus, the proportion of the fielded sample found to be eligible was 68.83% (1 – (3359/10,776) and was presumed to hold among the potential respondents who could be neither interviewed nor reached. For the total fielded sample, the adjusted response rate was: (Completed + Partials) / [(Completed + Partials) + (Total known eligible) + (Eligible factor * Total unknown eligible)] = (2863 + 60) / [(2863 + 60) + 734 + (.6883 * 2145)] = 56.9%.

[6] The cooperation rate is another type of response rate and is the ratio of the number of completed and partially completed interviews plus ineligibles to the number of completed, partially completed, ineligibles and refused cases. The formula for calculating the cooperation rate is: (Completed + Partials + Ineligibles) / [(Completed + Partials + Ineligibles + Refusals)] = 6275 / 6790 = 92.2%.

Multisite Centers. We handled multi-site centers differently than other centers. Multisite centers were defined as a group of five or more sites with the same director's name, mailing address, or phone number. Each center within the multisite was treated as independent from one another for three reasons: (a) even though there may be a head center, each individual site may have a mix of types of care that differ across sites; (b) prices were not always the same and may have varied by location even if set centrally; and (c) previous work by SESRC indicated that treating each site individually produced more accurate data than just calling the head center.

We identified multisite centers up front for the telephone survey, and a plan was created for how they were to be handled. For example, multisite centers were identified, a list was created, and one interviewer called all these centers because she knew what questions to ask. It did not always work to treat the multisite centers individually. In some cases they were treated as one unit and a mail survey (not exactly the same as the phone survey) was sent out. In these situations the site director requested to be treated as one unit. A similar procedure was used for the multisite centers in the mail survey. Each site received a survey; however, some multisite organizations requested completing only one survey for all the sites. Multisite centers add complexity that needs to be dealt with upfront when collecting survey data.

In the next section we will report findings from the Validity Study. A table summarizing research questions and findings precedes this section.

Summary of Overall Findings by Section

Section	Question	Overall Findings	Page #
I. Market Representation (criterion-related validity)	(1) To what extent do the three commonly used supply databases capture all facilities and types of care in the priced child care market?	The majority of paid care is provided by centers and family child care homes; the remaining providers of paid care do not appear to fit within the definition of the priced child care market. The subsidy database is shown to be the least complete because it does not include a substantial portion of center care. The R&R database is the most complete because it captures legally operating, but license-exempt facilities that are part of the priced market.	23–30
	(2) To what extent do child care market price study findings represent prices across the state?	If the database used as the source of facility data is geographically representative, and appropriate survey methods are used, market price study findings will be geographically representative.	31–34
	(3) What percent of surveyed facilities actually provide price information and is that affected by data collection method?	The rigor with which data are collected is more important than the data collection method in determining response rate. For market price studies in which data are collected and stored in administrative databases (licensing and R&R), issues of response rates and currency of data cannot be separated.	35–36
	(4) To what extent are the facilities in the supply databases active and able to report prices? Do the findings represent prices as of a given point in time, that is, were data collected within a reasonably short time period?	The licensing database was the most current in Oregon. All of the price data collected through the telephone survey met a three-month standard for currency, as did 89% of the price data collected by R&Rs and 98% of the price data collected for the mail survey.	37–38

Section	Question	Overall Findings	Page #
II. Comparison of Findings by Data Sources and Data Collection Methods (Convergent Validity)	(1) How consistent are the market prices from various data sources?	Overall, no one data source produced *consistently* higher or lower prices across all the different factors (type of care, age group, facility vs. slots).	40–42
	(2) Do different data collection methods produce different market price findings?	Overall, the findings confirm that different data collection methods produce different market prices, especially for center care. However, the differences are not systematic; in some cases the mail survey produced higher market prices while in others, administrative update data or telephone surveys produced higher prices.	43–48
	(3) What portion of market care can be purchased with maximum subsidy rates?	Although our method of measuring accessibility is useful as a rough measure of accessibility, it does not appear to be robust and further work is needed to derive a more stable accessibility measure.	49
III. Child Care Submarkets	(1) Do different age groups represent different markets?	Family, center and large family child care prices consistently differ by age group.	50–51
	(2) Do different types of child care represent different markets? How should large family child care prices be analyzed?	Prices differed for each type of care across methods for almost all age categories. In addition, our findings indicate that large family child care prices in Oregon are more similar to center prices than to family child care prices.	52–54
	(3) What methods can be used to accurately capture part-time preschool program prices?	Data for the mail and telephone methods show large variation in part-time options that facilities provide for their preschool programs. We were unable to examine part-time preschool program prices with the R&R administrative data update records.	54–55

Section	Question	Overall Findings	Page #
III. Child Care Submarkets (continued)	(4) Are there price variations in part-time preschool programs depending on how many days per week and hours per day?	The results show no consistent patterns in prices of part-time preschool programs based on days per week or hours per day.	56–57
III. Pricing Modes and Price Conversions	(1) How common is it for child care facilities to charge in more than one pricing mode, and do facilities that charge in a single mode differ systematically from those that charge in more than one mode?	The majority of child care facilities in Oregon and Minnesota charge in only one mode. Separating the hourly-only pricing mode from the other single modes (daily, weekly, or monthly) showed a consistent pattern across both states. Family child care homes were more likely than centers to charge only an hourly price in both states. Prices for the hourly-only pricing mode facilities were consistently lower than prices for facilities that charge in any other mode (alone or in combination) in both Minnesota and Oregon. The prices of facilities that charge only hourly differed significantly from the hourly prices of facilities that charge in at least one additional mode.	63–67
	(2) How do facilities convert a price in one mode into a price in another mode if they charge in more than one pricing mode or are asked to provide a price in another mode? By what number does the facility multiply or divide in order to create a price in a second pricing mode?	Facilities that offer prices in more than one mode do not share a standard way of converting from one price mode to another. Overall, the mean market ratios for all three data collection methods were different from each other, although many of the differences were not statistically significant.	67–69
	(3) Do conversions based on the formulas used by facilities that charge in more than one mode distort study findings; that is, do converted prices differ from the prices reported by facilities?	The results show that the market ratio-based conversions produced differences in price findings.	69–70

Section	Question	Overall Findings	Page #
III. Pricing Modes and Price Conversions (continued)	(4) Do conversion formulas commonly used by states distort findings or create differences between converted and reported prices of facilities that charge in more than one mode?	Converting prices from one mode to another mode distorted prices, however, the average converted price was not always significantly different from the average non-converted price.	71–74
III. Unit of Analysis	(1) What is the effect of unit of analysis in market price studies? Are prices systematically higher or lower for particular types of care when weighted by number of children (slots) vs. by facilities?	In Oregon, across data collection methods, using slot prices rather than facility prices systematically produced higher average prices in most comparisons. The differences tended to be greater for center care than for family child care, and no consistent pattern existed across data collection methods.	75–77

Findings

Section I: Market Representation *(criterion-related validity)*

Basic to the validity of market price study findings is the extent to which the facilities from which price data are collected represent all facilities with child care prices. Factors that affect the representativeness of market price study findings include: completeness of data, geographic representativeness, response rate, and currency of the data. The key questions are:

1. To what extent do the three commonly used supply databases capture all facilities and types of care in the priced child care market?
2. To what extent do child care market price study findings represent prices throughout the state?
3. What percentage of facilities studied actually provide price information and is that affected by data collection method?
4. To what extent are the facilities in the supply databases active and able to report prices? Do the findings represent prices as of a given point in time; that is, were data collected within a reasonably short time period?

Completeness of Data

Question 1: To what extent do the three commonly used supply databases capture all facilities and types of care in the priced child care market?

Multi-state analysis – Minnesota, Oregon, South Carolina

Summary of findings. Our analysis of data indicates that in all three states the majority of paid care is provided by centers and family child care homes; the remaining providers of paid care do not appear to fit within the definition of the priced child care market. In Oregon the vast majority of center care for preschoolers is captured in the R&R database, but in South Carolina this same care is captured in the licensing database. A substantial portion of facilities that serve school-age children do not appear to be included in the licensing databases of any of the three states. The amount of family child care included in a licensing database varies by state. For both center and family child care, it appears that desired capacity and actual enrollment better represent the number of child care slots in a community or state than does licensed capacity.

As expected, a comparison of the three Oregon supply databases shows the subsidy database is the least complete because it only contains facility information from those serving subsidized families; thus, it does not include a substantial portion of center care. The R&R database is the most complete of Oregon's supply databases because it captures legally operating, but license-exempt facilities that are part of the priced market. Completeness of these databases is likely to vary across states depending both on the comprehensiveness of licensing laws and the resources provided to R&Rs.

The validity of findings from a study is linked to how it captures the universe. If we want to describe child care prices accurately, we need to be sure that we have identified most, if not all, of the child care facilities that have market prices. As long as we begin with all the facilities, it does not matter whether we collect data from the universe of facilities or a randomly drawn sample from that universe. In this analysis we ask: how well do the three commonly used supply databases (licensing, R&R, and subsidy) capture all facilities and types of child care in the priced market?

State household child care surveys provide the data with which to respond to this question. Household child care surveys provide independent estimates of the amount of paid child care that exists; parent reports of child care usage provide demand-based estimates of child care supply. The Research Team identified three states with the data necessary to compare supply estimates derived from one or more of the three databases with demand-based supply estimates of paid care derived from a household child care survey. Although the comparison of supply estimates will be informative, we do not expect a one-on-one correspondence between demand-based estimates and supply counts from licensing, R&R, or subsidy databases. The comparison will, however, expand our understanding of the types of facilities that are and are not currently included in licensing, R&R, and subsidy databases.

Data sources

To assess the completeness of any of the three data sources commonly used in market price studies (licensing, R&R, or subsidy), we needed household survey data, population estimates, and one or more of the three databases (licensing, R&R, or subsidy) to create a demand-based estimate of paid care. In South Carolina we had the licensing data, in Minnesota we had licensing and R&R data, and in Oregon we had all three supply databases: licensing, R&R, and subsidy. Table 6 shows the data sources for each of the three states in which we examined the completeness of data sources.

Table 6. Data Sources from Three States in Study of the *Completeness* of Data Sources

Data Source	**Minnesota**	**Oregon**	**South Carolina**
Household survey data	*2004 Statewide Household Child Care Survey*	*2006 Oregon Population Survey*	*2002 SC Household Child Care Survey*
Population Estimates	U.S. Census *2000 Population Estimates*	Portland State University, *Oregon Annual Population Report as of July 1, 2006*	U.S. Census *Population Estimates as of July 1, 2002*
Market price survey data source: licensing, R&R, or subsidy	*2005 Child Care Licensing Study* and R&R database used in the 2005 market rate study	*2006 Estimate of Child Supply*: includes complete licensing, R&R, and subsidy databases	*2002 SC Market Price Survey* data: includes licensing database

Data and Method

We used household survey data from Minnesota, Oregon, and South Carolina to examine data completeness. To provide comparability in these data sources across the three states, we used:

- regular arrangements (defined as participated in at least once a week or for five or more hours in a week),
- paid primary arrangements (except for center care where we included nonpaid primary arrangements because it was likely to be included in the supply databases), and
- categories for type of child care common across the three states.

We then:

- applied percentages of children in each type of care to U. S. Census population estimates closest to the time of that state's survey to estimate the number of children in each type of child care, and
- compared the demand-based supply estimate (number of children in each type of care) with the supply estimates (licensed capacity, desired capacity, or actual enrollment depending on database).

We followed this general procedure for each state; the precise procedures and data sources are described next.

Minnesota. The demand estimate is based on 2004 household survey data showing the percentage of children in each age group in each type of care (primary arrangements only). We calculated the number of children in Minnesota in each age group in each type of care using these percentages and adjusting for the fact that not all children are in care on a regular rather than intermittent basis. We then further adjusted these numbers for the proportion in paid child care (calculated based on the proportion in each type of care and age group who reported paying for that type of care or had subsidy or other help paying, for that type of care in the 2004 survey).

For the supply estimate, we needed a count of slots to compare with the number of children in care. The R&R database has the number of providers in each county and capacity by age group, but does not include total capacity (which may be less than the sum of capacity by age group). We multiplied the number of providers in a county in 2005 by the average total desired capacity by county from 2006 (total desired capacity was available in the 2006 survey, but not in 2005). The average desired capacity was calculated separately for centers and licensed family child care homes.

Oregon. We used data from the *2006 Oregon Population Survey* and estimated center care separately for children under age 5 and children ages 5 to 12. We compared demand-based supply estimates to the child care capacity reported in the licensing, R&R, and subsidy databases all downloaded as of December 31, 2005.

We needed counts of slots (rather than of facilities) in order to compare supply counts to the demand-based supply estimate. In all three supply databases we had the number of facilities, and in the licensing and R&R databases we had the number of slots; the licensing database included the *licensed capacity* of each facility, and the R&R database included the facilities' reported *desired capacity*. The subsidy database did not include a capacity variable so we estimated slots based on whether or not the facility was in either the licensing or R&R databases:

- If the facility was included in either of the two other databases, we used the *average desired capacity* for that type of child care.
- If the facility was in neither licensing nor R&R databases (in-home, relative and other home-based care), we allotted two slots per facility because studies have shown that these nonregulated facilities typically care for small numbers of children (Oregon Child Care Research Partnership, 2002; Brandon, 2002; Minnesota Department of Human Services, 2006).

The subsidy database included types of home-based care not included in licensing or R&R databases. To create estimates for each type of home-based care we applied the percentages reported in the ACF 800 (Oregon's report of child care funded with federal child care dollars) for Federal Fiscal Year 2006 to the number of home-based facilities in the subsidy database. We then created estimates for the number of slots in each type:

- relatives in the child's home,
- nonrelatives in the child's home,
- relatives in the caregiver's home, and
- nonrelatives in the caregiver's home (family child care).

South Carolina. We started with estimates of the percentage of children in each type of paid care derived from the *2002 South Carolina Household Child Care Survey* data (Human Services Policy Center, 2003). We then used these data to determine licensed capacity. The data source for this survey was the licensing database that contained all 3,630 facilities regulated by the licensing agency. This database included their licensed capacity and, if the facility provided data for the market price survey, actual enrollment. On average, centers reported actual enrollments at 75% of their licensed capacity, and family child care facilities reported actual enrollments at 95% of their licensed capacity. We applied these percentages to all licensed facilities to develop an estimate of the enrollment for all facilities. We capped the enrollment data for the few outliers in the database.

Findings

Prior to comparing state household and supply databases, we examined child care usage in the three states. Though usage varied across the states, patterns emerged. As shown in Table 7, the majority of paid care reported by parents was provided by centers and family child care homes; from 58% of all purchased care in Minnesota to 81% of all purchased care in South Carolina was in either center or family child care. How the household surveys treated care of school-age children affected this finding. The Minnesota household survey treated "before/after school" as a separate form of care. In South Carolina, usage data were not collected for school-age children. The Oregon household survey asked the same child care usage question for children birth through age 12. Minnesota's lower percentage reflected having a separate category for before and after school. Excluding before/after school care, center and family child care represented 71% of all paid care in Minnesota. Although large numbers of children were in family, friend, and neighbor care in all three states, parents did not pay for the vast majority of that care. Among the three states, the percentage of paid relative care ranged from 10% to 19%.

Table 7. Percentage of Care that is Paid by Type of Care for Children Under Age 13 in Three States, Based on Household Survey

Type of Child Care	Number of Children in Care (Paid & Unpaid)	Number of Children in Paid Care	Paid Care as a % of All Care (Paid & Unpaid) by Type	Type of Care as % of All Paid Care	Center and Family as % of All Paid Care
Minnesota[1]					
Before/after school	64,619	58,803	91%	18%	18%
Center	121,469	111,933	92%	34%	58%
Family child care	96,991	77,592	80%	24%	
Relative care	226,774	34,016	15%	10%	24%
In-home care (nonrelative)	56,438	44,150	78%	14%	
Other (included supervised activities)	33,948	NA	NA	NA	
Total	**556,318**	**327,495**	**59%**	**100%**	**100%**
Oregon					
Center	113,206	113,206	100%	57%	71%
Family child care	31,105	28,441	91%	14%	
Relative care	95,795	18,341	19%	9%	29%
In-home care (nonrelative)	32,716	26,768	82%	13%	
Other (includes group activities)	28,225	13,012	46%	7%	
Total	**304,176**	**200,635**	**66%**	**100%**	**100%**
South Carolina[2]					
Center	119,800	119,800	100%	67%	81%
Family child care	42,762	24,336	57%	14%	
Relative care	170,599	16,497	10%	9%	19%
In-home care (nonrelative)	13,776	11,977	87%	7%	
Other (includes friends & neighbors)	18,341	4,709	26%	3%	
Total	**365,278**	**177,319**	**49%**	**100%**	**100%**

Sources: See Table 6.

[1.] The Minnesota estimate for number of children in paid relative care is based on the percentage paid reported in Chase, R., Arnold, J., Schauben, L. and B. Shardlow.(2006).*Family, friend, and neighbor caregivers: Results of the 2004 Minnesota statewide household child care survey*. We do not have an estimate for the number of children in paid activities in Minnesota.

[2] In South Carolina, we could not always determine pay status so the percentage that was paid may have been slightly higher than reported here.

Center and family child care were most likely to fit within our definition of priced child care and appeared to make up the vast majority of paid care. We then focused on how well the existing supply databases captured all center and family child care. The comparison of demand-based supply estimates with slots in

the licensing, R&R, and subsidy databases (Table 8) provided insights into how well each database captured all center care.

Table 8. Comparison of Demand-based Supply Estimates of Center and School-age Care to Supply Estimates from Child Care Databases in Three States

Type of Child Care	Supply Estimate: Demand-based	Supply Estimate: Licensing Database[1]	Supply Estimate: R&R Database[2]	Supply Estimate: Subsidy Database[3]
Minnesota				
Center	111,933	88,769	63,984	NA
Before/after school	58,803			
Oregon				
Center birth through age 4	51,239	51,891	64,469	28,328
Center ages 5 through 12	61,967			
South Carolina				
Excluding before/after school	119,800	160,400 / 117,877	NA	NA

Sources: See Table 6.
[1] Slots in the licensing databases represented licensed capacity rather than desired capacity or actual enrollment. In South Carolina, we reported two estimates: the first based on licensed capacity and the second based on average enrollments derived from enrollments reported in the market price survey.
[2] We had R&R databases in Minnesota and Oregon. Slots in the R&R database represented facility report of desired capacity. The R&R estimate does not include part-day centers (preschools) whereas the NARA estimate of licensed slots does. Head Start capacity is not included in R&R estimates based on R&R data used in Minnesota's market rate survey. In 2005, there were 16,973 children in Head Start in Minnesota. The addition of Head Start slots brings the licensing estimate to 105,742, much closer to the demand-based estimate of 111,933.
[3] We had subsidy data only in Oregon. Slots in the subsidy database represented desired or estimated capacity as described in the data methods section above.

In Minnesota and Oregon, the demand-based supply estimates for center care were far larger than the slots captured in any of the supply databases, but in South Carolina the demand-based supply estimate and the adjusted number of center slots in the licensing database were close. As noted below, parent reports of center usage for school-age children appear to explain most of the difference. In Minnesota, the absence of part-day programs including Head Start in the licensing and R&R databases also contributed to the difference between demand-based and other supply estimates.

How the surveys dealt with school-age child care clearly affected the supply-based estimate of center care.

- In Minnesota, household survey respondents were given "before/after school" as a choice of type of care. Most before/after school care did not appear to be captured in the licensing database; most school-based programs there are exempt from licensing.
- In Oregon, estimating the use of center care for school-age children separately from that of children ages birth through four demonstrated a close match between the licensing and demand-based supply estimates of center slots for young children. In Oregon, a substantial portion of center care identified in the household surveys was provided for school-age

children, but a substantial portion of school-age care is exempt from licensing. It appeared that the difference between the demand-based and licensing estimates was primarily due to the inclusion of school-age care in the household survey but not in the licensing or R&R databases.

- In the South Carolina survey parents were asked to report if the child attended a child care center, "not including before and after school programs." The licensing and demand-based supply estimates of center slots were close. The demand-based supply estimate was less than the licensed capacity of all centers but about the same as the number of slots based on enrollments.

Evidence from the three states taken together indicated that a substantial portion of school-age care was not captured in any of the supply databases.

The majority of center care for young children appears to be captured in licensing databases in Oregon and South Carolina and in the Oregon R&R database. In Minnesota, parents report far more center care than is captured in the licensing database. It appears there are important differences in how facilities are included in licensing databases across states. However, a substantial portion of facilities that provide services to school-age children are not captured in any of state databases. The majority of facilities that serve school-age children are not required to have child care licenses in most states. Also, there are not lists of these programs in most states. It is also likely that pricing of arts, recreation, sports programs, and school-based activity/enrichment programs that may be included in what parents report as center care for school-age children in a household survey differs substantially from the pricing of care that meets regulatory standards. It is not clear if many of these facilities are part of the priced child care market or if the services are child care. Research is needed to more accurately describe the facilities that provide care to school-age children. This research should include information needed to determine if these facilities are in the priced child care market and, therefore, should be included in a market price study.

For family child care (Table 9), the story was more complicated across the three states:

- In Minnesota licensed capacity was almost half again as large as what parents reported in the household survey. This is likely to be due to the way in which capacity is calculated in the licensing database. Capacity is stated for each age group, but total capacity is less than the sum of capacity for each age group. This number still appears to overestimate capacity. An estimate based on actual enrollment might provide a clearer picture of supply in Minnesota.
- In Oregon, licensed capacity captured in the licensing database was substantially larger than the demand-based estimate (42,382 vs. 28,441), but the estimate based on desired capacity captured in the R&R database and the demand-based estimate were very close (27,340 vs. 28,441). Licensed capacity was larger than the desired capacity reported by family child care homes (average licensed capacity was 10 and average desired capacity was 6). In addition to including the licensed capacity, the licensing database also included providers no longer giving care, whereas the R&Rs had moved those facilities to an inactive status in their database.
- In South Carolina we had two estimates of the number of slots in the licensing database; the first based on licensed capacity and the second based on actual enrollment. The demand-based estimate for family child care was almost double the number of either licensed slots or actual enrollment in licensed facilities (24,336 vs. 12,988 for licensed capacity or 12,302 for actual

enrollment). Differences did not appear to be based on differences in what was being measured.[7] The facilities not in the licensing database may not be required to have a license, the providers may be unaware that they are required to be licensed, or they could be operating illegally. Because these facilities are not the homes of relatives or friends, it is likely that they do have market prices and that the inclusion of these facilities might affect market price study findings for family child care prices.

Table 9. Comparison of Demand-based Supply Estimates of Family Child Care to Supply Estimates from Child Care Databases in Three States

Type of child care	Supply Estimate: Demand-based	Supply Estimate: Licensing Database[1]	Supply Estimate: R&R Database[2]	Supply Estimate: Subsidy Database[3]
Minnesota	77,592	148,698	125,405	
Oregon	28,441	42,382	29,651	27,340
South Carolina	24,336	12,988/12,302		

Sources: See Table 6.
[1] Slots in the licensing databases represented licensed capacity rather than desired capacity or actual enrollment. In South Carolina we reported two estimates; the first based on licensed capacity and the second based on average enrollments which derived from enrollments reported in the market price survey. In Minnesota it appears that the estimate is the sum of licensed capacity for each age group; an estimate that exceeds the total number allowed.
[2] We had R&R databases in Minnesota and Oregon. Slots in the R&R database represented facility report of desired capacity. In Minnesota the desired capacity is assumed to be 10, thus probably overestimating the actual number of slots actually used.
[3] We had subsidy data only in Oregon. Slots in the subsidy database represented desired or estimated capacity as described in the data methods section above.

In Oregon we were able to compare the completeness of the three supply databases; that is, we were able to compare demand-based supply estimates with estimates from licensing, R&R, and subsidy databases. The licensing database did not include legally operating, license-exempt centers and family child care homes, so to the extent that these facilities were in the priced child care market, it was less complete than the R&R database that did include these facilities. Also, the desired capacity captured in the R&R database was closer to the demand-based supply estimate than was the licensed capacity. The subsidy database had far fewer center slots than did licensing or R&R (28,328 slots in the subsidy database vs. 51,891 in the licensing database or 64,469 in the R&R database). For family child care, the licensed capacity was larger than any of the others for two reasons: (1) It was based on licensed rather than desired capacity or actual enrollment, and (2) facilities remained in the database until time for renewal even if the facility had closed. In Oregon, the subsidy database was the least complete; it had fewer of the facilities in the priced market, although it had more priced family homes than centers.

[7] South Carolina required homes that cared for children from more than one unrelated family on a regular basis to be licensed. The South Carolina household survey definition of family child care, "where a care provider cares for other people's children in their own home," was distinguished from care by relatives or friends and neighbors.

Geographic representativeness

Question 2: To what extent do child care market price study findings represent prices across the state?

Single-state analysis – Oregon

Summary of findings. As long as the supply database used as the source of facility data is geographically representative, and appropriate survey methods are used, market price study findings will be geographically representative.

Given that child care prices vary across communities, the geographic distribution of the facilities included in a market price study will affect the validity of the findings. *Geographic representation* describes the extent to which study findings represent prices across the state; that is, the extent to which the proportion of facilities surveyed in a geographic area matches the proportion of facilities in that geographic area. For example, if 10% of facilities with prices are located in a given county, then one would hope that about 10% of the facilities that reported prices in the survey are from that county. If the supply database used as the source data for the market price study is not geographically representative, then it is not likely that samples drawn from it or the dataset made up of facilities that provide price data will be either. However, even if the original supply database is geographically representative, that representativeness could be lost through sampling or survey processes.

Therefore, for this analysis we examined the geographic representativeness of the three original supply databases (licensing, R&R, and subsidy) and the datasets created throughout the market price study process. We examined the geographic representativeness of:

- the three supply databases,
- the dataset of facilities from which the R&Rs collected price data (includes only those facilities in the priced child care market),
- samples pulled from the three supply databases for mail and telephone surveys, and
- the datasets of facilities that actually provided price information; i.e., those that completed a mail or telephone survey (survey completers).

Data and methods

Only Oregon data were used in the analysis of geographic representativeness. In January 2006, Oregon merged licensing, R&R, and subsidy databases to create a comprehensive estimate of child care supply (Vorpagel, 2007). This comprehensive supply estimate became the standard to which the counts of facilities and slots in each database or dataset were compared. Table 10 displays the research questions and the databases or datasets used to answer them.

Table 10. Research Questions for the Analysis of Geographic Representativeness and the Databases or Datasets Used to Answer Them

Database or Dataset	How Geographically Representative Were the:			
	Three supply databases?	Facilities included in the R&R records used for the market price study?	Samples used in the telephone and mail surveys?	Datasets of facilities that completed telephone and mail surveys?
Licensing database	X			
R&R database	X			
Subsidy database	X			
R&R records used in market price study		X		
Telephone samples drawn from:				
Licensing			X	
R&R			X	
Subsidy			X	
Mail sample drawn from R&R			X	
Datasets of facilities that completed telephone surveys drawn from:				
Licensing				X
R&R				X
Subsidy				X
Dataset of facilities that completed the mail survey drawn from R&R				X

For the analysis of geographic representativeness of samples and the datasets of facilities that completed surveys, we used the geographic regions/rate areas, rather than counties. We used the region/rate area as a stratum in the sample design, so we also used it in assessing the geographic representativeness of samples and datasets of facilities that completed surveys.

Findings

Geographic representativeness of the three supply databases. As can be seen in Table 11, the R&R database was the most geographically representative of the three databases; the percentage of facilities in each county in the R&R database most closely matched the distribution of facilities across counties in the comprehensive supply estimate. The subsidy database was the least geographically representative with the percentage difference being as great as 5.4% and differing by over 1% in seven counties.

Table 11. Comparison of How Well Facilities in the Three Major Market Price Study Databases Represent the Geographic Distribution of Facilities across Counties in Oregon

Measure	Licensing Database	R&R Database	Subsidy Database
Number of counties in which difference from county-level supply estimate is greater than 1%	3	1	7
Greatest difference from county-level supply estimates	3.7%	2.3%	5.4%

Source: Comprehensive estimate of child care supply in Oregon (Vorpagel, 2007).

Geographic representativeness of the R&R administrative dataset. Child care prices for about 90% of facilities in the R&R database had been included in the market price study, and that study's deletion of the facilities that did not meet the standards for inclusion had little impact on geographic representativeness. Only one county differed from the county-level estimate by more than 1% and the greatest difference was 2%.

Samples pulled from the three supply databases for mail and telephone surveys. Findings indicate that stratified, randomly drawn samples maintain their geographic representativeness (Table 12). The percentage of facilities in each of the samples roughly represented the percentage of facilities in the comprehensive supply estimate in each rate area. In the four samples, facilities in some rate areas were underrepresented (by as much as 6.6%) with corresponding overrepresentation of facilities from one or two of the other rate areas. The telephone and mail samples drawn from the R&R database were slightly more geographically representative than those drawn from licensing or subsidy databases.

Table 12. Geographic Representativeness of Survey Samples: Difference Between Percentage of Supply and Percentage of Sample in Each Rate Area

Rate Area	Licensing Database (Telephone)	R&R Database (Telephone)	Subsidy Database (Telephone)	R&R Database (Mail)
A	3.8%	-4.5%	-6.6%	-4.9%
B	2.5%	-.2%	6.2%	.2%
C	-6.3%	4.7%	.4%	4.7%

Source: Comprehensive estimate of child care supply in Oregon (Vorpagel., 2007).
Note: A minus sign indicates that a smaller percentage of facilities in the sample were located in that rate area than in the same rate area of the comprehensive supply estimate.

Datasets of facilities that actually provided price information. The facilities that provided price information were about as geographically representative as the facilities included in the samples (comparison of findings in Tables 12 and 13).

Table 13. Geographic Representativeness of Facilities that Completed a Mail or Telephone Survey: Difference Between Percentage of Supply and Percentage of Facilities in Each Sample by Rate Area

Rate Area	Licensing Database (Telephone)	R&R Database (Telephone)	Subsidy Database (Telephone)	R&R Database (Mail)
A	1.0%	-5.6%	-7.1%	-4.8%
B	4.1%	5.5%	6.4%	.9%
C	-5.1%	.2%	.6%	3.9%

Source: Comprehensive estimate of child care supply in Oregon (Vorpagel, 2007).
Notes: A minus sign indicates that a smaller percentage of facilities in the sample were located in that rate area than in the comprehensive supply estimate for the same rate area. Not all columns sum to 0 due to rounding.

Our analysis indicates that in Oregon both licensing and R&R databases are geographically representative of the facilities, but the subsidy database is less geographically representative. We believe that being less geographically representative is related to the prior finding that it is less complete. The exclusion of facilities that did not have market prices from the R&R database for the market price study slightly increased its geographic representativeness. Findings indicate that randomly drawn stratified samples maintain their geographic representativeness as do the datasets of facilities that provide price information.

Response rate

Question 3: What percentage of surveyed facilities actually provide price information and is the response rate affected by data collection method?

Single-state analysis – Oregon

Summary of findings. The rigor with which data are collected is more important than the data collection method in determining response rate. In Oregon, the R&R administrative data update had the highest response rate, and the R&Rs collected price data from all facilities in the administrative database rather than from a sample. Response rates for samples drawn from licensing and R&R databases were similar to each other but lower than the response rate for R&R administrative data updates. Response rates for the sample drawn from the subsidy database were much lower still. For market price studies in which data are collected and stored in administrative databases (licensing and R&R), issues of response rates and currency of data cannot be separated.

Response rates can affect how well market price study findings represent prices in the priced child care market. The problem with a low response rate is that facilities that do provide prices may differ from those that do not on a characteristic that affects findings. For example, if facilities that charge higher prices do not respond, then study findings will be lower than the prices that families find in their community.

In the analysis of response rates, we examine two questions:

- Is the response rate affected by data collection method?
- Do response rates vary based on the database from which a sample was drawn?

Response rate calculation

We used the formula found in Sidebar 1 to calculate the response rates for the telephone and mail surveys. In a survey, if the facility is not reached there is no price data, but in an administrative database there may be price data that was collected at an earlier date than the time of data collection for the market price study. Currency and response rate are confounded in the case of administrative data.

Sidebar 1: Response Rate Calculation for Surveys

$$\frac{\text{Completed surveys}}{\text{Completed surveys + Number of refusals + Number of eligible facilities that did not respond}}$$

We adapted the response rate formula for use with the R&R administrative dataset. We established a three-month standard; price data had to be updated within a three-month period. We then adapted the response rate formula for use with administrative data (see formula in Sidebar 2):

- Completed surveys equaled facilities whose prices were updated within three months.

Sidebar 2: Response Rate Calculation for Administrative Data

$$\frac{\text{Number of facilities with updates within 3 months}}{\text{Number of facilities with updates within 3 months + Number of refusals + Number of eligible facilities whose update was older than 3 months}}$$

- Refusals equaled facilities that refused to report a price.
- The number of eligible facilities that did not respond equaled the number of facilities whose updates were older than three months.

Findings

We first examined the association between data collection method and response rate. The overall response rate to the telephone survey was 57% and to the mail survey was 66% (Table 14). Eighty-seven percent of the prices in the R&R administrative dataset used for the market price survey had been updated within a three-month period.

Table 14. Response Rate by Data Collection Method

Method	**Response Rate**
Telephone survey	56.9%
Mail survey	66.1%
R&R administrative data update	87.0%

Source: See Tables 4 and 5.

We next explored whether the supply database from which a sample had been drawn affected response rates (Table 15). We used samples drawn from licensing, R&R, and subsidy databases in the telephone survey and calculated the response rate separately for each sample. The response rate was highest in the sample drawn from the R&R database, although it was close to the response rate from the licensing sample. Additional detail on sample disposition from Table 5 (p. 17) provided more insight into the lower response rate in the subsidy database. In that table, we saw a high percentage of facilities in the subsidy sample either refused to answer or could not be reached. Facilities in the subsidy sample that also were licensed and/or enrolled with their local R&R were more likely to respond to the survey than those only involved with the subsidy program (46% of those in the subsidy sample who were regulated and/or enrolled with an R&R responded vs. 34% of those who were only appeared in the subsidy database).

Table 15. Comparison of Response Rates by Data Sources Within the Telephone Survey

Data Source	**Response Rate**
Licensing	62.9%
R&R administrative data update	69.5%
Subsidy	47.1%

Source: See Tables 4 and 5.

Currency of Data

Question 4: To what extent are the facilities in the supply databases active and able to report prices? Do the findings represent prices as of a given point in time; that is, were data collected within a reasonably short time period?

Single-state analysis – Oregon

Summary of findings. The licensing database was the most current in Oregon. All of the price data collected through the telephone survey met a three-month standard for currency, as did 89% of the price data collected by R&Rs, and 98% of the price data collected for the mail survey.

The validity of market price study findings is affected by how current the price data are. Given that facilities change prices, it is important that data be collected within a set time frame so that study findings accurately represent prices at a given point in time. There are at least three distinct issues related to currency of data:

- currency of facilities in the supply databases, i.e., the proportion of facilities in supply databases used for telephone and mail surveys that are actively providing priced care,
- currency of the price data in records stored in an R&R or licensing database, and
- currency of market price study report, i.e., time between data collection and market price study report.

A large number of ineligible facilities in supply databases used for mail and telephone surveys can affect study costs. The more current the database used for a survey, the less time and materials will be spent trying to contact facilities that are no longer in business.

When using administrative records in a market price study, price data may have been collected in the past rather than at the time of the data collection for the market price study. Out-of-date price data will diminish the validity of study findings.

The less time between data collection and market price study report publication, the more closely findings represent prices in the market at that time.

Findings

Currency of facilities in the supply databases. Of the currency of the facilities in the supply databases, both licensing and R&R had fewer ineligible facilities in the telephone samples than did the sample drawn from the subsidy database (Table 5 on p. 17). Thirty-eight percent of the facilities drawn from the subsidy database were not eligible primarily because they did not have prices or did not consider themselves a child care business. This compares to 12% of those in the licensing database and 25% of those in the R&R database. A substantial percentage (69%) of ineligible facilities in the licensing and R&R databases indicated that they were not a child care business.

Currency of the price data in records stored in an R&R or licensing database. Given that facilities change prices, it is important that data be collected within a set time frame so that study findings accurately represent prices at a given point in time. The majority of mail surveys were collected in May and June 2006, with a few returned as late as October. Telephone interviews began in April and were completed in June, a period of three months. Of the price data collected by the R&Rs and stored in the R&R database, 89% were collected between October 1 and December 31, 2005, meeting a standard of three-month currency.

Currency of market price study report. Timeliness in data collection ensures that prices represent a specific time period. In terms of reporting findings, the closer the report to that time period, the more relevant the findings.

Section II: Comparison of Findings by Data Sources and Data Collection Methods *(convergent validity)*

The validity of market prices produced by any sample hinges on understanding that sample and its market characteristics in comparison with other possible samples. We were interested in whether the prices differed across data sources when stratifying by type of care and geographic distribution of prices. We compared market prices by data sources (R&R, licensing, and subsidy) and evaluated their consistency across these sources. We made similar comparisons across the three different data collection methods – administrative data update, mail survey, and telephone survey. The key questions are:

1. How consistent are the market prices from the various data sources (R&R, licensing, and subsidy)?
2. Do different data collection methods produce different market price findings? and
3. In light of market price study findings, what portion of market care can be purchased with maximum subsidy rates?

Data and Methods

Statewide market prices and accessibility of care. The key dependent variables are statewide market prices and accessibility of child care for those receiving subsidies. We compared summary statistics on statewide prices by data source and data collection method as well as by type of care (family and center), age group (infant, toddler, full-time preschool age, school-age school-year, school-age summer), facility vs. slots, and by particular price modes (hourly for family child care, monthly for center care). Because of the small number of large family child care facilities included in the mail and telephone survey databases, we included large family child care facilities with center care for all the analyses. (See discussion of submarkets on p. 52 for a more detailed discussion about large family child care facilities.)

A second key dependent variable is accessibility of child care for those receiving subsidies. This variable was included to examine the percent of slots statewide that could be purchased at the Oregon DHS maximum subsidy rate. It provides another validation of the similarities and differences across the data sources and data collection methods. Details of this methodology can be found in Grobe, Weber, and Pratt (2006, pp. 10–12).

Sample weights. We used sample weights when analyzing prices at the facility level for the mail and telephone survey data. Provided by the survey firm, these weight the cases proportional to the overall sample frame of child care facilities, while preserving the overall number (*n*) in the sample of completes.[8]

[8] A separate weight was calculated when analyzing the data by the number of children (slots) for a particular age group. Because we have the universe of facilities in the R&R administrative data update, we weighted the data by total capacity for family facilities or capacity by age for centers (Grobe et al., 2006). For the mail and telephone survey data, slot weights were calculated by multiplying the sample weight for that facility by the number of children (slots) for each age group. This is referred to as a frequency weighted analysis. The facility is still considered the unit of analysis, whereas the slot is the element within that unit. It is important to incorporate the sample weight and the number of children by age group when analyzing the data by slots (see also unit of analysis on p. 73).

Price modes. Particular price modes, hourly for family and monthly for center care, were used when presenting the Oregon data because they were the most common modes reported by Oregon facilities. We evaluated sample sizes for all three data sources and methods (n = 6) by age group (n = 5) for each mode (hourly, daily, weekly, and monthly). The results indicated that family facilities charged hourly more often than other modes (24 of the 30 sample sizes were greatest for the hourly mode; see Appendix E for details). Monthly was the second most common mode for family facilities. For centers, in all but one of the comparisons (29 out of 30), monthly had the greatest sample sizes. Hourly mode was the second most common and weekly mode was the third most common way centers charged. To simplify, we used hourly mode when reporting findings for family facilities and monthly mode for center facilities.

Question 1: How consistent are the market prices from various data sources?

Single-state analysis – Oregon

Summary of findings. Overall, no one data source produced consistently higher or lower prices across all the different factors (type of care, age group, facility versus slots) (Table 16 and Figure 1).

Table 16 presents the statewide full-time prices at the 75th percentile by type of care, age groups, and facility vs. slots. The 75th percentile of prices is the price level at which 75% of child care slots may be purchased. The table compares prices collected through a telephone survey using samples from three different data sources in Oregon; R&R, licensing, and subsidy. Oregon was the only state for which data from all three sources were available.

- Although no data source produced consistently higher prices, the prices produced by the licensing sample were the highest in 5 of the 10 facility comparisons and 6 of the 10 slot comparisons.
- Licensing prices were also higher for infant and toddler age groups for both types of care and for facilities rather than slots. The family hourly licensing infant and toddler prices (by facility and by slot) were all 25¢ higher than the next closest price, and the center monthly prices differed from the next closest price by $75 to $169. Of these comparisons, 4 licensing prices significantly differed from both R&R and subsidy, 2 licensing prices significantly differed from subsidy prices, and 2 licensing prices did not significantly differ from the other two sources.
- Prices reported in the telephone survey by the subsidy facilities were the lowest in 6 of the 10 facility and slot price comparisons across type of care and age groups.
- Lower prices were more likely found for center care (9 out of 10) in the subsidy database. Five of these prices were between $23 and $49 from the next highest price and 4 were greater than $50. Five of the 9 prices were not significantly different from either R&R or licensing prices, 3 were significantly different than both R&R and licensing, and 1 significantly differed from licensing only.
- R&R prices tended to be in the middle or similar to one of the other data sources.

Further understanding the facilities captured in these three lists may help account for differences in prices. For example, the licensing dataset does not include licensed-exempt facilities, whereas the R&R dataset does. We removed exempt facilities from the R&R dataset and re-analyzed the R&R prices. This analysis reduced but did not eliminate differences between licensing and R&R prices.

- In 8 of the 10 comparisons for family child care, R&R and licensing prices were now the same (compared to 4 of the 10 shown in Table 16).
- For center prices, 7 of the 10 R&R prices increased and were more similar (although not exactly the same as) licensing prices.

As reported in Section I, the subsidy dataset had the least complete market representation because it did not include a substantial portion of center care. Based on the findings from the market representation analysis and the comparisons reported in this section, we conclude that subsidy data should not be the sole source of facilities to include in the universe of the priced child care market. It is likely that some facilities in the priced child care market are missing from the subsidy database and facilities that are not in the priced child care market are likely to be included.

Table 16. Oregon Statewide Full-time Prices at the 75th Percentile by Data Source

		Infant	Toddler	Preschool Age	School-Age School-Year	School-Age Summer
Type of Care and Reporting Mode by Facility						
Family hourly						
Data source	R&R Phone	$2.75[b]	$2.50	$2.50	**$2.75**	$2.50
	Licensing Phone	**$3.00**[b,c]	**$2.75**[d]	$2.50	$2.73[d]	$2.50
	Subsidy Phone	$2.50[c]	$2.50[d]	$2.50	$2.50[d]	$2.50
Center monthly (including large family child care)						
Data source	R&R Phone	$773	$680	$624	**$328**	**$598**
	Licensing Phone	**$880**	**$795**	**$650**	$310	$575
	Subsidy Phone	$752	$720	$575	$285	$550
Type of Care and Reporting Mode by Slots (Weighted by capacity)						
Family hourly						
Data source	R&R Phone	$2.75[b]	$2.50	$2.50	**$3.00**[b,e]	$2.50
	Licensing Phone	**$3.00**[b,c]	**$2.75**[d]	$2.50	$2.50[b]	$2.50
	Subsidy Phone	$2.50[c]	$2.50[d]	$2.50	$2.50[e]	$2.50
Center monthly (including large family child care)						
Data source	R&R Phone	$795[b]	$850[b,f]	$677[e]	$288[f]	**$600**
	Licensing Phone	**$964**[b,c]	**$950**[b,c]	**$708**[c]	**$310**[c]	$595
	Subsidy Phone	$752[c]	$695[c,f]	$575[c,e]	$230[c,f]	$560

Source: Oregon R&R, licensing, and subsidy telephone survey data.
Note: Bold indicates the highest price in a category across the three data sources. All significance tests used QUANTREG experimental procedure in SAS version 9.1. See Appendix F for results at the 50th percentile.

[b] Significantly different prices at the $p < .01$ level when comparing R&R and licensing.

[c] Significantly different prices at the $p < .01$ level when comparing licensing and subsidy.

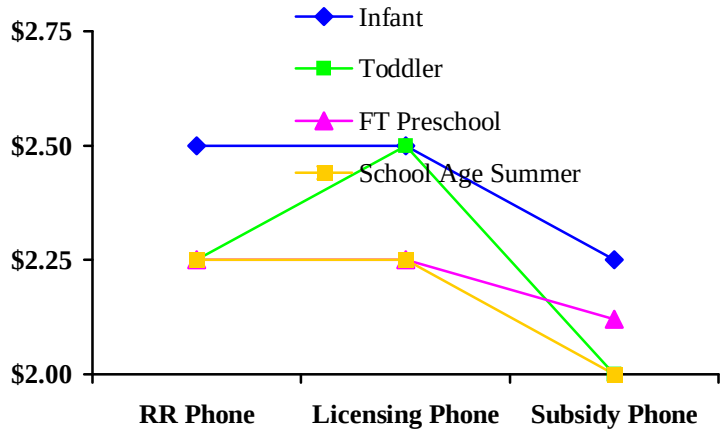
[d] Significantly different prices at the $p < .05$ level when comparing licensing and subsidy.

[e] Significantly different prices at the $p < .01$ level when comparing R&R and subsidy.

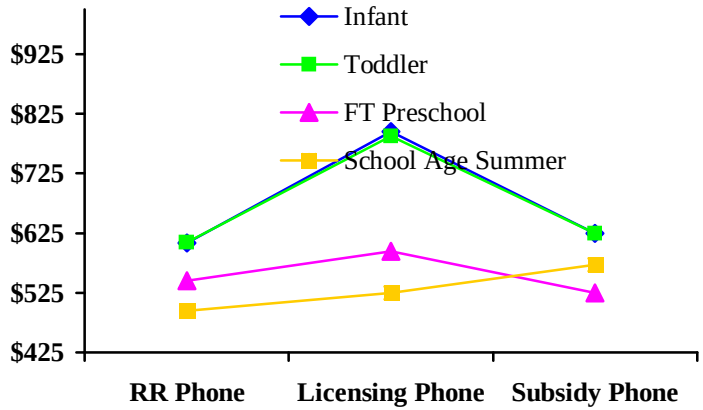
[f] Significantly different prices at the $p < .05$ level when comparing R&R and subsidy.

Figure 1
Comparison of Oregon Statewide Prices by Data Source Using Child Care Slots

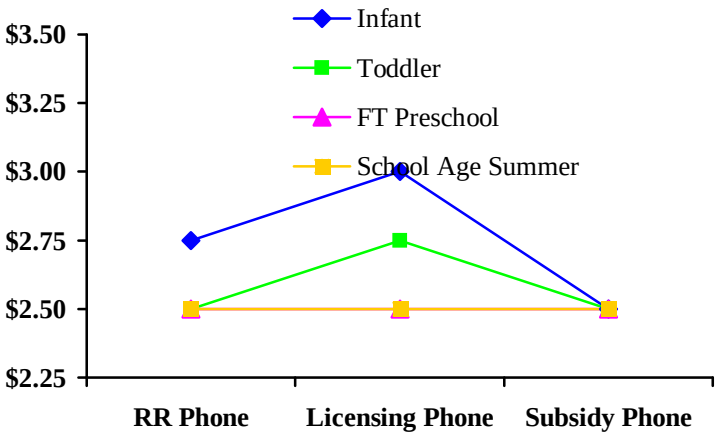
Family Child Care, Hourly, 50th Percentile



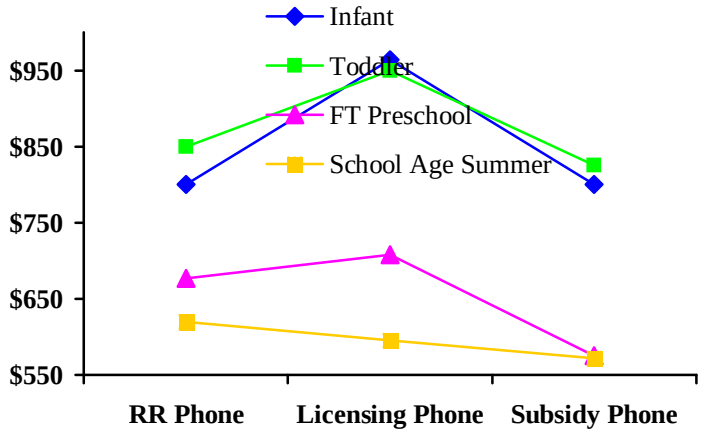
Center Care, Monthly, 50th Percentile



Family Child Care, Hourly, 75th Percentile



Center Care, Monthly, 75th Percentile



Question 2: Do different data collection methods produce different market price findings?

Single-state analysis – Oregon

Summary of findings. Overall, the findings confirm that different data collection methods produce different market prices, especially for center care (Table 17 and Figure 2). However, the differences are not systematic; in some cases, the mail survey produced higher market prices, but in others, administrative update data or by telephone surveys produced higher prices. Schock and Daugherty (2001) reported provider spokespersons' concern that R&R administrative data update may under-represent prices. Our analyses showed more complex patterns of relationships across data collection methods.

Table 17. Oregon Statewide Full-time Prices at the 75th Percentile by Data Collection Method

		Infant	Toddler	Preschool Age	School-Age School-Year	School-Age Summer
Type of Care and Reporting Mode by Facility						
Family hourly						
Method	R&R admin. data update	$2.75[b]	$2.50[b]	$2.50[b]	$2.50[b,f]	$2.50[b]
	R&R mail	**$3.00**[b,d]	**$3.00**[b,e]	**$2.85**[b,e]	$2.75[b]	**$2.75**[b,e]
	R&R phone	$2.75[d]	$2.50[e]	$2.50[e]	$2.75[f]	$2.50[e]
Center monthly (including large family child care)						
Method	R&R admin. data update	$805	**$785**	$604	**$375**[c]	$563[b]
	R&R mail	**$850**	$777	**$632**	$310[c]	$490[b,d]
	R&R phone	$773	$680	$624	$328	**$598**[d]
Type of Care and Reporting Mode by Slots						
Family hourly						
Method	R&R admin. data update	$2.80[c]	$2.50[b]	$2.50[b]	$2.50[b,f]	$2.50[b]
	R&R mail	**$3.00**[c,d]	**$3.00**[b,e]	**$3.00**[b,e]	$2.75[b]	**$2.75**[b,e]
	R&R phone	$2.75[d]	$2.50[e]	$2.50[e]	**$3.00**[f]	$2.50[e]
Center monthly (including large family child care)						
Method	R&R admin. data update	$851	$851	$665	**$395**[b,f]	**$665**[b]
	R&R mail	**$881**[d]	**$853**	$640	$252[b]	$463[b,e]
	R&R phone	$795[d]	$850	**$677**	$288[f]	$600[e]

Source: Oregon R&R administrative data update, R&R mail survey data, and R&R telephone survey data.
Notes: All significance tests used QUANTREG experimental procedure in SAS version 9.1. **Bold** indicates the highest price in a data collection method category. See Appendix F for results at the 50th percentile.

[b] Significantly different prices at the $p < .01$ level when comparing R&R administrative data update and R&R mail.

[c] Significantly different prices at the $p < .05$ level when comparing R&R administrative data update and R&R mail.

[d] Significantly different prices at the $p < .05$ level when comparing R&R mail and R&R phone.

[e] Significantly different prices at the $p < .01$ level when comparing R&R mail and R&R phone.

[f] Significantly different prices at the $p < .01$ level when comparing R&R administrative data update and R&R phone.

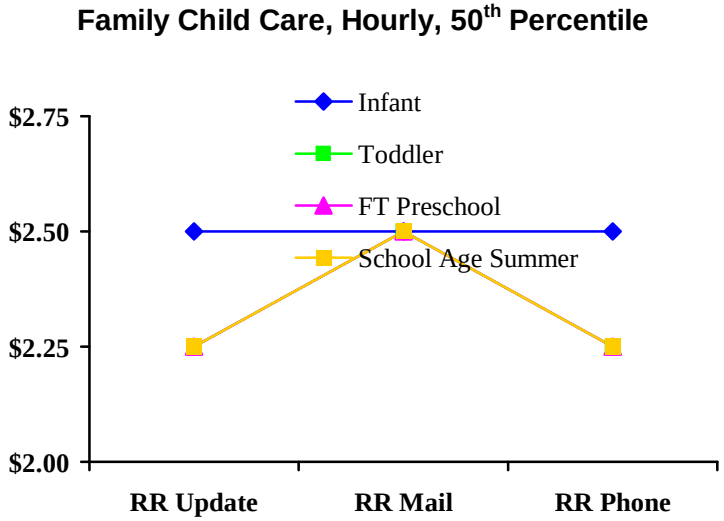
The findings in Table 17 and Figure 2 show that:

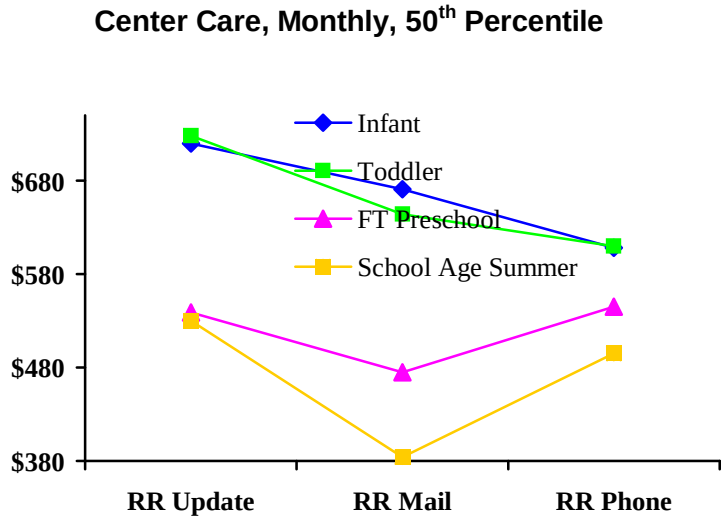
- The mail survey consistently produced the highest prices for family child care facilities. Family slots also produced higher prices for all age categories except school-age and school-year. Differences in prices among the mail survey and the highest prices produced by the other methods were between 20¢ and 50¢, with an average of 35¢. All these mail survey prices were significantly different from R&R administrative record and telephone survey prices.
- For family child care, prices produced from R&R administrative data update and telephone surveys were the same in 7 of the 10 method comparisons.
- For center monthly prices, the three market price study methods did not produce consistent patterns of price differences for age groups or facility vs. slots. The range of center prices from the highest to lowest was $28--$108 for facilities and $3--$202 for slots.

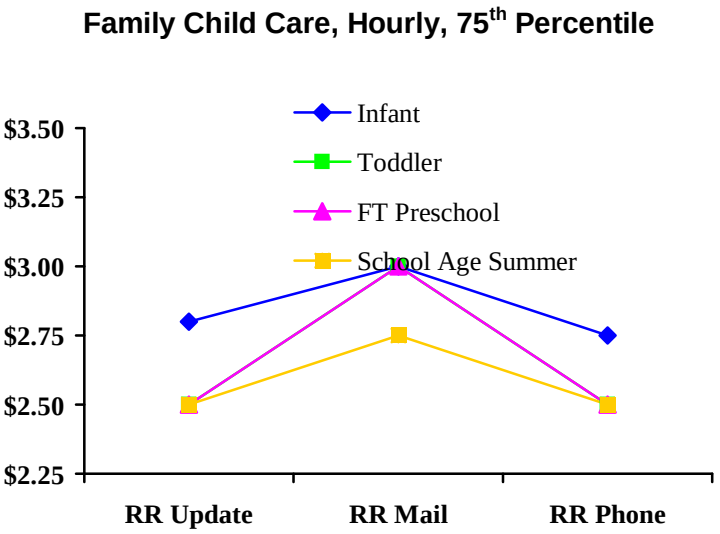
Similar findings were reported by Tvedt (1999), who compared Oregon self-reported telephone survey prices to R&R administrative data update. Prices were similar to each other and no systematic differences were noted. These results suggest that as long as the data are collected using rigorous procedures, all data collection methods produce valid findings.

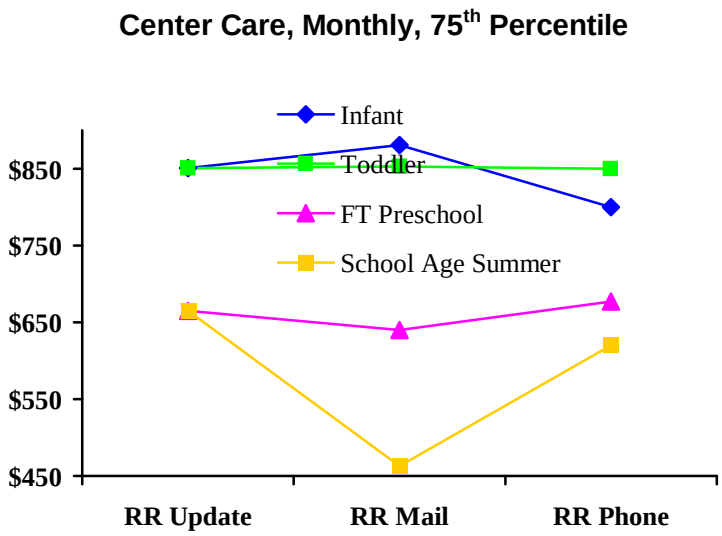
Schock and Daugherty (2001) reported provider spokespersons' concern that R&R administrative data update may under represent prices. During the telephone survey, we asked facilities whether the prices they reported in the telephone survey were higher, lower, or about the same as their R&R prices. Over half (56%) said that the prices were the same, 15% said that the prices reported were higher, and 29% said that the prices reported were lower than the prices they reported to their R&R. We asked a follow-up question for those facilities who said that the prices reported during the telephone survey were higher or lower than reported to a local R&R: "Do you think the R&R price or the priced reported in this survey is more accurate in representing what you usually tell parents you will be charging?" Seventy percent of the subset asked the follow-up question said that the price quoted in the telephone survey was more accurate, 15% said that the R&R price was more accurate, and 15% said that they were about the same. These findings may reflect the three-month difference in data collection between the telephone survey and the R&R administrative update. Overall, the findings in this section show a more complex pattern of relationships among data collection methods.

Figure 2
Comparison of Oregon Statewide Prices by Data Collection Methods Using Child Care Slots









Comparisons based on data from additional states. To further inform the question of whether different data collection methods produce different market price findings, we compared survey data and R&R administrative update data in three additional states (Kansas, Washington, and Wisconsin). See descriptions of these data sources under "Administrative Data Update" and "Data Sources for Provider Samples" in the Data Sources section.

- Across all types of child care and age groups, hourly market prices were systematically higher for Kansas mail survey data than for their R&R administrative data update (Table 18). Center prices from the mail survey were slightly more than $1 higher for infants and slightly less than $1 higher for the other age groups. Licensed and registered family child care prices were 50¢ or more higher for all age groups.

  Both sets of data derive from the same list of providers, although the facilities included in the final datasets differ. The prices shown in Table 18 were not converted; however, the mail survey asked facilities directly for their hourly rates for full-time care. Facilities were asked to estimate their hourly rate if they charged weekly, as did 67% of registered facilities. For comparison purposes, only those facilities that reported an hourly price in the R&R administrative data update were included (28% of facilities had an hourly rate). Although data for both methods were either collected or downloaded in August of 2002, we do not know how recently the R&R administrative data had been updated. These differences in procedures may explain some of the systematically higher prices for the mail survey data shown in Table 18.

Table 18. Comparison of Statewide Hourly Prices Between Kansas Mail Survey Data and R&R Administrative Data Update by Facility at the 75th Percentile

Hourly Prices (2002)	**Infant**	**Toddler (Young)**	**Toddler (Old)**	**Preschool Age**	**School-Age**
Center					
Mail survey	**$4.00**	**$3.56**	**$3.47**	**$3.00**	**$2.96**
R&R admin. data update	$2.75	$2.50	$2.25	$2.13	$2.00
				Under 18 months	**Over 18 months**
Family child care (licensed)					
Mail survey				**$2.50**	**$2.30**
R&R admin. data update				$2.00	$1.80
Family child care (registered)					
Mail survey				**$2.60**	**$2.50**
R&R admin. data update				$2.00	$2.00

Source: Kansas 2002 mail survey data and Kansas 2002 R&R administrative data update.
Note: Bold indicates the highest price in a category. The R&R administrative data update only includes facilities that reported in hourly mode given that the mail survey findings were only available by hourly.

- Similar to Kansas, Washington's survey data prices were consistently higher across all types of care and age groups compared to their R&R administrative data update (Table 19). For example, monthly price differences between the data collection methods were $120 or more for family infant care across regions; monthly price differences for center infant care across regions were $63 or higher, with 5 of the 6 price differences being greater than $160.

  The main differences between these two data collection methods were: (a) R&R administrative data update contained a larger percentage of family homes than the telephone survey data (75% and 49% of the total, respectively); (b) telephone survey prices did not include any facilities whose prices are the same as the state subsidy reimbursement rate; (c) telephone survey prices were converted to monthly; and (d) the telephone survey data appeared to be more current.

Table 19. Comparison of Statewide Monthly Prices Between Washington Survey Data and R&R Administrative Data Update by Slots at the 75th Percentile

Monthly Prices (2005)	**Region 1**	**Region 2**	**Region 3**	**Region 4**	**Region 5**	**Region 6**
Family						
Telephone Survey						
Infant	**$605**	**$660**	**$770**	**$921**	**$660**	**$671**
Toddler	**$550**	**$550**	**$770**	**$913**	**$660**	**$605**
Preschool	**$506**	**$512**	**$660**	**$747**	**$594**	**$550**
School-age	**$460**	**$440**	**$550**	**$578**	**$594**	**$528**
R&R data update						
Infant	$450	$440	$650	$700	$500	$500
Toddler	$450	$440	$585	$680	$484	$500
Preschool	$400	$362	$500	$585	$440	$433
School-age school-year	$225	$200	$275	$338	$275	$240
Center						
Telephone survey						
Infant	**$743**	**$713**	**$968**	**$1,191**	**$802**	**$820**
Toddler	**$664**	**$695**	**$780**	**$1,072**	**$704**	**$740**
Preschool	**$585**	**$563**	**$702**	**$903**	**$640**	**$660**
School-age	**$515**	**$440**	**$552**	**$675**	**$507**	**$601**
R&R data update						
Infant	$583	$650	$795	$988	$640	$639
Toddler	$500	$550	$635	$825	$540	$529
Preschool	$475	$450	$550	$717	$462	$530
School-age school-year	$250	$247	$270	$380	$265	$225

Source: Washington 2006 telephone survey data and Washington R&R administrative data update.
Note: Bold indicates the highest price in a category. Regions correspond to Washington's Department of Social and Health Services administrative regions.

- Wisconsin results were mixed (Table 20). For centers, 10 of the 12 comparison weekly prices were higher for the mail survey data than the R&R administrative data update (average difference $13). The opposite was true for family child care; 10 of the 12 comparisons were higher for the R&R administrative data update (average difference $10.50).

  In Wisconsin, the primary differences between these two data collection methods were that the mail survey asked facilities directly only for their weekly prices for full-time care, and during analysis facilities with 75% or more subsidized children in care were excluded from the mail survey price findings. Our analysis included only facilities that reported a weekly price in the R&R administrative data update (89% of facilities had a weekly rate), and the price updates for the R&R administrative data did not necessarily coincide with the fall 2006 collection of the mail survey data. Thus, some price differences may be attributed to differences in data collection periods. Both sets of data were weighted by licensed capacity.

Table 20. Comparison of Statewide Prices Between Wisconsin Mail Survey Data and R&R Administrative Data Update by Slots at the 75th Percentile

Weekly Prices (2006)	**0-2 years**	**2-3 years**	**4-5 years**	**6+ years**
Family				
Mail survey				
Dane county	**$225**	$200	$198	$185
Juneau county	**$120**	$100	$100	$100
Milwaukee county	$200	$180	$180	$150
Monroe county	$113	$100	$100	$100
R&R administrative data update[a]				
Dane county	$220	$200	**$200**	**$190**
Juneau county	$100	$100	$100	$100
Milwaukee county	**$220**	**$200**	**$190**	**$185**
Monroe county	**$115**	**$105**	**$102**	**$104**
Centers				
Mail survey				
Dane county	**$270**	**$230**	**$205**	$190
Juneau county	**$165**	**$165**	**$155**	**$155**
Milwaukee county	**$259**	$220	$196	$195
Monroe county	**$152**	$139	**$121**	$116
R&R administrative data update[a]				
Dane county	$253	$214	$199	**$191**
Juneau county	$145	$145	$140	$140
Milwaukee county	$250	$220	**$200**	$195
Monroe county	$143	$139	$116	$116

Source: Wisconsin 2006 mail survey data and Wisconsin R&R administrative data update.
Note: Bold indicates the highest price in a category.
[a] The Wisconsin R&R administrative data update only includes facilities that reported in weekly mode given that the survey prices were only available by weekly mode.

Question 3: What portion of market care can be purchased with maximum subsidy rates?

Single-state analysis – Oregon

Summary of findings. Although our method of measuring accessibility is useful as a rough measure of accessibility, it does not appear to be robust, and further work is needed to derive a more stable accessibility measure.

To further assess possible differences in market prices by data sources and data collection methods, we compared the percent of child care slots that could be purchased at the state (Oregon) enhanced subsidy rate. Details of this accessibility method can be found in Grobe et al., 2006 (pp. 10–13). The results are shown in Table 21. Because toddler prices have been found to be the most representative of all age group prices in Oregon, we used them as the bases for calculating child care accessibility.

Although our method of measuring accessibility is useful as a rough measure of accessibility, it does not appear to be robust, and further work is needed to derive a more stable accessibility measure. The findings do confirm the minor price differences reported earlier in this section. The subsidy database produced the greatest portion of slots accessible with the enhanced subsidy rate. This finding is not surprising given that this is a database of subsidy-receiving facilities whose prices were found to be lower than those of facilities in the R&R or licensing databases (Table 16, p. 41). The R&R administrative update method was the second highest in the portion of slots accessible.

Part of the reason the price differences are emphasized is that the method uses the enhanced subsidy rate as a specific cutoff price for being considered accessible. For example, say the enhanced subsidy rate was $2.62. If the R&R administrative data update average hourly price were $2.50 and the average R&R mail price were $2.75 for the same facility, the R&R administrative data update would consider those slots accessible, but the R&R mail survey data would not. Therefore, we view this method as a gross measure for understanding what portion of market care can be purchased with maximum subsidy rates; knowing that relatively small differences can affect estimates.

Table 21. Percent of Child Care Slots that can be Purchased at the Oregon Enhanced Subsidy Rate

Full-time, Toddler, Family and Center Care		**% of Toddler Slots That Can be Purchased at the Oregon Enhanced Subsidy Rate**
Data Source	R&R phone (n=300)	**11.9%**
	Licensing phone (n=373)	**14.1%**
	Subsidy phone (n=445)	**34.1%**
Method	R&R admin. update (n=3,731)	**26.6%**
	R&R mail (n=561)	**16.1%**
	R&R phone (n=300)	**11.9%**

Source: All data sources and data collection methods in Oregon.

Section III: Validity Issues

The validity of the prices identified through market price studies hinges on the resolution of a number of issues. In this section we explore our findings within a framework of some of the major validity issues: child care submarkets, pricing modes, and unit of analysis.

Child care submarkets

Child care does not operate as a single market, but rather as a set of submarkets. Submarkets are defined by characteristics that affect prices. We hypothesize that age of child, type of care, schedule, and location affect prices and therefore define separate child care submarkets. We analyzed Oregon price data to confirm whether age of child, type of care, schedule, and location distinguish separate submarkets of child care. We describe the data used for these analyses in Section II: Validating Market Price Findings.

Question 1: Do different age groups represent different markets? For example, is toddler care a different submarket than preschool-age care?

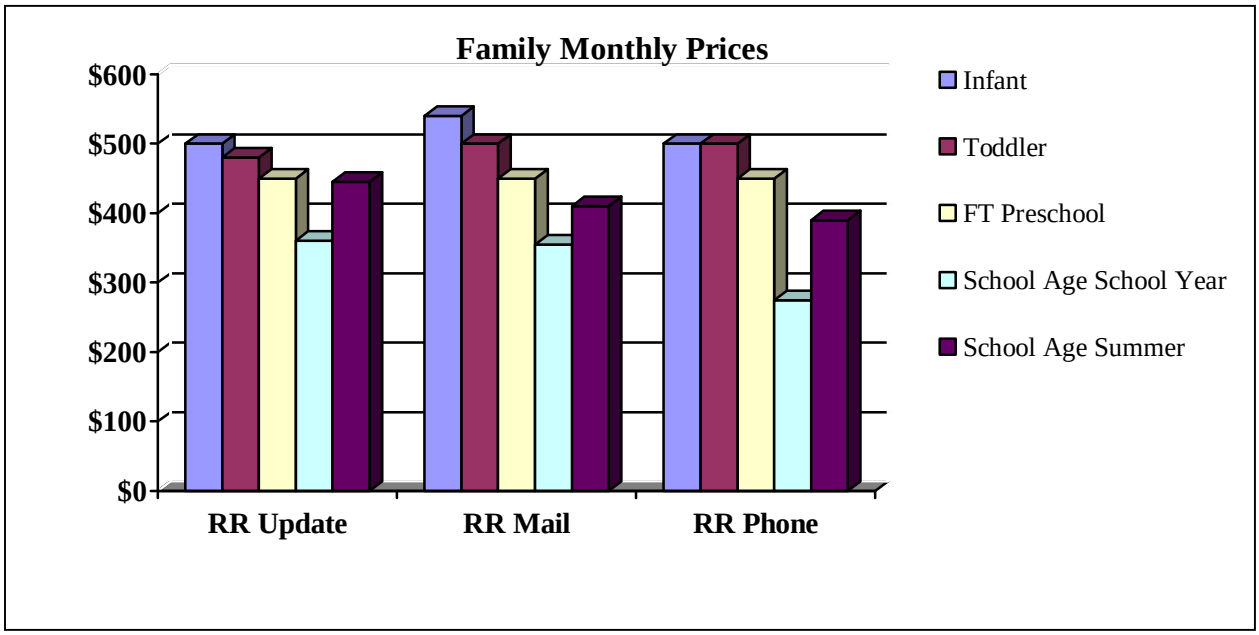
Single-state analysis – Oregon

Summary of findings. Family, center and large family child care prices consistently differ by age group (Figures 3 and 4). This suggests that there are child care submarkets for different age groups.

- Differences in monthly prices for slots by age group were found across the three data collection methods.
- The distinctions in monthly prices by age groups were smaller for family child care than for center care.
- Infant and toddler prices were most similar to one another, followed by preschool-age and school-age summer prices. The difference in monthly prices between infants and toddlers ranged from $0-$50, and the difference in monthly prices between preschool and school-age summer care ranged from $5-$91.

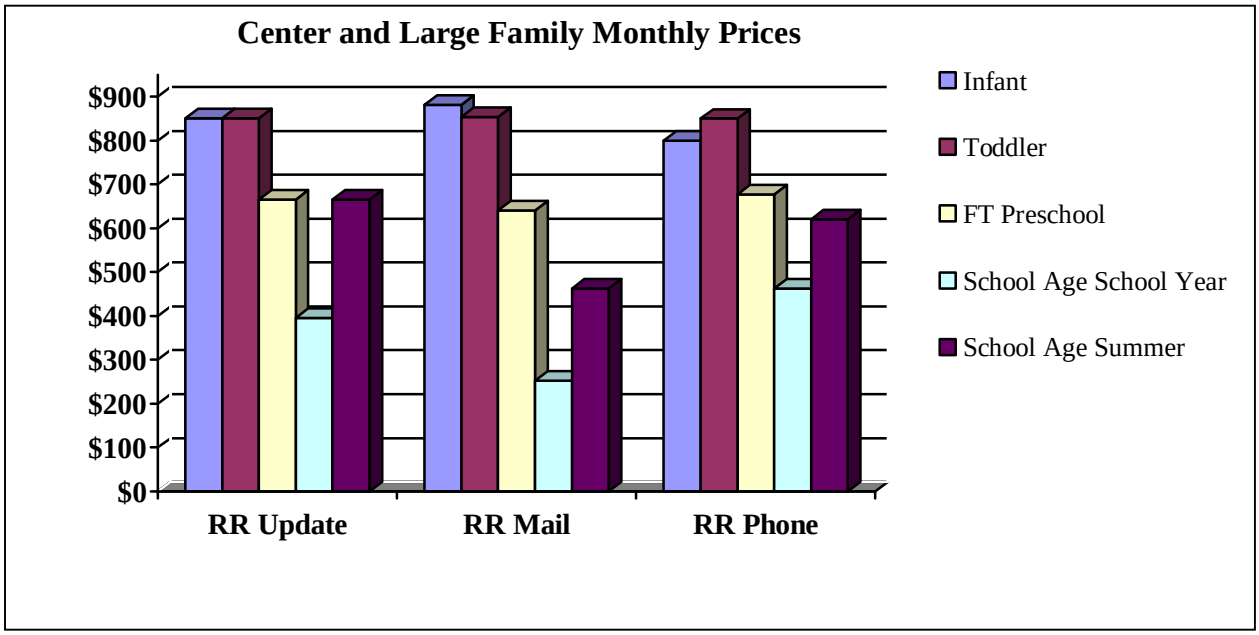
School-age school-year prices are considered inherently part-time rates, given they are typically based on before- and after-school care for 20 to 30 hours or less a week. Their prices were the lowest of all the age groups. They were different from school-age summer prices which are considered full-time prices. These results suggest price data should be collected and analyzed separately for each age group, including differentiating school-age school-year prices from school-age summer prices.

Figure 3. Oregon Statewide Family Monthly Prices by Age Group at the 75th Percentile by Data Collection Method



Source: Oregon R&R administrative data update, R&R mail survey data, and R&R telephone survey data.

Figure 4. Oregon Statewide Center (Including Large Family) Monthly Prices by Age Group at the 75th Percentile by Data Collection Method



Source: Oregon R&R administrative data update, R&R mail survey data, and R&R telephone survey data.

Question 2: Do different types of child care represent different submarkets?

Single-state analysis – Oregon

Summary of findings. Prices differed for each type of care across methods for almost all age categories (Figure 5). In addition, our findings indicate that large family child care prices in Oregon are more similar to center prices than to family child care prices

We compared prices for different types of child care for each age group to determine if the prices differed by care type (family, large family, and center care). This comparison was done across data collection methods collected in Oregon. **Prices differed for each type of care across methods for almost all age categories** (Figure 5). We found that:

- family child care prices were consistently the lowest,
- center care prices were generally highest, and
- large family child care prices fell between family and center care prices.

In our 2007 (Weber et al.) study of market price study practices, all states reported distinguishing between center and family child care when analyzing prices. Thirty of 47 states in the study also reported creating a distinct price group for large family child care homes.

An important question when conducting market price surveys is how to analyze price data for large family child care facilities. Should there be a separate price category for large family child care? Or should large family child care be combined with family or center care?

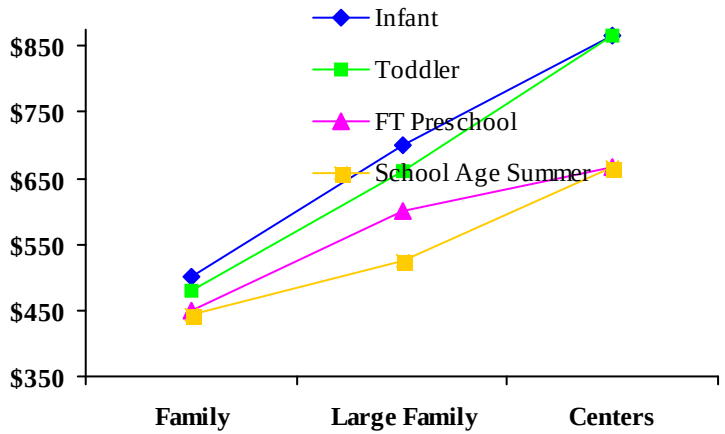
Oregon findings (Figure 5) indicate that large family child care is a separate price category for all of the different age groups. However, the mail and telephone survey sample sizes for large family child care were small (48 for mail; 155 for telephone). States will be confronted with this same issue when using mail and telephone survey methods in their market price studies. If sample sizes are not sufficient to support separating large family from other care types, a decision will need to be made about whether to combine large family price data with family child care price data or with center care price data, or to exclude them altogether.

Our findings indicate that large family child care prices in Oregon are more similar to center prices than to family child care prices. Comparing monthly prices for family and large family and center care at the 75th percentile across data collection methods, large family prices were closer to centers in 8 of the 12 comparisons (67%) (Figure 5 and Appendix G).

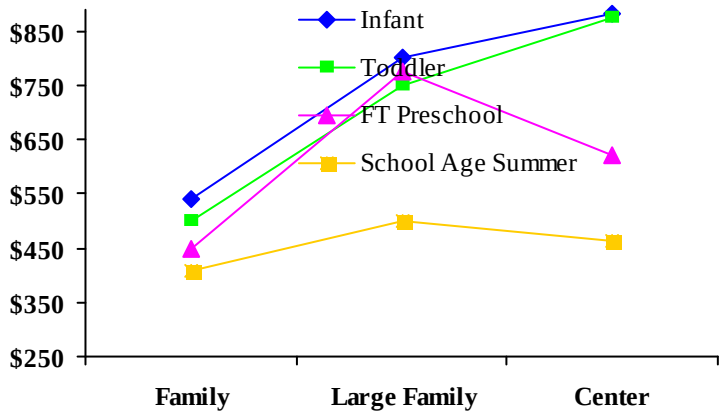
- In 2 of these 8 comparisons, large family prices were higher than center prices, but the differences in prices were less than the price differences between family and large family.
- In 6 comparisons, monthly center prices were higher than large family; the average difference was $83 (range: $25-$165).
- In 4 comparisons, monthly large family prices were closer to family prices and family prices were less than the large family prices; the average difference was $102.50 (range: $75-$180).

Figure 5
Comparison of Oregon Statewide Prices by Type of Care Using Child Care Slots by Data Collection Method

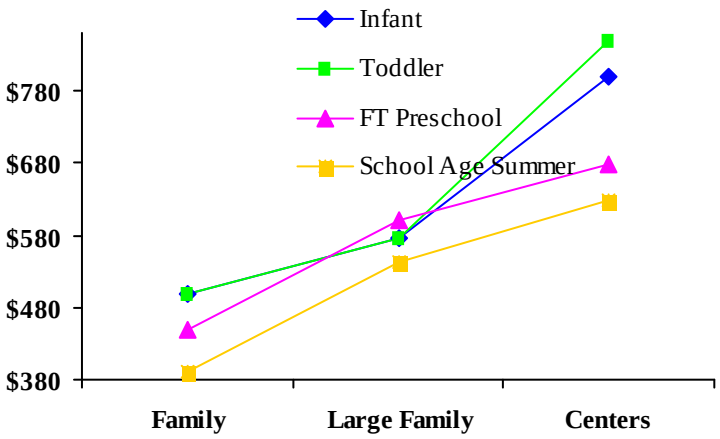
R&R Administrative Update, Monthly, 75th Percentile



R&R Mail Survey, Monthly, 75th Percentile



R&R Telephone Survey, Monthly, 75th Percentile



In sum, the prices of large family child care more closely resembled the prices of center care than those of other family child care. However, because large family prices tend to be lower than the prices reported by centers, merging the data for the two types of care may reduce price findings for centers. In a comparison of center/large family prices vs. center-only prices (Table 22), 53% (8 out of 15) of the center-only prices were the same as prices for merged center/large family child care. In 6 of the 15 comparisons, center-only prices were higher, with the differences ranging from $1-$22 (average = $10); in one comparison the center-only price was lower than the merged center/large family child care price ($20 difference).

Table 22. Comparison of Center/Large Family and Center-only Oregon Statewide Full-time Prices at the 75th Percentile by Data Collection Method

Type of Care and Reporting Mode		Infant	Toddler	Preschool Age	School-Age School-Year	School-Age Summer
Slots						
Center monthly (including large family child care)						
Method	R&R admin. update	$851	$851	$665	**$395**	$665
	R&R mail	**$881**	$853	$640	**$252**	**$463**
	R&R phone	**$800**	**$850**	**$677**	**$288**	$620
Center-only monthly						
Method	R&R admin. update	$865	$865	$667	**$395**	$666
	R&R mail	**$881**	$875	$620	**$252**	**$463**
	R&R phone	**$800**	**$850**	**$677**	**$288**	$628

Source: Oregon R&R administrative data update, R&R mail survey data, and R&R telephone survey data.
Note: Bold indicates prices that are identical in center/large and center-only prices in the category.

If sample sizes are large enough (e.g., the Oregon R&R administrative update data has 248 large family facilities represented, considerably more than in the R&R mail and telephone surveys), these findings clearly suggest that large family child care should be treated as a distinct and separate type of care. If the large family child care sample is too small to support separate analysis, then these Oregon-based findings show that large family child care facilities can be combined with centers without introducing substantial bias. However, researchers should conduct a comparison of center-only and combined center/large family prices to make sure that only insignificant differences exist.

Question 3: What data collection methods can be used to accurately capture part-time preschool program prices?

Single-state analysis – Oregon

Summary of findings. Data for the mail and telephone methods show large variation in part-time options facilities provide for their preschool programs. We were unable to examine part-time preschool program prices with the R&R administrative data update.

It is often necessary to distinguish facilities such as part-time preschool programs with prices for services other than full-day, full-week care. In order to determine whether such programs are a market distinct from full-day, full-week care we need accurately to measure their prices. Collecting part-time preschool prices presents two challenges: (a) identification of part-time preschool prices, and (2) interpretation of part-time preschool program prices once they have been identified. For example, part-time preschool program prices may have been based on 2 days a week for 3-year-olds, 3 days a week for 4-year-olds, or—for some programs—only 1 day a week regardless of age. Without even taking children's ages into consideration, we found that preschool programs can choose from among up to 100 different prices (up to 4 hours per day of care, up to 5 days of enrollment) and 5 possible pricing modes (hourly, daily, weekly, monthly, and term/session).

We used these issues to assess what data collection methods (R&R administrative data update, mail survey, and telephone survey) could be used to capture part-time preschool program prices.

Administrative data update. Although part-time preschool program prices are included in the Oregon R&R administrative data update, the data do not include information on the number of days per week and hours per day these programs operate. Lacking this information, **we were unable to examine part-time preschool program prices with the R&R administrative data update**.

Mail and telephone survey. A benefit of mail and telephone survey methods is the ability to identify part-time preschool programs and collect both number of days per week and hours per day they operate (see Q17-Q21 in Appendix C). However, **data from the mail and telephone surveys reveal great variation in the options facilities provide to parents for part-time preschool programs.**

- For both the mail and telephone surveys, there were 13 different options for number of days per week a child could be enrolled. This was based on 86 facilities in the mail survey and 88 facilities in the telephone survey that offered part-day preschool programs only. Two or three days was a common option, as was the availability of either a 4- or 5-day program.
- Hours per day also varied (Table 23). There was a range of hours per day that these part-time preschool programs operated. Two-and-a-half- and three-hour blocks were common for facilities in the mail survey, and three- and four-hour blocks were common for facilities in the telephone survey.

Table 23. Frequency of Hours Per Day for Part-time Preschool Programs in Oregon

Mail Survey (*N* = 86)		**Telephone Survey (*N* = 88)**	
Hours per day	*Frequency*	*Hours per day*	*Frequency*
2	3	2	10
2.25	1	3	33
2.5	24	4	15
2.75	4	5+	21
3	23	-	9
3.25	1		
3.5	5		
4	8		
5+	16		
-	1		

Note: Dashes indicate that data were unreported.

Question 4: How do prices in part-time preschool programs vary depending on the number of days per week and hours per day of care?

Single-state analysis – Oregon

Summary of findings. Overall, the results show no consistent patterns in prices of part-time preschool programs based on days per week or hours per day (Table 24 and Table 25). Because of the variation in options for part-time preschool programs, sample sizes are quite small in many of the cells, limiting our confidence in the price findings.

In this analysis we were interested in whether there were any patterns to the part-time preschool program prices given the variation in number of days and hours per day children could be enrolled. To manage the variation in programs, we made the following decisions:

- Only monthly mode prices were used. Eighty-six percent of mail survey facilities and 59% of telephone survey facilities had monthly prices.
- Prices were reported for the greatest number of days per week a child could attend the center.
- The frequencies reported in Table 23 were collapsed (see Tables 24 and 25).

Overall, **the results show no consistent patterns in part-time preschool programs based on days per week or hours per day** (Table 24 and Table 25). Because of the many schedule options for part-time preschool programs, sample sizes are quite small in many of the cells, limiting our confidence in the price findings. These findings suggest that larger sample sizes, possibly from an oversample of this service submarket, would need to be collected in order to accurately represent the prices of part-time preschool programs. States may consider collecting their own data to determine if part-time preschool programs are their own submarket.

Table 24. Oregon Mail Survey Monthly Average Prices for Part-time Preschool Programs Only (N = 67)[a]

	Hours Per Day			
Greatest # of Days	2–2.5	2.75–3	3.25–4	5–7
2	\$57.50 (n = 2)	-	\$240 (n = 1)	-
3	\$83.31 (n = 16)	\$97.80 (n = 10)	\$96.25 (n = 4)	\$81.20 (n = 5)
4	-	\$187.88 (n = 8)	\$62.50 (n = 2)	\$274 (n = 3)
5	\$184.57 (n = 7)	\$417.50 (n = 2)	\$144 (n = 3)	\$234.50 (n = 4)

Source: Oregon R&R mail survey data.

[a] Twelve facilities did not report a monthly price and 7 facilities did not report either the number of days or hours per day.

Table 25. Oregon Telephone Survey Monthly Average Prices for Part-time Preschool Programs Only (N = 42)[a]

	Hours Per Day			
Greatest # of Days	2	3	4	5+
1	-	$113.33 (n = 3)	-	-
2	$90 (n = 1)	$27.50 (n = 1)	-	$65 (n = 1)
3	$105 (n = 1)	$96.25 (n = 8)	$77.50 (n = 2)	$92.33 (n = 3)
4	$50 (n = 1)	$70 (n = 1)	$75 (n = 1)	$99 (n = 2)
5	$125 (n = 1)	$225 (n = 6)	$305 (n = 6)	$225 (n = 2)

Source: Oregon R&R telephone survey data.

[a] Thirty-six facilities did not report a monthly price and 10 facilities did not report the number of days nor hours per day.

Geographic definition of community

Child care prices vary systematically across communities, so combining prices from different communities may lead to findings that do not represent any of them. Empirical analysis of child care price data in several states suggests that there are a limited number of "price clusters;" that is, areas with similar child care prices. These price clusters may be in areas that are not contiguous and may cross county lines. This section summarizes the use of geographic units (see pp. 82–83 for a list of geographic units), and the various approaches states have used to create geographic groupings. Comparisons are made of the specific grouping methods used by Ohio, California, Oregon, and Minnesota. These comparisons provide insights into the issues that all states must consider in their market price study analyses.

Geographic Units

There are three stages for which states choose geographic units: (a) for the data collection stage (and for sampling, if used), (b) for the data analysis, and (c) for the setting of maximum rates. States may collect and analyze data for small geographic units and then set maximum rates for larger geographic units. However, if data are not collected at the county or zip code level, states will be unable to analyze variation in prices at those levels.

In analyzing the price data or in setting maximum rates, some decisions must be made about grouping the price data, because the state needs a limited number of geographic units for setting child care subsidy maximum rates. On the one hand, having fewer geographic areas may be easier to determine and administer, and may yield larger numbers of providers in each category, thus avoiding the problems that arise with small numbers. There may be fewer boundary issues; that is, cases in which the state sets different maximum rates for providers who are located close to each other but are on opposite sides of the boundary. On the other hand, having more geographic areas may reflect the actual price variation seen in the private market, thus leading to more accurate and representative findings.

Geographic Groupings

States vary considerably in how they have chosen to define groupings or rate areas. These include:

- Use of economic or demographic characteristics to base groupings. States that have used this approach typically group counties along the rural/urban continuum.
- Use of administrative regions to group counties together. These administrative regions may reflect different economic characteristics, and thus may reflect differences in child care prices.
- Definition of regions directly by child care price data. This approach creates groups of areas with similar child care prices. Groupings based on child care price data reflect variation in the market itself rather than other factors such as demographic or economic characteristics.

Determining the best method for grouping depends on both the objective of the grouping and the characteristics of the data. The objective for a market price study is to group together areas with similar child care prices. Child care price data tend to exhibit both skewness (lack of symmetry in the distribution of prices) and clustering, so a method of grouping should account for both of these characteristics. For example, if we calculate average child care prices in each county and line them up from lowest to highest, in most states we would see a wide range of average prices. Yet the distribution of these county averages

typically is not smooth (or uniform); it is skewed and clustered. For example, the county averages may cluster around three or four numbers, and may have more observations near the lower numbers than at the high end. To the extent that the county averages fall into "natural" groupings–that is, groups of counties with similar averages with fewer counties falling in between–the counties can be divided into groups based on the clustering in the data. After a brief introduction to statistical methods for cluster analysis, we describe different ways states have created these groups.

Statistical methods for cluster analysis. A number of statistical methods are available for creating these groups based on the clustering in the data, and they range from straightforward to complex. These methods can be categorized into three general types: (1) interval grouping based on observation of a frequency table or histogram; (2) univariate classification (grouping based on one variable or characteristic) using statistical methods such as Jenks optimal "natural breaks"; and (3) cluster analysis, a statistical tool for grouping observations based on multiple characteristics or variables. With any of these general approaches one has to choose a particular method or criteria. The methods will result in different groupings, although there will be overlap in many cases. Thus it is important to recognize that there is no one right way to create geographic groupings.

Cluster analysis methods can be divided further into two types: hierarchical and nonhierarchical. The hierarchical methods have the disadvantage of not being able to unlink two observations once they are grouped together. Thus, for many applications, nonhierarchical methods are preferred. However, nonhierarchical methods can be sensitive to the order of the data or the starting values. To avoid this problem, one can employ hierarchical cluster analysis as a first step, and then use the results from that analysis as the starting point for the nonhierarchical method.

With either hierarchical or nonhierarchical cluster analysis, there are multiple statistical criteria that can be used to create groupings. The objective of creating groups for market price studies is to maximize the similarity among the observations in a group while at the same time maximizing the differences between groups. An approach based on finding the optimal grouping by minimizing the sum of absolute deviations about class medians satisfies this objective (for example, k-medians clustering).[9]

Examples of specific methods used by states to create geographic groupings.
Ohio. For the *2006 Ohio Child Care Market Rate Survey*, The Ohio State University Statistical Consulting Service used a nonhierarchical clustering method to group counties into six clusters based on child care prices. Their approach involved two main steps. The first step was to use principal components analysis to combine the information on average prices for 10 different prices, differentiated by age group (infant, toddler, preschool, and school-age), part-time or full-time, and for school-age, summer, and school-year. This analysis provided a way to combine the information about different types of prices. Alternative approaches would be to identify a representative price (such as Oregon's use of toddler prices) or to average the prices for all age groups (which may require some weighting). The decision about which price information to use reflects a tradeoff between more accuracy (by using more price

[9] The most common alternative nonhierarchical method, k-means clustering, is based on squared deviations from the mean of the group. The latter method tended to separate the high end of a range into smaller groups, because more weight is put on larger values as result of squaring mean differences.

information), and more complexity (by using principal components analysis or some way of averaging prices).

The second step in the Ohio analysis was to conduct a k-means cluster analysis on the first principal component. In effect, this method groups together counties with similar child care prices (with the first principle component being the measure of similar child care prices). The k-means clustering approach finds groups in the data based on squared deviations from the mean of the group. Based on their analysis, they determined that six clusters is best, and so they combined counties in Ohio into six groups. Note that in a few of the resulting groups there were fewer than four providers (e.g., for toddler part-time weekly prices), so they did not calculate a percentile for these cells.

California. For the *2004–2005 Regional Market Rate (RMR) Survey of California Child Care Providers*, ORC Macro International developed a complex methodology to identify zip codes with similar characteristics and to use these to define "market profiles". The methodology was intended to deal with specific issues in California, including the need for a survey instead of collection of price data from the full population of child care providers. The statistical approach used was binary recursive partitioning, a hierarchical clustering method, based on a large number of zip-code level economic and demographic characteristics. These characteristics included median home value, median gross rent, proportion of the population over age 24 with no more than a high school degree, proportion of family households, and more. The zip code market profiles were developed separately for centers and licensed family child care providers, including use of different variables in the cluster analysis for each type of care. The output of the analysis is a classification of California zip codes into "markets" in which the zip codes are not geographically contiguous but rather grouped together based on having similar socioeconomic characteristics.

The *2004–2005 RMR* report was criticized when the new maximum rates were released by the California Department of Education. According to Huffaker (2005), low-income and minority neighborhoods in Los Angeles were grouped in such a way as to result in lower maximum rates than in higher income and predominantly White neighborhoods. The cluster analysis did indeed find zip codes areas that exhibited similar economic and demographic characteristics, but the method was subject to criticism based on the perception that areas with certain characteristics (such as lower house values or lower incomes) were treated unfairly. In addition, the "markets" identified by clustering the zip code areas may not have reflected actual child care markets. As discussed further below, using zip code areas to define geographic groups is likely to require some spatial constraints or "smoothing" in order to identify areas within one community. In the California study, no adjustment of the market profiles was made based on geographical proximity to areas with different prices.

Oregon. Since 1992, the Oregon Child Care Research Partnership has determined geographic groups in Oregon by combining zip code areas with similar child care prices to create geographic groupings called rate areas. Their method relies on a more hands-on approach rather than using a statistical software package to create the groups. Their interval grouping approach uses the distribution of zip-code level price information to find natural breaks. The 75th percentile of prices is calculated for each zip code separately for each pricing mode and for family and center providers (the latter is weighted by capacity). Zip codes are ranked by 75th percentile for each pricing mode for toddler prices (as the representative price). Based on visual inspection of the histogram of prices at the facility level, the number of clusters is determined and the price distribution is divided into clusters. This method seeks to identify the clusters in

the price data by looking for high-frequency values and dividing them into groups where there are few observations. From past experience, three clusters have tended to work well given the price distributions in Oregon. Each zip code is then assigned to a cluster based on the most common cluster for each pricing mode. At this point, additional data may be used to inform the selection of a cluster, including how many providers are in each pricing mode and whether the zip code has a 75th percentile close to the dividing line between clusters. Once the zip codes are divided into these preliminary clusters, a series of tests are done to make sure that, based on price data and economic or demographic characteristics, they make sense. Finally, a critical step is to smooth the clustering in order to ensure geographical consistency. If a zip code area is assigned a different cluster than its neighbors, the data are examined to determine whether this zip code represents a separate market.[10] In a city, parents may cross zip code boundaries from home to child care provider, so the zip code areas are likely to be in the same market. These zip code areas are then combined into the same cluster (or "smoothed"). If the zip code area represents a distinct market from its neighbors, then it remains in its cluster. Key to the Oregon method is the guidance of an advisory committee with extensive knowledge of local child care markets to help define these markets and identify situations when smoothing is necessary.

Minnesota. Recent work in Minnesota has examined a number of different methods for creating geographic groupings (Davis et al., forthcoming). Testing of a number of different methods resulted in a recommendation to use a univariate classification method based on Jenks natural breaks. This method finds the optimal groupings by minimizing the sum of absolute deviations about class medians (Slocum, 1999; Chapter 4). In effect, this method looks for groups or clusters that occur in the data and provides a systematic way to find the natural breaks between groups. Although there are many statistical methods available for creating groupings, the use of Jenks natural breaks in ArcGIS software relies on a method developed for the purpose of classifying geographic areas into a small number of groups in order to identify spatial patterns. Use of ArcGIS software allows for classification into groups along with creation of maps showing the groups' location. Visual inspection of the clusters on a map and additional testing are important steps to ensure that the groups reflect the child care market.

The geography of child care markets and thus of market price studies challenges states. Standard geographical units such as counties may not represent child care market boundaries. Smaller units such as zip codes support identification of child care markets, but choosing how to group zip codes requires use of both statistical analyses and judgment. The small number of facilities in some counties and zip codes challenges states' ability to get an accurate estimation of prices. For all of these reasons, states have begun experimenting with methods of creating geographic groupings of either zip codes or counties. These methods range from relatively simple (groupings into urban and rural counties) to complex (groupings based on cluster analysis of multiple demographic characteristics of zip codes). Our analyses led to identification of cautions and concerns, as well as preferences for methods that appear to produce meaningful groupings. Yet, we are in early stages and we expect our understanding will continue to grow. We suggest application of the principles for evaluating market price study options. Further, we recommend multiple tests of any grouping method being considered.

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[10] The smoothing based on neighboring zip code areas is a way of clustering with a spatial constraint (Slocum, 1999). This method examines situations where a zip code area is assigned to a different rate area than the surrounding areas to ensure that it represents a different child care market.

Pricing modes and price conversions

The major pricing modes used by child care facilities are hourly, daily, weekly, or monthly. Most facilities price in a single mode, but some offer parents multiple modes, e.g., one price per hour and another price per month. For some facilities, multiple pricing modes are associated with volume or quantity pricing in which price per unit is lower if a higher unit (e.g., day, week, or month) of care is purchased. *Conversion* is the term used to describe the process of converting a price reported in one mode into a price in another mode. For example, a provider who only has an hourly charge reports a price of $2.50 per hour. That $2.50 per hour could be converted into a daily, weekly, or monthly price by multiplying it by a given number.

The majority of states use some type of conversion in data collection, data analysis, or rate setting (Weber et al., 2007). Reasons for conversions include overcoming the problem of too few prices in one mode in a geographic area to support analysis or simplifying data collection or analysis. In this section, using data from Oregon and Minnesota, we report on a number of analyses to demonstrate whether converted prices accurately represent child care prices. We start with analyses of the modes in which facilities price child care because pricing behavior affects whether or not conversions will distort findings. A conversion formula accurately captures prices to the extent that it matches the way providers themselves convert prices from one mode to another. For example, if facility daily prices are 8 times the hourly price, then the conversion formula of 8 times the hourly price will accurately capture daily prices. Use of any number other than 8 will result in the converted daily price being either higher or lower than the actual price charged by facilities. Pricing behavior of child care facilities provides the foundation for a discussion of price conversions. In this section we explore:

- pricing modes used by child care facilities,
- formulas used by facilities that charge in more than one mode (for example, for a facility that has both an hourly and daily price, how many hours are represented implicitly in the daily price), and
- the impact of two different conversion methods on price findings.

We address the following specific questions:

(a) How common is it for child care facilities to charge in more than one pricing mode, and do facilities that charge in a single mode differ systematically from those that charge in more than one mode?

(b) How do facilities convert a price in one mode into a price in another mode if they charge in more than one pricing mode or are asked to provide a price in another mode? By what numbers do facilities multiply or divide in order to create prices in a second pricing mode?

(c) Do conversions based on market ratios distort study findings; that is, do converted prices differ from the prices reported by facilities?

(d) Do conversion formulas commonly used by states distort findings; that is, do they create differences between converted and reported prices of facilities that charge in more than one mode?

Data on all the price modes a facility charged were available in the R&R administrative data update (in both Oregon and Minnesota) and the mail survey (in Oregon only). We also used the Oregon telephone survey to improve our understanding of the relationship between prices in different pricing modes. In the telephone survey we first asked the facility the most common way they charged for full-time care for a particular age group (see Appendix D for question wording). To better understand how facilities themselves converted from their most common price mode to a different mode, we then asked each facility about two additional price modes. For example, if a facility indicated that hourly was their most common mode, we then asked what they would charge per day and per week.

Two important decisions preceded these analyses:

1. *To conduct analyses at the facility level using only toddler care prices*. We chose toddler prices because they have been found to be the most representative (closest to the combined price for all age group prices) in Oregon (Grobe et al., 2006).
2. *To analyze center and family child care prices separately.* As evidenced throughout this report, family child care prices are quite different from center care prices. Thus, it was not feasible to combine family and center facilities for these analyses. In addition, for much of the analysis it was crucial to have prices in more than one mode. For centers this resulted in small sample sizes (<10) which in some cases limited our ability to conduct separate analyses for family and centers. Therefore, some analyses were based on family child care prices only, for which larger sample sizes were available.

Question 1: How common is it for child care facilities to charge in more than one pricing mode, and do facilities that charge in a single mode differ systematically from those that charge in more than one mode?

Multistate analysis – Oregon and Minnesota

Summary of findings. The majority of child care facilities in Oregon and Minnesota charged in only one mode. Separating the hourly-only pricing mode from the other single modes (daily, weekly, or monthly) showed a consistent pattern across both states. Family child care homes were more likely than centers to charge only an hourly price in both states. In addition, both centers and family child care homes located in areas with the highest child care prices (rate area A in Oregon and Minneapolis–St Paul in Minnesota) were less likely than facilities in other areas to charge only an hourly price in both states (Table 27). Prices for the hourly-only pricing mode facilities were consistently lower than prices of facilities that charge in any other mode (alone or in combination) in both Minnesota and Oregon. The prices of facilities that charge only hourly differed significantly from the hourly prices of facilities that charge in at least one additional mode.

The majority of child care facilities in Oregon and Minnesota charge in only one mode. However, pricing practices appear to vary by state. Fifty-eight percent of all child care facilities in Minnesota charged in a single pricing mode (hourly, daily, or weekly), whereas 76% of all Oregon child care facilities charged in a single mode (hourly, daily, weekly, or monthly). Type of care was associated with pricing modes, but again the patterns varied by state. In Oregon, centers were more likely to charge in a single mode, whereas in Minnesota family child care homes were more likely to do so (Table 26).

Table 26. Use of Single Pricing Mode by Type of Care in Oregon and Minnesota

	Oregon			Minnesota		
Type of Child Care	*Total # of facilities*	*# that charge in single mode*	*% that charge in single mode*	*Total # of facilities*	*# that charge in single mode*	*% that charge in single mode*
Centers	314	267	85%	640	253	39%
Family child care	4,372	3,284	75%	8,938	5,291	59%
All facilities	4,686	3,551	76%	9,578	5,544	58%

It is likely that hourly-only pricing differs from pricing only by the day, week, or month. Hourly-only prices are likely to be associated with less stable income because the facility receives payment only for the hours of care received by the child, a number which is likely to vary over days or weeks. It is likely that provider practices and market constraints are associated with having only an hourly price. Most important for a market price study, it is likely that hourly prices may not be comparable across facilities. The hourly price of a facility that also charges by day, week, or month may differ from the hourly price of a facility that has only an hourly price. **Separating the hourly-only pricing mode from the other single modes (daily, weekly, or monthly) showed a consistent pattern across both states.** Family child care homes were more likely than centers to charge only an hourly price in both states. In addition, both centers and family child care homes located in areas with the highest child care prices (rate area A in Oregon and Minneapolis–St Paul in Minnesota) were less likely than facilities in other areas to charge only an hourly price in both states (Table 27). Whereas only 2% of Minnesota centers in the Minneapolis-St Paul metropolitan area had only hourly prices, 22% of centers in the rest of the state did. In Oregon, 6% of centers in the most urban areas had only hourly rates whereas 26% to 30% of centers in the rest of the state did (Table 27). In Minnesota, the same pattern appeared for family child care, with only 7% of family child care providers in the most urban area charging only an hourly price and 42% of family child care homes in the rest of the state having only an hourly price. In Oregon, the basic pattern is the same but the percentages varied. Oregon family child care providers in the most urban areas were the least likely to charge only an hourly price; 39% of them did whereas between 51% and 64% in the rest of the state charged only an hourly price.

The hypothesis that facilities that charge only an hourly price have lower hourly prices than facilities that charge in more than one mode is supported by a comparison of hourly prices of facilities that charge only by the hour with the hourly prices of facilities who charge in more than one mode (Table 28). **Prices for the hourly-only pricing mode facilities were consistently lower than prices of facilities that charge in any other mode (alone or in combination) in both Minnesota and Oregon. The prices of facilities that charge only hourly differed significantly from the hourly prices of facilities that charge in at least one additional mode.**

Table 27. Comparisons of Providers with Only Hourly Pricing Mode vs. Other Single Pricing Modes and Multiple Pricing Modes

CENTERS										
	Oregon R&R Admin. Data Update						**Minnesota R&R Admin. Data Update**			
	Rate area A[a]		*Rate area B*		*Rate area C*		*Minneapolis–St Paul*		*Greater MN*	
	N	%	*N*	%	*N*	%	*N*	%	*N*	%
Hourly only	14	6%	19	30%	9	26%	7	2%	51	22%
Single mode other than hourly only	180	84%	35	56%	10	28%	115	28%	80	39%
All other modes	22	10%	9	14%	16	46%	285	70%	102	39%
All facilities	216	100%	63	100%	35	100%	407	100%	233	100%
FAMILY CHILD CARE HOMES										
	Oregon R&R Admin. Data Update						**Minnesota R&R Admin. Data Update**			
	Rate area A		*Rate area B*		*Rate area C*		*Minneapolis–St Paul*		*Greater MN*	
	N	%	*N*	%	*N*	%	*N*	%	*N*	%
Hourly only	770	39%	746	51%	599	64%	212	7%	2,525	42%
Single mode other than hourly only	682	34%	386	27%	101	11%	1,084	34%	1,635	28%
All other modes	528	27%	322	22%	238	25%	1,842	59%	1,798	30%
All facilities	1,980	100%	1,454	100%	938	100%	3,138	100%	5,958	100%

[a] Rate areas A, B, and C correspond to the three rate areas found in Oregon's 2006 market price study. Area A prices are consistently the highest prices in the state and Area C prices are consistently the lowest.
Note: In other Oregon analyses throughout this report we included large family homes with centers. We make an exception in this table. Here we combine Oregon data on large family homes with family child care to be comparable with Minnesota data.

Table 28. Comparisons of Facilities that Charge Only Hourly and Those with Multiple Modes Using Toddler Full-time Family Child Care Prices in Oregon and Minnesota

	Oregon Data				**Minnesota Data**	
	R&R admin. data update		*R&R mail survey*		*R&R admin. data update*	
Comparisons	*N*	*Mean (SD)*	*N*	*Mean (SD)*	*N*	*Mean (SD)*
Hourly price only	2,083	$2.31** (0.54)	172	$2.48** (0.59)	2,737	$2.48** (0.97)
Hourly plus daily, weekly, or monthly	924	$2.73 (0.87)	203	$2.70 (0.75)	1,801	$3.83 (1.74)

Although we saw a consistent pattern across the two states in the relationship between hourly prices of facilities that only charge hourly and the hourly prices of those that charge in hourly and another mode,

we saw no consistent patterns for other pricing modes. Inconsistent patterns across datasets and states were found for daily, weekly, and monthly prices (Table 29). **The prices of facilities that charged daily only, weekly only, or monthly only did not differ consistently from the prices of facilities that charged in multiple modes.**

- In two of the three Oregon R&R administrative data update comparisons and all three R&R mail survey comparisons, prices for single-price mode facilities were higher than prices in facilities with multiple price modes (Table 29). The actual price differences were significantly different in two of these six (33%) comparisons.
- In contrast, both Minnesota's comparisons showed prices at facilities with multiple-price modes being higher and significantly different compared to facilities with only one price mode.

Table 29. Comparison of Facilities that Charge Only Daily, Weekly, or Monthly and Facilities with Multiple Modes Using Toddler Full-time Family Child Care Prices in Oregon and Minnesota

		Oregon Data				**Minnesota Data**	
		R&R admin. data update		*R&R mail survey*		*R&R admin. data update*	
Comparisons		*N*	*Mean (SD)*	*N*	*Mean (SD)*	*N*	*Mean (SD)*
1	Daily price only	412	$24.13 (6.46)	59	$26.18** (5.21)	727	$23.85** (4.82)
	Multiple modes	407	$24.35 (5.60)	202	$23.45 (6.06)	3421	$28.65 (7.28)
2	Weekly price only	189	$117.52 (26.65)	18	$116.67 (32.94)	1,985	$129.55** (25.43)
	Multiple modes	286	$115.05 (27.73)	175	$109.67 (30.94)	3,458	$132.17 (25.68)
3	Monthly price only	455	$449.83** (95.58)	56	$454.71 (96.13)	-	-
	Multiple modes	654	$426.11 (83.77)	193	$433.24 (107.91)	-	-

Source: Oregon R&R administrative data update and R&R mail survey; Minnesota R&R administrative data update

Note: Geographic differences were also analyzed among the three rate areas (A, B, and C) found in Oregon's 2006 market price study. The results by rate areas generally followed the same pattern as was found in the statewide prices; that is, if the single-price mode was higher at the statewide level it also tended to be higher than multiple modes at the geographic unit level. In Minnesota, regional (Region 11 vs. Greater Minnesota) areas showed much smaller differences in prices between the comparisons. When analyzed at the regional level in Minnesota, the average price for family child care was similar whether the facility charged in one or multiple modes.

** $p < .01$

Although we found that hourly prices of facilities that only charged hourly were consistently lower than hourly prices of facilities that also charged in another mode, we did not find a systematic relationship across datasets or states for other pricing modes. Researchers should conduct a comparison between prices of single- and multiple-price mode facilities to better understand the dynamics of how facilities charge in their state. The ability of conversions to produce accurate prices depends on the extent to which the pricing practices of child care facilities are standard across pricing modes, types of care, and geographic location. We did not find consistent pricing practices in Oregon or Minnesota. We further test these initial findings by exploring the conversion formulas actually used by facilities in the two states.

Question 2: How do facilities convert a price in one mode into a price in another mode if they charge in more than one pricing mode or are asked to provide a price in another mode? By what numbers do facilities multiply or divide in order to create a price in a second pricing mode?

Multistate analysis – Oregon and Minnesota

Summary of findings. Facilities that offer prices in more than one mode do not share a standard way of converting from one price mode to another. Overall, the mean market ratios for all three data collection methods were different from each other, although many of the differences were not statistically significant.

We use the term *market ratio* to describe the conversion formulas identified by analyzing the relationships among the prices in facilities with multiple modes. For example, 8 times $2.50 per hour equals a daily price of $20.00. This analysis examined how facilities go about pricing when they price in more than one mode (e.g., hourly and weekly). Specifically, we identified facilities with two pricing modes. Using a dataset of these facilities with prices in two modes, we first created a market ratio by dividing one price mode by another (e.g. weekly by daily). Then we averaged this market ratio (referred to as *mean market ratio*) across facilities who had both pricing modes. We repeated this analysis for each combination of pricing modes. This analysis used Oregon data from all three data collection methods (R&R administrative data update, mail survey, and telephone survey). The analysis also used Minnesota R&R administrative update data. The ratios calculated included:

1. Using the R&R administrative data update (Oregon and Minnesota) and the mail survey, mean market ratios were calculated for facilities that had prices in multiple modes (e.g., daily and weekly). This was done for all price conversions shown in Table 30.
2. For Oregon R&R facilities in the telephone survey, mean market ratios were calculated slightly differently. We asked facilities about the most common mode they charged for a particular age group, and then proceeded to ask them if they had to report prices for two other modes what these prices would be. We calculated mean market ratios based on facility responses to these questions. For example, when a facility indicated their most common mode was daily and they also provided a weekly price, we calculated a market ratio by dividing weekly prices by daily prices and averaging them across facilities to determine the mean market ratio.

Table 30 displays comparisons of mean market ratios across the different data collection methods. The R&R telephone survey mean market ratios were further divided into both center (including large family) and family child care, as were the Minnesota results. All these mean market ratios were calculated using

Table 30. Mean Market-Ratio Comparison Across Data Collection Methods Using Oregon and Minnesota Full-time Toddler Prices

		Oregon Data				Minnesota Data		Commonly Used Conversion Formulas
		R&R Phone		R&R Update	R&R Mail	R&R Update		
		Center	Family	Family	Family	Center	Family	
		Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	
1	Ratio when facility has daily and WEEKLY (weekly / daily)	5.14 (0.51)	5.10 (0.86)	4.88 (0.68)	4.83 (0.58)	3.85[d] (0.77)	4.67 (0.53)	5
		N=15	*N=228*	*N=115*	*N=149*	*N=359*	*N=3,232*	
2	Ratio when facility has monthly and DAILY price (monthly / daily)	20.87[a] (16.15)	18.57 (4.50)	18.67 (2.68)	19.28 (2.60)			21.65 21.75 22
		N=114	*N=389*	*N=142*	*N=149*			
3	Ratio when facility has hourly and WEEKLY price (weekly / hourly)	43.57 (12.23)	45.49[b] (12.99)	39.54 (8.64)	39.87 (7.80)	27.25[d] (8.9)	37.16 (10.94)	40 45
		N=21	*N=486*	*N=224*	*N=137*	*N=196*	*N=1,612*	
4	Ratio when facility has monthly and HOURLY price (monthly / hourly)	-	-	168.94[c] (31.40)	162.52 (27.80)			160 180
		-	-	*N=556*	*N=151*			
5	Ratio when facility has monthly and WEEKLY price (monthly / weekly)	4.05 (0.60)	3.86[b] (0.75)	4.01 (0.61)	4.04 (0.41)			4.13 4.33
		N=104	*N=397*	*N=123*	*N=142*			

Source: Oregon R&R administrative data update, R&R mail survey, R&R phone survey; Minnesota R&R administrative data update

[a] Significantly different (p <.05) from R&R Phone Family, R&R Admin. Family, and R&R Mail Family

[b] Significantly different (p <.05) from R&R Phone Center, R&R Admin. Family, and R&R Mail Family

[c] Significantly different from R&R mail survey at the p <.05 level.

[d] Significantly different from R&R update family at the p <.01 level.

prices for toddler care. In a final column we display the conversion formulas most commonly used by states. A more complete discussion of the use of state formulas follows, but the factors used in the state conversion formulas are included here to facilitate comparison of provider practices and state formulas.

Overall, the mean market ratios for all three data collection methods were different from each other, but many of the differences were not statistically significant.

- The mean market ratios for the first comparison (#1) differed, but were significantly different only for Minnesota.
- In all of the other comparisons (#2, #3, #4, #5), mean market ratios were significantly different in at least one instance or both of the states.
- Amounts of difference varied by pricing mode. For conversions from daily to weekly, facilities multiplied by a number between 3.85 and 5.14. Monthly prices ranged from 18.57 to 20.87 times the daily price; weekly prices ranged from 27.25 to 45.49 times the hourly price; and monthly prices ranged from 3.86 to 4.05 times the weekly price.

Facilities that offer prices in more than one mode do not share a standard way of converting from one price mode to another.

Question 3: Do conversions based on the formulas used by facilities that charge in more than one mode distort study findings; do converted prices differ from the prices reported by facilities?

Multistate analysis – Oregon and Minnesota
Summary of findings. The results show that the market ratio based conversions produced differences in price findings.

In the next analysis we used price data to determine the accuracy of converting prices from one mode to another through the mean market ratios shown in Table 30. We compared nonconverted price data in a particular mode to a converted price based on the mean market ratios. Oregon data from all the data collection methods (administrative data update, mail survey, and telephone survey) were used in this analysis, as were data from Minnesota's R&R administrative data update. We calculated all these comparisons using prices for toddler full-time care.

The results show that **the market ratio based conversions produced differences in price findings** (Table 31). In over half of the comparisons, the nonconverted and converted prices were significantly different (11 out of 16).

Overall, the pricing modes and price conversion analyses suggest that:

- Conversions introduce differences in price findings when using market ratios to analyze the relationship between pricing modes of facilities that reported having prices in more than one mode. Some differences were significantly different.
- The size of the differences varied: converted prices were sometimes less than nonconverted prices and sometimes more.
- Large standard deviations indicate sizable variance among facilities in differences between reported and converted prices.

Table 31. Market-Ratio Conversions Using Toddler, Family, and Full-time Prices Across Data Collection Methods in Oregon and Minnesota

	Oregon Data			Minnesota Data
	R&R Phone	R&R admin. Update	R&R Mail	R&R admin. Update
	Family	Family	Family	Family
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
1. Conversion from weekly to *daily* price				
Nonconverted daily price	$26.56 (6.52)	$24.15 (5.99)	$24.06 (5.98)	$27.81 (7.15)
Weekly price / market ratio	$24.38 (7.34)	$23.74 (5.59)	$22.84* (6.44)	$28.10* (5.49)
2. Conversion from monthly to *daily* price				
Nonconverted daily price	$26.56 (6.52)	$24.15 (5.99)	$24.06 (5.98)	
Monthly price / market ratio	$24.00** (5.41)	$23.33** (4.81)	$22.72** (5.48)	
3. Conversion from hourly to *weekly* price				
Nonconverted week price	$124.36 (37.46)	$115.85 (27.27)	$110.32 (31.11)	$131.22 (25.62)
Hourly price * market ratio	$111.31* (27.63)	$96.18** (27.04)	$103.56** (27.36)	$112.12** (55.15)
4. Conversion from hourly to *monthly* price				
Nonconverted month price	-	$435.51 (89.82)	$438.07 (105.57)	
Hourly price * market ratio	-	$410.93** (115.52)	$422.12 (111.53)	
5. Conversion from weekly to *monthly* price				
Nonconverted month price	$445.70 (100.47)	$435.51 (89.82)	$438.07 (105.57)	
Weekly price * market ratio	$480.03 (144.58)	$464.54** (109.35)	$445.69 (125.68)	

Source: Oregon R&R administrative data update, R&R mail survey, R&R phone survey; Minnesota R&R administrative data update

Note: Based on prior analyses it is likely that regional differences may exist in both states.

* $p < .05$; ** $p < .01$

Question 4: Do current conversion formulas commonly used by states introduce differences between converted and reported prices; that is, do conversions using state conversion formulas distort reported prices?

Multistate analysis – Oregon and Minnesota

Summary of findings. Overall, converting prices from one mode to another mode distorted prices, however, the average converted price was not always significantly different from the average non-converted price (Table 32 and Appendix G).

For the final analysis we moved from an examination based on facility pricing practices to an analysis based on the different conversion formulas commonly used by states in their market price surveys (Weber et al., 2007; see Sidebar 3). First, we compared prices converted by using different state formulas to the prices reported by child care facilities. The prices obtained directly from facilities came from the R&R administrative data update and the mail survey (Oregon only). These facility-reported prices were converted from one mode to another (e.g., from monthly to hourly) using the states' formulas, and the converted prices were compared to the directly reported prices to determine the effect, if any, of converting prices. Overall, **converting prices from one mode to another mode distorted prices; however, the average converted price was not always significantly different from the average nonconverted price** (Table 32 and Appendix H).

Sidebar 3: Conversion Formulas Used by States

Conversion **to daily** from a weekly price:
weekly price divided by 5 days

Conversion **to daily** from a monthly price:
monthly price divided by 21.65, 21.75, or 22 days

Conversion **to weekly** from a hourly price:
hourly price times 40 or 45 hours

Conversion **to monthly** from a hourly price:
hourly price times 160 or 180 hours

Conversion **to monthly** from a weekly price:
weekly price times 4.13 or 4.33 weeks

1. For example, in conversion #1, we examined facilities that had both a weekly and daily price; we converted weekly to a daily price by dividing by five. The average and percentiles of this converted weekly price, along with the average and percentiles for the nonconverted daily price are shown in Table 32. The average and percentile prices differed between the converted and nonconverted prices and were different in both states but significantly different only in Minnesota.
2. In conversion #2, we converted from monthly to daily price. This conversion resulted in statistically significant differences for all of the converted prices in comparison to the nonconverted price in Oregon.[11]
3. In conversions #3, #4, and #5 (e.g., hourly to weekly, hourly to monthly, weekly to monthly), some but not all of the Oregon converted prices were significantly different than the nonconverted prices.

[11] Minnesota does not collect data on monthly prices in its survey; therefore we were able to compare conversions using monthly modes only for Oregon.

4. In conversions #3 and #6 (e.g., hourly to weekly, hourly to daily) all of the Minnesota converted prices were significantly different than the nonconverted prices.

Table 32 also shows the number of converted prices that were the same as the nonconverted prices. Converted prices were considered the "same" if they were within 5% of the nonconverted price.

1. For the first (#1) conversion from weekly to daily prices, we saw that 70% of the converted prices were the same as the nonconverted prices in Oregon, and 57% in Minnesota (Table 32).
2. A greater imbalance was seen in the conversions from monthly to daily price (conversion #2, Table 32). Here just 9% of converted and nonconverted prices were the same.
3. Similarly, only small (34% or less) percentages of converted prices were the same as non-converted prices for conversions #3 in Oregon and Minnesota (hourly to weekly); up to 34% of converted prices were the same in Oregon; and 7% of the converted prices were the same as the nonconverted prices in Minnesota.

These results raise concerns about the conversion formulas states are using, as well as about alternative conversion methods such as conversions based on market ratios. It is not clear that any conversion formula can accurately convert prices reported in one mode into another. Facility pricing practices are not standard, and there may well be high levels of variance within and between states. We have seen substantial differences in pricing practices between centers and family facilities and between areas with higher and lower child care prices (rate area A in Oregon and Minneapolis–St Paul in Minnesota). Formulas derived from analysis of provider conversion formulas (Table 31) and based on common state practice (Table 32) distorted findings such that converted prices differed from reported prices.

Provider pricing practices are not standardized. They are associated with type of care and location. Centers and family child care homes in areas with lower prices are more likely to charge only an hourly price, and even in areas with higher prices, family child care homes are more likely than centers to charge only an hourly price. We also saw that facilities that charge only an hourly price consistently have lower hourly prices than facilities that charge by the day, week, or month in addition to by the hour. Prices of facilities that charge only by the day, week, or month may be either higher or lower than those who charge in multiple pricing modes; no consistent pattern appears for those charging only by day, week, or month. In addition, facilities that charge in multiple modes use no standard formula for converting from one mode to another. Rather, the number of hours, days, or weeks used by facilities to convert from one mode to another differ across the two states and by source of data in Oregon.

As noted in the Introduction, some facilities use volume or quantity pricing increasing the stability of their revenue by encouraging parents to purchase care by the day, week, or month. Quantity pricing is more common in areas with higher child care prices and for centers than for family child care. Facilities vary in their decisions of how to price larger amounts of time as can be seen by the range of days per week represented in weekly prices (3.85 to 5.14 days) in Table 32. The variation in facility pricing practices provides insight into why a single formula may not accurately convert prices from one mode to another.

Table 32. Price Conversions Using Toddler, Family, and Full-time Prices by R&R Administrative Data Update in Oregon and Minnesota

	Oregon R&R Admin. Data Update					Minnesota R&R Admin. Data Update				
	Mean (SD)	*25th*	*50th*	*75th*	*Comparison between converted and non-converted price*	*Mean (SD)*	*25th*	*50th*	*75th*	*Comparison between converted and nonconverted price*
1. Conversion from weekly to *daily* price, *N* = 115						**N=5,443**				
Nonconverted day price	$25.60 (6.12)	$21	$25	$30		$27.81 (7.15)	$23	$25	$31	
Weekly price / 5	$24.75 (5.94)	$20	$25	$27	Same = 70%	$26.24** (5.12)	$23	$26	$30	Same = 57%
2. Conversion from monthly to *daily* price, *N* = 142						Not available				
Nonconverted day price	$25.11 (5.22)	$22	$25	$30						
Monthly price / 21.65	$21.42** (4.56)	$18	$21	$23	Same = 9%					
Monthly price / 21.75	$21.32** (4.54)	$18	$21	$23	Same = 9%					
Monthly price / 22	$21.08** (4.49)	$18	$20	$23	Same = 8%					
3. Conversion from hourly to *weekly* price, *N* = 224						**N=4,538**				
Nonconverted week price	$111.82 (27.34)	$100	$110	$125		$131.22 (25.62)	$113	$130	$150	
Hourly price * 40 hours	$117.53 (40.65)	$100	$104	$120	Same = 34%	$120.68** (59.37)	$80	$97	$124	Same = 7%
Hourly price * 45 hours	$132.22** (45.73)	$113	$117	$135	Same = 15%	$135.77** (66.79)	$90	$110	$140	Same = 7%

Source: R&R administrative data update in Oregon and Minnesota
Note: Significance tests were conducted for means, but not for the percentile (25th, 50th, 75th) prices. See Appendix H for Oregon mail survey results.
** $p < .01$.

Table 32 (continued). Price Conversions Using Toddler, Family, and Full-time Prices by R&R Administrative Data Update in Oregon and Minnesota

	Oregon R&R Admin. Data Update					Minnesota R&R Admin. Data Update				
	Mean (SD)	*25th*	*50th*	*75th*	*Comparison between converted and non-converted price*	*Mean (SD)*	*25th*	*50th*	*75th*	*Comparison between converted and nonconverted price*
4. Conversion from hourly to *monthly* price, *N* = 556						Not available				
Nonconverted month price	$418.76 (80.13)	$375	$400	$450						
Hourly price * 160 hours	$410.95 (122.61)	$320	$400	$480	Same = 21%					
Hourly price * 180 hours	$462.32** (137.94)	$360	$450	$540	Same = 15%					
5. Conversion from weekly to *monthly* price, *N* = 123						Not available				
Nonconverted month price	$462.77 (96.81)	$400	$450	$504						
Weekly price * 4.13	$484.87 (114.11)	$413	$475	$529	Same = 72%					
Weekly price * 4.33	$508.35** (119.64)	$433	$498	$554	Same = 9%					
6. Conversion from hourly to *daily* price					Not available	***N* = 4,538**				
Nonconverted daily price						$27.81 (7.15)	$23	$25	$31	
Hourly price * 8						$24.13** (11.87)	$16	$19	$25	Same = 7%
Hourly price * 10						$30.17** (14.84)	$20	$24	$31	Same = 39%

Source: R&R administrative data update in Oregon and Minnesota

Notes: Significance tests were conducted for means, but not for the percentile (25th, 50th, 75th) prices. See Appendix H for Oregon mail survey results.

** $p < .01$.

Unit of analysis

A key issue in market price studies is the unit of analysis; that is, should prices be analyzed by facility or by the number of child care slots the facility offers? Parents are looking for a child care slot. Some facilities have few slots, and others have many slots. Facilities with more slots offer greater potential for parents to find care, and the prices at these larger facilities have more dominance in the child care market. To account for this, should market price studies weight a facility's prices by the number of slots offered at that price? How should the number of slots be defined? There are four possible ways: (1) the number of children for whom the facility was licensed, (2) the facility's desired capacity, (3) the number typically in care, or (4) the number of children actually enrolled at time of data collection.

Question: What is the effect of unit of analysis in market price studies? Are prices systematically higher or lower for particular types of care when weighted by number of children (slots) vs. by facilities?

Single-state analysis – Oregon

Summary of findings. To determine the effects of using slot prices versus facility prices to calculate market prices, we compared child care facility prices and child care slot prices within age groups and provider type, across data collection methods. In Oregon, across data collection methods, using slot prices rather than facility prices systematically produced higher average prices in most comparisons.

As indicated in Section II, Oregon R&R administrative update data were weighted by total capacity for family facilities and by age group for centers (Grobe et al., 2006). For the mail and telephone survey data, slot weights were calculated by multiplying the sample weight for that facility by the number of children (slots) for each age group. For facilities with missing age capacity data, capacity was estimated by calculating the proportion of total capacity from the available age group capacity data separately for family facilities and centers. For example, the steps for estimating family infant capacity included:

(a) separating facilities that have infant capacity data from those that serve infants but are missing infant capacity data,
(b) calculating the proportion of total infant capacity for each facility with infant capacity data (e.g., infant capacity divided by total capacity),
(c) averaging the proportion in (b) by all facilities with infant capacity, and
(d) multiplying average proportion calculated in (c) by the total facility capacity for each facility that is missing infant capacity.

Missing data were a greater issue for the mail data than for the telephone data. For the mail survey, age group capacity data were missing for 17% of infant prices, 9% of toddler prices, 9% of full-time preschool prices, 14% of school-age school-year prices, and 11% of school-age summer prices. Facility prices were weighted by the sample weight for both the mail and telephone survey

The table in the box to the right (Sidebar 4) is an example of the comparisons completed for the toddler age group. The same information was generated for each of the five age groups.

- Family slot prices were compared with family facility prices and shaded gray when they differed. For example, the $480 monthly family slot price does not equal the family facility monthly price of $485.
- A similar comparison was done for center care (including large family child care) by the four price modes (hour, day, week, and month).
- Comparisons were done for the three data collection methods used in this study (analysis of R&R administrative data update, mail survey, and telephone survey).

Sidebar 4: Example of the Comparisons Completed Between Facilities and Slots by Type of Care for Toddlers

Toddler - Mail Survey				
	Hour	Day	Week	Month
Family (by facility)				
nsize	*N* =2951	*N* =797	*N* =472	*N* =1094
p_75	$2.50	$27	$130	$485
p_50	$2.25	$25	$115	$400
p_25	$2.00	$20	$100	$389
Family (by slot)				
nsize	*N* =17833	*N* =5320	*N* =2892	*N* =6806
p_75	$2.50	$25	$130	$480
p_50	$2.25	$25	$117	$400
p_25	$2.00	$20	$100	$390
Center + Large Family (by facility)				
nsize	*N* =147	*N* =74	*N* =101	*N* =288
p_75	$3.52	$35	$212	$785
p_50	$3.00	$30	$166	$609
p_25	$2.50	$25	$130	$480
Center + Large Family (by slot)				
nsize	*N* =147	*N* =74	*N* =101	*N* =288
p_75	$3.52	$40	$233	$851
p_50	$3.00	$30	$212	$728
p_25	$2.50	$25	$175	$550

Table 33 summarizes the results for all age groups, by type of care across data collection methods in Oregon. There were 12 comparisons for each of the 5 age groups for a total of 60 comparisons by type of care and method.

1. For family child care, prices differed between facilities and slots in 22% to 33% of the comparisons (Table 33). In the case of R&R administrative data update and R&R telephone survey, most of the slot prices were found to be higher than facility prices. This was the opposite for the mail survey where slot prices were more likely to be lower than facility prices.
2. For center care, A higher percentages of prices differed between facilities and slots across methods (43%-77%). The majority of slot prices were higher than facility prices for all three methods.
3. In addition, price differences were greater for center care than family child care.

In sum, when they differ from facility prices, slot prices appear to be systematically higher for most of the comparisons. Of the prices that differed, 125 (77%) slot prices were higher and 38 (23%) were lower. The differences tended to be greater for center care than for family child care, and no consistent pattern existed across data collection methods.

Table 33. Comparison of Facility and Slot Statewide Prices[a] by Type of Care Across Data Collection Methods in Oregon

Type of Data Collection Method		# of Comparisons (Out of 60 for Each cell) Where Facility and Slot Prices Differed	# of Prices Where Slots Were Either Higher or Lower than Facility Prices	Range of Price Differences Between Facilities and Slots Across Modes	Average Price Differences Between Facilities and Slots Across Modes
Family child care					
Method	R&R admin. data update	13 (22%)	11 higher 2 lower	$.05-$25 $2-$5	$4.48 $3.50
	R&R mail survey	14 (23%)	4 higher 10 lower	$.15-$25 $1-$15	$16.54 $7.70
	R&R phone survey	20 (33%)	12 higher 8 lower	$.25-$25 $.25-$82	$6.94 $17.91
Total number (%) of comparisons in which slot prices were higher than facility prices			27 (57%) higher		
Total number (%) of comparisons in which slot prices were lower than facility prices			20 (42%) lower		
Center (including large family child care)					
Method	R&R admin. data update	46 (77%)	45 higher 1 lower	$.05-$119 -	$25.13 $4
	R&R mail survey	44 (73%)	32 higher 12 lower	$.20-$76 $.10-$60	$14.42 $23.43
	R&R phone survey	26 (43%)	21 higher 5 lower	$.28-$50 $.17-$37	$20.08 $12.83
Total number (%) of comparisons in which slot prices were higher than facility prices			98 (84%) higher		
Total number (%) of comparisons in which slot prices were lower than facility prices			18 (16%) lower		

Sources: Oregon R&R administrative data update, R&R mail survey data, and R&R telephone survey data.
[a] All modes (hour, day, week, and month) were included in the analyses.

Guidance on Conducting Child Care Market Price Surveys

The market price survey process begins with conceptualization of how the priced child care market operates and moves through to a report of findings of child care prices. The guidance on conducting market price surveys in this section of the report is structured to follow this process and is based on the findings presented in the first part of this report. The flowchart (Figure 6) illustrates this process and the specific issues that are discussed in detail in this section.

Overarching Issues

- Market price surveys and rate setting are related but distinct activities with different purposes. The primary purpose of a market price survey is to accurately and reliably measure child care prices. The primary purpose of maximum rate setting is to provide low-income parents access to child care in their community within the resources available for this purpose. The rate setting process is enhanced by solid information about current market prices; this information is provided by the market price study. However, survey findings are not the only influence on rate setting. Other influences are federal and state funding, state budget, subsidy access, and other state policy considerations (Weber et al., 2007). Further, rate setting is not the only use for a market price finding. Valid market price survey findings document changes in child care prices over time, which is basic information for system improvement efforts. Multiple stakeholders need valid findings on child care prices for a variety of purposes.

- As a further distinction between the market price survey and setting maximum subsidy rates, we suggest using the terminology market *price* survey/study rather than a market *rate* survey/study. This change in language more clearly distinguishes the process of collecting and analyzing price data from setting rates.

Conceptualization

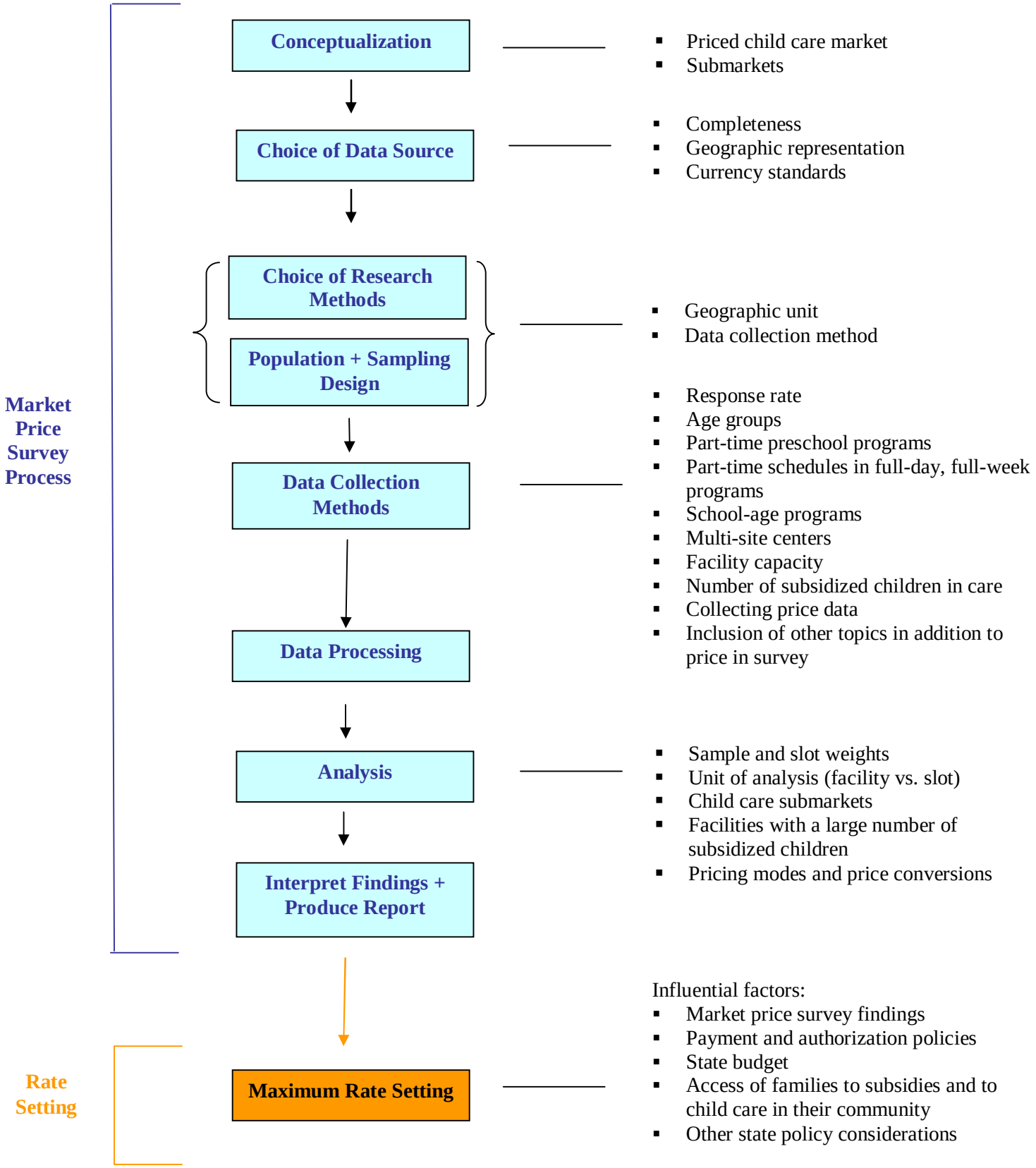
Priced Child Care Market

- The universe to be studied through a market price study is the *priced child care market*. Facilities within the priced child care market have two characteristics: (1) they charge parents a price, and (2) the price is established through an arm's length transaction. In an arm's length transaction the buyer and seller do not have a prior relationship or shared membership that is likely to affect the price charged.

- The results indicate that child care operates as a set of submarkets. Age of child, type of care, schedule, and location affect prices and therefore define separate child care submarkets.

- Given the above definition of a priced child care market, tribes should first look at the extent to which they have a priced child care market. There may be little or no priced child care market in some of the smaller tribes. If not, it may not make sense for them to conduct their own market price survey.

Figure 6. Flowchart of Market Price Survey Process and Maximum Rate Setting



Choice of Data Source

Completeness

- In identifying the facilities to include in a market price study, the lead agency should **select the list(s) of facilities that have the greatest number of facilities in the priced child care market**. The goal is to identify the list of facilities that most fully captures the universe of facilities in the priced child care market and thereby maximize validity of the market price study findings.

- If Tribal grantees are going to use the state market price survey, they should determine if facilities used by tribal families are included in the state's list of facilities.

- Each state should identify which list or combination of lists is the most complete. In Oregon, study findings showed the R&R database to be the most complete list of priced facilities; these records included legally operating and license-exempt facilities that are part of the priced child care market. In Oregon, the subsidy list was the least complete as a substantial portion of center care was missing.

- Completeness of each possible database of facilities varies across states. Each should examine the licensing, R&R, and subsidy databases to determine which has the most facilities in the priced child care market.

- Subsidy databases offer special challenges. A facility's entrance into the subsidy database results from provision of care to a family receiving a child care subsidy. Not all facilities from the priced child care market may be in the subsidy database, and facilities outside the priced market may be included. Thus, we **do not recommend that the subsidy data be the sole source of facilities to include in the universe of the priced market**. However, states may want to use the subsidy database to answer certain questions.
    - For example, to exclude from analysis facilities that serve a certain percentage of subsidized children, states may need to match whatever database they select with the database of facilities that received a subsidy payment in the recent past (e.g., the last 60 days).
    - Some unregulated, license-exempt facilities that do operate in the priced child care market may only be captured in subsidy data. The state will need a way of determining if that such facilities have a price that is established through an arm's length transaction.

Geographic Representation

- We recommend that care is taken to ensure that the list of facilities **includes facilities from all geographic parts of the state**.

Currency Standards

- We recommend that the **lead child care agency select the most current list(s) of child care facilities available**. Currency of the list of child care facilities decreases the cost of the survey because less time is spent trying to reach facilities no longer giving care. In determining which administrative database (R&R or licensing) to use as the universe of child care facilities for a market price survey, one consideration should be how frequently the database is updated and when updates happen.

- The lead agency should set a specific time period for collection of price data. Specifically, the research project advisory committee recommended that **price data be collected within a three-month time period regardless of data collection method**. We also suggest avoiding data collection in September and January, months in which facilities are most likely to change prices. Currency ensures that prices represent facilities' most recent prices. We suggest states consider not using prices collected prior to the three-month data collection period recommended above because these older prices could skew findings.

- It also follows that publication of the findings should be as close to the time of data collection as possible because findings could be out-of-date if the time period is too long between data collection and report of findings. We recommend a **six-month standard from beginning of data collection until report of market price survey findings**. It is important to identify the time frame of the data collection in the report.

- Lead agencies will need to balance other tradeoffs with these standards. For example, when using administrative data, the currency may depend on other uses of the database. It may be valuable to use this data if it is more complete even if updating takes place once per year instead of within three months.

Choice of Research Methods and Population and Sampling Design

Geographic Unit and Geographic Grouping

- Identifying the geographic component of child care markets presents challenges and no simple solution. "All child care is local" captures the reality that child care supply, including the prices of the child care facilities that make up that supply, vary by community. In order for market price survey findings to accurately represent the prices in each community, prices must be linked to communities. Yet the study findings must be manageable; states need a limited number of geographic units in setting maximum subsidy rates. Table 34 captures the advantages and disadvantages of geographic units most commonly used in market price studies.

- States should use the following guidance to identify optimal geographic groupings:

    1. Collect data on zip code and county location of facilities to allow for analysis of geographic variation in prices. Regardless of the method chosen to identify geographic units, understanding the child care market will be enhanced by examining prices at both the county and zip code level.

    2. Select a method for creating groupings that is relatively straightforward to implement and transparent or easy to explain. The analyst must determine (1) whether to group based on the price data or some other economic or demographic characteristics of the areas being grouped together; (2) whether to group counties or zip code areas (or use another geographic unit); and (3) how to group the data together (i.e., what method to use for grouping and how many groups to create). Choosing a method is important because the grouping will differ depending on the method chosen. The best approach for any particular state should reflect the characteristics of its child care market and an assessment of the trade-offs among different evaluation criteria. Testing that the resulting groups make sense in terms of the local child care market is a crucial step in the process.

Table 34. Comparison of the Advantages and Disadvantages of Various Geographic Units

Geographic Unit	**Advantages**	**Disadvantages**
Census tract	▪ Ability to differentiate markets within a county.	▪ Linking the child care facility address to a census tract number may be arduous and time consuming. ▪ Few know the census tract in which they reside or work. ▪ The large number of census tracts in a state complicates analysis. ▪ Defining child care subsidy prices for each census tract would be arduous and confusing. ▪ Many census tracts have few or no child care facilities. ▪ Difficult to use as a stratum in creating a sample. Mainly an option if surveying the universe. ▪ Seldom used in child care market price surveys.
Zip code	▪ Ability to differentiate markets within a county. ▪ Zip codes are typically provided or are easily identified.	▪ The large number of zip codes in a state complicates analysis. ▪ Defining child care subsidy prices for each zip code would be arduous and confusing. ▪ Many zip codes have few or no child care facilities. ▪ Difficult to use as a stratum in creating a sample. Mainly an option if surveying the universe.
County	▪ Commonly used and easily understood geographic unit. ▪ US Census and others use county in measuring population and other characteristics.	▪ Likely that county contains more than one child care market—cluster of child care prices; i.e., a rural county with a university town in it. ▪ Some counties have few child care facilities.
Regions/cluster of:		
Census tracts	▪ Will identify different markets within a county ▪ Clustering census tracts with the same prices will produce a limited number of price clusters and support matching prices with geographic areas. ▪ Solves problem of few facilities because there will be sufficient sample size within each cluster.	▪ Need to survey universe of child care facilities in order to empirically define clusters. ▪ A large number of units for analysis. ▪ Geographic areas not likely to make sense to parents and providers.

Table 34 (continued). Comparison of the Advantages and Disadvantages of Various Geographic Units

Geographic Unit	Advantages	Disadvantages
Zip codes	▪ All of the advantages of census tract clusters ▪ A smaller number of units than census tract clusters ▪ More easily understood than census tract clusters	▪ Need to survey universe of child care facilities in order to empirically define clusters. ▪ A large number of units for analysis. ▪ Clusters are not likely to have contiguous boundaries and may require smoothing
Counties	▪ Eliminates issues associated with small numbers of child care facilities in a county. ▪ Smaller number of units for which prices are analyzed	▪ Likely to contain more than one market and cluster of child care prices.
Urban / rural typically based on counties	▪ Easily understood	▪ Urban/rural classifications are typically based on county so have the same disadvantages as other county clusters—is likely to contain more than one market within a geographic unit. ▪ Classification not based on empirical evidence of price differences.
State	▪ Easy to implement	▪ Assumes market is the same throughout the state, an assumption not likely to be supported by data in any state.

3. If the grouping is based on an economic variable (e.g., female earnings or median housing prices) rather than child care prices, be cautious when using zip codes as the geographic unit for grouping. Testing in one state suggested that despite the high correlation between prices and female earnings at the zip code level, the groupings performed less well in terms of reflecting child care prices in the market

4. If the geographic groups are based on child care prices, consider the trade-offs between using counties and zip codes as the geographic basis for grouping. Zip code areas capture more of the price variation and allow for multiple child care markets within counties. The level of detail offered by zip code level prices is likely to result in groupings that reflect the market better. However, geographic units need understandable boundaries. For example, counties have clearly defined boundaries. Zip codes and clusters of zip codes do not. When mapping a cluster of zip codes, the analysis may create islands with different prices within a set of contiguous zip codes. The price difference for the island may be supported by data, but using it in analysis or rate setting is likely to create confusion and conflict for parents and facilities. Parents can almost always select facilities over multiple zip codes, especially in urban areas. Working with a geographic unit below county is not as simple and transparent, and will require additional time to understand and adjust clusters to ensure geographic consistency. We strongly recommend that this process use input from knowledgeable local stakeholders about the different child care markets.

5. If the geographic groups are based on an economic variable, thoroughly investigate whether the clusters capture the price variation in child care markets. The economic characteristic should be highly correlated with average child care prices by geographic unit, though high correlation is not sufficient to guarantee that the grouping will result in clusters that match child care price variation in the market. Although multiple economic characteristics could be used, the most obvious choices are highly correlated themselves (such as median family income, average earnings, median rent, and housing value) and therefore would add little additional knowledge to the clustering while making the method more complicated and less transparent. A study in Minnesota found average female earnings at the county level to perform well as the basis for grouping counties. It is likely that these correlations are not due to causal connections between the variables and prices, but rather that an unobserved variable causes prices in child care to move with other prices. Therefore, it will be important to test the price findings from the groupings each time the survey is done.

6. Testing of the geographic groupings is important. One test is to compare the 75^{th} percentile of prices in each county to the 75^{th} percentile based on its group. If the groupings are based on something other than prices, it is especially important to make sure the resulting price findings follow the expected pattern (such as having higher 75^{th} percentiles of prices in areas with higher earnings).

7. Regardless of the method chosen, it is important to use multiple sources of information and knowledge of the child care market to ensure that the clusters are indeed capturing market differences. Each method involves a certain amount of judgment, whether it is in determining the number of clusters, choosing how to combine pricing mode clusters, or deciding how to handle counties on the border between two clusters. These decisions are best made in the context of

knowledge about the area, including information on child care prices and economic and demographic characteristics and trends rather than relying solely on a statistical algorithm. A working group made up of state child care administrative staff and other people knowledgeable about child care throughout the state can provide the critical information to the analyst. The clustering software provides the starting point for determining the groupings, which must then be tested and compared to the market, and refined where necessary.

Choosing a Data Collection Method

- A decision needs to be made whether to study the universe or a sample of facilities. The chart below provides the advantages and disadvantages of using the universe of facilities rather than pulling a stratified sample.

Sampling Design	Advantages	Disadvantages
Universe	• Includes all facilities • Geographically representative data • Sufficient data in most geographic areas to cluster prices by zip code	• May not be feasible to collect data from the entire universe of facilities in some states
Stratified sample	• Representative of all facilities if stratified correctly • Geographically representative data if stratified correctly	• Additional steps prior to data collection • Need to calculate and use sample weights • Limited data in some geographic areas to cluster prices by zip code

- As long as the **data are collected using rigorous procedures, all data collection methods produce valid findings**. There is a substantial body of knowledge on what constitutes good data collection procedures. This study uses Dillman's (2000) Tailored Design Method which includes step by step instructions applicable for doing mail, telephone, or web-based surveys. This design "seeks to reduce survey errors from coverage, sampling, measurement, and nonresponse" (p. 27). We encourage states who are conducing surveys to review this easily accessible reference book.

- The choice of a data collection method can be a complex decision. Table 35 provides a comparison of the strengths and weaknesses of the main approaches to collecting data.

Table 35. Market Price Study Data Collection Methods: A Comparison

Method	Advantages	Disadvantages
Mail	• By using established survey processes, can get a high response rate. • Can add additional questions. • Relatively low cost. • Can be accomplished with minimal staff and facilities. • Respondents have time to give thoughtful answers, to look up records, or to consult with others.	• Provider alone when completing the survey and chances of not understanding or misunderstanding the question may increase. This may result in incomplete or inaccurate findings. • Survey requires a high level of project management in order to get a high response rate. • Some survey management tasks are tedious and require the project management to be constantly checking and staying on timeline. • Need good mailing addresses for sample. • Longer data collection periods to achieve high response rates. • Due to time and cost considerations, likely to need to use a sample rather than the universe. Creating geographic strata that match price clusters may be challenging. • Time needed to accurately enter the data.
Telephone	• Can result in more complete and in-depth responses as survey interviewer can probe and clarify questions. • If using Computer Assisted Telephone Interview (CATI), the data is input at time of collection. Also requires less data cleaning. • Can ask additional questions. • Data can be collected rather quickly once the system is set up; shorter data collection periods.	• Most expensive in terms of time and cost. • Due to time and cost considerations, likely to need to use a sample rather than the universe. Creating geographic strata that match price clusters may be challenging. • Sampling limitations (e.g., omitting those without telephones, cell phones) • Questionnaire constraints including limits on response alternatives and use of visual aids.
Web-based	• Survey easy to read skip patterns built into survey • Data is put into database as provider responds	• May decrease representativeness of responses as there are likely to be differences between providers able and not able to complete an Internet-based survey • Provider alone when completing the survey and chances of not understanding or misunderstanding the question may increase. This may result in incomplete or inaccurate findings.

Table 35 (continued). Market Price Study Data Collection Methods: A Comparison

Method	Advantages	Disadvantages
Mixed methods	• Able to adapt to a range of preferences in survey completion	• Survey design and management more complicated. • Costs unknown
Analysis of administrative data update, i.e., Child Care Resource and Referral (CCR&R) data	• Relatively inexpensive method of data collection. • Builds on existing investment in database of child care facilities. • Can collect data from universe of child care facilities.	• Requires that state have a CCR&R or licensing system with capacity for producing complete, reliable, and accurate data • Currency of data may be an issue depending on frequency of price updates • There may be a limited number of pricing categories permitted by the database

Data Collection Methods

Response Rate

- The goal is to achieve as high as a response rate as possible. Dillman (2000, p. 150) identifies five elements to achieve a high response rate:
    - respondent-friendly questionnaire,
    - up to five contacts with the questionnaire recipient,
    - inclusion of stamped return envelopes (specific to mail survey),
    - personalized correspondence, and
    - a token financial incentive that is sent with the survey request.

- A response rate of **65% or higher, regardless of the data collection method, is desirable**. Below 50%, the data are highly suspect. Low response rates may decrease the validity of survey findings because facilities that do not provide prices may differ from those that do, thus skewing findings.

- Unless the methods used produce a response rate of 90% or better, we encourage testing the representativeness of the completed surveys with the original sample frame. Tests can be done to see if the completed data set includes a similar percent of facilities by characteristics, such as type of care and geography, as that found in the original sample frame (for more information see Geographic Representativeness in Section I).

Age Groups

- Price data should be collected and analyzed separately for each age group, including differentiating school-age, school year prices from school-age, summer prices.

Part-day Preschool Programs

- Part-day preschools are part of the priced child care market but their pricing strategies add complexity to a market price study because: (a) the scheduling variation among preschool programs is large with multiple combinations of hours per day and days per week, (b) large sample sizes are needed to accurately capture the variability among the services these programs offer and to represent the price variations, and (c) additional survey questions are needed to represent all the options used by facilities (such as number of week days a parent can choose to enroll their child, how many hours per day the program operates, and what pricing modes they use). We encourage states to collect the necessary data to better understand this market.

- Although part-day facility schedules challenge working families, many find a way to give their child the experience these programs offer. Given the complexity indicated above, it may not be feasible to collect all of the different price and schedule permutations associated with part-day preschool programs. For states that need information on these programs, one approach would be to ask for the highest part-day price a facility charges and the maximum number of hours this price covers. This information could be used to create an hourly price (price charged divided by number of hours) for part-day preschool programs. The drawback for this solution is that part-day preschools rarely charge by the hour.

Part-time Schedules in Full-day, Full-week Programs

- Questions should be included about the attributes of the part-time schedules in full-day, full-week programs to better understand the market.

School-Age Programs

- In order to better understand the market for school-age activities, lead agencies are encouraged to define the universe of school-age programs and collect additional data on their attributes.

- School-age programs should not be lumped with part-time preschool schedules because they are considered a different submarket. The National Afterschool Association uses the following criteria for school-age programs: children are regularly enrolled, and programs are open at least four days per week for at least three hours a day with adult supervision.

Multisite Centers

- The same multisite organization may price services differently at different sites. Multisite centers (defined as two or more sites with the same director's name, mailing address, or phone number) add complexity that needs to be addressed prior to collecting price data; a plan should be created for how they will be handled. We recommend **surveying individual facilities within multisite centers** and treating multisite centers as a single facility only when they indicate that their prices do not vary across sites. When collecting data, it is important that the interviewer talks with or targets a person at the facility who at a minimum knows the capacity and prices for each age group.

- If collecting data from a random sample of facilities, it is important to count only the slots associated with the multisite centers included within the sample. It is also important to include these slots in the geographic area where they are located.

Facility Capacity

- We recommend collecting **either desired capacity or actual enrollment by age group**. As noted below, we further recommend **analysis by slots rather than facility**; in order to do so, one needs to know the number of children receiving care. In our analysis of three states' data, licensed capacity was greater than either desired capacity or enrollment. Desired capacity and actual enrollment better match the demand-based supply estimates derived from household surveys in the three states. Further, by collecting both desired capacity and actual enrollment, vacancy rates can be determined.

Number of Subsidized Children in Care

- Collecting data on the number of children receiving subsidy will be important if a state wants to exclude from analysis facilities caring exclusively (or almost exclusively) for children receiving subsidized care. For example questions, see Q39-Q40 on the survey instrument (Appendix C).

Collecting Price Data

- Because conversions can introduce differences in price findings, we recommend that states **collect price data in each pricing mode(s) (hourly, daily, weekly, and monthly) a facility charges**. That is, instead of having facilities convert their actual prices into a small set of predetermined modes when collecting data, collect price data from facilities in whatever price mode(s) the facility uses.

Inclusion of Other Topics in Addition to Price in Survey

- Some states collect workforce data at the same time that they collect price data. The advantages of including other topics in a market price survey is that it can be a cost-effective way to gather additional information, and a way to learn more about such things as the education level of and the benefits received by the workforce. The disadvantages include: (a) higher costs for the overall survey, (b) response burden (respondents having to answer more questions) and its potential negative effect on response rate, and (c) feasibility issues if data is being collected by R&R or licensing staff for an existing database which may not have fields in which workforce data can be stored. Based on these pros and cons, we recommend that this be a state-level decision based on priorities, needs, and budget.

Analysis

Sample and Slot Weights

- When analyzing data from a sample of facilities, as opposed to the universe of facilities, **sample weights should be used**. These weights are important because they weight the cases proportional to the overall sample frame of child care facilities while preserving the overall number in the sample of completes.

- In addition, if states are analyzing data from a sample of facilities, it is important to **incorporate both the sample weight and the number of children** (slots) (by age group if available) by facility. For example, when we analyzed the Oregon mail and telephone survey data, we calculated slot weights by multiplying the sample weight for that facility by the number of children (slots) for each age group. Conversely, because we had the universe of facilities in the R&R administrative data update, we were able to calculate slot weights by simply using the capacity numbers available in the R&R database.

Unit of Analysis

- **Analysis should be based on slots** because this most accurately represents what families experience when purchasing care. Our analysis demonstrated systematic differences between facility prices and child care slot prices. Child care slots most accurately represent the prices available to consumers in the community, and are thus recommended as the preferred method to report price data.

Child Care Submarkets

- **Price data should be collected and analyzed separately for each age group**, including differentiating school-year prices from summer prices for school-age children. The findings show consistent differences in prices by age group, suggesting that there are child care submarkets for different age groups.

- Price data should be collected and analyzed separately for each type of care. **Large family child care should be treated as a distinct and separate type of care if sample sizes are large enough**. If the large family child care sample is too small to support separate analysis, then findings for Oregon show **that large family child care facilities can be combined with centers** without biasing the results. However, researchers should conduct a comparison of center-only and combined center/large family prices to make sure that no significant differences exist.

- Separate analyses between license-exempt and licensed care facilities should be conducted to determine if they are distinct submarkets. The amount of legally operating, license-exempt facilities depends on state child care regulation.

Facilities with Large Numbers of Subsidized Children

- We advise lead agencies to examine facilities with a high percent of subsidized children to see if their prices are similar to those charged for private pay children. Price data from facilities with a high percent of subsidized children should be used with caution; we do not know the extent to which the relationship with the subsidy program affects the facility's price setting.

- We have no recommendation on whether or not to exclude the prices of facilities with a high percentage of children who receive subsidy. One can argue that in the case of a high percentage of enrolled children on subsidy, the facility's price is highly influenced by subsidy rates. One can also argue that if even one parent pays the facility's full price, it is a market price. One solution some states have chosen is to collect enrollment data for subsidy and private-pay children and use only the number of private-pay children enrolled as the capacity number.

Pricing Modes and Price Conversions

- Identify the predominant modes facilities charge by geography and type of care, examining percentage of facilities that charge by hour, day, week, or month. Modes are likely to differ by type of care and location.

- Instead of providing specific guidance on whether or not to convert prices, Table 36 compares the pros and cons of different price conversion options. We advise lead agencies to consider this information when deciding which option to pursue in their state.

Interpret Findings and Produce Report

- Market price survey findings can inform more than setting maximum subsidy rates. Because survey findings increase understanding of child care market dynamics, funders and other child care partners benefit. It is important for states to produce reports that describe findings and include details of the methods and analyses of their market price studies. Such reports make it possible for funders and other child care partners to access and use the information, and to assess the accuracy of the findings.

Table 36. Comparison of the Pros and Cons of Different Price Conversion Options

Description	Pros	Cons
Option 1: *States should not use conversions* if sample sizes are large enough (e.g., 30) within a given geographic unit and type of care. If prices are clustered into fewer geographic areas, sample sizes are usually large enough to not convert prices.	▪ Accurately reflects what facilities are charging. ▪ Simplifies the analysis process.	▪ May require more payment rate categories in payment system. ▪ May increase the number of maximum rate categories.
Option 2: When converting prices from one mode to another *states should use market-based ratios based on their own data*. For example, when a facility indicates that their most common mode is daily and also provide a price for weekly mode, a market ratio can be calculated by dividing weekly prices by daily prices. This ratio can then be used as a conversion factor.	▪ Provides better accounts for what facilities in a given state are doing compared to Option 3. ▪ Simplifies the number of price categories.	▪ Results show that there are differences between the converted and non-converted prices, some of them significant (Table 31). ▪ Differences between converted (using market-ratio) and non-converted prices were shown to exist by geographic region and when comparing family and center care.
Option 3: When converting prices from one mode to another *states should use the commonly-used conversion formulas* (see Sidebar 3 on p.71)	▪ Relatively straightforward to use the commonly used conversion formula. ▪ Simplifies the number of price categories.	▪ Results show that there are differences between the converted and nonconverted prices, some of them significant (Table 32). ▪ Differences between converted and nonconverted prices were shown to exist by geographic region and when comparing family and center care. ▪ Commonly used conversion factors may not be consistent with what is happening in a particular state.
Option 4: When collecting data, after facilities provide their price in whatever way they charge *states should ask how many hours and days the reported price reflects* and use this information by facility to convert prices during data analysis.	▪ Assists in getting closer to the actual facility conversion. ▪ Information can be used to better understand part-time prices.	▪ Difficult to get accurate hourly data because facilities have various different ways in which they charge (number of days, hours per day). Reliability of the data is questionable. ▪ Adds more questions to survey instrument which can lead to greater response burden and lower response rates.

Cost Effectiveness

- States should assess the cost effectiveness of their most recently completed market price survey (see next section).
- It may be helpful for lead agencies to use the four criteria (utility, accuracy, feasibility, and propriety) when balancing the value of the information that will be gathered with the costs of collecting that information (American Evaluation Association).
    - *Utility* refers to the timeliness and accessibility of the information to decision makers.
    - *Accuracy* provides information that is correct, building on valid and impartial standards, reliable procedures, and reasonable interpretations and conclusions.
    - *Feasibility* means that data collecting strategies are practical and manageable over time, and use resources realistically and wisely.
    - *Propriety* means to protect the rights and welfare of participants and involved staff, and to treat the perspectives and needs of all stakeholders equally

Cost Effectiveness

Cost effectiveness is defined as the comparison of the relative costs of achieving a given result by different methods. The question is whether one way of conducting a market price study uses fewer resources to produce results similar to more costly ways of studying the market. Testing cost effectiveness requires consideration of both costs and effectiveness (i.e., validity of findings).

Costs

Data collection tends to be the most expensive component of a market price study. Costs associated with other components (conceptualization, analysis, and report) are more constant over time and are not typically affected by which data collection method is chosen. The current study gathered cost information from the various data collection methods used in Oregon (administrative data update, mail survey, and telephone survey). Other viable data collection methods include mixed method and Web-based surveys. However, this study focused on those methods most commonly indicated during the 2005 nationwide survey of market price survey practices and policies (Weber et al., 2007).

Table 37 indicates the cost estimate, sample size, price per survey, time allocation, currency of data collection, response burden, and response rate for each data collection method used in the Oregon study. A sidebar shows the median costs states reported spending for these data collection methods (Weber et al., 2007). These state figures may underestimate true costs because some states reported not being able to identify costs associated with staff time.

The results show that costs were lowest when the data were collected through administrative data update, and highest for the telephone survey. However, it is important to note that a portion of R&R costs and time were excluded from the administrative data update cost estimate because it is embedded in the money R&Rs receive from the state to maintain their system. For example, Oregon invests $3.7 million in the R&R system annually. Forty-five of the 47 states surveyed in Weber et al. (2007) had funds invested in R&R services. Average investment in the R&R system was $6.8 million (ranging from $106,000 – $57.9 million) in states in which R&R carried primary responsibility for a market price survey task vs. $3.4 million (range of $55,126 – $18.3 million) in states in which R&R did not carry a primary responsibility. The state investment in R&R serves multiple purposes and can include use in price studies.

Effectiveness

Effectiveness is operationally defined as producing accurate price findings. Selecting the most effective data source and data collection method for studying the priced child care market is best determined by the state. Regulatory policies will determine the percent of facilities in the priced child care market that are in regulatory and R&R databases. R&R policies will determine if legally operating, license-exempt facilities from the priced child care market are included in R&R databases. Budgets and other factors will affect how current and complete databases are. Complying with standards for effectiveness is likely to produce accurate market price findings. This report identifies effectiveness standards throughout the guidance section. Sixteen of these standards have been compiled into a cost effectiveness self-assessment tool for states to complete (Table 38). This tool provides a way to assess the effectiveness of a state's approach to their most recent market price survey, and help to determine what modifications of current methods are worth pursuing in the future.

Table 37. Comparison of Costs and Other Indicators by Oregon Data Collection Methods

Indicators	**Admin. Data Update**	**Mail Survey**	**Telephone Survey**
Cost estimate	$7,714.00[a]	$15,648.59	$45,374.58
Sample size	5,882	919	771
Price per survey	$1.31	$17.03	$58.85
Time allocated to data tasks for Oregon State University	184	511	233
Currency of data collection	Price updates Oct–Dec, 2005 (price data <3 months old)	April 20–June 8, 2006	April 20–June 15, 2006
Response burden	11–15 15 minutes	<15 minutes	Average: 13 minutes
Response rate	87%	66.1%	56.9%

State Results (*N* = 36)

Data collection method	***Median costs***
Admin. update	$15,296
Mail only	$19,124
Phone only	$76,080

Source: Weber et al., 2007

Sources: Oregon R&R administrative data update, R&R mail survey data, and R&R telephone survey data.
[a]A portion of R&R costs and time was not included because it is embedded in the money they receive by the state to maintain their system.

Table 38. Cost Effectiveness Self-Assessment Tool (Complete Using Most Recently Completed Market Price Survey)

A market price study is effective when it produces accurate findings. The accuracy of findings is directly related to the study methods used. Sixteen standards define the most desirable study methods; each standard is shown below. By rating your market study methods against these standards, states can approximate the overall accuracy of findings from a market price study.

Total Costs of Most Recently Completed Market Price Survey	*Dollars Spent:*

Effectiveness – 16 standards for producing accurate price findings	**Meets standard?**			**Rationale for this standard**
	Yes	**No**	**NA**	
Choice of Data Source				
1. Does the list (or combination of lists) of facilities include all facilities in the ***priced child care market***? Facilities are in the priced market if they have prices established at arms length (that is, the parties are unrelated), whether or not state licensing laws require them to be regulated.	☐	☐	☐	Completeness and geographic representation of the list of child care facilities increases validity of market price findings.
2. Was the list of facilities drawn from ***all geographic parts*** of the state?	☐	☐	☐	
3. Was the list current; that is, were all facilities ***currently active***? That is, was the list updated within the last 3 months and were inactive providers either identified as such or deleted from the database?	☐	☐	☐	Currency of the list (1) increases the accuracy of prices and (2) decreases the cost of the survey as less time is spent trying to reach facilities no longer giving care.
Choice of Research Methods, Population and Sampling Design				
4. Was the ***geographic unit identified*** that best matches how prices are distributed? (see Table 34)	☐	☐	☐	Prices vary across a state, yet there are a limited number of price clusters. The challenge is to identify a geographic unit (e.g., county, zip code) or cluster of units that best represent price distributions. Otherwise findings may be either higher or lower than the prices in a community.

Table 38 (continued). Cost Effectiveness Self-Assessment Tool

Effectiveness (continued)	**Meets standard?**			**Rationale for this standard**
	Yes	**No**	**NA**	
5. Was the ***entire population*** of facilities selected to be surveyed **OR** Was a ***stratified sample*** of facilities selected to be surveyed? If a stratified sample was used, was the sample stratified by both factors that influence price – type of care and geographic unit? **AND** Was the ***number of facilities from each submarket sufficient*** to represent that submarket?	☐	☐	☐	By definition, the entire population of facilities will accurately represent the prices that facilities charge if the response rate is 65% or higher, and nonresponses are randomly distributed. If a sample is drawn, it should be stratified by the factors that affect prices: type of care and geographic location. Ability to generalize findings requires that a sufficient number of facilities in each submarket (type of care, geographic location) are surveyed. Therefore, if a sample is used, it needs to be stratified.
Data Collection Method				
6. Were all ***price data collected during the same three month period***?	☐	☐	☐	Child care prices change over time. Findings need to represent prices at a point in time. Therefore, price data should be collected during a single time period; a three month period is generally long enough to conduct a market survey and short enough to represent a single point in time.
7. When collecting price data, were the months of ***September and January avoided?***	☐	☐	☐	September and January are months in which facilities are most likely to change prices. Market price surveys should **not** collect price data during these volatile months.
8. Were facilities that are part of an ***organization with multiple sites*** treated as separate facilities?	☐	☐	☐	Multisite organizations often set different prices at different sites. Therefore, each site in a multisite organization should be treated as a single facility with unique prices.

Table 38 (continued). Cost Effectiveness Self-Assessment Tool

Effectiveness (continued)	**Meets standard?**			**Rationale for this standard**
	Yes	**No**	**NA**	
9. Was the ***response rate 65%*** or higher?	☐	☐	☐	Response rates under 65% are too low to accurately represent prices. Low response rates are likely to decrease the validity of survey findings because facilities that do not provide prices may differ from those that do, thus skewing findings.
10. Were ***outliers*** identified, verified, and, if appropriate, corrected?	☐	☐	☐	Once price data have been collected, it is important to review them and to identify outliers. Outliers are extremely low or high prices. Extremely low or high prices are likely to have a large and distorting effect on the calculation of mean price or price at 75th percentile. It is important to check (verify) and if needed correct extreme prices for accuracy.
Data Analysis				
11. Were prices analyzed by type of care, age group, and geographic area?	☐	☐	☐	Because prices vary by submarkets, separate analyses are needed for each submarket and geographic area.
12. If the universe (entire population) of all providers was surveyed, were prices ***weighted by slot***? **OR** If a representative sample of providers was surveyed, were ***prices weighted by both slot and sample***?	☐	☐	☐	In order to accurately represent prices that families actually find when they seek a child care slot, prices reported by facilities must be analyzed by slot. Analysis by slot requires that each price be weighted by the number of slots for that age group the facility offers. To accurately represent the prices found by families, reported prices from a survey of a sample must be weighted by both slots and sample weights.

Table 38 (continued). Cost Effectiveness Self-Assessment Tool

Effectiveness (continued)	**Meets standard?**			**Rationale for this standard**
	Yes	**No**	**NA**	
13. Were prices ***collected and analyzed in the actual price mode*** (hourly, daily, weekly, and monthly) used by facilities? **OR** If ***conversions were performed***, were various conversion options considered, and the option selected that produced the most accurate findings?	☐	☐	☐	Conversions distort child care price findings. There is no standard for how facilities price child care and no formula can accurately capture the relationship between a price in one mode (e.g., hourly) and a price in another mode (e.g., weekly). Therefore, if possible, price conversion should be avoided.
Reporting Market Rate Survey Findings				
14. Was a ***report of findings*** from the market price study published?	☐	☐	☐	In addition to informing subsidy rate setting, market price studies provide insight into operation of the priced child care market. Publication of findings supports multiple uses of study findings.
15. Was the ***report timely***? That is, was a report published within three months of completion of the study?	☐	☐	☐	A current report is of the highest interest and value to stakeholders.
16. Was the ***published report widely disseminated*** to stakeholders?	☐	☐	☐	Wide dissemination of study findings increases transparency and thus may increase trust in subsidy maximum rates.
Total Effectiveness Score add all the "Yes" marked boxes. The score range will be 0–16. A score of 16 indicates that all accuracy standards have been met. The closer the score is to 16, the more accurate the price findings are likely to be. **Consider carefully any standard that is rated "NO."** Can some change be made to improve the method next time in order to increase accuracy? **Lower scores (scores below 8) should lead to careful review of the study methods and modification to increase accuracy**.				

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Appendices

Appendix A: Research Project Advisory Committee Members

Name	***Organization***
Mark Anderson	Oregon Department of Human Services
Doug Baird	Baird Associates, Inc.
Leigh Bolick	South Carolina Department of Social Services
Rick Brandon	Human Services Policy Center, University of Washington
Libby Chapman	South Carolina Department of Social Services
Ann Collins	Abt Associates
Marsha Engquist	National Child Care Association
Linda Kills Crow	Tribal Child Care Technical Assistance Center
Pauline Koch	National Association for Regulatory Administration
Cherie Kotilinek	Children and Family Services, Minnesota Department of Human Services
Janet Marsh	Institute on Family and Neighborhood Life, Clemson University
Davida McDonald	National Association for the Education of Young Children
Kathy Modigliani	The Family Child Care Project
Debbie Moore	National Association for Family Child Care
Deborah Neill	Consultant, Tennessee Department of Human Services
Peggy Strain-O'Brien	SPHERE Institute
Erin Oldham	Oldham Innovative Research
Susan Perry-Manning	National Association of Child Care Resource & Referral Agencies
Dawn Ramsburg	Child Care Bureau
Rose Ribeiro	National Child Care Information Center
Laura Schrager	Washington State Institute for Public Policy
Joyce Shortt	National Institute on Out-of-School Time
Nina Stanton	Tribal Child Care Technical Assistance Center
Louise Stoney	Stoney Associates
Marsha Thompson	Indiana Association for Child Care Resource and Referral
Karen Tvedt	Portland State University
Mildred Warner	Department of City and Regional Planning, Cornell University
Office of Planning, Research, and Evaluation	
Ivelisse Martinez-Beck	Office of Planning, Research, and Evaluation

Appendix B: Description of Data Sources

Administrative Data Update Records

Kansas

We obtained administrative data from the Kansas Resource and Referral Agency in order to compare R&R price data with price data from a Kansas mail survey. We received data that had been downloaded in 2002 as part of Kansas's 2002 market price study and used as the data source for a mail survey of market prices (for further information on the survey see the Facilities Samples section). The Kansas R&R administrative data used in this study included 5,456 facilities (3,244 licensed; 1,554 registered; and 658 centers). In order to compare findings from data collected through administrative updates with those from data collected through the survey, we made the following decisions: under 18 months of age was assumed comparable to 18 months and under; 18 months and older was assumed comparable to over 18 months; 0–11 months was assumed comparable to infant 0-12 months; 12–17 months plus 18–29 months was assumed comparable to toddlers 13–30 months; and 30 months up to kindergarten was assumed comparable to preschool. The data did not include information on capacity of children by facility. Thus, we conducted all analyses at the facility level.

Minnesota

Administrative data from Minnesota was used for two purposes in this study. First, we used data from the 2007 annual price survey from the Minnesota Department of Human Services to analyze some validity issues including comparisons of pricing mode differences and conversions. Second, we used licensing data and annual price survey data from 2005 to calculate child care supply side estimates. We obtained data on licensed supply of child care in Minnesota from the *2005 Child Care Licensing Study* (National Association for Regulatory Administration [NARA], 2005). NARA had drawn this information from the licensing division of the Minnesota Department of Human Services. For comparison purposes, we used R&R database numbers that had been collected by the Department of Human Services as part of the 2005 annual price survey.

Oregon R&R Administrative Data Update

We used administrative data from the OCCRN–originally collected to conduct the *Oregon 2006 Child Care Market Rate Study* (Grobe et al., 2006)—for two purposes: (1) to provide samples for the telephone and mail survey methods described later in this section, and (2) to calculate child care supply estimates.

R&R administrative data were downloaded and compiled into a single database by OCCRRN in January 2006 from facilities enrolled in the 17 local R&R databases. The data had been created when child care facilities reported their prices to local R&Rs who, in turn, used price data to inform parents of provider charges as part of a referral process. Three major types of child care were included in the R&R administrative data update: family child care, large family child care, and centers. In 2006, prices charged by 5,882 facilities (4,555 family child care, 1,079 centers, and 248 large family child care homes) were included in the R&R administrative data update (see report for further information and Grobe et al., 2006).

Oregon Merged Dataset

We used the *Estimate of Child Supply*, Oregon's biennial report based on a merge of the Oregon Child Care Division's (CCD) licensing database, the OCCRRN's database of enrolled child care facilities, and the Department of Human Resources (DHS) database of all facilities that received subsidy payment within the 60 days preceding the download. For the 2006 estimate, all three databases were downloaded on December 31, 2006. Data reported for Federal Fiscal Year (FFY) 2006 on the ACF 800 were used to estimate the amount of in-home and relative care within the DHS database.

South Carolina

We used the South Carolina 2002 market price survey dataset which included the 2002 licensing data on all regulated child care facilities to estimate the supply of regulated child facilities in the licensing database.

Washington

We obtained administrative data from the Washington Child Care Resource and Referral Network in order to compare R&R price data with price data from a Washington telephone survey conducted in spring 2006 (for further information see the Facilities Samples section). The records from all of Washington's counties were included in the dataset. The Washington R&R administrative data update used in this study included 6,656 facilities (5,000 family child care, and 1,656 centers) with full-time prices. Updating facility prices is an ongoing activity throughout the year. The price data were weighted by desired capacity and reported as slots.

Wisconsin

We received administrative data downloaded on December 21, 2006, from the Wisconsin Child Care Resource & Referral Network. The records for four pilot counties (Dane, Juneau, Milwaukee, and Monroe) were included in this dataset. The data were obtained in order to compare price data between these four counties in the R&R administrative data update and the Wisconsin child care price survey data collected in fall 2006 (for more information see Facility Samples section). The Wisconsin R&R administrative data update used in this study included 1,399 facilities (406 Dane county, 16 Juneau county, 951 Milwaukee county, 26 Monroe county; 975 family child care, and 424 centers) with full-time prices. Wisconsin R&Rs update facility prices at least once per year, although the majority of R&Rs update in the fall. Currently there is no consistent process for updating facility prices across Wisconsin R&Rs. Some R&Rs update the facility data only once each year, but some smaller R&Rs update the price information more frequently. Licensed capacity is automatically forwarded from the state facility file provided by the licensing division. Thus, we were able to weight the price data by licensed capacity and report as slots.

Data Sources for Facility Samples

Kansas

We obtained Kansas facility data price findings in order to compare Kansas mail survey price data with R&R price data. The remainder of this paragraph describes the methods used by Kansas for collecting the price data. The Kansas mail survey with follow-up phone calls was conducted in August 2002 for use in their market price study. A random sample frame was selected from their R&R administrative data that included 7,932 providers (957 centers, 4,333 licensed, and 2,642 registered). Facilities with incomplete addresses were deleted by Kansas. Surveys were sent to all facilities in counties with fewer than 20 facilities. Surveys were sent to all facilities in each of the three overall categories (center, registered, and licensed) if there were fewer than 10 facilities within that category for a county. The remainder of the sample was selected at random from the other counties. A total of 3,531 surveys were mailed to facilities (556 centers, 1,951 licensed, and 1,024 registered). A total of 1,695 (48% response rate) were returned: 247 centers (44% response rate), 989 licensed providers (50% response rate), and 459 registered providers (44% response rate). Kansas report the findings at the facility level; they are not weighted.

Oregon (see pages 13–14)

Washington

We obtained Washington facility data price findings in order to compare Washington telephone survey price data with R&R price data. The remainder of this paragraph describes the methods used by Washington for collecting price data. Washington facility data come from a telephone survey conducted in spring 2006 for their market price study. The Social and Economic Sciences Research Center (SESRC) at Washington State University collected the data. Facilities also had the option to complete an on-line version of the survey instrument. All licensed centers in the state (2,092) were included in the sample frame, and a stratified sample by county of licensed family homes was included (2,196, or 38% of all family homes in the state). All family home facilities were included in counties where there were 100 or fewer licensed family homes. A total of 2,502 surveys were completed: 1,275 centers (65% response rate) and 1,227 family homes (64% response rate). All prices were converted to monthly prices. Washington deleted centers that cared for 85% or more subsidized children from the analysis. SESRC asked each family home to indicate every individual child in care and to report only the prices charged to full-time private-pay children. The family home data included sample weights based on the initial stratification by county.

Wisconsin

We obtained Wisconsin facility data price findings in order to compare Wisconsin mail survey price data with R&R price data. The remainder of this paragraph describes the methods used by Wisconsin for collecting price data. Included in this study were four Wisconsin counties: Dane, Juneau, Milwaukee, and Monroe. The survey dataset came from a mail survey conducted in fall 2006 by the Wisconsin subsidy agency. All counties used the same survey tool and sent the survey to all licensed facilities. Some counties followed up with phone calls if the facility did not return the mail survey. Capacity data were collected and the survey results were weighted based on this capacity. Wisconsin deleted facilities with 75% or more of subsidized children in care from the price findings.

Statewide Household Surveys

To further assess criterion-related validity, the study uses data from statewide household surveys (Minnesota, Oregon, and South Carolina) on child care facility characteristics and families reported child care usage.

Minnesota

The 2004 Statewide Household Child Care Survey (Chase, Arnold, Schauben, & Shardlow, 2005) was conducted between May 2004 and March 2005 in order to gather information on the child care arrangements of children under age 13 in Minnesota. The Minnesota Department of Human Services sponsored the random-digit dial survey, which was an update of a similar survey done in 1999. The 2005 base sample included 1,363 randomly selected households with children in regular child care arrangements. The survey captured parent reports of child care usage. The base sample is proportional by geographic area of the state and thus no sample weighting was used.

Oregon

The Oregon Population Survey (OPS) (Oregon Progress Board, 2007) is a biennial survey of a representative sample of Oregon households. The 2006 OPS was conducted in summer and fall. A random digit dial (RDD) sample of 3,243 households was augmented with a RDD sample of 1,089 households from targeted census tracts with high densities of ethnic/racial groups. Poststratification weighting was used for both households and respondents. Characteristics used in weighting included housing tenure and age within gender and age within race and ethnicity. The 954 households with children under age 13 reported child care usage during spring 2006 for the 1443 children under age 13. In the series of child care questions parents were asked if the caregiver were paid rather than if the parent paid for the care, thus avoiding the problem of parent confusion about how to report financial assistance.

South Carolina

We used the public use dataset of *The South Carolina Household Child Care Survey* (Human Services Policy Center, 2003). The South Carolina Department of Health and Human Services (SC DHHS) sponsored the general population random-digit dial telephone survey. The Human Services Policy Center (HSPC) at the University of Washington developed the survey with input from the SC DHHS. HSPC contracted with the Social & Economic Sciences Research Center at Washington State University to conduct the survey. Data were collected between February and July of 2002 from 1,211 parents of children birth through 12 years of age. Parents reported the type of care used for their child and whether or not they paid for that care. "Responses were weighted to appropriately reflect the age distribution of children in South Carolina and to reflect child care utilization patterns annually" (HSPC, 2003, p. 1).

Appendix C: Survey Instrument

Start Here

1. Are you currently providing care for any children other than your own, on a regular paying basis?

- □ Yes
- □ No

→ If you are not currently providing care for any children other than your own, it is not necessary for you to complete the remainder of this questionnaire. However, please return it so that we can check your name off of the mailing list. That will help us a great deal.

2. Which one of the following <u>best describes</u> your type of care:

- □ Full-day center-based program → Skip to 4
- □ Part-day preschool program <u>only</u> → Skip to 5
- □ Head Start / State Pre-K program <u>only</u> → Skip to 3
- □ School-age programs <u>only</u> → Skip to 4
- □ Other (Please specify)

_____ → Skip to 4

3. At the present time, do you have any children whose care is <u>not</u> paid for by Head Start grants, or subsidies from the Oregon Department of Human Services?

- □ Yes → Skip to 4
- □ No

→ (If no), it is not necessary for you to complete the remainder of this questionnaire. However, please return it so that we can check your name off of the mailing list. That will help us a great deal.

Note: *Q2 and Q3 were not asked on the Family Facility survey.*

4. How many hours per week does a child need to attend your child care center to be considered 'full time?'

_____ Hours per week

5. What is the maximum number of days per week that a child enrolled 'part time' can attend?

_____ Number of days per week

6. What is the maximum number of hours each day that a child enrolled 'part time' can attend?

_____ Hours each day

In the next pages you will find a separate section for each age group. First, it will ask if you serve that age child and if yes, how many and what rates you charge for children of that age.

INFANTS (Under one year of age)

7. Do you offer care for infants?

□ Yes
□ No → Skip to 12

8. How many infants do you care for on a typical day at any one time?

_____ Number of infants

Note: *On the Family Facility survey we also asked "how many infants are 'full' time" and "how many infants are 'part' time".*

9. In the table below write the amount your center charges for 'full time' infant care in <u>all</u> the ways that you charge?

	Hourly rate	Full-day rate	Weekly rate	Monthly rate
Infant Care (under one year)	$ _ _ _ _ . _ _ _ _ per hour	$ _ _ _ _ . _ _ _ _ per day	$ _ _ _ _ . _ _ _ _ per week	$ _ _ _ _ . _ _ _ _ per month

10. Do you charge a different rate for 'part time' infant care?

□ Yes
□ No → Skip to 12

11. In the table below write the amount your center charges for 'part time' infant care in <u>all</u> the ways that you charge? ***Please do not include drop in rates.***

	Hourly rate	Full-day rate	Weekly rate	Monthly rate
Infant Care (under one year)	$ _ _ _ _ . _ _ _ _ per hour	$ _ _ _ _ . _ _ _ _ per day	$ _ _ _ _ . _ _ _ _ per week	$ _ _ _ _ . _ _ _ _ per month

TODDLERS (Children between 12 and 35 months old)

12. Do you offer care for toddlers? ***If your center divides toddlers into younger and older groups, answer the questions for toddlers based on your younger toddlers.***

□ Yes
□ No → Skip to 17

13. How many toddlers do you care for on a typical day at any one time?

_____ Number of toddlers

Note: *On the Family Facility survey we also asked "how many toddlers are 'full' time" and "how many toddlers are 'part' time".*

14. In the table below write the amount your center charges for 'full time' toddler care in <u>all</u> the ways that you charge?

	Hourly rate	Full-day rate	Weekly rate	Monthly rate
Toddler Care (between 12 and 35 months old)	$ _ _ _ _ . _ _ _ _ per hour	$ _ _ _ _ . _ _ _ _ per day	$ _ _ _ _ . _ _ _ _ per week	$ _ _ _ _ . _ _ _ _ per month

15. Do you charge a different rate for 'part time' toddler care?

- □ Yes
- □ No → Skip to 17

16. In the table below write the amount your center charges for 'part time' toddler care in <u>all</u> the ways that you charge? ***Please do not include drop in rates.***

	Hourly rate	Full-day rate	Weekly rate	Monthly rate
Toddler Care (between 12 and 35 months old)	$ _ _ _ _ . _ _ _ _ per hour	$ _ _ _ _ . _ _ _ _ per day	$ _ _ _ _ . _ _ _ _ per week	$ _ _ _ _ . _ _ _ _ per month

PRESCHOOLERS (Children 3 through 5 years old and not yet in kindergarten)

17. Do you offer care for children 3 years old through 5 years old not yet in kindergarten? ***We will refer to this group as children of preschool age or preschoolers.***

- □ Yes *Family Facilities went directly to Q22*
- □ No → Skip to 26

18. Which one of the following <u>best describes</u> your preschool age care? ***If your center has both full-day and part-day programs, choose full-day program.***

- □ Full-day program → Skip to 22
- □ Part-day program ONLY

19. (For part-day program ONLY), how many week-days can parents choose to enroll their preschoolers? (Choose all possible options)

- □ One day
- □ Two days
- □ Three days
- □ Four days
- □ Five days

20. (For part-day program ONLY), how many hours per day does your preschool program operate?

_____ Hours per day

21. (For part-day program ONLY), in the table below write the amount your program charges for preschool age care in <u>all</u> the ways that you charge? *If rates vary based on number of days the child attends the program, write the amount for the greatest number of days per week a child can attend your center.*

	Hourly rate	Full-day rate	Weekly rate	Monthly rate
Part Day Preschool Care (3 to 5 years old)	$ _ _ _ _ . _ _ _ _ per hour	$ _ _ _ _ . _ _ _ _ per day	$ _ _ _ _ . _ _ _ _ per week	$ _ _ _ _ . _ _ _ _ per month

→ Skip to 26

(For Full-Day Program)

22. How many preschoolers do you care for on a typical day at any one time?

_____ Number of preschoolers

Note: *On the Family Facility survey we also asked "how many preschoolers are 'full' time" and "how many preschoolers are 'part' time".*

23. In the table below write the amount your center charges for 'full time' preschool age care in <u>all</u> the ways that you charge?

	Hourly rate	Full-day rate	Weekly rate	Monthly rate
Preschool age care (between 3 and 5 years old)	$ _ _ _ _ . _ _ _ _ per hour	$ _ _ _ _ . _ _ _ _ per day	$ _ _ _ _ . _ _ _ _ per week	$ _ _ _ _ . _ _ _ _ per month

24. For programs who offer full day, do you charge a different rate for 'part time' preschool age care?

□ Yes
□ No → Skip to 26

25. In the table below write the amount your program charges for 'part time' preschool age care in <u>all</u> the ways that you charge? *Please do not include drop in rates.*

	Hourly rate	Full-day rate	Weekly rate	Monthly rate
Preschool Age Care (between 3 and 5 years old)	$ _ _ _ _ . _ _ _ _ per hour	$ _ _ _ _ . _ _ _ _ per day	$ _ _ _ _ . _ _ _ _ per week	$ _ _ _ _ . _ _ _ _ per month

SCHOOL-AGE BEFORE OR AFTER SCHOOL (Children in kindergarten or first grade through age 12)

26. Do you offer care for school age children before or after school? ***This does not include care provided for school age children during the summer. Those questions are asked in the next section.***

□ Yes
□ No → Skip to 29

27. How many school age children do you care for on a typical day at any one time?

_____ Number of school age children before or after school

28. In the table below write the amount your center charges for school age care before or after school, in <u>all</u> the ways that you charge?

	Hourly rate	Daily rate	Weekly rate	Monthly rate
School age care before or after school (kindergarten through age 12)	$ _ _ _ _ . _ _ _ _ per hour	$ _ _ _ _ . _ _ _ _ per day	$ _ _ _ _ . _ _ _ _ per week	$ _ _ _ _ . _ _ _ _ per month

SCHOOL AGE CARE DURING SUMMERS (Children in kindergarten or first grade through age 12)

29. Do you offer care for school age children during summers?

□ Yes
□ No → Skip to 34

30. How many school age children do you care for on a typical day at any one time during the summer?

_____ Number of school age children during the summer

Note: *On the Family Facility survey we also asked "how many school age children are 'full' time" and "how many school age children are 'part' time".*

31. In the table below write the amount your center charges for 'full time' school age care during summers in <u>all</u> the ways that you charge?

	Hourly rate	Full-day rate	Weekly rate	Monthly rate
School age care during summers (kindergarten through age 12)	$ _ _ _ _ . _ _ _ _ per hour	$ _ _ _ _ . _ _ _ _ per day	$ _ _ _ _ . _ _ _ _ per week	$ _ _ _ _ . _ _ _ _ per month

32. Do you charge a different rate for 'part time' school age care during summers?

- ☐ Yes
- ☐ No → Skip to 34

33. In the table below write the amount your center charges for 'part time' school age care during summers in <u>all</u> the ways that you charge? *Please do not include drop in rates.*

	Hourly rate	Full-day rate	Weekly rate	Monthly rate
School age care during summers (kindergarten through age 12)	$ _ _ _ _ . _ _ _ _ per hour	$ _ _ _ _ . _ _ _ _ per day	$ _ _ _ _ . _ _ _ _ per week	$ _ _ _ _ . _ _ _ _ per month

The next few questions relate to discounts you may offer or additional fees that you may charge for other services offered.

34. Do you charge special fees for any of the following in addition to your base rate? (Check all that apply)

- ☐ Registration fee
- ☐ Food/Meal fee
- ☐ Transportation fee
- ☐ Event/Field trip fee
- ☐ Other fees (Please specify)

_____

35. Do you adjust your usual rates in any of the following ways?

Yes	No	Don't Know	
☐	☐	☐	Do you have a sliding fee scale – fees go down as family income goes down?
☐	☐	☐	Do you decrease your rates for families with low incomes?
☐	☐	☐	Do you provide a discount for two or more children from the same family?
☐	☐	☐	Do you have scholarships?
☐	☐	☐	Other adjustments (Please specify)

_____

36. Do you charge for missed days when:

Yes	No	Don't Know	
☐	☐	☐	Your facility is closed for a holiday or vacation?
☐	☐	☐	The child does not attend due to illness?
☐	☐	☐	The child's family is on vacation?
☐	☐	☐	Other (Please specify)

_____

37. Do you provide the following types of care on a <u>regular</u> basis? (Check all that apply)

☐ Regular care during evenings (after 6:00pm)

☐ Regular daytime care on a Saturday and/or Sunday

☐ Overnight care

↓

38. (If you provide any of these types of care), do you charge more for them?

□ Yes
□ No
□ Don't know/No answer

39. Do you offer care for children whose care is partially or wholly supported by a subsidy from a public agency such as the Department of Human Services or Head Start/Oregon Pre-Kindergarten?

□ Yes
□ No → Skip to 43
□ Don't know / No answer → Skip to 43

40. How many children receiving subsidies do you currently have enrolled?

_____ Number of children

41. Do you collect the parent copay?

□ Yes
□ No
□ Don't know / No answer

42. If your price for care is greater than the amount the state pays, do you charge parents the difference?

□ Yes
□ No
□ Don't know / No answer

43. How much do the following affect the rates you set – amount you charge a family?

	Very much ▼	Some-what ▼	Not very much ▼	Not at all ▼	Don't Know ▼
Prevailing rates in community…….	☐	☐	☐	☐	☐
Overall operating costs…….	☐	☐	☐	☐	☐
Staff salaries and training costs……	☐	☐	☐	☐	☐
Profit level desired……...	☐	☐	☐	☐	☐
Department of Human Services payment schedule……	☐	☐	☐	☐	☐
Number of children with special needs……	☐	☐	☐	☐	☐

44. What is the zip code for your child care business?

_____ Zip code

45. Thank you for taking the time to complete this survey. Is there anything else you would like to tell us?

Appendix D: Example Conversion Questions in Telephone Survey

8. What is the most common way you charge for FULL TIME infant care: is it by the hour, day, week or month?
   - □ Hour
   - □ Day
   - □ Week
   - □ Month

9. How much do you charge per <Q8> for an infant FULL TIME? $_____

*If answer to Q8 is **hourly** ask*:

10a. Okay, so you charge <Q9> per hour for full time infant care. If you had to report a price per DAY for full time infant care what would it be? [Prompt: Please give your best estimate] $_____

10b. How about if you had to report a price per WEEK for full time infant care. What would it be? [Prompt: Please give your best estimate] $_____ [goto Q11]

*If answer to Q8 is **daily** ask:*

10c. Okay, so you charge <Q9> per day for full time infant care. If you had to report a price per HOUR for full time infant care what would it be? [Prompt: Please give your best estimate] $_____

10d. How about if you had to report a price per WEEK for full time infant care. What would it be? [Prompt: Please give your best estimate] $_____ [goto Q11]

*If answer to Q8 is **weekly** ask:*

10e. Okay, so you charge <Q9> per week for full time infant care. If you had to report a price per HOUR for full time infant care what would it be? [Prompt: Please you're your best estimate] $_____

10f. How about if you had to report a price per DAY for full time infant care. What would it be? [Prompt: Please give your best estimate] $_____ [goto Q11]

*If answer to Q8 is **monthly** ask:*

10g. Okay, so you charge <Q9> per month for full time infant care. If you had to report a price per DAY for full time infant care what would it be? [Prompt: Please give your best estimate] $_____

10h. How about if you had to report a price per WEEK for full time infant care. What would it be? [Prompt: Please give your best estimate] $_____

Appendix E: Oregon Facility Sample Sizes by Mode

Sample Sizes by Mode ~ Family Facilities

		Hourly	*Daily*	*Weekly*	*Monthly*
Infant (family)					
Method	R&R admin. records	2691	721	435	1020
	Mail (R&R only)	307	214	162	212
	Telephone (R&R only)	92	49	22	100
Data Source	R&R (phone)	92	49	22	100
	Licensing (phone)	114	75	39	122
	Subsidy (phone)	150	40	30	107
Toddler (family)					
Method	R&R admin. records	2951	797	472	1094
	Mail (R&R only)	375	261	193	249
	Telephone (R&R only)	129	64	39	134
Data Source	R&R (phone)	129	64	39	134
	Licensing (phone)	153	108	62	150
	Subsidy (phone)	256	64	32	14833
Preschool (family)					
Method	R&R admin. records	3134	904	502	1172
	Mail (R&R only)	390	258	188	240
	Telephone (R&R only)	148	80	44	146
Data Source	R&R (phone)	148	80	44	146
	Licensing (phone)	190	133	73	202
	Subsidy (phone)	326	64	59	185
School-age school-year (family)					
Method	R&R admin. records	2981	562	300	712
	Mail (R&R only)	358	173	117	159
	Telephone (R&R only)	201	65	23	77
Data Source	R&R (phone)	201	65	23	77
	Licensing (phone)	290	92	44	92
	Subsidy (phone)	434	42	41	126
School-age summer (family)					
Method	R&R admin. records	2982	477	286	596
	Mail (R&R only)	318	207	138	192
	Telephone (R&R only)	136	75	37	100
Data Source	R&R (phone)	136	75	37	100
	Licensing (phone)	171	111	56	139
	Subsidy (phone)	287	53	46	184

Note: Light gray shading represents the highest number of facilities for that row; prices from the telephone survey include only the most common mode whereas prices for the R&R administrative and mail survey data include any mode for which the facility provided data.

Oregon Sample Sizes by Mode ~ Center and Large Family Facilities

		Hourly	*Daily*	*Weekly*	*Monthly*
Infant (center and large family)					
Method	R&R admin. records	121	61	83	250
	Mail (R&R only)	25	22	12	47
	Telephone (R&R only)	3	1	5	29
Data Source	R&R (phone)	3	1	5	29
	Licensing (phone)	9	8	11	38
	Subsidy (phone)	7	2	10	26
Toddler (center and large family)					
Method	R&R admin. records	147	74	101	288
	Mail (R&R only)	34	36	21	69
	Telephone (R&R only)	4	0	3	33
Data Source	R&R (phone)	4	0	3	33
	Licensing (phone)	14	8	11	56
	Subsidy (phone)	7	7	9	34
Preschool (center and large family)					
Method	R&R admin. records	246	97	116	460
	Mail (R&R only)	35	38	24	87
	Telephone (R&R only)	6	0	5	54
Data Source	R&R (phone)	6	0	5	54
	Licensing (phone)	16	7	15	76
	Subsidy (phone)	8	5	12	42
School-age school-year (center and large family)					
Method	R&R admin. records	202	69	73	237
	Mail (R&R only)	56	30	19	78
	Telephone (R&R only)	29	1	7	39
Data Source	R&R (phone)	29	1	7	39
	Licensing (phone)	40	8	11	61
	Subsidy (phone)	18	5	11	39
School-age summer (center and large family)					
Method	R&R admin. records	189	50	72	164
	Mail (R&R only)	32	38	53	55
	Telephone (R&R only)	14	7	13	28
Data Source	R&R (phone)	14	7	13	28
	Licensing (phone)	20	8	32	46
	Subsidy (phone)	7	8	24	28

Note: Light gray shading represents the highest number of facilities for that row; prices from the telephone survey include only the most common mode whereas prices for the R&R administrative and mail survey data include any mode for which the facility provided data.

Appendix F: Oregon Statewide Full Time Prices at the 50th Percentile

		Infant	Toddler	Preschool Age	School-Age School-Year	School-Age Summer
Type of Care and Reporting Mode by <u>Facility</u>						
Family hourly						
Data Source	R&R phone	$2.50	$2.50	$2.25	$2.50	$2.25
	Licensing phone	$2.50	$2.50	$2.25	$2.50	$2.25
	Subsidy phone	$2.25	$2.00	$2.00	$2.12	$2.00
Method	R&R admin. records	$2.50	$2.25	$2.25	$2.12	$2.11
	R&R mail	$2.50	$2.50	**$2.50**	$2.50	**$2.50**
	R&R phone	$2.50	$2.50	$2.25	$2.50	$2.25
Center monthly (includes large family)						
Data Source	R&R phone	$595	$575	$495	$230	$467
	Licensing phone	**$749**	**$680**	**$540**	**$242**	**$525**
	Subsidy phone	$625	$600	$500	$230	$495
Method	R&R admin. records	**$625**	**$609**	$485	**$299**	**$478**
	R&R mail	$620	$600	$475	$245	$430
	R&R phone	$595	$575	**$495**	$230	$467
Type of Care and Reporting Mode by <u>Slots</u>						
Family hourly						
Data Source	R&R phone	$2.50	$2.25	$2.25	**$2.50**	$2.25
	Licensing phone	$2.50	**$2.50**	$2.25	$2.35	$2.25
	Subsidy phone	$2.25	$2.00	$2.12	$2.12	$2.00
Method	R&R admin. records	$2.50	$2.25	$2.25	$2.25	$2.25
	R&R mail	$2.50	**$2.50**	**$2.50**	$2.50	**$2.50**
	R&R phone	$2.50	$2.25	$2.25	$2.50	$2.25
Center monthly (includes large family)						
Data Source	R&R phone	$608	$610	$545	$230	$495
	Licensing phone	**$795**	**$788**	**$595**	**$235**	$525
	Subsidy phone	$625	$625	$525	$176	**$572**
Method	R&R admin. records	**$720**	**$728**	$539	**$295**	**$530**
	R&R mail	$671	$644	$475	$245	$384
	R&R phone	$608	$610	**$545**	$230	$495

Note: Bold indicates the highest price in a category.

Appendix G: Comparison of Oregon Statewide Monthly Slot Prices at the 75th Percentile by Type of Care and by Data Collection Method

Data Collection Method	Type of Care	Infant	Toddler	Preschool Age	School-Age Summer
R&R admin. data update	Family	$500	$480	$450	$445
	Large family	$700	$660	$600	$525
	Center-only	**$865**	**$865**	**$667**	**$666**
Mail survey	Family	$540	$500	$450	$410
	Large family	$800	$750	**$775**	**$500**
	Center-only	**$881**	**$875**	$620	$463
Telephone survey	Family	$500	$500	$450	$390
	Large family	$575	$575	$600	$544
	Center-only	**$800**	**$850**	**$677**	**$628**

Note: Bold indicates the highest price in a category.

Appendix H: Oregon Mail Survey Price Conversions Using Toddler, Family, and Full-time Prices

	R&R Mail Survey				
	Mean (SD)	*25th*	*50th*	*75th*	*Comparison between converted and non-converted price*
1. Conversion from weekly to *daily* price, *N* = 149					
Non-converted day price	$22.90 (6.05)	$20	$23	$25	
Weekly price / 5	$22.35 (6.23)	$20	$21	$25	Same = 78%
2. Conversion from monthly to *daily* price, *N* = 149					
Non-converted day price	$23.33 (6.34)	$20	$24	$25	
Monthly price / 21.65	$20.18** (5.37)	$18	$18	$23	Same = 11%
Monthly price / 21.75	$20.08** (5.34)	$18	$18	$23	Same = 11%
Monthly price / 22	$19.86** (5.28)	$18	$18	$23	Same = 10%
3. Conversion from hourly to *weekly* price, *N* = 137					
Non-converted week price	$103.99 (27.70)	$90	$100	$125	
Hourly price * 40 hours	$105.95 (29.35)	$89	$100	$120	Same = 25%
Hourly price * 45 hours	$119.19** (33.01)	$100	$113	$135	Same = 8%
4. Conversion from hourly to *monthly* price, *N* = 151					
Non-converted month price	$421.93 (80.13)	$385	$400	$480	
Hourly price * 160 hours	$421.86 (108.46)	$360	$400	$480	Same = 36%
Hourly price * 180 hours	$474.59** (122.02)	$405	$450	$540	Same = 19%
5. Conversion from weekly to *monthly* price, *N* = 142					
Non-converted month price	$437.39 (115.41)	$400	$400	$500	
Weekly price * 4.13	$449.34 (121.40)	$413	$413	$516	Same = 79%
Weekly price * 4.33	$471.10* (127.28)	$433	$433	$541	Same = 0%

Note: significance tests were conducted for means, but not for the percentile (25^{th}, 50^{th}, 75^{th}) prices.
* $p < .05$, ** $p < .01$

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