Appendix 1: 2019 Maryland Child Care Research Partnership (MDCCPRP) Detailed Data Collection & Analysis Methods Summary

Table of Contents

Overview

This Appendix provides a detailed summary of the methods used to collect and analyze a variety of data for the 2019 Maryland Child Care Policy Research Partnership (MD CCPRP; see Box 1).

During the first year of the grant (2019–2020), all data collection tools were designed collaboratively by members of the research team[1] representing a cross-cutting, mixed methods perspective. The team worked to ensure that different data collection activities would complement one another and fully answer focal research questions. Work paused briefly in spring 2020 at the outset of the COVID-19 pandemic, and the team adjusted course. First, we shifted plans and conducted a quick-turnaround parent survey specifically asking about the impact of the pandemic (see Child Care Utilization in Maryland During the COVID-19 Pandemic and Child Care Continuity and Costs in Maryland During the COVID-19 Pandemic). The team then revisited all other data collection plans and adjusted current provider and parent-focused data collection protocols to include additional questions specific to the impact of the pandemic on child care providers and families. Specifically, questions asked about:

- Whether providers were able to continue care

- Families' experiences related to accessing child care

- How Maryland Excellence Counts in Early Learning and School Age Care (EXCELS) influenced child care provider participation and family decision-making

- The impact of child care scholarships[2] on both child care operations and families' child care choices

> **Box 1. The Maryland Child Care Policy Research Partnership**
>
> In October 2019, Child Trends, in partnership with the Maryland State Department of Education (MSDE) Division of Early Childhood, received funding for a four-year project from the Office of Planning, Research, and Evaluation within the U.S. Department of Health and Human Services to investigate how Maryland's Child Care and Development Fund (CCDF) policies, regulations, and initiatives enacted since the Child Care and Development Block Grant (CCDBG) Act of 2014 have affected low-income families' equitable access to high-quality child care.
>
> **MARYLAND CHILD CARE**
> POLICY RESEARCH PARTNERSHIP
> *Advancing Equitable Access to High Quality Early Care and Education*

Exhibit 1 summarizes our data collection activities, their timing of administration, and the sample size.

Continued on next page.

---

[1] See the project webpage for a list of team members: https://www.childtrends.org/project/maryland-child-care-policy-research-partnership-grant

[2] In Maryland, child care subsidies are referred to as "scholarships." For more information, see https://earlychildhood.marylandpublicschools.org/child-care-providers/child-care-scholarship-program

MARYLAND CHILD CARE
POLICY RESEARCH PARTNERSHIP
Advancing Equitable Access to High Quality Early Care and Education

Exhibit 1. 2019 MD CCPRP Data Collection Summary

Data collection activity	Timing	Number & Type of Participants
Parent survey #1 (open to any parent in Maryland)	September–November 2020	4,371 parents (56% receiving scholarships)
Former family child care (FCC) provider survey	May–June 2021	332 former FCC providers
Current provider survey	June–July 2021	984 providers (305 center-based respondents; 679 FCC)
FCC support professionals interviews (e.g., Maryland State Department of Education Quality Assurance & Licensing Specialists)	June–September 2021	13 individuals
Former family child care provider interviews	July–September 2021	14 former FCC providers
Current child care provider interviews	September 2021–January 2022	29 current child care center administrators and 17 current FCC providers
Parent survey #2 (open only to targeted sample of MD scholarship recipients)	November 2021–January 2022	666 parents
Parent focus groups (in English and Spanish, with urban & non-urban parents of children enrolled in low and high quality rated providers)	April–May 2022	37 parents

In addition, analyses of Maryland State Department of Education (MSDE) administrative data were performed to explore changes in the experiences of families and providers who use a scholarship following the implementation of four scholarship-related policies.

This project generated multiple products, integrating findings across data collections on topics including:

- The decline in the supply of FCC providers in Maryland;

- Provider and parent perceptions of and experiences with Maryland EXCELS and scholarship programs;

- Impact of COVID on child care provision and availability.

See the project page for a list of products completed to date: https://www.childtrends.org/project/maryland-child-care-policy-research-partnership-grant.

Details about planning and conducting each data collection and analysis activity are provided below. At this time, specific data collection protocols are available from the research team upon request but may be published in the future. Contact Principal Investigator Tamara Halle (thalle@childtrends.org) or Project Director Kristen Darling (kdarling@childtrends.org) for more information.

Parent Survey #1 (September–November 2020)

Survey Development and Content

In fall of 2020, the research team administered the Maryland Parent Survey of Child Care During the COVID-19 Pandemic online survey to parents in Maryland to examine child care needs, access, continuity, and costs for infants, toddlers, preschoolers, and school-age children during the COVID-19 pandemic. The survey, offered in both English and Spanish, included 31 questions asking families about their current child care needs, arrangements, and costs. Specifically, for infants, toddlers, and preschoolers, we asked how current child care arrangements (in 2020) differed from arrangements before the COVID-19 pandemic. For school-age children, we asked about child-care arrangements during the summer of 2020 and the 2020–2021 school year.

Sampling, Administration, and Incentives

The survey was distributed to families receiving child care scholarships and to families with children enrolled in licensed child care in Maryland. The League Industries, MSDE's contractor, assisted the research team to send postcards and emails with unique survey links to all sampled parents. A gift card raffle was offered to participants and about 3,600 families responded. Additional details about this survey can be found here: https://www.childtrends.org/publications/child-care-utilization-in-maryland-during-the-covid-19-pandemic.

Continued on next page.

Former Family Child Care Provider Survey (May–June 2021)

Survey Development and Content

The research team developed a survey of former FCC providers to help answer the research question, "Why are so many of Maryland's family child care providers closing?". It included an initial screener question designed to screen out anyone *currently* operating a licensed FCC program in the state of Maryland, as we wanted only *former* providers to complete the survey. After this, several questions (some with multiple parts) asked respondents about:

- How long they had operated a licensed Maryland FCC program

- Why they initially began operating a licensed Maryland FCC program

- Why they were no longer operating a licensed Maryland FCC program

- Whether they would prefer to still be in business, if circumstances were different

- What types of supports might have helped them stay in business longer

The survey also included four demographic questions related to age, highest level of education completed, race/ethnicity, and language(s) spoken with the children they served. At the close of the survey, respondents were asked if they would be interested in participating in a follow-up phone interview on the topics addressed in the survey.

Questions addressing reasons why the respondent initially began operating a licensed Maryland FCC program, and reasons why the respondent was no longer operating a licensed Maryland FCC program, were adapted from the 2019 National Survey of Early Care and Education (NSECE).[3] Response options for the question about reasons for no longer operating included supply- and demand-related factors, such as competition with other early childhood programs or low demand for child care; personal- or family-related factors, such as burnout or stress from the job, family relocation, or illness/disability of self or a family member; regulation-related factors, such as difficulty understanding or complying with new training or fingerprinting requirements; and business-related factors, such as difficulties finding or keeping assistants/co-providers, accessing needed technology, or completing business practices such as billing parents or filing taxes. The survey also included an "Other" option with an open-ended response field. Although this survey was administered during the COVID-19 pandemic, it did not focus on COVID-related challenges or COVID-specific reasons for closing.

The research team received feedback on the draft survey from MSDE and the Maryland State Family Child Care Association (MSFCCA). The survey was then pilot tested with three former FCC providers and subsequently revised and finalized. Revisions were largely editorial in nature; words and phrases were modified, and several examples were provided to improve the interpretability of questions and response options. No content was added or removed based on the pilot.

---

[3] National Survey of Early Care and Education Project Team (2019). 2019 National Survey of Early Care and Education (NSECE) Home-based Provider Questionnaire, OPRE Report #2019-120, Washington, DC: Office of Planning, Research, and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services. https://www.acf.hhs.gov/opre/project/national-survey-early-care-and-education-2019-2017-2022

Sampling, Administration, and Incentives

Only formerly licensed FCC providers were eligible to participate in the study. Further, they had to have ceased operations between January 1, 2012, and October 31, 2020, as indicated by a change in their license status from "Active" to "Closed" during this period (excluding those whose registration/license was denied, revoked, or suspended). They also could not have returned to serving as a licensed FCC provider during this period. MSDE provided a list of former FCC providers.

From this list of former providers, we sampled all large FCC providers,[4] all providers who requested Maryland EXCELS support in Spanish, and all providers with Maryland EXCELS ratings of 3+. We then created a stratified sample of the remaining providers. The stratified sample was constructed by selecting 20 percent of providers in each of twelve mutually exclusive categories based on the following characteristics: serving children using a child care scholarship (yes/no), urbanicity (urban/non-urban), and Maryland EXCELS status (not participating/participating/rated 1–2). The total initial sample was 1,951 former providers.

Child Trends coordinated with The League Industries, on behalf of MSDE, to mail a survey invitation to the 1,951 former FCC providers sampled at their last known mailing address based on MSDE administrative data. Each recruitment letter included a unique link to the survey and corresponding QR code. To address the possibility that some individuals in the sample—particularly in non-urban areas—may have lacked reliable internet access, the recruitment letter also included an option to call the research team to complete the survey over the phone.

Given initial low response rates from the sampled former FCC providers, the research team emailed a survey invitation to the remaining 2,730 former FCC providers who had an email address in MSDE's records and had not been contacted during the initial recruitment. The research team sent weekly reminders to all nonrespondents via email throughout the survey administration window (May–June of 2021).

As an incentive for participation, all former providers who completed the survey had the opportunity to be entered into a weekly raffle for a $200 gift card (during weeks 1–4 that the survey was open) or a $150 gift card (during weeks 5–6 that the survey was open). Providers were entered into each of the weekly raffles that remained once they completed their survey; therefore, the earlier they responded, the more chances they had to win the raffle.

The survey and all related recruitment materials were translated into Spanish and made available to participants in both English and Spanish.

A total of 332 former FCC providers completed the survey of the total 4,681 former FCC providers that were contacted (response rate 7.1%). Exhibit 2 below summarizes respondents' characteristics.

Analysis

Frequencies were generated for each survey question. Cross-tabulations also were generated for some questions by provider race/ethnicity, number of years closed, and whether the family child care provider selected retirement as a reason for closing.

---

[4] Large family child care programs may care for between nine and 12 children with no more than four under the age of two (see https://earlychildhood.marylandpublicschools.org/child-care-providers/family-child-care-providers).

Exhibit 2. Former family child care provider survey respondent characteristics

	Unweighted N	Unweighted %
Respondent's race and ethnicity		
American Indian and/or Alaska Native only, non-Hispanic	†	†
Asian only, non-Hispanic	10	3.3%
Black or African American only, non-Hispanic	85	27.7%
Hispanic or Latino	15	4.9%
Other/multi-race, non-Hispanic	14	4.6%
White only, non-Hispanic	182	59.3%
Respondent's highest level of education		
High school/GED or less	44	14.1%
Some college/associate degree	137	43.8%
Bachelor's degree or higher	132	42.2%
Languages spoken with children		
English only	282	89.8%
English and Spanish	18	5.7%
Other/multiple languages	14	4.5%
Respondent's age		
25-34	20	7.8%
35-44	68	26.4%
45-54	49	19.0%
55-64	71	27.5%
65+	50	19.4%

Note: † indicates data are suppressed.
Source: Child Trends Former Child Care Provider Survey.

Continued on next page.

Current Child Care Provider Survey (June–July 2021).

Survey Development and Content

This survey was conducted to help answer the following research questions across three subtopics:

Child Care Scholarships

1. Did licensed providers know that child care scholarship reimbursement rates increased? Among providers who answered yes, what was the effect—families paying less, more, or the same?
2. Why did some providers (at all quality levels and those not participating in Maryland EXCELS) refuse to enroll, or limit enrollment of, children using a child care scholarship?
3. Why were some families who receive child care scholarships charged smaller fees after increases to scholarship reimbursement rates?

Maryland EXCELS

4. What prevented some providers from publishing or increasing their Maryland EXCELS rating (level 1–5) within one year of beginning to participate in Maryland EXCELS?
5. During the pandemic, was there variation in the prevalence of operational status of child care providers across characteristics such as race/ethnicity, level of education, EXCELS participation, or EXCELS rating?

COVID-19 Pandemic

6. What would have happened to child care businesses if families had kept children at home for another six months?
7. Looking at various sources of funding intended to support child care providers during the pandemic, how many providers applied for and received each type of funding? What types of supports (e.g., support filling out the application, technical support for online applications, support with budget development) might have made providers' applications more successful? What prevented some providers from applying for any funding at all?
8. What other types of support did child care providers receive during the pandemic (e.g., rent forgiveness, guidance from a Child Care Nurse Consultant, use of state's Child Care COVID-19 Build-A-Plan Tool)? How helpful were these supports? What additional supports would help providers stay in business during another public health crisis?
9. Was receipt of funding or other supports during the pandemic associated with providers' belief that they will still be in business in three years?

The research team designed the current provider survey and then received feedback from MSDE on the draft. The survey included 29 potential items (some with multiple parts) plus five demographic questions. Response options included custom lists that were relevant to each survey item, as well as open ended response fields when an "Other" option was offered. Survey items that asked about the degree to which something influenced providers' decisions or actions used a three-point scale: Very much, Somewhat, or Not at all.

The survey covered the following constructs:

- Child care business operational status

- Participation in the Maryland Child Care Scholarship Program, focusing on providers' decision to participate or willingness to serve at least one child receiving a scholarship, and the impact of scholarships on child care fees

- Providers' participation in the Maryland EXCELS quality rating system, reasons for participating (or not), and experiences with increasing ratings over time

- Providers' awareness of recent Maryland EXCELS and child care scholarship program policy changes

- Information about early attempts to obtain COVID-19 relief funding and other supports

- Whether programs served school-age children engaged in pandemic-related virtual instruction

- Beliefs about future operational status/plans to remain in the field

Demographic questions asked about providers' age, education level, race/ethnicity, and language used when serving children.

In addition, the project team had hoped to examine whether the quality and dosage of child care experienced by children receiving a child care scholarship was associated with their Maryland kindergarten readiness scores. To this end, the survey posed a question about whether programs enrolled kindergarteners to meet the compulsory attendance requirement. Due to the lack of a universal child identification number to link data on scholarship program enrollment and assessment, survey responses were not analyzed.

The survey and all related recruitment materials were translated into Spanish and made available to participants in both English and Spanish.

Sampling, Administration, and Incentives

The sampling frame for the survey of providers included all licensed center-based and registered FCC providers who were currently operating as of April 2021 (N=3,000). Due to the small number of large FCC providers and providers with Maryland EXCELS ratings of 3+, we purposely oversampled by inviting all providers in these two groups in to complete the survey. The remaining providers were then stratified by whether they were located in a non-urban area,[5] their Maryland EXCELS rating, and whether they served families receiving child care scholarships; we sampled 20 percent of each group, for a total of 1,221 providers.

Individual QR codes with unique links to the survey were created for each member of the sample. The League Industries assisted the research team with disseminating these links to each provider via mail. Survey reminders were then emailed weekly to nonrespondents throughout the survey administration window. The survey was open from June 1, 2021, through July 13, 2021. As an incentive, providers were offered the chance to be entered into a weekly raffle for an Amazon or Walmart gift card. All current providers who completed the survey had the opportunity to be entered into a weekly raffle for a $200 gift

---

[5] Urbanicity was defined based on the Census Bureau's definition. The U.S. Census Bureau used to define "urbanized areas" as areas with a population of 50,000 people or more and "urban clusters" as areas with 2,500 to less than 50,000 people. The 2016–2020 American Community Survey (ACS) data we used in this study follows this definition (see https://www.census.gov/newsroom/blogs/random-samplings/2022/12/redefining-urban-areas-following-2020-census.html). We combined urban clusters and rural areas (i.e., non-urban areas) and used the Census Bureau's ACS data to identify whether an address was in an urban or non-urban area.

card (during weeks 1–4 that the survey was open) or a $150 gift card (during weeks 5–6 that the survey was open). Providers were entered into each of the weekly raffles that remained once they completed their survey; therefore, the earlier they responded, the more chances they had to win the raffle.

A total of 984 respondents completed the survey (679 FCC providers [25% of the sample]; 305 center-based respondents [75% of the sample]). Respondents included FCC program owners as well as center-based program directors and lead and assistant teachers. Ninety-five percent of survey respondents were operating at the time of the survey.[6]

Analysis

We created sampling weights and adjusted for nonresponse bias to ensure that the distribution of providers' characteristics (i.e., race/ethnicity and urbanicity) matched the population of providers we sampled from. All analyses were weighted to generate estimates that were representative of the population of child care providers in Maryland at the time of the study.

Design weight. We first calculated a design weight for providers, calculated as the inverse of the probability of making it into our sample. This design weight accounted for sampling based on quality rating, urbanicity, and whether the provider served children receiving a child care scholarship.

Nonresponse adjusted weight. Next, because not all sampled providers participated in the survey (which might result in a biased sample), we created nonresponse weights to correct this issue. Specifically, we used logistic regression on the entire selected sample (including responders and non-responders) to create nonresponse weights. The dependent variable was whether a provider participated in the survey, and the independent variables included provider type, urbanicity, whether the provider served children receiving a child care scholarship, county where provider was located, an indicator of whether the provider requested technical assistance in Spanish to support their participation in EXCELS, and whether the provider was located in an area with a high density of Hispanic residents. Predicted values from the regression model were used as the predicted propensity score of responding to the survey for each provider. The sample was sorted and divided into quintile groups based on the propensity score. We then calculated the average observed response rate within each quintile group, and the inverse of the response rate was used as the nonresponse weight. The nonresponse adjusted weight was the product of the provider design weight and the nonresponse weight.

Raking adjustment. Finally, we adjusted the weight by raking so that the marginal distributions of provider quality rating, scholarship status, and urbanicity in the sample resembled the distribution in the population. For raking adjustment, we used Stata *survwgt* package.

We provided descriptive statistics for each survey question and performed significance testing to examine whether there were differences in providers' experiences by race/ethnicity, urbanicity, education, type of program, and EXCELS participation status.

Chi-squared tests were conducted to test for significant associations between variables of interest identified in our research questions. When we were also interested in specific associations between different categories within a group (such as the different categories of race/ethnicity) and variables of interest, we also conducted bivariate regressions.

Exhibit 3 below shows characteristics of the providers who responded to the survey.

---

[6] All respondents were technically "current" (i.e., licensed) at the time of the survey but some were temporarily closed due to the pandemic.

Exhibit 3. Current child care provider survey respondent characteristics

	Total			Family Child Care			Center-Based		
	Unweighted N	Weighted N	Weighted Mean %	Unweighted N	Weighted N	Weighted Mean/%	Unweighted N	Weighted N	Weighted Mean/%
Type of program	984	2403	100%	679	1802	75.1%	305	601	24.9%
Scholarship participation status									
Participating	440	910	40.3%	246	568	33.9%	194	342	58.7%
Willing	282	734	32.6%	225	615	36.8%	57	119	20.4%
Not participating (& not willing)	94	260	11.5%	79	223	13.3%	15	37	6.4%
Not Sure	119	351	15.6%	88	267	16.0%	31	84	14.5%
Total	935	2,255	100.0%	638	1,673	100.0%	297	582	100.0%
EXCELS participation status									
Participating but not yet published	†	21	0.9%	†	18	1.0%	†	†	0.6%
Not participating	376	1145	48.1%	312	961	53.9%	64	184	30.9%
EXCEL level 1 to 2	276	846	34.6%	202	611	34.3%	68	216	35.7%
EXCEL level 3 to 5	323	390	16.4%	154	194	10.9%	169	195	32.8%
Total	981	2401	100.0%	673	1,784	100.0%	302	599	100.0%
Urbanicity									
Rural	87	222	9.2%	54	150	8.3%	33	72	12.0%
Not rural	897	2181	90.8%	625	1652	91.7%	272	529	88.0%
Total	984	2403	100.0%	679	1,802	100.0%	305	600	100.0%
Provider level of education*									
High school or less				327	900	58.3%			
Associate degree				96	239	15.5%			
Bachelor's degree or more				169	404	26.2%			
Total				592	1,543	100.0%			

	Total			Family Child Care			Center-Based	
Provider race/ethnicity**								
American Indian/Alaskan Native	-		-	†	†	0.3%	-	-
Asian	-			48	123	8.2%		-
Black/African American	-			212	567	37.6%		-
Hispanic/Latino	-			55	149	9.9%		-
White	-			241	617	40.9%		-
Multiracial (2 or more)	-			11	30	2.0%		-
Other	-			†	19	1.3%		-
Total	-	-	-	578	1,508	100.0%		-

† indicates data are suppressed due to low cell sizes.
** We only report demographics for FCC providers because center-based survey respondents may not be representative of the characteristics of all staff in their program.
Source: Child Trends Current Child Care Provider Survey.

Continued on next page.

Family Child Care Support Professionals Interviews (June–September 2021)

Interview Protocol Development and Content

The research team designed the protocol with input from the project director, the co-PIs, and other team task leads to ensure coherence with other data collection plans.

The interview protocol included questions about common challenges FCC providers face, reasons FCC providers might close their business, supports available to FCC providers in Maryland (MD) and how well they are utilized, recommendations for attracting and retaining FCC providers to the field, and the advantages and disadvantages for FCC providers to participate in the scholarship program.

Sampling, Administration, and Incentives

MSDE and Child Trends developed a list of contacts at organizations in Maryland who support FCC providers from which to request interviews; these included several individuals who run state and local child care associations and child care resource centers (i.e., child care resource and referral agencies), as well as individuals overseeing educational and professional development initiatives for FCC providers. We also asked the administrators of MSDE's licensing division and Maryland EXCELS program to connect us with licensing specialists and quality assurance specialists who work closely with FCC providers from varied regions throughout the state. Of the 20 individuals contacted for interviews, a total of 13 FCC support professionals participated in interviews from June 2021 to September 2021, including three licensing specialists, five quality assurance specialists, and five directors of organizations that support FCC providers.

The one-hour individual interviews with FCC support professionals were semi-structured and designed to elicit in-depth information to supplement the findings from the survey and interviews with former FCC providers. FCC support professionals were asked to reflect on survey findings overall (e.g., "Many providers indicated on the survey that X, Y, and Z strongly influenced their decision to close. Does that surprise you? Why or why not? What other factors do you think contribute to the decline in Family Child Care?").

We did not offer incentives to the FCC support professionals as the MSDE staff interviewed were not able to accept compensation for their time.

Analysis

All interviews were recorded and transcribed. The transcripts were then qualitatively coded, using both inductive and deductive approaches, and analyzed to identify overarching themes and areas of consensus and divergence among participants.

Former Family Child Care Provider Interviews (July–September 2021)

Interview Protocol Development and Content

To gain additional insights into the experiences of formerly licensed Maryland FCC providers, the research team developed an interview guide designed to elicit in-depth information to supplement the findings from the survey of former FCC providers. Interview questions invited participants to share more details about some of their individual survey responses (e.g., "You noted on the survey that X strongly influenced your decision to close your FCC program. Can you tell me more about that?"). Additional questions addressed whether and why the participant enrolled, or did not enroll, children with a child care scholarship while operating their FCC program; the extent to which the participant felt they had the business skills needed to succeed in the FCC profession; and lessons learned from their experience operating a home-based child care business. The interview protocol was designed to be flexible, so that interviewers could change the order of questions or add probes as needed, to follow the natural flow of the conversation and further explore topics raised by participants during the conversation.

The research team received feedback on the interview questions from MSDE and the Maryland State Family Child Care Association (MSFCCA). The interview guide was then pilot tested with three former FCC providers and subsequently revised and finalized based on lessons learned from the pilot.

Sampling, Administration, and Incentives

As previously noted, the final section of the survey of former FCC providers asked respondents if they would be interested in participating in a follow-up phone interview on the topics addressed in the survey. The research team selected potential interview participants from among those who expressed interest on the survey, seeking maximum variation on the following characteristics: (1) child care scholarship enrollment (did/did not accept children with a child care scholarship while operating); (2) participation in Maryland EXCELS (did not participate, enrolled in the rating system but did not achieve a rating, achieved a rating of 1–2, or achieved a rating of 3–5); (3) length of time actively registered/licensed; (4) urbanicity (non-urban or urban); (5) primary language (English or Spanish); and (6) responses to high priority survey questions (e.g., the main reason(s) why they stopped operating their FCC program).

The research team contacted the selected former FCC providers by phone and/or email, based on the contact information they provided in the survey, to invite them to participate in an interview. The research team made up to three attempts to contact each selected former provider (not including attempts to reschedule an interview after a no-show or last-minute cancellation), with outreach staggered over different times of the day and days of the week to increase the likelihood that each selected individual was reached.

We attempted to contact 25 of the 142 individuals who completed the former FCC provider survey and indicated interest in being contacted for a follow-up interview; a total of 14 individuals were interviewed from July 2021 to September 2021. Five interview participants had operated a licensed FCC program in a non-urban area, eight had participated in Maryland EXCELS, and three had served at least one child with a child care scholarship.

All interviews were conducted virtually—either by phone or using videoconferencing software. Most interviews lasted between 30 and 60 minutes. All interviews were recorded and transcribed with the

consent of the participants. All interviews were conducted in English.[7] All interview participants received a $20 gift card via email after completing the interview.

Analysis

Interview transcripts were qualitatively coded, using both inductive and deductive approaches, and analyzed to identify overarching themes and areas of consensus and divergence among participants.

Continued on next page.

---

[7] Bilingual Spanish-English interviewers were available, and participants were given the option to interview in Spanish. One former provider chose to interview in English although their primary language was Spanish.

Current Child Care Provider Interviews (September 2021–January 2022)

Interview Protocol Development and Content

To gain additional insights into the experiences of currently licensed Maryland child care providers, the research team developed an interview guide designed to elicit in-depth information to supplement the findings from the survey of current child care providers. Interview questions invited participants to share more details about some of their individual survey responses (e.g., "You indicated on the survey that you do not currently enroll children with a child care scholarship and would not be willing to do so. Can you tell me more about why that is and whether you have any prior experience serving children with a child care scholarship?"). Further questions addressed how providers were using the additional funds that resulted from increased child care scholarship reimbursement rates and/or bonuses provided by the state QRIS (e.g., whether they were using the funds to increase teacher salaries, pay for facility improvements, or something else) and, for current home-based providers, any insights regarding why some FCC providers have closed their businesses. The interview protocol was designed to be flexible, so that interviewers could change the order of questions or add probes as needed, to follow the natural flow of the conversation and further explore topics raised by participants during the conversation. The research team received feedback on the interview questions from MSDE and incorporated this feedback into the final version of the interview guide.

Sampling, Administration, and Incentives

As noted previously, the final section of the survey of current child care providers asked respondents if they would be interested in participating in a follow-up phone interview on the topics addressed in the survey. To ensure diversity among interviewees, the research team selected potential interview participants from among those who expressed interest on the survey, seeking maximum variation on the following characteristics: (1) program type (center-based or FCC home); (2) child care scholarship enrollment (does/does not accept children with a child care scholarship); (3) participation in the state QRIS (does not participate, has achieved a rating of 1–2, or has achieved a rating of 3–5); (4) urbanicity (non-urban or urban); (5) primary language (English or Spanish); (6) race/ethnicity; and (7) selected survey responses (e.g., likelihood of program operating in three years).

The research team contacted the selected current child care providers by phone and/or email, based on the contact information provided in the survey, to invite them to participate in an interview. The research team made up to four attempts to contact each selected current provider (not including attempts to reschedule an interview after a no-show or last-minute cancellation), with outreach staggered over different times of the day and days of the week to increase the likelihood that each selected individual was reached.

Of 383 individuals who completed the survey of current child care providers and indicated interest in being contacted for a follow-up interview, we attempted to contact 165 and ultimately interviewed a total of 46 individuals (17 FCC providers and 29 center-based providers) from September 2021 to January 2022.

All interviews were conducted virtually—either by phone or using videoconferencing software. Most interviews lasted between 30 and 60 minutes, however several were shorter than 30 minutes or longer than 60 minutes. All interviews were recorded and transcribed with the consent of the participants. Three interviews were conducted in Spanish or a mix of Spanish and English; all other interviews were conducted in English. All interview participants received a $20 gift card via email after completing the interview.

Analysis

Interview transcripts were qualitatively coded, using both inductive and deductive approaches, and analyzed to identify overarching themes and areas of consensus and divergence among participants.

Parent Survey #2 (November 2021–January 2022)

Survey Development and Content

The research team developed the Parent Survey of Maryland Child Care Scholarship for parents with children ages five and under who received a child care scholarship to help answer the following research questions:

1. Are families moving to higher-quality care when they start receiving a child care scholarship?
    a. What was the type of care used most often before they received the scholarship and at the time of the survey?
    b. How did parents compare the quality of care between their previous and current providers?
2. How do families receiving child care scholarships choose their provider?
    a. What was the main reason parents searched for care during their most recent search?
    b. How did parents look for providers?
    c. What was the main reason that parents chose their current provider?

Specific topics addressed by the survey included (1) families' child care expenses not covered by the child care scholarship program, (2) parents' perceived care quality of their current and previous provider (if applicable), (3) search for child care (including reasons for child care search, search process, and reasons for choosing their provider), (4) parents' experiences of applying for a scholarship, and (5) parents' familiarity with the Maryland EXCELS quality rating system. The survey also included screener questions designed to screen out parents who did not meet the criteria of the study population (see more information about these criteria below in the Sampling section). Additionally, the survey included questions about demographic information: parents' highest level of education completed, child care during nonstandard hours, parents' work/school schedules, race/ethnicity, respondent's relationship with the child, and home language. Questions about child care quality asked parents to rate the quality of their child's provider on a number of indicators, including helping children be ready to learn in school, teaching children how to get along with others, creating a nurturing environment, being conveniently located, being flexible enough to meet the family's schedule, communicating with parents, providing care that is sensitive to their culture, keeping children safe, and affordability/cost. The survey included an "Other" option with an open-ended field for many survey items and one open-ended question about parents' experience with the child care scholarship application process.

The research team incorporated feedback on the survey from MSDE and conducted a virtual cognitive interview with one parent through Microsoft Teams. The research team then revised and finalized the survey based on the parent's feedback.

The survey and all related recruitment materials were translated into Spanish and made available to participants in both English and Spanish.

Sampling, Administration, and Incentives

The survey sampling frame for the parent survey was constructed using MSDE's administrative child care scholarship data and included all parents in Maryland with at least one child who was age 5 or under using a scholarship to attend a formal child care arrangement as of September 1, 2021. We oversampled Hispanic parents from the population described above by sampling all Hispanic parents because of MSDE's interest in understanding Spanish-speaking parents' experiences. For the remaining families in the population, we randomly sampled 37 percent of each racial and ethnic group (i.e., American Indian and Alaska Native, Asian, Black, Hawaiian and Pacific Islander, Multiple races, and White). The resulting sample included 1,497 parents who were invited to participate in the survey. If the parent had more than one child who met the study criteria, we randomly selected a child. In the survey, we asked the parent to think about the specific child we selected using the child's birthday when they answered the survey questions. If the parent had more than one child with the same birthday, we asked them to think about the child whose first name comes first alphabetically.

The League Industries, MSDE's contractor, assisted the research team with disseminating individual QR codes with links to each parent via mail. Survey reminders were then emailed to nonrespondents throughout the survey administration window.

The survey was open from November 2021 to January 2022. As an incentive to participate in the survey, parents were entered into weekly raffles to receive either an Amazon or Walmart gift card with varying amounts, depending on the week when parents responded to the survey. Parents who responded in the first two weeks that the survey was open were entered to win a $200 gift card, and those who completed the survey in the remaining time were entered to win a $100 gift card. After completing the survey, parents were entered into each subsequent weekly raffle that the survey was open. Among the 1,497 parents invited to participate, 45 parents did not pass the screener questions (i.e., they were not part of the study population described above). A total of 666 parents (out of 1,452) responded to the survey (response rate 46%).

Analysis

We created sampling weights and adjusted for nonresponse bias to ensure that the distribution of respondents' characteristics (i.e., race/ethnicity and urbanicity) matched the population of parents we sampled from. All analyses were weighted to generate estimates that were representative of the population in Maryland at the time of the study.

Design weight. We first calculated a design weight for parents, calculated as the inverse of the probability of making it into our sample. This design weight accounted for sampling based on racial and ethnic group (i.e., American Indian and Alaska Native, Asian, Black, Hawaiian and Pacific Islander, Hispanic, Multiple races, and White), including our oversampling of Hispanic parents.

Nonresponse adjusted weight. Next, because not all sampled parents participated in the survey (which might result in a biased sample), we created nonresponse weights to correct this issue. Specifically, we used logistic regression on the entire selected sample (including responders and non-responders) to create nonresponse weights. The dependent variable was whether a parent participated in the survey, and the independent variables included parent race and ethnicity, target child's age group (infant, toddler, or preschooler), family income status (i.e., percent of federal poverty level), number of children in the family, whether the family spoke a language other than English, whether the family was located in a non-urban area, and whether the child care arrangement was the child's first care arrangement. Predicted values from the regression model were used as the predicted propensity score of responding to the survey for each parent. The sample was sorted and divided into quintile groups based on the propensity score. We then calculated the average observed response rate within each quintile group, and the inverse of the response rate was

used as the nonresponse weight. The nonresponse adjusted weight was the product of the parent design weight and the nonresponse weight.

Raking adjustment. Finally, we adjusted the weight by raking so that the marginal distribution of parent race and ethnicity in the sample resembled the distribution in the population. For raking adjustment, we used Stata *survwgt* package.

We conducted descriptive statistics for each survey question and significance testing to examine whether there were differences in parents' experiences by race/ethnicity, urbanicity, and family income. Exhibit 4 below shows parents' characteristics in the sample.

Exhibit 4. Parent survey respondent characteristics

	Unweighted N	Weighted N	Weighted %
Parent's race and ethnicity			
Asian only, non-Hispanic	†	†	†
Black or African American only, non-Hispanic	413	1089	70%
Hispanic or Latino	119	118	8%
Other/multi-race	30	81	5%
White only, non-Hispanic	99	262	17%
Respondent's highest level of education			
Less than high school/High school but no diploma	16	29	2%
High school/GED	145	355	26%
Some college/associate degree	290	677	50%
Bachelor's degree or higher	128	297	22%
Home language			
English only	433	1115	83%
Spanish only	13	11	1%
Mix of English and Spanish	74	87	7%
Another language only	†	†	†
Mix of English and another language	44	112	8%
Household income status			
0% to 100% FPL	128	351	22%
101% to 150% FPL	159	395	25%
151% to 200% FPL	178	399	26%
Above 200% FPL	201	418	27%
Urbanicity			
Urban area	620	1429	92%
Non-urban area (including urban cluster)	46	132	8%
Child age category			
Infant or toddler	342	774	50%
Preschooler	324	789	51%

† indicates data are suppressed due to the small number of respondents.
Source: Child Trends Parent Survey of Maryland Child Care Scholarship

Parent Focus Groups (April–May 2022)

Survey Development and Content

To supplement findings from parent survey #2, the research team conducted focus groups to gain additional insight into the experiences of families who had received a child care scholarship in Maryland. The focus group questions invited parents to share how they searched for and chose their child care provider (e.g., "How did you find your child's current provider who accepts a child care scholarship?"), their experiences with the Maryland child care scholarship application process (e.g., "What were your overall experiences applying for a child care scholarship and providing required documents?"), their perceptions of child care quality (e.g., "What does high-quality child care mean to you?"), and parents' familiarity with Maryland EXCELS quality rating system and participation in high-quality programs (e.g., "How, if at all, did your provider's Maryland EXCELS rating factor in along with your other priorities for care?"). The focus group protocol was designed to be flexible, so that facilitators could change the order of questions or add probes as needed, to follow the natural flow of the conversation and further explore topics raised by participants. The research team received feedback from MSDE on an early draft and incorporated this feedback into the final version of the focus group protocol.

Sampling, Administration, and Incentives

The final section of the parent survey asked respondents if they would be interested in participating in a follow-up virtual focus group to explore topics addressed in the survey in more depth. The research team selected potential focus group participants from those who expressed interest on the survey, seeking maximum variation on the following characteristics: (1) provider's Maryland EXCELS quality rating (level 1–2 or level 3–5); (2) urbanicity of parents' locations (urban or non-urban); and (3) primary language (English or Spanish). The research team contacted parents by phone and/or email, based on the contact information they provided in the survey, to invite them to participate in a focus group. The research team made up to four attempts to contact each selected parent, with outreach staggered over different times of the day and days of the week to increase the likelihood that each selected individual was reached.

Of 666 individuals who completed the parent survey, 288 indicated interest in being contacted for a follow-up focus group (n = 278 for English-speaking parents and n = 10 for Spanish-speaking parents). After contacting all parents who indicated interest and listed an email address, the research team ultimately engaged 37 parents in focus groups and interviews between April and May 2022. Specifically, the research team spoke with 30 urban-residing parents (16 with lower rated [levels 1–2] providers; 14 with higher rated [levels 3–5] providers), two non-urban-residing parents (one with a higher rated provider and one with a non-rated provider), and five Spanish-speaking parents (all with higher rated providers). The research team conducted a total of eight focus groups and three individual interviews to accommodate Spanish-speaking parents.

All focus groups were conducted virtually on Microsoft Teams and most lasted around one hour. All focus groups were recorded and transcribed with participant consent. All focus group participants received a $40 gift card via email as a thank you for their participation. Focus group transcripts were qualitatively coded, using both inductive and deductive approaches, and analyzed to identify overarching themes and areas of consensus and divergence among participants.

Administrative Data Analyses (across years)

Interrupted Time Series Analysis

Sample

The administrative data used in the interrupted time series analysis (ITSA) contained the population of child care providers in Maryland, excluding informal providers (i.e., friend, family, and neighbor child care providers), license-exempt providers, and providers that were licensed as summer camps. Analyses were limited to January 2015 through early March 2020 in order to focus on the policy changes MSDE hypothesized were most likely to impact the supply of FCC providers and enrollment of children using scholarships, and to limit confounds related to the mandated closures in March 2020 in response to COVID-19. MSDE's provider licensing data were used to determine monthly counts of licensed FCC and center-based providers on the first Monday of each month. We linked the licensing data to MSDE's child-level scholarship data to determine the percentage of providers enrolling at least one child using a scholarship.

Methodology

An ITSA was used to determine how the total number of FCC providers changed between 2015 and 2020 following Maryland's scholarship policy changes and whether the percent of FCC and center-based providers serving children with scholarships changed between 2015 and 2020 following Maryland's policy changes. For the ITSA examining the count of FCC providers, we controlled for state unemployment rates, which could increase the demand for child care if additional parents need child care during periods of low unemployment. We also conducted a series of ITSAs to compare outcomes based on the poverty density of the census tracts in which providers were located. In census tracts where less than or equal to 31.5 percent of the population had an income below 200% of the Federal Poverty Level (FPL) providers were coded as "higher income". Providers in census tracts where more than 31.5 percent of the population had an income below 200% of the FPL were coded as "lower income." We selected 31.5 percent because it represents the 75th percentile across Maryland census tracks according to the 2015–2019 National Historical Geographic Information System (NHGIS). The outcome values for the subgroups (i.e., lower- and higher-income) were also standardized by indexing by the percentage change from the base value in January 2015, the first month in the time series. For these analyses, the monthly values represent percentages of that base value in January 2015. Typically, FCC providers in lower income census tracts had higher baseline values than providers in higher income census tracts, so a loss of .5 percent of providers enrolling children using scholarships, for example, would be a much more meaningful loss for providers in higher-income census tracts. This approach allowed for meaningful comparisons between subgroups.

Between 2015–2020, Maryland implemented policies that increased scholarship reimbursement rates as well as policies that increased the number of children eligible for a scholarship. Often, reimbursement rates were raised around the same time that the eligible pool of children increased. We attempted to parse out the impacts of these two policies on providers' scholarship acceptance through the inclusion of a control variable. Specifically, we created a time-varying variable representing the monthly ratio of number of children using scholarships to number of providers. Our intention was to determine whether factors beyond the increased number children using scholarships (due to policies that increased the number of eligible children) were related to the scholarship acceptance rate. However, due to the collinearity of the control variable with the eligibility policy in the policy variable, we could not conduct the planned analysis.

Limitations

We were not able to examine the impact of policies individually or compare the pre- and post-trends of one policy to another because multiple policies were implemented close together in time, and policies are layered over time. Instead, ITSA analyses provide detailed descriptions of how and when the outcomes changed over time. Similarly, without the inclusion of a comparison group we cannot rule out the possibility that other factors influenced our outcomes. We encountered challenges with data cleaning that are common with administrative datasets, such as duplicate entries and errors in provider names and addresses. We also noted errors in provider licensing dates, with overlapping or missing dates. As a result of data inconsistencies, the data presented should be considered estimates, rather than population data.

Descriptive Analyses

Provider analyses

The research team had initially planned to conduct a survival analysis, looking quantitatively at the associations between the likelihood a FCC provider has an active license and (a) participation in the Maryland EXCELS program and/or (b) their Maryland EXCELS rating (net of characteristics of the neighborhood the provider is located in, such as urbanicity, percent of families above the poverty line and racial demographics). However, the data did not meet the proportional hazards assumption that survival analysis requires. In layperson's terms, that means that the effect of the variable researchers are interested in—in this case participation/rating in Maryland EXCELS—needs to remain about the same over the whole study period.[8] The standard methods for ameliorating this issue did not work (i.e., stratification was deemed inappropriate as the variable is our focal variable and creating time-dependent coefficients did not yield stable estimates) and we therefore had to eliminate this analysis. Instead, we conducted descriptive analyses comparing the percentages of closures among FCC providers that were participating in Maryland EXCELS versus those who were not participating, across the study period. This descriptive analysis did not allow us to establish a causal link—that is, we could not demonstrate that participating in Maryland EXCELS *caused* a provider to be more or less likely to close—but it did let us identify patterns that might merit further investigation.

Child analyses

The research team also conducted descriptive analyses of administrative data to examine whether children using child care scholarships enrolled in higher-quality programs after the policies took effect. The team analyzed MSDE's child-level scholarship data and linked them with the Maryland EXCELS data. Higher-quality programs were identified as those with a Maryland EXCELS rating level of 3, 4, or 5. The analysis period spanned from January 1, 2018, to February 28, 2020, as most programs published a rating after October 2017.

During the analysis period, 65,214 children used child care scholarships; 9,501 children were excluded from the analysis due to missing provider license information. The final analysis included 55,713 children who used child care scholarships. We also conducted subgroup analyses by child's race/ethnicity, family income, and community urbanicity[9] to examine any variations in accessing higher-quality programs. Exhibit 5 below shows the characteristics of children using a scholarship between January 2018 and February 2020.

---

[8] Box-Steffensmeier, J. M., & Jones, B. S. (2004). *Event history modeling: A guide for social scientists.* Cambridge University Press.
[9] Urbanicity was defined based on the Census Bureau's definition. The U.S. Census Bureau used to define "urbanized areas" as areas with a population of 50,000 people or more and "urban clusters" as areas with 2,500 to less than 50,000 people (see https://www.census.gov/newsroom/blogs/random-samplings/2022/12/redefining-urban-areas-following-2020-census.html).

Exhibit 5. Characteristics of children using a scholarship between January 2018 and February 2020

	N	%
Child race/ethnicity		
Hispanic	2,922	5.2%
Non-Hispanic White	6,545	11.7%
Non-Hispanic Black	43,166	77.5%
Non-Hispanic Asian	436	0.8%
Non-Hispanic American Indian and Alaska Native (AIAN)	150	0.3%
Non-Hispanic Native Hawaiian and Pacific Islander (NHPI)	44	0.1%
Multiple Races	2,439	4.4%
Missing	11	0.1%
	N	**%**
Family incomes		
0% to 100% FPL	34,410	61.8%
101% to 150% FPL	11,504	20.6%
151% to 200% FPL	5,195	9.3%
Above 200% FPL	4,604	8.3%
Community urbanicity		
Urbanized area	51,825	93.0%
Urban cluster	1,790	3.2%
Rural	2,098	3.8%

Source: Child Trends analysis of MSDE administrative data.