



# Is Authorized Capacity a Good Measure of Child Care Providers' Current Capacity? New evidence from Virginia

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Demand for child care in the United States outpaces supply. Understanding access issues is critical for addressing them and supporting children, families, and the economy. However, the most widely available proxy for child care supply—authorized capacity—likely overestimates care availability. Authorized capacity represents the maximum children a provider can legally serve based on safety regulations and physical characteristics of the site. However, the slots available across sites can be constrained by factors not captured by authorized capacity, including the combination of ages currently enrolled and staffing at a site. If the gap between authorized capacity and “current capacity” is large, we stand to underestimate needed investments to improve access. This study quantifies the gap between providers’ “current capacity” as reported in a fall 2022 survey and authorized capacity per administrative records. Using data from 1,968 home- and center-based providers in Virginia, we find three key limitations of authorized capacity as a proxy of supply. First, providers’ current capacity was 74% of their authorized capacity on average. Authorized capacity would overestimate child care availability by more than 30,000 slots across the providers in our sample. Second, center-based providers that accepted child care subsidies and those in neighborhoods with a greater concentration of poverty or people of color had significantly larger discrepancies between their current and authorized capacity. Finally, we find centers that reported challenges hiring and retaining staff had larger gaps between their current and authorized capacity compared to providers that did not report staffing challenges. These findings suggest the need for measures that more accurately and dynamically capture the number of children a provider can serve to better describe and address access inequities.

VERSION: June 2024

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**Abstract:** Demand for child care in the United States outpaces supply. Understanding access issues is critical for addressing them and supporting children, families, and the economy. However, the most widely available proxy for child care supply—authorized capacity—likely overestimates care availability. Authorized capacity represents the maximum children a provider can legally serve based on safety regulations and physical characteristics of the site. However, the slots available across sites can be constrained by factors not captured by authorized capacity, including the combination of ages currently enrolled and staffing at a site. If the gap between authorized capacity and “current capacity” is large, we stand to underestimate needed investments to improve access. This study quantifies the gap between providers’ “current capacity” as reported in a fall 2022 survey and authorized capacity per administrative records. Using data from 1,968 home- and center-based providers in Virginia, we find three key limitations of authorized capacity as a proxy of supply. First, providers’ current capacity was 74% of their authorized capacity on average. Authorized capacity would overestimate child care availability by more than 30,000 slots across the providers in our sample. Second, center-based providers that accepted child care subsidies and those in neighborhoods with a greater concentration of poverty or people of color had significantly larger discrepancies between their current and authorized capacity. Finally, we find centers that reported challenges hiring and retaining staff had larger gaps between their current and authorized capacity compared to providers that did not report staffing challenges. These findings suggest the need for measures that more accurately and dynamically capture the number of children a provider can serve to better describe and address access inequities.

**Acknowledgements:** We thank the Virginia Department of Education for their ongoing partnership.

**Funding Disclosure:** This publication was made possible through Grant Number AWD-002681 and Grant Number AWD-004413 both from the Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the Virginia Department of Social Services, Virginia Department of Education, Office of Planning, Research and Evaluation, the Administration for Children and Families, or the U.S. Department of Health and Human Services.

## Introduction

Early education programs can support young children during a crucial developmental period (National Scientific Council on the Developing Child, 2007; Shonkoff, 2017) and provide parents with the child care supports needed to work or go to school (U.S. Bureau of Labor Statistics, 2023; U.S. Department of Education, 2021). Despite the widespread need for child care, demand for early care and education (ECE) often outpaces supply. Using 2018 data from all 50 states and the District of Columbia, the Center for American Progress estimated more than half of families in United States live in “child care deserts,” or areas where the number of young children drastically outnumber the available ECE slots (Malik et al., 2018). Challenges accessing child care often impact certain communities and families disproportionately, including families in rural areas (Anderson et al., 2019; Morrissey et al., 2022), Hispanic families (Malik, Hamm, et al., 2020), families with low and middle income levels (Gordon & Chase-Lansdale, 2001; Hardy et al., 2021), and families with infants and toddlers (Jessen-Howard et al., 2020; Paschall et al., 2021).

Although a growing body of research has highlighted gaps in ECE availability across communities and families, our ability to accurately measure the supply of child care has limitations that might obscure inequitable access. One under-studied limitation is our reliance on licensed or authorized capacity to approximate the availability of care (Thomson et al., 2020).

In most states, licensing agencies determine child care providers’ authorized capacity—or the maximum number of children they can legally serve at one time to safeguard children’s health and safety. A provider’s capacity is based on the physical characteristics of the building in which they operate and the age ranges they plan to enroll (Paschall et al., 2021; Thomson et al., 2020). Larger providers operating in center-based settings are often required to have a certain

number of square feet per child, while smaller providers licensed to serve children out of their homes are typically limited to fewer children.

Researchers often aggregate authorized capacity across all providers in a particular geographic area to estimate the availability of care. They divide estimates of overall demand—for instance, the number of young children across the same geographic region—by the total number of authorized slots to generate a ratio of “tots per slots.” This type of ratio using authorized capacity as the underlying measure of supply is widely reported in child care access research and policy, including the widely cited work on child care deserts.

There are many reasons, however, a provider may serve fewer children than their authorized capacity (Anthony et al., 2009; Child Care Aware of Kansas, 2022; Child Care Services Association, 2022; Fantuzzo et al., 2021). For instance, two providers with the exact same space and the same authorized capacity may be able to serve different amounts of children if one primarily enrolled infants and toddlers and the other primarily enrolled preschoolers. This is because states mandate more restrictive class sizes and teacher:child ratios for younger children. Similarly, two providers with the same space and the same authorized capacity may be able to serve different numbers of children if one is struggling to recruit and retain teachers—a common issue across child care providers that has been exacerbated by the pandemic (Ali et al., 2021; Bassok & Weisner, 2023; Carson & Boege, 2023; Frank et al., 2021; U.S. Bureau of Labor Statistics, 2023). In both cases, providers’ *current* capacity— or the number of children they can actually serve at a given point in time— could be lower than the number they can legally serve.

Because authorized capacity is the starting point for estimating supply in many ECE access studies, understanding how much it overstates current child care supply has important implications for future research and policy. If the gap between authorized and current capacity is

large, we stand to overestimate the availability of care and underestimate needed investments to improve access. Further, if the gap between authorized and current capacity is systematically larger among underserved or disadvantaged families found to have limited ECE options (e.g., those in communities with more people of color, communities with higher poverty rates, and/or rural communities), we may fail to identify inequitable access to care. This could be the case if, for example, providers serving these families have greater challenges with staffing.

Although there is recognition that authorized capacity might overstate current capacity, few studies have tested the magnitude of this difference or whether it varies across communities. The present study aims to fill this gap by quantifying differences in authorized capacity and current availability across a large sample of Virginia child care providers. These data offer potential insights for many other states, particularly those which do not have a universal ECE option and for which private providers supply the majority of care to families.

We begin by asking: To what extent does authorized capacity differ from provider-reported current capacity? We combine administrative data on authorized capacity with detailed survey responses on providers' current capacity collected in fall 2022 from nearly 2,000 home- and center-based child care providers, representing almost half of all registered child care providers across Virginia. We describe the average discrepancy between the two access measures.

Next we ask: Do differences between authorized and current capacity vary by characteristics of the children or communities that providers serve (i.e., age, % people of color, poverty rates, rurality/locale, acceptance of child care subsidies)? This second analysis aims to address whether using authorized capacity may understate inequities in access within

communities previously found to have larger gaps between child care supply and potential demand.

Finally, our third question asks: Are there larger gaps between authorized and current capacity among providers that report more substantial staffing challenges? If providers with more staffing problems report a lower current capacity relative to their authorized capacity, this highlights a potential need to view availability more dynamically—not as a fixed measure inherent to a provider but as a variable one that can fluctuate depending on various factors, including staffing.

Together, our findings aim to assess the potential limitations of authorized capacity as a measure of child care availability and implications for improving equitable access to care.

### **Evidence of Inequitable Child Care Access**

Demand for child care in the U.S. exceeds availability (Banghart et al., 2021; Exec. Order No. 13985, 2021). Because care shortages have negative impacts on children, families, and communities, policymakers need systematic information on gaps between families' ECE needs and the child care available to them.

Typically, the way policymakers and researchers measure child care access involves comparing the number young children who live in some geographic area to the amount of available child care in that area. Population estimates are publicly available from the Census and provide the count of children within a geographic area that are not yet old enough to attend public school and, therefore, possibly in need of child care. Local or state licensing agencies keep lists of all registered providers, their location, and the maximum number of children they are authorized to serve at one time based on local regulations. Researchers can calculate an intuitive “tots-to-slots” index of demand relative to the supply in an area by dividing the

estimated number of young children by the total slots available across providers within a community.

Studies reporting simple tots-to-slots ratios have provided many insights into the challenges families face when trying to secure care for their young children. Using authorized capacity from all 50 states and the District of Columbia, the Center for American Progress has highlighted the widespread misalignment between family demand and child care supply across the U.S. (Malik et al., 2018; Malik, Hamm, et al., 2020). Studies have also found certain families are more likely to experience access challenges, including those living in rural areas (Malik, Hamm, et al., 2020; Sipple et al., 2020) and Hispanic families (Malik et al., 2018).

Simple tots-to-slots ratios do not, however, account for other important limitations families face when trying to access care. To better capture families' real-life choice sets, OPRE developed a multi-dimensional access framework to guide future studies (Friese et al., 2017; Paschall et al., 2021; Thomson et al., 2020). The authors emphasized the need to consider affordability, program quality, and families' unique needs (e.g., services for infants and toddlers) when studying access. For instance, families with low income likely have far fewer options than suggested by a simple slots-to-tots ratio. While child care subsidies can offset the cost of care, existing research has highlighted that programs accepting subsidies tended to reach only a fraction of income-eligible families (Adams et al., 2022; Arora et al., 2021; Morrissey et al., 2023; Ullrich et al., 2019), many of which were required co-payments they could not afford (Adams et al., 2022).

Similarly, the number of child care slots nearby will not adequately measure access for families of infants and toddlers if the slots are primarily for preschool-aged children. When looking at the availability of care across 19 states and the District of Columbia, Jessen-Howard et

al. (2020) found the licensed slots available for preschool-aged children outnumbered infant and toddler care three to one. Targeted programs like Head Start or public preschool can expand access to early education for children three to five, but typically do not serve infants and toddlers.

OPRE's multi-dimensional framework highlighted the need for more nuanced measures of access that consider what options are truly available to families. It also emphasized the need to capture differential care availability for "underserved or disadvantaged children," including those living below the poverty line and/or eligible for means-tested programs like child care subsidies, children living in communities with higher concentrations of poverty, and children of color (Thomson et al., 2020). The current paper responds to both calls.

We argue that more accurately capturing access not only requires a more nuanced look at family needs, but potentially using more accurate measures of access. Doing this is particularly important in contexts where our access measures may systematically overstate supply for groups we already consider underserved or disadvantaged.

### ***Measuring Child Care Supply to Identify Inequitable Access***

Measures of child care supply are essential for identifying gaps in access both overall and for specific groups. Ideally, researchers would be able to quantify the extent to which families have access to care that meets their needs. OPRE's access framework emphasizes the need to better understand families' choice sets, stating "access implies that there is care that the family considers to be available, affordable, and has the characteristics desired by the family" (Paschall et al., 2021, p. 3). Unfortunately, we currently lack the data to fully capture this nuanced construct. This is because most child care providers are small private businesses. In most states



there is no systematic data about the number of children private centers are willing to serve and/or the openings available to families.

Because direct measures of openings or slots are typically not available at scale, researchers rely on measures to approximate supply, most commonly using authorized capacity. Such proxies may systematically over- or under-state true availability. Authorized capacity represents the maximum number of children a provider can legally serve at one time. This number is an upper bound on the number of children providers serve in practice (Advocates for Children of New Jersey, 2023; Anthony et al., 2009; Carson & Boege, 2023; Goldstein & Rosch, 2020; Kalinowski et al., 2021; Sipple et al., 2020; Smith et al., 2020).

Some studies have used providers' desired capacity or their actual enrollment to provide more realistic estimates of the actual slots available to children. Indeed, studies in several different states have found desired capacity—generally defined as the number of children a provider is licensed and *willing* to serve— is often around 90% of providers' authorized capacity (Anthony et al., 2009; Kalinowski et al., 2021; A. Sojourner, personal communication, January 1, 2023). Enrollment likely provides an even more conservative estimate of supply than desired capacity, as it does not count any unfilled openings towards providers' capacity (Advocates for Children of New Jersey, 2023; Child Care Services Association, 2022). And while desired capacity and enrollment may *better* approximate actual supply relative to authorized capacity, neither quite captures the amount of care available to families. Desired capacity represents availability under providers' ideal circumstances not their current ones; enrollment captures the number of children served but fails to account for unfilled—but currently available—slots.

Although we can hypothesize about the likely direction and sources of bias for various supply measures, to date, we have lacked large-scale empirical evidence on the extent to which

widely used proxies like authorized capacity overstate “current” child care supply—or the total slots available across providers based on current space, age configurations, and staffing. This is one key aim of the current paper.

The second key aim of this paper is to assess if gaps between authorized and current capacity differ by characteristics of the families or communities providers serve, as larger systematic discrepancies among certain groups can exacerbate inequitable access to care. If measures like authorized capacity are worse at approximating the care currently available to underserved families like those outlined in OPRE’s framework, using them will limit researchers’ and policymakers’ ability to identify and, in turn, address inequitable access.

There are several reasons to hypothesize differences between authorized and current capacity may be more pronounced across providers that serve certain families. As one example, communities with higher concentrations of poverty are more likely to be targeted for free, means-tested ECE options like Head Start or pre-kindergarten (McCoy et al., 2016). Because these programs tend to serve preschool-aged children, child care providers may find themselves concentrating more on services for infants and toddlers, which require more staff per child and more specialized furniture (e.g., cribs). Providers with a higher proportion of children in younger age groups would therefore report lower current capacity than another provider with the same authorized capacity serving more preschool-aged children. Similarly, providers often charge tuition rates based on what families can afford rather than what is needed to support optimal operating costs (Bipartisan Policy Center, 2020). In turn, providers serving families or communities with lower incomes are likely to receive less money per child enrolled than providers serving families able to pay more for care. Because staff salaries and benefits make up 60-80% of child care programs’ expenses (Workman, 2018), providers generally account for

tighter operating budgets by employing fewer teachers, paying staff less, and/or taking a financial loss. These could lower capacity and lead to greater staffing challenges and instability among some providers, the implications of which we discuss in more detail below.

### ***The Role of Staffing in Child Care Capacity***

The final aim of this paper is to examine the extent to which staffing challenges are associated with greater levels of under-enrollment among child care centers.

Providers' ability to attract and retain staff is closely linked to multiple dimensions of access. First, teachers determine a provider's ability to enroll children, as they must maintain teacher:child ratios at all times in order to comply with licensing regulations. Second, early educators directly support quality, as young children benefit most from stable and nurturing interactions with adults (Bratsch-Hines et al., 2020). State-level quality rating and improvement systems reflect the importance of early educators, as many use measures of teacher-child interactions as primary indicators of program quality.

The child care workforce, however, has struggled with high levels of instability. Multiple studies find that anywhere between 23% and 50% of child care teachers leave their site over the course of the school year (Bassok et al., 2021; Bellows et al., 2022; Coffey & Khattar, 2022; Doromal et al., 2022), disrupting continuity in the classroom and leading the remaining staff to take on additional responsibilities (Whitebook & Sakai, 2004). Extreme staffing instability within a site can also lead to fluctuations in the number of children a provider can serve from one week to the next, as the loss of one or two teachers could require them to close an entire classroom.

While high levels of teacher turnover are widespread, certain providers—and likewise, certain families—are likely to experience more severe staffing challenges. In particular,

providers with lower teacher compensation are more likely to report staffing challenges (Caven et al., 2021; Grunewald et al., 2022; Hall et al., 2023). Similarly, providers that accept child care subsidies report more unfilled teacher vacancies and turnover, as the reimbursement rates often restrict how much they can pay their teachers (Bassok & Weisner, 2023). Existing staffing challenges have been made worse by the pandemic, and many providers have reported that ongoing staffing challenges led them to turn away families and/or close classrooms (Bassok et al., 2023; Carson & Boege, 2023; Frank et al., 2021). Understanding the extent to which differential staffing challenges across providers may limit capacity is key to identifying potential policy solutions.

### **The Virginia ECE Context**

There are roughly 480,000 children under 5 living in Virginia (Kids Count Data Center, 2023), and the state has a large and diverse ECE system. The private child care sector makes up the largest share of formal ECE available in Virginia. In 2022, there were approximately 3,500 centers and 2,000 home-based providers registered with the Virginia Department of Education (VDOE). All registered providers submit an application with their location, information about their facilities (e.g., building occupancy), hours of operation, and age range of the children they plan to serve. They also pay a small application fee, complete a background check, and have an inspection of the facility in which they operate. About 80% of registered providers complete additional requirements to become fully licensed, which involves paying regular licensing fees and, in accordance with federal regulations, completing biannual site inspections and having all staff complete a 10-hour health and safety training within 90 days of employment. The remaining unlicensed but regulated providers include mostly religiously exempt centers and small home-based providers serving up to 4 children.

Virginia provides financial support to three public ECE programs for qualifying families: the Child Care Subsidy Program (CCSP), the Virginia Preschool Initiative (VPI), and the Mixed Delivery grant program.

Child care subsidies are the most broadly available public ECE option offered in Virginia. Roughly half of Virginia providers that were registered in 2022 also completed the separate application to become approved subsidy vendors, most or all of the requirements for which would be met when a site becomes licensed. Eligible families can use the subsidy vouchers to cover the cost of care for children between 0 and 12 years old at one of the 2,500 private Virginia providers that accept child care subsidies.

Despite the flexibility of subsidies, CCSP reaches a fraction of the estimated 230,000 children who would be eligible for subsidies (Morrissey et al., 2023). Further, many subsidy-accepting providers served few children using subsidies relative to their total enrollment (Bassok et al., 2022a; 2022b). VDOE has taken several steps to reduce administrative burdens and build the supply of subsidized slots, including by increasing the number of paid planned closures for CCSP providers from 10 to 15 days and instituting new subsidy reimbursement rates modeled on the cost of high-quality care rather than the tuition rates providers charged families. The new model resulted in large increases to reimbursements for children 3 and younger. The number of young children using subsidies has recently reached an all-time high, increasing from about 22,000 just prior to the pandemic to over 33,000 in 2022-2023.

Virginia's two other state-funded options—VPI and the Mixed Delivery grant program—provide free ECE to a more limited subset of children than CCSP. Similar to Head Start, both programs focus on “at-risk” preschool-aged children between 3-4 years old, though some slots

are reserved for infants and toddlers. In 2022-2023, there were slots for approximately 21,000 children through VPI and 2,500 through Mixed Delivery.

### ***The Current Study***

The current study uses large-scale data collected from a diverse group of child care providers across Virginia. We focus on registered child care providers as the ECE sector most widely available to Virginia families and most commonly included in estimates of access. We compare authorized capacity to a provider-reported measure of current capacity intended to capture the number of children they could actually serve at one time given current operational constraints and preferences. We also consider whether authorized capacity seems to overestimate care to a greater extent by important indicators of equity. Lastly, we consider the role staffing challenges may play in limiting providers' capacity. Across the three primary aims, we seek to better identify inequities and describe the implications of estimating child care availability using authorized capacity.

## **Methods**

### **Data and Measures**

We combined three datasets to create a snapshot of child care capacity across 1,968 child care providers in Virginia.

First, we used child care licensing records for all registered providers in Virginia as of September 2022. These administrative records included one of our key measures of interest: child care providers' authorized capacity. In addition, the licensing records included the minimum and maximum ages providers are authorized to serve, their type (e.g., home- or center-based), and their location. The data also included an indicator for whether the provider applied for and was approved to accept subsidies through CCSP.

We combined the licensing data with responses to the Virginia Child Care Provider Survey, a survey administered by our team between September and November 2022 in partnership with VDOE. The survey was open to all registered center- and home-based child care providers that served any children between ages 0-5. Almost half of all eligible providers in Virginia responded to the survey (2,300 providers, or 47%). The survey asked respondents detailed questions about their program's operation. As we describe in more detail below, we used their responses to questions about enrollment to estimate providers' "current" capacity as well as their reported staffing challenges. We linked survey responses to licensing data using identifiers assigned by VDOE.

Finally, to capture characteristics of the communities where these providers operated, we matched census-tract data from the 2017-2021 American Community Survey (ACS) using site addresses. The ACS contains estimates about the demographic characteristics of their communities (e.g., % poverty and racial/ethnic makeup). The data also allowed us to classify the rurality of communities using the National Center for Education Statistics (NCES) criteria. We further describe these measures of community characteristics below.

Combined, these data sources allow us to compare two measures of site-level capacity—authorized capacity as determined by licensing regulations and current capacity as reported by providers—and explore differences across the two measures by characteristics of the populations they serve as well as by indicators of staffing challenges. Below, we describe our primary outcomes and covariates of interest.

### ***Authorized and Current Capacity***

Our first measure of capacity—authorized capacity—comes from state-level administrative data. All child care providers registered with VDOE are assigned an authorized

capacity by the licensing office, which represents the maximum number of children they can serve across all age groups. This authorized capacity is determined during the initial application and remains the same unless a provider requests a modification. Providers' authorized capacity also dictates their annual licensing fees. Home-based providers serving up to 12 children pay \$14 per year. Centers pay \$35 per year for every 25 children they are authorized to serve (e.g., \$35 a year for authorized capacity of 13-25, \$70 for authorized capacity of 26-50, etc.), with a maximum annual fee of \$200 for those with an authorized capacity exceeding 200 children.

For licensed child care centers, the provider's authorized capacity indicates the total number of children they can serve across *all* age groups based on the physical characteristics of the spaces in which the program operates, such as the square footage of available indoor and outdoor spaces and the number of restrooms and sinks available for staff and children. The capacity limitations for spaces differ depending on the ages the center plans to serve. For instance, classrooms must have 35 square feet per child, but infant classrooms cannot exceed 12 children, while classrooms for ages 3 or older may have up to 30 children. The authorized capacity at unlicensed but regulated child care centers is determined by the building occupancy codes.

Home-based providers licensed by VDOE can serve up to 12 children of mixed ages. While there are no specific square footage requirements for licensed home-based providers, site inspectors may reduce the providers' authorized capacity if it is determined there is not space to accommodate free movement for up to 12 children. Home-based providers with provisional licenses, local ordinance homes, or those who are registered but unlicensed are capped at 4 children.



We compared authorized capacity to providers' *current capacity*—which we defined as the maximum number of children they could actually serve based on current staffing and enrollment. To capture this construct, we used two items from the Virginia Child Care Provider Survey. At the time of the survey in fall 2022, providers were asked to indicate (1) the largest number of children served at one time in the past week and (2) the number of additional children they could have served in that moment. To align with Virginia's measure of authorized capacity, current capacity represents the total children a provider could serve across all age groups. Responses to these items were summed and capped at each provider's authorized capacity, as is common in prior studies (Child Care Aware of Kansas, 2022; Child Care Services Association, 2022).

We compared current and authorized capacity among providers in our sample, using the ratio ( $\text{Current capacity} / \text{Authorized capacity} \times 100$ ) as the primary outcome measure in our analysis.

### ***Populations Providers Serve***

A primary goal of this study is to explore whether the difference between current and authorized capacity varies depending on the communities or children a provider serves. We examine both characteristics of the census tracts surrounding the provider and measures that capture the types of children that may be served by a provider, with a focus on the communities and families most likely to have limited ECE availability based on prior research.

#### *Community characteristics*

We used the 2017-2021 ACS to create several categorical variables that reflect the racial/ethnic composition and the percentage of families with low incomes living in the census tracts where providers operated.

First, we created two categorical variables to capture communities with higher percentages of people of color. Using the total White, non-Hispanic population estimates provided by ACS, we calculated the percentage of people of color within a community  $[(\text{Total population within a census tract} - \text{total White, non-Hispanic}) / \text{Total population}]$ . We categorized communities as having low [0, 33%), medium [33%, 66%], and high (66%, 100%) percentage of people of color. Because prior studies have found areas with higher proportions of Hispanic residents in particular tend to have fewer child care options (Malik et al., 2018), we also looked at the relationship between child care availability among these communities compared to other Census tracts with a lower percentage of Hispanic families. To construct our variable, we calculated the percent of people within a tract that identified as Hispanic, non-White (regardless of other racial affiliations) relative to the total population. Communities with more than 10% Hispanic were categorized as “high” percent Hispanic.

Next, we created a categorical variable based on the ACS estimates of the percentage of people under 18 years old whose family incomes are below 300% of the federal poverty line (FPL). Recall that our measures of authorized and current capacity include school-age children, so we used this measure rather than limiting to children 5 and under. Using these estimates, we categorized communities with less than 33% of people under 18 living in households with incomes below 300% FPL as having “low” levels of poverty, those with 33% to 66% as “medium,” and those with more than 66% as “high.” We made decisions on categorizations based on the distribution of each variable across our dataset.

#### *Locale classification*

We used Census data to classify providers as operating in a city, suburb, town, or rural based on the NCES locale codes. The NCES classification system is similar to the codes used in

the child care desert analyses conducted by the Center for American Progress and uses population density and distance from a principal city to classify Census tracts as city/urban (inside principal city limits), suburban (outside principal city limits but inside an urbanized area with a population of at least 50,000), town (inside an urban cluster with a population of 2,500 up to 50,000), or rural (outside urbanized area with population of less than 2,500). In line with previous child care access studies (Child Care Services Association, 2022; Hardy et al., 2021; Morrissey et al., 2022), we combine suburban and town in our analyses.

### *Subsidy status*

Given the documented access challenges among families who are eligible for child care subsidies (Arora et al., 2021; Pilarz, 2018), we included an indicator of whether the provider was approved to accept subsidies (1 if approved to accept subsidy, 0 otherwise). These registered providers applied to become subsidy vendors with VDOE and completed additional orientations, inspections, trainings, and staff certifications. However, they did not necessarily have any subsidized enrollment.<sup>1</sup>

### *Serves infants and/or toddlers*

When registering with VDOE, providers indicate the minimum and maximum ages they are authorized and willing to serve. These ages are used to determine the provider's authorized capacity, as requirements such as the square footage for play areas and number of restrooms differ for programs licensed to serve infants and toddlers. We created an indicator variable set to 1 if sites were approved to serve infants and/or toddlers and 0 otherwise.<sup>2</sup> Following VDOE

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<sup>1</sup> Subsidy-accepting providers that responded to our survey reported that 25% of all children enrolled at the site used subsidies on average (20% for centers and 33% for home-based providers).

<sup>2</sup> The minimum and maximum ages only correspond to the ages a provider is approved to serve and does not indicate that they actively enroll all age groups. Among the providers licensed to serve infants and/or toddlers in our analytic sample, 29% reported no infant enrollment at the time of our survey and 25% reported no toddler enrollment.

standards, we defined infants as children ages birth to 16 months and toddlers as 16 months to two years.

### ***Staffing Challenges***

We identified centers experiencing staffing challenges based on responses to the Virginia Provider Survey. All center-based providers were asked the question: “*At your site, how challenging is staffing (e.g., teachers leaving, vacancies)?*” and responded using a four-point scale ranging from *Not at all challenging* to *Very challenging*.<sup>3</sup> Home-based providers were not shown this item on the survey as very few of these providers consistently have staff other than the owner-operator. We included indicators for each response option leaving “Not at all challenging” as our omitted comparison group for all analyses.

### **Analysis**

To answer our first research question, we compared authorized capacity to provider-reported current capacity. We tested for significant differences across the measures using paired t-tests. To highlight the practical significance of these differences, we compared the total slots across all providers in our sample using both measures.

To address our second and third research questions, we ran a series of bivariate regressions to determine whether authorized capacity overestimated child care supply to a greater extent for certain types of communities and/or providers.

We used providers’ current capacity as a percentage of their authorized capacity as our primary outcome,  $\frac{\text{Current capacity}}{\text{Authorized capacity}} \times 100$ , where values closer to 100 suggest smaller

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<sup>3</sup> Responses to this item were highly correlated with leader-reported staff vacancies: providers that reported staffing was not at all challenging had 0 teacher vacancies on average whereas those that reported it was very challenging had an average of 4 vacancies. We used the global measure of staffing challenges (rather than vacancies) to capture sites that may not have had unfilled positions at the time of the survey but had experienced other issues with hiring and retention such as churn.

differences between authorized and current capacity and a lower likelihood of overestimating supply when using authorized capacity as a proxy.

We then regressed this ratio on each community/provider characteristic using a simple bivariate regression model:

$$\gamma = \beta_0 + \beta_1 X + \epsilon$$

Because we included only dichotomous or categorical indicators as our independent variables,  $\beta_0$  can be interpreted as the average ratio of current vs. authorized capacity for providers where  $X=0$ , or for providers in the omitted reference group.  $\beta_1$  is the percentage point difference associated with the indicated characteristic, where negative coefficients suggest a larger gap between authorized and current capacity.

We present all results separately by provider type due to large differences in size between center and home-based providers.

### **Description of Sample**

Table 1 provides descriptive statistics for all covariates of interest across our primary analytic sample. This sample includes 1,158 center-based and 810 home-based providers who responded to the survey items necessary to estimate our measure of current capacity.<sup>4</sup> Due to the inherent differences in authorized capacity for home- and center-based providers, we disaggregate these statistics by site type.

Providers in our sample were located across 1,138 of the 1,907 census tracts in Virginia. On average, 44% of residents in these tracts were people of color, 7% were Hispanic or Latino, and 44% of children (ages 0-17) lived in homes whose income was below 300% of the federal

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<sup>4</sup> Our sample is representative of the overall population of Virginia child care providers in terms of authorized capacity and characteristics of the communities in which they are located, though we were somewhat more likely to have responses from subsidy-accepting (52%) versus non-subsidy (43%) providers and unlicensed (41%) versus licensed (38%) providers.

poverty line. These tracts were fairly representative of Virginia as a whole: on average the populations in Virginia tracts were 39% people of color and 5% Hispanic or Latino. Among children ages 0-17, 47% of children lived in homes with incomes below 300% of the federal poverty line.

Distributions of locale in our sample were virtually identical to Virginia as a whole. In our sample, 24% of providers were classified as being in cities, 60% in suburban areas or towns, and 16% classified as rural. Throughout Virginia, 25% of child care providers were in cities, 60% in suburbs or towns, and 15% in rural areas.

Half (49%) of providers in our sample accepted child care subsidies, though this was somewhat lower for centers (43%) and higher in home-based settings (58%). Overall, 73% were licensed to serve infants and/or toddlers, though again this was lower among center-based providers (57%) and nearly universal (97%) in home-based providers. In line with national reports of widespread staffing shortages across child care providers, nearly half of the providers in our sample reported that staffing at their site had been very challenging in the 6 months preceding survey administration.

## **Results**

### **Current versus Authorized Capacity**

Our first aim is to quantify the disparity between current and authorized capacity among all providers in our sample and to understand the extent to which authorized capacity may overstate the availability of care. In Table 2, we describe each of our capacity measures, as well as differences between them. Due to variation in how authorized capacity is determined for home- versus center-based providers, we present the results for the entire sample and disaggregated by site type.

Overall, we find that authorized capacity was significantly higher than provider-reported current capacity, though the average difference across the two measures varied widely. Providers were authorized to serve 62 children on average, while providers reported a current capacity of 45, or 16 fewer children than their authorized capacity ( $p < .001$ ). In other words, providers' current capacity was equivalent to 74% of their authorized capacity on average.

The differences between authorized and current capacity overall were largely driven by overestimates among centers. In our sample, centers were authorized to serve 99 children on average. However, providers reported a mean current capacity of 72 children—27 slots less than their authorized capacity ( $p < .001$ ), meaning centers' current capacity was, on average, 73% of their authorized capacity.

While differences between authorized and current capacity were much smaller among home-based providers, which serve smaller groups of children, they were also significant. In our sample, home-based providers' authorized and current capacities differed by less than 1 slot (0.7,  $p < .001$ ). These providers were authorized to serve 8.2 children on average, but they reported a current capacity of 7.4. Among home-based providers, then, true capacity was 91% of authorized capacity, a much smaller discrepancy than that observed for centers.

To estimate the magnitude of these differences at scale, we sum all slots available across our sample using authorized and current capacity. The first row in Table 3 shows the total authorized capacity and the total current capacity summed across all 1,968 providers. We find that for our study sample authorized capacity would lead us to overestimate child care availability by more than 30,000 slots: Based on total authorized capacity, there were 121,260 slots available, while providers reported they could actually serve a total of 89,374 children based on current capacity.

### **Variation in Current vs. Authorized Capacity by Populations Served**

A primary goal of this paper is to explore whether disparities between authorized and current capacity were more pronounced for certain communities or providers, as such systematic misalignments could lead us to under-identify inequitable access for certain families and communities.

The remaining rows of Table 3 disaggregate total slots by key community and provider characteristics.<sup>5</sup> Generally, we observe larger differences between total authorized and total current capacity among populations found in prior studies to have more limited access to care and education. In communities where less than one-third of children were living in households with incomes below 300% FPL, total current capacity was 75% of total authorized capacity. The capacity measures were even less aligned in communities where more than two-thirds of children were in households with low income: Total current capacity represented 70% of the total authorized slots.

Communities with a higher proportion of people of color, and those with more Hispanic residents, also had lower current-to-authorized capacity ratios relative to communities with fewer families of color. Similarly, providers that were approved to accept subsidies had ratios that were 7 percentage points lower than those that were not, and providers that were licensed to serve infants and toddlers also had slightly lower ratios (73%) compared to those that only served children 3 years or older (76%).

While the results above suggest greater misalignment between current and authorized capacity among providers operating in and/or serving underserved communities, they do not tell us whether these relationships are significant. In other words, does authorized capacity

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<sup>5</sup> We include results of the full multivariate regression in Tables A1 and A2 of the appendix.



*systematically* overestimate child care availability for certain families or populations? To answer this question, we use a regression framework to examine the relationships between the site-level ratio of current-to-authorized capacity and each of the community characteristics.

As shown in Table 4, we find fairly consistent evidence that community characteristics are related to the ratio of current-to-authorized capacity among center-based providers. Our findings suggest bigger gaps between authorized and current capacity in communities with more people of color. Among centers located in communities with a higher percentage of people of color, we observe lower ratios of current-to-authorized capacity. For instance, in census tracts where more than two thirds of residents were people of color, the ratio of current-to-authorized capacity among centers was 7.3 percentage points lower ( $p < .01$ ) than in tracts with a higher proportion of White residents. Relatedly, centers in communities where the percentages of people of Hispanic or Latino descent were relatively high ( $>10\%$ ) had larger gaps between their authorized and current capacity (-4.3 percentage points,  $p < .05$ ).

We found no evidence that the percentage of children in poverty within a census tract related to the current-to-authorized capacity ratio but did observe larger gaps between current and authorized capacity among providers that accept subsidies—often a proxy for providers serving more children in families facing financial hardships. Compared to centers not in the state's subsidy program, subsidy-accepting centers reported smaller current capacities relative to their authorized capacity (-6.6 percentage points,  $p < .001$ ).

In contrast to the pattern observed for centers, and counter to our expectations, we found few predictors were significantly associated with the difference between authorized and current capacity among home-based providers. It may be the case that smaller overall differences between authorized and current capacity among home-based providers explain the lack of

significant relationships. That said, the one statistically significant relationship between the percentage of people of color within a community trended in the opposite direction relative to centers. Home-based providers in communities where more than two-thirds of residents were of people of color (>66%) had smaller gaps between their authorized and current capacity on average relative to home-based providers in communities with fewer people of color (4.4 percentage points,  $p < .05$ ). Other coefficients were insignificant, but also trended in the opposite direction relative to our hypotheses and to the patterns observed among centers.

### **Variation in Current vs. Authorized Capacity by Staffing Challenges at Centers**

Our third research question asks whether the gap between current and authorized capacity was larger at centers experiencing higher levels of staffing challenges, as unfilled teaching positions will constrain the number of children the provider can serve. We limit these analyses to the 1,155 center-based providers who responded to the survey item concerning staffing challenges. As shown in Figure 1, we find progressively larger differences between current and authorized capacity as providers reported greater staffing challenges.

Further, the regression results in Table 4 suggest the gap between current and authorized capacity differed significantly by provider-reported staffing challenges. Providers who did not have staffing challenges reported a current capacity that was 83% of their authorized capacity on average compared to 74% among providers that indicated staffing was very challenging—a difference of 9.2 percentage points ( $p < .001$ ).

### **Discussion**

Inadequate access to child care can negatively impact children's learning outcomes as well as families' employment and financial wellbeing. The COVID-19 pandemic drew national attention to the importance of stable child care access for supporting not just families with young

children, but the overall functioning of the economy (United States, 2023). Families struggled to find the child care they needed prior to the pandemic, with families of color, those with lower incomes, those living in rural areas, and those with infants and toddlers facing bigger challenges accessing care. Access issues were exacerbated by the slow recovery of child care sector during and after the pandemic (U.S. Bureau of Labor Statistics, 2023), which disproportionately impacted families and children of color (Cascio, 2021). Federal investments upwards of \$24 billion helped to stabilize child care, but many are concerned about the ongoing gaps between supply and demand for child care, particularly as relief funding ends that allowed many providers to stay open.

Although there is growing interest in tracking and addressing child care access disparities, there are also considerable challenges in doing this well. Most access studies to date have relied on authorized capacity as an imperfect—but widely available—proxy for access. They have compared authorized capacity to the number of young children within a defined area to estimate the gap between supply and demand.

Recently, researchers have provided critiques of this approach. They emphasize that families' and their experiences should be central to studying access (Davis et al., 2019; Friese et al., 2017; Paschall et al., 2021; Thomson et al., 2020). Simply summing available slots fails to account for other important factors limiting families' choice sets, like whether they can afford care at a given provider or if they meet families' specific needs (e.g., ages served, hours of operation, language spoken, etc.). Estimates of access that include options which are not viable for families will fail to fully capture the gap between child care supply and what is needed to meet demand (Paschall et al., 2021). This is a critical gap in the access literature and one that recent papers—including many in this special issue—aim to address.

As far as we know, however, few studies have assessed a more first order question of how accurately authorized capacity captures the child care slots available to families. Researchers have acknowledged authorized capacity likely overstates child care supply (Anthony et al., 2009; Child Care Services Association, 2022; Kalinowski et al., 2021), but they have not tested these hypotheses or quantified the extent to which authorized capacity may overstate availability. Nor have they explored whether the limitations of authorized capacity may contribute to inequitable access.

The current study sought to fill this gap and, in doing so, highlighted three primary limitations of authorized capacity as a proxy for child care supply. First, our results suggest that authorized capacity is highly correlated with a provider-reported measure of current capacity across all child care providers in our sample ( $r=.89$ ), but discrepancies between these measures are often large. This is especially so for centers, where current capacity is only 73% of authorized capacity. When looking at supply across an entire state, the differences between current and authorized capacity could lead us to assume tens of thousands of slots exist that are not actually available to families. This finding suggests access studies should make clear that authorized capacity likely overstates current supply to a large extent.

Second, we find the discrepancy between authorized and current capacity is variable and appears to be more pronounced for providers that work with many underserved or disadvantaged families and communities, particularly centers that operate in communities with a high proportion of people of color, those that serve families using subsidies, and those serving infants and toddlers. If authorized capacity overestimated availability of care to the same extent across all providers and communities, it would be easier to scale authorized capacity using a fixed multiplier. For instance, we could multiple all center-based providers' authorized capacity by

73% and home-based providers' authorized capacity by 91% to produce a more realistic estimate of current child care supply in Virginia. However, uniformly discounting estimates of supply across all providers is likely to obfuscate inequitable access for the families and communities at greatest risk, where the gap between authorized and true capacity is the largest. These findings underscore that there is likely not a universal multiplier to adjust authorized capacity across all providers and locations.

Finally, our third finding suggests a negative link between staffing challenges faced by child care centers and their current capacity relative to their authorized capacity. Compared to center-based providers reporting more stable staffing, those experiencing more severe staffing challenges report a lower current capacity relative to authorized capacity. Not surprisingly, centers with teacher vacancies are likely able to serve fewer children than those that are fully staffed. Indeed, the pandemic led many providers—particularly those serving families using child care subsidies—to close classrooms and turn families away (Bassok et al., 2023; Carson & Boege, 2023; Frank et al., 2021).

This finding implies that especially in the aftermath of COVID, when staffing challenges in child care settings have been common, there is an important conceptual and empirical difference between a provider's capacity as defined by the physical constraints of their building and their capacity once accounting for constraints from staffing challenges and other operational issues. While authorized capacity may be a reasonable proxy for the first, it is fixed and does not account for the dynamic constraints providers may face over time.

From the perspective of families or policymakers working to ensure there is sufficient access to child care in their communities, the fixed, space-based definition of access—which is the one almost universally used to measure access—is less relevant than the number of children

providers can actually serve given their current operational constraints. The measure of “current” capacity used in this study likely accounts for staffing constraints, but only at a single point in time. If we asked the same providers about the number of children they could serve during a period with less pronounced staffing problems, they likely would report a higher number. Our findings highlight the need to think of providers’ capacity dynamically and to more carefully link the literature on staffing challenges to the one on access constraints.

### **Limitations and Future Directions**

This study uses a large sample of both home- and center-based providers to examine differences between authorized and current capacity. However, it does so in a single state—one with some public birth-to-five programs but no universal ECE—and at a single point in time. Our findings therefore highlight general concerns about authorized capacity but may not be generalizable to all other states or even to Virginia at other timepoints.

For instance, states with large universal ECE programs and/or different licensing processes for providers may see different relationships between authorized and current capacity. Similarly, our results capture a unique historical moment at which many child care providers had received COVID relief funds, which are no longer available. As these supports are eliminated, it is likely providers will face greater staffing challenges and, in turn, the gap between authorized and current capacity may grow. Future studies should be done in other states and at multiple timepoints to better understand the variability of these relationships across contexts and over time.

Another generalizability limitation of the current study is that it uses data from the self-selected sample of providers who chose to take a voluntary survey. Fortunately, our data comprise a large sample of providers, with representation across most communities in Virginia.

However, we are missing information for slightly more than half of registered child care providers in the state, and although our sample looks similar to the state as a whole on observable characteristics, providers missing from our survey sample may differ in unobserved and important ways. For instance, it is possible that those providers that did not submit a survey are experiencing greater administrative challenges—including staffing challenges—and therefore had less time to respond. Given the relationship we observe between staffing challenges and reduced current capacity, differences among non-respondents may mean we have underestimated the magnitude and strength of these associations. To get around this issue, and ensure more representative data, it would be useful to collect access information more systematically for instance, as part of the licensing process, which would allow for more complete and universal data.

Overall, a better understanding of the dynamic and potentially regionally-varying nature of child care access will require investing in system-wide, longitudinal data systems (Fantuzzo et al., 2021) that go beyond authorized capacity to dynamically capture more detailed information about age-level enrollment, unfilled openings, current staffing, and teacher vacancies or other staffing challenges.

Fortunately, many states are making investments to build infrastructures to collect more comprehensive and coordinated ECE data (Hackett & King, 2023). Illinois' Early Childhood Asset Map (IECAM) combines information across multiple sources to create a comprehensive online database with longitudinal reports and dashboards on access, child outcomes, and the ECE workforce. Similarly, Virginia's LinkB5 unified measurement and improvement data system collects information from publicly funded ECE providers on their enrollment, staffing, teacher compensation, and quality ratings. Michigan's MiRegistry maintains information on the ECE

workforce across the state, while also linking teachers and leaders to training and professional development resources. A handful of states like Pennsylvania have integrated a coordinated application process for families into their data systems. These types of systems will allow for more accurate identification of access gaps. In particular, more evidence on how authorized capacity differs from current capacity in other states and time periods will provide a clearer understanding of how these measures do or do not vary across contexts. This will be especially useful towards establishing multipliers that lead to more accurate estimates of access with existing data to inform policies that improve equitable access.

### **Conclusion**

Accurately measuring access to child care is essential for improving equitable access. But doing so is both conceptually and empirically challenging. Recently, there have been calls to not only measure access to *any* child care program, but to one that is high quality and/or affordable and/or meets families' specific needs (e.g., open nights and weekends, speak families' native language). There have also been calls to more realistically account for families' limited choice sets (e.g., their transportation constraints). More nuanced measures that account for the specific characteristics of care families need or the specific choice sets they face are, no doubt, needed. Our paper suggests that as we work to create these more nuanced measures it is also critical to acknowledge that the number of children providers are allowed to legally serve may not accurately capture the number they either wish to serve or can realistically serve given staffing and other constraints. Creating access measures that more accurately and dynamically measure the number of children providers can actually serve at regular intervals will allow us to better describe and address access inequities.



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**Table 1. Sample characteristics of populations served**

	<b>All Providers (n=1,968)</b>		<b>Center-Based Providers (n=1,158)</b>		<b>Home-Based Providers (n=810)</b>	
	<b><u>Mean/ Pct</u></b>	<b><u>SD</u></b>	<b><u>Mean/ Pct</u></b>	<b><u>SD</u></b>	<b><u>Mean/ Pct</u></b>	<b><u>SD</u></b>
<b>Characteristics of Populations Served</b>						
Avg % People of Color in Census tract	44%	24	37%	22	54%	23
Avg % Hispanic in Census tract	7%	8	5%	6	9%	10
Avg % poverty under 18 in Census tract	44%	26	44%	26	44%	27
Locale type						
City	24%	--	27%	--	22%	--
Suburban/Town	60%	--	54%	--	67%	--
Rural	16%	--	19%	--	11%	--
Accepts subsidy	49%	--	43%	--	58%	--
Accepts infants and/or toddlers	73%	--	57%	--	97%	--
<b>How challenging is staffing at site</b>						
Not at all	--	--	10%	--	--	--
A little	--	--	24%	--	--	--
Moderately	--	--	24%	--	--	--
Very	--	--	42%	--	--	--

Notes: Population data come from ACS 2021 5-year estimates. Locale type is coded based on NCES classifications (city, suburban, town, and rural). Staffing challenges were recorded in the 2022 provider survey, where center-based providers were asked, “At your site, how challenging is staffing (e.g., teachers leaving, vacancies)?” with the response options: Not at all challenging, A little challenging, Moderately challenging, and Very challenging. Home-based providers did not receive this question because the owner of the site is often the sole employee.

The full analytic sample was used in all analyses except those related to staffing challenges, which only included the 1,155 centers who responded to the survey question, and ages served, which only included the 1,963 providers with administrative data on their minimum and maximum ages served.

Home-based providers in Virginia are authorized to serve mixed age groups, so we assume they are able to accept infants/toddlers unless otherwise noted in the administrative data. Minimum age served was missing from 219 home-based providers in our data, which were coded as infant/toddler accepting.

**Table 2. Site-level capacity characteristics**

	<b>All Providers (n=1,968)</b>		<b>Center-Based Providers (n=1,158)</b>		<b>Home-Based Providers (n=810)</b>	
	<u>Mean/Pct</u>	<u>SD</u>	<u>Mean/Pct</u>	<u>SD</u>	<u>Mean/Pct</u>	<u>SD</u>
Authorized capacity	62	69	99	68	8.2	3.5
Current capacity	45	51	72	52	7.4	3.5
Most children served at one time	37	42	58	44	6.0	3.4
How many more could site have served	9	19	14	23	1.5	2.0
Measures of discrepancy						
Authorized capacity – Current capacity	16	33	27	39	0.7	1.8
Current capacity / Authorized capacity	74%	--	73%	--	91%	--

Notes: Child care in Virginia is broadly categorized as center-based (located in a facility that is not a private home) or home-based (located in a residential space). Home-based providers in Virginia can be authorized to care for up to 12 children.

The values shown here for home-based providers are to the nearest tenth and may not total due rounding.

Authorized capacity was obtained from VDSS registration records, and other capacity characteristics were observed in the 2022 provider survey. Providers responded to the survey questions, “Attendance at sites can vary considerably throughout the day and week. Think back to last week. What was the largest number of children your site was serving at one time?”, “Is [number] the most children your site is able to serve at one time, or could you have served more?”, and “Over and above [number] children, about how many more children could your site have served in that moment?”

**Table 3. Total authorized and current capacity across all providers in the sample**

<b>VARIABLES</b>				
	<b>N</b>	<b>Total Authorized Capacity</b>	<b>Total Current Capacity</b>	<b>% Current Capacity</b>
Overall	1,968	121,260	89,374	74%
Center-based	1,158	114,648	83,349	73%
Home-based	810	6,612	6,025	91%
<b>% Under 18 in Poverty</b>				
Below 33%	746	48,964	36,893	75%
33-66%	742	46,676	34,584	74%
Above 66%	480	25,620	17,897	70%
<b>% People of Color</b>				
Below 33%	715	51,722	39,357	76%
33-66%	865	54,026	38,924	72%
Above 66%	388	15,512	11,093	72%
<b>% Hispanic</b>				
10% or less	1,546	100,932	75,202	75%
Over 10%	422	20,328	14,172	70%
<b>Locale</b>				
City	485	30,487	22,617	74%
Suburb/Town	1,174	74,228	54,677	74%
Rural	309	16,545	12,080	73%
<b>Subsidy Status</b>				
No	999	62,057	47,839	77%
Yes	969	59,203	41,535	70%
<b>Accepts infants and/or toddlers</b>				
No	522	35,693	26,960	76%
Yes	1,441	85,081	62,024	73%
<b>How challenging is staffing</b>				
Not at all	113	6,801	5,459	83%
A little	280	25,233	18,982	80%
Moderately	281	29,941	22,190	77%
Very	481	52,223	36,383	74%

Notes: Population data come from ACS 2021 5-year estimates. Locale type is coded based on NCES classifications (city, suburban, town, and rural). Staffing challenges were recorded in the 2022 provider survey, where center-based providers were asked, “At your site, how challenging is staffing (e.g., teachers leaving, vacancies)?” with response options: Not at all challenging, A little challenging, Moderately challenging, and Very challenging. Home-based providers did not receive this question because the owner of the site is often the sole employee.



**Table 4. Regressions of site-level discrepancies between authorized and current on populations served**

VARIABLES					
	N	Intercept	$\beta$	SE	R <sup>2</sup>
<b><i>Center-Based Providers</i></b>					
% Under 18 in Poverty	1,158	77.6	--	--	0.002
33-66%			0.12	1.53	
Above 66%			-2.42	1.76	
% People of Color	1,158	80	--	--	0.016
33-66%			-5.30***	1.42	
Above 66%			-7.30**	2.17	
% Hispanic	1,158	77.7	--	--	0.004
Over 10%			-4.29*	1.92	
Locale	1,158	77.8	--	--	0.003
Suburb/Town			-1.88	1.58	
Rural			1.32	2.00	
Subsidy status	1,158	79.9	--	--	0.020
Accepts subsidy			-6.57***	1.34	
Ages accepted	1,153	79.6	--	--	0.010
Infants and/or toddlers			-4.48**	1.35	
How challenging is staffing	1,155	83.1	--	--	0.017
A little			-2.83	2.52	
Moderately			-6.25*	2.52	
Very			-9.20***	2.12	
<b><i>Home-Based Providers</i></b>					
% Under 18 in Poverty	810	93.02	--	--	0.002
33-66%			-1.89	1.48	
Above 66%			-0.09	1.62	
% People of Color	810	89.33	--	--	0.007
33-66%			3.26	1.71	
Above 66%			4.41*	1.85	
% Hispanic	810	91.84	--	--	0.002
Over 10%			1.54	1.37	
Locale	810	91.25	--	--	0.013
Suburb/Town			2.25	1.56	
Rural			-4.19	2.37	
Subsidy status	810	90.92	--	--	0.004
Accepts subsidy			2.41	1.29	

Notes: Excluded comparison groups are providers located in tracts classified as 0-33% under 18 in poverty, 0-33% people of color, and 0-10% Hispanic, providers in city locales, non-subsidy accepting providers, centers not accepting infants and/or toddlers, and providers who chose survey response choice "Not at all challenging" to the question, "At your site, how

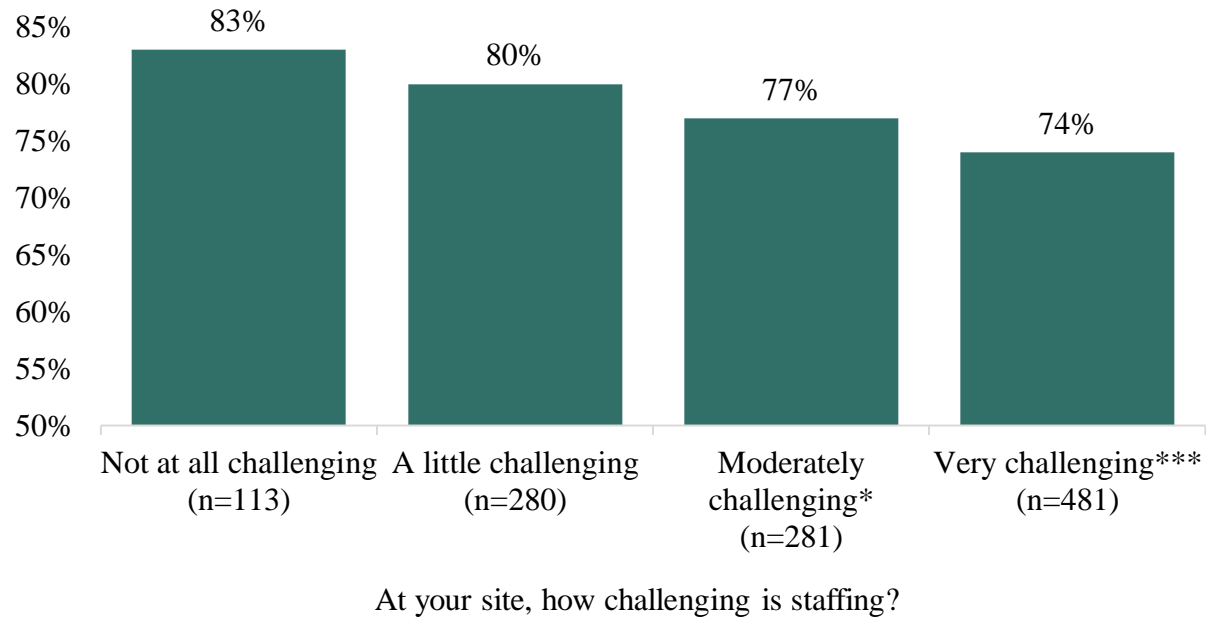
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challenging is staffing (e.g., teachers leaving, vacancies)?” Nearly all home-based providers are able to serve infants and/or toddlers, so this characteristic was only explored among centers.

Population data come from ACS 2021 5-year estimates. Locale type is coded based on NCES classifications (city, suburban, town, and rural). Staffing challenges were recorded in the 2022 provider survey, where center-based providers were asked to rate the question, “At your site, how challenging is staffing (e.g., teachers leaving, vacancies)?” with response options: Not at all challenging, A little challenging, Moderately challenging, and Very challenging. Home-based providers did not receive this question because the owner of the site is often the sole employee.

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

**Figure 1. Current Capacity as a Percent of Authorized Capacity by Level of Staffing Challenges**



## Appendix

<b>Table A1. Multivariate Regression Results: Center-Based Providers</b>							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<b>VARIABLES</b>							
% Under 18 in Poverty							
<i>33-66%</i>	0.12 (1.53)						1.14 (1.55)
<i>Above 66%</i>	-2.42 (1.76)						0.01 (1.89)
% People of Color							
<i>33-66%</i>		-5.22*** (1.42)					-4.03** (1.49)
<i>Above 66%</i>		- 7.29** (2.17)					-4.59+ (2.38)
Locale							
<i>Suburb/Town</i>			-1.88 (1.58)				-2.25 (1.58)
<i>Rural</i>			1.32 (2.00)				-1.21 (2.06)
Accepts subsidy				-6.57*** (1.34)			-4.15** (1.51)
Accepts infants or toddlers					-4.48** (1.35)		-1.14 (1.48)
How challenging is staffing							
<i>A little</i>						-2.83 (2.52)	-0.93 (2.60)
<i>Moderate</i>						-6.25* (2.52)	-3.62 (2.60)
<i>Very</i>						-9.20*** (2.36)	-5.18* (2.51)
Intercept	77.6	80.0	77.8	79.9	79.6	83.1	86.1
R <sup>2</sup>	0.002	0.016	0.003	0.020	0.010	0.017	0.044
N	1158	1158	1158	1158	1153	1155	1150

Notes: Excluded comparison groups are providers located in tracts classified as 0-33% under 18 in poverty, 0-33% people of color, providers in city locales, non-subsidy accepting providers, centers not accepting infants and/or toddlers, and providers who chose survey response choice “Not at all challenging” to the question, “At your site, how challenging is staffing (e.g., teachers leaving, vacancies)?”

Population data come from ACS 2021 5-year estimates. Locale type is coded based on NCES classifications (city, suburban, town, and rural).

+p<.10, \*p< .05, \*\*p< .01, \*\*\*p< .001

**Table A2. Multivariate Regression Results: Home-Based Providers**

	(1)	(2)	(3)	(4)	(5)	(6)
<b>VARIABLES</b>						
% Under 18 in Poverty						
33-66%	-1.89					-1.83
	(1.48)					(1.59)
Above 66%	-0.09					0.06
	(1.62)					(1.97)
% People of Color						
33-66%		3.26				1.90
		(1.71)				(1.91)
Above 66%		4.41*				3.30
		(1.85)				(2.28)
Locale						
Suburb/Town			2.25			2.53
			(1.56)			(1.67)
Rural			-4.19			-1.50
			(2.37)			(2.65)
Accepts subsidy				2.41+		2.91*
				(1.29)		(1.37)
Has staff in past 6 months					5.10***	5.49***
					(1.29)	(1.32)
Intercept	93.0	89.3	91.3	90.9	90.2	84.5
R <sup>2</sup>	0.002	0.007	0.013	0.004	0.019	0.042
N	810	810	810	810	803	803

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Notes: Excluded comparison groups are providers located in tracts classified as 0-33% under 18 in poverty, 0-33% people of color, providers in city locales, non-subsidy accepting providers, and home-based providers indicating they did not have any other staff working for pay at their site in the past six months. About 41% of home-based providers indicated they had staff at some point in the past 6 months.

Population data come from ACS 2021 5-year estimates. Locale type is coded based on NCES classifications (city, suburban, town, and rural).

+ $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$