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FULL REPORT:

Equity in Access to Quality Early Care and Education in Pennsylvania

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Pennsylvania State University

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Abstract

Participation in early care and education (ECE) leads to positive academic and social outcomes for children. The benefits of exposure to quality ECE are particularly pronounced for children of color and those living in poverty, making access to quality ECE a crucial strategy for closing the racial and socioeconomic achievement gaps that arise when these children are given fewer opportunities to learn. Using de-identified data from Pennsylvania's Office of Child Development and Early Learning from 2014 and 2019, we explore variation in access to quality ECE providers within the state's three largest public ECE programs, Child Care Works (CCW), Pre-K Counts (PKC), and the Head Start Supplemental Assistance Program (HSSAP). We examine differences in quality access by children's race, economic status, and other child, community, and provider characteristics. Overall, we find that Black children, children living in cities, and children living in high-poverty communities and communities of color were far less likely to experience ECE with a high-quality provider, patterns that persisted across all three programs. These disparities were driven by unequal enrollment in PKC and HSSAP, as well as disparate rates of access to high-quality providers within CCW. Concerningly, gaps in quality access widened over time. To remedy these disparities, we recommend more research that learns directly from families and providers in underserved communities about how to best expand access to quality ECE, as well as funding increases that target resources to these communities.

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Table of Contents

ACCESS TO QUALITY EARLY CARE AND EDUCATION IN PENNSYLVANIA 8

Research Question 1: To what extent does access to high-quality ECE providers vary by children's age, race, and family income? To what extent does it vary by the racial composition, socioeconomic composition, and geographic locale of the communities in which they live? How does access vary within communities by children's characteristics? 9

Research Question 2: To what extent do provider quality ratings vary by provider type, capacity, and the racial composition, socioeconomic composition, and geographic locale of the communities in which they're located? 9

Research Question 3: To what extent does subsidy density (i.e., the proportion of CCW recipients enrolled with the same provider) vary by providers' QRIS scores, capacity, and the racial composition, socioeconomic composition, and geographic locale of the communities in which they're located? 9

Research Question 4: To what extent does tiered reimbursement funding vary by children's age and race? To what extent does tiered reimbursement funding vary by providers' subsidy density and the racial composition, socioeconomic composition, and geographic locale of the communities in which they're located? 11

ANALYSIS OF CHILD CARE WORKS 11

Program Design Characteristics 11

Enrollment Trends 12

TABLE 1. Child Care Works enrollment by children's individual and community characteristics, 2014 and 2019 13

Variation in Access to High-Quality ECE Providers by Children's Individual and Community Characteristics 14

ECE Access by Children's Race 14

TABLE 2. Distribution of provider QRIS scores by children's race and ethnicity, 2014 and 2019 15

TABLE 3. Share of children enrolled with high-quality providers (i.e., STAR 3 and STAR 4) by age and race, 2014 and 2019 16

ECE Access by Family Income 16

TABLE 4. Distribution of provider QRIS scores by children's family income, 2014 and 2019 17

ECE Access by Geographic Locale 17

TABLE 5. Distribution of provider QRIS scores by children's geographic locale, 2014 and 2019 18

TABLE 6. Share of children enrolled with high-quality providers by geographic locale and age, 2014 and 2019 19

TABLE 7. Share of children enrolled with high-quality providers by geographic locale and race, 2014 and 2019 20

TABLE 8. Share of children enrolled with high-quality providers by geographic locale and family income, 2014 and 2019 21

ECE Access by Community Racial Composition 21

TABLE 9. Distribution of provider QRIS scores by the racial composition of children's communities, 2014 and 2019 22

TABLE 10. Share of children enrolled with high-quality providers by community racial composition and race, 2014 and 2019 23

TABLE 11. Share of children enrolled with high-quality providers by community racial composition and age, 2014 and 2019 24

TABLE 12. Share of children enrolled with high-quality providers by community racial composition and family income, 2014 and 2019 25

ECE Access by Community Socioeconomic Composition 25

TABLE 13. Distribution of provider QRIS scores by the socioeconomic composition of communities, 2014 and 2019 26

TABLE 14. Percentage of children enrolled with high-quality providers by age and socioeconomic composition of communities, 2014 and 2019 27

TABLE 15. Share of children enrolled with high-quality providers by community socioeconomic composition and family income, 2014 and 2019 28

TABLE 16. Share of children enrolled with high-quality providers by community socioeconomic composition and race, 2014 and 2019 29

TABLE 17. Share of children enrolled with high-quality providers, by children's characteristics and provider community, 2014 and 2019 30

Summary of Variation in Access to High-Quality ECE Providers by Children's Individual and Community Characteristics 30

Variation in Quality Ratings by ECE Provider Characteristics 31

Quality Ratings by Provider Type 31

TABLE 18. Distribution of CCW recipients by provider type and quality rating, 2014 to 2019 32

TABLE 19. Distribution of CCW recipients by provider type and race, 2014 and 2019 32

TABLE 20. Distribution of CCW recipients by provider type and the socioeconomic composition of children's communities, 2014 and 2019 33

Quality Ratings by Capacity 33

TABLE 21. Distribution of ECE provider QRIS scores by capacity, 2014 and 2019 34

TABLE 22. Share of children enrolled with ECE providers by provider capacity and race, 2014 and 2019 35

Quality Ratings by Subsidy Density 35

TABLE 23. Average subsidy density by providers' QRIS score, 2014 and 2019 (n = providers) ... 35
TABLE 24. Average subsidy density by providers' community characteristics, 2014 and 2019 ... 36
TABLE 25. Average subsidy density by provider capacity, 2014 and 2019 ... 37
TABLE 26. Share of children enrolled with high-quality providers by providers' subsidy density, 2014 and 2019 ... 37
Quality Ratings by Providers' Community Characteristics ... 38
TABLE 27. Community characteristics of ECE providers with STAR 3 or STAR 4 ratings, 2014 and 2019 ... 8
Summary of Quality Ratings by ECE Provider Characteristics ... 39
Access to Tiered Reimbursement Funding by Child and Provider Characteristics ... 39
TABLE 28. Daily, per child tiered reimbursement rates by QRIS score, 2013-2019 ... 40
TABLE 29A. Average daily add-on amount by child age and race ... 41
TABLE 29B. Average estimated monthly and yearly add-on amounts by child age and race, 2014 and 2019 ... 42
TABLE 30. Average daily add-on amount by child age and community socioeconomic composition ... 43
TABLE 31. Average daily add-on amount by providers' subsidy density ... 43
TABLE 32. Average daily add-on amount by the characteristics of providers' communities ... 45
TABLE 33. Average daily add-on amount by geographic locale and the racial composition of providers' communities ... 45
Summary of Access to Tiered Reimbursement Funding ... 46
Synthesis of CCW Findings ... 46
CCW Policy Recommendations ... 48
Recommendation 1: *Determine the barriers ECE providers encounter in raising their QRIS scores, with particular focus on the experiences of providers in high poverty communities and communities of color.* ... *48*
Recommendation 2: *Learn more about the impact of tiered reimbursement, and how differential add-on rates affect the resources providers are able to afford.* ... *48*
Recommendation 3: *Continue to raise base rates.* ... *49*
Recommendation 4: *Boost rates for home-based providers and relative and neighbor caregivers.* ... *49*
Recommendation 5: *Target resources to providers with limited administrative capacity.* ... *49*
Recommendation 6: *Revise subsidy reimbursement calculations to allocate more funding to providers serving certain groups of children, similar to the state's K-12 funding formula.* ... *50*
Conclusion ... 50

ANALYSIS OF PRE-K COUNTS ... 51
Program Design Characteristics ... 51
Program Outcomes ... 51
Current Study ... 51
PKC Enrollment by Children's Individual and Community Characteristics ... 52
TABLE 34. Pre-K Counts enrollment by children's individual and community characteristics, 2014 and 2018 ... 53
FIGURE 1. Share of children enrolled in Pre-K Counts by age and race, 2014 and 2018 ... 54
FIGURE 2. Share of children enrolled in Pre-K Counts by race and geographic locale, 2014 and 2018 ... 55
FIGURE 3. Share of children enrolled in Pre-K Counts by geographic locale and family income, 2014 and 2018 ... 56
FIGURE 4. Share of children enrolled in Pre-K Counts by race and community racial composition, 2014 and 2018 ... 57
FIGURE 5. Share of children enrolled in Pre-K Counts by community racial composition and family income, 2014 and 2018 ... 58
FIGURE 6. Share of children enrolled in Pre-K Counts by race and community racial composition, 2014 and 2018 ... 59
FIGURE 7. Share of children enrolled in Pre-K Counts by community socioeconomic composition and family income, 2014 and 2018 ... 60
FIGURE 8. Share of children enrolled in Pre-K Counts by community racial composition and family income, 2014 and 2018 ... 61
Summary of Pre-K Counts Enrollment by Children's Individual and Community Characteristics ... 62
PKC Enrollment by Providers' Characteristics ... 62
TABLE 35. Share of children enrolled in Pre-K Counts by provider type and geographic locale, 2014 and 2018 ... 63
TABLE 36. Share of children enrolled in Pre-K Counts by provider type and race, 2014 and 2018 ... 64
TABLE 37. Share of children enrolled in Pre-K Counts by program size and geographic locale, 2014 and 2018 ... 65
TABLE 38. Share of Pre-K Counts participants enrolled with a STAR 4 provider by children's individual and community characteristics, 2014 and 2018 ... 67

Summary of Pre-K Counts Enrollment by Providers' Characteristics 67

Pre-K Counts Recommendations 68

Recommendation 1: *Learn more about barriers ECE providers face in applying for and implementing Pre-K Counts, especially in cities and communities of color.* *68*

Recommendation 2: *Work with child care providers and school districts in cities to increase PKC participation among urban children.* *68*

Recommendation 3: *Incentivize PKC grantees to serve children from the highest poverty communities.* *68*

Recommendation 4: *Increase outreach to families and caregivers, especially in underserved communities.* *68*

Conclusion 68

ANALYSIS OF THE HEAD START SUPPLEMENTAL ASSISTANCE PROGRAM 69

Program Design Characteristics 69

Current Study 69

HSSAP Enrollment by Children's Individual and Community Characteristics 70

TABLE 39. HSSAP enrollment by children's individual and community characteristics, 2014 and 2018 71

FIGURE 9. Share of children participating in HSSAP by race and family income, 2014 and 2018 72

FIGURE 10. Share of children participating in HSSAP by race and geographic locale, 2014 and 2018 73

FIGURE 11. Share of children participating in HSSAP by race and community racial composition (% White residents), 2014 and 2018 74

FIGURE 12. Share of children participating in HSSAP by race and community socioeconomic composition, 2014 and 2018 75

Summary of HSSAP Enrollment by Children's Individual and Community Characteristics 76

HSSAP Enrollment by Providers' Characteristics 76

TABLE 40. Share of children enrolled in HSSAP by provider type and race, 2014 and 2018 77

TABLE 41. Share of HSSAP children enrolled with a STAR 4 provider by children's individual and community characteristics, 2014 and 2018 78

Head Start Supplemental Assistance Program Recommendations 79

Recommendation 1: *Learn more from HSSAP grantees about any barriers they face in applying for funding, especially grantees that enroll, or are able to enroll, larger shares of underserved children.* *79*

Recommendation 2: *Work with providers of different types to target HSSAP expansion in underserved communities.* *79*

Conclusion 79

ANALYSIS OF ENROLLMENT TRENDS ACROSS ECE PROGRAMS 80

TABLE 42. ECE program characteristics 81

TABLE 43. State appropriations for ECE programs (dollar amounts in thousands) 81

Program Enrollment 82

TABLE 44. Total preschool-aged enrollment by ECE program, 2014 and 2019 82

TABLE 45. Share of preschool-aged children enrolled in state-funded ECE programs by race, 2014 and 2019 83

FIGURE 13. Share of preschool-aged children enrolled in state-funded ECE programs by race, 2014 and 2019 84

TABLE 46. Share of preschool-aged children enrolled in state-funded ECE programs by geographic locale, 2014 and 2019 85

FIGURE 14. Share of preschool-aged children enrolled in state-funded ECE programs by geographic locale, 2014 and 2019 86

TABLE 47. Share of preschool-aged children enrolled in state-funded ECE programs by community socioeconomic composition, 2014 and 2019 87

FIGURE 15. Share of preschool-aged children enrolled in state-funded ECE programs by community socioeconomic composition, 2014 and 2019 88

TABLE 48. Share of preschool-aged children enrolled in state-funded ECE programs by community racial composition, 2014 and 2019 89

FIGURE 16. Share of preschool-aged children enrolled in state-funded ECE programs by community racial composition, 2014 and 2019 90

Summary of ECE Enrollment Across Programs 90

Policy Recommendations 90

Recommendation 1: *Learn more from families and providers in cities, high poverty communities, and communities of color about how best to expand access to quality ECE.* *90*

Recommendation 2: *Improve connections across programs to better match services and needs.* *91*

Recommendation 3: *Incentivize providers across programs to recruit and retain underserved children.* *91*

Recommendation 4: *Increase state funding for public ECE with safeguards to ensure funding is dispersed equitably.* *91*

Recommendation 5: *Continue to monitor enrollment trends across programs, with particular attention to racial and class disparities.* *91*

APPENDIX A: Additional Notes About Methodology for CCW Analysis **92**

APPENDIX B: Additional Tables – Child Care Works (CCW) **93**

TABLE B-1. Share of children enrolled in CCW by race and family income, 2014 and 2019 93
TABLE B-2. Distribution of CCW recipients by provider type and age, 2014 and 2019 93
TABLE B-3. Distribution of CCW recipients by provider type and family income group, 2014 and 2019 94
TABLE B-4. Distribution of CCW recipients by provider type and geographic locale, 2014 and 2019 94
TABLE B-5. Distribution of CCW recipients by provider type and the racial composition of children's communities, 2014 and 2019 95
TABLE B-6. Preschool-aged enrollment in CCW by children's individual and community characteristics, 2014 and 2019 95
TABLE B-7. Share of preschool-aged children enrolled in CCW by age and family income, 2014 and 2019 96
TABLE B-8. Share of preschool-aged children enrolled in CCW by age and race, 2014 and 2019 96
TABLE B-9. Share of preschool-aged children enrolled in CCW by family income and race, 2014 and 2019 97
TABLE B-10. Share of preschool-aged children enrolled in CCW by geographic locale and race, 2014 and 2019 97
TABLE B-11. Share of preschool-aged children enrolled in CCW by community racial composition and race, 2014 and 2019 98
TABLE B-12. Share of preschool-aged children enrolled in CCW by community socioeconomic composition and geographic locale, 2014 and 2019 98
TABLE B-13. Share of preschool-aged children enrolled in CCW by community racial composition and geographic locale, 2014 and 2019 99

APPENDIX C: Additional Tables – Pre-K Counts **100**

TABLE C-1. Share of children enrolled in Pre-K Counts by age and family income, 2014 and 2018 100
TABLE C-2. Share of children enrolled in Pre-K Counts by age and race, 2014 and 2018 100
TABLE C-3. Share of children enrolled in Pre-K Counts by family income and race, 2014 and 2018 101
TABLE C-4. Share of children enrolled in Pre-K Counts by geographic locale and race, 2014 and 2018 101
TABLE C-5. Share of children enrolled in Pre-K Counts by geographic locale and family income, 2014 and 2018 102
TABLE C-6. Share of children enrolled in Pre-K Counts by community racial composition and race, 2014 and 2018 102
TABLE C-7. Share of children enrolled in Pre-K Counts by community racial composition and family income, 2014 and 2018 103
TABLE C-8. Share of children enrolled in Pre-K Counts by community socioeconomic composition and race, 2014 and 2018 104
TABLE C-9. Share of children enrolled in Pre-K Counts by community socioeconomic composition and family income, 2014 and 2018 104
TABLE C-10. Share of children enrolled in Pre-K Counts by community socioeconomic composition and geographic locale, 2014 and 2018 105
TABLE C-11. Share of children enrolled in Pre-K Counts by community racial composition and geographic locale, 2014 and 2018 105
TABLE C-12. Share of children enrolled in Pre-K Counts by provider type and community racial composition, 2014 and 2018 106
TABLE C-13. Share of children enrolled in Pre-K Counts by provider type and community socioeconomic composition, 2014 and 2018 107
TABLE C-14. Share of children enrolled in Pre-K Counts by program size and community racial composition, 2014 and 2018 107

APPENDIX D: Additional Tables – Head Start Supplemental Assistance Program (HSSAP) **108**

TABLE D-1. Share of children participating in HSSAP by age and race, 2014 and 2018 108
TABLE D-2. Share of children participating in HSSAP by family income and race, 2014 and 2018 108
TABLE D-3. Share of children participating in HSSAP by geographic locale and race, 2014 and 2018 109
TABLE D-4. Share of children participating in HSSAP by community racial composition and race, 2014 and 2018 109
TABLE D-5. Share of children participating in HSSAP by community socioeconomic composition and race, 2014 and 2018 110
TABLE D-6. Share of children participating in HSSAP by community socioeconomic composition and geographic locale, 2014 and 2018 110
TABLE D-7. Share of children participating in HSSAP by community racial composition and geographic locale, 2014 and 2018 111
TABLE D-8. Share of children enrolled in HSSAP by provider type and geographic locale, 2014 and 2018 111

Access to Quality Early Care and Education in Pennsylvania

Participation in early care and education (ECE) leads to positive academic and social outcomes for children. These outcomes include greater kindergarten readiness, lower rates of grade retention and referral for special education, higher rates of high school graduation and postsecondary degree attainment, and fewer interactions with the legal system.[1] Importantly, only high-quality ECE is associated with sustained positive outcomes.[2] The benefits of exposure to quality ECE are particularly pronounced for children of color and those living in poverty,[3] making access to quality ECE a crucial strategy for closing the racial and socioeconomic achievement gaps that arise when these children are given fewer opportunities to learn.[4] However, research conducted in other states and at the national level suggests children do not access quality ECE equally. Children of color, children receiving child care subsidies, and children living in communities with high concentrations of poverty are less likely than their peers to be enrolled with high-quality ECE providers.[5] Yet to date, no comprehensive studies have been conducted to determine whether these trends — or others — are present in Pennsylvania.

The National Academies of Sciences, Engineering, and Medicine recently recognized the need for reporting systems that bring attention to disparities in access to quality ECE, among other educational goals.[6] In particular, the Academies argue that such systems should track progress while also identifying differences in outcomes across key subgroups, such as race and socioeconomic class. This report directly responds to the Academies' call to measure equity in education by tracking access to high-quality ECE in Pennsylvania. This report further aligns with the Pennsylvania Department of Human Services' 2021 Racial Equity Report that specifically highlighted the "need to have a better understanding of the racial gaps that exist" within the state's ECE programs.[7] Accordingly, this report explores variation in quality access by child, community, and provider characteristics for each of the Commonwealth's three major ECE programs — Child Care Works, Pre-K Counts, and the Head Start Supplemental Assistance Program.

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1 Gray-Lobe, G., Pathak, P. A., & Walters, C. R. (2021). The long-term effects of universal preschool in Boston. SEII Discussion Paper #2021.05; Meloy, B., Gardner, M., & Darling-Hammond, L. (2019). *Untangling the evidence on preschool effectiveness: Insights for policymakers.* Palo Alto, CA: Learning Policy Institute.

2 Phillips, D. A., Lipsey, M. W., Dodge, K. A., Haskins, R., Bassok, D., Burchinal, M. R., Duncan, G., Dynarski, M., Magnuson, K.A., & Weiland, C. (2017). Puzzling it out: *The current state of scientific knowledge on pre-kindergarten effects, a consensus statement.* Washington, DC: Brookings Institution.

3 Bassok, D. (2010). Do Black and Hispanic children benefit more from preschool? Understanding differences in preschool effects across racial groups. *Child development, 81*(6), 1828–1845; Phillips, D. A., Lipsey, M. W., Dodge, K. A., Haskins, R., Bassok, D., Burchinal, M. R., Duncan, G., Dynarski, M., Magnuson, K.A., & Weiland, C. (2017). *Puzzling it out: The current state of scientific knowledge on pre-kindergarten effects, a consensus statement*. Washington, DC: Brookings Institution.

4 Bassok, D., & Loeb, S. (2014). Early childhood and the achievement gap. In *Handbook of research in education finance and policy* (pp. 526–543). Routledge; Carter, P. L., & Welner, K. G. (Eds.). (2013). *Closing the opportunity gap: What America must do to give every child an even chance.* Oxford University Press.

5 Bassok, D., & Galdo, E. (2016). Inequality in preschool quality? Community-level disparities in access to high-quality learning environments. *Early Education and Development, 27*(1), 128–144; Henly, J. R., & Adams, G. (2018). Increasing access to quality child care for four priority populations. *Urban Institute;* Johnson, A. D., Ryan, R. M., & Brooks-Gunn, J. (2012). Child-care subsidies: Do they impact the quality of care children experience?. *Child development, 83*(4), 1444–1461; Valentino, R. (2018). Will public pre-K really close achievement gaps? Gaps in prekindergarten quality between students and across states. *American Educational Research Journal, 55*(1), 79–116.

6 National Academies of Sciences, Engineering, and Medicine. (2019). *Monitoring Educational Equity.* Washington, DC: The National Academies Press.

7 Pennsylvania Department of Human Services. (2021). Racial equity report 2021. P. 10.

Our specific research questions are:

1 To what extent does access to high-quality ECE providers vary by children's age, race, and family income? To what extent does it vary by the racial composition, socioeconomic composition, and geographic locale of the communities in which they live? How does access vary within communities by children's characteristics?

2 To what extent do provider quality ratings vary by provider type, capacity, and the racial composition, socioeconomic composition, and geographic locale of the communities in which they're located?

The first research question, using child-level data, is important for understanding which groups of children are, or are not, experiencing the benefits of quality ECE. The second research question, using provider-level data, is crucial for understanding whether certain groups of providers have less access to the resources needed to meet performance standards associated with Pennsylvania's quality rating system. Analysis of quality ratings by providers' community characteristics also has implications for families searching for quality ECE in certain communities, such as providers that are proximate to places of parental employment.[8]

Child Care Works (CCW) serves by far the most children of Pennsylvania's three main ECE programs and is the only one that targets infants and toddlers in addition to preschoolers. Because of this far reach — and the resulting outsized impact it has on ECE access statewide — we explore two additional research questions specific to the characteristics and policies of CCW:

3 To what extent does subsidy density (i.e., the proportion of CCW recipients enrolled with the same provider) vary by providers' QRIS scores, capacity, and the racial composition, socioeconomic composition, and geographic locale of the communities in which they're located?

8 Sandstrom, H., & Chaudry, A. (2012). 'You have to choose your child care to fit your work': Child care decision-making among low-income working families. *Journal of Children and Poverty, 18*(2), 89–119.

4 To what extent does tiered reimbursement funding vary by children's age and race? To what extent does tiered reimbursement funding vary by providers' subsidy density and the racial composition, socioeconomic composition, and geographic locale of the communities in which they're located?

Subsidy density analysis is key for understanding which providers serve the greatest shares of CCW residents and, in turn, feel the effects of CCW polices most closely. Examining tiered reimbursement, Pennsylvania's policy that ties additional funding for subsidy recipients to ECE providers' QRIS scores, is important for understanding whether children and communities benefit equally from current subsidy funding policy.

To answer our four research questions, we analyzed de-identified child-level and provider-level data from 2014–2019 provided by Pennsylvania's Office of Child Development and Early Learning (OCDEL). Because of the focus of our research questions, we excluded children who were over age 5 or who were enrolled with providers only offering before- or after-school care for school-aged children. We merged these data with demographic data for communities[9] from the American Community Survey, 2013–2017. (More detailed information on our methodology can be found in the appendix.) Following guidance from OCDEL, we defined "high quality" ECE providers as those earning a score of STAR 3 or STAR 4 on Pennsylvania's quality rating and improvement system (QRIS).[10] Given evidence that differences in quality from one QRIS level to the next are typically small[11] and the most meaningful differences are between the lowest and highest levels of the QRIS scale,[12] we also noted differences in the distribution of children

9 Throughout this report, we define "community" by either child or provider zip code. We recognize the limitations of this measure as zip codes can be heterogenous. However, to protect the privacy of the children in this data sample, zip code was the smallest geographic unit we analyzed.

10 Some recent research has questioned the extent to which QRIS scores accurately reflect the quality of care and education children experience. (See, for example, Cannon, J. S., Zellman, G. L., Karoly, L. A., & Schwartz, H. L. (2017). Quality rating and improvement systems for early care and education programs: Making the second generation better. *RAND*). Accordingly, we recognize this measure may exclude some ECE providers who do offer high-quality early learning and care. Additionally, concerns persist around whether QRIS are adequately responsive to racially and culturally diverse teachers and children (See, for example, Curenton, S. M., Iruka, I. U., Humphries, M., Jensen, B., Durden, T., Rochester, S. E., Sims., J., Whittaker, J., & Kinzie, M. B. (2020). Validity for the Assessing Classroom Sociocultural Equity Scale (ACSES) in Early Childhood Classrooms. *Early Education and Development, 31*(2), 269–288.) These concerns are notable, and suggest providers of color and/or those who serve children of color may be underrepresented in quality counts based on this measure.

11 Cannon, J. S., Zellman, G. L., Karoly, L. A., & Schwartz, H. L. (2017). *Quality rating and improvement systems for early care and education programs: Making the second generation better.* RAND.

12 Hestenes, L. L., Kintner-Duffy, V., Wang, Y. C., La Paro, K., Mims, S. U., Crosby, D., Scott-Little, C., & Cassidy, D. J. (2015). Comparisons among quality measures in child care settings: Understanding the use of multiple measures in North Carolina's QRIS and their links to social-emotional development in preschool children. *Early Childhood Research Quarterly, 30,* 199–214.

in No STAR/STAR 1[13] and STAR 4 providers, the lowest and highest levels of Pennsylvania's QRIS. (No STAR indicates the provider did not participate in Pennsylvania's QRIS, which is optional.) In most cases, we display data for the years of 2014 and 2019 in order to show both current levels of access as well as changes in access over time. When presenting findings related to tiered reimbursement, we display data for all years in which reimbursement rates changed.

We report findings for Child Care Works first, followed by Pre-K Counts and the Head Start Supplemental Assistance Program. Each program-specific section is organized as follows: a brief description of the program's design characteristics and high-level enrollment trends; child-level findings related to access to quality ECE providers; provider-level findings related to variation in quality ratings; additional program-specific analyses; a synthesis of findings and policy recommendations. We close this report by comparing enrollment and quality access across programs, along with general recommendations for how Pennsylvania can make its early care and education system more equitable for all children, providers, and communities.

Analysis of Child Care Works

Program Design Characteristics

Child Care Works (CCW) is Pennsylvania's child care subsidy program. Families with annual incomes at or below 200% of the federal poverty level (FPL) where each adult family member works or attends an educational program for at least 20 hours a week are eligible. CCW is not an entitlement, and waitlists can be long. In 2017, for example, the Pennsylvania Child Care Association reported that nearly 14,000 children who'd been declared eligible were on the waiting list, with families in some regions waiting longer than a year to receive a subsidy.[14] CCW subsidy payments go directly to ECE providers, and CCW-recipient families are also required to pay monthly co-payments to their children's providers. CCW is Pennsylvania's largest publicly funded ECE program, serving over 60,000 children each year. By comparison, in 2019, Pre-K counts served 22,480 children and the Head Start Supplemental Assistance Program served 5,883 children. CCW is primarily funded by the federal Child Care and Development Fund (CCDF), which provides child care subsidy funding to all states and tribal nations. Out of all the states, Pennsylvania serves the highest share of eligible Black children and the second highest share of eligible Hispanic children through its CCDF program.[15] Black and Hispanic families make up 12% and 8% of the state's population,[16] yet are 50% and 17% of CCW recipients, respectively. This high level of racial diversity within CCW makes the study of quality access by children's race even more critical.

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13 Per guidance from OCDEL, we group providers with no STAR ratings with providers with STAR 1 ratings. We recognize that without a QRIS score, the level of quality of "No STAR" providers, as measured by Pennsylvania's performance standards, is indeterminate. By grouping No STAR and STAR 1 providers together, we do not suggest that ECE providers that have opted out of Pennsylvania's QRIS are low quality, just as we do not assume that QRIS scores of STAR 1 or 2 necessarily indicate an absence of quality care and education.

14 Barber, P. (2017). Now is not the time to cut or move funding for child care. We can't afford to get it wrong in these early years. PACCA. https://www.pacca.org/hot_issues.php

15 Ullrich, R., Schmit, S., & Cosse, R. (2019). Inequitable access to child care subsidies. *Center for Law and Social Policy (CLASP).*

16 U.S. Census population estimates for July, 2019. https://www.census.gov/quickfacts/PA

Pennsylvania provides funding to ECE providers enrolling CCW recipients partly through tiered reimbursement. Tiered reimbursement offers additional funding to ECE providers with higher QRIS scores, and is intended to incentivize high-quality ECE providers to enroll CCW recipients while also offsetting some of the costs associated with higher-quality care, such as higher wages for well-qualified teachers. Tiered reimbursement may also encourage lower-scoring providers to improve their quality scores, thereby expanding the pool of quality ECE providers available to subsidy-receiving children. However, reimbursing providers at different rates based on their QRIS scores means differences in access to quality providers among CCW recipients may translate into differences in funding. Inequalities in education funding, especially by race, have been documented among K-12 students in Pennsylvania[17] and nationally,[18] prompting concern over whether similar disparities exist in other sectors of education, including ECE.

The proportion of infants and toddlers served by the program declined while the share of preschoolers increased slightly, a potentially problematic trend since CCW is the only publicly funded ECE program that specifically targets infants and toddlers.

Enrollment Trends

From 2014 to 2019, the number of children enrolled in CCW declined by approximately 5%, from 64,778 to 61,441[19] (see Table 1). The proportion of infants and toddlers served by the program declined while the share of preschoolers increased slightly, a potentially problematic trend since CCW is the only publicly funded ECE program that specifically targets infants and toddlers. The number of White and Black children dropped over time, though at 31,119 subsidy recipients in 2019, Black children still comprised over half of all children served by CCW. The number of Hispanic children receiving CCW subsidies increased since 2014 by almost three percentage points. The share of families at different levels of income changed significantly from 2014 to 2019, with substantially fewer families in the lowest income group and substantially more families from higher income groups receiving CCW subsidies. While the share of subsidy recipients living in cities decreased slightly over time, close to half of all CCW beneficiaries — 28,145 children in 2019 — lived in urban areas. In 2019, children living in suburban areas were a third of CCW recipients, and children living in rural communities comprised around a quarter of subsidy-receiving children. The spread of children across communities with varying socioeconomic composition was largely equal in 2019, though the fewest CCW recipients resided in communities with the lowest concentrations of poverty (21.6%). Some variation in CCW enrollment was also evident by the racial composition of children's communities. In 2019, the greatest share of CCW recipients lived in communities with the most White residents (27.1%), followed by communities with the fewest White residents (26.0%). Overall, while subgroup enrollments shifted somewhat over time, trends in who CCW served appear generally stable from 2014 to 2019.

17 Education Law Center. (2017). Money matters in education justice: Addressing racial and class inequities in Pennsylvania's school funding system.

18 Shores, K., Lee, H., & Williams, E. (2021). The distribution of school resources in the United States: A comparative analysis across levels of governance, student sub-groups, and educational resources. EdWorkingPaper No. 21–443. Annenberg Institute at Brown University.

19 In 2017–18, many ECE providers changed their service delivery in order to comply with revised federal regulations that called for children to spend more time in center-based care. These changes led to providers serving fewer children (but for longer periods of time). Providers' response to these regulations may partly explain the decline in enrollment observed here.

TABLE 1. Child Care Works enrollment by children's individual and community characteristics, 2014 and 2019

		2014		2019	
		N	%	N	%
Age[20]	Infant	4,989	7.7%	4,078	6.6%
	Toddler	23,072	35.6%	20,882	34.0%
	Preschooler	36,717	56.7%	36,481	59.4%
Race	White	19,086	29.5%	16,713	27.2%
	Black	33,681	52.0%	31,119	50.6%
	Hispanic	9,485	14.6%	10,639	17.3%
Family Income	Lowest	19,532	30.2%	13,912	22.6%
	Middle low	16,378	25.3%	15,564	25.3%
	Middle high	15,803	24.4%	17,222	28.0%
	Highest	13,058	20.2%	14,740	24.0%
Geographic Locale	City	30,738	47.5%	28,145	45.8%
	Suburban	18,235	28.2%	18,379	29.9%
	Town/Rural	15,672	24.2%	14,838	24.2%
Community Poverty Concentration	Highest	17,995	27.8%	16,262	26.5%
	Middle high	16,541	25.5%	15,416	25.1%
	Middle low	16,841	26.0%	16,425	26.7%
	Lowest	13,253	20.5%	13,250	21.6%
Community Racial Composition (% White)	Lowest	17,519	27.0%	15,959	26.0%
	Middle low	16,576	25.6%	15,605	25.4%
	Middle high	13,090	20.2%	13,160	21.4%
	Highest	17,451	26.9%	16,631	27.1%
Total		**64,778**		**61,441**	

Notes: Age estimates were calculated based on children's birthdays as of October 1, 2014 and March 1, 2019, the months and years from which these data were collected. Infants are children ages 0-12 months; toddlers are 1–2 years old; and preschoolers are 3–5 years old. Based on exploratory analysis of patterns within the data, we grouped family income as follows for 2014: Lowest = $0–$13,999; Middle low = $14,000–$21,499; Middle high = $21,500–$29,999; and Highest = >$30,000. To account for inflation, we adjusted the income quartiles for 2019 as follows: Lowest = $0–$15,118; Middle low = $15,119–$23,217; Middle high = $23,218–$32,297; and Highest = >$32,298. Geographic locale was determined by linking child zip codes to National Center for Education Statistics locale classifications. The community poverty concentration measure reflects the percentage of households in the child's community with incomes above 200% of the federal poverty level. Community poverty quartiles are: Lowest = 0–46.99% of residents are low income; Middle low = 47.0–62.49%; Middle high = 62.5–73.99%; and Highest = >74%. The community racial composition measure reflects the percentage of residents in the child's community that identify as White. Racial composition quartiles are: Lowest = 0–19.99% of residents are White; Middle low = 20–57.99%; Middle high = 58–82%; Highest = >82.01%.

20 Supplemental analysis of CCW application data (available from the authors by request) showed demographic variation between the sample of young children enrolled in CCW and those whose families were placed on a waitlist and ultimately not enrolled. In the combined years of 2018 and 2019, infants comprised 23% of this latter group, substantially more compared to the group of CCW-enrolled infants. The share of toddlers who were waitlisted and not enrolled was nearly equal to the share of enrolled toddlers. Preschoolers were underrepresented in the waitlisted group relative to the enrolled group.

Variation in Access to High-Quality ECE Providers by Children's Individual and Community Characteristics

ECE Access by Children's Race

Research conducted with national samples as well as in other states has documented racial disparities in access to high-quality ECE, with White children experiencing the highest exposure to quality ECE providers and Black children the lowest.[21] We found similar patterns in Pennsylvania (see Table 2). In 2014 and 2019, White children were the most likely to be enrolled with STAR 4 providers and Black children were the least likely. From 2014 to 2019, the share of CCW recipients enrolled with STAR 4 providers increased across all racial groups, and was greatest for White children (12.1 percentage points). The gap between White and Black children also widened over time. That is, the difference in the percentage of White (18.3%) and Black (8.6%) children enrolled with a quality provider in 2014 was 9.7 percentage points, which grew to 12.3 percentage points in 2019 as quality access among White children (30.4%) outpaced access among Black children (18.1%). The quality access gap between White and Hispanic[22] children widened by 4.9 percentage points from 2014 to 2019.

In 2014 and 2019, White children were the most likely to be enrolled with STAR 4 providers and Black children were the least likely.

The percentage of children enrolled with No STAR/STAR 1 providers decreased substantially from 2014 to 2019. This decline was present among children of all racial groups, and was greatest for White children (-17.1 percentage points). In both 2014 and 2019, White children were enrolled with No STAR/STAR 1 providers at the lowest rates, while Black children were enrolled at the highest rates. In 2019, half of all Black children were enrolled with No STAR/STAR 1 providers. In contrast, the percentage of White children with No STAR/STAR 1 providers (31.2%) was nearly equal to the percentage of White children with STAR 4 providers (30.4%).

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21 Barnett, S., Carolan, M., & Johns, D. (2013). Equity and Excellence: African-American Children's Access to Quality Preschool. *Center on Enhancing Early Learning Outcomes;* Friedman-Krauss, A. (2016). How much can high-quality universal pre-K reduce achievement gaps?. *National Institute for Early Education Research;* Latham, S., Corcoran, S. P., Sattin-Bajaj, C., & Jennings, J. L. (2020). *Racial disparities in pre-K quality: Evidence from New York City's universal pre-K program.* Working Paper 20-248. Providence, RI: Brown University, Annenberg Institute; Rothwell, J. T. (2016). Classroom Inequality and the Cognitive Race Gap: Evidence from 4-Year Olds in Public PreK.

22 We separately analyzed differences by race among children identifying as Hispanic. Overall, White Hispanic children were enrolled with quality providers at higher rates than Black Hispanic children and Hispanic children whose race was identified as Other. While this analysis is not included here, it can be obtained from the authors by request.

TABLE 2. Distribution of provider QRIS scores by children's race and ethnicity, 2014 and 2019

QRIS Score	Racial/Ethnic Group	2014		2019		Percentage Point Change, 2014–2019
		N	%	N	%	
No STAR + STAR 1	White	9,216	48.3%	5,221	31.2%	-17.1
	Black	21,569	64.0%	15,575	50.0%	-14.0
	Hispanic	5,279	55.7%	4,131	38.8%	-16.9
STAR 2	White	3,856	20.2%	3,479	20.8%	0.6
	Black	5,328	15.8%	5,852	18.8%	3.0
	Hispanic	1,690	17.8%	2,564	24.1%	6.3
STAR 3	White	2,521	13.2%	2,932	17.5%	4.3
	Black	3,888	11.5%	4,062	13.1%	1.6
	Hispanic	1,035	10.9%	1,520	14.3%	3.4
STAR 4	White	3,493	18.3%	5,081	30.4%	12.1
	Black	2,896	8.6%	5,630	18.1%	9.5
	Hispanic	1,481	15.6%	2,424	22.8%	7.2

Notes: Because of small samples sizes, our analyses exclude children who were Asian, Native Hawaiian or Pacific Islander, American Indian or Alaskan Native, and whose race was identified as Other or Unknown. In 2019, Black, White, and Hispanic children comprised 95% of all CCW enrollment. Per guidance from OCDEL, we group providers with no STAR ratings with providers with STAR 1 ratings. Differences between racial/ethnic groups for 2014 and 2019 are statistically significant at p<.001.

Research shows brain development is especially rapid during children's first years of life,[23] and language gaps between children at low and high income levels emerge as young as 18 months old.[24] This evidence highlights the importance of access to quality ECE providers for infants and toddlers in particular. Yet, our analysis revealed concerning gaps between children of different races within these age groups, as well as among preschoolers (see Table 3). Across age groups, White children were enrolled with high-quality providers at the highest rates, and access to quality providers grew the most over time. Although the number of infants served by CCW was relatively low, racial gaps in quality access were particularly stark among these youngest learners. By 2019, the percentage of White infants with high-quality providers (49.7%) was twice that of Black infants (24.5%). White infants also had the highest growth in the percentage of children with high-quality providers (21.7 percentage points). By comparison, Black infants had among the lowest increases in the share of children with high-quality providers, at just 7.9 percentage points. In 2019, 45.5% of White toddlers were with high quality providers while only 28.6% of Black toddlers were, a gap of 16.9 percentage points. In 2019, just a third of Black preschoolers were enrolled with high-quality ECE providers compared to nearly half of all White preschoolers. While Hispanic toddlers and preschoolers were enrolled with high-quality providers at higher rates than their Black peers, growth in the share of Hispanic children enrolled with these providers was the lowest.

23 National Research Council. (2000). From neurons to neighborhoods: The science of early childhood development.

24 Fernald, A., Marchman, V. A., & Weisleder, A. (2013). SES differences in language processing skill and vocabulary are evident at 18 months. *Developmental science, 16*(2), 234–248.

TABLE 3. Share of children enrolled with high-quality providers (i.e., STAR 3 and STAR 4) by age and race, 2014 and 2019

Child Age	Racial/Ethnic Group	2014		2014		Percentage Point Change, 2014–2019
		N	%	N	%	
Infant	White	427	28.0%	532	49.7%	21.7
	Black	434	16.6%	535	24.5%	7.9
	Hispanic	138	20.7%	236	36.3%	15.6
Toddler	White	2,034	31.0%	2,449	45.5%	14.5
	Black	2,422	19.5%	3,147	28.6%	9.1
	Hispanic	850	25.9%	1,195	34.2%	8.3
Preschooler	White	3,553	32.3%	5,032	49.0%	16.7
	Black	3,928	21.1%	6,010	33.5%	12.4
	Hispanic	1,528	27.6%	2,513	38.7%	11.1

Note: Differences between racial/ethnic groups for 2014 and 2019 are statistically significant at p<.001.

ECE Access by Family Income

Research suggests children from families with low incomes experience increased benefit from quality ECE compared to higher-income peers, such as greater learning gains across the preschool years[25] and even increased earnings as adults.[26] Within programs that exclusively serve low-income children, benefits are greatest for children at the lowest end of the income distribution.[27] Given this research, we examined access to ECE providers among families in the lowest, middle, and highest groups of the CCW-eligible income range.[28] Differences between income groups were present, though were not as stark as differences by race, perhaps because even the highest income families were within 200% of the FPL (see Table 4). In 2014 and 2019, children in the highest income group were the least likely to be enrolled with a No STAR/STAR 1 provider and the most likely to be enrolled with a STAR 4 provider. Children in the highest income group also experienced the greatest increase in enrollment with STAR 4 providers from 2014 to 2019, at 11.4 percentage points. Children from families with the lowest incomes were enrolled with No STAR/STAR 1 providers at the highest rates, though experienced the greatest decline in enrollment from 2014 to 2019 (-15.5 percentage points). While growth in enrollment with STAR 4 providers was relatively high for the lowest income children (9.8 percentage points), the quality access gap between the highest- and lowest-income children widened slightly, from 4.3 percentage points in 2014 to 5.9 percentage points in 2019. In 2019, enrollment trends were similar for children in the lowest and middle low income groups.

25 Phillips, D. A., Lipsey, M. W., Dodge, K. A., Haskins, R., Bassok, D., Burchinal, M. R., Duncan, G., Dynarski, M., Magnuson, K.A., & Weiland, C. (2017). Puzzling it out: The current state of scientific knowledge on pre-kindergarten effects, a consensus statement. Washington, DC: Brookings Institution.

26 Bartik, T. J., Gormley, W., & Adelstein, S. (2012). Earnings benefits of Tulsa's pre-K program for different income groups. *Economics of Education Review, 31*(6), 1143–1161.

27 Ansari, A., Pianta, R. C., Whittaker, J. E., Vitiello, V., & Ruzek, E. (2021). Enrollment in public-prekindergarten and school readiness skills at kindergarten entry: Differential associations by home language, income, and program characteristics. *Early Childhood Research Quarterly, 54,* 60–71.

28 A key limitation of our family income analysis is the absence of data on household size.

Supplemental analyses (see Table B-1 in the appendix) show that Black and Hispanic families were overrepresented in the lowest income group and underrepresented in the highest income group. Conversely, White families were less likely to be in the lowest income group and more likely to be in the highest income group. This evidence suggests the income gaps presented here may be linked to the racial gaps reported in the previous section.

TABLE 4. Distribution of provider QRIS scores by children's family income, 2014 and 2019

QRIS Score	Income Group	2014		2019		Percentage Point Change, 2014–2019
		N	%	N	%	
No STAR + STAR 1	Lowest	11,746	60.1%	6,203	44.6%	-15.5
	Middle low	9,725	59.4%	6,880	44.2%	-15.2
	Middle high	8,866	56.1%	7,177	41.7%	-14.4
	Highest	6,996	53.6%	5,778	39.2%	-14.4
STAR 2	Lowest	3,382	17.3%	2,897	20.8%	3.5
	Middle low	2,774	16.9%	3,226	20.7%	3.8
	Middle high	2,880	18.2%	3,548	20.6%	2.4
	Highest	2,349	18.0%	2,825	19.2%	1.2
STAR 3	Lowest	2,286	11.7%	1,941	14.0%	2.3
	Middle low	1,837	11.2%	2,311	14.8%	3.6
	Middle high	1,861	11.8%	2,429	14.1%	2.3
	Highest	1,739	13.3%	2,234	15.2%	1.9
STAR 4	Lowest	2,118	10.8%	2,871	20.6%	9.8
	Middle low	2,042	12.5%	3,147	20.2%	7.7
	Middle high	2,196	13.9%	4,068	23.6%	9.7
	Highest	1,974	15.1%	3,903	26.5%	11.4

Note: Differences between income groups for 2014 and 2019 are statistically significant at p<.001.

ECE Access by Geographic Locale

In 2014 and 2019, access to STAR 4 ECE providers was greatest for children in towns and rural areas and lowest for children in cities (see Table 5). While children in all geographic locales experienced increased access to STAR 4 providers from 2014 to 2019, this growth was greatest among children in suburban areas (12.2 percentage points) and lowest among children in cities (8.0 percentage points). In 2019, the STAR 4 access gap between children in urban (17.3%) and rural (27.8%) areas was 10.5 percentage points, an increase of 2.3 percentage points over the 2014 urban-rural access gap. This high rate of access to quality ECE providers among rural CCW recipients contrasts with studies of nationally representative samples that found lower rates of access to quality ECE providers in rural communities relative to urban and suburban areas.[29]

There were also significant differences in enrollment with No STAR/STAR 1 providers by geographic locale. In 2019, nearly half of children living in cities were enrolled with a No STAR/STAR 1 provider, a

29 Gordon, R. A., & Chase-Lansdale, P. L. (2001). Availability of child care in the United States: A description and analysis of data sources. Demography, 38(2), 299–316; Nores, M., & Barnett, W. S. (2014). Access to high quality early care and education: Readiness and opportunity gaps in America. *National Institute for Early Education and Center on Enhancing Early Learning Policy report. New Brunswick, NJ: Center on Enhancing Early Learning Outcomes.*

rate almost 10 percentage points higher than suburban children and nearly 20 percentage points higher than children living in towns/rural areas. Among children in towns and rural areas, the share of children with No STAR/STAR 1 providers (31.4%) was comparable to the share of children with STAR 4 providers (27.8%) in 2019. Conversely, for children in cities, the gap between enrollment with No STAR/STAR 1 providers (48.8%) and STAR 4 providers (17.3%) was quite extreme. Low rates of access to quality ECE providers for urban children are particularly concerning given that nearly half of CCW recipients live in cities.

TABLE 5. Distribution of provider QRIS scores by children's geographic locale, 2014 and 2019

QRIS Score	Geographic Locale	2014		2019		Percentage Point Change, 2014–2019
		N	%	N	%	
No STAR/ STAR 1	City	19,375	63.0%	14,004	49.8%	-13.2
	Suburb	10,052	55.1%	7,348	40.0%	-15.1
	Town/Rural	7,846	50.1%	4,661	31.4%	-18.7
STAR 2	City	5,250	17.1%	5,619	20.0%	2.9
	Suburb	3,096	17.0%	3,594	19.6%	2.6
	Town/Rural	3,016	19.2%	3,268	22.0%	2.8
STAR 3	City	3,251	10.6%	3,654	13.0%	2.4
	Suburb	2,388	13.1%	2,472	13.5%	0.4
	Town/Rural	2,070	13.2%	2,778	18.7%	5.5
STAR 4	City	2,862	9.3%	4,868	17.3%	8.0
	Suburb	2,699	14.8%	4,965	27.0%	12.2
	Town/Rural	2,740	17.5%	4,131	27.8%	10.3

Note: Differences between geographic groups for 2014 and 2019 are statistically significant at p<.001.

Similar to our analysis of age and race, we found significant disparities in access to high-quality ECE providers by age and geographic locale. In 2019, fewer than a quarter of infants living in cities were with high-quality providers (see Table 6). Conversely, at 46.7%, infants living in towns/rural areas were twice as likely as children living in cities to be enrolled with a STAR 3 or 4 provider. Growth in access from 2014 to 2019 for infants in towns/rural areas was also more than double the growth experienced by infants in cities. Higher rates of quality access among rural infants combined with higher rates of growth created a notably large and growing gap for urban infants. In 2014, the quality gap between rural (26.7%) and urban (14.8%) infants was 11.9 percentage points, a large gap that then ballooned to 24.1 percentage points in 2019. Gaps between urban and suburban infants were also present across years and increased over time, with similar patterns present among toddlers and preschoolers. In 2019, the rate of access to quality providers for toddlers in towns/rural areas was 18.0 percentage points higher than toddlers in cities. Though still sizeable, the gap in access between urban and rural children was the smallest among preschoolers, at 14.3 percentage points.

Within locale groups, differences by age varied. In cities, access to quality providers increased as children got older, with preschoolers (33.3%) enrolled with quality providers at a rate significantly higher than toddlers (26.6%) and infants (22.6%). For children living in suburban and towns/rural areas, however, differences in quality access between age groups were relatively small.

TABLE 6. Share of children enrolled with high-quality providers (i.e., STAR 3 and STAR 4) by geographic locale and age, 2014 and 2019

Geographic Locale	Age	2014		2019		Percentage Point Change, 2014–2019
		N	%	N	%	
City	Infant	333	14.8%	414	22.6%	7.8
	Toddler	2,148	19.1%	2,601	26.6%	7.5
	Preschooler	3,632	21.1%	5,507	33.3%	12.2
	Total	**6,113**	**19.9%**	**8,522**	**30.3%**	**10.4**
Suburb	Infant	361	25.0%	479	38.9%	13.9
	Toddler	1,762	27.7%	2,421	39.0%	11.3
	Preschooler	2,964	28.4%	4,537	41.5%	13.1
	Total	**5,087**	**27.9%**	**7,437**	**40.5%**	**12.6**
Town/Rural	Infant	342	26.7%	474	46.7%	20.0
	Toddler	1,597	29.5%	2,167	44.6%	15.1
	Preschooler	2,871	32.0%	4,268	47.6%	15.6
	Total	**4,810**	**30.7%**	**6,909**	**46.5%**	**14.5**

Note: Differences between geographic groups for 2014 and 2019 are statistically significant at p<.001.

Across cities, suburbs, and towns/rural areas, White children were enrolled with high-quality providers at the highest rates (see Table 7). Black children living in cities and suburbs were the least likely to attend a high-quality provider, compared to White and Hispanic children also living in those locales. Yet, the magnitude of racial disparities varied by locale. Differences in quality access by race were the smallest in rural areas, where in 2019 White children were enrolled with high-quality providers at a rate around 7 percentage points higher than Black and Hispanic children. In cities and suburbs, that difference doubled. In suburban areas, for example, the gap between White (49.8%) and Black (35.1%) children was 14.7 percentage points.

Across cities, suburbs, and towns/rural areas, White children were enrolled with high-quality providers at the highest rates.

Disparities were also present across locales. Most notably, children living in cities experienced the lowest rates of enrollment with quality providers compared to same-race peers living in cities and suburbs. Gaps were especially large between CCW recipients living in urban and rural areas. For Black children in 2019, the quality access gap between urban (27.7%) and rural (42.2%) residents was 14.5 percentage points, while the urban-rural gap was 7.8 and 9.5 percentage points for White and Hispanic children, respectively. The urban-rural quality access gap widened from 2014 to 2019 for Black and White children, while remaining stable for Hispanic children.

TABLE 7. Share of children enrolled with high-quality providers (i.e., STAR 3 and STAR 4) by geographic locale and race, 2014 and 2019

Geographic Locale	Racial/Ethnic Group	2014		2019		Percentage Point Change, 2014–2019
		N	%	N	%	
City	White	742	27.0%	957	40.9%	13.9
	Black	3,968	18.1%	5,328	27.7%	9.6
	Hispanic	1,070	22.6%	1,656	32.8%	10.2
	Total	**6,113**	**19.9%**	**8,522**	**30.3%**	**10.4**
Suburb	White	1,788	32.2%	2,419	49.8%	17.6
	Black	2,117	24.1%	3,182	35.1%	11.0
	Hispanic	894	29.5%	1,410	40.2%	10.7
	Total	**5,087**	**27.9%**	**7,437**	**40.5%**	**12.6**
Town/Rural	White	3,468	32.3%	4,618	48.7%	16.4
	Black	682	23.8%	1,173	42.2%	18.4
	Hispanic	538	32.0%	870	42.3%	10.3
	Total	**4,810**	**30.7%**	**6,909**	**46.5%**	**14.5**

Note: Differences between racial/ethnic groups for 2014 and 2019 are statistically significant at p<.001.

Geographic patterns in access to quality providers by income group were similar to those observed by race (see Table 8). Across income groups, quality ECE access was lowest for families living in cities. Even the highest income group in cities accessed quality ECE providers at a rate of only 33.5%, lower than any of the family income groups in suburban and rural areas. Within cities, access to quality providers increased incrementally as family income increased; however, that pattern did not hold in suburban and rural areas. In suburban and rural areas, families in the lowest income group actually experienced greater access than families in middle income groups.

Across all income groups, growth in access to high-quality ECE providers was greatest among families in rural areas. Conversely, families living in cities experienced the least growth in quality ECE access across all income groups. Moreover, gaps widened over time. For example, the gap between the lowest-income children living in cities (18.9%) and towns/rural areas (29.3%) was 10.4 percentage points in 2014, and grew to 17.3 percentage points in 2019. The urban-rural gap between children with the highest family incomes grew from 13.0 to 16.3 percentage points over that same time. Together, these findings suggest geographic locale matters more for quality ECE access than does family income.

These findings suggest geographic locale matters more for quality ECE access than does family income.

TABLE 8. Share of children enrolled with high-quality providers (i.e., STAR 3 and STAR 4) by geographic locale and family income, 2014 and 2019

Geographic Locale	Income Group	2014		2019		Percentage Point Change, 2014–2019
		N	%	N	%	
City	Lowest	2,210	18.9%	2,004	27.5%	8.6
	Middle low	1,446	19.0%	2,247	29.6%	10.6
	Middle high	1,421	21.6%	2,362	31.6%	10.0
	Highest	1,036	21.4%	2,002	33.5%	12.1
	Total	**6,113**	**19.9%**	**8,615**	**30.4%**	**10.5**
Suburb	Lowest	1,121	26.8%	1,493	40.4%	13.6
	Middle low	1,212	26.0%	1,810	38.4%	12.4
	Middle high	1,408	28.0%	2,282	39.7%	11.7
	Highest	1,346	30.9%	2,366	45.4%	14.5
	Total	**5,087**	**27.9%**	**7,951**	**41.0%**	**13.1**
Town/Rural	Lowest	1,058	29.3%	1,307	44.8%	15.5
	Middle low	1,204	29.6%	1,392	42.8%	13.2
	Middle high	1,223	29.5%	1,841	46.2%	16.6
	Highest	1,320	34.4%	1,759	49.8%	15.4
	Total	**4,805**	**30.7%**	**6,299**	**46.0%**	**15.3**

Note: Differences between income groups for 2014 and 2019 are statistically significant at p<.001.

ECE Access by Community Racial Composition

Studies have found that communities' racial composition is associated with the prevalence of high-quality ECE providers, with communities of color having fewer ECE providers with high quality ratings.[30] In Pennsylvania, we find a similar pattern between the racial composition of children's communities and their likelihood of accessing a quality ECE provider (see Table 9). In 2014 and 2019, the percentage of children enrolled with a STAR 4 was greater in communities with more White residents. Likewise, the percentage of children enrolled with a No STAR/STAR 1 provider decreased in communities with more White residents. In 2019, over half of children living in communities of color (i.e., in communities where fewer than 20% of residents were White) were enrolled with No STAR or STAR 1 providers, while fewer than 15% were enrolled with STAR 4 providers. In contrast, children in predominantly White communities (i.e., communities where more than 82% of residents were White) were enrolled with No STAR/STAR 1 providers at a rate of 30.6%, nearly equal to their rate of enrollment with STAR 4 providers (30.0%).

Children living in communities of color experienced the smallest decline in No STAR/STAR 1 provider enrollment (-11.9) from 2014 to 2019, while children in predominantly White communities experienced the greatest decline (-17.7). Children in communities with higher shares of White residents benefitted from the greatest growth in enrollment with STAR 4 providers, at nearly 12 percentage points. Among those enrolled with STAR 4 providers, the gap between children living in communities of color and predominantly White communities widened from 12.7 percentage points in 2014 to 16.1 percentage points in 2019. The No STAR/STAR 1 enrollment gap between children in these communities was even larger, widening from 17.1 in 2014 to 22.9 in 2019.

30 Bassok, D., & Galdo, E. (2016). Inequality in preschool quality? Community-level disparities in access to high-quality learning environments. *Early Education and Development, 27*(1), 128–144; Lee, E. (2021). A mixed-methods study of Maryland's monetary incentives to improve the quality of child care centers. *Early Childhood Research Quarterly, 55,* 349–362.

TABLE 9. Distribution of provider QRIS scores by the racial composition of children's communities, 2014 and 2019

QRIS Score	% White Residents	2014		2019		Percentage Point Change, 2014–2019
		N	%	N	%	
No STAR/ STAR 1	Lowest	11,464	65.4%	8,543	53.5%	-11.9
	Middle low	10,383	62.6%	7,365	47.2%	-15.4
	Middle high	6,988	53.4%	5,014	38.1%	-15.3
	Highest	8,430	48.3%	5,087	30.6%	-17.7
STAR 2	Lowest	3,008	17.2%	3,239	20.3%	3.1
	Middle low	2,536	15.3%	3,136	20.1%	4.8
	Middle high	2,389	18.3%	2,617	19.9%	1.6
	Highest	3,428	19.6%	3,489	21.0%	1.4
STAR 3	Lowest	2,065	11.8%	1,964	12.3%	0.5
	Middle low	1,728	10.4%	2,106	13.5%	3.1
	Middle high	1,511	11.5%	1,762	13.4%	1.9
	Highest	2,405	13.8%	3,070	18.5%	4.7
STAR 4	Lowest	982	5.6%	2,213	13.9%	8.3
	Middle low	1,927	11.6%	2,998	19.2%	7.6
	Middle high	2,200	16.8%	3,767	28.6%	11.8
	Highest	3,185	18.3%	4,985	30.0%	11.7

Note: Differences between community racial composition groups for 2014 and 2019 are statistically significant at p<.001.

Disparities in access to quality providers by community racial composition were also observed between racial groups. That is, even within communities with similar racial makeup, children were enrolled with quality providers at different rates based on their own race (see Table 10). In 2014 and 2019, Black children had the lowest rates of access to high-quality ECE providers, regardless of their community racial composition, while White children had the highest rates of quality access across all communities. Even in communities of color, White children had the highest rate of enrollment with quality providers (34.1%). Across racial groups in 2019, quality access grew steadily in communities with more White residents. For example, only 25.5% of Black children living in communities of color were enrolled with a quality ECE provider; but in predominantly White communities, Black children's quality access rate jumped to 44.2%, an increase of nearly 20 percentage points.

Growth in access to quality providers from 2014 to 2019 followed a similar pattern. Children in communities of color experienced the least growth in access to high-quality providers from 2014 to 2019, regardless of children's race. In most cases, growth in access increased for children in communities with more White residents, with the greatest overall growth (16.4) experienced by children in predominantly White communities. This disparate growth led to widening gaps between same-race children living in communities with differing racial makeup. In 2014, 25.7% of White children in communities of color had a quality ECE provider, compared to 32.8% of White children in predominantly White communities, a gap of 7.1 percentage points. In 2019, that gap grew to 15.4 percentage points. Black and Hispanic children experienced similarly widening gaps by community racial composition, with gap increases of 8.5 and 4.0 percentage points, respectively. Altogether, these data suggest individual race and the race of community members both matter in terms of access to high-quality ECE providers.

TABLE 10. Share of children enrolled with high-quality providers (i.e., STAR 3 and STAR 4) by community racial composition and race, 2014 and 2019

% White Residents	Racial/Ethnic Group	2014		2019		Percentage Point Change, 2014–2019
		N	%	N	%	
Lowest	White	67	25.7%	85	34.1%	8.4
	Black	2,482	16.6%	3,392	25.5%	8.9
	Hispanic	396	20.6%	564	29.4%	8.8
	Total	**3,047**	**17.4%**	**4,177**	**26.2%**	**8.8**
Middle Low	White	415	22.7%	570	36.4%	13.7
	Black	2,127	21.4%	2,806	31.6%	10.2
	Hispanic	842	21.7%	1,328	31.9%	10.2
	Total	**3,655**	**22.0%**	**5,104**	**32.7%**	**10.7**
Middle High	White	1,380	32.0%	1,833	49.2%	17.2
	Black	1,334	23.3%	2,080	36.4%	13.1
	Hispanic	809	33.8%	1,241	42.9%	9.1
	Total	**3,713**	**28.4%**	**5,529**	**42.0%**	**13.6**
Highest	White	4,136	32.8%	5,505	49.5%	16.7
	Black	824	26.8%	1,403	44.2%	17.4
	Hispanic	454	36.3%	803	49.1%	12.8
	Total	**5,593**	**32.0%**	**8,055**	**48.4%**	**16.4**

Note: Differences between racial/ethnic groups for 2014 and 2019 are statistically significant at p<.001.

Analysis of quality access by children's age showed substantial differences by community racial composition, with particularly stark gaps for Pennsylvania's youngest learners (see Table 11). In 2014 and 2019, children of all ages were more likely to be enrolled with a high-quality ECE provider in communities with more White residents. In 2019, only 15.8% of infants and 20.0% of toddlers living in communities of color were enrolled with high-quality providers, the lowest rates of any subgroups observed in this study. Comparatively, 48.5% of infants and 47.2% of toddlers in predominantly White communities were with quality providers, representing gaps of 32.7 and 27.2 percentage points, respectively, between same-age children in communities with the fewest and most White residents.

In 2014, access to quality providers increased for older children across all community types. In 2019, that pattern changed, as more infants than toddlers were with high-quality providers, but only in communities with higher shares of White residents. This shift was a result of substantial growth in enrollment with quality providers among White infants in predominantly White communities, at over 18 percentage points. Growth in access to quality providers was abysmally low for infants and toddlers in communities of color. At fewer than five percentage points, growth in quality access among these groups of children was the lowest of any subgroups observed in this study. Gaps between same-age children in communities with differing racial composition again widened over time. The gap in quality ECE access between infants living in communities of color and predominantly White communities was 16.9 percentage points in 2014 and 32.7 percentage points in 2019, an increase of 15.8 percentage points. The quality access gap widened similarly for toddlers and preschoolers, with increases of 11.1 and 7.7 percentage points, respectively.

TABLE 11. Share of children enrolled with high-quality providers (i.e., STAR 3 and STAR 4) by community racial composition and age, 2014 and 2019

% White Residents	Child Age	2014		2019		Percentage Point Change, 2014–2019
		N	%	N	%	
Lowest	Infant	153	12.7%	163	15.8%	3.1
	Toddler	947	15.7%	1,072	20.0%	4.3
	Preschooler	1,627	17.8%	2,277	26.4%	8.6
Middle Low	Infant	198	15.7%	269	26.7%	11.0
	Toddler	1,164	19.6%	1,555	29.3%	9.7
	Preschooler	1,956	21.3%	3,122	33.7%	12.4
Middle High	Infant	287	24.3%	399	42.4%	18.1
	Toddler	1,542	29.5%	2,067	42.0%	12.5
	Preschooler	2,582	30.6%	4,060	46.2%	15.6
Highest	Infant	396	29.6%	531	48.5%	18.9
	Toddler	1,853	31.8%	2,488	47.2%	15.4
	Preschooler	3,288	33.4%	4,854	49.7%	16.3

Note: Differences between age groups for 2014 and 2019 are statistically significant at p<.001.

Analysis by family income again showed that community racial composition mattered when it came to accessing quality ECE providers (see Table 12). Families in all income groups living in communities of color experienced substantially lower rates of access compared to families in the same income group living in communities with more White residents. For example, in 2019, the quality access rate for families with the lowest incomes grew steadily and remarkably across communities with more White residents, from 21.1%, to 31.6%, to 42.3%, to 48.9%. In contrast, gaps between income groups in the same communities were relatively small. For example, the difference in quality access between children in the lowest (21.1%) and highest (25.4%) income groups in communities of color was only 4.3 percentage points, with relatively similar gaps observed across the other three community types. Growth in access to high-quality providers from 2014 to 2019 was lowest in communities of color (6.0, on average) and increased across communities with more White residents. Differences in growth between income groups did not appear to follow a particular pattern. Altogether, these data suggest that while family income mattered to some extent — for example, children in the highest income group experienced the highest rates of quality access across community types — community racial composition mattered substantially more.

Families in all income groups living in communities of color experienced substantially lower rates of access compared to families in the same income group living in communities with more White residents.

TABLE 12. Share of children enrolled with high-quality providers (i.e., STAR 3 and STAR 4) by community racial composition and family income, 2014 and 2019

% White Residents	Income Group	2014		2019		Percentage Point Change, 2014–2019
		N	%	N	%	
Lowest	Lowest	1,235	16.6%	921	21.1%	4.5
	Middle low	697	16.5%	967	23.6%	7.1
	Middle high	654	19.6%	912	24.6%	5.0
	Highest	461	18.5%	712	25.4%	6.9
	Total	**3,047**	**17.4%**	**3,512**	**23.4%**	**6.0**
Middle Low	Lowest	1,091	21.9%	1,072	31.6%	9.7
	Middle low	899	20.9%	1,196	29.5%	8.6
	Middle high	932	22.4%	1,398	30.6%	8.2
	Highest	733	23.4%	1,280	35.8%	12.4
	Total	**3,655**	**22.1%**	**4,946**	**31.7%**	**9.6**
Middle High	Lowest	863	27.5%	1,186	42.3%	14.8
	Middle low	877	26.4%	1,541	41.8%	15.4
	Middle high	1,015	27.7%	1,899	44.8%	17.1
	Highest	956	32.3%	1,900	48.5%	16.2
	Total	**3,711**	**28.4%**	**6,526**	**44.5%**	**16.1**
Highest	Lowest	1,200	30.7%	1,625	48.9%	18.2
	Middle low	1,387	31.0%	1,744	47.0%	16.0
	Middle high	1,451	31.5%	2,270	48.6%	17.1
	Highest	1,552	34.8%	2,234	50.6%	15.8
	Total	**5,590**	**32.0%**	**7,873**	**48.8%**	**16.8**

ECE Access by Community Socioeconomic Composition

Research suggests children living in communities with high concentrations of poverty benefit the most from high-quality ECE.[31] However, we find sharp differences in access to quality providers by levels of community poverty (see Table 13). In 2014 and 2019, children in the highest poverty communities were both the most likely to be enrolled with No STAR or STAR 1 providers and the least likely to be with STAR 4 providers. Conversely, children in the lowest poverty communities had the lowest rates of enrollment with No STAR/STAR 1 providers and the highest rates of enrollment with STAR 4 providers. In fact, in 2019, more children from the lowest poverty communities were with STAR 4 providers (33.1%) than No STAR/STAR 1 providers (32.3%). Comparatively, the difference between enrollment with No STAR/STAR 1 (50.7%) and STAR 4 (15.8%) providers for children in the highest poverty communities was a massive 34.9 percentage points. Children in communities with the lowest poverty also benefitted from the greatest growth in access to STAR 4 providers from 2014 to 2019 — at 16.0 percentage points, the growth in access to STAR 4 providers among children in the lowest poverty communities more than doubled the growth experienced among children in the highest poverty communities. These sobering findings support

31 Pearman, F. A. (2020). The moderating effect of neighborhood poverty on preschool effectiveness: Evidence from the Tennessee Voluntary Prekindergarten experiment. *American Educational Research Journal, 57*(3), 1323–1357.

recent arguments made by leading experts in educational inequality that high levels of educational opportunity are rarely — if ever — provided to low-income communities.[32]

TABLE 13. Distribution of provider QRIS scores by the socioeconomic composition of children's communities, 2014 and 2019

QRIS Score	Poverty Concentration	2014		2019		Percentage Point Change, 2014–2019
		N	%	N	%	
No STAR/ STAR 1	Highest	11,578	64.3%	8,248	50.7%	-13.6
	Middle high	10,172	61.5%	6,919	44.9%	-16.6
	Middle low	9,189	54.6%	6,558	39.9%	-14.7
	Lowest	6,322	47.7%	4,283	32.3%	-15.4
STAR 2	Highest	3,097	17.2%	3,425	21.1%	3.9
	Middle high	2,701	16.3%	3,115	20.2%	3.9
	Middle low	2,893	17.2%	3,333	20.3%	3.1
	Lowest	2,670	20.1%	2,606	19.7%	-0.4
STAR 3	Highest	1,794	10.0%	2,016	12.4%	2.4
	Middle high	1,829	11.1%	2,334	15.1%	4.0
	Middle low	2,087	12.4%	2,579	15.7%	3.3
	Lowest	1,999	15.1%	1,973	14.9%	-0.2
STAR 4	Highest	1,526	8.5%	2,573	15.8%	7.3
	Middle high	1,839	11.1%	3,047	19.8%	8.7
	Middle low	2,672	15.9%	3,955	24.1%	8.2
	Lowest	2,262	17.1%	4,387	33.1%	16.0

Note: Differences between community socioeconomic composition groups for 2014 and 2019 are statistically significant at p<.001.

Analysis by age followed overall patterns in quality access by community socioeconomic composition (see Table 14). In both 2014 and 2019, infants, toddlers, and preschoolers living in low poverty communities were the most likely to be enrolled with a high-quality ECE provider. The greatest growth in quality access over time also occurred in the lowest poverty communities, again for all age groups. Children of all ages living in high poverty communities were the least likely to be enrolled with a quality ECE provider and experienced the least growth in quality access from 2014 to 2019. Moreover, rates of enrollment with quality providers grew across communities with less poverty. For example, the quality access rate for preschoolers grew steadily from 30.9% to 37.2% to 41.3% to 49.0% as community poverty decreased. While this pattern persisted across age groups, the magnitude of the access gap between high- and low-poverty communities varied by age. That is, for some age groups – particularly infants – the influence of community poverty appeared greater. In 2019, infants living in low poverty communities accessed quality providers at a rate of 47.6%, a rate 26.5 percentage points higher than infants in high poverty communities. While still substantial, gaps between children in low and high poverty communities were smaller for toddlers and preschoolers, at 21.1 and 18.1 percentage points, respectively.

Patterns in quality access between age groups changed somewhat from 2014 to 2019. In 2014, access to quality providers was higher across all community types for older kids. By 2019, that pattern shifted.

32 National Center on Education and the Economy. (2021). A discussion with Sean Reardon about educational opportunity in the U.S.

Infants living in higher poverty communities continued to access quality providers at far lower rates than older children in similar communities. Yet in lower poverty communities, infants were more likely than toddlers and nearly as likely as preschoolers to be enrolled with a quality ECE provider. Given the rapid brain development that occurs during the first years of life and the particular importance of quality ECE for these youngest learners, these data indicate infants in lower poverty communities were on the right trajectory, with quality ECE access increasing and even outpacing older peers. On the other hand, patterns observed among infants in lower poverty communities are concerning. Such disparate access to quality early education risks initiating in infancy the kinds of opportunity gaps that already plague Pre-K-12 students from high poverty communities.[33]

TABLE 14. Percentage of children enrolled with high-quality providers (i.e., STAR 3 and STAR 4) by age and the socioeconomic composition of children's communities, 2014 and 2019

Community Poverty Concentration	Child Age	2014		2019		Percentage Point Change, 2014–2019
		N	%	N	%	
Highest	Infant	191	14.4%	235	21.1%	6.7
	Toddler	1,176	17.7%	1,434	25.1%	7.4
	Preschooler	1,953	19.5%	2,920	30.9%	11.4
Middle High	Infant	241	18.5%	282	29.1%	10.6
	Toddler	1,270	21.2%	1,707	32.0%	10.8
	Preschooler	2,157	23.3%	3,393	37.2%	13.9
Middle Low	Infant	324	23.5%	444	38.9%	15.4
	Toddler	1,640	27.8%	2,057	37.3%	9.5
	Preschooler	2,795	29.2%	4,033	41.3%	12.1
Lowest	Infant	280	29.0%	405	47.6%	18.6
	Toddler	1,420	31.5%	1,991	46.2%	14.7
	Preschooler	2,561	32.9%	3,964	49.0%	16.1

Note: Differences between age groups for 2014 and 2019 are statistically significant at p<.01.

Even among children with the lowest incomes, access to quality ECE providers was greater when fewer community members were experiencing poverty (see Table 15). Indeed, over half of children in the lowest income group (51.5%) were enrolled with a quality provider when they lived in communities with low poverty. By comparison, only a quarter of the lowest income children living in the highest poverty communities were with quality providers. Across community groups, the highest income children were the most likely to access a quality provider, though gaps between lower- and higher-income children were relatively small, varied in magnitude, and did not appear to follow a particular pattern. These findings further suggest the poverty level of communities was more influential than families' individual incomes in terms of accessing quality ECE (at least within an income-targeted program like CCW), and compliment other studies that have documented educational benefits for low-income families that live in low poverty neighborhoods.[34]

33 Carter, P. L., & Welner, K. G. (Eds.). (2013). Closing the opportunity gap: *What America must do to give every child an even chance*. Oxford University Press.

34 Chetty, R., Hendren, N., & Katz, L. F. (2016). The effects of exposure to better neighborhoods on children: New evidence from the Moving to Opportunity experiment. *American Economic Review, 106*(4), 855–902.

TABLE 15. Share of children enrolled with high-quality providers (i.e., STAR 3 and STAR 4) by community socioeconomic composition and family income, 2014 and 2019

Community Poverty Concentration	Income Group	2014		2019		Percentage Point Change, 2014–2019
		N	%	N	%	
Highest	Lowest	1,346	18.2%	1,093	25.2%	7.0
	Middle low	798	17.2%	1,252	29.7%	12.5
	Middle high	738	20.5%	1,247	31.5%	11.0
	Highest	438	18.6%	876	31.7%	13.1
	Total	**3,320**	**18.4%**	**4,468**	**29.3%**	**10.9**
Middle High	Lowest	1,074	20.6%	1,025	29.2%	8.6
	Middle low	916	21.9%	1,171	28.8%	6.9
	Middle high	872	22.0%	1,226	29.7%	7.7
	Highest	806	25.3%	1,139	32.8%	7.5
	Total	**3,668**	**22.2%**	**4,561**	**30.0%**	**7.8**
Middle Low	Lowest	1,118	26.7%	1,226	38.3%	11.6
	Middle low	1,183	27.0%	1,345	35.5%	8.5
	Middle high	1,267	28.1%	1,681	37.4%	9.3
	Highest	1,188	31.6%	1,723	43.9%	12.3
	Total	**4,756**	**28.2%**	**5,975**	**38.7%**	**10.5**
Lowest	Lowest	851	31.4%	1,460	51.5%	20.1
	Middle low	963	31.0%	1,680	48.3%	17.3
	Middle high	1,175	31.8%	2,325	50.5%	18.7
	Highest	1,270	33.9%	2,388	52.4%	18.5
	Total	**4,259**	**32.1%**	**7,853**	**50.7%**	**18.6**

Note: Differences between income groups for 2014 and 2019 are statistically significant at p<.001.

Unlike analysis by family income, differences by race within communities of different socioeconomic makeup were substantial (see Table 16). Regardless of community poverty level, Black children were the least likely to have access to quality ECE providers and White children were the most likely. Growth in access from 2014 to 2019 was also greatest for White children in all community groups. Gaps in quality access between Black and White children were consistently large, at greater than 10 percentage points for every community socioeconomic group. Even in the lowest poverty communities, the gap in access to quality providers between Black children (40.9%) and White children (52.2%) was 11.3 percentage points.

Children from all racial groups experienced increased access to quality providers in communities with less poverty. Across racial groups, children in the highest poverty communities were the least likely to access a quality provider, and children in the lowest poverty communities were the most likely. Rates of growth from 2014 to 2019 varied, however. For example, Hispanic children in the highest poverty communities experienced greater growth (11.0 percentage points) than their same-race peers in middle poverty communities. While among White children, growth in quality access was the lowest in communities with the most poverty. Compared to the universally consistent patterns found by children's race — that is, that in all cases White children had the highest rates of access and the greatest growth in access — these varying patterns by community socioeconomic composition suggest race plays a dominant role when it comes to children's access to quality ECE providers.

TABLE 16. Share of children enrolled with high-quality providers (i.e., STAR 3 and STAR 4) by community socioeconomic composition and race, 2014 and 2019

Community Poverty Concentration	Racial/Ethnic Group	2014		2019		Percentage Point Change, 2014–2019
		N	%	N	%	
Highest	White	283	26.3%	330	38.6%	12.3
	Black	2,277	17.5%	3,044	26.7%	9.2
	Hispanic	638	18.7%	1,034	29.7%	11.0
	Total	**3,320**	**18.4%**	**4,589**	**28.2%**	**9.8**
Middle High	White	952	27.8%	1,369	47.7%	19.9
	Black	1,853	18.7%	2,761	30.2%	11.5
	Hispanic	639	27.4%	911	36.2%	8.8
	Total	**3,668**	**22.2%**	**5,382**	**34.9%**	**12.7**
Middle Low	White	2,296	30.8%	2,977	45.2%	14.4
	Black	1,682	24.3%	2,283	34.3%	10.0
	Hispanic	579	31.6%	896	38.4%	6.8
	Total	**4,759**	**28.3%**	**6,534**	**39.8%**	**11.5**
Lowest	White	2,467	34.8%	3,317	52.2%	17.4
	Black	955	25.4%	1,593	40.9%	15.5
	Hispanic	645	34.9%	1,095	48.0%	13.1
	Total	**4,261**	**32.2%**	**6,360**	**48.0%**	**15.8**

Note: Differences between racial/ethnic groups for 2014 and 2019 are statistically significant at p<.001.

Our analysis makes clear that children's community characteristics matter in terms of accessing quality ECE providers. To further test the salience of children's community characteristics, we explored differences in quality access between children enrolled with providers in their same community and children enrolled with providers located outside their home community. In 2014, 54% of all CCW recipients were enrolled with providers located in a community other than their own. That number dropped significantly by 2019, with 41% of CCW recipients traveling outside their community for ECE. Overall, differences in access between same-community and other-community providers were relatively small, and gaps in quality access by race, age, and family income followed previously documented patterns (see Table 17). Black children, infants, and children with the lowest incomes were the least likely to experience quality ECE providers whether they sought ECE from providers in their same community or another community. White children, preschoolers, and children with the highest incomes were the most likely to experience quality ECE both inside and outside of their home communities. Notably, however, differences in quality access between same-community and other-community providers increased from 2014 to 2019, with consistently higher rates of quality access for children who received ECE outside their home community. Hispanic children in particular gained substantial benefit when they sought ECE outside their home communities, with an increase in quality access of 7.2 percentage points. These initial findings may suggest a need for research on family preferences and under what conditions families opt for ECE outside their home communities.

TABLE 17. Share of children enrolled with high-quality providers, by children's characteristics and whether the child was enrolled with a provider located in their same community or another community, 2014 and 2019

		2014				2019			
		Same Community		Other Community		Same Community		Other Community	
		N	%	N	%	N	%	N	%
Child Race	White	2,948	31.7%	3,066	31.3%	3,496	46.4%	4,517	49.2%
	Hispanic	3,027	20.1%	3,757	20.2%	4,004	30.2%	5,688	31.8%
	Total	1,149	25.7%	1,367	27.3%	1,567	33.1%	2,377	40.3%
Child Age	Infant	494	22.4%	546	19.6%	553	32.5%	815	34.3%
	Toddler	2,513	23.8%	3,014	24.1%	2,944	33.0%	4,251	35.5%
	Preschooler	4,425	25.6%	5,066	26.0%	6.043	37.4%	8,298	40.9%
Family Income	Lowest	2,195	22.7%	2,209	22.4%	2,173	33.6%	2,639	35.5%
	Middle low	1,816	23.9%	2,063	23.5%	2,315	33.9%	3,143	36.0%
	Middle high	1,751	25.0%	2,306	26.2%	2,631	35.9%	3,866	39.1%
	Highest	1,667	29.1%	2,046	27.9%	2,421	39.3%	3,716	43.3%

Note: "Same community" is defined as enrollment with a provider located in the same zip code as the child's home residence. "Other community" is defined as enrollment with a provider located in any zip code other than the child's home residence.

Summary of Variation in Access to High-Quality ECE Providers by Children's Individual and Community Characteristics

Children who were Black and those living in cities, high poverty communities, and/or communities of color experienced consistently low rates of access to quality ECE.

Access to high-quality ECE providers, defined as a provider with a STAR 3 or 4 QRIS score, increased over time for all the child subgroups we examined. However, growth was not experienced evenly, and we found significant disparities in access between subgroups in 2014 and 2019. Children's age, race, family income, and community characteristics were all linked to differences in quality ECE access, though some demographic factors appeared more consequential than others. Overall, children who were White, had the highest family incomes, and those living in suburban or rural areas, low poverty communities, and/or predominantly White communities consistently experienced greater access to high-quality ECE providers. Children with the highest family incomes living in low poverty communities, children with the highest family incomes living in predominantly White communities, and White children living in low poverty communities had the highest rates of quality ECE access among all subgroups, at over 50 percent. White infants, infants in towns/rural areas, and infants in low poverty communities experienced the most substantial increases in quality access from 2014 to 2019, with growth near 20 percentage points. Conversely, children who were Black and those living in cities, high poverty communities, and/or communities of color experienced consistently low rates of access to quality ECE. Infants and toddlers in communities of color, infants in cities, and infants in high poverty communities were the least likely to be enrolled with a quality ECE provider across all subgroups. Infants and toddlers in communities of color and infants in high poverty communities also experienced

the least growth in quality access from 2014 to 2019, at less than seven percentage points. These findings highlight the prominent roles that race, community poverty, and community racial composition, in particular, play in influencing the early learning options available to CCW recipients.

Gaps in quality access between subgroups were often made worse by gaps in growth, creating disparities in access that widened over time. For example, the difference in quality access for Black (18.1%) and White (27.0%) children living in cities in 2014 was 8.9 percentage points. But because White children in cities experienced greater growth over time, the 2019 gap between Black (27.7%) and White (40.9%) children was 13.2 percentage points, a 4.3 percentage points increase over the 2014 gap. These widening gaps underscore the importance of examining current access rates as well as trends in access over time.

Gaps in quality access between subgroups were often made worse by gaps in growth, creating disparities in access that widened over time. For example, the difference in quality access for Black (18.1%) and White (27.0%) children living in cities in 2014 was 8.9 percentage points. But because White children in cities experienced greater growth over time, the 2019 gap between Black (27.7%) and White (40.9%) children was 13.2 percentage points.

Variation in Quality Ratings by ECE Provider Characteristics

Quality Ratings by Provider Type

Studies have found child care centers are significantly more likely than child care homes to receive a high quality rate.[35] Analysis of QRIS scores by provider type[36] in Pennsylvania revealed similar patterns (see Table 18). Child care centers were substantially more likely than child care homes to be awarded a STAR 3 or STAR 4 rating, with a particularly large gap between STAR 4 providers (16.9 percentage points in 2019). Promising trends were present for child care homes, however, with notable growth in STAR 2 status from 2014 to 2019.[37]

35 Ryan, R. M., Johnson, A., Rigby, E., & Brooks-Gunn, J. (2011). The impact of child care subsidy use on child care quality. *Early Childhood Research Quarterly, 26*(3), 320–331.

36 There are four provider types in our sample. Child care centers are facilities in which seven or more children not related to the operator receive ECE. Group child care homes are facilities in which 7–12 children of various ages not related to the operator receive ECE. Family child care homes are located in a residence and serve 4–6 children unrelated to the caregiver. Relative and neighbor caregivers provide ECE to three or fewer children, not including their own children.

37 In 2015, family child care homes were required to become licensed under 55 PA Code 3290. Many providers chose not to meet this requirement, leading to a drop in the overall number of licensed child care homes.

TABLE 18. Distribution of CCW recipients by provider type and quality rating, 2014 to 2019

	Provider Type	2014		2019		Percentage Point Change, 2014–2019
		N	%	N	%	
No STAR/ STAR 1	Child Care Center	1,791	55.4%	1,484	44.2%	-11.2
	Child Care Home	1,573	83.4%	1,004	70.9%	-12.5
	Relative/Neighbor	6,350	100.0%	2,393	100.0%	0.0
STAR 2	Child Care Center	635	19.6%	680	20.3%	0.7
	Child Care Home	213	11.3%	265	18.7%	7.4
STAR 3	Child Care Center	376	11.6%	448	13.3%	1.7
	Child Care Home	58	3.1%	71	5.0%	1.9
STAR 4	Child Care Center	430	16.4%	745	22.2%	5.8
	Child Care Home	43	2.3%	77	5.4%	3.1

Note: N = number of providers. Given low sample sizes, we combine group child care homes and family child care homes into a single child care home category. Relative and neighbor caregivers do not participate in Pennsylvania's QRIS and hence do not have a STAR rating.

These differences in quality ratings by provider type may help explain some of the quality access disparities documented in the previous section. When analyzing enrollment by provider type, we found some significant variation by children's characteristics, including age, race, geographic locale, and community racial and socioeconomic composition. Most notable were differences by race and community poverty level. While the share of children enrolled with child care centers increased from 2014 to 2019 across racial groups, White children were enrolled in child care centers at higher rates than Black and Hispanic children. Hispanic children were the most likely to use child care homes, while Black children were the most likely to use relative and neighbor caregivers (see Table 19). The largest differences in enrollment by provider type were observed when looking at community poverty level, with children living in high poverty communities significantly less likely than children in low poverty communities to use center-based ECE (see Table 20). In communities with less poverty, use of child care homes and relative and neighbor caregivers was lower.

TABLE 19. Distribution of CCW recipients by provider type and race, 2014 and 2019

Provider Type	Child race	2014		2019		Percentage Point Change, 2014–2019
		N	%	N	%	
Child Care Center	White	15,998	83.8%	15,244	91.2%	7.4
	Black	26,122	77.6%	26,572	85.4%	7.8
	Hispanic	7,489	79.0%	9,176	86.2%	7.2
Child Care Home	White	1,768	9.3%	1,094	6.5%	-2.8
	Black	3,607	10.7%	2,975	9.6%	-1.1
	Hispanic	1,147	12.1%	1,102	10.4%	-1.7
Relative/Neighbor	White	1,320	6.9%	375	2.2%	-4.7
	Black	3,952	11.7%	1,572	5.1%	-6.6
	Hispanic	849	9.0%	361	3.4%	-5.6

Note: N = number of children.

TABLE 20. Distribution of CCW recipients by provider type and the socioeconomic composition of children's communities, 2014 and 2019

Provider Type	Concentrated Poverty	2014		2019		Percentage Point Change, 2014–2019
		N	%	N	%	
Child Care Center	Highest	12,306	74.1%	12,538	82.1%	8.0
	Middle high	12,398	77.1%	13,015	85.7%	8.6
	Middle low	12,744	79.0%	13,574	88.0%	9.0
	Lowest	14,182	89.7%	14,536	93.9%	4.2
Child Care Home	Highest	2,083	12.5%	1,868	12.2%	-0.3
	Middle high	2,014	12.5%	1,561	10.3%	-2.2
	Middle low	1,747	10.8%	1,279	8.3%	-2.5
	Lowest	836	5.3%	601	3.9%	-1.4
Relative/Neighbor	Highest	2,222	13.4%	869	5.7%	-7.7
	Middle high	1,659	10.3%	610	4.0%	-6.3
	Middle low	1,646	10.2%	569	3.7%	-6.5
	Lowest	789	5.0%	339	2.2%	-2.8

Note: N = number of children.

Preschoolers had the highest rates of enrollment with child care centers and infants had the lowest rates, though growth in use of centers from 2014 to 2019 was greatest among infants (see Table B-2 in the appendix). Differences in enrollment by income were relatively small (see Table B-3). Children living in cities were the least likely to use child care centers and the most likely to use both child care homes and relative or neighbor caregivers (see Table B-4). Children living in communities of color were less likely to use child care centers and more likely to use child care homes (see Table B-5). Put together, these differences suggest that any policies related to QRIS scores — such as tiered reimbursement — may disfavor the kinds of families who choose home-based or relative/neighbor ECE arrangements.

Quality Ratings by Capacity

Studies of ECE leaders in Pennsylvania indicate limited capacity to complete administrative tasks is one barrier to QRIS engagement.[38] Qualitative research conducted with ECE providers in other states has also documented several challenges associated with QRIS participation related to administrative capacity, such as insufficient staff to complete paperwork or participate in required trainings.[39] Limited administrative capacity may help explain why child care centers, which are typically larger and more likely to leverage economies of scale, receive higher QRIS scores on average. At the same time, child care centers range in size, and smaller centers may also experience greater difficulty in meeting QRIS standards. To explore whether size matters in ECE, we analyzed differences in quality ratings by providers' enrollment capacity (i.e., the number of children providers are able to enroll given the size of their facility), with the assumption that enrollment capacity corresponds with staffing levels and overall administrative capacity. We found that in both 2014 and 2019, large providers were substantially more

38 Moran, D., Lin, J., Campbell, A., & Lapp, D. (2017). Child care funding & finance in Pennsylvania: budgeting for survival or paying for the true cost of quality? Philadelphia, PA: Research for Action.

39 Hallam, R., Hooper, A., Bargreen, K., Buell, M., & Han, M. (2017). A two-state study of family child care engagement in Quality Rating and Improvement Systems: A mixed-methods analysis. *Early Education and Development, 28*(6), 669–683.

likely than small or mid-sized providers to be awarded a STAR 3 or 4 quality rating (see Table 21). In 2019, only 5.5% and 9.3% of small and mid-sized providers, respectively, received a STAR 4, compared to 30.4% of large providers. Large providers also experienced a far greater increase in the receipt of a STAR 4 rating from 2014 to 2019.

TABLE 21. Distribution of ECE provider QRIS scores by capacity, 2014 and 2019

	Provider Capacity	2014		2019		Percentage Point Change, 2014–2019
		N	%	N	%	
No STAR/ STAR 1	Small	1,686	83.5%	1,103	70.8%	-12.7
	Medium	824	71.1%	681	59.7%	-11.4
	Large	854	44.0%	704	33.9%	-10.1
STAR 2	Small	223	11.1%	295	18.9%	7.8
	Medium	187	16.1%	263	23.0%	6.9
	Large	438	22.6%	387	18.7%	-3.9
STAR 3	Small	62	3.1%	76	4.9%	1.8
	Medium	90	7.8%	91	8.0%	0.2
	Large	282	14.5%	352	17.0%	2.5
STAR 4	Small	47	2.3%	85	5.5%	3.2
	Medium	58	5.0%	106	9.3%	4.3
	Large	368	18.9%	631	30.4%	11.5

Note: N = number of providers. Capacity is defined as the maximum number of children providers are allowed to enroll in their facility, per their certification; capacity does not necessarily equate to providers' actual enrollment. Capacity categories are: Small = 1-20 children, Medium = 21-60 children, Large = >60 children. Differences between provider capacity groups for 2014 and 2019 are statistically significant at p<.001. Relative and neighbor providers are not included in this sample. All child care homes fell into the "small" provider category.

Differences in quality ratings by provider size have implications for different groups of children. For example, our analysis found differences in enrollment by provider capacity and children's race (see Table 22). In 2019, a combined 37.9% of Black children were enrolled with small or mid-sized provider, only a slight decline from 2014 when 38.1% of Black children's families chose those smaller providers. Comparatively, only 26.7% of White children in 2019 were with small or mid-sized providers. These trends in enrollment by race mimic those found by provider type, and suggest Black families, and to a lesser extent Hispanic families, may prefer smaller and/or home-based providers.

These trends in enrollment suggest Black families, and to a lesser extent Hispanic families, may prefer smaller and/or home-based providers.

TABLE 22. Share of children enrolled with ECE providers by provider capacity and race, 2014 and 2019

Provider Capacity	Child Race	2014		2019		Percentage Point Change, 2014–2019
		N	%	N	%	
Small	White	1,866	10.6%	1,220	7.5%	-3.1
	Black	4,355	14.6%	3,790	12.8%	-1.8
	Hispanic	1,229	14.2%	1,237	12.0%	-2.2
Medium	White	3,707	20.9%	3,142	19.2%	-1.7
	Black	6,979	23.5%	7,410	25.1%	1.6
	Hispanic	1,564	18.1%	1,937	18.8%	0.7
Large	White	12,173	68.5%	11,976	73.3%	4.8
	Black	18,395	61.9%	18,347	62.1%	0.2
	Hispanic	5,843	67.7%	7,104	69.1%	1.4

Note: N = number of children. Capacity categories are: Small = 1-20 children, Medium = 21-40 children, Large = >40 children. Differences between racial groups for 2014 and 2019 are statistically significant at p<.001.

Quality Ratings by Subsidy Density

Various research studies have found ECE providers with higher subsidy density (i.e., providers that serve greater shares of subsidy-receiving children) receive lower quality ratings on average.[40] Our analysis found the same pattern in Pennsylvania (see Table 23). Providers with STAR 3 and 4 ratings had considerably lower subsidy density compared to providers with STAR 1, 2, or no STAR ratings. In both 2014 and 2019, STAR 4 providers had the lowest subsidy density of any STAR category, a concerning trend if one of CCW's goals is to match subsidy recipients with high-quality ECE providers. Interestingly, there was a significant increase in subsidy density among STAR 2 providers from 2014 to 2019, which may be related to changes in tiered reimbursement funding policy that incentivized STAR 1 providers to improve one QRIS level in order to obtain a higher subsidy reimbursement amount (see next section for further explanation).

TABLE 23. Average subsidy density by providers' QRIS score, 2014 and 2019 (n = providers)

QRIS Score	2014		2019		Percentage Point Change, 2014–2019
	N	%	N	%	
No STAR	2,338	35.7%	175	32.7%	-3.0
STAR 1	1,026	34.6%	2,313	33.7%	-0.9
STAR 2	848	27.3%	945	33.0%	5.7
STAR 3	434	24.5%	519	23.1%	-1.4
STAR 4	473	19.5%	822	20.5%	1.0
Total	**5,119**	**31.6%**	**4,774**	**30.1%**	**-1.5**

40 Antle, B. F., Frey, A., Barbee, A., Frey, S., Grisham-Brown, J., & Cox, M. (2008). Child care subsidy and program quality revisited. *Early Education and Development, 19*(4), 560–573; Raikes, H. A., Raikes, H. H., & Wilcox, B. (2005). Regulation, subsidy receipt and provider characteristics: What predicts quality in child care homes?. *Early Childhood Research Quarterly, 20*(2), 164–184.

The relationship between subsidy density and QRIS scores is further concerning given variation in subsidy density by providers' community characteristics (see Table 24). Subsidy density was highest for providers located in communities of color, where 44.3% of enrolled children were subsidy recipients, on average, in 2019. Conversely, providers located in predominantly White communities served classrooms where only 17.4% of children received subsidies. Trends by communities' socioeconomic composition were similar. High poverty communities had the highest subsidy density, and subsidy density declined in lower poverty communities. Subsidy density was also substantially higher in cities, where on average CCW recipients comprised 41.9% of all enrolled children. Altogether, these results suggest ECE providers in cities, high poverty communities, and communities of color are those that most depended on, and were most influenced by, subsidy funding policy.

TABLE 24. Average subsidy density by providers' community characteristics, 2014 and 2019

Community Characteristic	Group	2014		2019		Percentage Point Change, 2014–2019
		N	%	N	%	
Racial Composition (% White Residents)	Lowest	1,029	47.8%	1,004	44.3%	-3.5
	Low middle	1,048	42.8%	968	41.9%	-0.9
	High middle	1,052	27.6%	1,034	27.1%	-0.5
	Highest	1,973	19.7%	1,755	17.4%	-2.3
Community Poverty Concentration	Highest	958	48.1%	948	45.7%	-2.4
	Middle high	1,141	41.4%	1,056	39.7%	-1.7
	Middle low	1,408	28.9%	1,248	28.0%	-0.9
	Lowest	1,595	17.4%	1,519	15.7%	-1.7
Geographic Locale	City	1,866	43.9%	1,806	41.9%	-2.0
	Suburb	1,510	26.3%	1,439	25.4%	-0.9
	Town/Rural	1,729	23.3%	1,520	20.6%	-2.7

Note: N = number of providers. Differences between groups for 2014 and 2019 are statistically significant at p<.001.

Substantial differences in average subsidy density were also evident by provider capacity, with relatively small changes over time (see Table 25). Small providers enrolled the greatest share of CCW recipients; indeed, nearly half of all children enrolled with small providers received CCW subsidies, on average. Just under 30% of children enrolled with mid-sized providers received subsidies, while fewer than 20% of children enrolled with large providers did. Moreover, while average subsidy density among large providers decreased slightly from 2014 to 2019, it increased for small and mid-sized providers. The finding that smaller providers serve greater percentages of CCW recipients compared to large providers suggests subsidy policies may have a greater effect on these smaller providers.

TABLE 25. Average subsidy density by provider capacity, 2014 and 2019

Provider Capacity	2014		2019		Percentage Point Change, 2014–2019
	N	%	N	%	
Small	2,018	47.5%	1,559	48.3%	0.8
Medium	1,159	28.3%	1,141	29.7%	1.4
Large	1,942	17.2%	2,074	16.7%	-0.5
Total	**5,119**	**31.6%**	**4,774**	**30.1%**	**-1.5**

Note: N = number of providers. Differences between QRIS score groups for 2014 and 2019 are statistically significant at p<.001.

At the child level, we explored differences in access to quality ECE by providers' subsidy density, grouping providers by those with low, middle, and high subsidy density. We found substantial differences in quality access by this measure (see Table 26). CCW recipients enrolled with providers with low subsidy density were far more likely to experience a high-quality provider in both 2014 and 2019. Indeed, in 2019, over half of these children were with a quality ECE provider. Children enrolled with providers with low subsidy density also benefited from the greatest growth in quality access over time. Conversely, CCW recipients enrolled with providers with high subsidy density experienced low rates of quality and low growth over time. This combination of disparate rates of quality access and disparate growth created another example of widening gaps between children. In 2014, 35.5% of children enrolled with low-density providers experienced quality ECE, compared to 17.7% of children with high-density providers, a gap of 17.8 percentage points. In 2019, that gap widened to an astonishing 30.6 percentage points.

Given evidence from ECE providers in Pennsylvania that base subsidy rates are insufficient to cover costs,[41] it may be difficult for providers serving larger shares of CCW recipients to amass the revenue needed to meet certain performance standards associated with higher QRIS scores. Additional funding or targeted resources may be needed to help these providers overcome financial shortfalls while maintaining CCW enrollment.

TABLE 26. Share of children enrolled with high-quality providers (i.e., STAR 3 and STAR 4) by providers' subsidy density, 2014 and 2019

	Group	2014		2019		Percentage Point Change, 2014–2019
		N	%	N	%	
Subsidy density	Low	5,523	35.5%	8,616	53.2%	17.7
	Middle	6,138	34.2%	9,146	45.6%	11.4
	High	4,397	17.7%	5,142	22.6%	4.9

Note: N = number of children. Subsidy density categories are: Low = 0-20%; Middle = 21-40%; High = >40%. Differences between subsidy density groups for 2014 and 2019 are statistically significant at p<.001.

41 Moran, D., Lin, J., Campbell, A., & Lapp, D. (2017). Child care funding & finance in Pennsylvania: budgeting for survival or paying for the true cost of quality? Philadelphia, PA: Research for Action; Sirinides, P., Fantuzzo, J., LeBoeuf, W., Barghaus, K., & Fink, R. (2015). An inquiry into Pennsylvania's Keystone STARS. Philadelphia, PA: Consortium for Policy Research in Education.

Quality Ratings by Providers' Community Characteristics

Research has found that ECE providers located in communities with higher shares of low-income residents and residents of color receive lower average QRIS ratings.[42] To explore whether these trends were also present in Pennsylvania, we examined differences in QRIS scores by providers' community characteristics (see Table 27). Consistent with studies conducted in other states, ECE providers in communities of color were far less likely to receive a STAR 3 or 4 rating. Providers were increasingly likely to have a STAR 3 or 4 rating in communities with more White residents. Providers located in predominantly White communities were the most likely to have a high QRIS score, and also experienced the greatest increase in STAR 3 and 4 rates over time. Providers located in low poverty communities were the most likely to be considered high quality; at 30.2%, this group of providers had the highest share of STAR 3 and 4 providers of any group we examined. At just 12.8%, providers located in high poverty communities were the least likely of any provider group to receive a STAR 3 or 4 designation. Substantial differences in quality ratings were also present by geographic locale. ECE providers in rural areas had the highest percentages of STAR 3 and 4 ratings in both 2014 and 2019. ECE providers in rural areas also experienced the greatest growth in STAR 3 and 4 status from 2014 to 2019, with an increase of 13.6 percentage points. ECE providers in cities were the least likely to be awarded a high QRIS score. In sum, these findings indicate CCW recipients looking for high-quality ECE providers in cities, high poverty communities, communities of color may have greater difficulty finding them.

TABLE 27. Community characteristics of ECE providers with STAR 3 or STAR 4 ratings, 2014 and 2019

Community Characteristic	Group	2014		2019		Percentage Point Change, 2014–2019
		N	%	N	%	
Racial Composition (% White Residents)	Lowest	93	4.0%	200	13.2%	9.2
	Low middle	138	5.7%	231	15.4%	9.7
	High middle	232	12.1%	283	21.2%	9.1
	Highest	436	15.0%	625	28.8%	13.8
Community Poverty Concentration	Highest	118	4.7%	186	12.8%	8.1
	Middle high	152	6.6%	263	16.2%	9.6
	Middle low	241	9.4%	398	21.8%	12.4
	Lowest	388	17.8%	492	30.2%	12.4
Geographic Locale	City	220	5.1%	407	14.9%	9.8
	Suburb	328	12.4%	423	22.0%	9.6
	Town/Rural	352	13.6%	509	27.2%	13.6

Note: N = number of providers. Differences between groups for 2014 and 2019 are statistically significant at p<.001.

42 Bassok, D., & Galdo, E. (2016). Inequality in preschool quality? Community-level disparities in access to high-quality learning environments. *Early Education and Development, 27*(1), 128–144; Hatfield, B. E., Lower, J. K., Cassidy, D. J., & Faldowski, R. A. (2015). Inequities in access to quality early care and education: Associations with funding and community context. *Early Childhood Research Quarterly, 30*, 316–326.

Summary of Quality Ratings by ECE Provider Characteristics

ECE provider characteristics were strongly linked to QRIS scores. Child care centers, large ECE providers, and providers that served fewer CCW recipients were much more likely to earn a higher quality rating. ECE providers located in towns/rural areas, low poverty communities, and predominantly White communities were also more likely to receive a high QRIS score. This variation is concerning since the groups of providers least likely to receive high quality scores were those that served more Black and Hispanic children as well as higher poverty communities and communities of color.

Access to Tiered Reimbursement Funding by Child and Provider Characteristics

Pennsylvania's tiered reimbursement funding system provides higher subsidy reimbursement rates to ECE providers with higher QRIS scores. The majority of ECE providers in Pennsylvania reported that tiered reimbursement rates were an extremely important financial incentive for participating in the state's QRIS,[43] and empirical studies in other states with different QRIS and funding policies also found tiered reimbursement was linked to growth in provider quality scores.[44] Importantly, studies show the amount of tiered funding matters. Tiered reimbursement only induced improvements on performance standards when the differential amount between funding tiers was significant.[45] In other words, the relationship between tiered funding and quality is only meaningful when funding for higher tiers of quality is substantively greater than lower tiers.

Our findings show certain groups of children were more likely to be enrolled with providers with lower QRIS scores (e.g., Black children, children in cities) who would have been excluded from additional funding under tiered reimbursement policy.

Pennsylvania has four funding tiers linked to QRIS scores, and the rate difference for providers at lower versus higher tiers has grown over time. In both 2017 and 2019, the state raised tiered reimbursement rates — also known as add-ons — for the two highest quality tiers (see Table 28). These funding policy adjustments followed the evidence that only substantial differences between funding tiers are associated with quality improvements. However, our previous findings show certain groups of children were more likely to be enrolled with providers with lower QRIS scores (e.g., Black children, children in cities) who would have been excluded from this additional funding under tiered reimbursement policy. To understand how differences in access to quality providers translates into differences in funding, we explore variation in add-on amounts by child and provider characteristics. We pay particular attention to funding differences by age, both because add-on amounts are structured by age and because CCW is the only state program that serves infants and toddlers, making CCW funding policy especially consequential for the providers that serve these youngest learners.

43 Sirinides, P., Fantuzzo, J., LeBoeuf, W., Barghaus, K., & Fink, R. (2015). An inquiry into Pennsylvania's Keystone STARS. Philadelphia, PA: Consortium for Policy Research in Education. It should be noted that in 2017, Pennsylvania's QRIS, known as Keystone STARS, underwent revisioning based on the findings and recommendations of this report.

44 Bassok, D., Dee, T. S., & Latham, S. (2019). The effects of accountability incentives in early childhood education. *Journal of Policy Analysis and Management, 38*(4), 838–866; Lee, E. (2021). A mixed-methods study of Maryland's monetary incentives to improve the quality of child care centers. *Early Childhood Research Quarterly, 55,* 349–362.

45 Greenberg, E., Isaacs, J. B., Derrick-Mills, T., Michie, M., & Stevens, K. (2018). Are higher subsidy payment rates and provider-friendly payment policies associated with child care quality. *Urban Institute;* Alvarez, K., Epps, A., & Montoya, S. (2015). Overcoming financial barriers to expanding high-quality early care & education in southeastern Pennsylvania. *Nonprofit Finance Fund;* Gormley, W. T., & Lucas, J. (2000). Money, accreditation, and child care center quality. Working Paper Series. New York, NY: Foundation for Child Development.

TABLE 28. Daily, per child tiered reimbursement rates by QRIS score, 2013-2019

RATES EFFECTIVE 8/1/2013				
	STAR 1	**STAR 2**	**STAR 3**	**STAR 4**
Infant	$0.35	$0.95	$2.80	$5.00
Toddler	$0.35	$0.95	$2.80	$5.00
Preschooler	$0.35	$0.95	$2.80	$5.00
RATES EFFECTIVE 8/1/2015				
	STAR 1	**STAR 2**	**STAR 3**	**STAR 4**
Infant	$0.35	$1.55	$5.55	$8.40
Toddler	$0.35	$1.45	$5.40	$8.25
Preschooler	$0.35	$0.95	$4.80	$7.50
RATES EFFECTIVE 8/1/2017				
	STAR 1	**STAR 2**	**STAR 3**	**STAR 4**
Infant	$0.0	$1.55	$6.80	$10.30
Toddler	$0.0	$1.45	$6.60	$10.10
Preschooler	$0.0	$0.95	$5.90	$9.20
RATES EFFECTIVE 8/1/2019				
	STAR 1	**STAR 2**	**STAR 3**	**STAR 4**
Infant	$0.0	$2.00	$8.70	$13.20
Toddler	$0.0	$1.85	$8.45	$12.95
Preschooler	$0.0	$0.95	$5.90	$9.20

ECE providers that enrolled children with subsidies received different tiered reimbursement amounts, on average, by children's race (see Table 29a). These differences resulted in greater benefits for White children, whose providers received more funding on average across all age groups and years. Not only were average add-ons higher for providers serving more White children, they also increased the most over time across age groups, and especially for White infants. Black children, on average, had the lowest additional revenue awarded to their providers, likely influenced by their higher enrollment with No STAR and STAR 1 providers. These differences meant that average funding disparities between Black and White children increased between 2014 and 2019. For example, in 2014, White infants' providers received, on average, $0.54 more per day than Black infants' providers. By 2019, that difference grew to $2.85. Among toddlers and preschoolers, the White-Black provider funding gap grew by $1.49 and $0.77, respectively. These findings show that as Pennsylvania's tiered funding policies changed — that is, as differences in add-on amounts between providers with higher and lower QRIS scores grew — racial funding inequalities increased.

Hispanic children's providers received, on average, lower add-on amounts than did White children's providers, but higher amounts than the providers of Black children. Likewise, the average growth in tiered funding for Hispanic children at every age level was lower than the growth for White children but higher than the growth for Black children. Consistent with Pennsylvania's policy goal of providing greater amounts of funding for younger children with higher costs of care, funding growth for Hispanic infants over time was larger than for older children.

TABLE 29a. Average daily add-on amount by child age and race

Child Age	Racial Group	2014	2015	2017	2019	Change in $, 2014 to 2019
Infant	White	$1.38	$2.51	$3.80	$6.00	$4.62
	Black	$0.84	$1.54	$2.38	$3.15	$2.31
	Hispanic	$1.12	$2.03	$2.96	$4.52	$3.40
Toddler	White	$1.52	$2.70	$3.89	$5.56	$4.04
	Black	$0.96	$1.72	$2.37	$3.51	$2.55
	Hispanic	$1.30	$2.27	$3.14	$4.29	$2.99
Preschooler	White	$1.57	$2.49	$3.73	$4.12	$2.55
	Black	$1.02	$1.64	$2.36	$2.80	$1.78
	Hispanic	$1.37	$2.15	$3.00	$3.30	$1.93

Note: N = Differences between racial/ethnic groups are statistically significant at p<.001.

Differences in daily tiered reimbursement amounts add up. For example, White infants' providers received an estimated additional $1,440.00 per infant, on average, in 2019 (see Table 29b). By comparison, Black infants' providers received an estimated additional $756.00 on the year, on average — a difference of nearly $700. Funding differences add up even further at the classroom level. In 2019, ECE providers in Pennsylvania enrolled 7 preschoolers with subsidies, on average.[46] If those seven preschoolers were Black, the provider would have been reimbursed $5,292.00 in add-on funding over the course of the year, per our estimates. If those preschoolers were White, the provider would have been reimbursed $10,080.00. According to a 2020 report on ECE costs in Pennsylvania, that additional difference of $4,788.00 would go far.[47] With personnel costs accounting for 80% of all ECE provider costs at the median, that additional funding could help pay the preschool teacher a higher wage, a meaningful option since the median child care worker in Pennsylvania earns only $9.71 an hour[48] and higher wages are associated with reduced teacher turnover and higher program quality.[49] More funding could also allow providers to lower teacher-child ratios in preschool classrooms as recommended by national accrediting agencies,[50] a measure providers have voiced support for, but that has been cost prohibitive.[51] Beyond staffing costs, an additional $4,788.00 could allow a provider to purchase annual classroom supplies or replace a piece of large durable equipment with less or no fiscal strain.

46 Authors' calculations, available by request.

47 Sirinides, P., & Collins, G. (2020). The cost of child care in Pennsylvania. Harrisburg, PA: Institute of State and Regional Affairs.

48 Whitebook, M., McLean, C., Austin, L., & Edwards, B. (2018). Early childhood workforce index 2018: Pennsylvania state profile. Berkeley, CA: Center for the Study of Child Care Employment, University of California, Berkeley.

49 Markowitz, A. J. (2019). Within-Year Teacher Turnover in Head Start and Children's School Readiness. EdPolicyWorks Working Paper Series No. 70; Whitebook, M., & Sakai, L. (2003). Turnover begets turnover: An examination of job and occupational instability among child care center staff. Early Childhood Research Quarterly, 18(3), 273–293.

50 National Association for the Education of Young Children. (2018). Staff-to-child ratio and class size.

51 Moran, D., Lin, J., Campbell, A., & Lapp, D. (2017). Child care funding & finance in Pennsylvania: budgeting for survival or paying for the true cost of quality? Philadelphia, PA: Research for Action.

TABLE 29b. Average estimated monthly and yearly add-on amounts by child age and race, 2014 and 2019

Child Age	Racial Group	Estimated average add-on amount, 2014		Estimated average add-on amount, 2019		Change in $, 2014 to 2019	
		Monthly	Yearly	Monthly	Yearly	Monthly	Yearly
Infant	White	$27.60	$331.20	$120.00	$1,440.00	$92.40	$1,068.80
	Black	$16.80	$201.60	$63.00	$756.00	$46.20	$554.40
	Hispanic	$22.40	$268.80	$90.40	$1,084.80	$68.00	$816.00
Toddler	White	$30.40	$364.80	$111.20	$1,334.40	$80.80	$969.60
	Black	$19.20	$230.40	$70.20	$842.40	$51.00	$612.00
	Hispanic	$26.00	$312.00	$85.80	$1,029.60	$59.80	$717.60
Preschooler	White	$31.40	$376.80	$82.40	$988.80	$51.00	$612.00
	Black	$20.40	$244.80	$56.00	$672.00	$35.60	$427.20
	Hispanic	$27.40	$328.80	$66.00	$792.00	$38.60	$463.20

Note: Estimated average add-on amounts assume enrollments of 20 days each month and 240 days each year.

Substantial differences in add-on funding were also present by the poverty level of children's communities (see Table 30). Providers of infants from the highest poverty communities received the lowest average add-on amounts across all years and experienced the least growth in funding over time ($2.08). By 2019, providers of infants in the lowest poverty communities received an average add-on amount ($6.05) more than double the rate received by providers of infants in the highest poverty communities ($2.86). For providers of toddlers, the average add-on amount increased for children from communities with less poverty, as did the growth in add-on funding over time. Providers of preschoolers living in the lowest poverty communities received the greatest daily add on amount ($4.46) and benefited from the greatest growth in funding over time ($2.88). As tiered reimbursement rates for STAR 3 and 4 providers increased over time, funding gaps widened between providers serving children from low- and high-poverty communities. For example, in 2014 the average funding gap between providers serving toddlers from the highest ($1.55) and lowest ($0.96) poverty communities was $0.59; in 2019, that funding gap grew to $2.73.

These funding gaps again have implications for the resources providers are able to offer children. For example, in 2019, ECE providers that chose to serve subsidy-receiving infants enrolled 21 of them, on average. If those infants all came from the highest poverty communities, the total monthly add-on amount received by their provider would be $1,201.20, according to our estimates. Alternatively, if the provider served 21 infants from the lowest poverty communities, the estimated monthly add-on amount would be $2,541.00, on average. An additional $1,339.80 a month could go toward recruiting infant teachers with higher qualifications, as ECE providers in Pennsylvania have reported intentionally staffing infant rooms with less-qualified teachers in order to save money on wages.[52] Turnover is also higher among ECE teachers caring for infants and toddlers,[53] despite the overwhelming importance of stable

52 Moran, D., Lin, J., Campbell, A., & Lapp, D. (2017). Child care funding & finance in Pennsylvania: budgeting for survival or paying for the true cost of quality? Philadelphia, PA: Research for Action; Sirinides, P., & Collins, G. (2020). The cost of child care in Pennsylvania. Harrisburg, PA: Institute of State and Regional Affairs.

53 Bassok, D., Markowitz, A. J., Bellows, L., & Sadowski, K. (2021). New evidence on teacher turnover in early childhood. *Educational Evaluation and Policy Analysis, 43*(1), 172–180.

caregiver attachments to young children's healthy development.[54] Higher wages for these teachers could improve retention and, in turn, child outcomes.

TABLE 30. Average daily add-on amount by child age and community socioeconomic composition

Child Age	Concentrated Poverty	2014	2015	2017	2019	Change in $, 2014 to 2019
Infant	Highest	$0.78	$1.68	$2.03	$2.86	$2.08
	Middle high	$0.89	$1.49	$2.14	$3.25	$2.36
	Middle low	$1.15	$2.00	$3.29	$4.47	$3.32
	Lowest	$1.39	$2.46	$4.01	$6.05	$4.66
Toddler	Highest	$0.96	$1.80	$2.21	$3.25	$2.29
	Middle high	$0.94	$1.71	$2.38	$3.32	$2.38
	Middle low	$1.30	$2.19	$3.15	$4.45	$3.15
	Lowest	$1.55	$2.76	$4.10	$5.98	$4.43
Preschooler	Highest	$1.05	$1.79	$2.32	$2.73	$1.68
	Middle high	$1.03	$1.60	$2.29	$2.67	$1.64
	Middle low	$1.37	$2.05	$3.00	$3.33	$1.96
	Lowest	$1.58	$2.57	$4.01	$4.46	$2.88

Note: Differences between community socioeconomic groups are statistically significant at p<.001.

Given differences in quality ratings between providers serving higher and lower shares of CCW recipients (see previous section), we explored differences in average daily add-on funding by subsidy density. Providers with low subsidy density — those serving the fewest CCW recipients — received substantially more add-on funding per child and benefited from the greatest growth in add-on funding over time, on average (see Table 31). Indeed, in 2019, providers in the low subsidy density group ($5.09) received more than double the amount of add-on funding than providers in the high subsidy density group ($2.44), on average, for each subsidy recipient they served. This finding suggests the providers who relied the most on CCW funding benefitted the least from tiered reimbursement policy.

TABLE 31. Average daily add-on amount by providers' subsidy density

	Group	2014	2015	2017	2019	Change in $, 2014 to 2019
Subsidy Density	Low	$1.71	$2.73	$4.02	$5.09	$3.38
	Middle	$1.60	$2.80	$4.00	$4.40	$2.80
	High	$0.94	$1.39	$1.76	$2.44	$1.50

Note: Differences between subsidy density groups are statistically significant at p<.001.

54 Bueno, M., Darling-Hammond, L., & Gonzales, D. (2010). A Matter of Degrees: Preparing Teachers for the Pre-K Classroom. Education Reform Series. *Pew Center on the States.*

Tiered reimbursement amounts varied by the types of communities in which providers were located (see Table 32). Providers in communities with higher shares of White residents received higher average add-on amounts. Indeed, in 2019, the average add-on amount for providers in predominantly White communities ($4.78) was more than double the average add-on amount for providers located in communities of color ($2.29). Funding growth increased in communities with more White residents, with growth for providers in predominantly White communities ($3.21) again doubling the growth experienced by providers in communities of color ($1.47). A concerning implication of this finding is its potential influence on racial wage gaps among ECE teachers. Teachers of color, who compose 40% of the ECE workforce nationwide, receive lower wages on average compared to White peers with similar levels of experience and qualifications.[55] Because providers located in communities of color are more likely to hire teachers of color,[56] lower average tiered reimbursements for providers located in these communities may exacerbate racial wage gaps.

In 2019, the average add-on amount for providers in predominantly White communities ($4.78) was more than double the average add-on amount for providers located in communities of color ($2.29).

Funding differences were also evidence by providers' community poverty level and locale. Providers located in communities with the lowest poverty received the greatest average add-on amount in 2019 ($5.06), and also experienced the greatest increase in add-on funding from 2014 to 2019 ($3.85). Providers in higher poverty communities received the lowest average add-on amounts and experienced the lowest growth in funding over time. Providers in towns/rural areas received the greatest average add-on amounts, and also benefited from the greatest growth in add-on funding from 2014 to 2019. Providers in suburban communities also received more than $4.00 of per child add-on funding in 2019, on average. Providers in cities received substantially lower add-on amounts across all years, and in 2019 received less than $3.00 per day in additional funding to support the cost of caring for and educating each subsidy-receiving child. Providers in cities also experienced the least growth in average add-on funding over time. These differences by locale are particularly troubling given evidence that ECE providers in urban counties had some of the highest estimated operating costs in the state.[57]

55 Whitebook, M., McLean, C., Austin, L.J.E., & Edwards, B. (2018). *Early Childhood Workforce Index – 2018.* Berkeley, CA: Center for the Study of Child Care Employment.

56 Paschall, K., Madill, R., & Halle, T. (2020). *Demographic Characteristics of the Early Care and Education Workforce: Comparisons with Child and Community Characteristics.* OPRE Report #2020–108. Washington, DC: Office of Planning, Research, and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services.

57 Sirinides, P., & Collins, G. (2020). The cost of child care in Pennsylvania. Harrisburg, PA: Institute of State and Regional Affairs.

TABLE 32. Average daily add-on amount by the characteristics of providers' communities

Community Characteristic	Group	2014	2015	2017	2019	Change in $, 2014 to 2019
Racial Composition (% White Residents)	Lowest	$0.82	$1.45	$1.89	$2.29	$1.47
	Middle low	$1.02	$1.67	$2.39	$3.17	$2.15
	Middle high	$1.44	$2.41	$3.59	$4.44	$3.00
	Highest	$1.57	$2.62	$3.81	$4.78	$3.21
Community Poverty Concentration	Highest	$0.99	$1.78	$2.26	$2.92	$1.93
	Middle high	$0.99	$1.63	$2.31	$2.93	$1.94
	Middle low	$1.33	$2.10	$3.07	$3.78	$2.45
	Lowest	$1.21	$2.63	$4.04	$5.06	$3.85
Geographic Locale	City	$0.99	$1.74	$2.40	$2.96	$1.97
	Suburb	$1.38	$2.17	$3.30	$4.16	$2.78
	Town/Rural	$1.46	$2.45	$3.48	$4.48	$3.02

Note: Differences between groups are statistically significant at p<.001.

Across geographic locales, average add-on funding increased in communities with more White residents (see Table 33). In 2019, providers in communities with the most White residents received average add-on amounts that were more than double what providers in communities with the fewest White residents received, a pattern that persisted across cities, suburbs, and towns/rural areas. Across geographic locales, growth in funding from 2014 to 2019 was lowest in communities of color. In suburban and towns/rural areas, providers in predominantly White communities benefitted from the greatest growth in add-on funding. The persistence of racial funding gaps across geographic locales underscores the prominent role community racial composition plays in ECE provider funding.

TABLE 33. Average daily add-on amount by geographic locale and the racial composition of providers' communities

Geographic Locale	% White Residents	2014	2015	2017	2019	Change in $, 2014 to 2019
City	Lowest	$0.83	$1.44	$1.89	$2.29	$1.46
	Middle Low	$0.90	$1.62	$2.32	$3.17	$2.27
	Middle High	$1.57	$2.74	$3.75	$4.40	$2.83
	Highest	$2.34	$3.65	$5.69	$4.70	$2.36
	Total	**$0.99**	**$1.74**	**$2.40**	**$2.96**	**$1.97**
Suburb	Lowest	$0.74	$1.52	$1.93	$2.28	$1.54
	Middle Low	$1.21	$1.74	$2.50	$3.36	$2.15
	Middle High	$1.44	$2.32	$3.69	$4.62	$3.18
	Highest	$1.60	$2.63	$3.98	$4.92	$3.32
	Total	**$1.38**	**$2.18**	**$3.30**	**$4.16**	**$2.78**
Town/Rural	Lowest	–	–	–	–	–
	Middle low	$0.98	$1.67	$2.18	$2.12	$1.23
	Middle high	$1.17	$1.94	$2.91	$3.96	$2.79
	Highest	$1.54	$2.59	$3.66	$4.71	$3.17
	Total	**$1.46**	**$2.45**	**$3.48**	**$4.48**	**$3.02**

Note: No communities located in towns and rural areas fell into the lowest % White quartile. Differences between community racial composition groups are statistically significant at p<.001.

Summary of Access to Tiered Reimbursement Funding

Tiered reimbursement funding patterns mirrored the disparities found in children's access to high-quality ECE providers. These similarities across analyses are unsurprising given that tiered funding is based on provider QRIS scores. While average add-on amounts increased for all groups and subgroups of children from 2014 to 2019, this growth was not experienced equally, and appeared to be strongly related to children's race and community racial composition. In 2019, White infants ($6.00), White toddlers ($5.56), and children enrolled with providers with the lowest subsidy density ($5.09) benefited from the highest average add-on amounts awarded to their ECE providers. Conversely, children enrolled with providers located in communities of color benefited from the lowest average add-on amounts, a pattern that persists across cities ($2.29), suburbs ($2.28), and towns/rural areas ($2.12). Growth in add-on funding over time was similarly uneven. White infants ($4.62), infants from the lowest poverty communities ($4.66), and toddlers from the lowest poverty communities ($4.43) experienced the greatest increase in average add-on funding for their providers. Paralleling trends in average 2019 add-on funding, the least growth in average add-on amounts was experienced by children enrolled with providers located in communities of color, a trend that again was evident across cities ($1.46), suburbs ($1.54), and towns/rural areas ($1.23). These differences in tiered reimbursement funding have significant implications for the kinds of resources providers are able to offer children, including those strongly associated with child outcomes, such as teacher-child ratios and teacher compensation. Our estimates showed that differences in average daily add-on amounts add up over time, creating massive monthly and yearly funding disparities between subgroups. Such funding differences may even perpetuate a rich-get-richer cycle, where already-quality providers receive greater add-on funding, making it easier for them to afford more resources that sustain or enhance their quality. Conversely, lack of access to add-on funding may make it difficult for providers without a high QRIS score to meet the additional performance standards needed to earn a higher quality rating.

Differences in tiered reimbursement funding have significant implications for the kinds of resources providers are able to offer children, including those strongly associated with child outcomes, such as teacher-child ratios and teacher compensation.

Synthesis of CCW Findings

We find several striking relationships between CCW recipients' individual and community characteristics and their access to high-quality, adequately funded ECE. Children's age, race, family income level, geographic locale, and community racial and socioeconomic composition all mattered in terms of their likelihood of being enrolled with a quality ECE provider. Race, community poverty level, and community racial composition were especially consequential. Across age, locale, and community groups, Black children had the lowest rates of enrollment with high-quality providers. Gaps in access between White and Black children were especially stark in magnitude, especially for infants and toddlers. These gaps persisted by community racial composition; that is, even in communities of color, White children were still the most likely to be enrolled with a quality provider. These findings suggest that while race may be related to other variables, it is also uniquely associated with the likelihood of having access to quality ECE in Pennsylvania. Our community racial composition analysis provided further evidence that race matters for ECE access in Pennsylvania, as children across income groups and geographic locales were all less

likely to be enrolled with a quality provider if they lived in communities with fewer White residents. The fact that half of CCW recipients are Black — and 40% of all Black CCW recipients live in communities of color[58] — make these racial quality gaps even more alarming, and indicate a real need to target resources specifically to Black families and communities and their providers.

Family income and community poverty level were also related to quality ECE access, though to varying degrees. While differences in access to quality ECE providers between children with the lowest and middle incomes were small or nonexistent in many cases, there were consistently substantive differences children with the lowest and highest family incomes. These trends persisted across geographic locales and community poverty levels. Additionally, children living in high poverty communities were consistently less likely than peers in low poverty communities to access quality ECE providers. Variation by community poverty concentration was evident across age groups and even family income levels, as families with the lowest incomes were enrolled with quality providers at high rates when they lived in low poverty communities. This evidence suggests targeting resources to high poverty communities should be a policy priority, in addition to — and even above — providing supports to the lowest income families.

Clear disparities by geographic locale were also evident. Children living in rural areas had the greatest access to high-quality ECE providers, while children in cities experienced the lowest rates of enrollment with quality providers. These differences were substantial, and persisted across age and family income groups. Among preschoolers — the largest age group served by CCW — the gap in access between children in cities and those in towns/rural areas was 14.3 percentage points in 2019. At the same time, while large, the city-rural quality access gap was smaller than the gaps between preschoolers living in the highest and lowest poverty communities (18.1 percentage points) and preschoolers in communities with the greatest and fewest White residents (23.3 percentage points). So while differences in enrollment with quality ECE providers by locale indicate more resources should be directed toward cities, they also underscore the need to target resources strategically based on community socioeconomic and racial composition.

While differences in enrollment with quality ECE providers by locale indicate more resources should be directed toward cities, they also underscore the need to target resources strategically based on community socioeconomic and racial composition.

Analysis of variation in QRIS scores by provider characteristics mirrored disparities found at the child level. ECE providers located in cities, high poverty communities, and communities of color were less likely to receive a high QRIS score. Provider type, size, and subsidy density were also linked to QRIS scores, with child care homes, smaller providers, and those with higher subsidy density receiving lower quality scores on average. These findings may help explain child-level differences in quality access, as the same groups of providers that were less likely to receive high QRIS scores were also those that served more Black and Hispanic children and those in high poverty communities and communities of color.

Disparities in access to quality providers have myriad implications for children and communities. In Pennsylvania, funding is one such implication, as CCW's tiered reimbursement policy ties subsidy reimbursement amounts to providers' QRIS scores. Gaps in add-on amounts were substantial, with White children of all ages, children living in low poverty and predominantly White communities, and children enrolled with providers with low subsidy

58 Authors' calculations, available by request.

density benefiting from the greatest add-on amounts awarded to their providers. Less funding for the providers of Black children, children in high poverty communities and communities of color, and children in classrooms with more CCW-receiving peers may mean fewer resources for these groups of children. With ECE providers operating on such thin profit margins, tiered reimbursements can go a long way in providing children with key resources associated with instructional quality, such as well-qualified teachers. Add-on funding may be especially critical for providers of infants and toddlers who are ineligible for other state ECE programs like Pre-K Counts. Put together, findings from our analysis of CCW reveal significant racial and socioeconomic disparities in access to high-quality, adequately funded providers, and raise concerns about the extent to which the program may contribute to opportunity gaps that already encumber children of color and those from high poverty communities.

CCW Policy Recommendations

To address the racial and socioeconomic disparities documented in this report, we recommend the following research and policy actions:

1 **Determine the barriers ECE providers encounter in raising their QRIS scores, with particular focus on the experiences of providers in high poverty communities and communities of color.** Our findings suggest certain groups of ECE providers experience additional barriers to raising their QRIS scores. Providers located in cities, high poverty communities, and communities of color, as well as providers serving greater shares of CCW recipients, were much less likely to be awarded a high QRIS score. Research is needed on the unique factors that influence these providers' ability to meet QRIS performance standards, especially in light of recent claims of racial bias within QRIS in other states.[59] Understanding the specific constraints these providers face — and working with providers to determine what resources or policy changes may be needed to mitigate them — may be essential to realizing the Pennsylvania Department of Human Services' (DHS) goal of equalizing the representative enrollment of Black and White CCW recipients with high-quality ECE providers, as stated in the department's CCDF state plan for the 2022–2024 program cycle.[60]

2 **Learn more about the impact of tiered reimbursement, and how differential add-on rates affect the resources providers are able to afford.** QRIS scores dictate the amount of tiered reimbursement funding providers receive to support the early education of the children they serve. Our findings show that the same children and communities with lower access to high-quality providers also received less tiered reimbursement funding, on average. These funding gaps may mean providers serving certain groups of children, including children of color and those living in high poverty communities, will have more difficulty affording key resources associated with early learning. Research is needed on how ECE providers leverage tiered reimbursement funding, and specifically how differential add-on rates affect the resources they're able to provide children. Special focus should again be placed on the experiences of providers in cities, high poverty communities, and communities of color, as these providers

59 Nzewi, K., Ignatius, M., & Kruckle, K. (2020). Re: quality improvement in California; U.S. Commission on Civil Rights. (2016, March 11). The Mississippi Advisory Committee to the U.S. Commission on Civil Rights Advisory Memorandum on Low Income Child Care Subsidies Distribution in the State of Mississippi.

60 Child Care and Development Fund (CCDF) Plan for Pennsylvania, FFY 2022-24. https://www.dhs.pa.gov/Services/Children/Documents/FFY%202022-24%20OCDEL%20CCDF%20State%20Plan.pdf

received the lowest add-on amounts. Given DHS' overarching goal of improving racial equity in Pennsylvania's child care system, as stated in its CCDF plan, investigating the effects of this funding policy should be a priority in light of the racial funding disparities documented in this report.

3 **Continue to raise base rates.** While there is some evidence linking tiered reimbursement funding policies to quality improvements among ECE providers, our findings suggest such funding models may not be an effective policy design given existing racial disparities. Investing available funding in raising base subsidy rates, rather than funneling it through tiered reimbursement models, may be a more equitable policy strategy for ensuring all children attend a well-funded, high-quality ECE provider. Pennsylvania has already moved in this direction, implementing an increase in base subsidy rates in spring of 2021. Whereas prior base rates aligned roughly to the 25th percentile of market rates, new base rates are intended to match the 40th percentile of market rates. While this change represents a meaningful increase in the funding available to support the early education of CCW recipients, it falls far short of the federal government's recommendation that ECE subsidies reflect the 75th percentile of market rates. Pennsylvania should continue with its current funding approach of raising base rates rather than raising tiered reimbursement rates.

4 **Boost rates for home-based providers and relative and neighbor caregivers.** Boosting funding for home-based providers and relative and neighbor caregivers could be another step toward racial equity. Black and Hispanic children were enrolled with home-based providers at higher rates than White children; however, home-based providers received lower average QRIS scores, meaning they also received lower amounts of tiered reimbursement funding. Moreover, a recent cost analysis of Pennsylvania's ECE providers found the median cost of providing care was greater for home-based providers than center-based providers,[61] despite charging less on average for private-pay tuition. Put together, home-based providers may experience unique financial limitations. Black and Hispanic children were also significantly more likely to receive ECE from a relative or neighbor caregiver, though these providers are ineligible for any form of tiered reimbursement funding. CCW policy claims family choice is a chief priority, yet current funding policy suggests families choosing non-center options may be penalized financially for doing so. Investing more funding in home-based and relative and neighbor providers may favor Black and Hispanic children, while also honoring the individual choices families make about the early learning environments that are best for their children.

5 **Target resources to providers with limited administrative capacity.** Home-based providers and other small-scale providers, including smaller child care centers, may possess less administrative capacity, making it potentially more difficult to meet certain QRIS requirements. Expanding resources like professional development and coaching — such as those already offered through Pennsylvania's Early Learning Resource Centers — may support these providers in improving instructional practices, especially in settings where directors or other leaders capable of mentoring less-experienced teachers are teachers themselves and thus unable to provide supervision to others. These opportunities could

61 Sirinides, P., & Collins, G. (2020). The cost of child care in Pennsylvania. Institute of State and Regional Affairs, Pennsylvania State University at Harrisburg.

even be extended to relative and neighbor caregivers, as the implementation of tailored strategies for supporting these informal caregivers have shown promise in other settings.[62] Opportunities to participate in a consortium where certain resources, like financial software or staff for data entry, are shared across providers who individually would not be able to afford them could also help expand administrative capacity.

6 **Revise subsidy reimbursement calculations to allocate more funding to providers serving certain groups of children, similar to the state's K-12 funding formula.** Pennsylvania should consider a progressive funding formula that differentially allocates CCW subsidy funding based on factors related to quality and cost of care. Under the current system, subsidy reimbursement rates vary by provider type, child age, locale, and providers' QRIS rating. Instead, funding calculations could take into account the unique context in which each child is learning and the differential costs providers may incur in providing high-quality ECE under those conditions. One example for a new subsidy reimbursement system is K-12 foundation funding formulas that adjust amounts based on student and school district factors such as poverty, size, and English language status, generating more money for school districts that need more resources.[63] ECE providers serving greater shares of CCW recipients, greater shares of infants, or that are located in areas of concentrated poverty could receive higher per-child subsidy reimbursement amounts. Alternatively, additional funding, such as in the form of non-competitive formula grants, could be made available to providers serving larger shares of CCW recipients or operating in targeted locations, such as in high-poverty communities.

Conclusion

Quality ECE leads to improved academic and social outcomes for kids, with positive effects extending far into adulthood. By providing enriching learning experiences early in life, high-quality ECE is a powerful tool for remedying racial and socioeconomic opportunity gaps. However, as in other states, we find substantial differences in access to quality and funding by race and class in Pennsylvania. Children who were Black and children living in cities, high poverty communities, and communities of color were significantly less likely to be enrolled with high-quality ECE providers. These gaps in quality access translated to gaps in funding, as providers serving these groups of children received lower amounts of tiered reimbursement funding on average. Funding gaps in turn may lead to resource gaps that further effect children enrolled with providers with low quality scores. More research to better understand QRIS barriers paired with additional resources and funding to targeted areas could go a long way in remedying these disparities and following through on Pennsylvania's promise to provide equitable learning experiences to all the Commonwealth's children.

62 Hague Angues, M., Thomas, J., Hossain, M., Siddiqui, N., Jacobs Johnson, C., Gonzalez, D., & Del Grosso, P. (2021). Supporting informal child care providers in Detroit. Issue Brief. Princeton, NJ: Mathematica Policy Research.

63 Verstegen, D. A., & Knoeppel, R. C. (2012). From statehouse to schoolhouse: Education finance apportionment systems in the United States. Journal of Education Finance, 145–166.

Analysis of Pre-K Counts

Program Design Characteristics

Pre-K Counts (PKC) is Pennsylvania's state-funded pre-kindergarten program. Stated goals of PKC include providing high-quality pre-kindergarten, getting kids excited about school, promoting kindergarten and grade school readiness, and achieving long-term positive outcomes associated with a quality early education, like higher rates of college attendance.[64] Children ages three, four, and five who are not yet enrolled in kindergarten and whose families earn up to 300% of the federal poverty level are eligible, and PKC specifically targets children "at risk of school failure."[65] ECE providers apply for PKC funding from the state through a competitive grant process; unlike Child Care Works, where families must also pay a co-pay, PKC is free to eligible families. Only child care providers with a high quality designation from the state's quality rating system are able to apply for PKC funding, along with school districts, licensed nursery schools, and Head Start grantees. PKC's emphasis on providing high-quality pre-kindergarten education includes the requirement that lead teachers in PKC classrooms hold a teaching license.

Program Outcomes

A recent evaluation of the impact of Pre-K Counts found promising associations with children's academic performance in kindergarten. Children who participated in Pre-K Counts had significantly higher levels of language and math skills compared to children who did not participate in Pre-K Counts.[66] These differences were equivalent to an additional 4–5 months of learning for PKC participants, a substantial advantage over non-PKC peers, especially considering the relative magnitude of such a difference for young children just beginning formal academic instruction.

Current Study

Given program characteristics designed to ensure Pre-K Counts programs provide high-quality ECE, along with demonstrated impacts on children's academic performance in kindergarten, we operate under the assumption that all Pre-K Counts classrooms are high-quality. Therefore, to answer our research question — To what extent does access to high-quality ECE vary by children's individual and community characteristics? — we analyze demographic trends in Pre-K Counts enrollment. That is, who participates in Pre-K Counts, and is participation equal across groups? To better understand enrollment patterns and which children have the greatest access to PKC, we analyze participation in PKC between and within groups (e.g., city vs. rural) and subgroups (e.g., Black children in cities vs. White children in rural areas). For context, we compare enrollment between Pre-K Counts and Child Care Works.[67] Understanding the composition of the Pre-K Counts program will enable ECE leaders

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64 Pennsylvania Department of Education. (nd). Preschool programs: Pennsylvania Pre-K Counts. https://www.education.pa.gov/Early%20Learning/OCDEL%20Preschool%20Programs/Pages/default.aspx

65 Pennsylvania Department of Education. (nd). Preschool programs: Pennsylvania Pre-K Counts. https://www.education.pa.gov/Early%20Learning/OCDEL%20Preschool%20Programs/Pages/default.aspx

66 Peisner-Feinberg, E., Soliday Hong, S., Yazejian, N., Zadrozny, S., & Burchinal, M. (2020). *Kindergarten impacts of the Pennsylvania Pre-K Counts Program: A statewide evaluation. Executive summary.* Chapel Hill, NC: The University of North Carolina, School of Education and the Frank Porter Graham Child Development Institute.

67 While Child Care Works serves children ages birth–5, our comparison here includes only CCW recipients ages 3–5, as this is the age band served by Pre-K Counts. We compare October 2018 PKC enrollment against spring 2019 CCW enrollment as program data are most current from these time periods; because PKC grant funding covers the full academic year, most children enrolled in PKC in October 2018 would also be enrolled in March 2019.

in Pennsylvania to make more informed decisions about where to target additional resources related to the recruitment and retention of PKC participants in order to ensure all children have equitable access to this high-quality ECE program.

PKC Enrollment by Children's Individual and Community Characteristics

Pre-K Counts has grown rapidly in recent years, expanding access to quality ECE from just over 12,000 children in 2014 to nearly 17,000 children in 2018. However, the composition of PKC enrollment changed in several notable ways during this time, meaning not all children benefited from program expansion equally (see Table 34). Four-year-olds comprised nearly two-thirds of all PKC participants in both 2014 and 2018, though three-year-olds experienced the greatest relative growth in their participation. The number of White children enrolled in PKC grew from 5,511 in 2014 to 8,423 in 2018, an increase of over 50%. Indeed, in 2018, White children comprised nearly half of all PKC participants. Hispanic children also saw their PKC participation rise substantially, with the greatest percentage increase in enrollment of any racial group (65.8%). However, Black children's PKC participation dropped from 3,002 in 2014 to 2,946 in 2018. Put another way, the share of PKC participants who were Black dropped from 24.9% in 2014 to 17.4% in 2018. This decline in enrollment among Black children is surprising given that total PKC enrollment grew by nearly 5,000 during this time period. PKC's racial composition was markedly different from the racial composition of preschool-aged children in Child Care Works (CCW), where nearly half of children were Black and fewer than a third were White (see Table B-6).

When looking at family income, trends favoring relatively higher-income families emerged. In both 2014 and 2018, close to half of all PKC participants came from families with the highest relative incomes. While PKC's higher income eligibility threshold makes this enrollment pattern unsurprising, the large gap between families with the lowest and highest incomes – a gap of 4,601 kids in 2018 – raises questions about which families are accessing the quality, free early learning that PKC provides.

Shifts in enrollment from 2014 to 2018 were particularly stark by children's geographic locale. Children living in towns and rural areas comprised the greatest share of PKC participants in 2014 (44.0%), with their representation growing even larger by 2018 (54.6%). Suburban children experienced the greatest percentage increase in their PKC participation from 2014 (90.2%), making them nearly a third of all PKC participants in 2018. However, urban children's participation in PKC dropped substantially. While children living in cities comprised a third of all PKC participants in 2014, they made up less than 15% of the program's beneficiaries in 2018, a decline of 37.7%. PKC's geographic enrollment trends diverged from CCW, where 45.3% of preschoolers lived in cities and 24.6% lived in towns and rural areas (see Table B-6).

The majority of PKC participants lived in communities with lower concentrations of poverty, a striking finding given the program's goal of serving groups of low-income children. In 2018, nearly 70% of all children enrolled in PKC lived in communities with the middle-low and lowest poverty levels. Only 10% of participants resided in the highest poverty communities, a notable decline from 2014. By comparison, 25.9% of CCW preschoolers lived in the highest poverty communities.

Differences in PKC participation were even sharper by the racial composition of children's communities. PKC participation among children living in predominantly White communities (i.e., communities where over 82% of residents were White) increased from 5,490 in 2014 to 9,845 in 2018, a massive jump of 79.3%. That growth meant that in 2018, 58.2% of all PKC participants lived in a predominantly White community. Conversely, PKC participation among children living in

communities of color (i.e., where fewer than 20% of residents were White) dropped from 1,610 in 2014 to 806 in 2018, a decline of nearly 50%. This stark decrease in enrollment meant that in 2018, fewer than 5% of all children participating in PKC lived in a community of color. These gaps in PKC participation by community racial composition directly contrast with the fairly even enrollment observed within CCW, where 25.2% of preschoolers lived in communities of color and 27.5% lived in predominantly White communities.

TABLE 34. Pre-K Counts enrollment by children's individual and community characteristics, 2014 and 2018

		2014		2018		Change in N, 2014–18	% Change, 2014–18
		N	%	N	%		
Age	3-year-olds	3,250	26.9%	4,695	27.7%	1,445	44.5%
	4-year-olds	7,865	65.2%	10,941	64.6%	3,076	39.1%
	5-year-olds	931	7.7%	1,256	7.4%	325	34.9%
Race	White	5,511	45.7%	8,423	49.7%	2,912	52.8%
	Black	3,002	24.9%	2,946	17.4%	-56	-1.9%
	Hispanic	2,748	22.8%	4,555	26.9%	1,807	65.8%
Family Income	Lowest	3,032	25.1%	3,680	21.7%	648	21.4%
	Middle low	1,759	14.6%	2,239	13.2%	1,758	99.9%
	Middle high	1,841	15.2%	2,742	16.2%	901	48.9%
	Highest	5,439	45.1%	8,281	48.9%	2,842	52.3%
Geographic Locale	City	4,022	33.4%	2,507	14.8%	-1,515	-37.7%
	Suburban	2,715	22.6%	5,163	30.5%	2,448	90.2%
	Town/Rural	5,301	44.0%	9,244	54.6%	3,943	74.4%
Community Poverty Concentration	Highest	1,951	16.3%	1,695	10.0%	-256	-13.1%
	Middle high	2,622	21.9%	3,456	20.4%	834	31.8%
	Middle low	4,381	36.5%	7,028	41.6%	2,647	60.4%
	Lowest	3,036	25.3%	4,729	28.0%	1,693	55.8%
Community Racial Composition (% White)	Lowest	1,610	13.4%	806	4.8%	-804	-49.9%
	Middle low	2,370	19.7%	2,716	16.1%	346	14.6%
	Middle high	2,564	21.3%	3,542	20.9%	978	38.1%
	Highest	5,490	45.6%	9,845	58.2%	4,355	79.3%
Total		**12,071**		**16,942**		**4,871**	**40.4%**

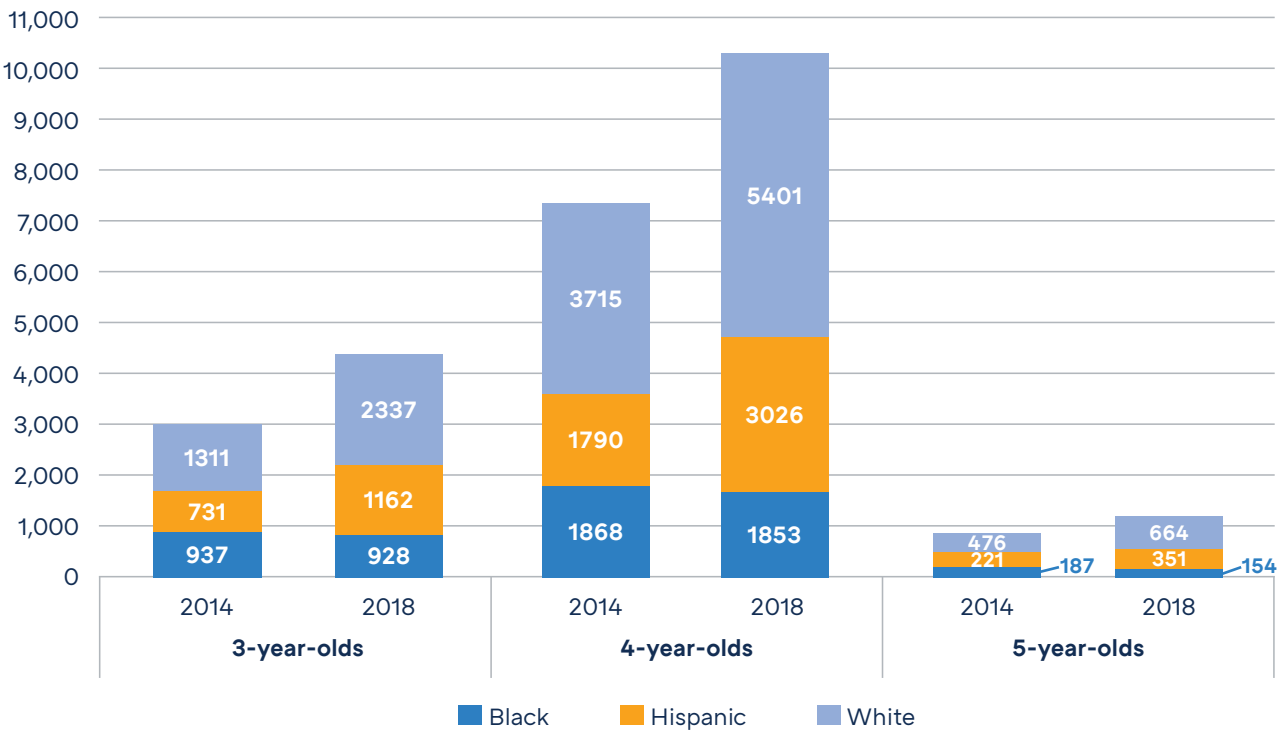
Note: Columns two and four show that group's percentage of total PKC enrollment. Column six shows the percent change in the number of enrolled children from 2014 to 2018. Children's ages were calculated from birthdates and based on how old they were at the time of the October 2014 and October 2018 data pulls. We focus our analysis by race on White, Black, and Hispanic children, as they comprised 93.3% and 94.0% of all PKC enrollment in 2014 and 2018, respectively. Analysis for children of other racial groups, including Asian, Native American, and multi-racial can be obtained from the authors by request. Based on exploratory analysis of patterns within the data, we grouped family income as follows for 2014: Lowest = $0–$13,999; Middle low = $14,000–$21,499; Middle high = $21,500–$29,999; and Highest = >$30,000. To account for inflation, we adjusted the income quartiles for 2018 as follows: Lowest = $0–$14,856; Middle low = $14,857–$22,815; Middle high = $22,816–$31,836; and Highest = >$31,837. Geographic locale was determined by linking child zip codes to National Center for Education Statistics locale classifications. The community poverty concentration measure reflects the percentage of households in the child's community with incomes above 200% of the federal poverty level. Community poverty quartiles are: Lowest = 0–46.99% of residents are low income; Middle low = 47.0–62.49%; Middle high = 62.5–73.99%; and Highest = >74%. The community racial composition measure reflects the percentage of residents in the child's community that identify as White. Racial composition quartiles are: Lowest = 0–19.99% of residents are White; Middle low = 20–57.99%; Middle high = 58–82%; Highest = >82.01%.

Enrollment by family income within age groups mirrored overall income trends (see Table C-1, in the appendix). While PKC enrollment for children of all ages and income groups increased, enrollment grew the most for three-, four-, and five-year-olds with the highest family incomes. Four-year-olds with the highest family incomes comprised the largest share of total PKC enrollment in 2018 — nearly one out of every three PKC participants — while three-year-olds with the highest incomes experienced the greatest growth in PKC participation, from 1,451 in 2014 to 2,296 in 2018, an increase of 58%. By comparison, participation in CCW was even across ages and income levels; for example, only 9.1% of all preschool-aged CCW participants were four-year-olds with the highest incomes (see Table B-7).

PKC participation increased for White and Hispanic children across all age groups (see Figure 1, and Table C-2 in the appendix). For example, the share of White 3-year-olds grew from 1,311 in 2014 to 2,337 in 2018, an increase of 78.3%. Hispanic children experienced the greatest relative boost in PKC participation for four-year-olds, increasing their share of PKC enrollment from 1,790 in 2014 to 3,026 in 2018, a jump of 69.1%. Conversely, participation in PKC among Black children dropped for three-, four-, and five-year-olds, making Black children the least represented of the three main racial groups across all three ages. While the absolute number of enrollment declines for Black children were small (e.g., -15 for Black four-year-olds), these declines occurred within a larger programmatic context of substantial growth in total enrollment.

Enrollment trends by age and race looked different across Pre-K Counts and Child Care Works. In 2018, Black three- and four-year-olds made up 5.5% and 11.0% of all PKC recipients, respectively, while they each comprised 17% each of CCW recipients (see Table B-8). Among White children, program participation trends flipped — White three- and four-year-olds were 14.8% and 31.9% of all PKC recipients, respectively, but were only 10% each of all CCW recipients

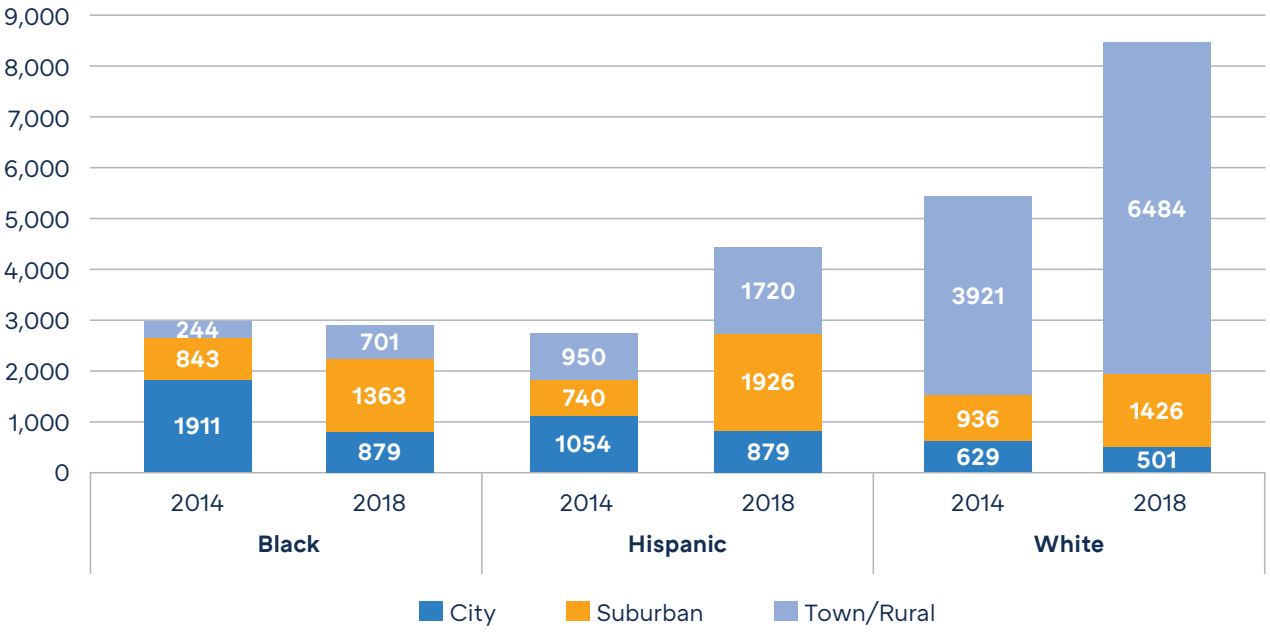
FIGURE 1. Share of children enrolled in Pre-K Counts by age and race, 2014 and 2018



PKC enrollment increased across all income levels for White and Hispanic children (see Table C-3). Growth was especially notable among children with the highest family incomes; the number of White and Hispanic high-income children increased by 1,756 and 881, respectively, from 2014 to 2018. Black children, however, experienced decreased participation in PKC in three of four income groups. Only Black children with the highest family incomes saw an increase in participation, but at only a fraction of the growth experienced by White and Hispanic children with similar family incomes. Because of this subgroup growth, nearly one in three PKC participants in 2018 was White and had the highest relative family income. Comparatively, within CCW, where income distribution was more even, White higher-income children comprised only 8.4% of all CCW preschoolers (see Table B-9).

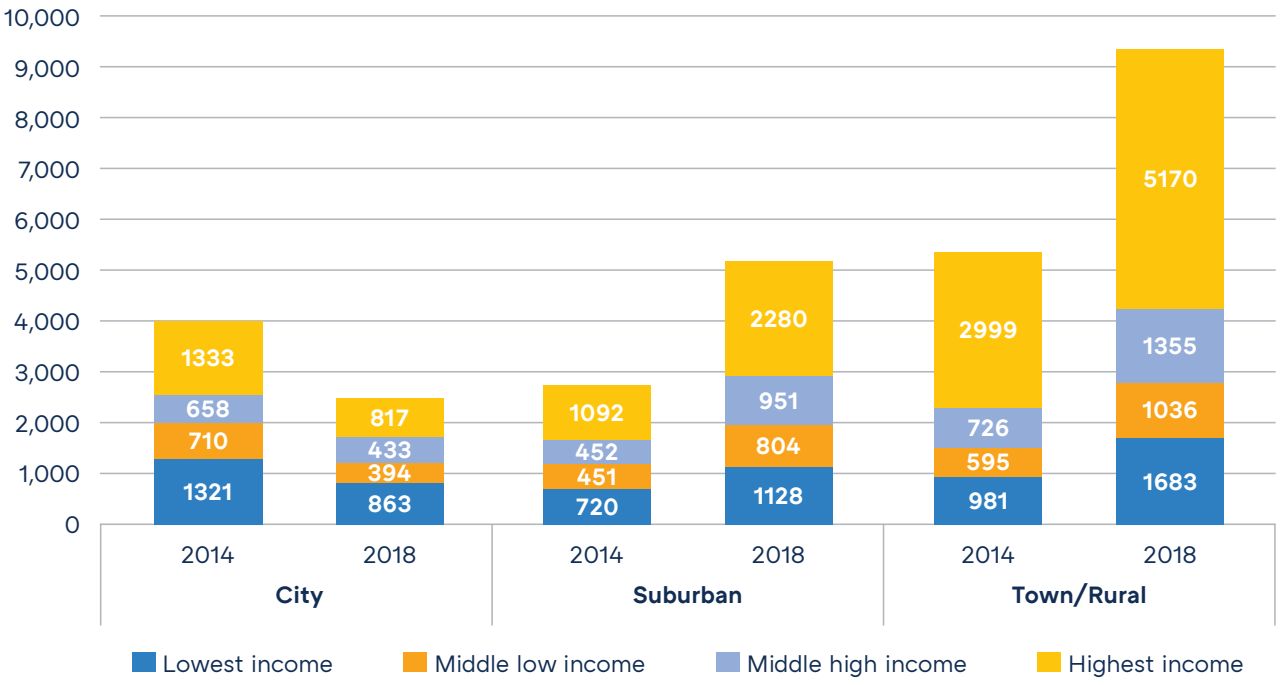
While children of all races living in cities experienced a decline in PKC participation, Black urban children experienced the greatest decrease (see Figure 2 and Table C-4). Indeed, Black children in cities lost more than 1,000 slots in PKC from 2014 to 2018. Within suburbs, Hispanic children benefitted from the greatest growth in PKC participation, increasing their enrollment from 740 in 2014 to 1,926 in 2018, an enormous increase of 160.3%. Put another way, Hispanic children had the fewest slots in PKC of any suburban racial group in 2014, but the most in 2018. Across racial groups, children living in town/rural areas experienced increases in PKC participation from 2014 to 2018. White children in town/rural areas increased their PKC enrollment by 2,563 slots from 2014 to 2018, boosting their share of total PKC enrollment from 32.6% to 38.3%. That growth meant that in 2018, nearly 40% of all PKC participants were White and lived in a town or rural community. The predominance of White rural children in PKC contrasts sharply with CCW participation, where only 15.8% of children were White and lived in a town/rural community. And while Black children in cities comprised only 5.2% of all PKC participations in 2018, they were 30.5% of all CCW preschoolers (see Table B-10).

FIGURE 2. Share of children enrolled in Pre-K Counts by race and geographic locale, 2014 and 2018



PKC enrollment declined across all income groups for children living in cities while it increased across all income groups for children living in suburban and town/rural communities (see Figure 3 and Table C-5). Suburban children in families with relatively higher incomes saw their participation more than double from 2014 to 2018, while rural children with the highest incomes saw the greatest increase in the number of PKC participants (2,171). In contrast, urban children with the highest family incomes saw the greatest drop in the number of PKC participants (-516). These diverging patterns underscore the significance of geographic locale, irrespective of income, when it came to PKC participation. That is, rural children had both higher enrollment numbers and faster enrollment growth compared to urban children.

FIGURE 3. Share of children enrolled in Pre-K Counts by geographic locale and family income, 2014 and 2018

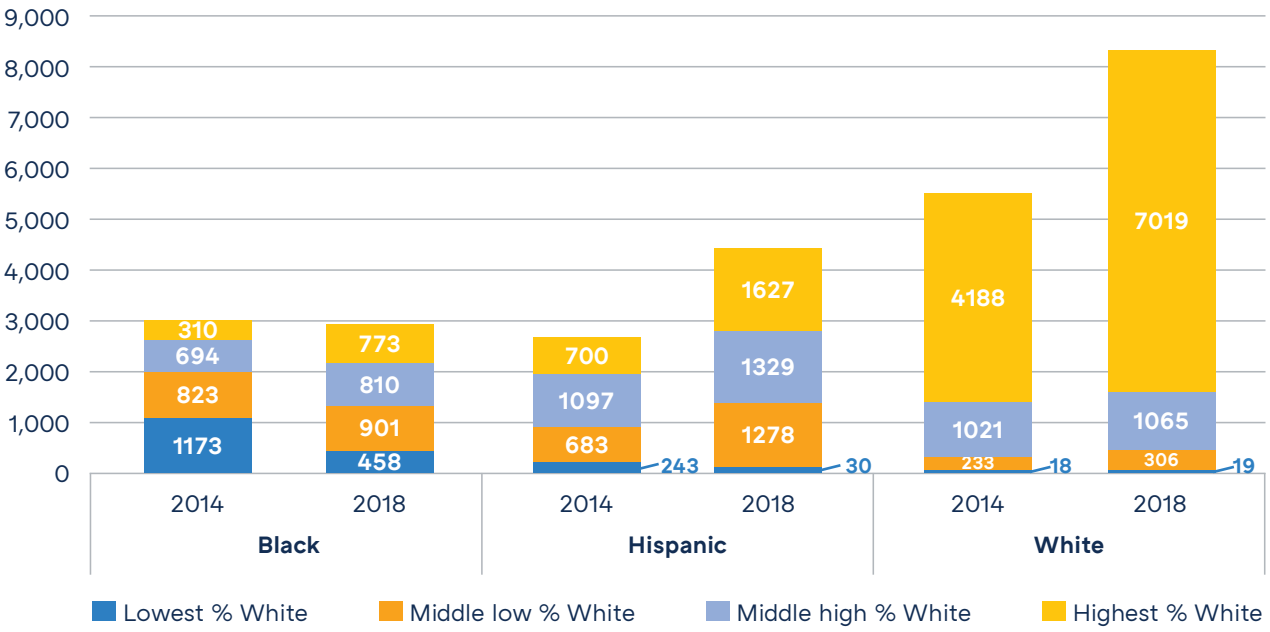


Participation in PKC was greatest for White children in predominantly White communities, while Black children in communities of color experienced dramatic declines in PKC enrollment (see Figure 4 and Table C-6). Even as White and Hispanic children living in communities of color saw their PKC participation remain stable or modestly increase, Black children living in communities of color saw their enrollment in PKC drop from 1,173 in 2014 to only 458 in 2018, a decrease of 61%. In contrast, PKC participation increased across racial groups in communities with middle and high shares of White residents, with the most substantial growth experienced in predominantly White communities. Within predominantly White communities, the number of White children enrolled in PKC increased by 2,831, while enrollment for Black and Hispanic children more than doubled.

Comparisons with CCW highlight these disproportionate enrollments. White children in predominantly White communities accounted for 41.5% of all PKC participants in 2018, but only 18.7% of all CCW preschoolers (see Table B-11). Black children living in communities of color comprised only 2.7% of all 2018 PKC participants, but were 20.9% of CCW preschoolers. These enrollment differences between

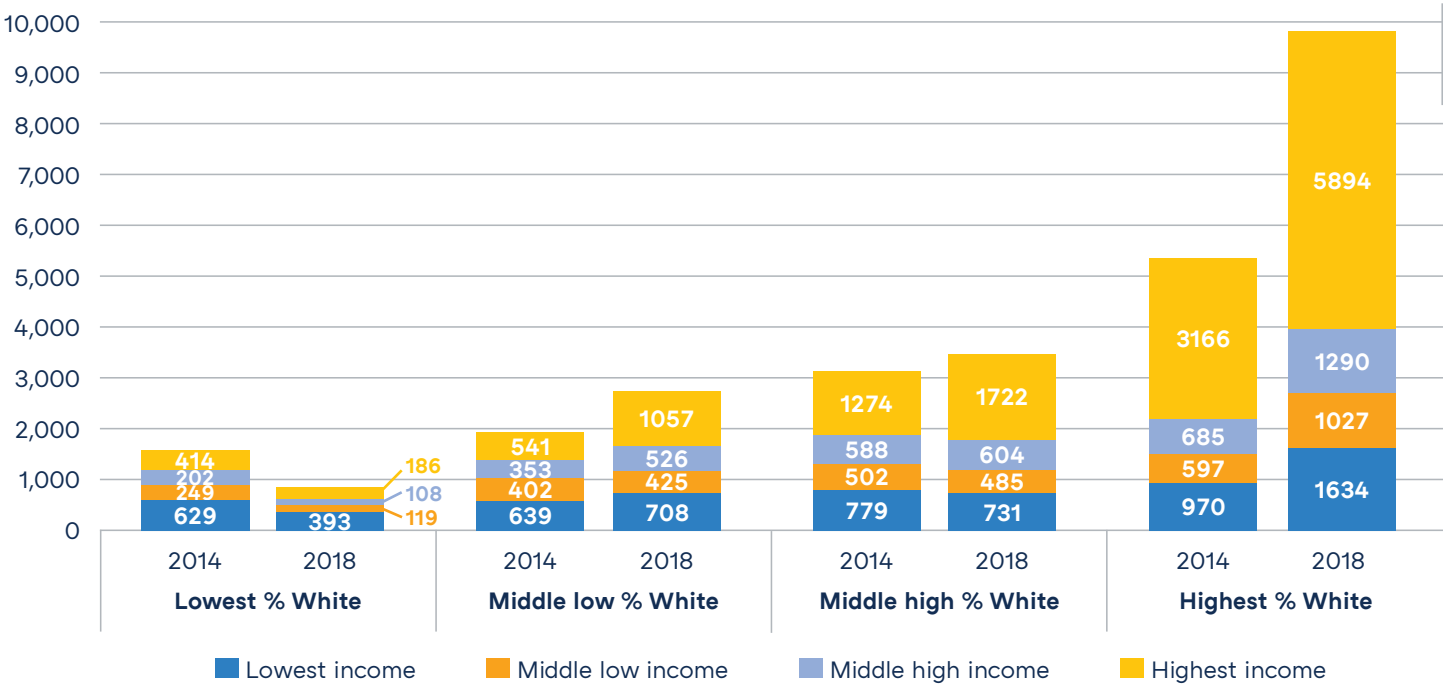
programs suggest that low participation in PKC among Black children, especially those living in communities of color, is not a result of their families' lack of interest in ECE, but more likely lack of access to program information and/or PKC providers.

FIGURE 4. Share of children enrolled in Pre-K Counts by race and community racial composition (% White residents), 2014 and 2018



Children from all income groups living in communities of color experienced declines in PKC enrollment, while children from nearly all other income groups living in communities with more White residents saw their PKC participation increase (see Figure 5 and Table C-7). The number of children with the lowest family incomes living in communities of color dropped from an already low 629 in 2014 to only 393 in 2018, a mere 2.3% of all PKC participants. Declines were similar even among high-income children living in communities of color, where enrollment dipped from 414 in 2014 to 186 in 2018. In contrast, children with the highest incomes living in predominantly White communities — who were already a large share of PKC participants in 2014 — saw their PKC participation grow by 2,728 slots, an increase of 86.2%. Indeed, one in every three PKC participants in 2018 was in the highest income group and lived in a predominantly White community. By comparison, only 8.2% of all preschoolers enrolled in CCW had the highest incomes and lived in predominantly White communities.

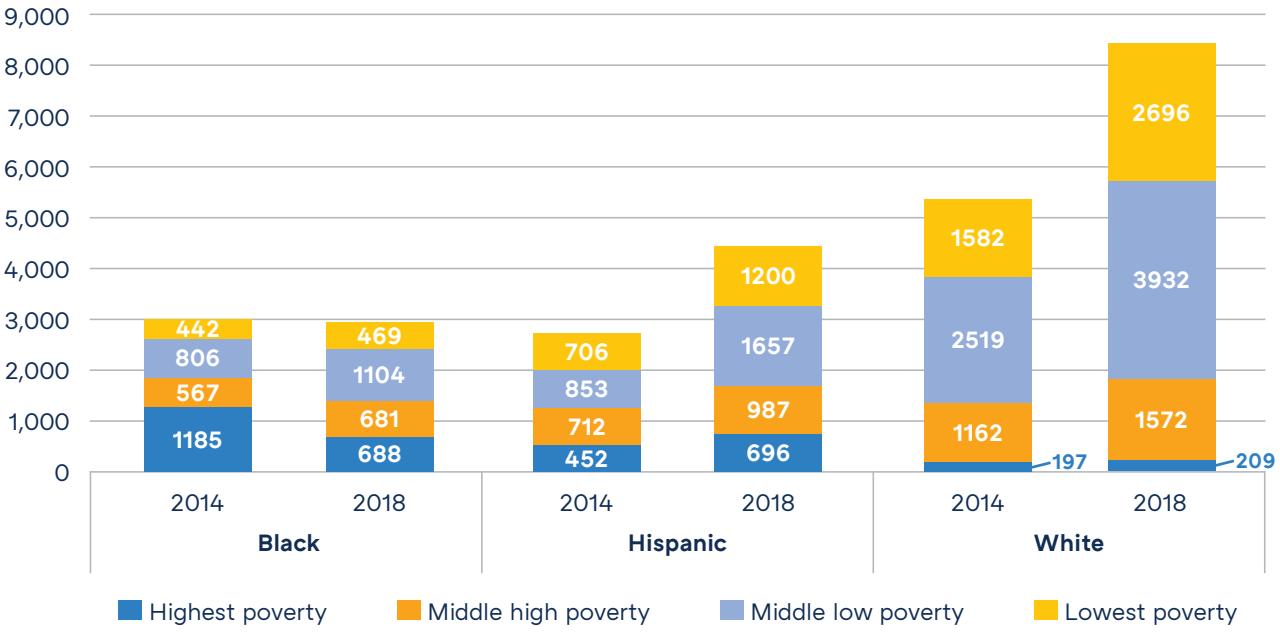
FIGURE 5. Share of children enrolled in Pre-K Counts by community racial composition (% White residents) and family income, 2014 and 2018



Participation in PKC was lowest among children living in the highest poverty communities in 2014, and these children were the only ones to experience declines in PKC participation by 2018. Analysis by race reveals differential trends in these high-poverty communities, where Hispanic enrollment increased but Black children experienced steep declines in participation that drove the overall drop in PKC participation (see Figure 6 and Table C-8). The number of Black children living in high-poverty communities enrolled in PKC dropped from 1,185 in 2014 to 688 in 2018, a decline of 42%. Notably, Black children living in communities with middle or low levels of poverty saw their PKC participation increase modestly. That finding means Black children's overall decline in PKC participation was a result of the dramatic drop in enrollment among Black children living in high-poverty communities. In contrast, PKC enrollment increased for White and Hispanic children across all community poverty contexts. White children living in the lowest-poverty communities saw their PKC participation increase by 70% from 2014 to 2018, while Hispanic children living in communities with middle-low levels of poverty saw their PKC enrollment nearly double.

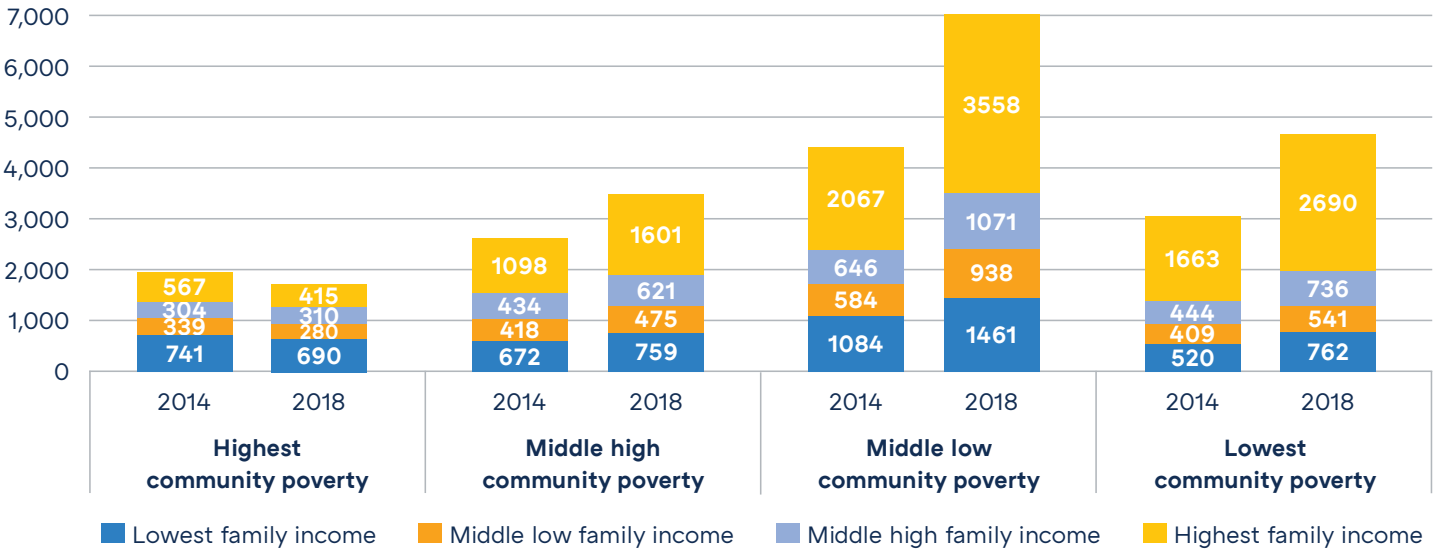
This analysis highlights the lack of access to PKC for children living in the poorest communities. Given the overlapping segregation of race and poverty, low access to PKC in high-poverty communities may contribute to low access for children of color, and especially Black children. Indeed, in 2018, only 4.1% of all PKC participants were Black children living in high-poverty communities. The fact that 17.9% of CCW recipients were Black and lived in high-poverty communities indicates a need among those families for quality, accessible ECE, yet one that was largely unmet by PKC.

FIGURE 6. Share of children enrolled in Pre-K Counts by race and community racial composition (% White residents), 2014 and 2018



PKC participation dropped for children from most income groups living in the highest poverty communities, with the greatest decline experienced by children with the highest incomes (see Figure 7 and Table C-9). Conversely, children with the highest incomes in communities with middle and low rates of poverty experienced the greatest increases in enrollment. For example, children with the highest family incomes living in communities with middle low poverty saw their PKC enrollment grow from 2,067 in 2014 to 3,558 in 2018, an increase of 72.1%. Children from other income groups in communities with middle or low poverty levels also saw their PKC participation increase, underscoring the significance that community poverty seems to play in children's PKC access.

FIGURE 7. Share of children enrolled in Pre-K Counts by community socioeconomic composition and family income, 2014 and 2018

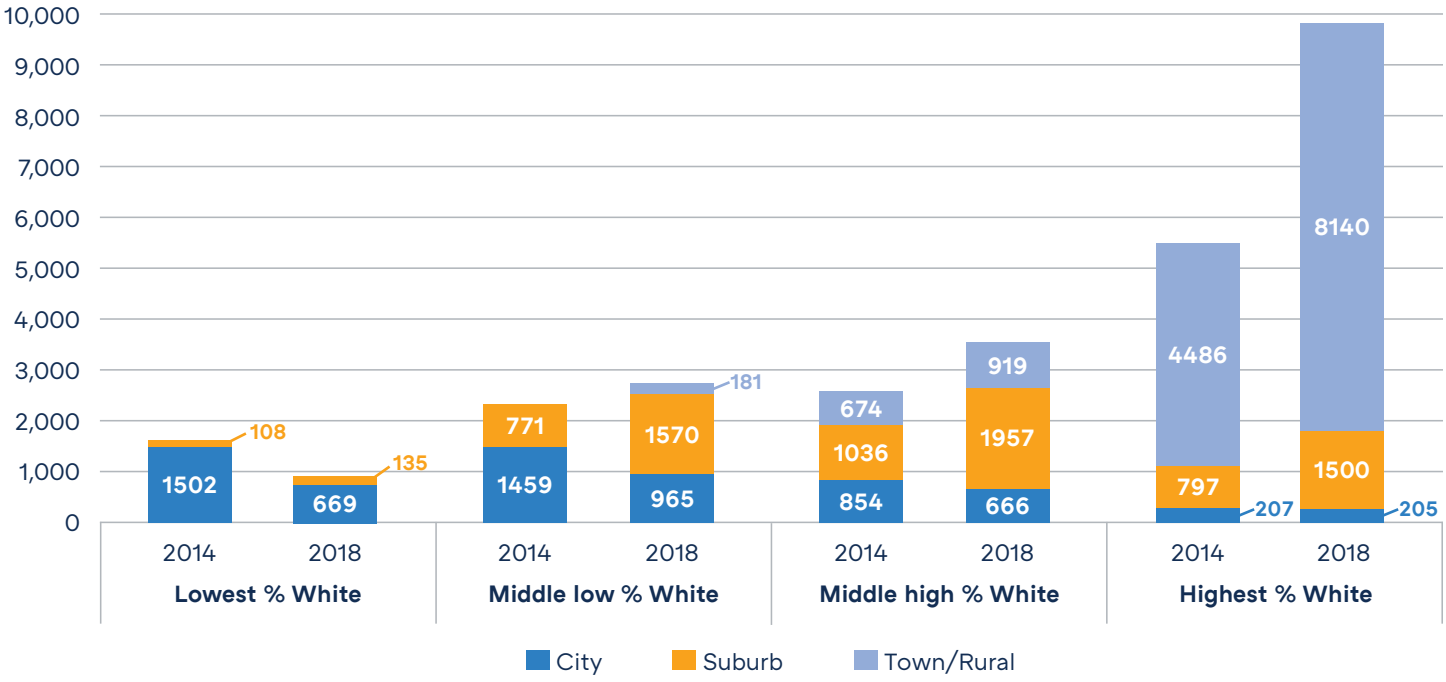


Children living in urban communities with higher poverty and/or few White residents were enrolled in PKC at rates that both were low and declined. In contrast, PKC participation increased across all community poverty contexts for children living in suburban and town/rural areas (see Table C-10). Even in the highest poverty communities, suburban and rural children experienced an increase in PKC participation, albeit at rates lower than their same-locale peers in wealthier communities. Suburban and rural children living in the lowest poverty communities benefited from the greatest increases in PKC participation from 2014 to 2018, at 81.9% and 114.8%, respectively. In comparison, PKC participation dropped for children living in cities across community poverty contexts. Even urban children living in the lowest poverty communities saw their enrollment drop by 108 slots. These enrollment trends by community poverty and locale diverged sharply from CCW, which served a substantial share of children living in urban, high-poverty communities. While only 7.6% of all PKC participants lived in urban, high-poverty communities, nearly one in four (23.6%) CCW preschoolers did (see Table B-12).

PKC participation dropped for children living in cities regardless of the racial composition of their communities, though the magnitude of the decline varied widely across community types (see Figure 8 and Table C-11). Urban children from predominantly White communities experienced a minuscule decline of just two children; but urban children from communities of color lost 833 seats in PKC classrooms, cutting their PKC participation by more than half. Suburban children experienced increased PKC

participation across community contexts, as did children living in town/rural areas. The number of rural children living in predominantly White communities increased by a substantial 3,654 slots from 2014 to 2018. This massive growth meant that in 2018, nearly half of all PKC participants (48.1%) lived in rural, predominantly White communities. By comparison, only 19.5% of all CCW preschoolers lived in rural and predominantly White communities, an enrollment share that actually declined slightly from its 2014 rate of 19.6% (see Table B-13). The shares of children living in urban communities of color also varied drastically by program. In 2018, only 4.0% of all PKC participants lived in urban communities of color, compared to 24.0% of all CCW preschoolers.

FIGURE 8. Share of children enrolled in Pre-K Counts by community racial composition (% White residents) and family income, 2014 and 2018



Note: PKC enrollment for children living in rural communities with the lowest percentages of White residents was 0 in 2014 and 2 in 2018. Enrollment for children living in rural communities with middle low percentages of White residents was 0 in 2014.

Summary of Pre-K Counts Enrollment by Children's Individual and Community Characteristics

The number of children participating in Pre-K Counts increased from 2014 to 2018 by 40%, representing substantial growth in access to high-quality pre-kindergarten education for children across the Commonwealth. Unfortunately, that growth was not experienced equally. White and Hispanic children, children living in suburban and town/rural areas, children with higher family incomes, and children living in predominantly White communities experienced the greatest growth in PKC participation. For example, children living in rural, predominantly White communities saw their PKC participation soar by 3,654 slots. Hispanic children living in the suburbs saw their PKC participation increase by 160.3% — the highest percentage increase of any subgroup in our analysis — even surpassing White children as the most-enrolled racial group in suburban PKC programs. Conversely, Black children living in high-poverty communities and communities of color, along with all children living in cities, saw decreases in access to Pre-K Counts. Black children in cities lost 1,032 seats in PKC classrooms, and Black children living in communities of color saw their PKC participation drop by 61.0%. These enrollment shifts created dramatic differences in the sociodemographic composition of Pennsylvania's Pre-K Counts program. For example, in 2018, nearly half of all PKC participants (48.1%) lived in a rural, predominantly White community, while only one in 20 PKC participants (3.96%) lived in an urban community of color.

These enrollment shifts created dramatic differences in the sociodemographic composition of Pennsylvania's Pre-K Counts program.

PKC Enrollment by Providers' Characteristics

In order to better understand potential factors contributing to shifts in PKC participation, we analyzed enrollment by provider characteristics. Specifically, we explored differences in enrollment by provider type, program size, and STAR rating. Four types of providers serve children enrolled in Pre-K Counts — child care providers, Head Start grantees, school districts, and licensed nursery schools. Providers also apply to serve different numbers of children through PKC grants. In 2018, providers served as few as one child and as many as 212, with providers serving 26 children, on average. While all PKC programs must meet certain requirements associated with instructional quality, some providers choose to meet additional performance standards above and beyond what PKC requires as part of Pennsylvania's quality rating and improvement system (QRIS). A rating of STAR 4 is the highest quality designation an ECE provider can receive through the state's QRIS.[68] Accordingly, we explored differences in enrollment with STAR 4 PKC programs by children's individual and community characteristics.

PKC enrollment with all provider types increased from 2014 to 2018 for children living in suburbs and town/rural areas (see Table 35). For suburban Head Start centers and school districts, the number of PKC children served more than doubled. Child care providers — who served the largest overall share of PKC participants (48.3%) — enrolled an additional 1,989 rural children and 954 suburban children in 2018. However, child care providers' enrollment of urban children declined substantially from 2014 to 2018, with a decrease of 1,239 PKC participants. School districts also served fewer children living in cities,

68 ECE providers operating PKC programs may not seek a STAR 4 designation for a range of reasons, and we recognize that providers without a STAR rating, or a rating lower than four, may still provide exceptional early care and education to PKC participants.

where PKC participation among that group declined by 41.2%. Head Start centers maintained their share of urban PKC participants. While they served the fewest PKC participants across locales, nursery schools experienced the greatest growth in PKC participation from 2014 to 2018, including new enrollment of children in cities.

TABLE 35. Share of children enrolled in Pre-K Counts by provider type and geographic locale, 2014 and 2018

Provider Type	Geographic Locale	2014		2018		Δ 2014 to 2018	
		N	%	N	%	N	%
Child Care Provider	City	2,563	21.29%	1,324	7.83%	-1,239	-48.34%
	Suburb	1,588	13.19%	2,542	15.03%	954	60.08%
	Town/Rural	2,279	18.93%	4,268	25.23%	1,989	87.28%
	Total	**6,430**	**53.41%**	**8,164**	**48.27%**	**1,734**	**26.97%**
Head Start	City	506	4.20%	565	3.34%	59	11.66%
	Suburb	550	4.57%	1,192	7.05%	642	116.73%
	Town/Rural	1,646	13.67%	2,629	15.54%	983	59.72%
	Total	**2,702**	**22.45%**	**4,386**	**25.93%**	**1,684**	**62.32%**
School District	City	953	7.92%	560	3.31%	-393	-41.24%
	Suburb	557	4.63%	1,236	7.31%	679	121.90%
	Town/Rural	1,257	10.44%	2,059	12.17%	802	63.80%
	Total	**2,777**	**23.07%**	**3,855**	**22.79%**	**1,078**	**38.82%**
Nursery School	City	0	0.00%	58	0.34%	58	–
	Suburb	20	0.17%	193	1.14%	173	865.00%
	Town/Rural	109	0.91%	258	1.53%	149	136.70%
	Total	**129**	**1.07%**	**509**	**3.01%**	**380**	**294.57%**

Note: Child care providers include child care centers and group child care homes. Licensed nursery schools are private preschools licensed by the Pennsylvania Department of Education. Growth rates for nursery schools appear especially large due to low 2014 PKC participation.

PKC enrollment increased with all provider types for White and Hispanic children from 2014 to 2018 (see Table 36). For White children, PKC participation increased the most with child care providers, with an additional 1,628 White children served in those settings. Hispanic children's PKC participation nearly doubled with Head Start centers and more than doubled with school district providers. Conversely, Black children's PKC participation dropped by 272 and 136 with child care providers and school districts, respectively. While overall enrollment remained low, nursery schools increased their PKC enrollment across all racial groups from 2014 to 2018, with the greatest growth in participation experienced by Black children.

TABLE 36. Share of children enrolled in Pre-K Counts by provider type and race, 2014 and 2018

Provider Type	Racial/Ethnic Group	2014		2018		Δ 2014 to 2018	
		N	%	N	%	N	%
Child Care Provider	White	2,378	19.73%	4,006	23.65%	1,628	68.46%
	Black	1,746	14.49%	1,474	8.70%	-272	-15.58%
	Hispanic	1,628	13.51%	2,248	13.27%	620	38.08%
	Total	**6,225**	**51.65%**	**8,180**	**48.28%**	**1,955**	**31.41%**
Head Start	White	1,458	12.10%	2,271	13.40%	813	55.76%
	Black	496	4.12%	668	3.94%	172	34.68%
	Hispanic	610	5.06%	1,210	7.14%	600	98.36%
	Total	**2,674**	**22.19%**	**4,394**	**25.94%**	**1,720**	**64.32%**
School District	White	1,565	12.99%	1,961	11.57%	396	25.30%
	Black	756	6.27%	620	3.66%	-136	-17.99%
	Hispanic	480	3.98%	1,001	5.91%	521	108.54%
	Total	**3,024**	**25.09%**	**3,859**	**22.78%**	**835**	**27.61%**
Nursery School	White	109	0.90%	185	1.09%	76	69.72%
	Black	4	0.03%	184	1.09%	180	4500.0%
	Hispanic	12	0.10%	96	0.57%	84	700.00%
	Total	**129**	**1.07%**	**509**	**3.00%**	**380**	**294.57%**

Within child care providers and Head Start centers — the two provider types serving the greatest shares of PKC participants — enrollment expanded the most in predominantly White communities (see Table C-12). Child care providers increased the number of children they enrolled from predominantly White communities by 2,183, a jump of 92.3% and the largest increase across any of the three primary provider types. Indeed, in 2018, one in every four PKC participants was a child living in a predominantly White community enrolled with a child care provider. In contrast, in communities of color, the share of PKC children served by child care providers shrunk by more than half from 2014 to 2018. School districts also served fewer children from communities of color in 2018 compared to 2014, with an enrollment decline of nearly 80%. At the same time, school districts increased their PKC enrollment of children from communities with more White residents. Head Start and nursery schools increased the number of children from communities of color that they served, but only by 28 and 40 children, respectively.

PKC participation increased with all provider types when examining community socioeconomic composition, except among children enrolled with child care providers or school districts and living in the

highest poverty communities (see Table C-13). Children from the highest poverty communities had PKC participation with child care providers drop by 36.1% from 2014 to 2018 and experienced a similar decline with school district providers. Children from the lowest poverty communities benefitted from the greatest increase in PKC participation with Head Start centers, more than doubling their 2014 count. Nursery schools, which didn't serve any children from the highest-poverty communities in 2014, increased their enrollment of children from all community types.

The percentage of children served by providers operating small PKC programs increased across all geographic locales, and most notably in suburban areas (see Table 37). The percentage of urban children served by mid-sized or large PKC programs decreased from 2014 to 2018, with a sizeable decline of 45.8% among large providers. Conversely, large providers substantially increased the share of children living in town/rural areas served by their programs, more than doubling the number of PKC participants they enrolled in 2014.

Notably, only 517 of the 5,093 children served in small PKC programs (10.2%) and 320 of the 2,401 children served in mid-sized programs (13.3%) lived in cities, whereas 36.5% of the children served by large PKC programs lived in cities. Increasing the number of small and mid-sized PKC programs in cities may be one strategy for increasing the number of urban children served by PKC.

TABLE 37. Share of children enrolled in Pre-K Counts by program size and geographic locale, 2014 and 2018

Program Size	Geographic Locale	2014		2018		Δ 2014 to 2018	
		N	%	N	%	N	%
Small	City	496	4.19%	517	3.06%	21	4.23%
	Suburban	520	4.39%	1,277	7.55%	757	145.58%
	Town/Rural	1,966	16.61%	3,299	19.50%	1,333	67.80%
	Total	**2,982**	**25.19%**	**5,093**	**30.11%**	**2,111**	**70.79%**
Mid-sized	City	443	3.74%	320	1.89%	-123	-27.77%
	Suburban	459	3.88%	710	4.20%	251	54.68%
	Town/Rural	1,045	8.83%	1,371	8.11%	326	31.20%
	Total	**1,947**	**16.45%**	**2,401**	**14.20%**	**454**	**23.32%**
Large	City	3,083	26.04%	1,670	9.87%	-1,413	-45.83%
	Suburban	1,668	14.09%	3,176	18.78%	1,508	90.41%
	Town/Rural	2,158	18.23%	4,574	27.04%	2,416	111.96%
	Total	**6,909**	**58.36%**	**9,420**	**55.69%**	**2,511**	**36.34%**

Note: Program size is defined as the number of total funded PKC slots. Small programs have 1–20 total funded slots; mid-sized programs have 21–40 total funded slots; and large programs have more than 40 total funded slots.

PKC enrollment declined substantially for providers serving children in communities of color, regardless of program size (see Table C-14). For example, children living in communities of color who were served by mid-sized and large PKC programs saw their enrollment shrink by more than half from 2014 to 2018. PKC participation increased for children living in communities with middle and high shares of White residents across all program types. Growth was greatest for children living in predominantly White communities enrolled with large providers, where the number of children served more than doubled.

Mirroring patterns by locale, the share of children from communities of color served by programs of different sizes varied. Only 1.3% of all children served by small PKC programs lived in communities of color, compared to 4.4% and 6.7% of children served by mid-sized and large PKC programs, respectively. Targeting more resources to ECE providers in communities of color in order to boost the number of small and mid-sized PKC programs in operation may again be a strategy for increasing the number of children in these communities served by PKC.

Striking differences in STAR 4 access were also present by children's community characteristics.

Overall, the share of children enrolled in a STAR 4 PKC program increased substantially, from 4,170 in 2014 to 7,905 — close to half of all PKC participants — in 2018. However, access to these highest quality PKC programs was not equal (see Table 38). While three-year-olds comprised a smaller share of PKC participants, they were more likely than their older peers to be enrolled in a STAR 4 program in both 2014 and 2018. Access to STAR 4 PKC programs was also greater for children with relatively higher family incomes. Gaps in access to STAR 4 PKC programs by race were notable, especially in 2018. While 50.2% of White children were enrolled with a STAR 4 program in 2018, only 38.1% of Black children were. This gap between White and Black children was driven by dramatic growth in STAR 4 access among White children; from 2014 to 2018, 2,550 more White children enrolled with a STAR 4 program, compared to only 101 Black children.

Striking differences in STAR 4 access were also present by children's community characteristics. In 2014, urban and suburban PKC participants were far more likely than their rural peers to be enrolled in a STAR 4 PKC program. By 2018, that trend flipped. Indeed, 4,811 more rural children were enrolled in a STAR 4 program in 2018 compared to 2014, dramatically increasing the percentage of rural STAR 4 PKC participants from 28.8% to 52.0%. Conversely, the number of urban children enrolled in a STAR 4 PKC program dropped by 651. Stark differences in STAR 4 access were also present by the poverty level of children's communities. Enrollment in STAR 4 PKC programs for children living in low poverty communities increased from 1,418 in 2014 to 2,533 in 2018, while for children in the highest poverty communities STAR 4 enrollment actually declined. Trends were similar by community racial composition, but with even wider gaps. In 2014, the shares of children from communities of color and predominantly White communities enrolled in a STAR 4 PKC program — 28.8% and 28.0%, respectively — were nearly identical. For children from predominantly White communities, enrollment in STAR 4 programs then rose substantially to 50.0% in 2018. But for children from communities of color, the share of PKC participants in a STAR 4 program actually dropped two percentage points. These gaps in STAR 4 access paralleled larger enrollment trends, suggesting the same groups of children more likely to participate in PKC were also more likely to experience top-quality early education within those PKC programs.

TABLE 38. Share of Pre-K Counts participants enrolled with a STAR 4 provider by children's individual and community characteristics, 2014 and 2018

		2014		2018		Δ 2014 to 2018	
		N	%	N	%	N	%
Age	3-year-olds	1,383	42.6%	2,598	55.3%	1,215	87.9%
	4-year-olds	2,521	32.1%	4,731	43.2%	2,210	87.7%
	5-year-olds	261	28.0%	556	44.3%	295	113.0%
Race	White	1,680	30.5%	4,230	50.2%	2,550	151.8%
	Black	1,020	34.0%	1,121	38.1%	101	9.9%
	Hispanic	1,128	41.0%	2,160	47.4%	1,032	91.5%
Family Income	Lowest	924	30.5%	1,414	40.7%	490	53.0%
	Middle low	634	36.0%	981	47.6%	347	54.7%
	Middle high	683	37.1%	1,194	47.2%	511	74.8%
	Highest	1,938	35.6%	4,316	48.6%	2,378	122.7%
Geographic Locale	City	1,636	40.7%	985	39.3%	-651	-39.8%
	Suburban	1,006	37.1%	2,088	40.4%	1,082	107.6%
	Town/Rural	1,528	28.8%	4,811	52.0%	3,283	214.9%
Community Poverty Concentration	Highest	788	40.4%	694	40.9%	-94	-11.9%
	Middle high	818	31.2%	1,563	45.2%	745	91.1%
	Middle low	1,123	25.6%	3,070	43.7%	1,947	173.4%
	Lowest	1,418	46.7%	2,533	54.0%	1,115	78.6%
Community Racial Composition (% White)	Lowest	464	28.8%	216	26.8%	-248	-53.4%
	Middle low	965	40.7%	1,027	37.8%	62	6.4%
	Middle high	1,199	46.8%	1,717	48.5%	518	43.2%
	Highest	1,539	28.0%	4,921	50.0%	3,382	219.8%
Total		**4,170**	**34.6%**	**7,905**	**46.7%**	**3,735**	**89.6%**

Summary of Pre-K Counts Enrollment by Providers' Characteristics

Growth in PKC participation varied by provider type and program size. Across provider types, growth was greatest for children in suburban and rural areas, White and Hispanic children, and for children in communities with more White residents and less poverty. Enrollment declines across providers were isolated among Black children and those children living in cities, high-poverty communities, and communities of color, mirroring overall trends in PKC participation. The fact that enrollment declines were observed consistently across most provider types and contexts suggests a collective strategy involving all providers may be needed to equalize program enrollment for those children and communities with less PKC access. Similar patterns were present by program size, with PKC participation increasing across small, mid-sized, and large programs for children living in suburban and rural communities and communities with higher percentages of White residents. Differences in the shares of children from cities and communities of color served by PKC programs of various sizes suggest increasing the availability of small and mid-sized programs in these communities may be one strategy for improving access. While all PKC providers are required to meet certain standards associated with instructional quality, striking gaps in access to STAR 4 providers raise concerns that the groups of children with the lowest PKC enrollment were also those least likely to experience top-quality providers even when they were enrolled.

Pre-K Counts Recommendations

1 **Learn more about barriers ECE providers face in applying for and implementing Pre-K Counts, especially in cities and communities of color.** Children living in cities and communities of color experienced significantly lower access to PKC compared to their peers living in rural and predominantly White communities. Yet, enrollment comparisons with Child Care Works indicate demand for quality preschool is consistent across communities, suggesting barriers to implementing PKC programs in urban communities and communities of color may be one factor explaining low rates of access. More research is needed on why ECE providers in these underserved communities are not applying for PKC grants, with specific attention to the unique barriers these providers face in establishing or expanding PKC programs.

2 **Work with child care providers and school districts in cities to increase PKC participation among urban children.** Data from 2014 show child care providers and school districts were capable of serving more urban children in PKC programs. More resources should be directed to these providers in order to regain the PKC slots lost over time, and to expand further. Increasing the number of small and mid-sized PKC programs operated by these providers, in particular, may help close the enrollment gap between urban children and their suburban and rural peers.

3 **Incentivize PKC grantees to serve children from the highest poverty communities.** Providers should be allotted additional grant funding for serving children from the highest poverty communities, similar to how the funding formula for Pennsylvania's K-12 schools allocates greater funding for schools serving these communities. Such financial incentives are likely to increase the recruitment and retention of children from high poverty communities in PKC programs. Because of the relationship between racial and economic segregation, increasing the number of children enrolled in PKC from high poverty communities may also help increase participation among children from communities of color.

4 **Increase outreach to families and caregivers, especially in underserved communities.** Families seeking pre-kindergarten for their children may be unaware that multiple public ECE programs exist, and that there are meaningful distinctions between them (e.g., PKC is free, but CCW requires a copay). Outreach efforts, especially in urban areas, communities of color, and high poverty communities, could help increase interest and participation in PKC.

Conclusion

Pre-K Counts provides high-quality pre-kindergarten education to children across Pennsylvania. The program's rapid expansion increased access to quality early learning from just over 12,000 children in 2014 to nearly 17,000 children in 2018. However, access to PKC was not experienced equally. Especially when compared to Child Care Works, PKC served disproportionately high shares of White and higher-income children from rural, low poverty, and predominantly White communities. Black children, along with those from urban and high poverty communities and communities of color, were far less likely to experience the benefits of PKC. More research is needed on why ECE providers serving these groups of children have been unable to establish or expand PKC programs, along with more robust outreach to families and financial incentives to encourage providers to recruit underserved children.

Analysis of the Head Start Supplemental Assistance Program

Program Design Characteristics

The Head Start Supplemental Assistance Program (HSSAP) is a grant program that provides state funds to Head Start grantees to supplement federal allocations, allowing providers to expand program enrollment to communities unserved by their primary federal grant.[69] The federal Head Start program, enacted in 1965, aims to promote the school readiness of young children from families with low incomes while also supporting children's physical and mental health and overall family well-being. Head Start serves children ages birth-5 from families with incomes below the federal poverty level (FPL). Children from families experiencing homelessness and those that receive public assistance, like TANF, are also eligible. HSSAP funding can be used to enroll additional three- or four-year-olds, increase the number of hours children are served daily, or increase the number of days each year children experience Head Start. Head Start and Early Head Start grantees are eligible to apply for HSSAP funding. While Head Start grantees are funded directly by the federal government, HSSAP provides additional funding over and above federal allocations, and is funded through state appropriations determined annually by the Pennsylvania legislature and governor.

Current Study

Head Start classrooms must meet performance standards associated with positive child outcomes, including the requirement that lead teachers hold an associate's or bachelor's degree. Studies of Head Start have established a link between program participation and improved cognitive and social development for children, especially during the preschool years.[70] Particularly relevant to HSSAP's goal of expanding Head Start services is evidence that positive program effects are greater for children in full-day versus part-day programs[71] and for those enrolled in Head Start for a longer duration of time.[72] Put together, the presence of policies designed to ensure quality combined with evidence of Head Start's effectiveness[73] indicate participation in HSSAP is likely to produce positive outcomes for Pennsylvania children. Accordingly, we answer our research question — To what extent does access to high-quality ECE vary by children's individual and community characteristics? — by analyzing demographic trends

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69 The Pennsylvania Key. (nd). Head Start (HSSAP). https://www.pakeys.org/getting-started/ocdel-programs/head-start/hssap-how-to-apply/

70 Puma, M., Bell, S., Cook, R., Heid, C., Shapiro, G., Broene, P., … & Spier, E. (2010). Head Start Impact Study. Final Report. *Administration for Children & Families*.

71 Walters, C. R. (2015). Inputs in the production of early childhood human capital: Evidence from Head Start. *American Economic Journal: Applied Economics, 7*(4), 76–102.

72 Wen, X., Leow, C., Hahs-Vaughn, D. L., Korfmacher, J., & Marcus, S. M. (2012). Are two years better than one year? A propensity score analysis of the impact of Head Start program duration on children's school performance in kindergarten. *Early Childhood Research Quarterly, 27*(4), 684–694.

73 Repeated studies using rigorous research studies have documented significant benefits linked to Head Start participation, especially for the families with very low incomes that the program targets. However, some studies of Head Start have found null or even negative effects of program participation. Much of this variation in findings depends on the counterfactual condition of the control group and the outcome measures researchers use to quantify program effectiveness. For a review, see: Shager, H. M., Schindler, H. S., Magnuson, K. A., Duncan, G. J., Yoshikawa, H., Hart, C. M. D. (2013). Can research design explain variation in Head Start research results? A meta-analysis of cognitive and achievement outcomes. *Educational Evaluation and Policy Analysis, 35*(1), 76–95.

in HSSAP enrollment.[74] To better understand enrollment patterns and which children have the greatest access to HSSAP, we analyze participation in HSSAP between and within groups and subgroups (e.g., Black children in cities vs. Black children in rural areas). For context, we compare enrollment shares between HSSAP and Pennsylvania's two other ECE programs serving families with low incomes, Child Care Works (CCW)[75] and Pre-K Counts (PKC).

HSSAP Enrollment by Children's Individual and Community Characteristics

Like Child Care Works, overall HSSAP enrollment declined slightly between 2014 and 2018, from 4,577 to 4,505 (see Table 39). Four-year-olds saw their participation decline by about 5% during this time, while the number of three- and five-year-olds enrolled increased marginally. The number of Black children enrolled in HSSAP decreased by 153 from 2014 to 2018; Black children were the only racial group to experience a decline in program participation. While children from families with the lowest incomes were the majority of HSSAP participants in 2014 and 2018, their enrollment dropped by a substantial 349. Moreover, children with the lowest incomes were the only group to experience decreased enrollment, a surprising finding given Head Start's focus on serving families in poverty. HSSAP participation also decreased among children living in cities and suburbs, while children living in towns/rural areas saw their program participation rise by 121. Indeed, in 2018, nearly half of all HSSAP participants lived in a rural area, similar to Pre-K Counts enrollment trends. Two-thirds of all HSSAP participants lived in communities with moderate levels of poverty, with the greatest growth in HSSAP participation experienced by children living in communities with middle-high poverty. All growth in HSSAP participation occurred in predominantly White communities (i.e., communities where more than 82% of residents were White), where enrollment increased by 189 children from 2014 to 2018. HSSAP participation dropped across communities with greater racial diversity. Similar to Pre-K Counts, 45% of all HSSAP participants lived in a predominantly White community in 2018, while only 15% lived in a community of color (i.e., a community where fewer than 20% of residents were White).

The number of Black children enrolled in HSSAP decreased by 153 from 2014 to 2018; Black children were the only racial group to experience a decline in program participation.

74 We focus on HSSAP enrollment here because this report analyzes only state programs and state data. However, it is important to note that HSSAP supports only a small share of the 35,000 children enrolled in Head Start in Pennsylvania. That is, many more children, beyond those that receive HSSAP funding, benefit from quality pre-kindergarten through Head Start. It is also possible that the demographic composition of HSSAP recipients is different from the overall composition of Pennsylvania Head Start participants.

75 While Child Care Works serves children ages birth-5, this comparison includes only CCW recipients ages 3-5, as this is the age band primarily served by Head Start. We compared October 2018 HSSAP enrollment against spring 2019 CCW enrollment as program data were most current from these time periods; because HSSAP grant funding covers the full academic year, most children enrolled in HSSAP in October 2018 would also be enrolled in March 2019, thereby creating a valid comparison group.

TABLE 39. HSSAP enrollment by children's individual and community characteristics, 2014 and 2018

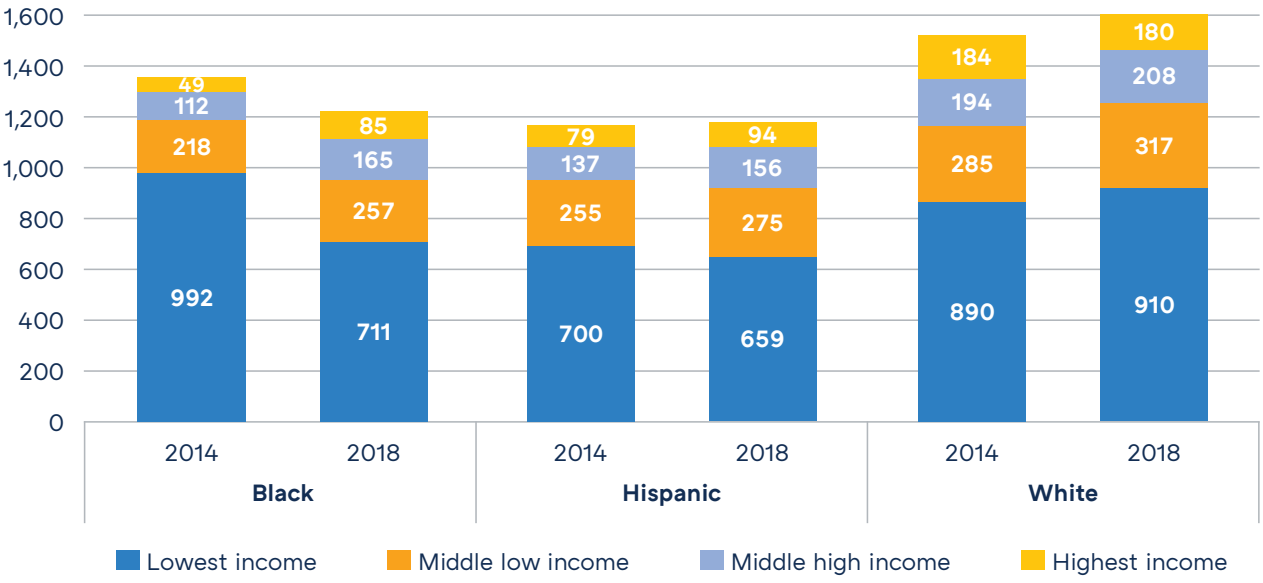
		2014		2018		Δ 2014 to 2018	
		N	%	N	%	N	%
Age	3-year-olds	1,384	30.2%	1,414	31.4%	30	2.2%
	4-year-olds	2,831	61.9%	2,696	59.8%	-135	-4.8%
	5-year-olds	351	7.7%	365	8.1%	14	4.0%
Race	White	1,553	33.9%	1,615	35.9%	62	4.0%
	Black	1,371	30.0%	1,218	27.0%	-153	-11.2%
	Hispanic	1,171	25.6%	1,184	26.3%	13	1.1%
Family Income	Lowest	2,847	62.2%	2,498	55.5%	-349	-12.3%
	Middle low	886	19.4%	992	22.0%	106	12.0%
	Middle high	509	11.1%	619	13.7%	110	21.6%
	Highest	335	7.3%	396	8.8%	61	18.2%
Geographic Locale	City	1,746	38.2%	1,622	36.0%	-124	-7.1%
	Suburban	826	18.1%	760	16.9%	-66	-8.0%
	Town/Rural	1,997	43.6%	2,118	47.0%	121	6.1%
Community Poverty Concentration	Highest	906	19.8%	828	18.4%	-78	-8.6%
	Middle high	1,367	29.9%	1,518	33.7%	151	11.1%
	Middle low	1,604	35.0%	1,491	33.1%	-113	-7.0%
	Lowest	691	15.1%	661	14.7%	-30	-4.3%
Community Racial Composition (% White)	Lowest	731	16.0%	673	14.9%	-58	-7.9%
	Middle low	1,077	23.5%	1,016	22.6%	-61	-5.7%
	Middle high	940	20.5%	800	17.8%	-140	-14.9%
	Highest	1,820	39.8%	2,009	44.6%	189	10.4%
Total		**4,577**		**4,505**		**-72**	**-1.6%**

Notes: Columns two and four show that group's percentage of total HSSAP enrollment. Column six shows the percent change in the number of enrolled children from 2014 to 2018. Children's ages were calculated from birthdates and based on how old they were at the time of the October 2014 and October 2018 data pulls. We focus our analysis by race on White, Black, and Hispanic children, as they comprised 89.5% and 89.2% of all HSSAP enrollment in 2014 and 2018, respectively. Analysis for children of other racial groups, including Asian, Native American, and multi-racial, can be obtained from the authors by request. Based on exploratory analysis of patterns within the data, we grouped family income as follows for 2014: Lowest = $0–$13,999; Middle low = $14,000–$21,499; Middle high = $21,500–$29,999; and Highest = >$30,000. To account for inflation, we adjusted the income quartiles for 2018 as follows: Lowest = $0–$14,856; Middle low = $14,857–$22,815; Middle high = $22,816–$31,836; and Highest = >$31,837. Geographic locale was determined by linking child zip codes to National Center for Education Statistics locale classifications. The community poverty concentration measure reflects the percentage of households in the child's community with incomes above 200% of the federal poverty level. Community poverty quartiles are: Lowest = 0–46.99% of residents are low income; Middle low = 47.0–62.49%; Middle high = 62.5–73.99%; and Highest = >74%. The community racial composition measure reflects the percentage of residents in the child's community that identify as White. Racial composition quartiles are: Lowest = 0–19.99% of residents are White; Middle low = 20–57.99%; Middle high = 58–82%; Highest = >82.01%.

HSSAP enrollment trends by children's age and race mirrored overall enrollment, with Black children experiencing the greatest declines and White children the greatest growth (see Table D-1). Among three-year-olds, Black children's enrollment dropped from 455 in 2014 to 373 in 2018, a decline of 18%. In contrast, White and Hispanic three-year-olds' enrollment increased by 13.2% and 19.6%, respectively. Black four-year-olds experienced a similarly substantial decline in their HSSAP participation, where their enrollment declined from 820 to 732. The number of Hispanic four-year-olds enrolled in HSSAP also declined by 47, while White four-year-olds' enrollment did not change. Among five-year-olds — who make up a small share of HSSAP participants — the number of enrolled Black children increased by 19 while the number of enrolled White and Hispanic children decreased by 4 and 13, respectively.

Nearly all declines in HSSAP enrollment were experienced by children with the lowest family incomes; of these, Black children saw by far the greatest decrease in HSSAP participation (see Figure 9 and Table D-2). The number of Black children with the lowest incomes declined from 992 in 2014 to 711 in 2018, a sizable drop of 28.3% (see Figure 1 and Table D-2). Black children did benefit from the greatest increases in HSSAP enrollment across the other three income groups, though this growth was relatively modest in number. White children's HSSAP participation increased across nearly all income groups. Like Black children — but to a lesser degree — Hispanic children with the lowest incomes had lower HSSAP participation in 2018 compared to 2014, but participation was higher for Hispanic children with middle and high incomes.

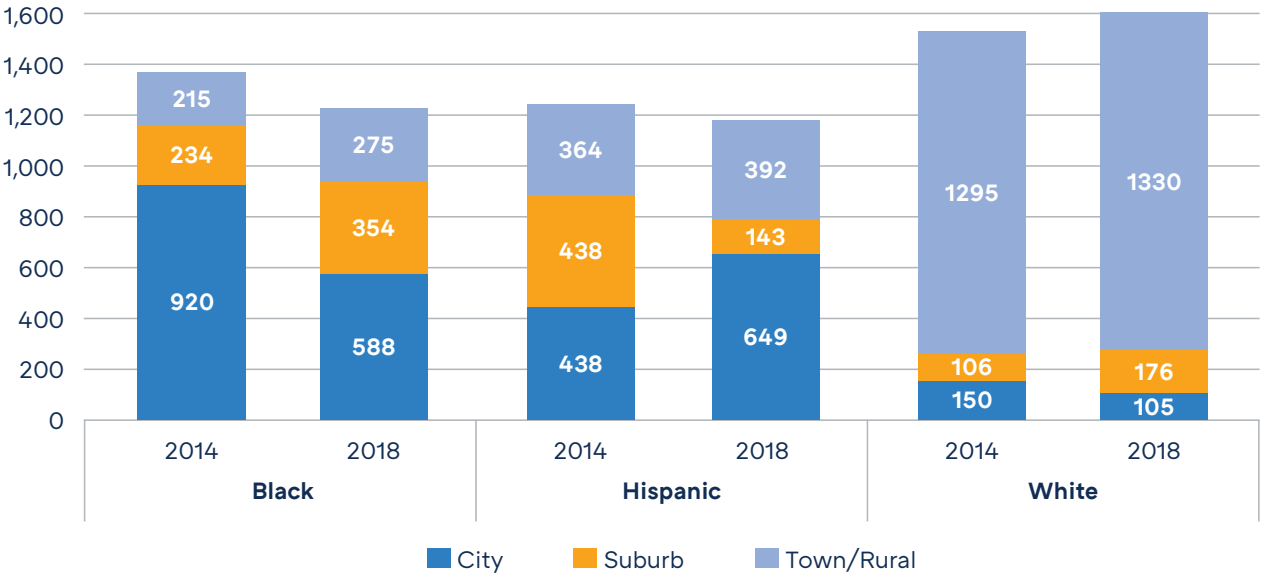
FIGURE 9. Share of children participating in HSSAP by race and family income, 2014 and 2018



Similar to Pre-K Counts enrollment trends, participation in HSSAP declined substantially for Black and White children living in cities (see Figure 10 and Table D-3). Enrollment declines were greatest for urban Black children, where HSSAP participation dropped from 920 in 2014 to 588 in 2018. Though unlike PKC, where urban program participation declined across all racial groups, Hispanic children benefitted from a nearly 50% increase in HSSAP participation from 2014 to 2018. HSSAP enrollment trends reversed in suburban areas, where a large enrollment decline among Hispanic children contrasted with enrollment

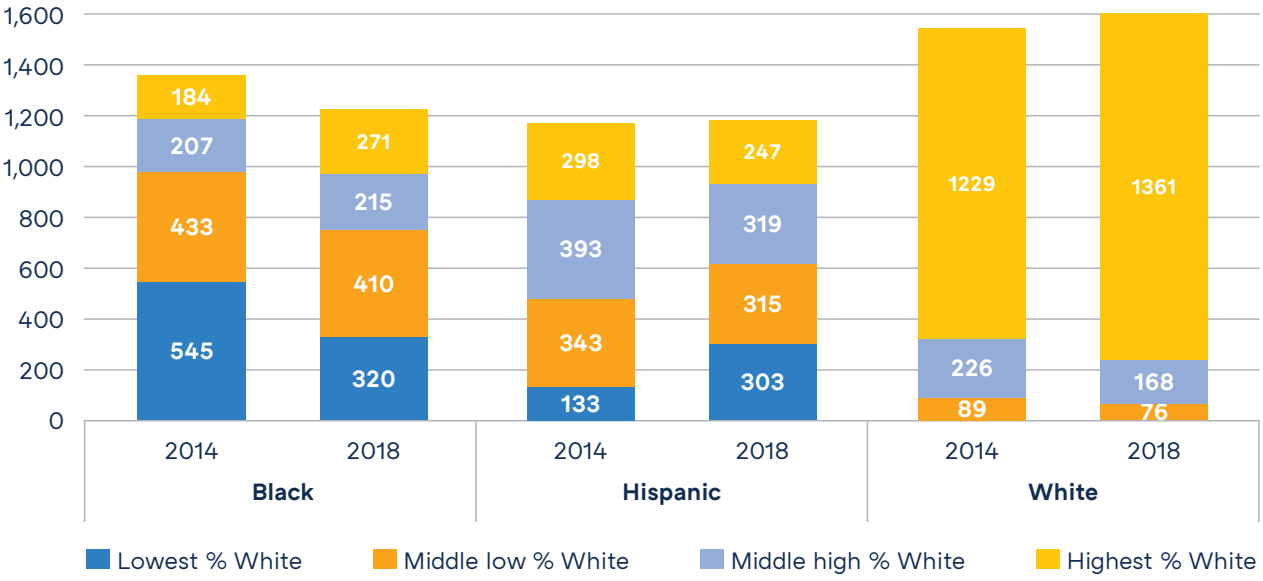
growth for White and Black children. Indeed, the number of suburban Hispanic children participating in HSSAP dropped from 438 to 143, a stark contrast from Pre-K Counts where Hispanic enrollment in the suburbs boomed. Rural children were the only geographic group not to experience any declines in HSSAP participation. Though enrollment gains were relatively modest for White rural children, they still comprised nearly a third of all HSSAP participants in 2018.

FIGURE 10. Share of children participating in HSSAP by race and geographic locale, 2014 and 2018



Growth in HSSAP participation among children living in predominantly White communities was driven by increased participation among White and Black children (see Figure 11 and Table D-4). The number of White HSSAP participants living in predominantly White communities increased from 1,229 in 2014 to 1,361 in 2018. This growth meant that in 2018, 30.3% of all HSSAP participants were White and lived in a predominantly White community. While Black children living in predominantly White communities saw their HSSAP participation increase from 184 to 271 — growth of nearly 50% — Black children living in communities of color experienced the greatest declines in HSSAP enrollment. The number of Black children living in communities of color enrolled in HSSAP plunged from 545 in 2014 to 320 in 2018, mirroring their Pre-K Counts peers who also experienced disproportionate enrollment declines. Indeed, only 7.1% of all HSSAP participants were Black and lived in a community of color. At the same time, Hispanic children living in communities of color benefitted from substantial growth in HSSAP participation, where their enrollment more than doubled from 2014 to 2018.

FIGURE 11. Share of children participating in HSSAP by race and community racial composition (% White residents), 2014 and 2018

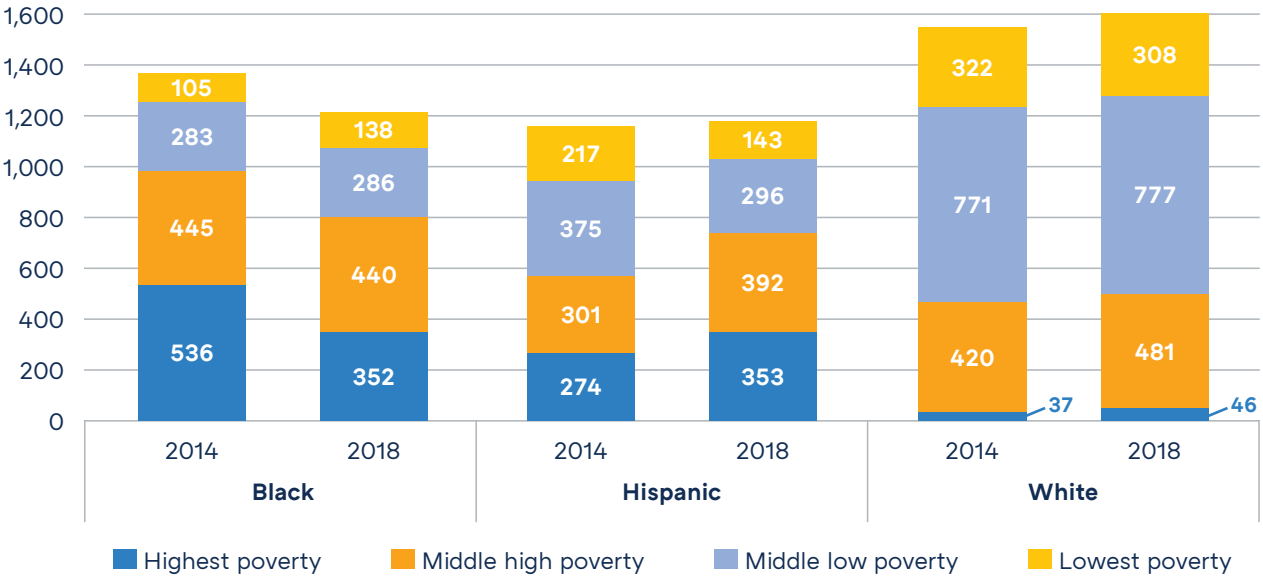


Note: HSSAP enrollment for White children living in communities with the lowest percentages of White residents was 6 in 2014 and 5 in 2018.

Black children living in high poverty communities experienced a sharp decline in HSSAP enrollment, while only White and Hispanic children living in lower poverty communities saw their HSSAP participation drop (see Figure 12 and Table D-5). The number of Black children living in the highest poverty communities enrolled in HSSAP decreased from 536 in 2014 to 352 in 2018, a decline of 34.3%. Conversely, Hispanic children living in the highest poverty communities saw their HSSAP increase from 274 to 353 during that same time period. The number of Hispanic children living in lower poverty communities enrolled in HSSAP decreased by 79 and 74, however. Among White children, only those living in the lowest poverty communities experienced any decline in their HSSAP participation.

Black children living in high poverty communities experienced a sharp decline in HSSAP enrollment, while only White and Hispanic children living in lower poverty communities saw their HSSAP participation drop.

FIGURE 12. Share of children participating in HSSAP by race and community socioeconomic composition, 2014 and 2018



For children living in cities, the greatest decline in HSSAP participation was experienced by those also living in the highest poverty communities (see Table D-6). From 2014 to 2018, the number of children living in these urban, high-poverty communities enrolled in HSSAP decreased by 108, a drop of 14.3%. Urban children living in communities with moderate and low levels of poverty saw a mix of modest increases and decreases in their HSSAP participation. Enrollment patterns also varied by community poverty context for suburban children, with a slight enrollment gain for those living in the highest poverty communities and small declines in enrollment for those living in lower poverty communities. Changes in enrollment among children in rural communities were generally modest, though the number of children living in rural communities with middle-high poverty enrolled in HSSAP increased by 116, or 20.6%. Overall, the mixed and modest shifts in HSSAP participation among most subgroups highlight, by contrast, the relatively dramatic enrollment changes experienced by children in urban, high poverty communities and those in rural, moderate-poverty communities.

Growth in HSSAP enrollment was greatest in predominantly White suburban and rural communities, while the greatest decreases in enrollment were experienced by children living in urban and suburban communities with fewer White residents (see Table D-7). The number of HSSAP participants from rural, predominantly White communities grew from 1,624 in 2014 to 1,771 in 2018. Indeed, in 2018, 39.4% of all HSSAP participants lived in a predominantly White and rural community. Conversely, only 14.3% of HSSAP participants lived in urban communities of color, where the number of children enrolled in the program decreased by 74 from 2014 to 2018. These trends are decidedly similar to PKC, and paint a troubling picture of limited access to high-quality ECE for families living in urban communities of color.

Summary of HSSAP Enrollment by Children's Individual and Community Characteristics

Overall enrollment in HSSAP changed little from 2014 to 2018, with a slight decline of 72 children, or just -1.6%. However, much larger shifts in HSSAP participation were evident by children's individual and community characteristics. In particular, Black children experienced a substantial drop in their HSSAP participation. Indeed, the three subgroups with the largest decreases in HSSAP enrollment were Black children in cities (-332), Black children with the lowest incomes (-281), and Black children living in communities of color (-225). Given the discriminatory effects of historic and contemporary policies, Black children living in cities may also live in communities with higher concentrations of other households of color and those with lower incomes, making it perhaps unsurprising to see overlapping categories with similar trends in HSSAP participation. This correlation between children's race and their community characteristics suggests targeting resources to children in cities may also help close racial gaps in HSSAP participation. HSSAP participation fluctuated among Hispanic children, with a sharp increase in urban enrollment (211) occurring alongside a dramatic decline in suburban enrollment (-295). HSSAP participation remained largely stable for White children, though White children in predominantly White communities experienced notable growth in enrollment. While gaps in program enrollment by sociodemographic characteristics were not as wide among HSSAP participants as they were in Pre-K Counts, certain trends remain concerning. Primarily, declines in HSSAP participation among Black children and communities of color paired with enrollment growth in predominantly White communities point to widening racial inequalities in access to quality ECE.

HSSAP Enrollment by Providers' Characteristics

To better understand potential factors underlying gaps in HSSAP access, we explored program participation by provider characteristics, and specifically differences by provider type and STAR rating. Analysis by provider type revealed Black children's decline in HSSAP participation was driven largely by decreased capacity among school districts (see Table 40). The number of Black children enrolled with school district providers declined sharply, from 415 in 2014 to 147 in 2018. In contrast, Black HSSAP participants' enrollment with child care providers dropped only slightly, while enrollment with Head Start centers increased by 21.9%. Notably, Head Start centers also increased the number of Black children served in their Pre-K Counts programs, suggesting expanding partnerships with Head Start grantees may be one strategy for improving access to quality ECE for Black families across programs. Hispanic children saw their enrollment with Head Start centers drop substantially, while they benefitted from increased HSSAP enrollment with child care providers and school districts. While White children's HSSAP enrollment with Head Start centers dipped slightly, they remained the largest group of HSSAP participants. That is, nearly one in three HSSAP participants was White and enrolled with a Head Start provider.

Analysis by provider type revealed Black children's decline in HSSAP participation was driven largely by decreased capacity among school districts.

TABLE 40. Share of children enrolled in HSSAP by provider type and race, 2014 and 2018

Provider Type	Racial/Ethnic Group	2014		2018		Δ 2014 to 2018	
		N	%	N	%	N	%
Child Care Provider	White	107	2.3%	168	3.7%	61	57.0%
	Black	386	8.4%	371	8.2%	-15	-3.9%
	Hispanic	90	2.0%	261	5.8%	171	190.0%
	Total	**799**	**17.5%**	**1,033**	**22.9%**	**234**	**29.3%**
Head Start	White	1,323	28.9%	1,312	29.1%	-11	-0.8%
	Black	570	12.5%	695	15.4%	125	21.9%
	Hispanic	829	18.1%	517	11.5%	-312	-37.6%
	Total	**2,909**	**63.6%**	**2,736**	**60.7%**	**-173**	**-6.0%**
School District	White	123	2.7%	110	2.4%	-13	-10.6%
	Black	415	9.1%	147	3.3%	-268	-64.6%
	Hispanic	252	5.5%	397	8.8%	145	57.5%
	Total	**869**	**19.0%**	**692**	**15.4%**	**-177**	**-20.4%**

Note: In 2018, 14 HSSAP participants were enrolled with a licensed nursery school and 30 HSSAP participants were enrolled with a non-profit organization.

HSSAP participation increased with child care providers across cities, suburbs, and town/rural areas (see Table D-8). However, HSSAP enrollment with Head Start centers — who served two-thirds of all HSSAP participants — declined by 5.8% overall, a result of fewer children being served by these providers in urban and suburban communities. HSSAP enrollment also decreased for children from cities and suburbs in school districts. Notably, the number of urban HSSAP participants served in school districts dropped from 639 in 2014 to 463 in 2018.

While all Head Start programs must meet certain federal requirements related to the provision of quality ECE, some providers also participate in Pennsylvania's quality rating and improvement system (QRIS). A rating of STAR 4 is the highest quality designation an ECE provider can receive through the state's QRIS.[76] While the number of HSSAP participants enrolled with a provider that sought and received a STAR 4 designation was relatively small, it increased substantially from 2014 to 2018 (see Table 41). In 2014, only 1,266 HSSAP participants — about one in four — were with a STAR 4 provider. In 2018, that number increased to 2,552, meaning 56.6% of all HSSAP participants were enrolled with a provider that met Pennsylvania's top bar for ECE quality. However, like with Pre-K Counts and Child Care Works, access to these STAR 4 providers was not equal. Three-year-old HSSAP participants, along with those with lower family incomes, were more likely than their peers of other ages and incomes to be enrolled with a STAR 4 provider in 2018. Differences in access by race were large, with two-thirds of all White HSSAP participants enrolled with a STAR 4 provider in 2018 while fewer than half of Black and Hispanic children were enrolled with such providers. This gap was driven by substantial growth in STAR 4 access among White HSSAP participants. In 2014, the number of Black and White HSSAP participants enrolled with a STAR 4 provider was exactly the same. Yet, while the number of White HSSAP participants with a STAR 4 provider increased by 681, the number of Black HSSAP participants grew by only 159. Differences in

76 ECE providers operating HSSAP programs may not seek a STAR 4 designation for a range of reasons, and we recognize that providers without a STAR rating, or a rating lower than four, may still provide exceptional early care and education to HSSAP participants.

STAR 4 access were even starker by locale. Two-thirds (67.5%) of all rural HSSAP participants were with a STAR 4 provider, but only 26.6% and 56.7% of suburban and urban children were, respectively. Indeed, the share of rural HSSAP participants enrolled with a STAR 4 provider increased by 40.3 percentage points from 2014 to 2018. Gaps in STAR 4 access persisted when looking at the socioeconomic and racial composition of children's communities. Children living in the highest poverty communities had the lowest rate of enrollment with STAR 4 providers of any community socioeconomic group in 2018. In 2014, children living in communities of color actually had the highest rate of enrollment with STAR 4 providers, but massive growth in STAR 4 access among children living in predominantly White communities led that group to have the highest enrollment share (67.5%) with STAR 4 HSSAP providers in 2019.

TABLE 41. Share of HSSAP children enrolled with a STAR 4 provider by children's individual and community characteristics, 2014 and 2018

		2014		2018		Δ 2014 to 2018	
		N	%	N	%	N	%
Age	Three-year-old	440	31.8%	861	60.9%	421	29.1
	Four-year-old	751	26.5%	1,471	54.6%	720	28.1
	Five-year-old	74	21.1%	200	54.8%	126	33.7
Race	White	398	25.6%	1,079	66.8%	681	41.2
	Black	398	29.0%	557	45.7%	159	16.7
	Hispanic	220	18.8%	590	49.8%	370	31.0
Family Income	Lowest	697	24.5%	1,342	56.7%	645	32.2
	Middle low	320	36.1%	610	60.5%	290	24.4
	Middle high	148	29.1%	349	54.6%	201	25.5
	Highest	101	30.1%	251	51.2%	150	21.1
Geographic Locale	City	667	38.2%	919	56.7%	252	18.5
	Suburban	53	6.4%	202	26.6%	149	20.2
	Town/Rural	544	27.2%	1,430	67.5%	886	40.3
Community Poverty Concentration	Highest	170	18.8%	377	45.5%	207	26.7
	Middle high	504	36.9%	985	64.9%	481	28.0
	Middle low	403	25.1%	848	56.9%	445	31.8
	Lowest	187	27.1%	341	51.6%	154	24.5
Community Racial Composition (% White)	Lowest	229	31.3%	352	52.3%	123	21.0
	Middle low	325	30.2%	520	51.2%	195	21.0
	Middle high	284	30.2%	323	40.4%	39	10.2
	Highest	426	23.4%	1,356	67.5%	930	44.1
Total		**1,266**	**27.7%**	**2,552**	**56.6%**	**1,286**	**28.9**

Head Start Supplemental Assistance Program Recommendations

1 **Learn more from HSSAP grantees about any barriers they face in applying for funding, especially grantees that enroll, or are able to enroll, larger shares of underserved children.** Black children, children with the lowest family incomes, and children living in cities saw the greatest declines in their HSSAP participation. Research is needed on why providers formerly serving these groups of children were unable to continue doing so, and how providers able to enroll these underserved groups may more easily do so in the future.

2 **Work with providers of different types to target HSSAP expansion in underserved communities.** Substantial drops in HSSAP enrollment occurred in urban school districts. These school district providers may need additional resources in order to establish new programs, or grow current ones, in order to restore and expand HSSAP participation in urban communities. Head Start centers, which have demonstrated an ability to retain and expand service to Black children in both HSSAP and PKC, could also be targeted for expansion. Learning from Head Start centers about how best to recruit and serve Black families through HSSAP may also be beneficial for child care and school district providers, a process that leaders at the state could help facilitate. Documentation of recruitment efforts within underserved communities could also be an application requirement for HSSAP funding.

Conclusion

The Head Start Supplemental Assistance Program (HSSAP) supports the provision of high-quality ECE to children across Pennsylvania. However, access to HSSAP by children's individual and community characteristics was not equal during the time examined. Like Pre-K Counts, HSSAP served higher shares of White children and children living in rural and predominantly White communities. Black children, along with those from urban communities and communities of color, were far less likely to experience the benefits of HSSAP. More research is needed on how the state can support ECE providers in serving more children from underserved communities through HSSAP.

Analysis of Enrollment Trends Across ECE Programs

Pennsylvania operates three large programs designed to expand access to ECE for children from families with low incomes — Child Care Works (CCW), Pre-K Counts (PKC), and the Head Start Supplemental Assistance Program (HSSAP). CCW serves children from birth, while PKC and HSSAP are focused on preschool-aged children. Despite similar programmatic goals, findings from this study showed the demographic composition of program participants varied, and in some cases differences in enrollment by children's individual and community characteristics were striking. This variation in terms of which children participated in which ECE program matters because programs differ in meaningful ways. Chiefly, PKC and HSSAP policies are designed to ensure children experience a high-quality pre-kindergarten program, including the guarantee of teachers with postsecondary degrees. While financial incentives are available for ECE providers that enroll CCW recipients to improve their quality, placement with a high-quality provider is not a guarantee under CCW policy. Studies using national data have found that children enrolled in ECE subsidy programs, like CCW, experience lower-quality education and care, on average, compared to children enrolled in Head Start or state-funded pre-kindergarten programs like PKC.[77] Moreover, our analysis showed access to high-quality ECE providers among CCW recipients was unequal, with certain groups of children (e.g., Black children, children living in cities) substantially less likely to be enrolled with a provider with a high quality rating.

Despite similar programmatic goals, findings from this study showed the demographic composition of program participants varied, and in some cases differences in enrollment by children's individual and community characteristics were striking.

Participation requirements also vary by program (see Table 42). Most HSSAP participants have family incomes below the federal poverty level, while CCW and PKC enroll families with incomes up to 200% and 300% of the FPL, respectively. CCW in particular places additional requirements on participating families that may be burdensome, such as providing documentation of employment or continuing education and paying copays to providers; such requirements are not expected of families participating in PKC or HSSAP. PKC programs are required to provide ECE during the academic year only (180 days), and programs can run for a half (2.5 hours) or full day (5 hours). CCW subsidies cover 260 days of ECE, and the time children are with ECE providers must coincide with the hours when parents are working or attending education courses. Looking across program characteristics, CCW, PKC, and HSSAP each have advantages and constraints for families.[78]

77 Johnson, A. D., Ryan, R. M., & Brooks-Gunn, J. (2012). Child-care subsidies: Do they impact the quality of care children experience?. *Child development, 83*(4), 1444–1461.

78 Families are able to participate in more than one publicly-funded ECE program. For example, a child could participate in a half-day PKC program and then use a CCW subsidy for wraparound care.

TABLE 42. ECE program characteristics

	CCW	PKC	HSSAP
Ages served	0–5	3–5	3–5
Income eligibility	Up to 200% of FPL	Up to 300% of FPL	At or below FPL
Parent work or education requirement	Yes	No	No
Co-payment requirement	Yes	No	No
Program duration	260 days/year; during the hours parents work	180 days/year; part time (2.5 hours) or full time (5 hours)	Varies
Requirement that all providers meet standards associated with a high level of quality	No	Yes	Yes

Beyond these policy differences, funding levels varied. During the years of this study, state funding for PKC increased dramatically, more than doubling from 2014 to 2019. HSSAP also received a notable increase in funding, with a fiscal boost of just over 50%. CCW funding, in contrast, dipped slightly (see Table 43). Put together, these differences in policies and funding raise questions about whether the state provides equal access to quality, accessible ECE to the children enrolled in its three programs. These patterns also make differences in program enrollment more consequential. Accordingly, this analysis explored patterns in enrollment across ECE programs. Because our prior program-specific analyses indicated gaps in access to quality ECE providers were largest by children's race, geographic locale, community poverty level, and community racial composition, we specifically examine variation in program participation by those characteristics.

TABLE 43. State appropriations for ECE programs (dollar amounts in thousands)

	2014–15	2015–16	2016–17	2017–18	2018–19
Child Care Works	$308,300 (0%)	$308,300 (0%)	$288,300 (-6.5%)	$295,576 (2.5%)	$302,357 (2.3%)
Pre-K Counts	$97,284 (11.5%)	$122,284 (25.7%)	$147,284 (20.4%)	$172,284 (17.0%)	$192,284 (11.6%)
Head Start Supplemental Assistance	$39,178 (0%)	$44,178 (12.8%)	$49,178 (11.3%)	$54,178 (10.2%)	$59,178 (9.2%)

Source: Commonwealth Budget
Note: Percentages in parentheses indicate the difference over the previous year. Child Care Works, Pennsylvania's child care subsidy program, is funded through two line items, Child Care Services and Child Care Assistance. CCW is also supported by federal funding sources, including the Child Care and Development Block Grant, the Social Service Block Grant, and Temporary Assistance for Needy Families. The Head Start Supplemental Assistance Program provides additional financial support to federally-funded Head Start providers.

Program Enrollment

In both 2014 and 2019, the majority of preschoolers served by Pennsylvania's state-funded ECE programs were enrolled in CCW (see Table 44). However, the proportion of preschoolers served by CCW dropped from 68.8% to 63.0% as the share of preschoolers served by PKC increased. In 2014, PKC served 22.6% of all preschoolers, a share that grew to 29.3% in 2019. The proportion of public preschoolers served by HSSAP declined slightly from 2014 to 2019, from 8.6% to 7.8%.

TABLE 44. Total preschool-aged[79] enrollment by ECE program, 2014 and 2019

	2014–15		2019[80]		Δ 2014 to 2019	
	N	%	N	%	N	%
CCW	36,717	68.8%	36,481	63.0%	-236	-0.6%
PKC	12,071	22.6%	16,942	29.3%	4,871	40.4%
HSSAP	4,577	8.6%	4,505	7.8%	-72	-1.6%
Total	**53,365**	**100.0%**	**57,928**	**100.0%**	**4,563**	**8.6%**

Note: CCW enrollment numbers include only preschool-aged children (i.e., ages 3–5) who were not enrolled with a provider that only served children before or after school.

In both 2014 and 2019, Pennsylvania served over 22,000 Black children in its publicly funded ECE programs, more than any other racial group (see Table 45). However, Black children's enrollment declined across all three programs during that time. Even more, Black children's enrollment across programs was not proportional. That is, while CCW served 63% of all preschoolers in 2019, it served 81.2% of all Black preschoolers. Overrepresentation in CCW among Black preschoolers is concerning given the large racial disparities in access to high-quality ECE providers within CCW (as described in an earlier section of this report). While Black children's enrollment with high-quality providers through CCW increased sizably from 2014 to 2019, that share - only 27.2% - remained relatively small, particularly given how many Black children were enrolled in the program. The proportions of Black children served by PKC and HSSAP were also the lowest of any racial group. In contrast, White preschooler's enrollment in CCW decreased while their enrollment in PKC and HSSAP increased. In particular, the share of White children served in PKC increased by 52.8% from 2014 to 2019. The combination of increased PKC enrollment and decreased CCW enrollment led to White children's notable overrepresentation and underrepresentation in these two programs, respectively. In 2019, only 50.6% of White children were served by CCW — down from 60.9% in 2014 — while 41.5% of them were served by PKC. The number of Hispanic preschoolers enrolled in public ECE increased across all three programs, with the greatest growth in PKC participation. Similar to White children, around half of Hispanic preschoolers were served by CCW in 2019 while over a third were enrolled in PKC. At the same time, nearly 10% of all Hispanic children experienced public ECE through HSSAP, the largest share of any racial group.

79 While we exclude children younger than age three from this analysis, we recognize the importance of expanding access to high-quality ECE for Pennsylvania's youngest children, given the rapid brain development that occurs during these early years.

80 Data for 2019 are based on March 2019 enrollment for CCW and fiscal year 2018–19 enrollment for PKC and HSSAP.

Census estimates of the number of young children living in Pennsylvania in 2014 and 2019, by race, provide helpful context for this analysis. Between 2014 and 2019, the share of children ages 0–4 who were White dropped from 65.8% to 65.1%; the share of children ages 0–4 who were Black dropped from 13.8% to 13.1%; and the share of Hispanic children ages 0–4 increased from 12.3% to 13.7%.[81] These data suggest the concurrent increase and decrease of White and Black children in public ECE programs, respectively, was likely not attributable to racial differences in the population.

TABLE 45. Share of preschool-aged children enrolled in state-funded ECE programs by race, 2014 and 2019

Racial/Ethnic Group	ECE Program	2014		2019		Δ 2014 to 2019	
		N	%	N	%	N	%
Black	CCW	18,652	81.0%	17,952	81.2%	-700	-3.8%
	CCW high-quality	*3,928*	*17.1%*	*6,010*	*27.2%*	*2,082*	*53.0%*
	PKC	3,002	13.0%	2,946	13.3%	-56	-1.9%
	HSSAP	1,371	6.0%	1,218	5.5%	-153	-11.2%
	Total	**23,025**	**100.0%**	**22,116**	**100.0%**	**-909**	**-3.9%**
White	CCW	11,008	60.9%	10,266	50.6%	-742	-6.7%
	CCW high-quality	*3,553*	*19.7%*	*5,032*	*24.8%*	*1,479*	*41.6%*
	PKC	5,511	30.5%	8,423	41.5%	2,912	52.8%
	HSSAP	1,553	8.6%	1,615	8.0%	62	4.0%
	Total	**18,072**	**100.0%**	**20,304**	**100.0%**	**2,232**	**12.4%**
Hispanic	CCW	5,536	58.6%	6,494	53.1%	958	17.3%
	CCW high-quality	*1,528*	*16.2%*	*2,513*	*20.5%*	*985*	*64.5%*
	PKC	2,748	29.1%	4,555	37.2%	1,807	65.8%
	HSSAP	1,171	12.4%	1,184	9.7%	13	1.1%
	Total	**9,455**	**100.0%**	**12,233**	**100.0%**	**2,778**	**29.4%**

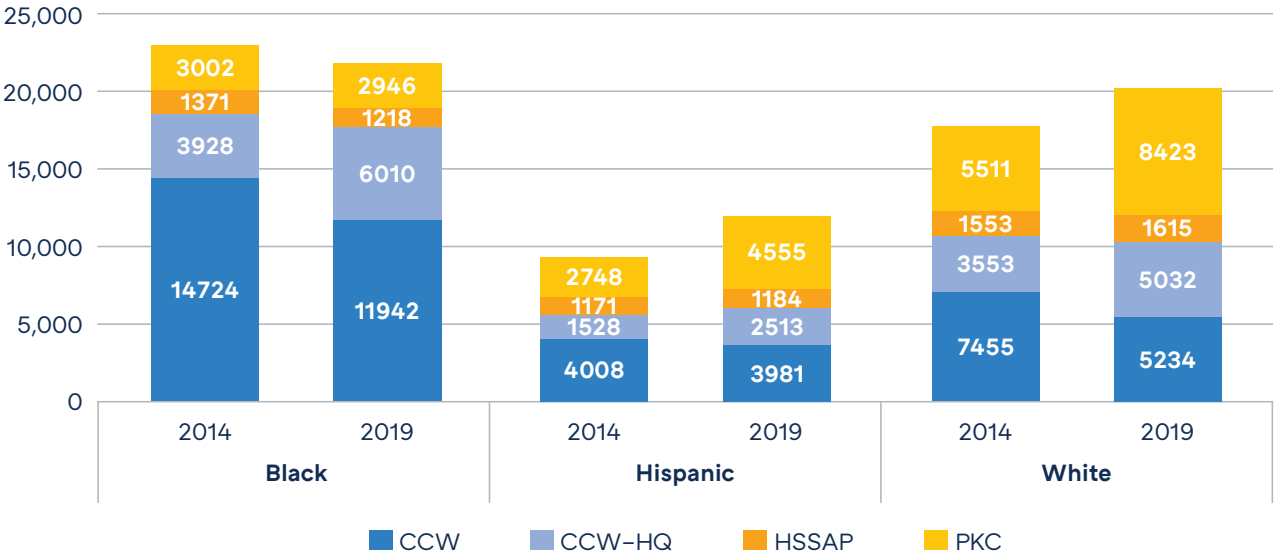
Note: The percentages listed in columns two and four indicate the share of each racial group served by that program. For example, 81.0% of all Black children served by these state ECE programs in 2014 were enrolled in CCW. Column six shows the percent change in each group's enrollment from 2014 to 2019. The CCW high-quality rows show the share of preschool aged CCW recipients enrolled with a high-quality provider (i.e., a provider that received a STAR 3 or 4 quality rating). For example, 17.1% of all Black children participating in a public ECE program in 2014 were enrolled with a high-quality ECE provider through CCW.

In 2014, 8,301 of the 23,025 Black preschoolers served by the state's publicly-funded ECE programs — just 36.1% — were enrolled with a high-quality provider (see Figure 13). Even by 2019, fewer than half of the Black preschoolers (46.0%) served in these programs were with high-quality providers. The shares of White and Hispanic children enrolled with a quality provider in 2014 were nearly equal, at 58.7% and 57.6%, respectively. However, White children benefitted from substantially greater growth in access to quality ECE over time. In 2019, 8,252 of the 12,233 Hispanic preschoolers (67.5%) were in a high-quality ECE program while 15,070 of the 20,304 White preschoolers (74.2%) were. Disparate growth by race also means that racial gaps in quality access widened over time. For example, in 2014, the gap between the share of Black preschoolers (36.1%) and the share of White preschoolers (58.7%) enrolled with a quality

81 Annie E. Casey Foundation Kids Count Data Center. Population — Children by race and age group in Pennsylvania.

provider was an already-wide 22.6 percentage points. In 2019, that gap grew to 28.2 percentage points. These gaps in access to high-quality ECE by race, especially between Black and White children, are substantial, and raise concerns that the unequal provision of quality early education in Pennsylvania may create or exacerbate racial gaps in academic performance and socioemotional development that follow children into kindergarten and beyond.

FIGURE 13. Share of preschool-aged children enrolled in state-funded ECE programs by race, 2014 and 2019



Note: Blue bars show the total number of children enrolled in CCW. Light blue bars show the number of CCW recipients enrolled with an ECE provider with a high quality score on the state's quality rating system; dark blue bars show the number of CCW recipients enrolled with a provider without a high quality rating.

Preschoolers living in cities experienced declines in enrollment across all three public ECE programs from 2014 to 2019, with the largest drop among children enrolled in PKC (see Table 46). The large decline in the number of urban children enrolled in PKC caused notable shifts in the proportion of urban preschoolers served by each program. The vast majority of urban preschoolers — 74.9% — were served by CCW in 2014, a share that grew to 80.0% in 2019. And while 29.3% of urban preschoolers were served by PKC in 2014, only 12.1% of them were in 2019. In 2014, 74.6% of suburban public preschoolers were enrolled in CCW, a rate nearly identical to urban preschoolers. However, substantial growth in PKC participation — from 19.4% of suburban preschoolers in 2014 to 30.6% of them in 2019 — led to a 10-percentage point drop in the share of those served by CCW. Suburban preschoolers also had the lowest rate of participation in HSSAP of any geographic group in both 2014 and 2019. In 2014, over half of rural children were served by CCW and a third were enrolled in PKC. But substantial expansion of PKC among rural ECE providers in subsequent years, paired with a slight drop in CCW enrollment, led to significant shifts in the proportion of children served by each program. Indeed, in 2019, more rural preschoolers were enrolled in PKC than in CCW. Rural preschoolers also had the highest rate of participation in HSSAP in both 2014 and 2019.

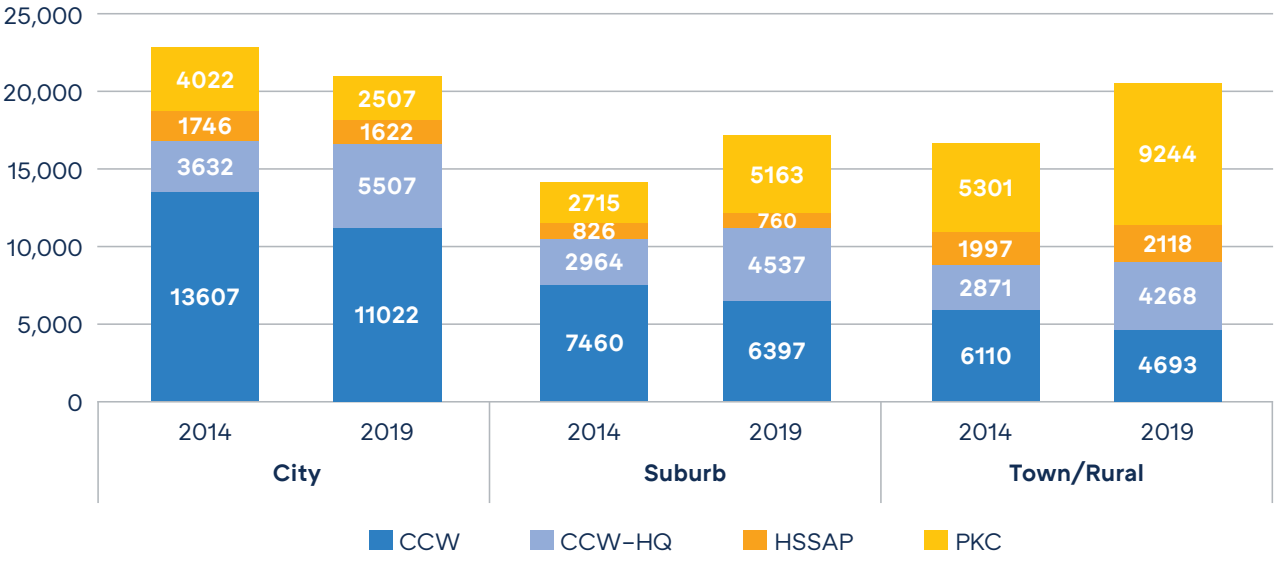
TABLE 46. Share of preschool-aged children enrolled in state-funded ECE programs by geographic locale, 2014 and 2019

Geographic Locale	ECE Program	2014		2019		Δ 2014 to 2019	
		N	%	N	%	N	%
City	CCW	17,239	74.9%	16,529	80.0%	-710	-4.1%
	CCW high-quality	*3,632*	*15.8%*	*5,507*	*26.7%*	*1,875*	*51.6%*
	PKC	4,022	17.5%	2,507	12.1%	-1,515	-37.7%
	HSSAP	1,746	7.6%	1,622	7.9%	-124	-7.1%
	Total	**23,007**	**100.0%**	**20,658**	**100.0%**	**-2,349**	**-10.2%**
Suburb	CCW	10,424	74.6%	10,934	64.9%	510	4.9%
	CCW high-quality	*2,964*	*21.2%*	*4,537*	*26.9%*	*1,573*	*53.1%*
	PKC	2,715	19.4%	5,163	30.6%	2,448	90.2%
	HSSAP	826	5.9%	760	4.5%	-66	-8.0%
	Total	**13,965**	**100.0%**	**16,857**	**100.0%**	**2,892**	**20.7%**
Town/Rural	CCW	8,981	55.2%	8,961	44.1%	-20	-0.2%
	CCW high-quality	*2,871*	*17.6%*	*4,268*	*21.0%*	*1,397*	*48.7%*
	PKC	5,301	32.6%	9,244	45.5%	3,943	74.4%
	HSSAP	1,997	12.3%	2,118	10.4%	121	6.1%
	Total	**16,279**	**100.0%**	**20,323**	**100.0%**	**4,044**	**24.8%**

Note: Geographic locale was determined by linking child zip codes to National Center for Education Statistics locale classifications.

In 2014, 9,400 of the 23,007 (40.9%) urban preschoolers served by Pennsylvania's public ECE programs were enrolled with a high-quality provider. Among suburban and rural children in 2014, the proportion of preschoolers with quality ECE providers were 46.6% and 62.5%, respectively (see Figure 14). Diverging trends in program enrollment caused these gaps to widen even further by 2019, driven largely by substantially unequal access to PKC across communities. While the share of urban preschoolers enrolled in a quality ECE program grew to 46.6% in 2019, the proportion of rural preschoolers with quality providers spiked to 76.9%, a difference of over 30 percentage points. In the suburbs, 10,460 of the 16,857 preschoolers enrolled in public ECE (62.1%) were with quality providers in 2019. These cross-program enrollment trends show preschoolers in towns/rural areas experienced significantly greater access to high-quality ECE, and urban preschoolers significantly less, with gaps in access that widened over time.

FIGURE 14. Share of preschool-aged children enrolled in state-funded ECE programs by geographic locale, 2014 and 2019



Enrollment declined across all three ECE programs for preschoolers living in the highest poverty communities (see Table 47). The vast majority of preschoolers living in the highest poverty communities were enrolled in CCW, which served 77.8% and 78.9% of these children in 2014 and 2019, respectively. Preschoolers living in the highest poverty communities also had the lowest rates of PKC participation. In communities with middle and low levels of poverty, the proportions of children enrolled in CCW declined as the number of children enrolled in PKC increased significantly. Preschoolers living in communities with middle low and low levels of poverty benefitted from the greatest increase in PKC participation, where in 2019 over a third of children living in these communities were enrolled in that program.

TABLE 47. Share of preschool-aged children enrolled in state-funded ECE programs by community socioeconomic composition, 2014 and 2019

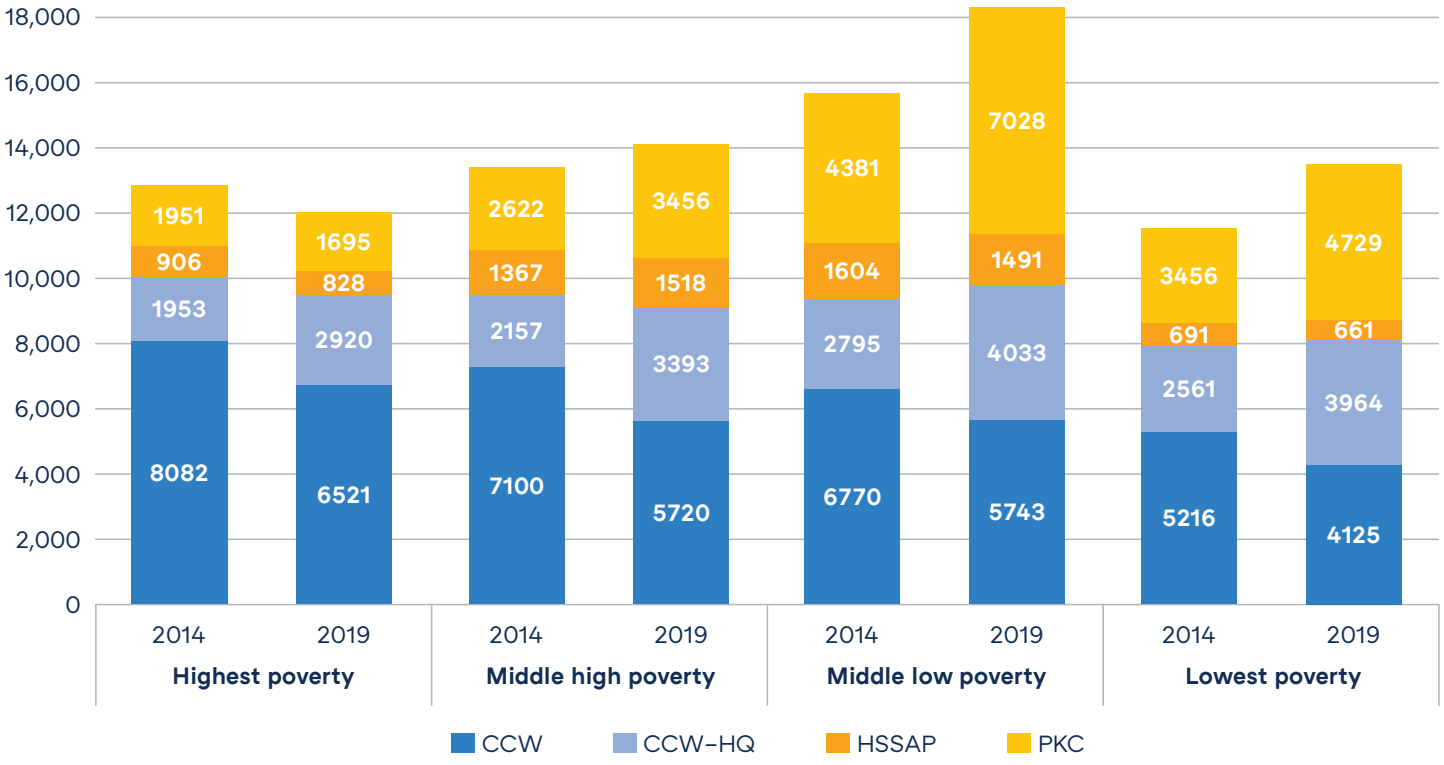
Community Poverty	ECE Program	2014		2019		Δ 2014 to 2019	
		N	%	N	%	N	%
Highest	CCW	10,035	77.8%	9,441	78.9%	-594	-5.9%
	CCW high-quality	1,953	15.1%	2,920	24.4%	967	49.5%
	PKC	1,951	15.1%	1,695	14.2%	-256	-13.1%
	HSSAP	906	7.0%	828	6.9%	-78	-8.6%
	Total	**12,892**	**100.0%**	**11,964**	**100.0%**	**-928**	**-7.2%**
Middle high	CCW	9,257	69.9%	9,113	64.7%	-144	-1.6%
	CCW high-quality	2,157	16.3%	3,393	24.1%	1,236	57.3%
	PKC	2,622	19.8%	3,456	24.5%	834	31.8%
	HSSAP	1,367	10.3%	1,518	10.8%	151	11.0%
	Total	**13,246**	**100.0%**	**14,087**	**100.0%**	**841**	**6.3%**
Middle low	CCW	9,565	61.5%	9,776	53.4%	211	2.2%
	CCW high-quality	2,795	18.0%	4,033	22.0%	1,238	44.3%
	PKC	4,381	28.2%	7,028	38.4%	2,647	60.4%
	HSSAP	1,604	10.3%	1,491	8.2%	-113	-7.0%
	Total	**15,550**	**100.0%**	**18,295**	**100.0%**	**2,745**	**17.7%**
Lowest	CCW	7,777	67.6%	8,089	60.0%	312	4.0%
	CCW high-quality	2,561	22.3%	3,964	29.4%	1,403	54.8%
	PKC	3,036	26.4%	4,729	35.1%	1,693	55.8%
	HSSAP	691	6.0%	661	4.9%	-30	-4.3%
	Total	**11,504**	**100.0%**	**13,479**	**100.0%**	**1,975**	**17.2%**

Note: Community poverty is defined as the percentage of households in the child's community with incomes above 200% of the federal poverty level. Community poverty quartiles are: Lowest = 0–46.99% of residents are low income; Middle low = 47.0–62.49%; Middle high = 62.5–73.99%; and Highest = >74%.

In 2014, 4,810 of the 12,892 preschoolers enrolled in public ECE living in the highest poverty communities were with a high-quality provider, a proportion of 37.3% (see Figure 15). By 2019, that share grew to 45.5%. However, children in communities with less poverty benefitted from both higher rates of enrollment with quality providers to begin with and greater growth in enrollment with these quality providers over time, creating concerning — and widening — gaps in access to quality early learning between children living in poor and wealthy communities. For example, the share of preschoolers living

in communities with middle low poverty enrolled with quality providers grew from 56.5% in 2014 to 68.6% in 2019. Growth in quality ECE access was even greater for children living in the lowest poverty communities, where the rate of enrollment with quality providers grew from 54.7% in 2014 to 69.4% in 2019. Put another way, the gap in quality ECE access between the highest and lowest poverty communities grew from 17.4 percentage points in 2014 to 23.9 percentage points in 2019.

FIGURE 15. Share of preschool-aged children enrolled in state-funded ECE programs by community socioeconomic composition, 2014 and 2019



Participation in all three public ECE programs decreased among preschoolers living in communities of color (i.e., communities where fewer than 20% of residents were White). Preschoolers living in communities of color had the highest rate of enrollment in CCW of any group observed in this analysis, at 80.7% and 86.2% in 2014 and 2019, respectively (see Table 48). This stark overrepresentation in CCW among children from communities of color is concerning given their low rates of access to quality providers within this program. The share of preschoolers from communities of color enrolled in PKC was also the lowest of any group in 2019, at just 7.6%. In contrast, the share of children from predominantly White communities enrolled in CCW decreased from 57.9% in 2014 to 45.9% in 2019, the greatest decline of any group observed in this analysis. Children from predominantly White communities (i.e., those where over 82% of residents were White) also experienced substantial growth in PKC enrollment from 2014 to 2019. Indeed, in 2019, the share of preschoolers from predominantly White communities enrolled in CCW and PKC were nearly identical, at 45.9% and 45.0%, respectively, despite the disparate sizes of these two programs overall. Children living in predominantly White communities also had the highest rates of enrollment in HSSAP in both 2014 and 2019. Children living in communities with middle low and middle high shares of White residents both saw their rates of enrollment in CCW and HSSAP drop and PKC rise.

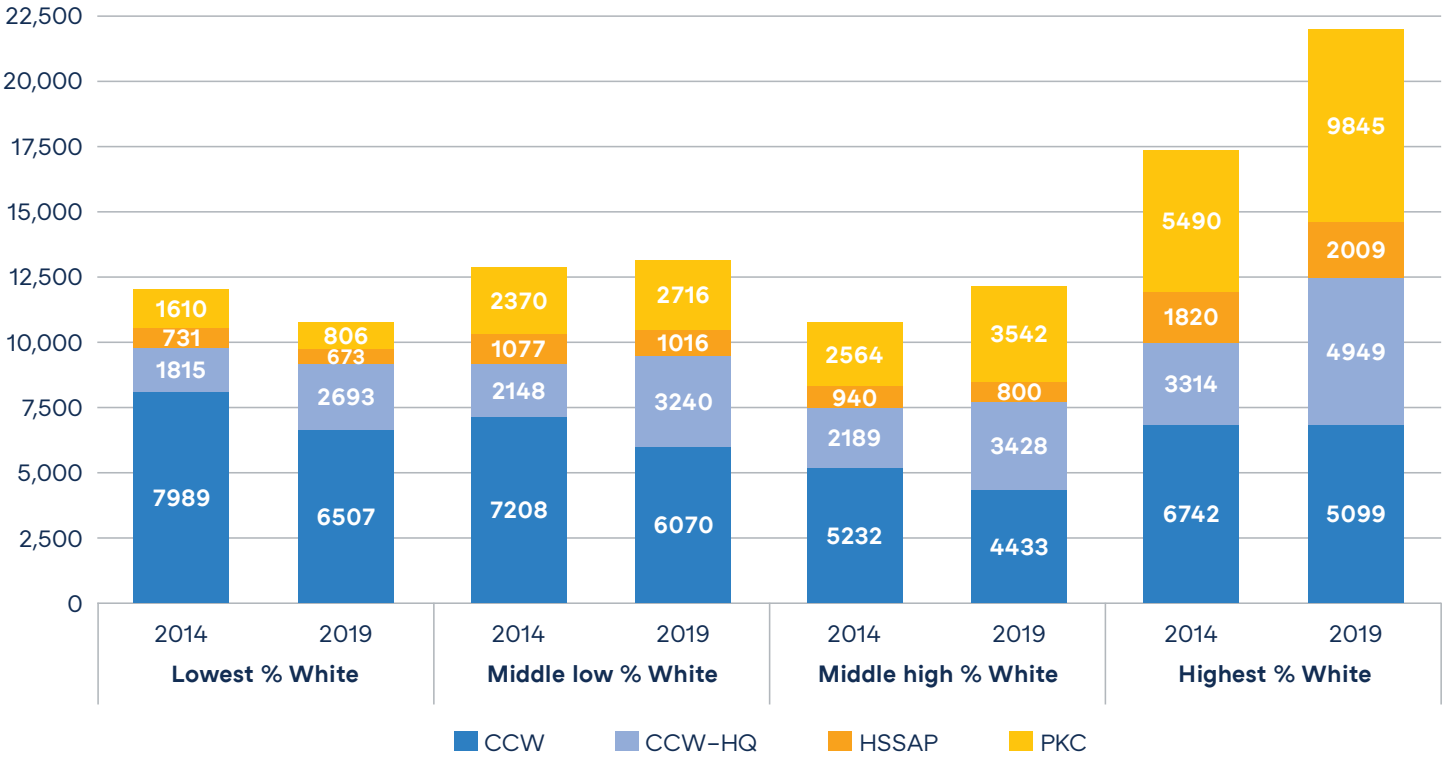
TABLE 48. Share of preschool-aged children enrolled in state-funded ECE programs by community racial composition (% White residents), 2014 and 2019

% White Residents	ECE Program	2014		2019		Δ 2014 to 2019	
		N	%	N	%	N	%
Lowest	CCW	9,804	80.7%	9,200	86.2%	-604	-6.2%
	CCW high-quality	*1,815*	*14.9%*	*2,693*	*25.2%*	*878*	*48.4%*
	PKC	1,610	13.3%	806	7.6%	-804	-49.9%
	HSSAP	731	6.0%	673	6.3%	-58	-7.9%
	Total	**12,145**	**100.0%**	**10,679**	**100.0%**	**-1,466**	**-12.1%**
Middle low	CCW	9,356	73.1%	9,310	71.4%	-46	-0.5%
	CCW high-quality	*2,148*	*16.8%*	*3,240*	*24.8%*	*1,092*	*50.8%*
	PKC	2,370	18.5%	2,716	20.8%	346	14.6%
	HSSAP	1,077	8.4%	1,016	7.8%	-61	-5.7%
	Total	**12,803**	**100.0%**	**13,042**	**100.0%**	**239**	**1.9%**
Middle high	CCW	7,421	67.9%	7,861	64.4%	440	5.9%
	CCW high-quality	*2,189*	*20.0%*	*3,428*	*28.1%*	*1,239*	*56.6%*
	PKC	2,564	23.5%	3,542	29.0%	978	38.1%
	HSSAP	940	8.6%	800	6.6%	-140	-14.9%
	Total	**10,925**	**100.0%**	**12,203**	**100.0%**	**1,278**	**11.7%**
Highest	CCW	10,056	57.9%	10,048	45.9%	-8	-0.1%
	CCW high-quality	*3,314*	*19.1%*	*4,949*	*22.6%*	*1,635*	*49.3%*
	PKC	5,490	31.6%	9,845	45.0%	4,355	79.3%
	HSSAP	1,820	10.5%	2,009	9.2%	189	10.4%
	Total	**17,366**	**100.0%**	**21,902**	**100.0%**	**4,536**	**26.1%**

Note: The community racial composition measure reflects the percentage of residents in the child's community that identify as White. Racial composition quartiles are: Lowest = 0–19.99% of residents are White; Middle low = 20–57.99%; Middle high = 58–82%; Highest = >82.01%.

Children living in communities of color had the lowest overall shares of enrollment with high-quality ECE providers of any group observed in this study in both 2014 and 2019. In 2014, only 4,156 of the 12,145 (34.2%) preschoolers enrolled in public ECE were with a quality provider (see Figure 16). In 2019, that share grew to only 39.1%. In contrast, the proportions of children from communities with middle low and middle high shares of White residents grew from 43.7% and 52.1% in 2014 to 53.5% and 63.7% in 2019, respectively. Among children living in predominantly White communities, the share of preschoolers enrolled with a quality ECE provider was already 61.2% in 2014, a rate that grew even higher to 76.7% in 2019. Put another way, the number of preschoolers from predominantly White communities enrolled with a quality provider in 2019 — 16,803 — more than quadrupled the 4,172 children from communities of color served by quality ECE providers in that same year. These massive gaps in access to quality state-funded ECE by community racial composition have significant implications for children's early and future development; race-conscious remedies that prioritize equitable enrollment with high-quality ECE providers may be necessary to equalize educational opportunity among Pennsylvania's youngest learners.

FIGURE 16. Share of preschool-aged children enrolled in state-funded ECE programs by community racial composition (% White residents), 2014 and 2019



Summary of ECE Enrollment Across Programs

The cumulative impact of unequal enrollment in PKC and HSSAP combined with disparate rates of access to high-quality providers within CCW created large overall gaps in access to quality early education by children's race, geographic locale, community poverty level, and community racial composition. Moreover, gaps in access to quality ECE providers between groups widened over time. Black preschoolers, preschoolers living in cities, and those living in high poverty communities and communities of color were far less likely to experience ECE with a high-quality provider through Pennsylvania's public programs. White preschoolers and those living in rural and predominantly White communities benefited from the greatest access to quality providers. These disparities are significant and consequential given the link between participation in quality ECE and positive academic and socioemotional outcomes for children.

Policy Recommendations

1 **Learn more from families and providers in cities, high poverty communities, and communities of color about how best to expand access to quality ECE.** While our findings show substantial disparities in access to high-quality, publicly funded ECE providers for children living in cities, high poverty communities, and communities of color, they do not explain why such disparities exist. More research is needed on how best to expand access to quality ECE providers within these communities, which should be informed by the families and providers most knowledgeable about community needs.

2 **Improve connections across programs to better match services and needs.** Families often have multiple needs and goals when it comes to their children's ECE, and they may not all be met by a single program. For example, families may want the high-quality pre-kindergarten services PKC guarantees but also need the year-round or full-day care that is only required by CCW. In addition to ensuring families have comprehensive information about the characteristics and provisions of each program (e.g., that a child can participate in PKC and also receive wraparound care through CCW), creating more connections across programs could help meet the diverse needs of families with low incomes. For instance, PKC providers could receive financial incentives to offer wraparound care for families whose employment hours extend beyond the pre-kindergarten day.

3 **Incentivize providers across programs to recruit and retain underserved children.** Financial benefits, such as higher subsidy reimbursement rates and additional grant funding, could incentivize providers across CCW, PKC, and HSSAP to recruit and retain children who are currently underserved by the state's public ECE programs, including children from cities and high poverty communities. Financial incentives could also support providers in purchasing the resources needed to improve the quality of their programs for these underserved children.

4 **Increase state funding for public ECE with safeguards to ensure funding is dispersed equitably.** As noted in Table 1, while overall funding for ECE programs has increased in recent years, state funding increases were not spread equally across programs. While PKC administrators should endeavor to increase the number of PKC programs available in underserved communities, more funding should be allocated to HSSAP and CCW, who currently enroll greater shares of underserved children. Additional funding for CCW may be especially critical in order to support more providers in obtaining the resources needed to elevate the quality of their programs. Across all programs, policies for distributing funding should be race-conscious when possible, e.g., reserving a certain amount of funding for providers located in cities who are more likely to serve children and communities of color. Funding allocations should also take into account that some costs associated with the provision of quality ECE may be higher in cities, where more children of color reside.

5 **Continue to monitor enrollment trends across programs, with particular attention to racial and class disparities.** Monitoring enrollment in the state's public ECE programs by race, class, locale, and other salient child and family characteristics will be important to gauge whether equity-based strategies implemented to remedy current disparities are effective.

Appendix A

Additional Notes About Methodology for CCW Analysis

Our primary source of data was de-identified information on the universe of ECE subsidy recipients in Pennsylvania from 2014-2019, provided by Pennsylvania's Office of Child Development and Early Learning (OCDEL). Our child-level data included information that permitted us to determine children's age (which dictates subsidy rates); their race and ethnicity; the zip code they live in; and their family income. We merged child-level data with ECE provider-level data that included providers' zip code, quality rating, and maximum enrollment capacity, which also came from OCDEL.

Due to our interest in studying children enrolled in ECE (i.e., not children enrolled in elementary school), we restricted our sample to children age 5 and under, and also eliminated providers solely serving school-aged children who were eligible for subsidies to support before- and after-school care. Age estimates were calculated based on children's birthdays as of the month and date when the data for each year were collected. Infants are children ages 0–12 months; toddlers are 1–2 years old; and preschoolers are 3–5 years old. We eliminated from our sample children whose ethnicity was not specified because we used ethnicity to construct our Hispanic child population. Our White child population includes only children who were identified as non-Hispanic. Geographic locale was determined by linking child and provider zip codes to National Center for Education Statistics locale classifications. Based on exploratory analysis of patterns within the data, we grouped family income as follows: Lowest = $0–$13,999; Middle low = $14,000–$21,499; Middle high = $21,500–$29,999; and Highest = >$30,000. Differences between income groups for 2014 and 2019 are statistically significant at $p<.001$. To account for inflation, we adjusted the income quartiles for 2019 as follows: Lowest = $0–$15,118; Middle low = $15,119–$23,217; Middle high = $23,218–$32,297; and Highest = >$32,298. The community poverty concentration measure reflects the percentage of households in the child's community with incomes above 200% of the federal poverty level. Community poverty quartiles are: Lowest = 0–46.99% of residents are low income; Middle low = 47.0–62.49%; Middle high = 62.5–73.99%; and Highest = >74%. The community racial composition measure reflects the percentage of residents in the child's community that identify as White. Racial composition quartiles are: Lowest = 0–19.99% of residents are White; Middle low = 20–57.99%; Middle high = 58–82%; Highest = >82.01%. Community quartiles are based on only those communities in Pennsylvania that had children enrolled in CCW. We excluded providers located outside Pennsylvania from our community characteristic analyses.

Appendix B

Additional Tables – Child Care Works

TABLE B-1. Share of children enrolled in Child Care Works by race and family income, 2014 and 2019

	Income group	2014		2019		Percentage Point Change, 2014–2019
		N	%	N	%	
White	Lowest	4,281	22.4%	3,365	20.1%	-2.3
	Middle low	4,814	25.2%	3,853	23.1%	-2.1
	Middle high	5,052	26.5%	4,748	28.4%	1.9
	Highest	4,936	25.9%	4,747	28.4%	2.5
Black	Lowest	12,204	36.2%	7,889	25.4%	-10.8
	Middle low	8,361	24.8%	8,224	26.4%	1.6
	Middle high	7,445	22.1%	8,354	26.8%	4.7
	Highest	5,667	16.8%	6,649	21.4%	4.6
Hispanic	Lowest	2,462	26.0%	2,129	20.0%	-6.0
	Middle low	2,591	27.3%	2,762	26.0%	-1.3
	Middle high	2,579	27.2%	3,226	30.3%	3.1
	Highest	1,853	19.5%	2,522	23.7%	4.2

TABLE B-2. Distribution of CCW recipients by provider type and age, 2014 and 2019

Provider Type	Child age	2014		2019		Percentage Point Change, 2014–2019
		N	%	N	%	
Child Care Center	Infant	3,658	73.3%	3,421	83.9%	10.6
	Toddler	18,307	79.3%	17,974	86.1%	6.8
	Preschooler	29,783	81.1%	32,344	88.7%	7.6
Child Care Home	Infant	615	12.3%	410	10.1%	-2.2
	Toddler	2,572	11.1%	2,048	9.8%	-1.3
	Preschooler	3,493	9.5%	2,851	7.8%	-1.7
Relative/Neighbor	Infant	716	14.4%	247	6.1%	-8.3
	Toddler	2,193	9.5%	860	4.1%	-5.4
	Preschooler	3,441	9.4%	1,286	3.5%	-5.9

TABLE B-3. Distribution of CCW recipients by provider type and family income group, 2014 and 2019

Provider Type	Income group	2014		2019		Percentage Point Change, 2014–2019
		N	%	N	%	
Child Care Center	Lowest	15,835	81.1%	12,263	88.1%	7.0
	Middle low	12,776	78.0%	13,593	87.3%	9.3
	Middle high	12,537	79.3%	14,880	86.4%	7.1
	Highest	10,595	81.1%	13,001	88.2%	7.1
Child Care Home	Lowest	1,927	9.9%	1,206	8.7%	-1.2
	Middle low	1,816	11.1%	1,364	8.8%	-2.3
	Middle high	1,662	10.5%	1,559	9.1%	-1.4
	Highest	1,275	9.8%	1,179	8.0%	-1.8
Relative/Neighbor	Lowest	1,770	9.1%	443	3.2%	-5.9
	Middle low	1,786	10.9%	607	3.9%	-7.0
	Middle high	1,604	10.1%	783	4.5%	-5.6
	Highest	1,188	9.1%	560	3.8%	-5.3

TABLE B-4. Distribution of CCW recipients by provider type and geographic locale, 2014 and 2019

Provider Type	Geographic Locale	2014		2019		Percentage Point Change, 2014–2019
		N	%	N	%	
Child Care Center	City	23,963	78.0%	24,176	85.3%	7.3
	Suburban	16,262	83.9%	17,504	90.4%	6.5
	Town/Rural	11,419	78.4%	12,002	87.7%	9.3
Child Care Home	City	3,262	10.6%	2,829	10.0%	-0.6
	Suburban	1,537	7.9%	1,229	6.3%	-1.6
	Town/Rural	1,881	12.9%	1,251	9.1%	-3.8
Relative/Neighbor	City	3,491	11.4%	1,325	4.7%	-6.7
	Suburban	1,582	8.2%	637	3.3%	-4.9
	Town/Rural	1,269	8.7%	431	3.1%	-5.6

TABLE B-5. Distribution of CCW recipients by provider type and the racial composition of children's communities, 2014 and 2019

Provider Type	% White Residents	2014		2019		Percentage Point Change, 2014–2019
		N	%	N	%	
Child Care Center	Lowest	12,476	76.3%	12,649	84.3%	8.0
	Middle low	12,530	76.4%	13,202	84.7%	8.3
	Middle high	12,541	84.5%	13,187	90.0%	5.5
	Highest	14,083	82.7%	14,625	90.7%	8.0
Child Care Home	Lowest	2,109	12.9%	1,719	11.5%	-1.4
	Middle low	1,916	11.7%	1,634	10.5%	-1.2
	Middle high	1,032	6.9%	940	6.4%	-0.5
	Highest	1,623	9.5%	1,016	6.3%	-3.2
Relative/Neighbor	Lowest	1,773	10.8%	629	4.2%	-6.6
	Middle low	1,947	11.9%	755	4.8%	-7.1
	Middle high	1,276	8.6%	522	3.6%	-5.0
	Highest	1,320	7.8%	481	3.0%	-4.8

TABLE B-6. Preschool-aged enrollment in Child Care Works by children's individual and community characteristics, 2014 and 2019

		2014		2019		Δ 2014 to 2019	
		N	%	N	%	N	%
Age	3-year-olds	13,478	36.71%	12,840	35.20%	-638	-4.73%
	4-year-olds	13,205	35.96%	12,801	35.09%	-404	-3.06%
	5-year-olds	10,034	27.33%	10,840	29.71%	806	8.03%
Race	White	11,008	29.98%	10,266	28.14%	-742	-6.74%
	Black	18,652	50.80%	17,952	49.21%	-700	-3.75%
	Hispanic	5,536	15.08%	6,494	17.80%	958	17.30%
Family Income	Lowest	9,798	26.69%	7,394	20.27%	-2,404	-24.54%
	Middle low	9,344	25.45%	9,175	25.15%	-169	-1.81%
	Middle high	9,480	25.82%	10,586	29.02%	1,106	11.67%
	Highest	8,092	22.04%	9,325	25.56%	1,233	15.24%
Geographic Locale	City	17,239	46.95%	16,529	45.31%	-710	-4.12%
	Suburban	10,424	28.39%	10,934	29.97%	510	4.89%
	Town/Rural	8,981	24.46%	8,961	24.56%	-20	-0.22%
Community Poverty Concentration	Highest	10,035	27.33%	9,441	25.88%	-594	-5.92%
	Middle high	9,257	25.21%	9,113	24.98%	-144	-1.56%
	Middle low	9,565	26.05%	9,776	26.80%	211	2.21%
	Lowest	7,777	21.18%	8,089	22.17%	312	4.01%
Community Racial Composition (% White)	Lowest	9,804	26.70%	9,200	25.22%	-604	-6.16%
	Middle low	9,356	25.48%	9,310	25.52%	-46	-0.49%
	Middle high	7,421	20.21%	7,861	21.55%	440	5.93%
	Highest	10,056	27.39%	10,048	27.54%	-8	-0.08%
Total		**36,717**		**36,481**		**-236**	**-0.6%**

Note: This table includes children ages 3-5 not enrolled with an ECE provider that only provides before- or after-school care.

TABLE B-7. Share of preschool-aged children enrolled in Child Care Works by age and family income, 2014 and 2019

Age	Income group	2014		2019		Δ 2014 to 2019	
		N	%	N	%	N	%
3-year-olds	Lowest	3,877	10.56%	2,772	7.60%	-1,105	-28.50%
	Middle low	3,557	9.69%	3,317	9.09%	-240	-6.75%
	Middle high	3,295	8.97%	3,660	10.03%	365	11.08%
	Highest	2,748	7.48%	3,090	8.47%	342	12.45%
	Total	**13,477**	**36.71%**	**12,839**	**35.19%**	**-638**	**-4.73%**
4-year-olds	Lowest	3,458	9.42%	2,552	7.00%	-906	-26.20%
	Middle low	3,312	9.02%	3,251	8.91%	-61	-1.84%
	Middle high	3,432	9.35%	3,692	10.12%	260	7.58%
	Highest	3,001	8.17%	3,306	9.06%	305	10.16%
	Total	**13,203**	**35.96%**	**12,801**	**35.09%**	**-402**	**-3.04%**
5-year-olds	Lowest	2,463	6.71%	2,070	5.67%	-393	-15.96%
	Middle low	2,475	6.74%	2,607	7.15%	132	5.33%
	Middle high	2,753	7.50%	3,234	8.87%	481	17.47%
	Highest	2,343	6.38%	2,929	8.03%	586	25.01%
	Total	**10,034**	**27.33%**	**10,840**	**29.71%**	**806**	**8.03%**

TABLE B-8. Share of preschool-aged children enrolled in Child Care Works by age and race, 2014 and 2019

Age	Racial/Ethnic Group	2014		2019		Δ 2014 to 2019	
		N	%	N	%	N	%
3-year-olds	White	4,011	10.92%	3,575	9.80%	-436	-10.87%
	Black	6,971	18.99%	6,328	17.35%	-643	-9.22%
	Hispanic	1,967	5.36%	2,284	6.26%	317	16.12%
	Total	**13,478**	**36.71%**	**12,840**	**35.20%**	**-638**	**-4.73%**
4-year-olds	White	4,048	11.02%	3,655	10.02%	-393	-9.71%
	Black	6,614	18.01%	6,267	17.18%	-347	-5.25%
	Hispanic	2,007	5.47%	2,259	6.19%	252	12.56%
	Total	**13,205**	**35.96%**	**12,801**	**35.09%**	**-404**	**-3.06%**
5-year-olds	White	2,949	8.03%	3,036	8.32%	87	2.95%
	Black	5,067	13.80%	5,357	14.68%	290	5.72%
	Hispanic	1,562	4.25%	1,951	5.35%	389	24.90%
	Total	**10,034**	**27.33%**	**10,840**	**29.71%**	**806**	**8.03%**

TABLE B-9. Share of preschool-aged children enrolled in Child Care Works by family income and race, 2014 and 2019

Family Income Group	Racial/Ethnic Group	2014		2019		Δ 2014 to 2019	
		N	%	N	%	N	%
Lowest	White	2,135	5.82%	1,800	4.93%	-335	-15.69%
	Black	6,046	16.47%	4,172	11.44%	-1,874	-31.00%
	Hispanic	1,287	3.51%	1,139	3.12%	-148	-11.50%
	Total	**9,798**	**26.69%**	**7,394**	**20.27%**	**-2,404**	**-24.54%**
Middle low	White	2,714	7.39%	2,356	6.46%	-358	-13.19%
	Black	4,750	12.94%	4,722	12.94%	-28	-0.59%
	Hispanic	1,517	4.13%	1,683	4.61%	166	10.94%
	Total	**9,344**	**25.45%**	**9,175**	**25.15%**	**-169**	**-1.81%**
Middle high	White	3,142	8.56%	3,035	8.32%	-107	-3.41%
	Black	4,318	11.76%	4,931	13.52%	613	14.20%
	Hispanic	1,572	4.28%	2,068	5.67%	496	31.55%
	Total	**9,480**	**25.82%**	**10,586**	**29.02%**	**1,106**	**11.67%**
Highest	White	3,016	8.21%	3,075	8.43%	59	1.96%
	Black	3,536	9.63%	4,126	11.31%	590	16.69%
	Hispanic	1,160	3.16%	1,604	4.40%	444	38.28%
	Total	**8,092**	**22.04%**	**9,325**	**25.56%**	**1,233**	**15.24%**

TABLE B-10. Share of preschool-aged children enrolled in Child Care Works by geographic locale and race, 2014 and 2019

Geographic Locale	Racial/Ethnic Group	2014		2019		Δ 2014 to 2019	
		N	%	N	%	N	%
City	White	1,551	4.23%	1,436	3.94%	-115	-7.41%
	Black	12,158	33.18%	11,114	30.51%	-1,044	-8.59%
	Hispanic	2,744	7.49%	3,061	8.40%	317	11.55%
	Total	**17,239**	**47.04%**	**16,529**	**45.38%**	**-710**	**-4.12%**
Suburb	White	3,234	8.83%	3,054	8.38%	-180	-5.57%
	Black	4,926	13.44%	5,175	14.21%	249	5.05%
	Hispanic	1,762	4.81%	2,158	5.92%	396	22.47%
	Total	**10,424**	**28.45%**	**10,934**	**30.02%**	**510**	**4.89%**
Town/Rural	White	6,192	16.90%	5,746	15.78%	-446	-7.20%
	Black	1,551	4.23%	1,650	4.53%	99	6.38%
	Hispanic	1,009	2.75%	1,261	3.46%	252	24.98%
	Total	**8,981**	**24.51%**	**8,961**	**24.60%**	**-20**	**-0.22%**

TABLE B-11. Share of preschool-aged children enrolled in Child Care Works by community racial composition and race, 2014 and 2019

% White Residents	Racial/Ethnic Group	2014		2019		Δ 2014 to 2019	
		N	%	N	%	N	%
Lowest	White	149	0.41%	155	0.43%	6	4.03%
	Black	8,279	22.60%	7,622	20.93%	-657	-7.94%
	Hispanic	1,121	3.06%	1,153	3.17%	32	2.85%
	Total	**9,804**	**26.76%**	**9,200**	**25.26%**	**-604**	**-6.16%**
Middle low	White	1,048	2.86%	970	2.66%	-78	-7.44%
	Black	5,507	15.03%	5,196	14.27%	-311	-5.65%
	Hispanic	2,245	6.13%	2,536	6.96%	291	12.96%
	Total	**9,356**	**25.54%**	**9,310**	**25.56%**	**-46**	**-0.49%**
Middle high	White	2,490	6.80%	2,304	6.33%	-186	-7.47%
	Black	3,129	8.54%	3,299	9.06%	170	5.43%
	Hispanic	1,399	3.82%	1,776	4.88%	377	26.95%
	Total	**7,421**	**20.26%**	**7,861**	**21.58%**	**440**	**5.93%**
Highest	White	7,290	19.90%	6,804	18.68%	-486	-6.67%
	Black	1,717	4.69%	1,820	5.00%	103	6.00%
	Hispanic	746	2.04%	1,015	2.79%	269	36.06%
	Total	**10,056**	**27.45%**	**10,048**	**27.59%**	**-8**	**-0.08%**

TABLE B-12. Share of preschool-aged children enrolled in Child Care Works by community socioeconomic composition and geographic locale, 2014 and 2019

Community Poverty	Geographic Locale	2014		2019		Δ 2014 to 2019	
		N	%	N	%	N	%
Highest	City	9,199	25.11%	8,598	23.61%	-601	-6.53%
	Suburb	736	2.01%	742	2.04%	6	0.82%
	Town/Rural	100	0.27%	101	0.28%	1	1.00%
	Total	**10,035**	**27.39%**	**9,441**	**25.92%**	**-594**	**-5.92%**
Middle high	City	5,805	15.85%	5,679	15.59%	-126	-2.17%
	Suburb	1,935	5.28%	1,959	5.38%	24	1.24%
	Town/Rural	1,517	4.14%	1,475	4.05%	-42	-2.77%
	Total	**9,257**	**25.27%**	**9,113**	**25.02%**	**-144**	**-1.56%**
Middle low	City	1,720	4.70%	1,723	4.73%	3	0.17%
	Suburb	3,658	9.99%	3,979	10.93%	321	8.78%
	Town/Rural	4,187	11.43%	4,074	11.19%	-113	-2.70%
	Total	**9,565**	**26.11%**	**9,776**	**26.84%**	**211**	**2.21%**
Lowest	City	509	1.39%	529	1.45%	20	3.93%
	Suburb	4,095	11.18%	4,250	11.67%	155	3.79%
	Town/Rural	3,173	8.66%	3,310	9.09%	137	4.32%
	Total	**7,777**	**21.23%**	**8,089**	**22.21%**	**312**	**4.01%**

TABLE B-13. Share of preschool-aged children enrolled in Child Care Works by community racial composition (% White residents) and geographic locale, 2014 and 2019

% White Residents	Geographic Locale	2014		2019		Δ 2014 to 2019	
		N	%	N	%	N	%
Lowest	City	9,357	25.54%	8,737	23.99%	-620	-6.63%
	Suburb	447	1.22%	462	1.27%	15	3.36%
	Town/Rural	0	0.00%	1	0.00%	1	–
	Total	**9,804**	**26.76%**	**9200**	**25.26%**	**-604**	**-6.16%**
Middle low	City	5,590	15.26%	5,387	14.79%	-203	-3.63%
	Suburb	3,460	9.44%	3,597	9.88%	137	3.96%
	Town/Rural	306	0.84%	326	0.90%	20	6.54%
	Total	**9,356**	**25.54%**	**9,310**	**25.56%**	**-46**	**-0.49%**
Middle high	City	2,079	5.67%	2,221	6.10%	142	6.83%
	Suburb	3,865	10.55%	4,100	11.26%	235	6.08%
	Town/Rural	1,477	4.03%	1,540	4.23%	63	4.27%
	Total	**7,421**	**20.26%**	**7,861**	**21.58%**	**440**	**5.93%**
Highest	City	209	0.57%	184	0.51%	-25	-11.96%
	Suburb	2,652	7.24%	2,771	7.61%	119	4.49%
	Town/Rural	7,195	19.64%	7,093	19.48%	-102	-1.42%
	Total	**10,056**	**27.45%**	**10,048**	**27.59%**	**-8**	**-0.08%**

Appendix C

Additional Tables – Pre-K Counts

TABLE C-1. Share of children enrolled in Pre-K Counts by age and family income, 2014 and 2018

Age	Income Group	2014		2018		Δ 2014 to 2018	
		N	%	N	%	N	%
3-year-olds	Lowest	854	7.07%	1,035	6.11%	181	21.19%
	Middle low	457	3.79%	614	3.62%	157	34.35%
	Middle high	488	4.04%	750	4.43%	262	53.69%
	Highest	1,451	12.02%	2,296	13.55%	845	58.24%
	Total	**3,250**	**26.92%**	**4,695**	**27.71%**	**1,445**	**44.46%**
4-year-olds	Lowest	1,961	16.25%	2,380	14.05%	419	21.37%
	Middle low	1,166	9.66%	1,472	8.69%	306	26.24%
	Middle high	1,204	9.97%	1,795	10.59%	591	49.09%
	Highest	3,534	29.28%	5,294	31.25%	1,760	49.80%
	Total	**7,865**	**65.16%**	**10,941**	**64.58%**	**3,076**	**39.11%**
5-year-olds	Lowest	210	1.74%	257	1.52%	47	22.38%
	Middle low	134	1.11%	151	0.89%	17	12.69%
	Middle high	145	1.20%	191	1.13%	46	31.72%
	Highest	442	3.66%	657	3.88%	215	48.64%
	Total	**931**	**7.71%**	**1,256**	**7.41%**	**325**	**34.91%**

TABLE C-2. Share of children enrolled in Pre-K Counts by age and race, 2014 and 2018

Age	Racial/Ethnic Group	2014		2018		Δ 2014 to 2018	
		N	%	N	%	N	%
3-year-olds	White	1,311	10.86%	2,337	13.79%	1,026	78.26%
	Black	937	7.76%	928	5.48%	-9	-0.96%
	Hispanic	731	6.06%	1,162	6.86%	431	58.96%
	Total	**3,250**	**26.92%**	**4,695**	**27.71%**	**1,445**	**44.46%**
4-year-olds	White	3,715	30.78%	5,401	31.88%	1,686	45.38%
	Black	1,868	15.48%	1,853	10.94%	-15	-0.80%
	Hispanic	1,790	14.83%	3,026	17.86%	1,236	69.05%
	Total	**7,865**	**65.16%**	**10,941**	**64.58%**	**3,076**	**39.11%**
5-year-olds	White	476	3.94%	664	3.92%	188	39.50%
	Black	187	1.55%	154	0.91%	-33	-17.65%
	Hispanic	221	1.83%	351	2.07%	130	58.82%
	Total	**931**	**7.71%**	**1,256**	**7.41%**	**325**	**34.91%**

TABLE C-3. Share of children enrolled in Pre-K Counts by family income and race, 2014 and 2018

Family Income Group	Racial/Ethnic Group	2014		2018		Δ 2014 to 2018	
		N	%	N	%	N	%
Lowest	White	965	7.99%	1,373	8.10%	408	42.28%
	Black	1,111	9.20%	1,010	5.96%	-101	-9.09%
	Hispanic	775	6.42%	1,090	6.43%	315	40.65%
	Total	**3,032**	**25.12%**	**3,680**	**21.72%**	**648**	**21.37%**
Middle low	White	595	4.93%	911	5.38%	316	53.11%
	Black	509	4.22%	486	2.87%	-23	-4.52%
	Hispanic	506	4.19%	694	4.10%	188	37.15%
	Total	**1,759**	**14.57%**	**2,239**	**13.22%**	**480**	**27.29%**
Middle high	White	729	6.04%	1,161	6.85%	432	59.26%
	Black	518	4.29%	498	2.94%	-20	-3.86%
	Hispanic	464	3.84%	887	5.24%	423	91.16%
	Total	**1,841**	**15.25%**	**2,742**	**16.18%**	**901**	**48.94%**
Highest	White	3,222	26.69%	4,978	29.38%	1,756	54.50%
	Black	864	7.16%	952	5.62%	88	10.19%
	Hispanic	1,003	8.31%	1,884	11.12%	881	87.84%
	Total	**5,439**	**45.06%**	**8,281**	**48.88%**	**2,842**	**52.25%**

Note: Total rows do not equal the combined count of White, Black, and Hispanic children because this analysis excludes children from other races with low sample sizes, such as Asian children and multiracial children.

TABLE C-4. Share of children enrolled in Pre-K Counts by geographic locale and race, 2014 and 2018

Geographic Locale	Racial/Ethnic Group	2014		2018		Δ 2014 to 2018	
		N	%	N	%	N	%
City	White	629	5.23%	501	2.96%	-128	-20.35%
	Black	1,911	15.87%	879	5.20%	-1,032	-54.00%
	Hispanic	1,054	8.76%	897	5.30%	-157	-14.90%
	Total	**4,022**	**33.41%**	**2,507**	**14.82%**	**-1,515**	**-37.67%**
Suburb	White	936	7.78%	1,426	8.43%	490	52.35%
	Black	843	7.00%	1,363	8.06%	520	61.68%
	Hispanic	740	6.15%	1,926	11.39%	1,186	160.27%
	Total	**2,715**	**22.55%**	**5,163**	**30.53%**	**2,448**	**90.17%**
Town/Rural	White	3,921	32.57%	6,484	38.34%	2,563	65.37%
	Black	244	2.03%	701	4.14%	457	187.30%
	Hispanic	950	7.89%	1,720	10.17%	770	81.05%
	Total	**5,301**	**44.04%**	**9,244**	**54.65%**	**3,943**	**74.38%**

TABLE C-5. Share of children enrolled in Pre-K Counts by geographic locale and family income, 2014 and 2018

Geographic Locale	Family Income Group	2014		2018		Δ 2014 to 2018	
		N	%	N	%	N	%
City	Lowest	1,321	11.0%	863	5.10%	-458	-34.7%
	Middle low	710	5.9%	394	2.33%	-316	-44.5%
	Middle high	658	5.5%	433	2.56%	-225	-34.2%
	Highest	1,333	11.1%	817	4.83%	-516	-38.7%
	Total	**4,022**	**33.4%**	**2,507**	**14.82%**	**-1,515**	**-37.7%**
Suburb	Lowest	720	6.0%	1,128	6.67%	408	56.7%
	Middle low	451	3.7%	804	4.75%	353	78.3%
	Middle high	452	3.8%	951	5.62%	499	110.4%
	Highest	1,092	9.1%	2,280	13.48%	1,188	108.8%
	Total	**2,715**	**22.6%**	**5,163**	**30.53%**	**2,448**	**90.2%**
Town/Rural	Lowest	981	8.1%	1,683	9.95%	702	71.6%
	Middle low	595	4.9%	1,036	6.13%	441	74.1%
	Middle high	726	6.0%	1,355	8.01%	629	86.6%
	Highest	2,999	24.9%	5,170	30.57%	2,171	72.4%
	Total	**5,301**	**44.0%**	**9,244**	**54.65%**	**3,943**	**74.4%**

TABLE C-6. Share of children enrolled in Pre-K Counts by community racial composition and race, 2014 and 2018

% White Residents	Racial/Ethnic Group	2014		2018		Δ 2014 to 2018	
		N	%	N	%	N	%
Lowest	White	18	0.15%	19	0.11%	1	5.56%
	Black	1,173	9.75%	458	2.71%	-715	-60.95%
	Hispanic	243	2.02%	307	1.82%	64	26.34%
	Total	**1,610**	**13.38%**	**806**	**4.77%**	**-804**	**-49.94%**
Middle low	White	233	1.94%	306	1.81%	73	31.33%
	Black	823	6.84%	901	5.33%	78	9.48%
	Hispanic	683	5.68%	1,278	7.56%	595	87.12%
	Total	**2,370**	**19.69%**	**2,716**	**16.06%**	**346**	**14.60%**
Middle high	White	1,021	8.48%	1,065	6.30%	44	4.31%
	Black	694	5.77%	810	4.79%	116	16.71%
	Hispanic	1,097	9.12%	1,329	7.86%	232	21.15%
	Total	**2,564**	**21.31%**	**3,542**	**20.95%**	**978**	**38.14%**
Highest	White	4,188	34.80%	7,019	41.51%	2,831	67.60%
	Black	310	2.58%	773	4.57%	463	149.35%
	Hispanic	700	5.82%	1,627	9.62%	927	132.43%
	Total	**5,490**	**45.62%**	**9,845**	**58.22%**	**4,355**	**79.33%**

TABLE C-7. Share of children enrolled in Pre-K Counts by community racial composition (% White residents) and family income, 2014 and 2018

% White Residents	Family Income Group	2014		2018		Δ 2014 to 2018	
		N	%	N	%	N	%
Lowest	Lowest	629	5.23%	393	2.32%	-236	-37.52%
	Middle low	249	2.07%	119	0.70%	-130	-52.21%
	Middle high	202	1.68%	108	0.64%	-94	-46.53%
	Highest	414	3.44%	186	1.10%	-228	-55.07%
	Total	**1,610**	**13.38%**	**806**	**4.77%**	**-804**	**-49.94%**
Middle low	Lowest	639	5.31%	708	4.19%	69	10.80%
	Middle low	402	3.34%	425	2.51%	23	5.72%
	Middle high	353	2.93%	526	3.11%	173	49.01%
	Highest	541	4.50%	1,057	6.25%	516	95.38%
	Total	**2,370**	**19.69%**	**2,716**	**16.06%**	**346**	**14.60%**
Middle high	Lowest	779	6.47%	731	4.32%	-48	-6.16%
	Middle low	502	4.17%	485	2.87%	-17	-3.39%
	Middle high	588	4.89%	604	3.57%	16	2.72%
	Highest	1,274	10.59%	1,722	10.18%	448	35.16%
	Total	**2,564**	**21.31%**	**3,542**	**20.95%**	**978**	**38.14%**
Highest	Lowest	970	8.06%	1,634	9.66%	664	68.45%
	Middle low	597	4.96%	1,027	6.07%	430	72.03%
	Middle high	685	5.69%	1,290	7.63%	605	88.32%
	Highest	3,166	26.31%	5,894	34.86%	2,728	86.17%
	Total	**5,490**	**45.62%**	**9,845**	**58.22%**	**4,355**	**79.33%**

TABLE C-8. Share of children enrolled in Pre-K Counts by community socioeconomic composition and race, 2014 and 2018

Community Poverty	Family Income Group	2014		2018		Δ 2014 to 2018	
		N	%	N	%	N	%
Highest	White	197	1.64%	209	1.24%	12	6.09%
	Black	1,185	9.88%	688	4.07%	-497	-41.94%
	Hispanic	452	3.77%	696	4.12%	244	53.98%
	Total	**1,951**	**16.27%**	**1,695**	**10.02%**	**-256**	**-13.12%**
Middle high	White	1,162	9.69%	1,572	9.30%	410	35.28%
	Black	567	4.73%	681	4.03%	114	20.11%
	Hispanic	712	5.94%	987	5.84%	275	38.62%
	Total	**2,622**	**21.87%**	**3,456**	**20.44%**	**834**	**31.81%**
Middle low	White	2,519	21.01%	3,932	23.26%	1,413	56.09%
	Black	806	6.72%	1,104	6.53%	298	36.97%
	Hispanic	853	7.11%	1,657	9.80%	804	94.26%
	Total	**4,381**	**36.54%**	**7,028**	**41.57%**	**2,647**	**60.42%**
Lowest	White	1,582	13.19%	2,696	15.95%	1,114	70.42%
	Black	442	3.69%	469	2.77%	27	6.11%
	Hispanic	706	5.89%	1,200	7.10%	494	69.97%
	Total	**3,036**	**25.32%**	**4,729**	**27.97%**	**1,693**	**55.76%**

TABLE C-9. Share of children enrolled in Pre-K Counts by community socioeconomic composition and family income, 2014 and 2018

Community Poverty	Family Income Group	2014		2018		Δ 2014 to 2018	
		N	%	N	%	N	%
Highest	Lowest	741	6.18%	690	4.08%	-51	-6.88%
	Middle low	339	2.83%	280	1.66%	-59	-17.40%
	Middle high	304	2.54%	310	1.83%	6	1.97%
	Highest	567	4.73%	415	2.45%	-152	-26.81%
	Total	**1,951**	**16.27%**	**1,695**	**10.02%**	**-256**	**-13.12%**
Middle high	Lowest	672	5.60%	759	4.49%	87	12.95%
	Middle low	418	3.49%	475	2.81%	57	13.64%
	Middle high	434	3.62%	621	3.67%	187	43.09%
	Highest	1,098	9.16%	1,601	9.47%	503	45.81%
	Total	**2,622**	**21.87%**	**3,456**	**20.44%**	**834**	**31.81%**
Middle low	Lowest	1,084	9.04%	1,461	8.64%	377	34.78%
	Middle low	584	4.87%	938	5.55%	354	60.62%
	Middle high	646	5.39%	1,071	6.33%	425	65.79%
	Highest	2,067	17.24%	3,558	21.04%	1,491	72.13%
	Total	**4,381**	**36.54%**	**7,028**	**41.57%**	**2,647**	**60.42%**
Lowest	Lowest	520	4.34%	762	4.51%	242	46.54%
	Middle low	409	3.41%	541	3.20%	132	32.27%
	Middle high	444	3.70%	736	4.35%	292	65.77%
	Highest	1,663	13.87%	2,690	15.91%	1,027	61.76%
	Total	**3,036**	**25.32%**	**4,729**	**27.97%**	**1,693**	**55.76%**

TABLE C-10. Share of children enrolled in Pre-K Counts by community socioeconomic composition and geographic locale, 2014 and 2018

Community Poverty	Geographic Locale	2014		2018		Δ 2014 to 2018	
		N	%	N	%	N	%
Highest	City	1,803	14.98%	1,284	7.59%	-519	-28.79%
	Suburb	156	1.30%	257	1.52%	101	64.74%
	Town/Rural	105	0.87%	154	0.91%	49	46.67%
	Total	**2,064**	**17.15%**	**1,695**	**10.02%**	**-369**	**-17.88%**
Middle high	City	1,267	10.53%	583	3.45%	-684	-53.99%
	Suburb	450	3.74%	1,055	6.24%	605	134.44%
	Town/Rural	1,228	10.20%	1,818	10.75%	590	48.05%
	Total	**2,945**	**24.47%**	**3,456**	**20.44%**	**511**	**17.35%**
Middle low	City	574	4.77%	367	2.17%	-207	-36.06%
	Suburb	1,120	9.31%	2,057	12.17%	937	83.66%
	Town/Rural	2,726	22.65%	4,604	27.23%	1,878	68.89%
	Total	**4,420**	**36.73%**	**7,028**	**41.57%**	**2,608**	**59.00%**
Lowest	City	378	3.14%	270	1.60%	-108	-28.57%
	Suburb	986	8.19%	1,793	10.60%	807	81.85%
	Town/Rural	1,241	10.31%	2,666	15.77%	1,425	114.83%
	Total	**2,605**	**21.65%**	**4,729**	**27.97%**	**2,124**	**81.54%**

TABLE C-11. Share of children enrolled in Pre-K Counts by community racial composition (% White residents) and geographic locale, 2014 and 2018

% White Residents	Geographic Locale	2014		2018		Δ 2014 to 2018	
		N	%	N	%	N	%
Lowest	City	1,502	12.48%	669	3.96%	-833	-55.46%
	Suburb	108	0.90%	135	0.80%	27	25.00%
	Town/Rural	0	0.00%	2	0.01%	2	-
	Total	**1,610**	**13.38%**	**806**	**4.77%**	**-804**	**-49.94%**
Middle low	City	1,459	12.12%	965	5.71%	-494	-33.86%
	Suburb	771	6.41%	1,570	9.28%	799	103.63%
	Town/Rural	0	0.00%	181	1.07%	181	-
	Total	**2,370**	**19.69%**	**2,716**	**16.06%**	**346**	**14.60%**
Middle high	City	854	7.10%	666	3.94%	-188	-22.01%
	Suburb	1,036	8.61%	1,957	11.57%	921	88.90%
	Town/Rural	674	5.60%	919	5.43%	245	36.35%
	Total	**2,564**	**21.31%**	**3,542**	**20.95%**	**978**	**38.14%**
Highest	City	207	1.72%	205	1.21%	-2	-0.97%
	Suburb	797	6.62%	1,500	8.87%	703	88.21%
	Town/Rural	4,486	37.28%	8,140	48.14%	3,654	81.45%
	Total	**5,490**	**45.62%**	**9,845**	**58.22%**	**4,355**	**79.33%**

TABLE C-12. Share of children enrolled in Pre-K Counts by provider type and community racial composition (% White residents), 2014 and 2018

Provider Type	% White Residents	2014		2018		Δ 2014 to 2018	
		N	%	N	%	N	%
Child Care Provider	Lowest	930	7.73%	398	2.35%	-532	-57.20%
	Middle low	1,536	12.76%	1,334	7.89%	-202	-13.15%
	Middle high	1,595	13.25%	1,880	11.12%	285	17.87%
	Highest	2,365	19.65%	4,548	26.90%	2,183	92.30%
	Total	**6,426**	**53.40%**	**8,160**	**48.26%**	**1734**	**26.98%**
Head Start	Lowest	243	2.02%	271	1.60%	28	11.52%
	Middle low	354	2.94%	559	3.31%	205	57.91%
	Middle high	446	3.71%	693	4.10%	247	55.38%
	Highest	1,659	13.79%	2,863	16.93%	1,204	72.57%
	Total	**2,702**	**22.45%**	**4,386**	**25.94%**	**1,684**	**62.32%**
School District	Lowest	437	3.63%	97	0.57%	-340	-77.80%
	Middle low	475	3.95%	691	4.09%	216	45.47%
	Middle high	517	4.30%	875	5.17%	358	69.25%
	Highest	1,348	11.20%	2,192	12.96%	844	62.61%
	Total	**2,777**	**23.08%**	**3,855**	**22.80%**	**1,078**	**38.82%**
Nursery School	Lowest	0	0.00%	40	0.24%	40	–
	Middle low	5	0.04%	132	0.78%	127	2540.0%
	Middle high	6	0.05%	94	0.56%	88	1466.7%
	Highest	118	0.98%	242	1.43%	124	105.08%
	Total	**129**	**1.07%**	**508**	**3.00%**	**379**	**293.80%**

TABLE C-13. Share of children enrolled in Pre-K Counts by provider type and community socioeconomic composition, 2014 and 2018

Provider Type	Community Poverty	2014		2018		Δ 2014 to 2018	
		N	%	N	%	N	%
Child Care Provider	Highest	1,202	10.05%	768	4.54%	-434	-36.11%
	Middle high	1,368	11.44%	1,596	9.44%	228	16.67%
	Middle low	1,813	15.16%	3,287	19.44%	1,474	81.30%
	Lowest	1,810	15.14%	2,508	14.83%	698	38.56%
	Total	**6,162**	**51.53%**	**8,159**	**48.26%**	**1,997**	**32.41%**
Head Start	Highest	286	2.39%	522	3.09%	236	82.52%
	Middle high	597	4.99%	951	5.62%	354	59.30%
	Middle low	1,236	10.34%	1,743	10.31%	507	41.02%
	Lowest	555	4.64%	1,179	6.97%	624	112.43%
	Total	**2,674**	**22.36%**	**4,386**	**25.94%**	**1,712**	**64.02%**
School District	Highest	463	3.87%	315	1.86%	-148	-31.97%
	Middle high	621	5.19%	790	4.67%	169	27.21%
	Middle low	1,332	11.14%	1,825	10.79%	493	37.01%
	Lowest	578	4.83%	925	5.47%	347	60.03%
	Total	**2,994**	**25.04%**	**3,855**	**22.80%**	**861**	**28.76%**
Nursery School	Highest	0	0.00%	90	0.53%	90	–
	Middle high	36	0.30%	119	0.70%	83	230.56%
	Middle low	0	0.00%	173	1.02%	173	–
	Lowest	93	0.78%	126	0.75%	33	35.48%
	Total	**129**	**1.08%**	**508**	**3.00%**	**379**	**293.80%**

TABLE C-14. Share of children enrolled in Pre-K Counts by program size and community racial composition, 2014 and 2018

Program Size	% White Residents	2014		2018		Δ 2014 to 2018	
		N	%	N	%	N	%
Small	Lowest	100	0.85%	66	0.39%	-34	-34.00%
	Middle low	329	2.78%	522	3.09%	193	58.66%
	Middle high	589	4.98%	970	5.74%	381	64.69%
	Highest	1,964	16.60%	3,535	20.91%	1,571	79.99%
	Total	**2,982**	**25.20%**	**5,093**	**30.12%**	**2,111**	**70.79%**
Mid-sized	Lowest	233	1.97%	106	0.63%	-127	-54.51%
	Middle low	240	2.03%	338	2.00%	98	40.83%
	Middle high	367	3.10%	497	2.94%	130	35.42%
	Highest	1,106	9.35%	1,459	8.63%	353	31.92%
	Total	**1,946**	**16.44%**	**2,400**	**14.19%**	**454**	**23.33%**
Large	Lowest	1,277	10.79%	634	3.75%	-643	-50.35%
	Middle low	1,797	15.19%	1,856	10.98%	59	3.28%
	Middle high	1,551	13.11%	2,075	12.27%	524	33.78%
	Highest	2,281	19.27%	4,851	28.69%	2,570	112.67%
	Total	**6,906**	**58.36%**	**9,416**	**55.69%**	**2,510**	**36.35%**

Appendix D

Additional Tables – Head Start Supplemental Assistance Program

TABLE D-1. Share of children participating in HSSAP by age and race, 2014 and 2018

Age	Racial/Ethnic Group	2014		2018		Δ 2014 to 2018	
		N	%	N	%	N	%
3-year-olds	White	440	9.64%	498	11.13%	58	13.18%
	Black	455	9.96%	373	8.34%	-82	-18.02%
	Hispanic	322	7.05%	385	8.60%	63	19.57%
	Total	**1,384**	**30.31%**	**1,414**	**31.60%**	**30**	**2.17%**
4-year-olds	White	971	21.27%	971	21.70%	0	0.00%
	Black	820	17.96%	732	16.36%	-88	-10.73%
	Hispanic	749	16.40%	702	15.69%	-47	-6.28%
	Total	**2,831**	**62.00%**	**2,696**	**60.25%**	**-135**	**-4.77%**
5-year-olds	White	140	3.07%	136	3.04%	-4	-2.86%
	Black	91	1.99%	109	2.44%	18	19.78%
	Hispanic	98	2.15%	85	1.90%	-13	-13.27%
	Total	**351**	**7.69%**	**365**	**8.16%**	**14**	**3.99%**

TABLE D-2. Share of children participating in HSSAP by family income and race, 2014 and 2018

Family Income Group	Racial/Ethnic Group	2014		2018		Δ 2014 to 2018	
		N	%	N	%	N	%
Lowest	White	890	19.45%	910	20.20%	20	2.25%
	Black	992	21.67%	711	15.78%	-281	-28.33%
	Hispanic	700	15.29%	659	14.63%	-41	-5.86%
	Total	**2,847**	**62.20%**	**2,498**	**55.45%**	**-349**	**-12.26%**
Middle low	White	285	6.23%	317	7.04%	32	11.23%
	Black	218	4.76%	257	5.70%	39	17.89%
	Hispanic	255	5.57%	275	6.10%	20	7.84%
	Total	**886**	**19.36%**	**992**	**22.02%**	**106**	**11.96%**
Middle high	White	194	4.24%	208	4.62%	14	7.22%
	Black	112	2.45%	165	3.66%	53	47.32%
	Hispanic	137	2.99%	156	3.46%	19	13.87%
	Total	**509**	**11.12%**	**619**	**13.74%**	**110**	**21.61%**
Highest	White	184	4.02%	180	4.00%	-4	-2.17%
	Black	49	1.07%	85	1.89%	36	73.47%
	Hispanic	79	1.73%	94	2.09%	15	18.99%
	Total	**335**	**7.32%**	**396**	**8.79%**	**61**	**18.21%**

TABLE D-3. Share of children participating in HSSAP by geographic locale and race, 2014 and 2018

Geographic Locale	Racial/Ethnic Group	2014		2018		Δ 2014 to 2018	
		N	%	N	%	N	%
City	White	150	3.28%	105	2.33%	-45	-30.00%
	Black	920	20.14%	588	13.07%	-332	-36.09%
	Hispanic	438	9.59%	649	14.42%	211	48.17%
	Total	**1,746**	**38.21%**	**1,622**	**36.04%**	**-124**	**-7.10%**
Suburban	White	106	2.32%	176	3.91%	70	66.04%
	Black	234	5.12%	354	7.87%	120	51.28%
	Hispanic	438	9.59%	143	3.18%	-295	-67.35%
	Total	**826**	**18.08%**	**760**	**16.89%**	**-66**	**-7.99%**
Town/Rural	White	1,295	28.34%	1,330	29.56%	35	2.70%
	Black	215	4.71%	275	6.11%	60	27.91%
	Hispanic	364	7.97%	392	8.71%	28	7.69%
	Total	**1,997**	**43.71%**	**2,118**	**47.07%**	**121**	**6.06%**

TABLE D-4. Share of children participating in HSSAP by community racial composition and race, 2014 and 2018

% White Residents	Racial/Ethnic Group	2014		2018		Δ 2014 to 2018	
		N	%	N	%	N	%
Lowest	White	6	0.13%	5	0.11%	-1	-16.67%
	Black	545	11.93%	320	7.11%	-225	-41.28%
	Hispanic	133	2.91%	303	6.74%	170	127.82%
	Total	**731**	**16.00%**	**673**	**14.96%**	**-58**	**-7.93%**
Middle low	White	89	1.95%	76	1.69%	-13	-14.61%
	Black	433	9.48%	410	9.12%	-23	-5.31%
	Hispanic	343	7.51%	315	7.00%	-28	-8.16%
	Total	**1,077**	**23.58%**	**1,016**	**22.59%**	**-61**	**-5.66%**
Middle high	White	226	4.95%	168	3.73%	-58	-25.66%
	Black	207	4.53%	215	4.78%	8	3.86%
	Hispanic	393	8.60%	319	7.09%	-74	-18.83%
	Total	**940**	**20.58%**	**800**	**17.79%**	**-140**	**-14.89%**
Highest	White	1,229	26.90%	1,361	30.26%	132	10.74%
	Black	184	4.03%	271	6.02%	87	47.28%
	Hispanic	298	6.52%	247	5.49%	-51	-17.11%
	Total	**1,820**	**39.84%**	**2,009**	**44.66%**	**189**	**10.38%**

TABLE D-5. Share of children participating in HSSAP by community socioeconomic composition and race, 2014 and 2018

Community Poverty	Racial/Ethnic Group	2014		2018		Δ 2014 to 2018	
		N	%	N	%	N	%
Highest	White	37	0.81%	46	1.02%	9	24.32%
	Black	536	11.73%	352	7.83%	-184	-34.33%
	Hispanic	274	6.00%	353	7.85%	79	28.83%
	Total	**906**	**19.83%**	**828**	**18.41%**	**-78**	**-8.61%**
Middle high	White	420	9.19%	481	10.69%	61	14.52%
	Black	445	9.74%	440	9.78%	-5	-1.12%
	Hispanic	301	6.59%	392	8.71%	91	30.23%
	Total	**1,367**	**29.93%**	**1,518**	**33.75%**	**151**	**11.05%**
Middle low	White	771	16.88%	777	17.27%	6	0.78%
	Black	283	6.20%	286	6.36%	3	1.06%
	Hispanic	375	8.21%	296	6.58%	-79	-21.07%
	Total	**1,604**	**35.11%**	**1,491**	**33.15%**	**-113**	**-7.04%**
Lowest	White	322	7.05%	308	6.85%	-14	-4.35%
	Black	105	2.30%	138	3.07%	33	31.43%
	Hispanic	217	4.75%	143	3.18%	-74	-34.10%
	Total	**691**	**15.13%**	**661**	**14.70%**	**-30**	**-4.34%**

TABLE D-6. Share of children participating in HSSAP by community socioeconomic composition and geographic locale, 2014 and 2018

Community Poverty	Geographic Locale	2014		2018		Δ 2014 to 2018	
		N	%	N	%	N	%
Highest	City	757	16.57%	649	14.43%	-108	-14.27%
	Suburb	138	3.02%	153	3.40%	15	10.87%
	Town/Rural	11	0.24%	26	0.58%	15	136.36%
	Total	**906**	**19.83%**	**828**	**18.41%**	**-78**	**-8.61%**
Middle high	City	644	14.10%	682	15.16%	38	5.90%
	Suburb	161	3.52%	158	3.51%	-3	-1.86%
	Town/Rural	562	12.30%	678	15.07%	116	20.64%
	Total	**1,367**	**29.93%**	**1,518**	**33.75%**	**151**	**11.05%**
Middle low	City	291	6.37%	239	5.31%	-52	-17.87%
	Suburb	294	6.44%	226	5.02%	-68	-23.13%
	Town/Rural	1,019	22.31%	1,026	22.81%	7	0.69%
	Total	**1,604**	**35.11%**	**1,491**	**33.15%**	**-113**	**-7.04%**
Lowest	City	54	1.18%	52	1.16%	-2	-3.70%
	Suburb	233	5.10%	221	4.91%	-12	-5.15%
	Town/Rural	404	8.84%	388	8.63%	-16	-3.96%
	Total	**691**	**15.13%**	**661**	**14.70%**	**-30**	**-4.34%**

TABLE D-7. Share of children participating in HSSAP by community racial composition (% White residents) and geographic locale, 2014 and 2018

% White Residents	Geographic Locale	2014		2018		Δ 2014 to 2018	
		N	%	N	%	N	%
Lowest	City	719	15.74%	645	14.34%	-74	-10.29%
	Suburb	12	0.26%	28	0.62%	16	133.33%
	Town/Rural	0	0.00%	0	0.00%	0	–
	Total	**731**	**16.00%**	**673**	**14.96%**	**-58**	**-7.93%**
Middle low	City	672	14.71%	703	15.63%	31	4.61%
	Suburb	346	7.57%	269	5.98%	-77	-22.25%
	Town/Rural	59	1.29%	44	0.98%	-15	-25.42%
	Total	**1,077**	**23.58%**	**1,016**	**22.59%**	**-61**	**-5.66%**
Middle high	City	337	7.38%	270	6.00%	-67	-19.88%
	Suburb	290	6.35%	227	5.05%	-63	-21.72%
	Town/Rural	313	6.85%	303	6.74%	-10	-3.19%
	Total	**940**	**20.58%**	**800**	**17.79%**	**-140**	**-14.89%**
Highest	City	18	0.39%	4	0.09%	-14	-77.78%
	Suburb	178	3.90%	234	5.20%	56	31.46%
	Town/Rural	1,624	35.55%	1,771	39.37%	147	9.05%
	Total	**1,820**	**39.84%**	**2,009**	**44.66%**	**189**	**10.38%**

TABLE D-8. Share of children enrolled in HSSAP by provider type and geographic locale, 2014 and 2018

Provider Type	Geographic Locale	2014		2018		Δ 2014 to 2018	
		N	%	N	%	N	%
Child Care Provider	City	679	14.86%	806	17.91%	127	18.70%
	Suburb	36	0.79%	85	1.89%	49	136.11%
	Town/Rural	83	1.82%	142	3.16%	59	71.08%
	Total	**798**	**17.47%**	**1,033**	**22.96%**	**235**	**29.45%**
Head Start	City	428	9.37%	344	7.64%	-84	-19.63%
	Suburb	712	15.58%	608	13.51%	-104	-14.61%
	Town/Rural	1,763	38.59%	1,782	39.60%	19	1.08%
	Total	**2,903**	**63.54%**	**2,734**	**60.76%**	**-169**	**-5.82%**
School District	City	639	13.99%	463	10.29%	-176	-27.54%
	Suburb	78	1.71%	63	1.40%	-15	-19.23%
	Town/Rural	151	3.30%	166	3.69%	15	9.93%
	Total	**868**	**19.00%**	**692**	**15.38%**	**-176**	**-20.28%**

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