

Market Rate Surveys and Alternative Methods of Data Collection and Analysis to Inform Subsidy Payment Rates



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Overview

Introduction

Over 1.4 million children in the United States receive child care subsidies each month, provided through the Child Care and Development Fund (CCDF) and administered at the state or local level (U.S. Department of Health and Human Services, 2015). Subsidies assist families in paying for child care arrangements so that low-income parents, including parents transitioning from welfare, can work or attend training and education programs.

One of the key determinants of access to child care for families receiving CCDF subsidies is provider payment rates set by States and Territories. When payment rates are low relative to market prices, providers may choose not to serve children using subsidies or may charge parents the difference between the subsidy payment rate and the price the provider charges parents who do not receive a subsidy (where allowed).

States and Territories now face new considerations when collecting data to inform the process of setting provider payment rates. This brief provides information on key issues and criteria for choosing whether to conduct a market rate survey, use an alternative methodology such as a cost model, or both.

Purpose

The intent of the brief is to provide a concise synthesis of existing research and expert guidance on methods States and Territories can use to collect information on child care prices and costs to inform child care subsidy payment rates. The brief offers criteria to evaluate different methods to assess price and cost. The brief also discusses the concept of equal access that States and Territories address in their CCDF plans.

Key Findings and Highlights

- Since the enactment of the Family Support Act in 1988 (which governed some of CCDF's predecessor programs), federal subsidy policy has required that provider payment rates be informed by market prices based on the rationale that associating payment rates with prices would support parental choice and access. States and Territories conduct market rate surveys to collect information on child care prices and, under CCDF, States are encouraged but not required to set payment rates at the 75th percentile of the market price.
- The Child Care and Development Block Grant (CCDBG) Act of 2014 reauthorized the CCDF program and expanded the options for States and Territories to include the use of alternative methodologies, such as a cost estimation model, when setting payment rates. Further, the CCDBG reauthorization in 2014 required States and Territories to demonstrate that their payment rates consider the costs associated with higher-quality child care.
- The prices charged by a provider may reflect underlying differences in the cost of providing care based on the age of the child, the quality of the care, and other factors. It is important to recognize, however, that the prices or fees that providers charge families may not cover providers' full costs if they have other sources of funding (e.g., grants or donations). In some locations, providers may be able to charge higher prices because of higher demand for child care services.

Methods

The expert guidance in this brief is informed by a synthesis of literature on the topic, as well as collaborations with the Office of Planning, Research and Evaluation (OPRE) and the Office of Child Care.

Recommendations

Market rate surveys and cost-based alternative methodologies can both be used to inform provider payment rate setting with the goal of supporting access to high-quality child care for families receiving subsidies. With either approach, the data must be current and complete, and the data collection and research methods must be statistically valid and reliable.

In addition to the need to provide valid results, States and Territories must consider whether a particular method captures variation in prices or costs along relevant dimensions such as provider type, different levels of provider quality, child age, and geographic location. States and Territories will need to consider the costs of conducting surveys or using a cost-estimation model, including the potential need for contracted support from researchers outside of the state agency administering CCDF. Demonstrating that the payment rates afford equal access to families receiving subsidies may be best accomplished with current and valid data on both market prices of child care and the costs of providing different levels of quality care to children of different ages and locations.

Glossary

- **Price:** The fees or tuition that child care providers typically charge parents
- **Costs:** The value of all resources required to deliver child care services, including, for example, salaries, rent and utilities, supplies, etc.
- **CCDF:** Child Care and Development Fund
- **CCDBG:** Child Care and Development Block Grant Act

Executive Summary

Over 1.4 million children in the United States receive child care subsidies each month, provided through the Child Care and Development Fund (CCDF) and administered at the state or local level (U.S. Department of Health and Human Services, 2015). Subsidies assist families in paying for child care arrangements so that low-income parents, including parents transitioning from welfare, can work or attend training and education programs. One of the key determinants of access to child care for families receiving CCDF subsidies is provider payment rates set by States and Territories. When payment rates are low relative to market prices, providers may choose not to serve children using subsidies or may charge parents the difference between the subsidy payment rate and the price the provider charges parents who do not receive a subsidy (where allowed).

Since the enactment of the Family Support Act in 1988 (which governed some of CCDF's predecessor programs), federal subsidy policy has required that provider payment rates be informed by market prices, based on the rationale that associating payment rates with prices would support parental choice and access. States and Territories conduct market rate surveys to collect information on child care prices, and, under CCDF, States are encouraged but not required to set payment rates at the 75th percentile of the market price. The 75th percentile is the number that splits the range of prices in the market such that 75 percent of prices are lower and 25 percent are higher than it. As described in the preamble to the final rule (81 FR 67512), the 75th percentile payment rate is viewed as a proxy for equal access. Setting payment rates at the 75th percentile demonstrates that CCDF families could have access to at least 3 out of every 4 available child care slots or programs. The Child Care and Development Block Grant (CCDBG) Act of 2014 reauthorized the CCDF program and expanded the options for States and Territories to include the use of alternative methodologies, such as a cost estimation model, when setting payment rates. Further, the CCDBG reauthorization in 2014 required States and Territories to demonstrate that their payment rates consider the costs associated with higher-quality child care.

States and Territories now face new considerations when collecting data to inform the process of setting provider payment rates. This brief provides information on key issues and criteria for choosing whether to conduct a market rate survey, use an alternative methodology such as a cost model, or both. In this context, the term *price* means the fees or tuition that child care providers typically charge parents. *Costs* refer to the value of all resources required to deliver child care services (e.g., salaries, rent and utilities, supplies). The prices charged by a provider may reflect underlying differences in the cost of providing care based on the age of the child, the quality of the care, and other factors. It is important to recognize, however, that the prices or fees that providers charge families may not cover providers' full costs if they have other sources of funding (e.g., grants or donations). In some locations, providers may be able to charge higher prices because of higher demand for child care services.

Market rate surveys and cost-based alternative methodologies can both be used to inform the setting of provider payment rates, with the goal of supporting access to high-quality child care for families receiving subsidies. With either approach, the data must be current and complete, and the data collection and research methods must be statistically valid and reliable. In addition to the need to provide valid results, States and Territories must consider whether a particular method captures variation in prices or costs along relevant dimensions such as provider type, different levels of provider quality, child age, and geographic location. States and Territories will need to consider the costs of conducting surveys or using a cost-estimation model, including the potential need for contracted support from researchers outside of the state agency administering CCDF. Demonstrating that the payment rates afford equal access to families receiving subsidies may be best accomplished with current and valid data on both market prices of child care and the costs of providing different levels of quality care to children of different ages and locations.

1. Introduction: Child Care Subsidies and Provider Payment Rates

Over 1.4 million children in the United States receive child care subsidies each month, provided through the Child Care and Development Fund (CCDF) and administered at the state or local level (U.S. Department of Health and Human Services, 2015). Subsidies assist families in paying for child care arrangements so that low-income parents, including parents transitioning from welfare, can work or attend training and education programs. Subsidies are provided to families as either a contracted slot at a specific child care program or, more frequently, through a voucher that can be used at any participating child care program that meets the State's requirements. Child care subsidy receipt and the generosity of subsidy policies have been associated with increased use of center-based care and licensed or regulated care (Krafft, Davis, & Tout, 2017; Weber, Grobe, & Davis, 2014). Furthermore, parents who receive a child care subsidy have a higher probability of being employed than similar families who do not receive child care subsidies (Forry, Daneri, & Howarth, 2014).

One of the key determinants of access to child care for families receiving subsidies is provider payment rates set by States and Territories. When payment rates are low relative to market prices, providers may choose not to serve children using subsidies or may charge parents the difference between the subsidy payment rate and the price the provider charges parents who do not receive a subsidy (where allowed). Therefore, it is assumed that subsidy payment rates must reflect local prices in the market in order for parents who receive a subsidy to have access to the range of providers in their local community. To support a deeper understanding of subsidy payment rates and how they are determined, the goal of this brief is to describe the various methods for collecting information used in the process of setting payment rates and to provide information on how to evaluate the utility of each of these methods.

Two distinct processes are involved in establishing CCDF subsidy payment rates in States and Territories. The two processes are typically conducted by different people and have different outcomes.

- **Collecting, analyzing, and reporting information to inform rate setting.** States and Territories conduct studies or collect data by other means that can be used in the process of setting subsidy payment rates. States and Territories may collect data about child care prices, child care costs, or both. These studies are typically conducted by researchers within the CCDF agency, or in a university or other research organization with which the State contracts.
- **Establishing provider payment guidelines or payment rates.** States and Territories have multiple mechanisms for establishing payment rates. The rate-setting process may be shared between the state legislature and CCDF Lead Agency, but is seldom, if ever, delegated to an outside organization. Rate setting is a political process in which multiple stakeholders may participate, including provider groups, unions, advocacy organizations, and legislative leaders, as well as CCDF agency staff. Rate setting relies in part (although not fully) on information gathered through a study.

The focus of this brief is primarily on the first process of collecting, analyzing, and reporting information that can be used in the process of setting subsidy payment rates. The brief discusses key issues to consider when States and Territories are deciding which methods to use and how to evaluate the extent to which payment rates, once put in place, achieve their intended purpose—allowing parents access to a range of providers in their local communities.

1.1 The Child Care and Development Block Grant (CCDBG)

Since the enactment of the Family Support Act in 1988 (which governed some of CCDF's predecessor programs), federal subsidy policy has required that payment rates be informed by market prices, based on the rationale that associating payment rates with prices would support parental choice and access. Support of parental choice was a key component of the passage of the Child Care and Development Block Grant (CCDBG) Act of 1990¹ and remained central when federal funding was integrated into CCDF in 1996. Under

¹ 42 U.S.C. 9858 et seq

this legislation, States and Territories were required to conduct market rate surveys (sometimes referred to as market rate *studies*) every two years, and States and Territories were encouraged (but not required) to set payment rates at the 75th percentile of the market price.

The CCDBG Act of 2014², which reauthorized CCDF, continued the language of equal access and expanded the options for States and Territories to include the use of an alternative methodology such as a cost estimation model or other approach that takes provider costs into consideration (see Section 3). The CCDF final rule³ includes additional clarifications and details regarding conducting a market rate survey or the use of an alternative methodology, which must be conducted no more than two years prior to when the State or Territory submits its CCDF Plan. According to the recently released draft 2019-2021 CCDF Plan preprint,⁴ “any Lead Agency considering an alternative methodology, instead of a market rate survey, is required to submit a description of its proposed approach to ACF for pre-approval in advance of the Plan submittal.” In addition, States and Territories must prepare a detailed report containing the results of the market rate survey or alternative methodology. The regulations require that the detailed report address the following issues related to the cost of care:

- The **estimated cost of care** (including any relevant variation by geographic location, category of provider, or age of child) necessary to support: (1) child care providers’ implementation of the health, safety, quality, and staffing requirements,⁵ and (2) the provision of higher-quality care, as defined by the Lead Agency using a quality rating and improvement system (QRIS) or other system of quality indicators, at each level of quality.
- Consideration of **the cost of higher-quality** child care, including how payment rates for higher quality as defined by the State relate to the estimated cost of care at each level of quality

There has been limited information available to states about alternative methods, and this brief is intended to help fill that gap. This brief mainly describes the primary methods that may be used to collect information on prices or costs of child care. After a brief description of each of these methods, we identify important issues to consider and key criteria for selecting a method.

2. Description of Market Rate Surveys and Alternative Methods to Inform Payment Rates

States and Territories had previously been required to conduct a market rate survey and use the information to inform rate setting. Under the 2014 CCDBG reauthorization, States and Territories may choose to use an alternative methodology, which could include data on costs instead of or in addition to prices. This section briefly describes the difference between prices and costs and provides an overview of market rate surveys and alternative methods based on costs. Additionally, this section includes a discussion of how States and Territories have recently used alternative methods to inform payment rate setting.

Primary methods used to inform setting subsidy payment rates include:

1. **Market rate (or price) survey**—A study, based on the universe or a sample of providers in a given State or Territory, that collects data on the prices or fees child care providers typically charge and parents typically pay for a given type of care setting (e.g., center-based or family child care), care by age group (e.g., infant, toddler, preschool, or school-age care), and per unit of care (e.g., per week or per hour).

² 42 U.S.C. 9857 et seq

³ CCDF final rule; Section 45 CFR 98.45(f)(1)), published 9/30/2016

⁴ CCDF Plan preprint; Section 4.2

⁵ CCDF final rule; Section 45 CFR 98.41, 98.42, 98.43, and 98.44)

2. **Cost survey**—A study, typically based on a sample of providers in a given State or Territory, that collects data at the facility or program level to measure the total costs across all inputs required to deliver child care services. Costs may be aggregated to the facility or program level and may be computed per unit of care (e.g., per child per month or per child per hour).
3. **Cost model or calculator**—A method that estimates the cost to provide care based on specific assumptions about the structure of the child care program (e.g., total number of children, facility size and features, number of groups and group size, adult-child ratio, teacher qualifications, number and qualification of other program staff) and any other required inputs (e.g., labor, materials and supplies, food service, transportation, administration), together with information on the prices or cost of each of the inputs. The model may support estimating variation in the costs of care by child age, program scale, and other features.
4. **Hybrid or combined approach**—Each of the three methods previously described may be used alone or in combination with one of the other methods to inform the establishment of payment guidelines or payment rates.

Prices versus costs

Before providing additional detail on methods used to inform provider payment rates, some discussion of the difference between *prices* and *costs* may be helpful. For the purposes of this brief, we use the term *price* to mean the fees or tuition that child care providers typically charge and parents pay for child care services. The price is often stated per unit of care (e.g., per week or per hour). *Costs* refer to the value of all resources required to deliver child care services (e.g., salaries, rent and utilities, supplies; more detail is provided in Section 2.2). The prices charged by a provider may reflect, to some extent, underlying differences in the cost of providing care based on the age of the child, the quality of the care provided, and other factors. For example, given the lower staff-to-child ratios that must be maintained for infants, we would expect providers to charge a higher price per hour for infant care relative to the price of care for preschool-age children. A program meeting quality standards set through QRIS may employ staff with higher qualifications than those required by licensing, which could raise the associated price of care. At the same time, providers may adjust their prices according to what other providers in the local area charge for the same or similar services in order to be competitive.

It is important to recognize, however, that the price for a given type of care setting or age group does not always reflect the cost of that type of care and vice versa. The prices or fees that providers charge families may not cover their full costs if they have other sources of funding (e.g., grants or donations) or if the provider/owner is willing to operate with a deficit (total expenditures exceed revenues). Prices charged for each age group sometimes may not reflect the actual relative cost differences if there are cross-subsidies across age groups. Subject to minimum requirements for licensing, providers have some control over their costs in the choices they make about program quality and other program features. They also make decisions about the prices to charge based on the demand for care on the part of families and other factors such as competition from other providers. More details on variations in costs related to type of care, age of children, and geographic location are discussed in Section 2.2.

2.1 Market rate surveys

A market rate survey is the process of collecting, analyzing, and reporting information on child care prices and thus might be more accurately called a market *price* study. To be consistent with language used in CCDBG Act, this brief will use the term market *rate* surveys. The *price* of child care services is the fee (sometimes called the tuition) that providers charge to parents for child care services. Prices are typically differentiated by the age of the child (e.g., infants, toddlers, preschool-age, or school-age children) and are expressed in terms of the amount (or hours) of care provided for a given price such as per hour, per week,

per month, or per term, where the week, month, or term would specify how many hours of care are provided during that period. Prices may be different for child care provided during regular business hours versus an extended day (before- or after-hours care) or care during the weekend. Given the various ways prices can be presented, providers often have a schedule or menu of prices that displays the types of child care services that may be purchased and the associated price.

A market rate survey can be based on data from a sample or the universe of providers in the market. States and Territories are required to conduct a market rate survey every three years, and the survey can provide important information about the functioning of the child care market. This information can include provider policies and practices with regards to payments, absences, hours of operation, etc. Many CCDF Lead Agencies contract with an outside organization, such as a university, research organization or resource and referral agency, to collect the price information and conduct the analysis.

Given the variation in prices across providers, there are a number of challenges in designing and conducting a market rate survey. In Section 3, we discuss important considerations for ensuring the validity and reliability of a market rate survey.

2.2 Cost surveys

A cost survey is the process of collecting and analyzing data at the facility or program level to measure the total costs, across all inputs, required to deliver child care services, and is typically based on a sample of providers in a given State or Territory. The cost of child services is the total expenditures providers make in delivering the child care services—both direct costs and indirect costs. Direct costs include the salaries and fringe benefits of the classroom staff and other program staff, occupancy costs (e.g., rent and utilities), materials and supplies, staff professional development, food, transportation, telecommunications, and other professional services (e.g., an annual audit). Indirect costs include centralized costs that may not be directly attributable to one type of care or one classroom, such as the cost associated with the program director or other administrative support. When programs are part of a larger organization, there may also be indirect costs associated with the management of the organization. Data on costs may be presented in aggregate (i.e., for the program as a whole) or on a per unit basis (e.g., cost per hour of care). States and Territories may be challenged to estimate the separate cost for each age group (i.e., the per child cost of serving an infant, toddler, or preschooler).

Conducting a cost survey requires collection of extensive, detailed data. Few large-scale, comprehensive cost surveys have been conducted by States and Territories. Two examples funded by a state agency include studies in Massachusetts (Marshall et al., 2001) and Maine (Marshall et al., 2004), both conducted by researchers at universities and research firms. Data collection and other challenges to conducting a reliable and valid cost study are discussed in Section 3.3. More recent studies primarily use a cost model or cost tool approach rather than collecting data on costs using a survey at the provider level. Cost models and cost tools are discussed next in Section 2.3.

2.3 Cost model or cost calculator

A cost model or cost calculator is a method that estimates the cost to provide care based on specific assumptions about the structure of the child care program and the required inputs, together with information on the prices or costs of each input. The cost estimates vary based on structural parameters such as the total number of children, facility size and features, number of groups and group size, adult-child ratio, teacher qualifications, number and qualification of other program staff, and other required inputs (e.g., labor, materials and supplies, food service, transportation, administration). The model may provide separate cost estimates for different child age groups, different-sized programs, and other features. Costs may be aggregated to the facility or program level or may be computed per unit of care (e.g., per child per month or per child per hour).

Two examples of existing cost tools that may be used to estimate costs for child care settings and educational programs include:

- The **CBCSE Cost Tool Kit** (Center for Benefit-Cost Studies of Education, 2012) uses the cost-ingredient method, which builds up cost measures based on an assessment of all resources used to implement a program. The Tool Kit includes an “ingredients” work sheet that lets the user identify program ingredients and assign prices for each. Users may look up prices of commonly used resources in educational programs through the “Database of Educational Resource Prices,” which is also part of the Tool Kit. The Tool Kit allows users to calculate full costs, per-participant costs, and costs per unit of an outcome.
- The **Provider Cost of Quality Calculator (PCQC)**⁶ is a tool for estimating costs based on specific inputs identified by the user. It uses the cost-ingredient method similarly, summing up the costs of all the resources used to operate the program. The PCQC also includes training and professional development costs, as well as the number of additional hours per week a provider spends on quality-related activities. The PCQC allows users to determine the cost of providing services at a particular level of quality (based on licensing or QRIS standards) and to compare estimated costs with estimated revenues to assess sustainability.

Other cost tools or models have been developed (Caronongan, Kirby, Boller, Modlin, & Lyskawa, 2016) but this brief primarily focuses on the PCQC as the tool developed with the support of the Office of Child Care to assist State and Territory CCDF planning and implementation.

Cost estimation models and cost tools are typically created by researchers, who may be contracted by state agencies or other funders to analyze the costs of particular types of care or in specific locations. Cost estimation models or calculators typically employ a spreadsheet in which the user enters program information, and estimates of the total cost of providing child care services are generated based on formulas embedded in the worksheet. Depending on the level of detail in the particular tool, the amount of required information varies. It is important to recognize that these cost estimators are just that – estimators – and the accuracy of the cost estimates will vary depending on the assumptions and data input. These tools generally incorporate key features of child care programs that lead to cost variation, including the number of children enrolled, the number of classrooms, the number of staff and their education levels, etc. Given the number of assumptions to be made, States and Territories are likely to benefit from expert guidance when using an existing cost model and adapting it to their own circumstances. Issues to consider when using the cost calculator approach to informing subsidy payment rates are described in Section 3.

2.4 Hybrid or combination approach

Market rate surveys that collect data on prices and alternative methods using cost data or cost estimates each provide different information about the child care market. States and Territories may find that using multiple methods and sources of information is helpful for informing rate setting because generally there is not a direct link between either a market rate survey or an alternative methodology and the rate-setting process. A hybrid or combination method utilizes information on both prices and costs. Indeed, as of 2017, the States that had proposed use of alternative methods have largely used a combination of methods.

While collecting both types of information (prices and costs) may be useful, States and Territories may lack the resources to undertake multiple studies. In Section 3, we highlight some of the challenges of conducting both a market rate survey and an alternative cost-based approach, in addition to the expense.

One approach States and Territories may choose is to conduct a market rate survey along with a *limited* cost analysis, in order to inform payment rates and provide the information on costs required in the CCDF Plan. A limited cost analysis could pull information on costs from existing studies or from a small

⁶ <https://www.ecequalitycalculator.com/Login.aspx>

survey. States could conduct a small survey with, for example, high-quality providers, to determine costs of providing care. However, these results may lack external validity in that they cannot be generalized to other providers and may still be expensive to conduct. In some States, researchers or organizations have conducted detailed cost analyses of at least some types of child care settings. States could use information from these past studies for their State as the basis for their cost estimation. Note that these estimates might need to be adjusted for inflation if they were conducted several years ago. Whether cost estimates from prior studies can be used will depend on the rigor and validity of the study, as well as whether the relevant disaggregations of the data by age of child, type of care, and geography are available.

Some States and Territories have used cost tools like the PCQC to conduct a limited cost analysis in addition to conducting a market rate survey. To conduct only a narrow analysis using the PCQC, states would need to limit the number of scenarios for which they calculate costs. The downside of limiting the scenarios is that the results might not include much information about geographic or other sources of variation in costs. The assumptions about number of children, classrooms, and age group mix input into a cost tool can dramatically change the cost estimates and may make it difficult to do a limited analysis that has validity across provider types, locations, and sizes. As discussed in Section 3.4, the validity of cost estimates from a limited analysis using a cost tool will depend on the assumptions and accuracy of the input data.

Other alternative approaches use the market rate survey as the base of information and adjust the payment rates based on other sources of information (but not directly on cost data). States and Territories could adjust payment rates that are based on the market rate survey by an upward adjustment factor to account for the higher costs of higher-quality care. For example, the typical percentage difference in compensation paid to teachers with higher qualifications or teachers in higher-quality settings could be used to adjust the payment rates. Alternatively, States and Territories could use the payment rates set in provider contracts to provide CCDF-funded services and/or grants to Head Start or pre-K programs as a basis for higher payment rates for higher-quality care. These alternatives do not provide direct information on the costs to meet the basic health, safety, quality, and staffing requirements or the cost of higher-quality care, and therefore may be insufficient to demonstrate that the payment rates take cost into account. The validity of these methods has not been established, and the impact on parents' ability to access care in their local market needs to be considered.

2.5 Examples of recent use of alternative methods by States and Territories

A review of CCDF plans submitted to the Office of Child Care for the years 2016 through 2018 provided information about plans to use alternative methods as one source of information for setting subsidy rates. In these CCDF plans, seven States and Territories (American Samoa, Arkansas, District of Columbia, Georgia, Louisiana, Mississippi, and Nevada) proposed using alternative methodologies. Each of the seven proposed using a hybrid methodology that involves using traditional market rate survey data alongside findings derived through their alternative methodology. Six of the seven alternative methodologies focused on incorporating the cost of providing care, rather than advertised price alone, into setting payment rates. These States and Territories proposed different methods to determine the cost of providing care. Nevada and Washington, D.C. used the PCQC. Georgia, American Samoa, and Mississippi included questions about price, revenue sources and cost to provide care in a survey of providers. Arkansas modeled costs using its market rate survey data and included other variables about program characteristics (e.g., program type/setting, age groups served, geographic location).

Louisiana's proposed methodology also uses market rate survey data in combination with the per-child cost of providing public pre-K and kindergarten by using the latter costs as the minimum acceptable benchmark for the cost of providing high-quality child care. Their proposed funding model aims to increase state-funded pre-K slots to serve all high-needs four-year-olds and/or subsidize high-needs children at the per-child kindergarten rate⁷.

⁷ See <http://www.acf.hhs.gov/occ/resource/state-plans-for-more-details-on-the-approved-state-plans>

3. Criteria and Considerations for Assessing Methods to Inform Rate Setting

3.1 Considerations for choosing data sources and methods to inform payment rates

There are a number of criteria (summarized in Table 1) that can be applied to the assessment of each of the methods when deciding which is the preferred approach for a particular State or Territory. First, to serve its purpose, a price or cost study or a model needs to produce statistically valid and reliable results. “To be considered valid and reliable, the market rate survey or alternative methodology must represent the child care market, provide complete and current data, use rigorous data collection procedures, reflect geographic variation, and analyze data in a manner that captures other relevant differences.”⁸ “Validity is the ‘extent to which an empirical measure adequately reflects the real meaning of the concept under consideration’ (Rubin & 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” (Grobe, et al., 2008, p.2). Similarly, findings from an alternative methodology are valid to the extent that they match facility costs (or other focus of the study) in a community. Key criteria for validity of a market rate survey or alternative methodology include completeness (e.g., whether all relevant types of providers are represented). For survey data, response rates are important for determining representativeness of the sample. Timeliness, as defined by reflecting current or market conditions, is another important criterion for using information on prices or costs to inform setting payment rates. A method that captures real market trends (i.e., stability) and not random short-term fluctuations is also preferred.

In addition to the need to provide valid results, States and Territories must consider whether their application of a particular method captures the variation in prices or costs along relevant dimensions such as provider type, provider quality, child age, schedule of care, geographic location, or other factors. The CCDF final rule⁹ requires that methodology reflect variation by geographic location, category of provider, and child’s age. States and Territories may also want to consider the cost of collecting the information or the cost of building and maintaining a model and whether the survey or model is transparent for key stakeholders (e.g., providers, parents, state advisory councils).

Table 1. Criteria for Assessing Methods that Inform Rate Setting

Criteria	Specific considerations
Validity	Does the method accurately measure (or produce) the desired information?
Captures variation	Does the method capture variation in price or cost structure along relevant dimensions such as provide type, provider quality, child age, schedule of care, geographic location, or other factors?
Timeliness	Does the method reflect current conditions or is it out-of-date?
Cost	What is the cost to conduct the study or maintain the information collected (e.g., a cost tool)?
Transparency	How is the information from the study used and is it understandable to providers and other stakeholders (e.g., parents)?
Stability	Does the method capture real market trends or random fluctuations?

⁸ FFY 2016–18 CCDF Plan Preprint Section 4.2.3).

⁹ CCDF final rule; Section 45 CFR 98.45(f)(1)), published 9/30/2016

3.2 Considerations in choosing to do a market rate survey

Multiple resources exist to support States and Territories in conducting a market rate survey in order to ensure that the study is accurate, reliable, current, and comprehensive (Grobe et al., 2008). The checklist provided by Grobe et al. (2008) is a useful tool for assessing the validity of a State's market rate survey. The CCDF final rule lists a number of key benchmarks for a valid and reliable market rate survey. Here we focus on a general discussion of the strengths and weaknesses of a study of child care prices for the purpose of informing the subsidy payment rate-setting process.

Both the strengths and weaknesses of a price study are associated with the tight link between prices and what parents find when they search for a child care arrangement. Price is relatively easy for a parent to understand; typically, there is a price associated with a care arrangement, and studies show that price is used by parents in making a child care decision (Leslie, Ettenson, & Cumsille, 2000; Rose & Elicker, 2008). A major benefit of a child care subsidy is that it reduces or eliminates price as a barrier to a child care arrangement. A market rate survey is the most direct way to determine how much a parent would need to pay for child care services in the local market. The advantages of a market rate study as a method to inform the rate-setting process include:

- Parents understand a price, as that is what they see when seeking to secure a child care arrangement.
- Providers can accurately report prices.
- Providers can report prices for different age groups.
- The process for collecting price information and the quality of data on prices is generally similar across types of care (e.g., centers and family child care providers).
- Differentiating variation in prices by community (geographic location), type of care, and age of child is relatively easy.

However, there are several challenges to using price information as the sole basis for informing the rate-setting process. Market forces result in inequities that limit access to a range of quality child care and education in some communities, especially those in which large numbers of traditionally underserved children and families reside. For example, there may be little or no priced child care in rural and low-income communities. Reliance on informal arrangements such as relative caregivers (e.g., grandparents, great-grandparents, or siblings) may be the only option for families in these communities. There are challenges to relying only on a price study as a source of information for the rate setting process:

- Insufficient market information may present challenges when there are:
 - too few providers in an area,
 - providers who don't charge a market price (e.g., those who enroll only children receiving subsidies), or
 - specialized services for which supply is limited (e.g., evening or weekend care, special needs children, infants).
- Costs are not fully covered by prices charged to parents (e.g., providers who use grants or donations to cover the full costs of providing care).
- Market prices reflect inequities in families' abilities to pay for child care, such as when providers in communities with high numbers of children from families experiencing poverty or very low incomes are likely to have low prices.

3.3 Considerations in choosing to do a cost study

Collecting cost data shares similar issues as a market rate survey in terms of the importance of the survey sample and data collection methodology to achieve valid and reliable findings. A representative sample is key for ensuring that all provider types are well-represented and that important dimensions of variation are captured (e.g., geography, provider types, type of care). The data collection method—particularly the instrument used to obtain cost information from providers—is also critical for ensuring that the cost data are reliable and valid.

A recent literature review (Caronongan et al., 2016) found that the complexity of cost analysis and the information needed to allocate costs to specific categories warrants multi-source, multi-method data collection in order to gather credible data on the cost of child care. Eleven of 21 cost studies reviewed conducted primary data collection and used several data sources, including telephone or in-person interviews with key personnel such as center directors or financial officers and a review of financial records and reports of child care centers. Many of the reviewed studies used broad measures of costs (total costs or full costs) in their analyses. Results from studies that delineated costs into finer categories indicate that broad measures can mask important differences in cost allocations between centers or family child care homes.

A consistent finding across the studies reviewed is that labor costs account for a large proportion of total costs. Labor costs vary with qualifications such as education or experience. Larger programs may have higher total costs, but typically have lower costs per child than smaller programs. Similarly, programs open for longer hours or more days per year may experience more economies of scale, but there does not appear to be a linear relationship between costs and hours and days of operation. Not surprisingly, the age of children served affects costs because of the different staff-child ratios and group sizes allowed by state law (which vary across States). Additional detail and references about research that has studied factors related to costs are provided in Appendix A.

Cost surveys are particularly challenging with respect to the information that must be collected from providers. Consequently, cost surveys are more resource-intensive than price surveys because of the time needed for field staff and the burden on participating providers. Although price or fee schedules can be complex, collecting information from providers in a systematic way that ensures the measurement of the full cost of care is even more demanding. Some providers have sophisticated accounting and financial systems and can readily provide the desired information. However, many providers are small and may not have the data or resources to complete a cost survey. Indeed, the National Survey of Early Care and Education (NSECE) found that half of centers enrolled 50 or fewer children (NSECE, 2014). Since many providers do not have formal systems, they may not be able to provide accurate information but only “best estimates.” Family child care providers, in particular, may have difficulty calculating the costs of care by age, given that the age mix of children typically varies by the day, week, and over time. Complexities also arise when providers are part of a network or under the umbrella of a parent organization. In such cases, overhead costs at higher levels of the organizational structure may need to be accounted for. Allocating such overhead costs may be difficult. Providers may also benefit from in-kind goods and services (e.g., free or discounted space, volunteer labor), and determining how to value such resources as part of the cost of care is a further challenge.

Another complexity is that while price data may be clearly differentiated by child age and the hours of care, it is not always possible to generate cost estimates at a disaggregated level. Providers can typically provide information on the total cost of the care services they provide, but they may not be able to readily distinguish costs for their infant or toddler classrooms versus their preschool classrooms. In many cases, estimating the total cost of care per child or per child hour may be all that is possible.

3.4 Considerations in choosing to use a cost calculator or cost estimation tool

Given the challenges of conducting a cost survey, using a cost calculator or cost estimation model is potentially a less costly option to provide valid estimates of costs, either on average or for a hypothetical provider based on a set of standard assumptions about the program and the costs of inputs. A cost estimation model involves establishing a set of parameters that define the type and structural features of the care environment being modeled and the cost of the associated inputs given those assumptions (e.g., labor, facilities, food, materials, etc.). Cost models are ideally derived from underlying data on cost structures for providers in the community being modeled. Thus, a cost survey, even at a small scale, may be needed to inform the development and ongoing updates of a cost estimation model.

As an example, according to the PCQC User's Manual (March 2015), the PCQC was designed to provide estimates of the differences in costs for different quality levels and compare those costs to estimated revenues. The quality levels are reflected in assumptions made in the cost calculation about salary and benefit levels, staffing ratios, supplemental staff positions, etc. The cost and revenue estimations are computed at the program level on an annual basis. Variations in total costs are driven primarily by the salary and benefit numbers used in the calculations, which are based either on the default values provided in the calculator or on values input by the user. Other costs that are typically encountered by ECE programs are included in the cost calculations, such as occupancy costs (e.g., rent, utilities), materials and supplies, food, insurance, etc. The sum of the costs can be compared to the revenues a program expects, including parent fees, CCDF subsidy payments, and other sources of revenue.

Key issues in the development of a cost estimation model include whether the program parameters are consistent with such requirements as minimum features for program licensing or standards required for other funding sources (e.g., Head Start, state preschool, or QRIS). The relevance of the assumptions regarding program structure for a given provider type (e.g., center or home-based) should also be considered. Finally, the prices attached to inputs need to be appropriate and current for the local market conditions. These issues mean that a generic cost estimation model may not be valid for a particular area or provider, but rather the model needs to be tailored to be consistent with the local conditions.

As a method to understand the different components of costs, a cost model or cost tool like the PCQC is extremely useful. The cost tool walks the user through a series of data collection spreadsheets that help the user understand the factors driving costs. However, the user must make many decisions that will influence the final total cost estimates. For some States and Territories, understanding how these assumptions influence the cost estimates may require the assistance of a consultant. One of the biggest challenges is that the assumptions about the size and mix of classrooms and ages are critically important to the total cost numbers, yet there is little guidance on how to choose these numbers. Using the number of classrooms and age mix in a typical center yields one estimate of costs; changing the number of infant rooms or the total rooms will yield different cost-per-child estimates. Testing different scenarios or different assumptions about program structures may be important to develop cost estimates that are valid across a range of programs found in a State or local area.

Another major consideration is how the estimates of costs from a cost estimation model or tool will be converted or used as a comparison with subsidy payment rates. Subsidy payment rates are denominated on a per time unit and per child basis. In cost tools like the PCQC, annual cost estimates are provided at the program level. Converting from an annual program cost to a per child per unit of time basis requires several assumptions about the time in care. If the annual cost per child is simply divided by 2,500 (50 hours per week for 50 weeks), the per hour cost may be above or below the program's hourly price. There is no standard guidance on how to convert from annual to per hour cost when modeling program costs.

In addition, the CCDF final rule requires states to provide cost estimates that account for geographic variation, category of provider, and age of child. Cost tools like the PCQC provide separate cost items and calculations for centers and family home providers, and can provide different estimates by geographic area

if one enters different cost numbers (for salaries, rents, etc.) for each geographic area. Therefore, States and Territories would need to have information on differences in these cost drivers for different sub-state areas. Determining the cost for an infant versus a preschool-age child from an annual program cost estimate would also require further analysis and assumptions about the program.

3.5 Considerations in using a combined or hybrid approach

While collecting both types of information (prices and costs) may be useful, States and Territories may not have adequate resources to undertake multiple studies. Conducting both a market rate survey and a cost study or cost modeling approach could be expensive in terms of the time and resources needed. Supplementing a market rate survey with additional information on costs could provide the needed information in a less costly manner. States and Territories could conduct a narrow or limited cost analysis using a cost tool such as the PCQC. To conduct only a narrow analysis using a cost model, states would need to limit the number of scenarios for which they calculated costs (each scenario includes assumptions about the costs of inputs, the number of classrooms of different ages, etc.). The downside of limiting the scenarios is that the results might not include sufficient information about geographic or other sources of variation in costs. As noted above, the assumptions about salaries, number of children, and age group mix input into a cost calculator affect the cost estimates and may make it difficult to do a limited analysis that has validity across provider types, locations, and sizes.

Ideally, a limited cost method would produce cost estimates that are statistically valid and reliable. Methods that are limited in scope in order to save resources are unlikely to yield estimates that meet standard criteria for statistical validity (e.g., sample size, completeness, rigorous data collection methods, accounting for variation across different contexts). At a minimum, a narrow cost analysis should produce an approximation of costs that most providers or programs agree is sufficient to cover the basic health, safety, quality, and staffing requirements. If the CCDF Lead Agency can establish that subsidy payment rates based on the narrow cost analysis are sufficient to allow parents access to 75 percent of providers in their local market, that could be taken as evidence that the cost estimate covers the basic requirements. Thus, even a limited cost analysis must be based on timely information and must reflect variation in prices and costs across provider types, geographic areas, and age of child.

Another concern is whether the cost estimates from the PCQC have been validated by independent research. The tool was designed for a specific purpose, and using it for a different purpose (that is, informing payment rate setting or as a comparison to subsidy payment rates) may not be valid or may be valid only under certain circumstances or assumptions. The user must make many decisions that will influence the final total cost number. Using the PCQC or a similar cost tool for a limited analysis may produce estimates that differ from providers' true costs in unknown ways when a limited set of scenarios is used. Conducting a validation study of using the PCQC for a limited cost analysis is an important topic for future research.

4. Informing the Rate-Setting Process and the CCDF Plan

The CCDF final rule¹⁰ calls for certain information and reporting requirements with regards to estimating the cost of providing child care to be included in state CCDF Plans. Lead Agencies must either conduct a market rate survey as in years past or may use an alternative methodology if approved. In either case, the detailed report by the Lead Agency also must include the estimated cost of care to meet basic health, safety, quality, and staffing requirements and consider the cost of higher quality care as defined by the State. In this section, we discuss issues related to how the data gathered through a market rate survey or alternative methods can be used by states for the following purposes:

- Informing rate setting

¹⁰ CCDF final rule; Section 45 CFR 98.45(f)(1)), published 9/30/2016

- Providing an estimate of the cost of care and demonstrating that payment rates take into account the higher cost of high quality care as defined by the State
- Demonstrating that payment rates provide equal access

4.1 Informing the rate-setting process

In general, States and Territories can approach rate setting by using the data gathered on provider prices, provider costs, and/or a formula. Payment rates can be based on the usual prices charged by a provider, for example, or on the set of prices found in a local market. The subsidy payment rates may be set as a maximum to be paid and may be adjusted by certain factors such as the quality of care. This approach relies most heavily on information from the market rate survey. Variation in market prices by geographic location, age of child, and type of care can be used to inform variation in payment rates. Determining the payment rate categories—including number of age groups, number of geographic locations, types of care, etc.—are important policy decisions that may be informed by the variations observed through the market rate survey (Davis et al., 2009)

Data from cost studies or cost models are an alternative or additional source of information for setting payment rates. Payment rates could be set based on the cost of providing care, and could be negotiated on a contract basis or set as maximum payment thresholds. The payment rates could vary by geographic location, age of child, and type of care, or by other factors that influence the costs of providing care.

An alternative approach would be for States and Territories to base payment rates on a formula, an approach used in some state pre-K and Head Start programs. There is little guidance on how to develop a formula or whether and how to connect it to costs or prices. Even with a formula-based approach, the information from a market rate survey or a cost method could be used to assess whether the payment rates provide equal access, which is further discussed in Section 4.3.

When considering which approach to use to inform payment rates, States and Territories should consider the necessary requirements for data collection of price and cost studies (see Box 1 for more information on data collection considerations for price and cost studies). If States and Territories choose to conduct a market rate survey, they will have to determine how cost information can be incorporated (as required by the CCDF final rule). On the other hand, if they rely only on an alternative measure based on cost data, States and Territories will lack information about prices (as discussed further below).

4.2 Providing an estimate of the cost of care

The detailed report provided by each Lead Agency must include information on the estimated cost of care, taking into consideration the cost of providing higher-quality care¹¹. Conducting a cost study or cost modeling approach would provide this information, although States and Territories would need to ensure that the variations across key dimensions like geography, age of child, type of care, and quality were incorporated into the method. For States and Territories that continue to conduct a market rate survey, there may be no direct information on costs from a study of market prices. A full cost study or cost modeling is a major research undertaking, and Lead Agencies are unlikely to have the resources to conduct both a market rate survey and a full cost analysis. They may be able to undertake a limited cost analysis to provide the information required in the CCDF Plan. Claiming that price information is sufficient to understand costs is unlikely to be sufficient, given the variation in the relationship between prices and costs. Thus, it is likely that many States and Territories will need to supplement a market price study with additional information about costs, either from a cost survey or from a limited cost analysis using a tool like the PCQC.

¹¹ CCDF final rule; Section 45 CFR 98.45(f)(1)), published 9/30/2016

4.3 Assessing “equal access”

Access has been and continues to be a major policy goal of the CCDF program.¹² Demonstrating that parents who receive CCDF subsidies have access to the range of providers in the local child care market similar to other parents is a required component of the State or Territory’s CCDF Plan. A market rate survey provides information on what providers charge parents and therefore offers a direct comparison to what other parents pay to determine “equal access.”

CCDF requirements state that “The CCDF plan shall provide a summary of data and facts relied on by the State or Territory to certify that payment rates are sufficient to ensure equal access. Equal access is not limited to a single percentile alone but is inclusive of various metrics or benchmarks that would offer children receiving CCDF access to the same services (type of care, quality of care) as children not receiving CCDF.”¹³ A comparison of payment rates with the 75th percentile of the current, relevant market price continues to be a straightforward way to demonstrate access. According to CCDF Plans for FFY 2016-2018, six States and Territories (Arkansas, Oregon, Puerto Rico, South Dakota, the U.S. Virgin Islands, and West Virginia) are setting their payment rates at the 75th percentile for all categories of care. Without current information on prices, the level of access based on the market price percentile cannot be accurately assessed.

In addition to a comparison with market price percentiles, other information can be used by States and Territories to demonstrate access for families receiving CCDF subsidies. Examples of the data sources and types of information that could be used to demonstrate access are listed in Table 2. Information from cost studies or cost estimation may be particularly useful for informing rate setting for higher-quality care or in contexts where there is insufficient market information. Demonstrating that the payment rates afford equal access to families receiving subsidies may be best accomplished with current and valid data on both market prices of child care and the costs of providing high-quality care to children of different ages and locations. It is important to note that States and Territories face the tension that setting higher payment rates for providers means that fewer children can be covered by subsidies given the block grant funding.

¹² As noted, access can be conceptualized using dimensions that include but go beyond affordability. The definition of access to early care and education developed by an expert panel and included in the Access Guidebook is as follows: “Parents, with reasonable effort and affordability, can enroll their child in an arrangement that supports the child’s development and meets the parents’ needs.”

¹³ CCDF final rule; Section 45 CFR 98.45(f)(1)), published 9/30/2016

Table 2. Key considerations and metrics to assess the extent to which subsidy payment rates establish equal access

Equal access considerations	Type of information or metric
Affordability of high-quality providers	<ul style="list-style-type: none"> • Subsidy payment rates are set at the 75th percentile or higher of current, valid market rate survey. • Tiered quality rates reflect differences in cost of care at different rating levels. • Cost survey or cost estimation data are used to supplement market price data in setting payment rates. • Cost survey or cost estimation models account for the higher cost of providing higher-quality services.
Availability of high-quality providers for children receiving subsidies	<ul style="list-style-type: none"> • Current use of high-quality providers by children receiving subsidies: Usage data document the proportion of subsidized children served by high-quality programs. • Longitudinal trends indicate increasing use of high-quality programs over time. • Proportion of providers willing to accept subsidies is high.
Availability of high-quality providers that meet children's unique needs	<ul style="list-style-type: none"> • Market data indicate available slots in high-quality programs for children with special needs, dual language learners, infants and toddlers, homeless children, and other high-priority populations
Definition of high-quality	<ul style="list-style-type: none"> • Quality is defined using a quality rating and improvement system with research-based quality standards. • Cost surveys and models account for the quality features in the QRIS. • A market rate survey identifies programs by QRIS level and differentiates rates accordingly.
Availability of information about high-quality options	<ul style="list-style-type: none"> • Web-based information is available for parents to identify and compare programs that accept subsidies and that are available in their geographic location. • Proportion of parents using these information sources • Proportion of parents who report problems finding providers who accept subsidy
Availability of care that meets parents' unique needs	<ul style="list-style-type: none"> • Market data indicate available slots in high-quality programs that provide care during non-standard hours, transportation, and access to family support services.

Broad Criteria for Assessing Payment Rates

The CCDF final rule requires States and Territories to report their payment rates and to demonstrate that these rates are sufficient to provide equal access to families receiving subsidies and that the payment rates consider the higher costs of high-quality services. In addition to these two important criteria, States and Territories may want to consider whether the payment rates meet other criteria important to their State, as outlined in Table 3.

Notions of fairness are also important to consider. In terms of horizontal equity, the question is whether providers in similar circumstances will receive a similar payment. Vertical equity means that the pattern of payments according to any relevant hierarchy (e.g., provider quality) reflects the intended structure of the payment policy. For example, if a policy goal is to incentivize and reward achieving high-quality, the cost

recovery rate may be higher for higher-quality providers. In a transparent system, providers and parents will be able to understand how payment rates are set and to respond to incentives for quality.

Another potential criterion is the effect of the payment policy on the number, type, and quality of providers available for families with subsidies. Payment policies could affect the mix of providers that are willing to accept subsidies, and possibly the degree of stability of these providers. For example, if payment rates are set too low, it may reduce the number of providers willing to accept subsidies. Further, because providers cannot cover their costs, some may go out of business, which means a less stable group of providers. Such intended or unintended consequences could be assessed as another criterion.

Issues related to providing equity vary across communities and states and may influence the kind of information needed to inform rate-setting. In some States and communities, children receiving subsidies are enrolled in small numbers across a relatively large percentage of the state's providers. Yet, in other States and communities, small percentages of programs serve all (or nearly all) children who receive a subsidy, and children on subsidy make up all (or nearly all) children in these providers' care. In these types of situations, additional information beyond the local prices may be helpful in the rate-setting process.

Table 3. Criteria for evaluating payment mechanism and rates

Criteria	Specific considerations
Access	Do families have access to care in their local communities? Do they have access to high-quality care?
Cost recovery	Do payment rates cover substantially more or less than the provider's costs? Are payment rates reflective of local variation? Do payment rates account for the cost of higher-quality services?
Horizontal equity	Do providers in similar circumstances, offering a similar service, receive the same payment? Do families using subsidies have similar levels of access as families not using subsidies?
Vertical equity	In considering relevant hierarchies (such as low to high quality), do payment rates vary in the desired way?
Transparency	Are the payment mechanisms and any embedded incentives easy for providers and parents to understand?
Consequences for child care marketplace	Does payment policy affect the number, type, and quality of providers willing to accept subsidies?

5. Conclusion

States and Territories have options for conducting different data collection and analytic activities to inform child care subsidy payment rates. Appendix B summarizes key themes discussed in the brief related to each of the studies or methods that States and Territories may use. The purpose of the table is to provide a high-level comparison of the methods and the information produced by each.

Fundamentally, ensuring that parents have equal access requires that providers be willing to accept subsidy payments. Demonstrating that all or nearly all providers in the geographic area participate in the subsidy program indicates that parents have access to the same set of providers as other families in their communities. Evidence that parents use the range of providers available in the community also supports the provision of equal access. Establishing payment rates that are high enough to cover the prices charged by three-quarters of the providers in the market has been the standard by which equal access is determined. But in situations in which the market prices do not reflect the full costs of providing care, or where the market provides limited options, basing payment rates solely on market prices may not ensure access.

In addition, other factors influence providers' decisions to participate in the subsidy program, including payment policies and practices.

With the renewed focus on high-quality care, States and Territories may choose to emphasize access to high-quality providers for families receiving CCDF subsidies. Information from cost studies and cost estimation models may be particularly useful for informing rate-setting for high-quality care. Variation in payment levels based on a quality rating, (e.g., through tiered rates or bonuses), support access to higher-quality care. If payment rates based on market prices are insufficient to cover the costs of providing high-quality care, providers may not participate or may charge parents the difference between their fees and the subsidy payment rate (if allowed). If all providers participate in the subsidy program but charge the parents the difference between subsidy payment rates and their usual fees, parents may not truly have access. If payment rates are based solely on cost data, however, parents in certain areas with high market prices may have less access, depending on the relationship between prices and costs.

Box 1: Data collection considerations of cost versus price to inform rate setting

Collecting accurate data on provider cost is typically more time consuming on the part of both the provider and the data collector compared with collecting price data.

Price data (e.g., through a market rate survey) are collected for a point in time and ideally reflect the provider's full menu of child care services and associated prices. Such information is relatively straightforward for a provider to report as part of a survey, which may be conducted over the phone or in person. Sometimes price data are posted on the provider's website, or information may be held by an intermediary, such as the resource and referral agency. Complexity arises because the menu of care options will differ across providers, so it can be challenging to collect the price information in a standardized way.

Cost data are typically collected for an interval of time, such as the provider's accounting year (e.g., the calendar year, a fiscal year). To obtain complete and accurate information, providers are asked to assemble information and report on expenditures, for the stated accounting period, in specific categories that can later be aggregated to obtain an estimate of total expenditures. Thus, expenditures are recorded for personnel salaries and fringe benefits, rent and utilities, classroom materials and supplies, professional development, food, transportation, etc. Ideally, expenditures for materials that have a useful life over multiple years (e.g., furniture, manipulatives, equipment) are separately identified so that the costs can be amortized (i.e., distributed) across multiple years based on the item's useful life.

Indirect expenditures should also be collected, which requires identifying all other resources used to support the delivery of the care services and then determining a rule for allocating the pool of indirect expenses to the specific care services. The allocation of cost to specific types of care (e.g., infant care, toddler care, preschool-age care) is even more challenging, as it requires collecting direct expenditures for each care type (potentially at the classroom level) in addition to the indirect expenditures which then must be allocated across each care type. Finally, to generate estimates of cost per unit of care provided, it is necessary to obtain information, for the same accounting period, on the number of children served (and the hours of care received) in aggregate and by type of care.

Given the complexities of collecting the required information to measure cost and cost per unit of care, it is often preferable to collect the information through an in-person interview with the person most knowledgeable about the program's financial data, although subsequent data collection efforts could proceed over the telephone. Some providers will have transparent, well-defined accounting systems that can support assembly and reporting of expenditure information. However, many providers, especially smaller centers and family child care homes, may not systematically record and retain expenditure information. In such cases, it can be extremely time consuming to reconstruct the required information or even to provide "best guess" estimates.

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Appendix A: Literature Review on Cost Studies

Mathematica Policy Research conducted an extensive literature review on cost studies for the Office of Planning, Research and Evaluation (Caronongan, et al., 2016). Key findings from that literature review are summarized here.

A consistent finding across the studies reviewed is that labor costs account for a large proportion of total costs. Some studies have delved deeper into this cost category by looking at labor costs by levels of education or experience (e.g., Blau & Mocan, 2002) or by staff type (e.g., Schwartz & Karoly; Zellman & Gates, 2002). Key drivers of costs include:

- **Enrollment level or capacity.** Findings were consistent across the studies that, as a provider serves more children, more staff, materials, and space are required, leading to increased costs. However, costs per child are lower for larger providers due to economies of scale. (Barnett & Robin, 2006; Belfield & Schwartz, 2007; Burwick et al., 2014; Gault et al., 2008; Grossman et al., 2009; Helburn, 1995; Helburn & Howes, 1996; Levin & Schwartz, 2006; Marshall et al., 2001; Marshall et al., 2004a; Marshall et al., 2004b; Schwartz & Karoly, 2011; Zellman & Gates, 2002).
- **Hours of operation.** Providers offering full-day services incur more costs than providers offering half-day services. Similarly, providers that offer services throughout the full calendar year incur more costs than those that operate during the school year only. However, there does not appear to be a linear relationship between hours and days of operation and costs (Barnett & Robin, 2006; Gault et al., 2008; Grossman et al., 2009; Helburn, 1995; Helburn & Howes, 1996; Levin & Schwartz, 2006; Marshall et al., 2001; Marshall et al., 2004a; Marshall et al., 2004b; Pierson et al., 2014; Rantz et al., 2004; Schwartz & Karoly, 2011; Zellman & Gates, 2002).
- **Staffing structure.** The number and type of staff—which are influenced by a provider’s capacity, the age of the children being served—and regulations affect costs directly. Personnel costs are higher when a provider delivers auxiliary services (such as health care, nutrition assistance, or transportation) to cover the costs of additional staff members. Staff with more experience and education earn higher wages in general, which leads to higher costs. However, higher wages also help to reduce staff turnover and can produce cost savings through improved workforce stability (Barnett & Robin, 2006; Belfield & Schwartz, 2007; Burwick et al., 2014; Gault et al., 2008; Grossman et al., 2009; Helburn, 1995; Helburn & Howes, 1996; Levin & Schwartz, 2006; Marshall et al., 2001; Marshall et al., 2004a; Marshall et al., 2004b; Schwartz & Karoly, 2011; U.S. GAO, 1999; Zellman & Gates, 2002).
- **Ages of children served.** Serving younger children is more costly than older children because of the needs of very young children and related regulatory standards require more caregivers to be present when serving younger children, resulting in higher personnel costs (Blau & Mocan, 2002; Blau, 2007; Grossman et al., 2009; Levin & Schwartz, 2012; Marshall et al., 2001; Marshall et al., 2004a; Marshall et al., 2004b; U.S. GAO, 1999; Zellman & Gates, 2002).
- **For-profit status, auspice, and funding sources** have also been examined in studies, but there does not appear to be a consistent pattern in how costs vary along these characteristics (Blau & Mocan, 2002; Helburn, 1995; Helburn & Howes, 1996; Marshall et al., 2001; Marshall et al., 2004a; Marshall et al., 2004b; Pierson et al., 2014; Schwartz & Karoly, 2011; Zellman & Gates, 2002).

Appendix B: Considerations related to use of market rates surveys and/or alternative methods to inform subsidy payment rates

Considerations	Market rate survey	Alternative methods		
		Cost survey	Cost estimation model	Combined methods
Strengths/ advantages	<ul style="list-style-type: none"> Providers typically can report prices accurately for children of different ages and for different hours of care. The process for collecting price information and the quality of data on prices is generally similar across types of care (e.g., centers and family child care providers). Differentiating variation in prices by community (location), type of care, and age of child is relatively easy. Price information is tightly linked to what parents pay in the market. Collecting price data, depending on the data source, may be cheaper and more accurate than collecting cost data. 	<ul style="list-style-type: none"> Cost survey data can provide an accurate accounting of the resources needed to offer high quality services for children. Cost survey data could be used to inform the development and updates of a cost estimation model. 	<ul style="list-style-type: none"> Cost estimation models offer a less expensive option for assessing costs (in the aggregate) than cost surveys. Cost tools allow for testing of specific scenarios or variation in cost factors. Cost tools can provide very detailed information about the costs of providing care in different settings. 	<ul style="list-style-type: none"> Blending information from a market rate survey and a cost survey or estimation model can provide a more complete picture of both prices and costs and how they are related in a State/ Territory/local context. Cost survey data can be used to supplement a market rate survey when there is insufficient information available about the market in a particular area.

Considerations	Market rate survey	Alternative methods		
		Cost survey	Cost estimation model	Combined methods
Challenges	<ul style="list-style-type: none"> Distortions and insufficient market information are possible in certain scenarios such as geographic areas with only a few providers; providers that do not charge a market price (e.g., those who enroll only children receiving subsidies); and the provision of specialized services for which supply is limited (e.g., care on evenings or weekends, care for children with special needs children, care for infants). Costs are sometimes not fully covered by prices charged to parents. Market prices reflect inequities in families' ability to pay for child care (e.g., providers in communities with high numbers of children from families experiencing poverty or very low incomes are likely to have low prices, prices collected in a market rate survey will reflect the variation in families' ability to pay across local areas). 	<ul style="list-style-type: none"> Information requirements to fully measure cost are demanding in terms of time burden on the provider and resources needed for data collection. Many providers do not have accurate information on resources used to provide care or the cost of those resources. Cost information is easier to collect for a provider in aggregate; measuring costs separately by type of care (e.g., by child age group; by hours of participation) is more challenging. Costs identified through a cost survey may not be consistent with parents' expectations or understanding of what they pay. 	<ul style="list-style-type: none"> Accounting fully for all cost parameters is challenging. Missing data and/or faulty assumptions in the model could result in distorted and inaccurate cost estimates. Cost estimation models need to be tailored to the State/Territory/ local context and require expert consultation and support to be done correctly. The assumptions made in the model are critical for ensuring validity. Costs identified through cost modeling may not be consistent with parents' expectations or understanding of what they pay. 	<ul style="list-style-type: none"> Using a combined method approach may be more costly than collecting and using data from one method.

Considerations	Market rate survey	Alternative methods		
		Cost survey	Cost estimation model	Combined methods
<p>Validity issues:</p> <p>Does the method measure (or produce) the desired information accurately?</p>	<ul style="list-style-type: none"> • A market rate survey should be current and complete. • A market rate survey should have an acceptable response rate. 	<ul style="list-style-type: none"> • A cost survey should be current and complete. • A cost survey should have an acceptable response rate. 	<ul style="list-style-type: none"> • The assumptions made in the model are critical for ensuring validity. For example, the model should reflect local licensing requirements (e.g., group sizes, ratios); reflect other regulatory or program requirements (e.g., Head Start, state preschool, QRIS); be relevant for specific providers or provider types; and reflect the cost structure for local conditions. • Data used in the model should be current. 	<ul style="list-style-type: none"> • Validity of a combined method approach should be assessed using the relevant criteria listed for the other methods.
<p>Variation: Does the method capture variation in price or cost structure along relevant dimensions such as provider type, provider quality, child age, schedule of care, geographic location, or other factors?</p>	<ul style="list-style-type: none"> • A market rate survey should capture variations in price structure along relevant dimensions. 	<ul style="list-style-type: none"> • A cost survey should identify relevant variations. 	<ul style="list-style-type: none"> • The assumptions in a cost estimation model should account for variations in cost of care by child age, hours, location, etc. 	<ul style="list-style-type: none"> • The combined method should be rigorous enough to identify variations in cost of care.
<p>Timeliness: Does the method reflect current conditions or is it out-of-date?</p>	<ul style="list-style-type: none"> • Market rate surveys should be conducted on a regular basis to identify current prices. 	<ul style="list-style-type: none"> • Cost surveys should be conducted regularly to capture current data. • Costs of collecting data are high because of time and information burden on the provider and data collector. 	<ul style="list-style-type: none"> • Model assumptions should reflect current cost data and current market trends to ensure accurate data. 	<ul style="list-style-type: none"> • Combined methods should reflect current price and cost data.

Considerations	Market rate survey	Alternative methods		
		Cost survey	Cost estimation model	Combined methods
Transparency: How is the information from the study used and is it understandable to providers and other stakeholders (e.g., parents)?	<ul style="list-style-type: none"> Prices obtained from a survey are closely linked to parents' experiences of price in the market. 	<ul style="list-style-type: none"> Costs identified in a cost survey may not be consistent with parents' expectations or understanding of what they pay. 	<ul style="list-style-type: none"> Costs identified through cost modeling may not be consistent with parents' expectations or understanding of what they pay. 	<ul style="list-style-type: none"> Combined methods may be either more or less transparent depending on how they are used.
Stability: Does the method capture real market trends or random fluctuations?	<ul style="list-style-type: none"> If structures are in place to collect price data on a regular basis (e.g., through a resource and referral database with regular provider updates), the results are more likely to reflect real market trends. If the response rate is low or an unrepresentative sample is used, the results may not reflect true market trends. 	<ul style="list-style-type: none"> If cost data are collected on a regular basis, the results are more likely to reflect real market trends. If the response rate is low or an unrepresentative sample is used, the results may not reflect true market trends. 	<ul style="list-style-type: none"> If assumptions of the model reflect current data and current market trends, the resulting output will be more accurate. 	<ul style="list-style-type: none"> Combined methods may improve stability because different sources of information can be used to triangulate price and cost findings.
Cost: What is the cost to conduct the study or to maintain the information collected?	<ul style="list-style-type: none"> Costs are incurred to design and collect data, either universally or with a valid sample. If structures are in place to collect price data universally (e.g., through a resource and referral database with regular provider updates), data collection costs are less than other methods, although maintenance costs may still be significant (including training of staff for data collection and engagement of an analyst to conduct data analysis). 	<ul style="list-style-type: none"> Costs are incurred to design and collect data, either universally or with a valid sample. Costs of collecting data are high because of time and information burden on the provider and data collector. 	<ul style="list-style-type: none"> Costs are incurred when developing information used to populate the model. Costs may be incurred to access a tool or to work with a consultant to use it. 	<ul style="list-style-type: none"> Costs may be incurred for both the market rate survey and to use an alternative method.