GEOGRAPHIC EQUITY IN MICHIGAN CHILD CARE SUBSIDY UTILIZATION

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Public Policy Associates

Public Policy Associates is a public policy research, development, and evaluation firm headquartered in Lansing, Michigan. We serve clients in the public, private, and nonprofit sectors at the national, state, and local levels by conducting research, analysis, and evaluation that supports informed strategic decision-making.

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SUMMARY OF FINDINGS

The COVID-19 pandemic represented a tremendous shock to the nation's child care system. Widespread shutdowns and intermittent outbreaks forced many child care providers to temporarily close or reduce the number of children they could care for, while school closures and economic uncertainty affected families' use of child care services. During this time, the federal government gave billions in aid to states to help stabilize the child care market. Although every state tailored its use of these funds to its own specific needs, the overarching goal was the same: to prevent a permanent decline in access to child care services.

A major focus of these initiatives was the child care subsidy program. Funded by the U.S. Department of Health and Human Services, Child Care and Development Fund (CCDF), child care subsidies support state efforts to improve access to quality child care for families in need. Michigan's version of the child care subsidy system is called the Child Development and Care (CDC) program.

In an effort to mitigate the effects of the pandemic on access to child care, Michigan adopted a package of policies in 2020 that included:

- Allowing providers to bill for enrolled children who were absent due to the pandemic, beyond the 360-hour annual maximum, even if the facility was closed (at first automatically and then by request).
- Offering Child Care Relief Fund grants to providers to help with their operating expenses. The grants required child care rate reductions/credits by providers to parents. (These were not limited to CDC recipients.)
- Extending the redetermination period by six months for cases that came due in March through June 2020.
- Allowing providers to bill for school-aged children who were engaged in remote learning while in care.

As part of its partnership with the Michigan Department of Education (MDE) and the Michigan Department of Health and Human Services (MDHHS), Public Policy Associates has previously examined the impact of these policies on the child care marketplace, with detailed analysis of the effects on overall program participation by families and providers, quality and continuity of care for children, and the likelihood that families would remain in the program. The results of these analyses suggest that, although there was a substantial drop in the total number of parents and providers, there was a limited impact on continuity of care, quality of care, or family

persistence. In other words, the state's child care policies appear to have had some success in mitigating the impact of the pandemic on the state's child care system[1].

However, aggregate statewide analysis can overlook the critical role of geography. Child care markets are intrinsically local, and the social, economic, and physical contexts in distinct geographic areas might result in very different policy impacts in different parts of the state. Michigan is a state with considerable geographic diversity, including rural areas, sprawling suburbs, large metro areas, and small to medium-sized cities. The purpose of this report is therefore to examine *geographic equity* in the impact of Michigan's COVID-related policies on the state's child care subsidy program. Our findings suggest the following:

Trends in child care access are intensely localized.

As measured by total number of licensed child care slots or by children per slot (sometimes referred to as "tots per slot"), there is no straightforward regional trend in child care access as counties in each geographic region differ too much to establish a general pattern.

Participation in the CDC program declined across the state in 2020.

After several years of growth, the number of families participating in the state's child care subsidy program fell in 2020 and 2021 by 22%. This decline occurred in every part of the state but was somewhat higher in southeastern counties and lower in the western counties.

Spring and summer rates of family persistence in the CDC program were comparable in 2019 and 2020.

During two distinct time periods in the spring and summer, families participating in the CDC program were roughly as likely to remain in the program as they were in the following year. There was a substantially higher rate of program exit in fall 2020 compared with the prior fall.

Fluctuations in family persistence were consistent across counties.

There was little variation in family program participation rates in different parts of the state, and those differences were not accounted for by socioeconomic characteristics or urban/rural status.

[1] Public Policy Associates, *State Policy Responses to COVID-19: Examining the Impact on Michigan's Child Care Assistance Program* (Lansing, MI: Public Policy Associates, 2021).

TRENDS IN REGIONAL EQUITY

PPA used state administrative data on the Child Development and Care (CDC) program and data drawn from the Great Start to Quality (GSQ) provider database to examine trends in CDC participation and access to child care. The aim of these analyses was to understand both the long-term trends in access and utilization prior to the pandemic (2013-2019) and to compare them to the period since the COVID-19 outbreak of March 2020.

Differences in Subsidy Participation by BSC

MDHHS has organized Michigan into four different geographic zones called Business Service Centers (BSCs). These regions include the Upper Peninsula and northern Lower Peninsula (BSC 1), Central and Eastern Michigan (BSC 2), Western Michigan (BSC 3), and Southeastern Michigan (BSC 4). Although these regions have internal diversity, they do reflect substantive differences within the state such as the Detroit metro area in the Southeast and the primarily rural areas in the northern parts of the state. Building on prior work exploring regional differences in CDC subsidy participation,[2] PPA researchers used the detailed administrative data on CDC payments to identify the total number of unique parents who received child care subsidies between 2013 and 2021.

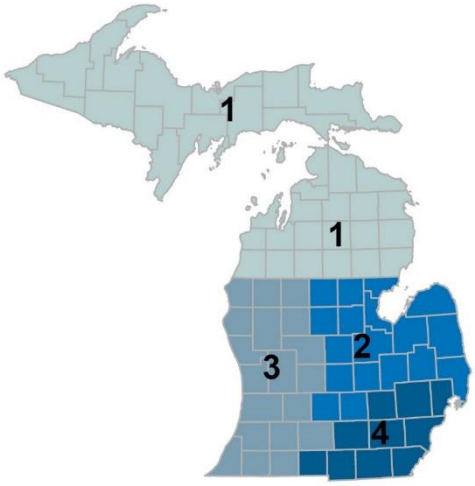

Figure 1. Michigan Dept. of Health and Human Services Business Service Center Regions

As presented in Table 1, there was a fairly similar pattern in family participation in CDC across regions of the state. Beginning from a high in 2013, the number of families declined through 2016, after which there was a steady increase through 2019. Statewide family participation declined by 15% in 2020 and another 12% in 2021, such that 2021 saw a quarter fewer CDC families than just two years prior. Across all regions, 2021 saw the fewest families participating in the program over the entire study period.

[2] Public Policy Associates, *Increasing Access to Affordable Child Care*, (Lansing, MI: Public Policy Associate, March 2019).

Table 1. Families Participating in CDC, by Year

Year	North	East-Central	West	Southeast	Unknown	Total
2013	2,205	8,426	8,388	15,545	141	34,705
2014	1,781	6,723	6,387	12,653	81	27,625
2015	1,587	5,745	5,257	10,970	59	23,618
2016	1,508	5,623	5,096	10,669	56	22,952
2017	1,537	6,104	5,184	11,514	33	24,372
2018	1,571	6,542	5,512	12,706	27	26,358
2019	1,477	6,699	5,719	13,716	29	27,640
2020	1,336	5,665	4,994	11,519	6	23,520
2021	1,151	5,044	4,789	9,674	4	20,662

Despite the consistent statewide trend, there was some variation by region. Figure 1 indicates that prior to the pandemic a smaller increase in utilization occurred after 2016 in the northern and western parts of the state. In fact, program participation had already begun to decline in the North in 2019. There were also significant differences in how each region's participation was affected by the pandemic. In 2020 the North saw smaller declines in program utilization compared with the rest of the state, and in 2021 the West experienced small declines in CDC participation. Taken as a whole, the pandemic period (2020-2021) indicated the largest declines in the Southeast (29.5%) and the smallest in the western region of the state (16.3%). It should be noted that these trends do not take population change into account; changes in participation do not necessarily reflect changes in the share of eligible children who are receiving a subsidy.

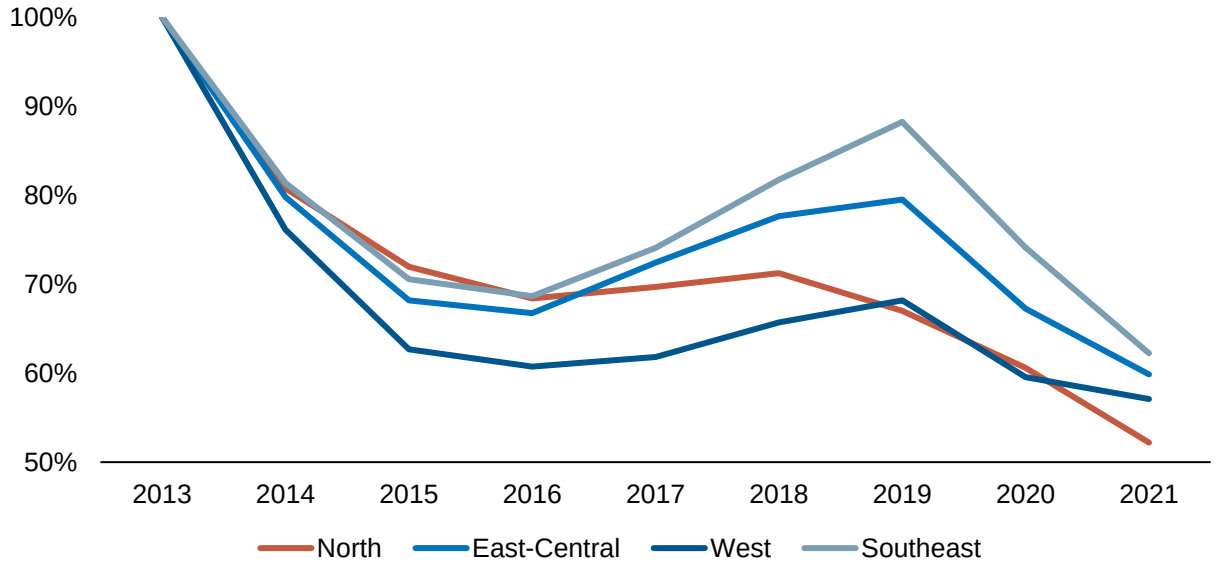

Figure 2. CDC Participation by Region Compared with Base Year 2013

Regional Trends in Child Care Access

Local access to quality child care can be understood in several ways: by the availability of providers, the number of available child care slots, and the total number of children under age 13 relative to the number of available slots (children per slot). The last measure is probably the most meaningful indicator of access since it reflects competitiveness for local child care through supply and demand. The trends for each of these measures, presented on the following pages, are based on all the licensed providers in each of Michigan's counties. County trends are compared with the overall statewide trend in order to identify whether some counties are experiencing statistically significantly different rates of growth (or decline) according to each measure of access.

The two periods examined run from 2014 through 2019 (pre-COVID-19) and pick up again after the pandemic hit for the 2020-2021 period. The 2014-2019 era can be treated as a baseline and serves to compare trends in child care access for those with the subsidy over the last two years. The children per slot measure does not include 2021 because the required data is not yet available.

Fewer Providers, the Same Licensed Capacity

Overall, Michigan experienced a steady decline in the number of licensed providers, from over 10,000 in 2014 to only 7,296 in 2021—a much faster (28%) reduction than the decline in the state's under-13 population (5%). The total licensed capacity also declined during this period by 7%. In 2014 there were approximately 328,000 slots at licensed providers, and in 2021 there were 305,000. In 2014 there were 4.8 children per licensed slot, compared to 5.0 children per slot in 2021, so competition for these openings increased. While there is growing scarcity in the number of slots, it is not as severe as the decline in number of providers might suggest. One reason is that more family and group home providers left, and these are licensed for fewer children than centers.[3]

The data also suggests that 2020 does not necessarily indicate a decisive change in pre-pandemic trends. The number of licensed providers has declined year over year both before and since COVID. Licensed capacity also declined through 2018 but began to rebound in 2019 and continued to increase in 2020 and 2021—from a low of 285,000 licensed slots in 2019 to 305,000 today. Competition for child care slots actually reached a high in 2018 (5.2) before improving through 2021.

The apparently favorable trends in children per slot should be treated with a great deal of caution, however. The capacity numbers used to generate these estimates are based on legally licensed capacity, not actual number of children served. There is some evidence that due to the

[3] Public Policy Associates, *Child Care Quality in Michigan* (Lansing, MI: Public Policy Associates, December 2021), 2.

pandemic, providers accepted children far below their legal maximum.[4] Additionally, there is often a time lag in licensing data, so these results could be somewhat biased.

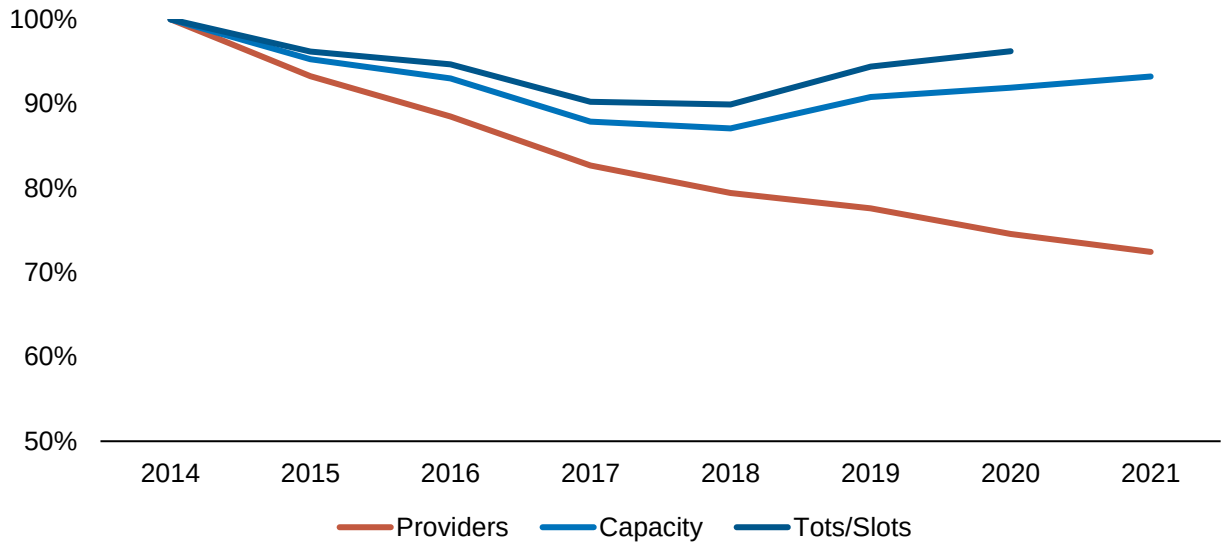

Figure 3. Trends in Access to Child Care Compared with Base Year 2014[5]

Intra-State Variation in Access

These trends are by no means consistent across the state. From 2014 to 2019, Wayne County (which includes Detroit) saw growing competition for child care slots, while other areas saw improving access (including many counties in western and central Michigan, the UP, and the "thumb" region in eastern Michigan). Similarly, trends in capacity were stronger in West Michigan and the UP and worse in Wayne and Macomb counties compared with the rest of the state.

[4] See Public Policy Associates, *Michigan's Child Care Market Rates: An Analysis of Costs for Quality Child Care for the Child Development and Care Subsidy Program* (Lansing, MI: Public Policy Associates, 2021).

[5] The ratio of children to slots is reverse coded so that a higher number means less competition. The base year is 2014 for these data because the total licensed capacity is only available from that year forward.

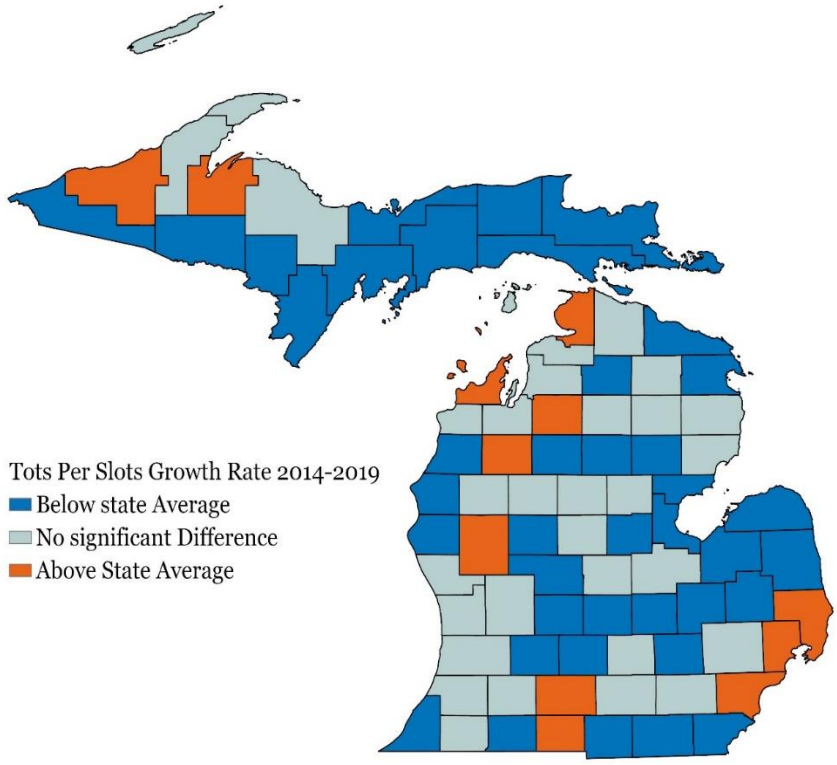

Figure 4. Growth in Competition for Child Care Slots, or "Tots Per Slot," 2014-2019

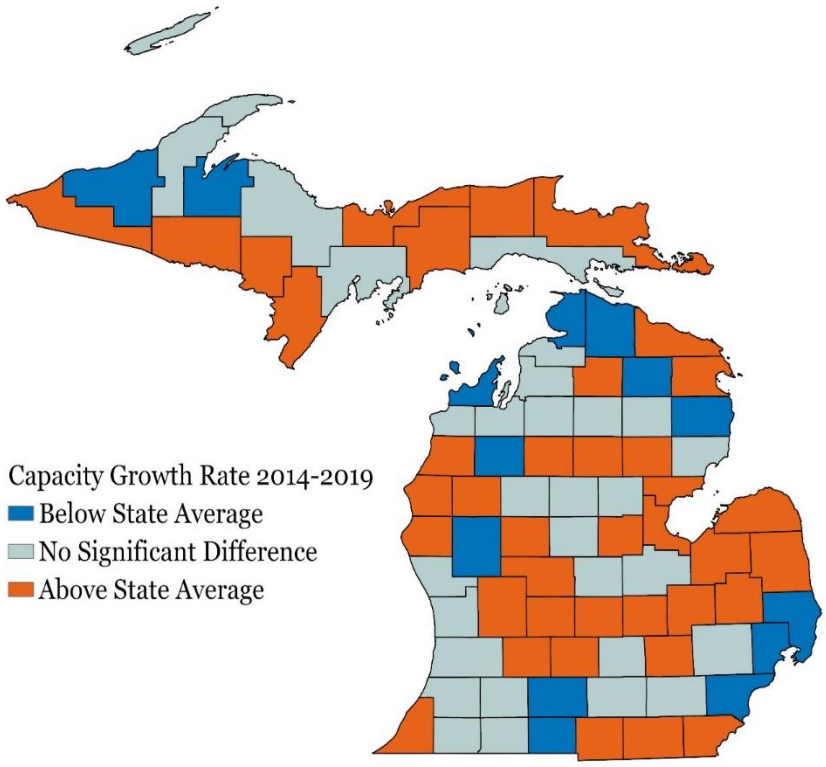

Figure 5. Growth in the Number of Child Care Slots, 2014-2019

The analysis of children per slot is restricted to the period before the pandemic (2014-2019) and does not include 2020 or 2021 data.[6]

Michigan's greater Detroit metro area—the "tri-county" region including Wayne, Macomb, and Oakland—exhibited trends in total licensed capacity similar to Michigan as a whole. Meanwhile, the rest of the state's counties indicated no clear trend of either greater or lesser capacity (compared with state averages). These findings suggest that local changes in the availability of child care are strongly localized, and that even adjacent counties may have significantly different experiences with regard to child care scarcity.

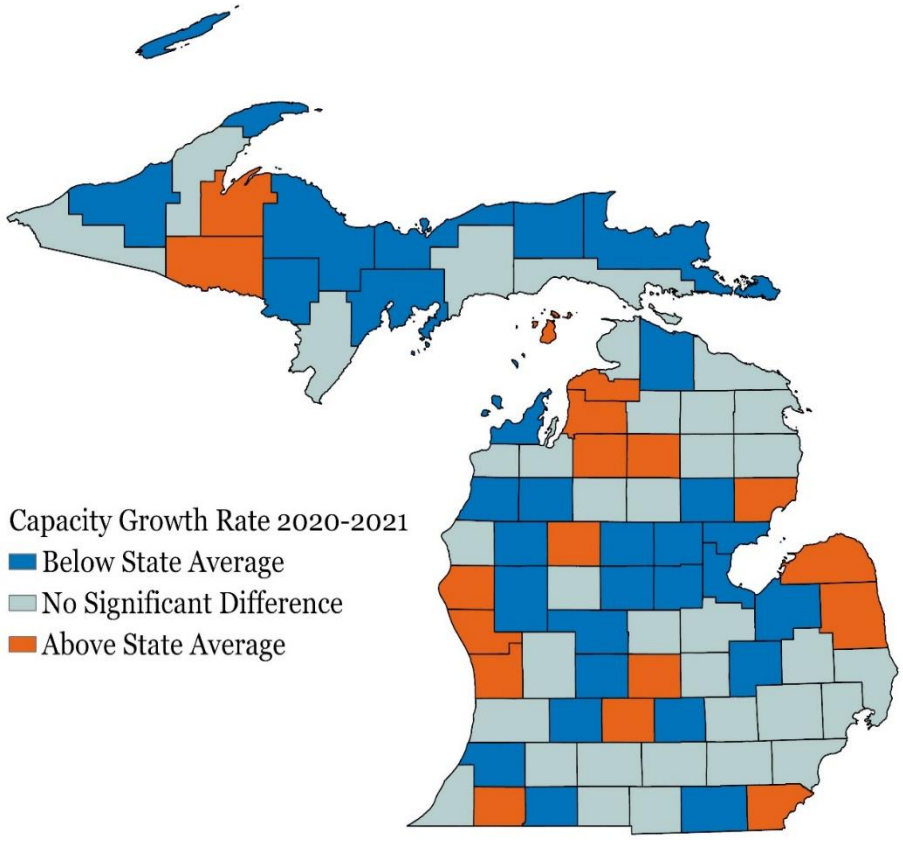

Figure 6. Growth in the Number of Child Care Slots, 2020-2021

[6] Detailed local-area estimates about the population are less reliable in the most recent U.S. Census (in part due to COVID-19), making it unwise to extend the analysis of children per slot into 2020.

THE IMPACT OF COVID-19

In prior work, Public Policy Associates (PPA) examined differences in family persistence in 2020 compared with 2019 during three distinct policy windows. These time periods represented spans of time in which specific COVID-related policies were in effect:

- Policy Group #1 includes automatic increase in absence hours and billing of school-aged children, child care relief funds for providers, and the extension of the redetermination period. The time frame for this group is five pay periods (i.e., 10 weeks), between March 29 and June 6.
- Policy Group #2 includes the Child Care Relief Fund grants for providers[7] and child care rate reduction subsidies for parents. The analysis window for this group is the three pay periods between July 5 and August 15.
- Policy Group #3 includes the increase in absence hours by provider request and the allowing of billing for school-aged children while learning remotely during the school day—six pay periods between September 27 and December 19.

Families who were participating in the program at the beginning of each of these time points were compared with families during the same pay periods in 2019. Statistical analysis was conducted to determine whether parents in the 2020 cohort were more or less likely to experience any breaks in subsidy use than in the previous year, controlling for race and poverty. One of the robustness tests was to control for the *overall* effect of geography—i.e., whether the findings were an artifact of extreme values in some parts of the state. The findings of the previous analysis indicated that it was not. This analysis builds on PPA's prior work in two ways: first, by considering the potential mediating effects of local socioeconomic characteristics on program effects, and second whether some parts of the state were significantly different from the statewide average.

In this set of analyses, we model geographic effects using a more fine-grained measure than Business Service Center based on census data. Large-population counties are treated as individual units, but smaller-population counties are combined with neighboring and preferably similar counties such that the total population is at least 100,000 residents. This approach breaks Michigan up into 26 distinct geographic units (for a map of these regions please refer to the Methods section in the Appendix).

State Policies' Effect on Impact of COVID-19

An important element in understanding geographic equity is in determining whether differences across counties or regions are proxies for socioeconomic characteristics or urbanization. To address this possibility, an analysis was conducted that assessed whether differences in family persistence in the Child Development and Care (CDC) subsidy program in 2019 and 2020 could

[7] Grants to providers extended across two different sets of analysis.

be accounted for by measures of economic wealth, inequality, social mobility, and urbanization. Several different potential contextual factors were tested in the statistical analysis, including:

- Local licensed child care capacity
- Median household income
- Urban/rural
- Overall economic inequality (county GINI coefficients)
- Local inequality in housing costs (county housing GINIs)
- County social mobility

Multiple statistical tests compared the results of the "base" model of family persistence (a survival analysis controlling for race and income) to models that include these additional local factors. Local geographic context was addressed using both fixed-effects and random-effects models. The sources for these measures, how they were operationalized, and further details of the statistical models are discussed further in the Methods section.

In assessing the impact of COVID-19 policies on child care subsidy participation, it is vital to consider not just statistical significance (which is strongly affected by sample size) but also substantive significance. For example, a large-sample study might find that a very expensive car safety feature is statistically significantly associated with lower rate of accidents—but only by .0001%. Substantive significance is particularly important when the goal of the policies is to *maintain* participation in the face of adverse conditions, rather than to improve participation. Therefore, a test for substantive significance was used such that the differences from prior years are meaningful for policymakers and researchers[8] (please see the Methods section for more details).

The statistical analysis indicates that family persistence in the CDC program was roughly similar in 2020 compared with 2019. After accounting for race, income, and geography during both spring and summer 2020 separately, families were less likely to experience program breaks. During both periods, the results were statistically significant but not substantively significant—in other words, the difference was not large enough to warrant being called a meaningful difference. By contrast, families were 61% more likely to experience breaks in program participation in fall.

Contrary to expectations, the additional local socioeconomic variables had little impact on the main findings. In only a few cases did local economic inequality or licensed capacity provide statistically significant explanatory power (and none of them consistent across time points). Nor did these variables have a discernible effect on the estimated impact of COVID-19 policies. This does not mean that these factors have no impact on program participation—only that they do not account for differences in the likelihood of program breaks.

[8] A TOST procedure with a .20 effect-size threshold.

Geographic Differences in the Impact of Policies

Next, an analysis was conducted to assess whether any of the 26 basic geographic units in the states (defined by counties or groups of similar counties) were outliers experiencing relatively larger or smaller changes in family persistence, according to conventional standards of statistical significance.

In general, regional changes in family persistence rates in 2020 were comparable to the state average. For each of the three periods of time under examination (spring, summer, and fall 2020), the vast majority of the 26 regions were not statistically significantly different than the state as a whole. This suggests that the effects of these policies were reasonably consistent across different parts of the state.

There were important exceptions to the general pattern, however. During spring 2020, counties in the Upper Peninsula (UP)and Wayne County saw a higher rate of persistence than the state average—38% in the UP and 15% in Wayne. By contrast, Ottawa, Bay, Midland, and a group of counties in northwest Michigan saw significantly lower rates of family persistence in the CDC program.

There were fewer differences across parts of the state during summer 2020. Only nine counties diverged from Michigan's average rates of family persistence, with the "thumb" of Michigan and adjacent counties (including Genesee and Shiawassee) as well as Jackson County experiencing lower rates of family instability. Unlike in spring, Wayne County saw significantly lower rates of family persistence (32% below the state average). Wayne's unique position does not appear to be an artifact of its racial composition; however, controlling for the percentage of black parents in the CDC program actually *increases* Wayne County's position as an outlier.

Finally, there were more pronounced regional differences in family persistence in the CDC program in fall 2020. The Lansing Tri-County region (Clinton, Eaton, Ingham) saw significantly higher rates of family persistence. By contrast, in the counties in the northern Lower Peninsula, a higher percentage of families experienced breaks in CDC participation, as did Midland, Bay, Livingston,[9] and Macomb.

On the statewide level, there was thus no straightforward pattern in regional inequality in response to the COVID-19 era policies. Each of the three spans of time saw distinct patterns in geographic inequality at different points of time.

[9] Livingston was a special case, with an extraordinary 4.5 times higher rate of family instability than 2019—a result that calls for closer attention to ensure that it is not an artifact of the data.

CONCLUSIONS

The analysis in this report has explored the problem of geographic inequality in access to child care from a number of different lenses: the availability of child care at the county level, regional changes in participation in the Child Development and Care (CDC) program, and the mediating impact of geography on 2020 policies related to the subsidy program. With respect to child care availability as a whole, the evidence suggests that trends in child care capacity (whether measured by licensed slots or relative to the population of children) is intensely local.

There was little evidence for a broad-based regional pattern in the data. Instead, departures from the state norm occurred on a county-by-county basis. This suggests that policies aimed at improving access that are focused on the specific situation of each locality as opposed to a statewide application could have more success at addressing access to child care.

Another important finding is the limited impact of COVID-19 on long-term trends in access to child care. The decline in the number of providers was quite similar before and after March 2020 and increases in local scarcity actually pre-date the pandemic. What is striking is how little regional variation there was as a result of the pandemic. These findings are quite tentative, however, given that the measure of access relies on licensed capacity, which may not reflect actual slots. Further research is required to get a clearer picture of the difficulty parents have in finding child care in their local community.

The picture is somewhat different for the CDC program. In terms of program participation, there was a pronounced downward trend in the number of families receiving the subsidy—a trend that has continued into 2021. These changes were similar across geographic regions, although the western part of the state experienced the fewest losses.

Changes in CDC program participation and in family persistence in the program were quite similar across geographic regions and controlling for local markets did little to explain the differences between 2020 and 2019. Unlike child care access, the CDC program's trends appear quite consistent across the different parts of the state—fewer families are participating in the program, but those that do are just as likely to remain in it as before. However, there was some evidence that the northern part of the state (including the Upper Peninsula) was distinct from the rest of the state. This distinction is not related to its rural character or level of wealth; urbanicity and economic characteristics do not explain patterns in family persistence in the CDC program.

The lack of variation by geography suggests that the CDC program can apply policy statewide and that the policies from 2020 did not influence the trajectory of program enrollment or persistence, although may have mitigated the effects of the pandemic in other ways.

APPENDIX: METHODS

Family participation in the Child Development and Care (CDC) subsidy program was measured using administrative case-level data from 2014 through 2021 from the State's Bridges system. Parent identifiers with a subsidy payment recorded to a provider were aggregated to their stated county of residence. Parents with multiple counties or no counties listed were excluded, as were those with no verified subsidy payments. This analysis was conducted separately for each calendar year, with the number of parents participating in the CDC program for at least one two-week pay period summed for each county and year. These totals were then summed to the Business Service Center level. Trends were calculated using 2014 sums as a baseline (2014=100%). Differences from the state average were conducted using a z-test of proportions. Note that child care payments are not necessarily an indication that children are actually in care, especially given COVID-19 era policies that permitted payment based on enrollment.

Monthly data on licensed providers was obtained from the Early Childhood Investment Corporation (ECIC). This data included the county in which the provider was based as well as the maximum number of licensed child care slots. In Michigan, slots are restricted to 6 children for home providers and 12 children for group homes, but can be much larger for child care centers, depending on staffing levels.

Trendlines were computed in STATA using monthly data aggregated on the county level. For the cases of population, the data was a yearly estimate of the under-13 population using a 5-year Public Use Micro-Area (PUMA) sample drawn from the Integrated Public Use Microdata Series (IPUMS) database. For multi-PUMA counties the population was aggregated to the county level. In multi-county PUMAs, the proportion of children in each county was estimated based on the number of children aged 11 and under in each county in the PUMA using the 5-year American Community Survey (ACS) population estimates for each county. The trend lines reflect the monthly change of capacity, number of providers, and children per slot, which was derived from the population divided by the capacity.

To provide a better comparison across counties as well as to the state, statistics were transformed using the natural log. To create a true month-over-month percentage change, the exponent of the coefficients was computed. To compare each county to the state, a two-sample T-test was conducted to determine whether there was a statistical significance between each county individually and the state. Due to potential heteroscedasticity and autocorrelation issues, Newey-West standard errors were used. A lag value of 2 was determined for this using the rule of thumb $0.75*T^{1/3}-1$. The differences were then mapped using ArcGIS, where orange indicates that the county's trendline for the given measure is statistically significant from the state and higher, grey if it not statistically significant from the state, and blue if it is lower and statistically significant.

Family persistence was measured using survival analysis in STATA. Cox regressions were used for fixed-effects analysis and meologit for random-effects models, with any break in payments

indicating an exit. A randomly selected focal child was used to represent each family to avoid over-representing families with more than one child. Each of the three policy periods were composed of groups of pay periods lasting two weeks. Control variables included parent race (classified as non-Hispanic Black, Hispanic of any race) and poverty status. Poverty was coded 1 if the parent reported no income, and 0 if they reported an income of any amount. Modified PUMAs (with multi-PUMA counties aggregated at to the county level) were used to account for geography. Equivalence testing was used to assess substantive differences between 2020 and 2019 family survival rates using a 2-sided TOST procedure. A .20 standard deviation effect size was used as the threshold for a substantive difference, which is the equivalent of a hazard ratio of 1.29 for greater ratios and .77 for lower ratios.[10]

Additional county-level contextual variables included urban status (1) vs. rural (0) as coded by the U.S. Census Bureau,[11] median household income,[12] household income inequality based on county GINI coefficients,[13] GINI coefficients of household income (calculating using ACS data), and county 25th percentile social mobility as calculated by Chetty and Hendren (2018).[14]

To account for statistically significant differences across modified PUMAs, a standard .05 p-value was used, comparing each county's estimated hazard ratio to the statewide mean estimate.

[10] A. Azuero, A, "A Note on the Magnitude of Hazard Ratios," *Cancer* 122, no. 8 (2016): 1298-1299.

[11] "2010 Census Urban and Rural Classification and Urban Area Criteria," United States Census Bureau, last modified October 8, 2021, accessed on March 21, 2022, https://www.census.gov/programs-surveys/geography/guidance/geo-areas/urban-rural/2010-urban-rural.html.

[12] American Community Survey, via IPUMS, Steven Ruggles, Sarah Flood, Ronald Goeken, Megan Schouweiler, and Matthew Sobek, IPUMS USA: Version 12.0 [dataset], Minneapolis, MN: IPUMS, 2022, https://doi.org/10.18128/D010.V12.0.

[13] Ibid.

[14] Raj Chetty and Nathaniel Hendren, "The Impacts of Neighborhoods on Intergenerational Mobility II: County-Level Estimates," *The Quarterly Journal of Economics* 133, no. 3 (August 2018) 1163–1228.

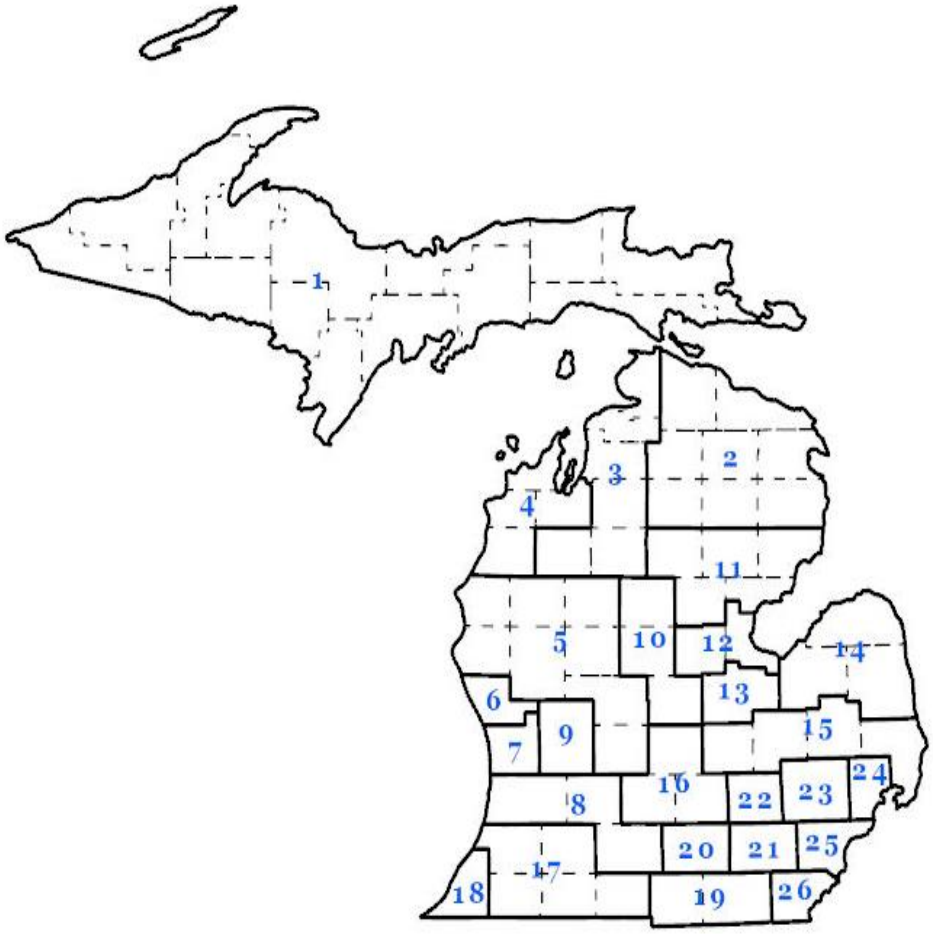

Figure 6. Michigan's 26 geographic units, based on ACS PUMA boundaries aggregated to the county level

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