

RESEARCH REPORT

Are Higher Subsidy Payment Rates and Provider-Friendly Payment Policies Associated with Child Care Quality?

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Introduction

The Child Care and Development Block Grant (CCDBG) Act of 2014 reauthorized the Child Care and Development Fund (CCDF) with twin goals: promoting economic self-sufficiency among low-income families and supporting the growth, development, and school readiness of young children. The CCDBG Act encourages state administrators to place a greater emphasis on quality, partly through the implementation and evaluation of specific quality improvement activities (Office of Child Care 2014a). The bulk of CCDF funds are spent on child care subsidies, and a key unexplored research question is whether policy decisions about CCDF payment rates and practices affect the observable quality of child care programs and staff serving subsidized children.

This study aims to provide federal, state, and local policymakers and the research community with useful information on whether particular policy levers within the subsidy system, including payment rates and the adoption of various payment policies, are associated with the quality of child care centers and homes serving children receiving child care subsidies. Decades of research demonstrate both the benefits of quality child care for child outcomes (see Phillips et al. 2017; Yoshikawa et al. 2013) and the promise of child care subsidies for increasing the quality and stability of care available to low-income families (see Brooks 2002; Johnson, Martin, and Ryan 2014; Johnson, Ryan, and Brooks-Gunn 2012; Ryan et al. 2011; Weinraub et al. 2005). However, there is little research examining how payment rates and provider payment practices and policies affect the relationship between subsidy receipt and quality of care. Greater understanding of this relationship can help state subsidy administrators develop child care programs and policies that best suit the needs of children and parents.

This study focuses on payment rates and “provider-friendly” policies—those that increase the level and stability of funding and reduce administrative costs. Rates and policies of interest include the following:

- levels of subsidy reimbursement rates
- use of tiered reimbursement rates tied to quality rating improvement systems (QRIS) and differences between reimbursement in the lowest and highest tiers
- use of contracts
- family fee policies, specifically policies requiring families to pay any difference between provider and subsidy reimbursement rates

- payment for days children are absent
- payment for days programs are closed
- length of certification period

Higher effective CCDF revenues and reduced administrative burdens can increase the quality of care in centers and homes serving subsidized children in three ways. First, they can persuade more high-quality providers to participate in the subsidy system, expanding the range of available providers. Second, higher net CCDF revenue can help providers invest in quality improvement. Aspects of program and caregiver quality likely to be influenced by these policies include participation in QRIS and other quality improvement efforts, staff turnover, formal education and professional development, and the classroom environment (e.g., use of curricula and instructional activities). Third, through tiered reimbursement policies, CCDF funds are tied directly to observable aspects of quality rewarded by state-level QRIS. These policies may incentivize new, higher-quality providers to accept subsidy payments or allow currently participating providers to invest in quality improvement, and they do so by accelerating improvement among providers who have already shown promise in delivering quality care. Thus, we conceive of tiered reimbursement as a distinct strategy for increasing the quality of early care and education (ECE) providers.

This study examines associations between state-determined payment rates and policies and several quality indicators to inform CCDF quality improvement efforts. It is guided by three research questions:

1. How much do payment rates and policies vary across states?
2. How much variation is there in the quality of child care centers and homes serving subsidized children?
3. And the key analytical question: What is the association between payment rates and policies and the quality of child care providers serving subsidized children?

Our analyses leverage policy variation *within* the system of subsidized care, capturing payment-quality dynamics in child care centers and homes. In doing so, we employ the most recent and comprehensive data available: the National Survey of Early Care and Education (NSECE). Conducted in 2012, the NSECE provides a nationally representative picture of program and caregiver quality characteristics in centers and homes, including those serving children receiving subsidies, providing a very timely baseline view of quality before the CCDF reauthorization. We also draw on the CCDF Policies Database, a comprehensive database of CCDF policies covering all 50 states, the District of Columbia, and the US territories and outlying areas. Our main analytic tools include quantitative

description and multivariate regression analysis, which allow us to explore possible causal links between payment rates and policies and child care quality.

We find substantial variation nationwide in subsidy rates and provider-friendly policies and in the quality of participating providers. Our findings indicate that subsidy generosity is related to program quality for both child care centers and homes. In centers, money matters. Additional funding for base reimbursement rates and the difference between payments in the lowest and highest tiers of a tiered reimbursement system each predict summary and individual indicators of provider quality. Contracted systems of payment show some association with quality as well. Our findings for home-based providers are more tentative because of smaller sample sizes, but the payment difference between the lowest and highest tiers, the use of contracts, and our provider-friendly policy index predict select indicators of quality. These findings hold over a series of robustness and specification checks.

Structure of the Report

This study consists of five sections. First, we summarize the relevant literature on child care subsidies, costs, and quality. Second, we describe our data sources, focusing on the NSECE and the CCDF Policies Database. Third, we explain our study methods. We then present findings regarding variation in state subsidy payment rates and policies, variation in the quality of centers and homes accepting subsidies, and associations between payment rates and policies and child care quality. We conclude with a discussion of our findings and their implications for policymaking and future research.

Literature Review

A large body of existing literature informed the rationale for and design of this study. We review this literature in a set of concise summaries focused on four related topics:

- the relationships between child care cost, quality, and child outcomes
- the role of CCDF subsidies in covering child care costs
- the role of CCDF subsidies in enhancing child care quality
- the limited evidence on the role of CCDF subsidy payment rates and practices in enhancing child care quality

Throughout, we identify limitations in the existing literature and unanswered questions.

Relationship of Quality to Child Outcomes and Child Care Costs

Quality in child care matters. Research has found that higher quality in child care and early education programs is related to positive child development outcomes (e.g., Bassok et al. 2016; Burchinal, Kainz, and Cai 2011; Mashburn et al. 2008; NICHD Early Child Care Research Network 2002; Vandell and Wolfe 2000; Weiland et al. 2013; Yoshikawa et al. 2013). Moreover, the benefits of early childhood education are greater for children from low-income families, African American and Hispanic children, and children from immigrant families or dual-language learners (e.g., Bassok 2010; Karoly and Gonzalez 2011; Loeb et al. 2007; Phillips et al. 2017; Weiland and Yoshikawa 2013; Yoshikawa et al. 2013). As a result, governments at all levels are trying to expand the availability of high-quality early care and education programs through mechanisms such as early learning and development guidelines, public prekindergarten programs, accountability systems like the Head Start Designation Renewal System, the increased minimum quality set-aside in the CCDF, and tiered subsidy reimbursement rates.

Providing child care services is expensive, and good-quality services more so than low-quality services, according to research dating back to the Cost, Quality, and Child Outcomes study (Helburn et al. 1995). Although one study reanalyzing that data casts some doubt on the relationship between cost and quality (Blau and Mocan 2002), other research continues to observe a positive association between costs and quality in family day care homes (Marshall et al. 2003), centers serving preschool children

(Marshall et al. 2001; Marshall et al. 2004a), and centers serving infants and toddlers (Marshall et al. 2004b). Programs with self-reported “financial stress” have been found to be of lower quality than those in good financial health (Rohacek, Adams, and Kisker 2010).

Considerations of cost and quality converge on caregivers, who are identified as “one of the most important channels available for improving the quality of early care and education” by the National Academies (IOM and NRC 2015). Hiring more caregivers to improve child-to-staff ratios and group sizes increases personnel costs. For example, Marshall and colleagues (2001) found that centers with preschool classroom ratios of five or fewer children per educator had labor costs 30 percent higher than those of centers with more than five children per educator. It also costs more to pay higher salaries and provide benefits to attract more educated and experienced staff and reduce turnover. Financial support for professional development is another factor affecting provider costs (Office of Child Care 2014b). Finally, as specified by burgeoning QRIS and global measures of quality like the Early Childhood Environment Rating Scale, higher-quality care may require investments in educational curricula, assessment tools, learning materials, and data systems.

Many child care providers are businesses, which, whether nonprofit or proprietary, must balance operating revenues and operating costs to remain financially viable. Revenue sources include parent fees, public funding, and private fundraising (Office of Child Care 2014b; Schwartz and Karoly 2011; Marshall et al. 2003). Revenue is also influenced by enrollment efficiency (whether a provider has many vacant slots) and the amount of bad debt or uncollected revenue (Office of Child Care 2014b; National Center on Early Childhood Quality Assurance 2015; Schwartz and Karoly 2011; Stoney 2010).

CCDF Subsidies as a Source of Revenues to Providers

Federally funded child care subsidies are one of the nation’s largest public investments in early care and education, and reached 1.4 million children in 845,000 families in an average month in 2015.¹ Subsidies help low-income families pay for child care while they work or prepare for employment through job search, education, or training programs. Families select child care providers, and providers choose whether to accept subsidized children. Most subsidies are provided through portable vouchers capped at state-established maximum reimbursement rates; in some states and localities, these rates may be higher if providers meet observed measures of program quality.

As of 2012, one-third of center-based providers and one-fifth of home-based providers received revenue from subsidies (authors’ calculations using the public-use files of the NSECE). A provider’s

decision to participate in the CCDF depends on several factors, including their support for the underlying charitable mission of serving low-income children and their interest in bringing in low-income children to fill vacant slots. Reasons not to participate include low reimbursement rates relative to costs and concerns about high administrative or transaction costs related to additional requirements tied to participation (Adams, Rohacek, and Snyder 2008; Adams and Snyder 2003; Isaacs et al. 2015).

The issue of low reimbursement rates is relevant to both parents and providers. Although maximum reimbursement rates are based on market rate surveys, and federal regulations recommend setting rates at the 75th percentile of current market rates, all states but one had maximum reimbursement rates below the 75th percentile in 2014 (Schulman and Blank 2014). Studies have found that centers meeting higher quality standards are more likely to have fees above their state's maximum reimbursement rate (see Adams et al. 2002). Thus, low reimbursement rates can reduce subsidized families' access to providers operating at the higher end of the market or in more affluent communities (Isaacs et al. 2015; Rohacek, Adams, and Kisker 2010). Many states allow providers to charge parents the difference between reimbursement rates and rates they charge private-paying parents (Minton, Durham, and Giannarelli 2014), but providers may not be able to collect these additional payments. In fact, providers have difficulty collecting the basic copayments charged to most families receiving subsidies and sometimes forgo them, reducing the effective amount of CCDF funding per subsidized child (Adams, Rohacek, and Snyder 2008).

Recent studies find that the generosity of subsidy policies can affect take-up among eligible families (Ha et al. 2017; Weber, Grobe, and Davis 2014). Increased take-up may bring new providers into the subsidy system or increase the subsidy density (the proportion of subsidy-receiving children in a program) of participating providers. In both cases, subsidy payments have the potential to shape providers' revenue and operations, including those focused on improving program quality.

Child Care Subsidies and Quality of Care

Empirical evidence shows that child care subsidies reduce barriers to work and improve the likelihood of employment for low-income mothers (Crawford 2006; Meyers, Heintze, and Wolf 2002; Tekin 2005). But by lowering the cost of participation for families, child care subsidies can also expand access to quality child care for low-income children. The newly reauthorized CCDBG Act of 2014 explicitly recognizes this potential with increased funding set aside for quality improvement activities.

Much of the evidence on subsidy receipt and program quality provides a descriptive picture of associations between the two. One analysis reveals centers serving more subsidized children tend to be of lower quality (Raikes, Raikes, and Wilcox 2005), and another finds null associations between subsidy density and center quality after controlling for teacher salary (Jones-Brach et al. 2004). Accounting for teacher salary and education, Antle and colleagues (2008) find subsidy density predicts poorer preschool classroom quality but is not significantly related to infant/toddler classroom quality.

Although helpful in describing the landscape of child care quality, these studies do not account for a range of differences—in children and families served, surrounding communities, and available resources—between providers, independent of subsidy policy. To account for these differences, quasi-experimental methods allow researchers to match subsidized families to eligible nonrecipient families, thereby identifying the causal effect of the subsidy itself. Using these methods, Johnson, Ryan, and Brooks-Gunn (2012) find that subsidies allow families to access higher-quality care than they could otherwise afford. This finding is echoed by Krafft, Davis, and Tout (2017), who compare the quality of care received by the *same child* with and without subsidy. In addition, subsidy use is associated with increased participation in state-licensed or center-based child care, considered to be of higher quality than unlicensed and home-based care (Brooks 2002; Crosby, Gennetian, and Huston 2005; De Marco and Vernon-Feagans 2015; Henly, Ananat, and Danziger 2006; Tekin 2005; Weinraub et al. 2005), and higher-quality experiences for children in home-based settings (Ryan et al. 2011). Subsidy receipt at age 2 is also associated with enrollment in higher-quality publicly funded care options, like Head Start and public preschool, by age 4 (Johnson, Martin, and Ryan 2014).

Although studies suggest that subsidies help parents afford higher-quality care, there is little research examining systematic variation *within* the subsidy system. States have substantial flexibility in programming and policy decisions within federal CCDF guidelines, and providers receiving subsidies are subject to widely varying payment rates and policies (Collins, Layzer, and Kreader 2007; Meyers et al. 2001; Schulman and Blank 2006, 2009). Although some differences reflect variations in market rates for child care, the rates themselves are set at different levels relative to market rates (Minton et al. 2012; Schulman and Blank 2014). Payment practices also vary; in 2012, fewer than half of all states paid at least some centers for days they were closed, and 36 states (and Washington, DC) paid at least some providers for days that children were absent (authors' calculations using the CCDF Policies Database).

CCDF Payment Rates and Policies and Quality of Care

Payment rates and policies likely affect the level and stability of funds available for participating providers to invest in program quality improvement (Weber, Grobe, and Davis 2014). To date, little research has explored these associations, and existing studies generally rely on dated information or offer findings unrepresentative of the nation as a whole.

Payment Rates and Quality

Rigby, Ryan, and Brooks-Gunn (2007) examine associations between subsidy policies and child care quality in 14 states, accounting for differences in type of care and the demographic and socioeconomic characteristics of enrolled children and families. They use data from the Child Care Supplement to the Fragile Families and Child Wellbeing Study, capturing these associations among 3-year-old children in 2002 and 2003. They find that higher income eligibility thresholds and increased spending on subsidies (federal and state) are positively associated with care quality in nonprofit child care centers and with higher rates of formal and center-based care usage by subsidized families.

A qualitative study in Oregon documents additional benefits of more generous subsidy payment policies (Scott, Leymon, and Abelson 2011). In 2007, the state increased its total child care subsidy budget by 55 percent, leading to substantially higher reimbursement rates and lower parent copayments. Semistructured interviews revealed that providers were aware of and grateful for these changes. They reported greater financial stability, which allowed for additional investments in quality improvement, and enhanced capacity for serving subsidy recipients. Moreover, higher payment rates allowed parents to access higher-quality care for their children.

Tiered Reimbursement and Quality

In the late 1990s, states began adopting quality rating and improvement systems to enhance provider accountability and program quality (Cannon et al. 2017). These systems vary substantially in their composition and use but often involve independent observations of structural and process quality (Connors and Morris 2015; Tout et al. 2010). Two decades later, many states incentivize quality directly by tying subsidy payment amounts to QRIS ratings. Early associational studies and recent rigorous quasi-experimental evaluations demonstrate that tiered reimbursement is effective at raising provider quality and helping families enroll in higher-rated programs (Bassok, Dee, and Latham 2017; Boller et al.

2015; Yazejian and Iruka 2015). Although the research base on tiered reimbursement has grown considerably in recent years, it remains limited to select states and cities.

Vouchers versus Contracts and Quality

Subsidy administrators can choose to disburse funds through two systems: (1) vouchers, which are portable for families and can be used to fill any open slots at participating providers, and (2) contracts, direct payments to vetted providers contractually obligated to the subsidy system. Compared with vouchers, contracts have the potential to improve administrative support, stabilize revenue, enhance child care supply, and improve quality (Adams and Rohacek 2002; Matthews and Schumacher 2008; Sandfort, Selden, and Sowa 2008; Schumacher, Irish, and Greenberg 2003). However, contracts are also used to increase supply in underserved areas and serve populations with special needs (e.g., families involved with child welfare services), among other purposes (Schumacher, Irish, and Greenberg 2003; National Center on Child Care Subsidy Innovation and Accountability 2016). One study in New York City, after controlling for type of care and child and family characteristics, found no association between contracts and stability of subsidy receipt among providers (Holod et al. 2012). Although limited, this evidence calls into question the link between contracts and quality and what mix of payment approaches might be optimal for providers and families.

Other Payment Policies

Other subsidy payment policies and practices may also affect child care quality (Adams and Rohacek 2002). For example, some subsidy agencies do not pay for all days that children are absent, even when private-paying parents must pay for such days. Some agencies reduce subsidy coverage to part-time when parents become unemployed and need time to find a new job, even though most private-paying parents would not receive a similar discount under such circumstances. Agencies vary in the minimum and maximum length of their recertification periods, which affects family eligibility and subsidy stability. Policies such as these may disrupt the balance between operating revenue and costs for providers, resulting in compromised program and caregiver quality.

Data

This study primarily draws on data from two main sources, with supplemental information from a small number of additional sources. Most state-determined payment rates and policies, our independent variables of interest, come from the CCDF Policies Database. Data on child care quality, underlying our dependent variables of interest, come from the NSECE.

The CCDF Policies Database project is a comprehensive catalog of CCDF policies for all 50 states, the District of Columbia, and the US territories and outlying areas.² The database, which contains hundreds of variables designed to capture CCDF policies, is funded by the Office of Planning, Research, and Evaluation and maintained by the Urban Institute. The information is based primarily on state caseworker manuals, the documents that caseworkers use in their work with families and providers. An initial set of manuals was coded to reflect policies effective on or before October 1, 2009. Updated manuals are collected to capture policy changes in each state and territory. Each year, the project produces a set of tables containing selected policies from the database, which are then reviewed by state administrators for accuracy.

We use a subset of database variables effective as of October 1, 2011. Table 1 provides our definitions for each variable. (See our companion policy brief [Isaacs, Greenberg, and Derrick-Mills 2018] for state-by-state information on included variables.) These variables capture the state payment rates and policies that would have applied to child care centers and homes included in the NSECE. We select and code provider-friendly policy variables based on the extant literature and our theory of change. (See our companion methods brief, Derrick-Mills and colleagues [2018].) Importantly, we adjust rate and payment variables for Regional Price Parities, developed by the Bureau of Economic Analysis, to account for cost-of-living differences in each state.

Along with the rates and policies included in the CCDF Policies Database, we also examine ACF-800 data on payment methods, including the use of contracted care. ACF-800 data include annual aggregate information on child care need, use, and practices across all US states and territories. Information on payment methods reflects state and local subsidy administrators' decisions to contract directly with providers instead of (or in addition to) offering portable vouchers to families. We use the state-level share of subsidies paid through grants or contracts, as opposed to vouchers or cash, in fiscal year 2012 to align with the policy environment experienced by providers in the NSECE.

TABLE 1

Definitions of Subsidy Rate and Policy Variables Included in this Study

Variable	Definition
Subsidy reimbursement rates	Base reimbursement rates for child care centers and homes, adjusted using Regional Price Parities.
Use of tiered reimbursement	Linking subsidy payment levels to provider rating in a quality rating and improvement system.
Payment difference between lowest and highest tier	Difference in the subsidy reimbursement rate at the lowest and highest tiers of a tiered reimbursement system, adjusted using Regional Price Parities.
Contracts	Share of subsidies paid using contracts (as opposed to vouchers).
<i>Provider-friendly policy index</i>	A measure of four provider-friendly policies we use to assign states a score between 0 and 4.
Family fee policies	Families are always required to pay any difference between the provider rate and the maximum reimbursement rate (in addition to the standard copayment).
Payment for absences	All providers are paid for days that children are absent.
Payment for closings	Providers are paid for the days they are closed (centers only).
12-month redetermination period	Maximum redetermination period of 12 months (as opposed to shorter period).

Sources: The CCDF Policies Database; “FY 2012 Final Data Table 2 - Percent of Children Served by Payment Method,” US Department of Health and Human Services, Administration for Children and Families, Office of Child Care, October 8, 2014, <https://www.acf.hhs.gov/occ/resource/fy-2012-ccdf-data-tables-final-table-2>.

Notes: Subsidy reimbursement rates and the payment difference between the lowest and highest tiers for homes are weighted averages of rates and payment differences for (small) family child care and (large) group family child care homes in states that make the distinction, weighted by the share of home-based providers of each type.

Quality indicators are drawn from the NSECE, which includes a set of integrated surveys designed to match the demand for care in households with children under age 13 to the local supply of center- and home-based providers. These surveys produce household, home-based provider, center-based provider, and center-based workforce files. We draw on Level 2 Restricted-Use Geographic Files of the NSECE, which include state-level identifiers needed to link CCDF policies with child care providers.

In this study, we analyze child care centers using the center-based provider file and child care homes using the home-based provider file. The analytic sample includes all providers who reported serving at least one child with CCDF subsidy funding at the time of the survey: in total, 2,640 child care centers and 1,160 family and group family child care homes (rounded to the nearest 20 in accordance with NSECE data extraction rules). These providers represent 32 percent of surveyed centers and 19 percent of surveyed homes. Once weighted using the sampling information provided in the NSECE, these samples reflect reference populations of 38,685 child care centers and 65,822 child care homes nationwide.

This study employs a set of program- and caregiver-level quality indicators self-reported by center- and home-based providers that includes aspects of structural quality (regulable features of programs and providers) and process quality (activities and interactions between providers and children). We consider each indicator as reflecting some part of the complex interactions between caregivers, children, and their surrounding environments that constitute quality in early care and education. Together, these indicators provide a rich picture of subsidized care in 2012.

Given the data available, we focus on six indicators of child care quality (outlined in table 2). These indicators include global measures of quality, like staff turnover, which is measured for center-based providers and is negatively associated with child outcomes (Tran and Winsler 2011). Also included are more specific indicators of quality, like staff members holding an ECE degree, which is measured for home-based providers and is positively associated with both process quality and children's cognitive and social-emotional outcomes (e.g., Burchinal and Cryer 2003; Early et al. 2007; LoCasale-Crouch et al. 2007; Mashburn et al. 2008; Pianta et al. 2005; Zigler, Gilliam, and Barnett 2011). Finally, we examine three quality indicators for all providers:

- having a quality rating from a state or local agency, a child care resource and referral agency, or an accreditation body³
- provider policies on professional development⁴
- use of standardized curricula⁵

The specific survey items used to generate these indicators differ for center- and home-based providers, so we caution against comparing them directly. Finally, we use these indicators to construct a binary quality composite variable, set to 1 for providers who meet two of these three indicators and 0 otherwise.

TABLE 2

Quality Indicators and Covariates Included in This Study*Descriptive statistics among a nationally representative sample of subsidized providers*

Source	Variable	Centers	Homes
		(N = 2,640)	(N = 1,160)
		Mean/%	
Quality indicators from the NSECE	Turnover	19.9%	--
	ECE-related degree or certification	--	68.3%
	Quality rating	51.9%	59.7%
	Standardized curriculum	70.0%	51.3%
	Financial support or paid time off for professional development	70.1%	17.8%
	Quality composite	66.2%	38.6%
Covariates from the NSECE	Total enrollment	74.6	9.6
	Receives Head Start funding	10.0%	3.3%
	Receives state pre-K funding	24.0%	5.1%
	Receives local government funding	16.5%	7.3%
	Receives Title I funding	5.0%	3.6%
	Receives community funding	10.5%	2.5%
	Receives other funding	49.7%	57.7%
	More than 25 percent subsidized children enrolled	46.9%	64.2%
	Serves children under age 3	86.6%	96.9%
	Serves children ages 3–5	96.7%	93.2%
	Also serves school-age children	62.3%	76.3%
	White	54.1%	60.6%
	Black	26.1%	35.9%
	Other race	11.2%	13.2%
Hispanic	14.5%	14.4%	
Community poverty rate	13.5%	14.7%	
Community urban ratio	77.8%	70.0%	
Covariates from public-use sources	State NACCRRA licensing rating	93.2	60.9
	State CCDF per child expenditure	\$660	\$714
	State percent quality set-aside	11.4%	10.7%
	State GDP per capita	\$47,600	\$48,900
	State poverty rate	16.0%	14.8%
	State share of 3- and 4-year-olds in pre-K	16.3%	13.6%
	State share of 3- and 4-year-olds in special education	5.5%	6.0%

Sources: The National Survey of Early Care and Education, NACCRRA's 2011 ranking of state child care regulations and oversight and 2012 ranking of state standards and oversight for small family child care homes, CCDF data from the Office of Child Care, NAICS data from the Bureau of Economic Analysis, the 2012 American Community Survey, and Barnett and colleagues (2012).

We draw on several restricted- and public-use data sources for covariates that may confound associations between payment rates and policies and child care quality. These control variables include program-level indicators like overall size, funding sources, and the socioeconomic composition of enrolled children and their families. They also include community characteristics like poverty density and urbanicity. Each variable is included in the NSECE. State-level data from other public data sources account for the remaining correlates of state payment practices and child care quality. These sources include

- Child Care Aware of America’s rankings of state licensing regulations and oversight for centers (2013) and homes (2012);
- Office of Child Care data on subsidy system resources, used to calculate total CCDF spending per child (among children in families earning less than 85 percent of state median income; ASPE 2015) and share of CCDF funds used for the quality set-aside (which varies considerably by state in both amount and purpose; Pittard et al. 2006);
- state-level economic indicators, including 2012 data on GDP per capita from the Bureau of Economic Analysis and poverty rates from the Current Population Survey; and
- information from the NIEER *State of Preschool Yearbook* on enrollment in public prekindergarten and early childhood special education (Barnett et al. 2012).

Methods

Our data analysis plan includes two analytic techniques, each matched to the research questions motivating this study:

1. How much do payment rates and policies vary across states?
2. How much variation is there in the quality of child care centers and homes serving subsidized children?
3. What is the association between payment rates and policies and the quality of child care serving subsidized children?

Our first two research questions call for rich statistical description, including both summary and distributional statistics, to characterize the range of payment rates and policies and child care quality across centers and homes. Where appropriate, we have also examined the joint distributions and correlations between variables (e.g., between payment rates and use of contracted care).

Our third research question calls for more advanced methods. Here, our main analytic tool is multivariate regression analysis. Specifically, we fit versions of a model in which child care quality is explained by payment rates and policies net of program-, community-, and state-level factors that may confound the relationship between the two:

$$QUALITY_{ics} = \beta_0 + PAYMENT_s\beta + \delta_i\beta + \gamma_c\beta + \Gamma_s\beta + \varepsilon_{ics} \quad (1)$$

In this model, $QUALITY_{ics}$ indicates an aspect of provider quality belonging to provider i in community c in state s . $PAYMENT_s$ represents the payment rate and payment practice variables of interest in that state. δ_i , γ_c , and Γ_s capture a variety of program-, community-, and state-level characteristics, as described above, that may mediate or moderate the relationship between $PAYMENT_s$ and $QUALITY_{ics}$. ε_{ics} is a heteroskedastic-consistent error term clustered by state. We fit model (1) using ordinary least squares regression for continuous quality indicators like rates of turnover. For binary quality indicators like having a quality rating, we employ logistic regression. All models use robust standard errors clustered at the state level.

Our data analysis plan and attendant data sources have several weaknesses. Multivariate regression analysis is constrained by its reliance on a limited set of observed characteristics to account for differences between providers subject to more or less generous payment rates and practices. As a result, we are cautious in discussing causality and consider the nature of possible bias in interpreting

findings. Similarly, our measures of state-level payment policies may obscure variation in these policies across local communities and differences between official policies and on-the-ground implementation. Finally, our indicators of child care quality include program and caregiver characteristics that are self-reported rather than observed; though the psychometric properties of observational measures have been questioned in recent years (Colwell et al. 2013; Gordon et al. 2013), they may provide a richer picture of the interactions between caregivers and children than the data in the NSECE.

Despite these weaknesses, our study offers considerable improvements over the existing literature. For one, it draws on the most recent nationally representative data on both child care centers and homes. Though each quality indicator in the NSECE is subject to limitations, analyzing them as a set affords a broad view of child care quality. Likewise, the CCDF Policies Database has many payment rate and policy variables, providing a comprehensive picture of the payment context in which subsidized providers make decisions about program quality.

Findings

We present our findings for each of the three key research questions described above.

Findings related to the first two questions are descriptive and shown in tables and figures. Those related to the third question are based on multivariate regressions that offer the first national picture of relationships between subsidy policies and the quality of subsidized child care.

How Much Do Payment Rates and Policies Vary across States?

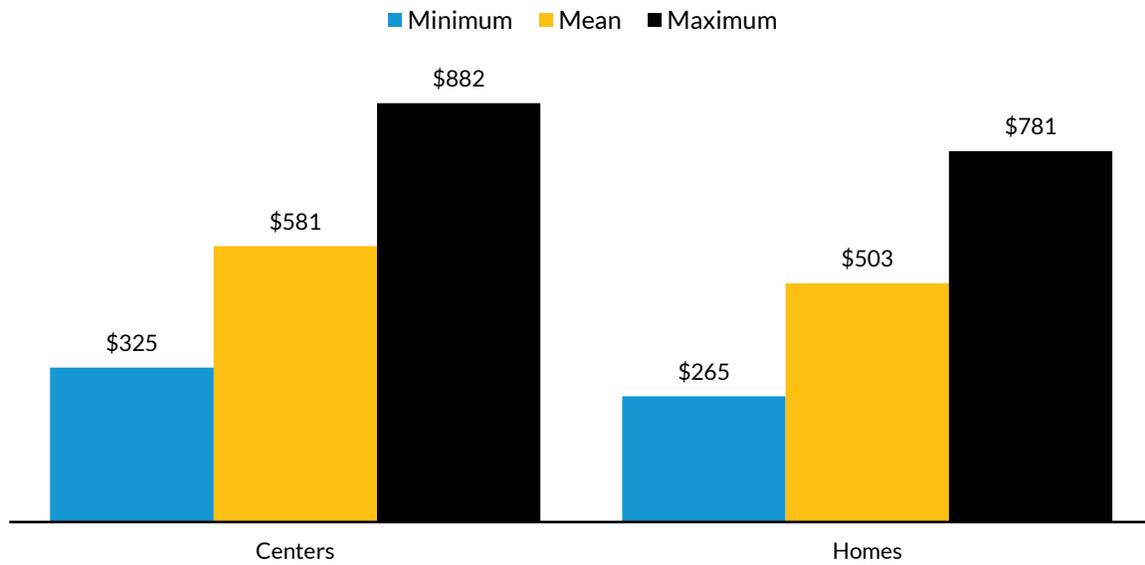
Payment rates and policies vary widely across all 50 states and the District of Columbia. We summarize this variation as it affected providers included in the NSECE in 2012, noting that this was before the reauthorization of the CCDBG Act in 2014. Beginning with base reimbursement for serving 4-year-olds, rates for centers ranged from \$292 to \$940 per month, and those for homes ranged from \$229 to \$837 per month. This variation decreases after accounting for cost of living in each state using Regional Price Parities: adjusted monthly rates for centers ranged from \$325 to \$882, and those for homes ranged from \$265 to \$781 (figure 1). In states with tiered reimbursement based on quality, the average payment difference between the lowest and highest tiers was \$114 per month for centers and \$86 per month for homes. Together, base and tiered reimbursement rates generate substantial variation in funding for participating providers within and across states.

States also vary in their use of provider-friendly policies (figure 2). At the time of the NSECE, 22 states and the District of Columbia had tiered reimbursement policies. Just 9 states used contracts to pay at least some providers. In those 9 states, between 1 and 42 percent of providers were paid through contracts, with an average of 15 percent. About half of all states had provider-friendly payment policies: 32 states had family fee policies requiring families to pay any difference between provider and subsidy reimbursement rates, 25 states paid providers for days children were absent, 24 states paid providers for days they were closed (centers only), and 23 states had maximum redetermination periods of 12 months.⁶

FIGURE 1

State Reimbursement Rates for Serving 4-Year-Olds, October 2011

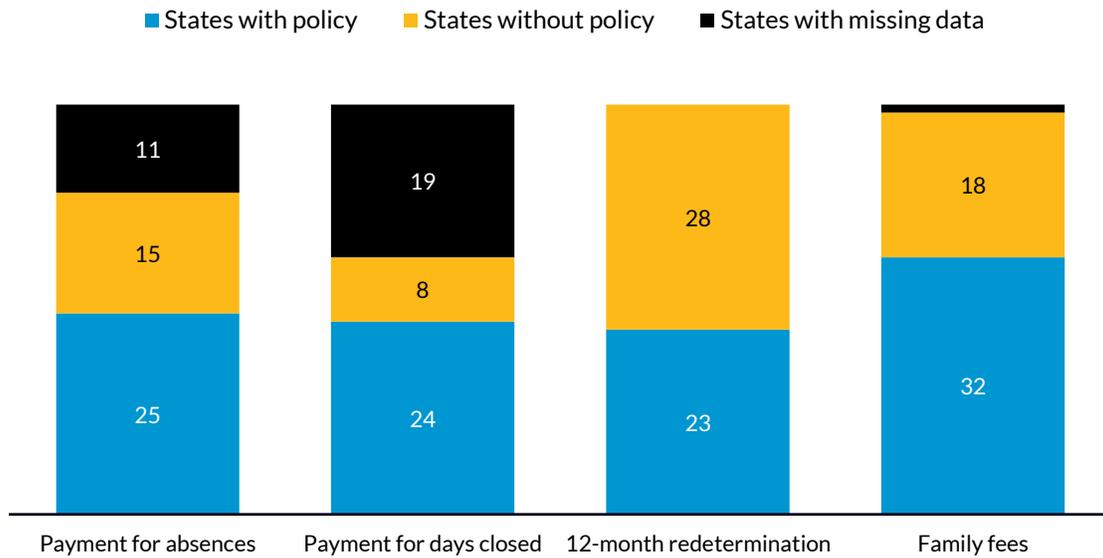
Dollars per month, adjusted for Regional Price Parity



Source: The CCDF Policies Database.

FIGURE 2

States with Selected Provider-Friendly Policies, October 2011



Source: The CCDF Policies Database.

States differ in their reimbursement rates and use of provider-friendly policies because they must often make trade-offs to maximize available public funds. We examined correlations between payment rate and policy variables for center- and home-based providers in the NSECE. Correlations were generally modest in size, and payment rates and policies were *negatively* correlated in several cases. For example, states with higher rates were less likely to use tiered reimbursement (correlations of -0.31 for centers and -0.32 for homes), had less variation between the lowest and highest tiered rates if they did (-0.37 for centers and -0.48 for homes), and were less likely to have any policies included in our provider-friendly policy index (-0.27 for centers and -0.17 for homes). Even where we found positive associations between policies, as we did between tiered reimbursement and our provider-friendly policy index (0.32 for centers and 0.36 for homes), these were similarly modest. State CCDF administrators appear to allocate available subsidy funds in targeted ways, rather than being generous or ungenerous on the whole.

Cross-state differences in payment rates and policies are central to this study, as they generate the variation necessary to examine associations between features of the subsidy system and child care quality. Before turning to these associations, we next examine variation in the observed quality of participating providers.

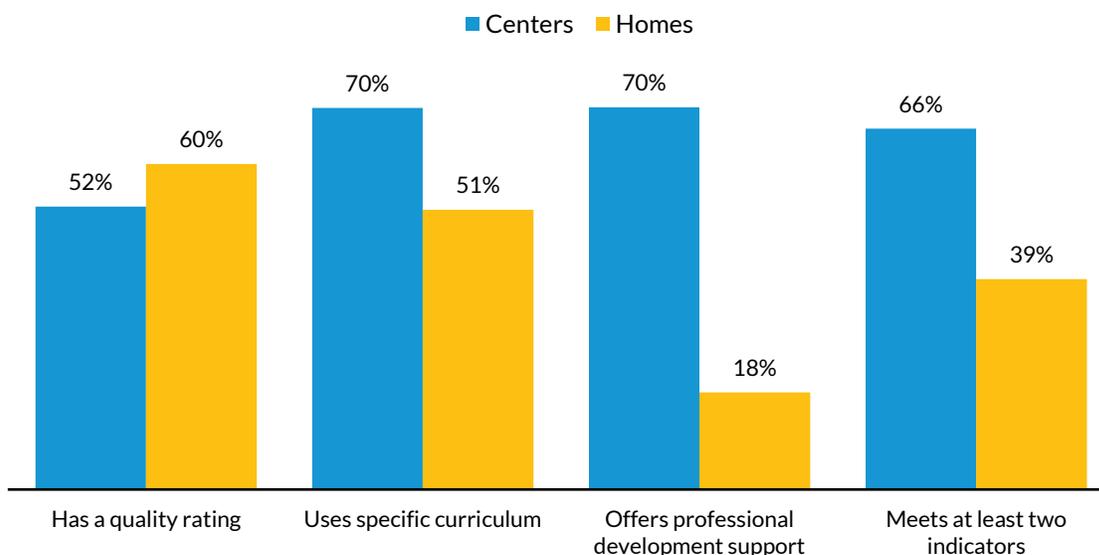
How Much Variation Is there in the Quality of Child Care Centers and Homes Serving Subsidized Children?

Nationwide, the quality of subsidy-participating child care centers and homes varies (table 2, page 13). In 2012, the average annual staff turnover rate among centers was nearly 20 percent, with the lowest decile experiencing no turnover and the highest experiencing 50 percent turnover per year.⁷ More than half of all centers (52 percent) had an overall quality rating, 70 percent reported using a specific curriculum, and a similar percentage (70 percent) offered financial support or paid time off to their staff to support professional development. Sixty-six percent of center providers met our summary quality measure, meaning they fulfilled at least two of those three quality indicators. Among home-based providers, 68 percent held a Child Development Associate (CDA) Credential, state certification, or ECE-related postsecondary degree. Sixty percent reported sharing information with parents about their overall quality rating, and 51 percent used a curriculum or prepared set of learning and play activities. Just 18 percent offered financial support or paid time off to support professional development. In all, less than 40 percent of home-based providers met our summary quality measure (figure 3).

FIGURE 3

Providers Meeting Indicators of Quality

Descriptive statistics among a nationally representative sample of subsidized providers



Source: National Survey of Early Care and Education.

Associations between quality indicators were lower than expected. We examined correlations between quality indicators met by participating centers and homes in the NSECE, and all fell below 0.3. The magnitudes of these associations suggest that providers are generally not of high or low quality on all dimensions but use their available resources to make targeted investments in quality care. They also suggest that any single indicator is an imperfect proxy for overall provider quality.

As with the variation in payment rates and policies, variation in quality is central to this study. Next, we explore whether this variation is systematic (i.e., whether payment rates and policies set by state CCDF administrators drive the quality of child care providers).

What Is the Association between Payment Rates and Policies and the Quality of Subsidized Care?

Our final analysis examines the relationship between subsidy payment practices and child care quality across a nationally representative sample of providers included in the NSECE. Here, we fit model (1) (page 15) separately for child care centers (table 3) and homes (table 4), with and without provider-, community-, and state-level covariates that may confound the associations of interest. We focus on the

results of preferred model specifications that include the full set of controls and robust standard errors clustered by state. Quality indicators for all providers include having a quality rating, use of curriculum, financial support or paid time off for professional development, and our quality composite (which identifies providers meeting two of these three quality indicators). In addition, we analyze annual staff turnover in centers and possession of an ECE degree, CDA, or state certification for providers in homes. We organize our discussion of findings by payment practice with the intention of informing state CCDF policymaking and resource allocation. Results may also be interpreted by quality indicator for readers seeking to raise quality along specific dimensions.

Findings for Centers

Money matters for the quality of child care centers participating in the subsidy system (table 3). A \$100 increase in the base reimbursement rate is associated with a 30 percent higher likelihood that center-based providers will meet our quality composite (column 10), a finding driven by the increased likelihood of providers earning a quality rating (35 percent more likely; column 4) and supporting professional development (21 percent more likely; column 8). In addition, an additional \$100 difference between payments in the lowest and highest tiers of a tiered reimbursement system is associated with a 40 percent higher likelihood of providers meeting our quality composite (column 10). This relationship appears to work through increased earning of quality ratings, as centers in states that pay more to providers in higher tiers are 63 percent more likely to earn ratings than providers in other states (column 4). (We note the close relationship between tiered reimbursement policies and QRIS systems but remind readers that providers in the NSECE may report quality ratings awarded through national accreditation bodies, child care resource and referral agencies, and other organizations.)

Providing subsidy payments through contracts rather than vouchers appears to benefit certain indicators of child care quality as well. Increasing the share of contracted subsidies by 10 percent is associated with a 1 percent reduction in annual staff turnover (a marginally statistically significant finding; column 2). The same increase in the use of contracts is also associated with a 14 percent increase in the likelihood of centers using a specific curriculum (column 6). However, use of contracts is not associated with our overall quality measure. Even so, these findings suggest that facilitating subsidy payments through contracts, independent of other payment policies, may allow centers to invest in quality improvement.

However, we did not find the expected relationships between quality and our provider-friendly policy index. This index does not appear to predict any of the indicators of provider quality. Moreover,

when we disaggregate the provider-friendly policy index, the only policy consistently associated with our quality composite is payment for days children are absent (results available upon request). Providers in states with this policy are nearly twice as likely to meet our quality composite because of the higher likelihood of earning a quality rating and providing support for professional development. We find some associations between other payment policies and indicators of quality, but they are generally inconsistent.

We run a series of robustness checks to assess whether these findings hold among providers with higher subsidy density—specifically providers for whom subsidized children make up more than 25 percent of enrollment, as state payment rates and policies have greater influence on their total revenue. Among subsidy-dense providers, money continues to matter for observed indicators of quality (appendix table A.1). Increased reimbursement rates and a larger payment difference between the lowest and highest tiers of a tiered reimbursement system are consistently associated with our quality composite, driven by increases in the likelihood that providers will earn a quality rating or provide support for professional development. Coefficients from these analyses are somewhat larger than for analyses using all participating providers, suggesting that state policies may have greater impact on higher-density providers. However, findings for use of contracted care are more mixed, and our provider-friendly policy index continues to have little association with care quality.

TABLE 3

Associations between Payment Rates and Policies and the Quality of Center-based Providers

Results from multivariate regression

	Quality Indicators									
	Turnover		Quality rating		Curriculum		Financial support or PTO for PD		Quality composite	
	ordinary least squares model	logistic model	logistic model	logistic model	logistic model	logistic model	logistic model	logistic model	logistic model	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Preschool subsidy reimbursement rates, adjusted with Regional Price Parities (\$100)	0 (0.01)	0 (0.01)	1.21 (0.18)	1.35* (0.20)	0.96 (0.07)	1.01 (0.07)	1.24* (0.11)	1.21* (0.11)	1.21* (0.12)	1.30* (0.14)
Tiered reimbursement	-0.02 (0.03)	-0.01 (0.03)	1.55 (0.65)	1.35 (0.61)	1.56 [†] (0.41)	1.29 (0.26)	0.93 (0.30)	1.02 (0.36)	1.35 (0.45)	1.23 (0.37)
Payment difference between lowest and highest tier, adjusted with Regional Price Parities (\$100)	0 (0.02)	0 (0.02)	1.48* (0.25)	1.63* (0.31)	0.96 (0.12)	1.10 (0.14)	1.21 (0.18)	1.30 (0.21)	1.23 (0.20)	1.40* (0.22)
Use of contracts (10%)	-0.02*** (0.01)	-0.01 [†] (0.01)	1.01 (0.10)	0.95 (0.17)	1.22* (0.10)	1.14* (0.06)	0.91 (0.07)	0.87 (0.10)	1.06 (0.06)	1.00 (0.09)
Provider-friendly policy index	0 (0.01)	0 (0.01)	1.02 (0.13)	1.00 (0.12)	1.04 (0.08)	1.01 (0.06)	1.04 (0.09)	1.06 (0.11)	1.11 (0.10)	1.10 (0.09)
With covariates		X		X		X		X		X
Constant	0.2*** (0.05)	0.07 (0.12)	0.21 [†] (0.20)	0.04 (0.10)	2.02 (1.07)	0.45 (0.41)	0.58 (0.32)	0.17 (0.24)	0.37 (0.22)	0.01** (0.02)
F-statistic	9.28	5.66	20.27	225.30	8.47	269.72	8.91	151.37	10.63	104.59
P-value on F-statistic	0	0	0	0	0.13	0	0.11	0	0.06	0
R ²	0.02	0.06	0.04	0.10	0.01	0.07	0.01	0.07	0.02	0.12
N	2580	2420	2620	2440	2600	2420	2620	2440	2640	2460

Notes: PTO = paid time off. PD = professional development. Covariates include provider-, neighborhood-, and state-level characteristics specified in table 2. Robust standard errors clustered at the state level in parentheses.

[†] $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Findings for Homes

Among home-based providers, use of contracted care matters for quality—and money does too (table 4). We present the results for homes with two caveats. First, the sample of participating homes is much smaller than the sample of centers, providing less power to detect the associations of interest and therefore less stability in our estimates. Second, NSECE data on home-based provider funding are less complete than data on center-based provider funding, leading us to estimate three models: one without controls, one with all controls except for the funding variables (to maximize sample), and one with the full set of controls. Findings on use of contracted care are stable across these three specifications. A 10 percent increase in the share of contracted subsidies is associated with a 30 percent higher likelihood of meeting our quality composite (column 15), mostly working through support for professional development (both marginally statistically significant findings; column 12). We note that the share of home-based providers under contract is very small nationwide, and contracted home-based providers are likely to experience other quality improvement efforts. Still, we find a negative association between an increased share of contracted providers and their possession of an ECE degree, CDA, or state certification—specifically, a 30 percent lower likelihood of providers having one of these credentials (a marginally statistically significant finding; column 3).

Like the use of contracted care, an increase in the difference between payments in the lowest and highest tiers also shows a large and significant association with the likelihood of providers meeting our quality composite. Home-based providers in states offering an additional \$100 for providers in the highest tier are more than twice as likely to meet the quality composite as providers in other states (column 15). This association works through possession of quality ratings and (less consistently) support for professional development (columns 10 and 11). An increase in rates themselves shows little association with indicators of quality among home-based providers.

In contrast to our findings for centers, our provider-friendly policy index consistently predicts indicators of quality among homes. The presence of one additional state policy from our index is associated with a nearly 60 percent higher likelihood of homes providing support for professional development (column 12) and a nearly 50 percent higher likelihood of homes using a curriculum or other planned activities (column 9). When we conduct analyses separately for each component of the index, these findings appear to be driven by the presence of family fee policies and 12-month redetermination periods (results available upon request).

We test the robustness of these findings among a subset of providers whose enrollment consists of more than 25 percent subsidized children, as we did for centers (appendix table A.2). Coefficients are

generally of similar magnitudes but often lose statistical significance and become unpredictable because of the smaller sample of home-based providers. Findings for the provider-friendly policy index hold among these high-density providers.

Finally, we conduct additional sensitivity analyses to test associations between subsidy payment policies and provider quality among centers and homes that *do not participate in the subsidy system*. Specifically, we fit model (1) using a sample of providers in the NSECE who did not report serving any subsidized children in 2012. We do so with two goals: (1) to confirm that our models have adequately controlled for confounding provider-, community-, and state-level factors such that they can provide suggestive evidence of the effects of subsidy practices (despite not being causal themselves), and (2) to assess whether subsidy policies have spillover effects on providers who do not serve subsidized children. Analyses using this sample generally do not show the same results and thus increase our confidence that our main findings reflect associations only seen among providers participating in the subsidy system. Among centers not receiving CCDF funds, results (available upon request) show that higher subsidy rates are associated with a *lower* likelihood of meeting our quality composite, with no associations observed for any other rate or policy variables. One exception is that increased use of contracts is associated with a (marginally significantly) higher likelihood of providers using a specific curriculum, as it was in the sample of subsidized providers. This suggests that states with high shares of contracted providers may be more supportive of curriculum use in general. Among homes that do not receive subsidy payments, neither the use of contracts nor the difference between payment tiers predicts the likelihood of meeting our quality composite. These findings give us confidence in our main results.

TABLE 4

Associations between Payment Rates and Policies and the Quality of Home-based Providers

Results from multivariate regression

	Quality Indicators														
	ECE degree, CDA, or state certification logistic model			Quality rating logistic model			Curriculum logistic model			Financial support or PTO for PD logistic model			Quality composite logistic model		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Preschool subsidy reimbursement rates, adjusted with Regional Price Parities (\$100)	0.99	1.18	1.12	0.83	1.15	1.15	0.79*	1.02	1.12	1.22	0.86	0.93	0.87	1.16	1.18
	(0.27)	(0.22)	(0.31)	(0.14)	(0.24)	(0.28)	(0.07)	(0.14)	(0.26)	(0.15)	(0.13)	(0.23)	(0.13)	(0.23)	(0.31)
Tiered reimbursement	0.49	0.34	0.19	1.54	0.84	0.38	0.59	1.01	0.78	0.10**	0.15**	0.25†	0.63	0.63	0.63
	(0.25)	(0.27)	(0.28)	(0.53)	(0.40)	(0.27)	(0.23)	(0.50)	(0.47)	(0.08)	(0.10)	(0.20)	(0.27)	(0.29)	(0.35)
Payment difference between lowest and highest tier, adjusted with Regional Price Parities (\$100)	1.57	3.01	5.70	1.02	1.59	3.49*	1.33	0.95	1.43	3.52***	2.60†	1.57	1.89	2.03*	2.35*
	(0.89)	(2.56)	(8.96)	(0.39)	(0.70)	(2.11)	(0.43)	(0.37)	(0.59)	(1.31)	(1.35)	(1.00)	(0.74)	(0.71)	(0.96)
Use of contracts (10%)	1.04	0.69*	0.68†	1.25*	0.97	0.92	1.14	1.01	0.89	1.09	1.26	1.40†	1.34**	1.25*	1.29†
	(0.15)	(0.12)	(0.15)	(0.11)	(0.11)	(0.14)	(0.10)	(0.10)	(0.12)	(0.12)	(0.18)	(0.28)	(0.13)	(0.13)	(0.17)
Provider-friendly policy index	1.14	1.14	1.33	0.94	0.92	0.88	1.13	1.12	1.47**	1.33*	1.57*	1.59*	1.06	1.02	1.09
	(0.23)	(0.22)	(0.36)	(0.11)	(0.12)	(0.15)	(0.10)	(0.14)	(0.20)	(0.18)	(0.29)	(0.33)	(0.13)	(0.15)	(0.18)
Provider and community covariates		X	X		X	X		X	X		X	X		X	X
Plus funding covariates			X			X			X			X			X
Constant	1.94	0**	0*	3.38	0†	0†	2.99*	0.07	0.02	0.05***	1.26	1.16	0.93	0*	0.01
	(3.24)	(0.00)	(0.00)	(3.54)	(0.01)	(0.01)	(1.58)	(0.18)	(0.07)	(0.04)	(3.45)	(4.59)	(0.84)	(0.01)	(0.02)
F-statistic	4.15	75.97	91.09	9.95	171.6	133.23	31.5	345.15	357.06	18.94	139.6	82.78	47.02	226.14	251.29
P-value on F-statistic	0.53	0	0	0.08	0	0	0	0	0	0	0	0	0	0	0
R ²	0.01	0.13	0.17	0.02	0.09	0.15	0.02	0.15	0.21	0.06	0.17	0.24	0.04	0.13	0.18
N	1100	940	680	1060	900	640	1120	940	680	1060	900	640	1140	960	700

Notes: PTO = paid time off. PD = professional development. Covariates include provider-, neighborhood-, and state-level characteristics specified in table 2. Robust standard errors clustered at the state level in parentheses.

† $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Discussion

This study provides recent evidence of associations between subsidy payment rates and policies and the quality of child care providers participating in the subsidy system. Our findings suggest that state policymakers striving to improve the quality of care available to low-income children and families should not focus exclusively on initiatives conducted under CCDBG quality set-aside funding and should consider how their payment rates and policies may be affecting providers. Tiered reimbursement rates are one way to incentivize quality. But if base reimbursement rates are too low or if payment policies lead to unstable revenue, high-quality providers may decline to participate and participating providers may find it difficult to invest in quality improvements.

We find that subsidy generosity is related to program quality for both child care centers and homes. In centers, money matters. Additional funding for base reimbursement rates and the difference between payments in the lowest and highest tiers of a tiered reimbursement system each predict summary and individual indicators of provider quality. The use of contracted subsidies also shows some association with quality, possibly because contracts increase the stability and predictability of subsidy revenue and, in some states, go to providers of higher observed quality or pay more than vouchers. Our findings for home-based providers are more tentative because of smaller sample sizes, but the payment difference between the lowest and highest tiers, the use of contracts, and our provider-friendly policy index predict select indicators of quality, providing suggestive evidence of levers that can increase the quality of often hard-to-reach home-based providers. These findings hold over a series of robustness and specification checks.

Our findings confirm and extend existing research on CCDF subsidy policies. As shown in Rigby, Ryan, and Brooks-Gunn's (2007) 14-state study, greater subsidy generosity is associated with higher quality among centers nationwide. Tiered reimbursement systems, and specifically the payment difference between the lowest and highest tiers, and the use of contracts are associated with improved quality among centers and homes (mirroring results in Adams and Rohacek 2002; Bassok, Dee, and Latham 2017; Boller et al. 2015; Matthews and Schumacher 2008; Sandfort, Selden, and Sowa 2008; Schumacher, Irish, and Greenberg 2003; Yazejian and Iruka 2015). Our provider-friendly policy index, and specifically the family fee and 12-month redetermination policies, are associated with higher quality among home-based providers (Adams and Rohacek 2002). This is the most current nationally representative study of centers and homes to produce these findings, setting a baseline for understanding policy levers useful for improving child care quality before implementation of the 2014 CCDBG reauthorization.

These findings generally confirm our theory of change. More generous subsidy policies appear to improve quality among participating providers, either by persuading more high-quality providers to accept subsidies or by helping participating providers invest in quality improvement. Tiered reimbursement policies are associated with higher quality in both centers and homes, reflected in earned quality ratings, use of curricula, and financial support for professional development. Because of the cross-sectional nature of NSECE data, we cannot disentangle all the pathways by which more generous subsidy policies may improve quality among participating providers.

Despite the rigor and relevance of our analyses, our conclusions are subject to several limitations stemming from the nature of our research questions and primary data sources. First, we chose to examine subsidy generosity in terms of policies that are provider friendly rather than parent friendly. Some policies are both provider and parent friendly, but others could produce competing results. For example, family fee policies could make it more challenging for parents to access higher-cost care. On the other hand, these policies may allow them the flexibility to use a wider range of providers. In a similar trade-off, state policies that pay providers for days that children are absent or days centers are closed may come with a requirement that parents provide copayments for those days. If policies that create more revenue for providers sometimes result in larger out-of-pocket expenses for parents, then those policies may not have the payment-stabilizing or resource-enhancing effects subsidy administrators may have intended.

Second, we question the fidelity and consistency of state subsidy policy implementation. There may be substantial variation between policies on the books and on-the-ground implementation (often by design in states that favor local subsidy program administration). Further, our study examines policies and payment rates at a single point in time, but providers may respond differently to short-term incentives than they do to continuously favorable policies. Likewise, subsidy administrators may implement provider-friendly policies in one fiscal climate but decide to amend these policies after a change in revenues or in the number of families requesting and receiving subsidies. Analyses examining the fidelity and consistency of provider-friendly subsidy policies may yield even stronger support for quality.

Third, in addition to concerns addressed in our robust checks, the subsidy-density threshold may play an even greater role in mediating the relationship between subsidy policy generosity and provider quality. Although we examined subsidy density at a particular cut point (25 percent of enrollment), it is possible that providers serving an even higher proportion of subsidized children would respond more strongly to provider-friendly policies, as these policies would affect a higher proportion of their budget.

Defining this threshold and tying it to additional incentives may accelerate quality improvement among subsidized providers in more generous states and localities.

This work is intended to inform subsidy program administrators considering various policy levers for increasing provider quality and to advance research on subsidy policy and child care quality. Our findings suggest that larger subsidy payments, greater differences between the lowest and highest tiers in a tiered reimbursement system, and greater use of contracted care are all promising policy options. That is to say, the subsidy system itself—in addition to the quality set-aside required under the CCDBG Act—can help improve the quality of child care in centers and homes. Given the importance of high-quality care for the most vulnerable young children and their families, we find these results encouraging. As states implement their plans under the CCDBG reauthorization, future research should examine whether the associations identified here hold—and whether new ones emerge in the evolving policy landscape. The next cycle of the NSECE, set for 2019, offers an ideal data source for further research on policy and practice in the subsidy system.

Appendix. Supplemental Tables

TABLE A.1

Subsidy-Dense Regression Results for Center-based Providers

Results from multivariate regression

	Quality Indicators									
	Turnover ordinary least squares model		Quality rating logistic model		Curriculum logistic model		Financial support or PTO for PD logistic model		Quality composite logistic model	
Preschool subsidy reimbursement rates, adjusted with Regional Price Parities (\$100)	0	-0.02	1.33**	1.23 [†]	1.12	1.24 [†]	1.28*	1.22*	1.31*	1.33**
	(0.01)	(0.02)	(0.15)	(0.15)	(0.13)	(0.14)	(0.14)	(0.11)	(0.15)	(0.14)
Tiered reimbursement	-0.03	-0.04	1.19	1.27	1.76	1.83 [†]	0.97	1.12	1.15	1.18
	(0.04)	(0.04)	(0.41)	(0.50)	(0.60)	(0.59)	(0.30)	(0.31)	(0.40)	(0.36)
Payment difference between lowest and highest tier, adjusted with Regional Price Parities (\$100)	0	-0.01	1.84***	2.13***	1.11	1.24	1.34*	1.35*	1.64*	1.88***
	(0.02)	(0.02)	(0.22)	(0.33)	(0.21)	(0.18)	(0.19)	(0.16)	(0.33)	(0.25)
Use of contracts (10%)	-0.04***	-0.01	1.09	1.11	1.13 [†]	0.89	0.94	0.80**	1.05	0.87
	(0.01)	(0.01)	(0.07)	(0.21)	(0.08)	(0.10)	(0.06)	(0.07)	(0.07)	(0.09)
Provider-friendly policy index	-0.01	0	1.10	1.27*	0.99	0.89	0.94	0.95	1.05	1.08
	(0.01)	(0.01)	(0.10)	(0.14)	(0.12)	(0.08)	(0.09)	(0.08)	(0.13)	(0.11)
With covariates		X		X		X		X		X
Constant	0.29**	0.10	0.11**	0.07	0.92	0.95	0.47	0.08	0.24 [†]	0.01*
	(0.08)	(0.20)	(0.08)	(0.15)	(0.72)	(1.43)	(0.32)	(0.14)	(0.18)	(0.02)
F-statistic	21.3	7.27	63.45	317.21	15.76	142.42	14.21	522.75	22.47	301.55
P-value on F-statistic	0	0	0	0	0.01	0	0.01	0	0	0
R ²	0.03	0.08	0.07	0.16	0.02	0.11	0.02	0.13	0.04	0.19
N	1400	1320	1420	1320	1420	1320	1420	1320	1440	1340

Notes: PTO = paid time off. PD = professional development. Covariates include provider-, neighborhood-, and state-level characteristics specified in table 2. Robust standard errors clustered at the state level in parentheses.

[†] $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

TABLE A.2

Subsidy-Dense Regression Results for Home-based Providers

Results from multivariate regression

	Quality Indicators														
	ECE degree, CDA, or state certification logistic model			Quality rating logistic model			Curriculum logistic model			Financial support or PTO for PD logistic model			Quality composite logistic model		
Preschool subsidy reimbursement rates, adjusted with Regional Price Parities (\$100)	1.24 (0.36)	1.31 (0.28)	1.26 (0.43)	0.93 (0.22)	0.99 (0.20)	1.03 (0.27)	0.9 (0.09)	1.24 (0.29)	1.76* (0.50)	1.50** (0.21)	0.97 (0.19)	1.04 (0.32)	0.99 (0.20)	1.35 (0.46)	1.62 (0.62)
Tiered reimbursement	0.65 (0.35)	0.62 (0.53)	0.37 (0.61)	1.55 (0.74)	0.81 (0.41)	0.39 (0.32)	1.05 (0.58)	1.79 (1.30)	1.68 (1.70)	0.03*** (0.03)	0.06** (0.05)	0.2* (0.16)	0.67 (0.35)	0.41 (0.26)	0.51 (0.42)
Payment difference between lowest and highest tier, adjusted with Regional Price Parities (\$100)	1.98 (1.21)	1.69 (1.32)	2.65 (3.92)	1.46 (0.67)	1.27 (0.60)	3.17 (2.48)	1.09 (0.51)	0.74 (0.57)	0.97 (0.95)	6.65*** (1.89)	4.67* (3.25)	1.90 (1.26)	2.05 (1.08)	2.41 (1.73)	2.42 (1.96)
Use of contracts (10%)	1.00 (0.19)	0.67* (0.12)	0.74 (0.17)	1.23 (0.16)	1.23 (0.19)	1.22 (0.21)	1.08 (0.11)	1.03 (0.12)	0.83 (0.13)	0.96 (0.13)	1.06 (0.17)	1.45† (0.30)	1.26† (0.15)	1.25 (0.22)	1.28 (0.26)
Provider-friendly policy index	1.16 (0.23)	1.10 (0.17)	1.23 (0.31)	0.98 (0.13)	0.83 (0.12)	0.73 (0.15)	1.09 (0.11)	1.05 (0.16)	1.41† (0.25)	1.26 (0.19)	1.38† (0.24)	1.56** (0.24)	1.04 (0.12)	0.90 (0.16)	0.91 (0.18)
Provider and community covariates		X	X		X	X		X	X		X	X		X	X
Plus funding covariates			X			X			X			X			X
Constant	0.45 (0.79)	0* (0.00)	0 (0.00)	1.56 (2.16)	1.98 (7.20)	2.55 (11.6)	1.77 (1.07)	0.02 (0.08)	0* (0.00)	0.02*** (0.02)	0.04 (0.17)	0.28 (1.21)	0.51 (0.62)	0 (0.02)	0 (0.01)
F-statistic	1.94	108.21	132.49	9.40	159.44	207.05	4.38	136.65	177.83	50.79	377.55	190.86	10.82	94.86	165.65
P-value on F-statistic	0.86	0	0	0.09	0	0	0.5	0	0	0	0	0	0.06	0	0
R ²	0.01	0.16	0.18	0.03	0.14	0.22	0.01	0.13	0.19	0.1	0.23	0.33	0.03	0.16	0.20
N	780	660	480	740	620	460	780	660	480	740	620	460	800	680	500

Notes: PTO = paid time off. PD = professional development. Covariates include provider-, neighborhood-, and state-level characteristics specified in table 2. Robust standard errors clustered at the state level in parentheses.

† $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Notes

- ¹ “FY 2015 Preliminary Data Table 1 - Average Monthly Adjusted Number of Families and Children Served,” US Department of Health and Human Services, Administration for Children and Families, Office of Child Care, last modified December 7, 2016, <https://www.acf.hhs.gov/occ/resource/fy-2015-preliminary-data-table-1>.
- ² “CCDF Policies Database,” Urban Institute, <http://ccdf.urban.org/>
- ³ Survey items differ for centers and homes. Center-based providers are asked whether their programs have an overall quality rating (e.g., through accreditation or a tiered reimbursement system). Home-based providers respond to whether they tell parents about the home’s overall quality rating (also through accreditation or a tiered reimbursement system, etc.) to help them understand the care offered.
- ⁴ Survey items differ for centers and homes. Centers are asked whether “the program provides staff with funding or paid time off to participate in a college course or off-site training.” For homes, providers who participated in any professional development in the previous 12 months affirm that they “receive[d] assistance with direct costs such as tuition or registration fees, support with other costs of participation such as travel or child care for your own children, or a stipend to cover your time while participating in the activity.” Providers who did not participate in any professional development are coded as not receiving assistance.
- ⁵ Survey items differ for centers and homes. Center-based providers are asked whether they use a “specific curriculum” for a randomly selected age group they serve. Home-based providers are asked whether they “use a curriculum or prepared set of learning and play activities.”
- ⁶ Note that the 12-month certification period reported here differs significantly from the requirements of the CCDBG Act of 2014. It represents a “maximum” certification period, and actual redetermination periods are often shorter for many families (Adams, Snyder, and Banghart 2008). In addition, there have been several policy changes since 2012. As noted in Isaacs, Greenberg, and Derrick-Mills (2018), as of October 2015, an additional 6 states (28 states total and the District of Columbia) were using tiered reimbursement. Contract use has increased, partly because of Early Head Start-Child Care Partnership grants and because the newly required 12-month redetermination period differs from policies in place in 2012.
- ⁷ In accordance with NSECE disclosure rules, we report the top and bottom deciles rather than the minimum and maximum to protect the anonymity of providers.

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