THE GEOGRAPHY OF CHILD OPPORTUNITY: WHY NEIGHBORHOODS MATTER FOR EQUITY

First findings from the Child Opportunity Index 2.0

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REPORT HIGHLIGHTS

Neighborhoods matter for children's health and development. All children in the United States should live in neighborhoods with access to good schools, healthy foods, safe parks and playgrounds, clean air, safe housing and living-wage jobs for the adults in their lives. However, far too many children in the U.S. live in neighborhoods that lack these conditions.

- **Neighborhoods influence the quality of experiences that children have today.** The neighborhoods where children live influence whether they have access to green spaces, safe housing and healthy food, and the quality of the early education centers and schools they attend.
- **Neighborhoods influence children's health and education.** Research shows that poor children who live in higher opportunity neighborhoods have lower stress levels than poor children in low-opportunity neighborhoods. A positive neighborhood environment may protect children against the detrimental effects of family poverty. Children in neighborhoods with higher poverty rates tend to have worse educational outcomes, which affect opportunities for living a healthy life.
- **Neighborhoods influence children's norms and expectations for the future.** Living in a neighborhood where the local schools have higher graduation rates or a large proportion of adults with college degrees sends strong messages that education is valued and attainable.
- **Neighborhoods influence future outcomes.** Neighborhoods shape children during their critical development years and thus affect children's long-term outcomes. Research shows that the neighborhoods where children grow up influence long-term outcomes such as their health and life expectancy and their income as adults.

The Child Opportunity Index (COI) 2.0 quantifies, maps and compares neighborhood opportunity for children across the United States. It is the first national measure of contemporary child opportunity available: it covers all U.S. neighborhoods. It ranks opportunity by measuring a wide range of neighborhood conditions that shape children's health and development.

- The COI 2.0 has data for 72,000 neighborhoods or census tracts in the United States.
- This is the first time we have a single, consistent metric of contemporary child opportunity for every U.S. neighborhood.
- This report—an updated, expanded and improved version of the COI released in 2014—focuses on child opportunity in the 100 largest metropolitan areas, which comprise 47,000 neighborhoods where 67% of children live.
- The COI 2.0 measures neighborhood opportunity along three domains that matter for children:
  - Education
  - Health and environmental
  - Social and economic
- The COI ranks neighborhood opportunity based on 29 common conditions within these domains, including: availability and quality of early education centers and schools; high school graduation rates and the number of adults with high-skills jobs; poverty and employment rates; air pollution levels; housing vacancy rates and home ownership; and availability of green spaces and healthy food outlets. Each neighborhood receives a Child Opportunity Score and is assigned to an opportunity level: very low, low, moderate, high, or very high opportunity. The Child Opportunity Score is also broken down by race and ethnicity.

Key findings from COI 2.0:

Bakersfield CA has the lowest opportunity score (Child Opportunity Score of 20) in the nation; Madison WI has the highest (Child Opportunity Score of 83). In Bakersfield, 51% of children live in very low-opportunity neighborhoods that by national standards have the most limited conditions and resources for healthy child development. In contrast, in Madison, WI, virtually no children live in very low-opportunity neighborhoods by national standards.

There is a geographic pattern of child opportunity across the United States. With few exceptions, metros in the southern portion of the country have notably lower Child Opportunity Scores than those in the northern portion. On average, the highest opportunity metros are in the Plains states and in New England. California's Central Valley has some of the metros with the lowest opportunity scores in the U.S., while San Jose and San Francisco have some of the highest opportunity scores.

There is wide variation in child opportunity across metros but wider inequities occur within metros. Although metros are relatively small geographic areas, the Opportunity Gap for children is often as wide (or wider) within metros as it is across metros throughout the country. Within a given metro area, children who live only short distances apart often experience completely different worlds of neighborhood opportunity. Only 9% of the variation in neighborhood opportunity for children happens between metros while 91% happens within metros.

Children's race and ethnicity are strong predictors of access to opportunity.

- Black and Hispanic children are much more concentrated in very low-opportunity neighborhoods: across the 100 largest metros, 46% of black children and 32% of Hispanic children live in very low-opportunity neighborhoods.
- Black children are 7.6 times and Hispanic children 5.3 times more likely to live in very low-opportunity neighborhoods than white children.
- Across the 100 largest metros, white children live in neighborhoods with a Child Opportunity Score of 73 compared to a score of 33 for Hispanic children and 24 for black children.
- Even in metros with overall high opportunity, the Child Opportunity Score for black and Hispanic children is substantially lower than for white and Asian/Pacific Islander children.
- Racial/ethnic inequities are pervasive but even more extreme in some metro areas, especially in the northeast and Midwest.

Measures of child opportunity should capture the quality of children's neighborhoods and should be predictive of how well children will do in the future.

- **Child neighborhood opportunity is associated with life expectancy.** Across all metros, there is a seven-year difference in life expectancy between residents in very low-opportunity neighborhoods (75 years) and residents in very high-opportunity neighborhoods (82 years).
- **Child neighborhood opportunity is associated with economic mobility as an adult.** Household income at age 35 for children who grew up in poor families ranges from $29,000 in very low-opportunity neighborhoods to $46,000 in very high-opportunity neighborhoods.

INTRODUCTION

Neighborhoods matter for children's healthy development. A family's resources affect children's ability to thrive, but the neighborhoods where children grow up are critically important as well. Supportive neighborhood resources and conditions (e.g., good early childhood education centers and schools, green spaces, and low poverty) can enhance the effect of protective family factors or mitigate the effects of adverse family factors. This report marks the launch of the Child Opportunity Index 2.0. A stronger and more robust data tool than its predecessor the Child Opportunity Index 1.0, COI 2.0 is the best index of children's contemporary neighborhood opportunity available. We are launching the COI 2.0 data and first findings to support improved understanding of the neighborhoods where our children are growing up today and spur actions to improve neighborhood environment for all children.

In 2014, we launched the Child Opportunity Index to provide the first data resource on child opportunity in neighborhoods across the 100 largest metropolitan areas in the U.S. Since then, we have seen growing research evidence and awareness of the effects of neighborhoods on children. We have also witnessed increasing national attention to widening income and wealth inequality and its detrimental consequences for low- and middle-income families, economic growth and social cohesion.

Energized by the availability of the Child Opportunity Index and other neighborhood-level data, a wide range of users has employed the COI to learn about and improve neighborhood conditions for children in their communities. These diverse COI users include community organizers, non-profit organizations, government agencies and researchers in sectors such as public health and health care, housing and community development, child welfare, and early care and education. In response to the demand for the COI, diversitydatakids.org has updated and improved the index.




The Child Opportunity Index is a measure of the neighborhood conditions and resources that matter for children's healthy development, for example:

- Availability of quality early childhood education centers
- Academic proficiency and graduation rates in neighborhood schools
- Air pollution levels
- Availability of green spaces and healthy food
- Neighborhood poverty and employment rates

THE CHILD OPPORTUNITY INDEX IN ACTION

Albany, NY: Its ranking as worst among the 100 largest metros in terms of the concentration of black children in very low-opportunity neighborhoods spurred community leaders to invest in advancing equity. A five-year capital plan to renovate 13 parks and playgrounds is almost complete, and the COI data and resulting investments have catalyzed ongoing conversation about improving opportunities for Albany's black and Hispanic children.

Pinellas County, FL: The County's Juvenile Welfare Board combined its own rich data with the COI to help focus resource allocation and program development and better track neighborhood change over time. The COI allows local community leaders to identify the needs of neighborhoods in their service area and customize services to match those needs.

Chicago, IL: The City of Chicago used the COI as a key tool that informed its five-year strategic plan, *Healthy Chicago 2.0: Partnering to Improve Health Equity.* The COI enabled the Chicago Department of Public Health and planning committee to better see which neighborhoods are best resourced and which had the fewest resources for children. The Department can now more effectively create prevention and intervention strategies to narrow health inequities across Chicago's 77 neighborhoods.

The Child Opportunity Index 2.0 responds to the need for nationally comprehensive data on children's neighborhood opportunity. The COI 2.0 is the first measure that allows us to examine and compare the neighborhood conditions that children experience today across the entire U.S. COI 2.0 data are longitudinal, which allows us to monitor how neighborhood conditions are changing over time. Additionally, we revised the indicators and methodology, making the index both more robust and more closely tied to important child outcomes. With its coverage of all neighborhoods in the U.S. and inclusion of a wide range of factors associated with child wellbeing, the COI 2.0 is the most comprehensive and detailed index of children's neighborhood opportunity available.

Underlying all our work is a commitment to equity. We believe all children deserve an equal opportunity to grow and learn. Our core question is whether all children—regardless of where they live or their race and ethnicity—have a fair chance of experiencing neighborhood conditions that help them thrive. We hope to widen the national conversation about addressing inequality to include not only income and wealth but also the neighborhood environments that our children experience.

WHY NEIGHBORHOODS MATTER

Neighborhoods matter because they influence:

- Children's development and the quality of their childhood experiences
- Children's health and education
- Children's norms and expectations for the future
- Children's adult outcomes

The neighborhood where we live influences the amount of green space we enjoy, the types of food outlets that are convenient and affordable, the quality of the schools our children attend, the quality of the air we breathe and the water we drink and other factors that contribute to our health, wellbeing and ability to thrive.

Neighborhoods influence the quality of the experiences that children have today
Discussions about children often focus on the benefits to society of supporting them to become economically successful adults. It is, of course, important to consider long-term outcomes such as productivity, income, health, and involvement with the criminal justice system because they influence the economic contributions and costs of adults to society. However, the quality of children's experiences today are also critically important.

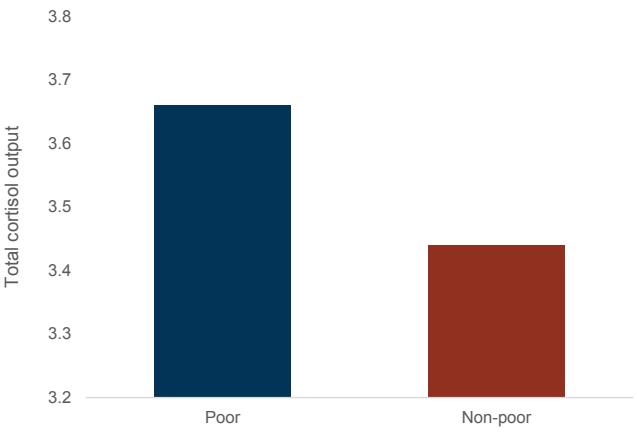
Whether they have access to parks and green spaces, the quality of the early education centers they attend, and the relationships with teachers and peers in their neighborhood schools all shape children's wellbeing. The experiences of children, particularly young children, are formative in a developmental sense, that is, they influence children's physical, social and emotional development.

Neighborhoods influence children's health and education
Besides affecting children's experiences, neighborhoods influence child outcomes such as child health and education. Important factors that influence health vary by neighborhood. For example, air quality, access to healthy food retailers, walkability and exposure to extreme heat are all neighborhood factors that matter for child health. Increasing evidence suggests that neighborhood opportunity shapes child health outcomes.

Recent research conducted using the Child Opportunity Index shows that favorable neighborhood conditions may protect children from the harmful effects of poverty. Living in poverty results in many hardships in children's lives, which manifest as high stress levels. As shown in Figure 1, children living in poverty have higher levels of physiological stress as measured by cortisol than children who do not live in poverty. This puts them at risk of negative developmental and health outcomes. However, poor children that live in higher opportunity neighborhoods have lower stress levels than poor children in lower opportunity neighborhoods, which indicates that a positive neighborhood environment may be a protective factor against family poverty.[1]

Figure 1: Child stress (cortisol level) and neighborhood opportunity

Children in poor families have higher stress levels than those in non-poor families



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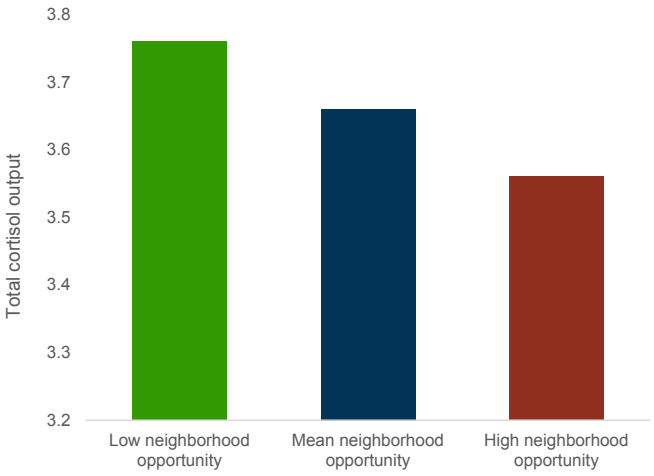
Children in poor families living in high opportunity neighborhoods have lower stress levels



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Notes: To measure family poverty status, the total household income (on an 11-point scale) and highest educational level (whether from the primary caregiver or partner/secondary caregiver, on a 6-point scale) were standardized and then averaged.

Source: Roubinov, D.S., Hagan, M. J., Boyce, W. T., Adler, N. E., & Bush, N. R. (2018).

Research evidence also suggests that children in neighborhoods with higher poverty rates tend to have unfavorable educational outcomes, such as lower reading and math achievement.[2]

Neighborhoods influence children's norms and expectations for the future

Neighborhoods also matter because the social structure of a neighborhood, as well as neighborhood peer networks, shape children's norms and expectations for the future, which may affect behavior and, ultimately, outcomes.[3] For example, living in a neighborhood where the schools have high graduation rates or a large proportion of adults have college degrees sends a message to youth that education is valued and attainable.

Neighborhoods influence adult outcomes

Because of their influence during critical developmental years, neighborhoods also influence children's long-term outcomes as adults. Depending on the neighborhood where they lived in childhood, children who grow up in poor families (defined as families at the 25th percentile of the U.S. income distribution) have very different chances of upward socioeconomic mobility as adults.[4]

QUANTIFYING AND COMPARING CHILD OPPORTUNITY

Picture a neighborhood where children have access to a high-quality preschool center. When they get older, they can attend their neighborhood schools where student achievement in reading and math is high and where good high school graduation and college enrollment rates signal to youth that education is valued and attainable. This neighborhood has parks and green spaces, access to healthy food, and low environmental pollution. Finally, the neighborhood has high employment, a low poverty rate, and short commute times for parents. These conditions mean that more economic resources and more time are available to families to raise children.

While these are not all the features that define a neighborhood, many would intuitively agree that this type of neighborhood offers children good opportunities to grow and develop into healthy and productive adults.

Across the country, many neighborhoods are similar to the one described above, and many children are growing up and thriving in those neighborhoods. There are also many neighborhoods where conditions look very different—worse—and children face challenges. Many of us have experienced or are aware of large difference in the types of neighborhoods that children experience, but until now we lacked a single, rigorous consistent metric to quantify and compare neighborhood opportunity for children.

THE CHILD OPPORTUNITY INDEX 2.0

We define child opportunity as the neighborhood resources and conditions (e.g., good schools, healthy food outlets, clean air) that matter for children's healthy development.[5] Healthy development is children's ability to satisfy their needs, reach their maximum potential in all areas (physical, cognitive, social and emotional), and develop the capacities to interact successfully with their environment.[6]

Because neighborhoods matter for children's quality of life and healthy development, it is imperative that we have measures of the quality of neighborhood environments that children experience today. This section presents a summary of the construction of the Child Opportunity Index 2.0 and the main measures used in this report. For a technical presentation of the measures, refer to the Appendix at the end of this report. For a full presentation of the COI 2.0 methodology and development, refer to the COI 2.0 Technical Document.[7]

Main features of the Child Opportunity Index 2.0

- First single, consistent metric of contemporary child neighborhood opportunity
- Complete national coverage—data for all 72,000 neighborhoods in the country
- Includes 29 indicators across three domains: education, health and environment, social and economic
- Available for 2010 and 2015, allowing for comparisons over time

Three dimensions of the Child Opportunity Index:

- Education
- Health and environment
- Social and economic

The COI 2.0 stand out from similar indices because it provides a nationally comprehensive, multidimensional, longitudinal measure of the neighborhoods that children experience today.

- **Measures contemporary child opportunity:** It captures the quality of neighborhood environments that children experience today.
- **Nationally comprehensive:** It provides a single, consistent metric of child opportunity for each of the 72,000 neighborhoods (census tracts) in the U.S. (COI 1.0 included data only for the 100 largest metros in the U.S.) This allows us to measure and compare children's neighborhood opportunity as children experience it today across the entire country.
- **Multidimensional:** The index quantifies 29 neighborhood conditions that shape children's healthy development in three domains: education, health and environment, and social and economic
- **Longitudinal:** In addition to being available for all neighborhoods in the U.S., the COI 2.0 is available for 2010 and 2015, which allows us to monitor whether children's neighborhoods are improving over time. Going forward, we will continue to update the index.

The dimensions of neighborhood opportunity

The COI 2.0 indicators capture:

- Availability and quality of neighborhood institutions (e.g., early childhood education centers and schools)
- Peer and adult influences that help shape children's norms and expectations (e.g., high school graduation rate and adults with high-skill jobs)
- Neighborhood social structure and economic resources (e.g., neighborhood poverty and employment)
- Environmental quality (e.g., air pollution)
- Resources for healthy living (e.g. green space, healthy food outlets, walkability)

The COI 2.0 indicators in each domain (Table 1) were selected based on the research evidence that a given neighborhood dimension affects children, comparison with alternative indicators based on construct validity, data quality, and coverage (i.e. nationally comprehensive data available for 2010 and 2015 for all neighborhoods).

In some cases, indicators known to have important impacts on children, such as crime and violence in their communities, could not be incorporated into the COI 2.0 because of lack of availability of consistent data for all U.S. neighborhoods. However, when this information is available at the local level, we encourage users to consider it in conjunction with the COI 2.0 to obtain an even more complete picture of child opportunity.

The indicators included in the index are assigned weights that reflect their importance for healthy development measured by the strength of their association with important adult outcomes such as health, life expectancy and socioeconomic mobility. See the COI 2.0 Technical Document for a thorough discussion of the methodology, including weight construction.

Table 1: Neighborhood indicators in the Child Opportunity Index 2.0

Education	Health and Environment	Social and Economic
Early childhood education • Early childhood education centers • High-quality early childhood education centers • Early childhood education enrollment **Elementary education** • Third grade reading proficiency • Third grade math proficiency **Secondary and postsecondary education** • High school graduation rate • Advanced Placement course enrollment • College enrollment in nearby institutions **Educational and social resources** • School poverty • Teacher experience • Adult educational attainment	**Healthy environments** • Access to healthy food • Access to green space • Walkability • Housing vacancy rate **Toxic exposures** • Hazardous waste dump sites • Industrial pollutants in air, water or soil • Airborne microparticles • Ozone concentration • Extreme heat exposure **Health resources** • Health insurance coverage	**Economic opportunities** • Employment rate • Commute duration **Economic and social resources** • Poverty rate* • Public assistance rate* • Homeownership rate* • High-skill employment* • Median household income* • Single-headed households

*These five indicators are combined into an economic resource index.

Geographic scope

The Child Opportunity Index 2.0 is available for virtually all 72,000 neighborhoods (census tracts) in the U.S. In this report, we focus on child opportunity in the 100 largest Metropolitan Statistical Areas ("metros" or "metropolitan areas"), which comprise 47,000 neighborhoods and are home to 67% of U.S. children. Our analysis include all neighborhoods in each of these 100 metro areas as well as in all 100 metros combined.

Neighborhoods (census tracts) typically contain about 4,000 people and 1,600 housing units. A metropolitan area contains a core urban population of at least 50,000 and includes the counties containing the core urban area, as well as adjacent counties that have a high degree of social and economic integration (as measured by commuting to work) with the urban core. The metropolitan areas presented in the Child Opportunity Index have geographic boundaries defined as of 2015. On average, each metro has 468 neighborhoods. Throughout this report, we use only the name of the principal city when referring to a metro area.

Child Opportunity Index construction

In the U.S., many children live in neighborhoods that provide access to good schools, healthy food, parks and playgrounds, clean air, and living-wage jobs for the adults in their lives. But many U.S. children live in neighborhoods that lack these conditions. The Child Opportunity Index 2.0 quantifies child opportunity for any given U.S. neighborhood relative to all neighborhoods in the U.S.

The COI is comprised of indicators measured on different scales, such as counts, percentages, or U.S. dollars. To combine indicators measured on different scales into an index, the raw values of each indicator are standardized using a z-score transformation. See a complete description of the methodology in the Technical Document.

We next combine individual indicators into the three domains (education, health and environment, social and economic). When combining indicators into domains, we use weights that reflect the strength of the association between each indicator and related health and socioeconomic outcomes. The domain scores are then aggregated into an overall score using the same weighting approach. All component indicators are measured at the census tract level using constant 2010 census tract definitions for the two COI 2.0 time periods (2010 and 2015). In this report, we use the COI 2.0 for 2015.

Child Opportunity Score

A single metric (from 1 to 100) that ranks all 72,000 neighborhoods in the U.S. according to their child opportunity. Child Opportunity Scores are also available for metros to assess their overall level of opportunity, and by race and ethnicity.

Child Opportunity Score

To facilitate interpretation of the Child Opportunity Index (which is expressed in z-scores), we calculate a Child Opportunity Score for each neighborhood.

To calculate the scores we rank all 72,000 neighborhoods according to the value of the Child Opportunity Index 2.0 in each neighborhood and divide them into 100 equal groups (percentiles) from 1 to 100, each containing about 1% of the U.S. child population (Figure 2). For example, a Child Opportunity Score of 1 indicates that a neighborhood's opportunity is equivalent to that experienced by the 1% of children living in the neighborhoods with the lowest child opportunity in the nation. A neighborhood with a score of 50 has opportunity equivalent to that of the 1% of children living in neighborhoods at the median of child opportunity. A neighborhood with a score of 100 has opportunity equivalent to that experienced by the 1% of children living in neighborhoods with the highest child opportunity.

Figure 2: National Child Opportunity Score for each neighborhood

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As discussed below, in addition to calculating a Child Opportunity Score for each neighborhood, we also calculate scores for each metropolitan area, both for all children and for children by race/ethnicity. This allows us to quantify and compare the extent of opportunity available to children across the country both between and within metros.

Child Opportunity Levels

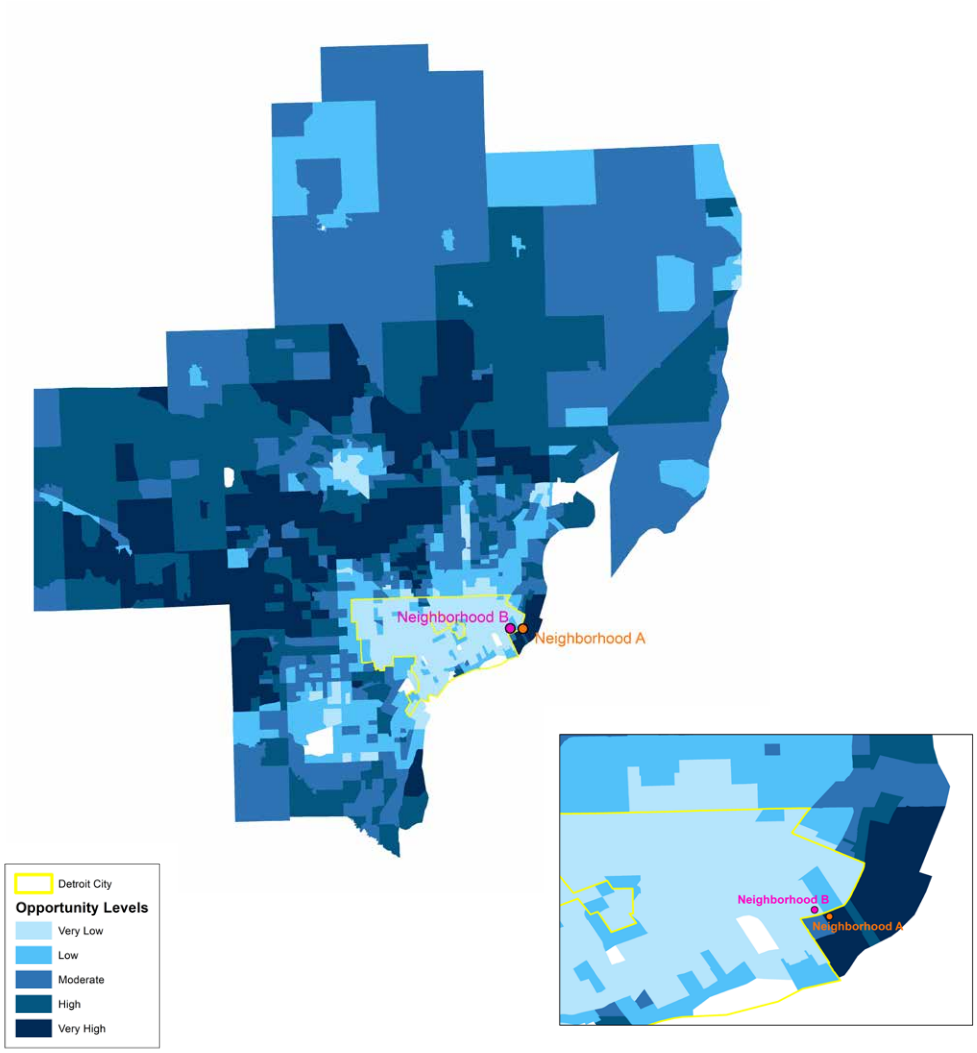
Because the Child Opportunity Score has 100 groups, to simplify interpretation, in some analyses, we assign each neighborhood to one of five opportunity levels. We rank all neighborhoods from low to high opportunity (according to the Child Opportunity Index) and group them into five opportunity levels (five equal groups each containing about 20% of the U.S. child population).We refer to these five levels as very low-, low-, moderate-, high- and very high-opportunity neighborhoods. The five levels are defined nationally in some analyses or by metro area in other analyses.

Child opportunity maps

A Child Opportunity Index map is available for each of the 100 largest metro areas. The map below shows the Detroit metropolitan area. Each of the smaller areas on the map is a neighborhood or census tract. Detroit has 1,287 neighborhoods (tracts). The five colors on the map correspond to the five opportunity levels ranging from light blue (very low opportunity) to dark blue (very high opportunity) according to each neighborhood's opportunity level.

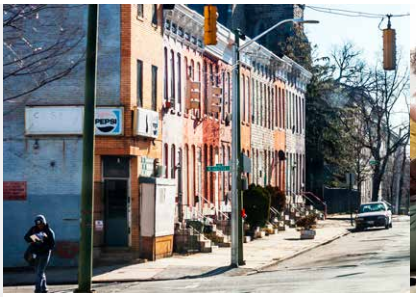
Although Detroit is often associated with social and economic distress, there is a wide range of neighborhood opportunity in the metro area. A large cluster of very low-opportunity neighborhoods are located in the southeastern part of the metro area in the city of Detroit. Higher opportunity neighborhoods are located outside the city in the surrounding suburbs. There appears to be a pattern of higher neighborhood opportunity as the distance from the city of Detroit increases. However, some very high-opportunity neighborhoods are located just outside the city, neighboring very low-opportunity neighborhoods within the city.

Figure 3: Detroit metro area: Neighborhoods by Child Opportunity Level



Neighborhood A and Neighborhood B on the Detroit map illustrate the differences in conditions favorable to healthy child development between very low- and very high-opportunity neighborhoods. Neighborhoods A and B are adjacent to one another, but children in Neighborhood A face dramatically different neighborhood conditions. The geographic distance between the two neighborhoods is very short, but the Child Opportunity Gap between them is very wide.

The vastly different experiences of children living in neighborhoods A and B reflect multiple, complex factors described in the vignettes below. Because comparing neighborhoods along so many factors is challenging, we measure and integrate these factors into the Child Opportunity Index, which provides a snapshot of children's neighborhood environment.




IN DETROIT, ADJACENT NEIGHBORHOODS, WORLDS APART

Neighborhood A

A child growing up in Detroit Neighborhood A enjoys a community in which economic security is the norm: fewer than one in twenty people live in poverty, and fewer than one in five students are eligible for free or reduced-price lunch.

In her neighborhood's schools, this child gets a jump start up the education ladder. Third grade students score in the highest 10% of students nationally in terms of reading and math, and many high school students are enrolled in Advanced Placement classes.

This child also has exposure to adults that bolster her own aspirations and confidence in the future. Almost three quarters of adults in her neighborhood have a college degree, nearly 90% are employed, and over two-thirds have a high-skill job.

The physical conditions in her neighborhood signal to this child prosperity and safety. Less than 1% of houses are vacant, and homeownership is almost universal (98%).

The neighborhood offers this child's family and others very good resources for healthy living. Virtually no households face barriers to access to healthy food, and there is plenty of green space.

Describing this neighborhood is relatively simple because all neighborhood conditions are favorable and well aligned for supporting this child to grow up healthy and reach her potential. She will not have to think much about her neighborhood but simply enjoy the resources it offers. Eventually, having grown up in such a supportive environment may have a favorable influence on her education, health and economic prospects.

Neighborhood B

Meanwhile, a child growing up in bordering Neighborhood B faces a host of obstacles to opportunity and wellbeing. In her neighborhood, economic adversity is the norm: over half of families struggle with poverty. In the neighborhood schools, 80% of her peers need free or reduced price lunch.

She has limited contact with peers that excel academically. In her neighborhood schools third grade students score in the lowest 10% of students nationally in terms of reading and math. Less than half of students graduate from high school on time. This neighborhood school environment is likely to affect her own educational achievement and aspirations such as college attendance.

Not only is educational opportunity a challenge but she also has limited exposure to adults that can serve as role models in terms of educational attainment and work. Among adults in her neighborhood, only about one in eight has earned a college degree and just three in five have a job. Low education and employment levels among adults in her neighborhood may instill in her low expectations of her own employment prospects, and she will have weaker networks of employed adults to help her find a good job.

This child is also growing up in a community marked by signs of distress. A staggering 28% of housing units are vacant. This built environment increases the risk of fires, neighborhood crime and drug use. It also signals that her neighborhood is in disrepair and has been neglected, which has negative effects on home values. As a result, her neighbors have limited household wealth, which makes families and the community even more economically vulnerable.

Her family and others also have a hard time finding resources for healthy living, which puts them at risk of health problems. For one-tenth of families, access to healthy food is difficult: they do not have a car and live more than half a mile from the nearest supermarket. Further, access to greenspace is limited: over half of the neighborhood is covered by rooftops, roads and parking lots, an environment linked to decreased physical activity and increased exposure to air pollution.

Although she does not know it yet, the conditions she is experiencing put her and other children in her neighborhood at risk of poor physical and mental health, as well as a lower chance of graduating from high school and earning a good income as adults.

A SNAPSHOT OF CHILD OPPORTUNITY ACROSS THE 100 LARGEST METROPOLITAN AREAS

In this report, the first one analyzing the new Child Opportunity Index 2.0, we provide an overview of the state of equity in child opportunity across the U.S. by focusing on the 100 largest metropolitan areas, which are home to 67% of U.S. children.

We explore four questions:

1. How does neighborhood opportunity in each metro area compare to the rest of the nation? Which and where are the metros with the lowest and highest levels of child opportunity?
2. Both nationally and within each metro, what is the Child Opportunity Gap (extent of inequity) between lower and higher opportunity neighborhoods?
3. Do all children enjoy access to higher opportunity neighborhoods or are there inequities by race and ethnicity?
4. How is child opportunity associated with long-term outcomes such as health and socioeconomic mobility?

1. CHILD OPPORTUNITY ACROSS METROS

We know that there is wide variation across the country in important factors that affect children's wellbeing. For example, child poverty rates range from 3.8% in Maine to 18% in Georgia.[8] However, until now, although we have a sense that neighborhood conditions for children vary across the country, we have not been able to compare child neighborhood opportunity using consistent metrics.

An important question is to what extent neighborhood opportunity varies across the entire nation, from metros in the Northeast to metros in the South or metros along the U.S.-Mexico border. A related question is to what extent neighborhood conditions vary within a single metro. In this section, we examine variation in child opportunity across the country. While—as we will see below—children face different neighborhood conditions depending on the metro area they live in, the most striking differences in neighborhood environment happen within metros—we discuss these within-metro differences in the next three sections.

In quantitative terms, only 9% of the variation in neighborhood opportunity for children happens between metros, while 91% happens within metros. This means that two children living a few miles apart in the best and the worst neighborhoods in Bridgeport, CT could experience more dramatically different neighborhood conditions than two children living about 1,250 miles apart in Bridgeport, CT and Jackson, MS.

FOR SOME KIDS, LIVING IN BRIDGEPORT, CT IS LIKE LIVING IN JACKSON, MS

Consider for instance, a very high-opportunity neighborhood and a very low-opportunity neighborhood in Bridgeport. Although these two Bridgeport neighborhoods are less than three miles apart, they differ dramatically in terms of neighborhood opportunity for children. A child living in the low-opportunity neighborhood of Bridgeport experiences conditions more similar, in many ways, to those of a child in a very low-opportunity neighborhood in Jackson, MS.

For example, in his neighborhood, family economic vulnerability is the norm, with nearly 70% of families living in poverty, dramatically higher than the 3% poverty rate in the nearby very high-opportunity Bridgeport neighborhood, and even higher than the 52% poverty rate of the Jackson neighborhood.

In this child's neighborhood, schools also have limited resources. Nearly 30% of teachers have less than 3 years of teaching experience—very similar to the situation in the Jackson neighborhood. In contrast, in the higher opportunity Bridgeport neighborhood, only less than 3% of teachers have limited experience.

Further, the very low-opportunity neighborhoods in both Bridgeport and Jackson show signs of distress and neglect as evidenced by their very high housing vacancy rates—around 12%—much higher than the rate of less than 2% in the very high-opportunity Bridgeport neighborhood.

Although children in the very high- and the very low-opportunity Bridgeport neighborhoods share the same metropolitan area and live only few miles apart from each other, there is little else they share. In terms of neighborhood opportunity, there is a world of difference in the conditions they experience. The children in the very low-opportunity neighborhood have more in common with children in a very low-opportunity neighborhood more than 1,200 miles away in Jackson, MS.

To assess the variation in child neighborhood opportunity across the country between metro areas, we assign each metro a Child Opportunity Score, using the 1-100 scale described earlier, and use this score to summarize the extent of child opportunity in that metro area. We arrive at a metro Child Opportunity Score by calculating the median score for all neighborhoods in a given metro area, weighted by the number of children living in each neighborhood (see Technical Appendix for details). This metro Child Opportunity Score provides a measure of the neighborhood opportunity experienced by the typical (median) child in that metro area. For example, a Child Opportunity Score of 35 indicates that the typical child in that metro lives in a neighborhood at the 35th percentile of the national child opportunity distribution. The Child Opportunity Score allows us to compare child opportunity across metro areas.

We do see wide variation in child opportunity across the 100 largest metropolitan areas. For example, Bakersfield, California has a Child Opportunity Score of 20 (the lowest in the nation), compared to Madison, Wisconsin's score of 83 (the highest in the nation). This difference in opportunity scores signals that compared to children in Madison, children in Bakersfield live in neighborhoods with lower quality schools, higher uninsurance rates, lower walkability, and higher poverty rates.

Overall child neighborhood opportunity (measured by the Child Opportunity Score) in the 100 largest metros varies from 20 in Bakersfield, CA to 83 in Madison, WI.

Figure 4: Child Opportunity Score for each metro

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MADISON, WI, AND BAKERSFIELD, CA: THE BEST AND WORST PLACES FOR CHILDREN IN THE U.S.

The typical child in Bakersfield, CA experiences a neighborhood with lower child opportunity than the typical child in any other metro area in the country. On the other hand, the typical child in Madison, WI experiences higher opportunity than the typical child in any other metro.

In the neighborhood of the typical child in Bakersfield, 21% of families live in poverty, which means limited economic resources for families to invest in their children's wellbeing. In contrast, in the neighborhood of the typical child in Madison only 9% of families live in poverty.

Families in Bakersfield have not only fewer economic resources but also less time to spend with their children. In the neighborhood of the typical child in Bakersfield, 12% of workers commute more than an hour each way to get to work, while in Madison only 3% of workers have such high commuting times.

The neighborhood school environment is also more challenging in Bakersfield. In the public school of the typical child, 24% of teachers have less than three years of teaching experience, which makes it difficult for schools to address the challenges that many students face coming from families that live in poverty. In contrast, in Madison, only 10% of teachers have limited experience.

In sum, Bakersfield and Madison are not only geographically very far apart—2,000 miles—they are also separated by a large Child Opportunity Gap—63 points in the Child Opportunity Score. A child growing up in Bakersfield encounters many challenges in her neighborhood. On the other hand, a child in Madison encounters many resources and supports.

THE GEOGRAPHY OF OPPORTUNITY

The U.S. map below (Figure 5) shows clear geographic patterns of child opportunity across metro areas. The 100 largest metro areas are denoted by dots. The color of each dot (from dark red to dark blue) indicates the Child Opportunity Score of that metro area, ranging from 20 to 83.

With a few exceptions, metros in the southern portion of the U.S. have notably lower opportunity than those in the north. The highest opportunity metros are in the Plains states and in New England. California stands out as particularly divided, with metros in the Central Valley having some of the lowest child opportunity in the U.S., while San Jose and San Francisco offer some of the highest levels of opportunity. Other geographic patterns to note include a concentration of several metros with low scores in Florida, and a concentration of several metros with high scores in Utah.

Child Opportunity Scores across the U.S.

Highest scoring metros:

- Madison, WI
- San Jose, CA
- Bridgeport, CT
- Des Moines, IA
- Minneapolis, MN

Lowest scoring metros:

- Bakersfield, CA
- Fresno, CA
- McAllen, TX
- Stockton, CA
- Riverside, CA

Figure 5: Child Opportunity Scores for the 100 largest metro areas

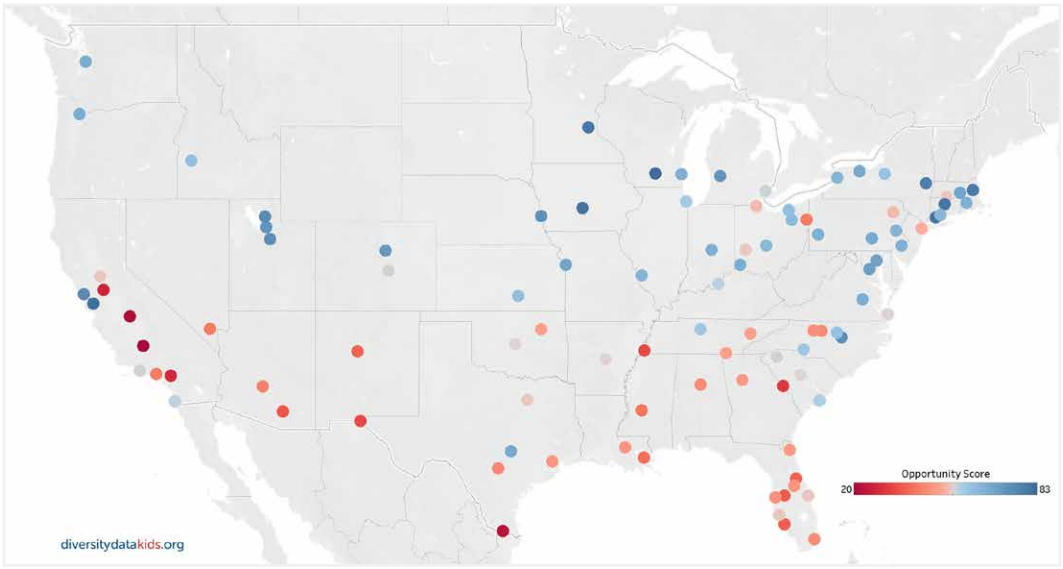


Table 2 shows the 10 metropolitan areas with the highest Child Opportunity Scores, the 10 with the lowest scores, and the 10 in the middle of the distribution. Bakersfield, CA is the metro with the lowest score, 20, which indicates that the typical (median) child in Bakersfield lives in a neighborhood at the 20th percentile of the national child opportunity distribution.

In other words, 79% of neighborhoods across the U.S. have a higher opportunity score than the neighborhood of the typical child in Bakersfield. On the other hand, Madison, WI is the metro with highest score. The typical child in Madison lives in a neighborhood at the 83rdth percentile: only 16% of neighborhoods across the U.S. have a higher opportunity score than the neighborhood of the typical child in Madison.

Table 2: Metro areas ranked by national Child Opportunity Score

Highest 10	Score	Middle 10	Score	Lowest 10	Score
Madison, WI	83	Charlotte, NC	59	Bakersfield, CA	20
San Jose, CA	82	Chicago, IL	58	Fresno, CA	21
Bridgeport, CT	81	Charleston, SC	57	McAllen, TX	23
Des Moines, IA	81	Louisville, KY	56	Stockton, CA	27
Minneapolis, MN	80	San Diego, CA	56	Riverside, CA	28
Hartford, CT	80	Colorado Springs, CO	55	Augusta, GA	31
Boston, MA	79	Detroit, MI	55	Memphis, TN	34
Albany, NY	78	Greenville, SC	55	El Paso, TX	34
San Francisco, CA	75	Oxnard, CA	55	Tucson, AZ	36
Ogden, UT	75	Virginia Beach, VA	54	Lakeland, FL	37

Notes: Median Child Opportunity Scores for each metropolitan area weighted by the number of children in the neighborhoods (census tracts) of specified metro area. Metro names abbreviated to first named city.

WHERE CHILDREN LIVE IN RELATION TO OPPORTUNITY

Metros with a large proportion of children living in very high-opportunity neighborhoods:

- San Jose, CA
- Madison, WI
- Des Moines, IA

Metros with a large proportion of children living in very low-opportunity neighborhoods:

- Bakersfield, CA
- McAllen, TX
- Memphis, TN

Children live in neighborhoods with different conditions. To quantify and describe those differences, we rank all neighborhoods from low to high opportunity (according to the Child Opportunity Index) and group them into five national opportunity levels (five equal groups each containing about 20% of the U.S. child population): very low, low, moderate, high and very high. We can then examine within each metro what proportion of children live in a given level of the national child opportunity distribution. A child living in a low- or very low-opportunity neighborhood faces some of the worst neighborhood conditions in the U.S., and, conversely, a child living in a high- or very high-opportunity neighborhood experiences some of the best or most favorable conditions available to children.

Across metros, there is wide variation in the distribution of children by national opportunity levels. In Bakersfield, 51% of children live in very low-opportunity neighborhoods, which means that half of all children living in Bakersfield live in neighborhoods that, by national standards, have the most limited conditions and resources for healthy child development. This share is much higher than the 20% of all children across the U.S. who live in such low-opportunity neighborhoods. In contrast, in San Jose, CA, there are virtually no children living in very low-opportunity neighborhoods.

At the other end of the opportunity range, in San Jose, CA, or Minneapolis, MN, about 50% of children live in very high-opportunity neighborhoods by national standards—a much higher proportion than the 20% of children that live in such neighborhoods across the entire country.

Table 3 shows the 10 metro areas with the highest proportion of children living in very low-opportunity neighborhoods and the 10 metros with the highest proportion of children living in very high-opportunity neighborhoods.

Table 3: Variation in the distribution of children by national Child Opportunity Level, 100 largest metropolitan areas

Highest proportion of children in very low-opportunity neighborhoods		Highest proportion of children in very high-opportunity neighborhoods	
Metro	**Percent**	**Metro**	**Percent**
Bakersfield, CA	51%	Madison, WI	57%
Fresno, CA	50%	San Jose, CA	52%
McAllen, TX	45%	Bridgeport, CT	51%
Stockton, CA	43%	Des Moines, IA	50%
Memphis, TN	40%	Minneapolis, MN	49%
Riverside, CA	39%	Hartford, CT	49%
Augusta, GA-SC	36%	Boston, MA	47%
Jackson, MS	35%	Albany, NY	45%
Tucson, AZ	32%	San Francisco, CA	44%
Lakeland, FL	31%	Raleigh, NC	41%

Notes: Very low-opportunity and very high-opportunity neighborhoods defined as the 20% of neighborhoods with the lowest and highest opportunity (respectively) across the United States. Metro names abbreviated to first named city.

It is notable then that nearly all metropolitan areas—even those with high overall opportunity (high Child Opportunity Score)—include at least some neighborhoods that are very low opportunity by national standards.

We expect variation in neighborhood opportunity across the country. However, conceivably, there could be metro distributions in which all neighborhoods in an area clustered around a similar Child Opportunity Score (e.g. all higher opportunity or all lower opportunity). This would mean that in a high-opportunity metro such as Boston most neighborhoods would be higher opportunity by national standards. But this is not the case. While the majority of metro Boston's children do live in high- (22%) or very high-opportunity neighborhoods (47%), 11% of children in this prosperous metro live in very low-opportunity neighborhoods similar to some of the most disadvantaged neighborhoods in the country.

2. INEQUITIES IN CHILD OPPORTUNITY WITHIN METROS

Child Opportunity Gap

The difference in neighborhood conditions (in Child Opportunity Score) between very high-opportunity neighborhoods and very low-opportunity neighborhoods in any given metro area.

Most & least unequal metros

Metros with the widest Child Opportunity Gaps

- Rochester, NY 94
- Detroit, MI 93
- Milwaukee, WI 93
- Philadelphia, PA 92
- Baltimore, MD 91

Metros with the narrowest Child Opportunity Gaps

- Provo, UT 35
- McAllen, TX 47
- Ogden, UT 47
- Stockton, CA 49
- El Paso, TX 51

That children across the country face very different neighborhood opportunity should be a cause for concern. But perhaps more striking are inequities in opportunity within metro areas. As a general pattern, in many metro areas, the difference between very low- and very high-opportunity neighborhoods is as wide as it is across the entire nation.

For any given metro, we can measure the difference in the Child Opportunity Score between very low and very high-opportunity neighborhoods. We refer to this difference as the Child Opportunity Gap, which can be interpreted as how far apart in terms of child opportunity are the lowest from the highest opportunity neighborhoods in a given metro area.

In this analysis, very low-opportunity neighborhoods are those 20% of neighborhoods with the lowest Child Opportunity Scores within the metro, and very high-opportunity neighborhoods are those 20% of neighborhoods with the highest Child Opportunity Scores within the metro. We then calculate the median (weighted by child population) national Child Opportunity Score for very low-opportunity neighborhoods in each metro, and for very high-opportunity neighborhoods in each metro. We calculate the Child Opportunity Gap in a given metro as the difference in the median Child Opportunity Score between very low- and very high-opportunity neighborhoods within the metro.

By construction, across the entire U.S., the difference in the Child Opportunity Score between very low-opportunity neighborhoods and very high-opportunity neighborhoods is about 80 points. In 36% of metro areas, the Child Opportunity Gap between the lowest and highest opportunity neighborhoods within the metro is at least 80 points, i.e., at least as wide as the difference between very low- and very high-opportunity neighborhoods across the entire nation.

In Detroit, Michigan, which has a Child Opportunity Score of 55—the same as the 100 largest metros combined—the Child Opportunity Gap between neighborhoods with very low- and very high-opportunity is 93 points. This difference in neighborhood conditions experienced by children is even wider (by 13 points) than the difference across the entire U.S. This means that two children in Detroit could live just a few miles apart in neighborhoods that offer vastly different opportunity. In contrast, Colorado Springs, CO has the same Child Opportunity Score as Detroit's, 55, but a much narrower Child Opportunity Gap of 63. Table 4 below shows the 10 metro areas with the widest and the narrowest Child Opportunity Gap between very low- and very high-opportunity neighborhoods.

Opportunity hoarding:

when the Child Opportunity Gap is wider than average. In these areas, lower opportunity neighborhoods have much worse conditions than higher opportunity ones.

Opportunity sharing:

when the Child Opportunity Gap is narrower than average. In these areas, the difference in conditions between lower and higher opportunity neighborhoods is much smaller.

Table 4: Ten metros with the widest and narrowest Child Opportunity Gaps

Widest Child Opportunity Gap		Narrowest Child Opportunity Gap	
Metro	**Gap**	**Metro**	**Gap**
Rochester, NY	94	Provo, UT	35
Detroit, MI	93	McAllen, TX	47
Milwaukee, WI	93	Ogden, UT	47
Philadelphia, PA	92	Stockton, CA	49
Baltimore, MD	91	El Paso, TX	51
Buffalo, NY	91	Madison, WI	55
Cleveland, OH	90	Deltona, FL	55
Hartford, CT	89	Lakeland, FL	56
New Haven, CT	89	Palm Bay, FL	59
St. Louis, MO-IL	88	Riverside, CA	60

Notes: Child Opportunity Gap defined as the difference in the Child Opportunity Score between the 20% of neighborhoods with the lowest opportunity and the 20% of neighborhoods with the highest opportunity in the specified metro area. Metro names abbreviated to first named city.

OPPORTUNITY HOARDING AND SHARING

It is remarkable that such high inequity in neighborhood opportunity exists within small geographic areas. This means that within a given metro children are experiencing two completely different worlds of neighborhood opportunity. Based on the research evidence, this inequity is likely to result in very different childhood experiences and life trajectories for children—even for children who are living only a few miles apart. While Child Opportunity Gaps exist across all metros, their magnitude varies.

To understand patterns of opportunity hoarding and sharing, we divide metros into three equal groups based on their overall opportunity (low, medium or high) measured by their Child Opportunity Score. Within each group of overall opportunity, we characterize metros with wide Child Opportunity Gaps as areas of opportunity hoarding: areas where lower opportunity neighborhoods have much worse conditions than higher opportunity ones. We characterize areas with narrow Child Opportunity Gaps as areas of opportunity sharing: areas where the difference in conditions between lower and higher opportunity neighborhoods is much smaller. As shown in Tables 5 and 6, given their overall child opportunity (low, medium, high), metro areas vary in the extent of their Child Opportunity Gaps.

Even for metro areas with similar overall opportunity, it is less difficult for a child to live in a very low-opportunity neighborhood in a sharing metro than in a hoarding metro.

Colorado Springs and Detroit have the same overall Child Opportunity Score (55). However, the Child Opportunity Gap is much larger in Detroit (93) than in Colorado Springs (63).

The score for very low-opportunity neighborhoods in Detroit is only 2, some of the toughest neighborhood conditions for a child in the country. In contrast, the score for very low-opportunity neighborhoods in Colorado Springs is 24, still relatively low opportunity, but considerably better than in Detroit.

Table 5: Opportunity hoarding: Selected metro areas by Child Opportunity Score

Metro area	Child Opportunity Score	Score for very low-opportunity	Score for very high-opportunity	Child Opportunity Gap
Memphis, TN	34	3	89	86
Jackson, MS	41	4	91	87
Birmingham, AL	45	6	93	87
Detroit, MI	55	2	95	93
Cleveland, OH	61	3	93	90
Buffalo, NY	64	4	95	91
Rochester, NY	67	4	98	94
Baltimore, MD	69	7	98	91
Hartford, CT	80	9	98	89

Table 6: Opportunity sharing: Selected metro areas by Child Opportunity Score

Metro area	Child Opportunity Score	Score for very low-opportunity	Score for very high-opportunity	Child Opportunity Gap
El Paso, TX	34	13	64	51
Tampa, FL	46	12	83	71
Knoxville, TB	49	15	85	70
Palm Bay, FL	53	19	78	59
Colorado Springs, CO	55	24	87	63
Boise City, ID	61	26	90	64
Portland, OR	66	28	95	67
Minneapolis, MN	80	32	97	65
San Jose, CA	82	37	100	63

lightest blue = very low opportunity
middle = medium opportunity
darkest blue = very high opportunity

Let's first look at two metros with low overall opportunity (they are among the one-third of metros with the lowest Child Opportunity Scores). Jackson, MS has a score of only 41. This overall score, though, masks a very large divide between its very low-opportunity neighborhoods which have a score of only 4, and its very high-opportunity neighborhoods, which have a score of 91 (Child Opportunity Gap of 87). On the other hand, Tampa, FL, has also a low overall score of 46 but a much narrower Child Opportunity Gap. Children in very low-opportunity neighborhoods in Tampa have better conditions (score of 12) than in Jackson.

Then we look at two metros with Child Opportunity Scores equal to the median score of the 100 large metros combined (55). As shown in Tables 5 and 6, Detroit and Colorado Springs both have Child Opportunity Scores of 55, but they have dramatically different Child Opportunity Gaps. In Detroit, very low-opportunity neighborhoods have a score of only 2, which means that they have very limited resources to facilitate healthy child development. On the other hand, very low-opportunity neighborhoods in Colorado Springs have a score of 24; they have much better resources for healthy child development than in Detroit. This means that in Colorado Springs low-opportunity neighborhoods are sharing in this metro's overall opportunity. In contrast, although Detroit has the same overall (median) opportunity, lower opportunity neighborhoods are not sharing in it. In Detroit's lowest opportunity neighborhoods, opportunity is as low as it gets in the entire U.S., and children in those neighborhoods face many obstacles to healthy development.

At the other end of the opportunity distribution, while very high-opportunity neighborhoods in Colorado Springs have a high score of 87, in Detroit they have an even higher score of 95. In Detroit's highest opportunity neighborhoods, opportunity is as high as it gets in the entire country—and its lowest opportunity neighborhoods as low as it gets in the entire country.

We characterize a situation like Detroit's as opportunity hoarding and a situation like Colorado Springs as opportunity sharing.

HOARDING AND SHARING: A TALE OF TWO METROS

Although overall opportunity is similar in Detroit and Colorado Springs—both have a Child Opportunity Score of 55—conditions for children in very low-opportunity neighborhoods are worse in Detroit. Indeed, conditions in a typical very low-opportunity neighborhood in Detroit (Child Opportunity Score of 2) are some of the most challenging for children in the entire country: 97% of the other 72,000 neighborhoods in the U.S have higher opportunity.

Although in a typical very low-opportunity neighborhood in Colorado Springs conditions are not ideal for children—75% of neighborhoods in the country have higher opportunity—they are better than in Detroit.

For example, a child growing up in a very low-opportunity neighborhood in Detroit experiences a community where more than 40% of families live in poverty. This severely limits the resources that families individually and collectively can invest in their children's wellbeing. A child living in a very low-opportunity neighborhood in Colorado Springs also experiences high poverty, but at a much lower rate of 26%.

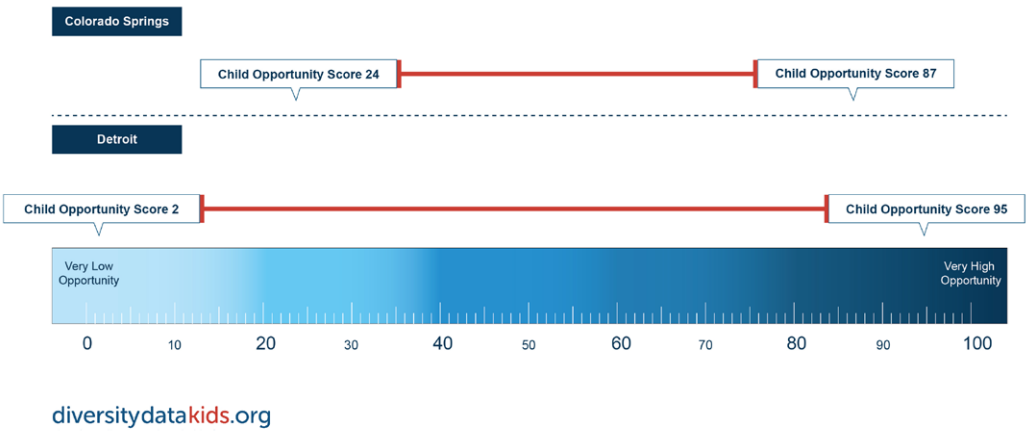
In terms of adults that can help children develop high expectations about their own future and connect youth to jobs, children in Detroit's very low-opportunity neighborhoods are also worse off than children in similar neighborhoods in Colorado Springs. In a very low-opportunity neighborhood in Detroit only 56% of adults are employed compared to 77% in Colorado Springs.

Neighborhood physical conditions are also worse in Detroit. Neighborhood disrepair is higher, as signaled by a high housing vacancy rate of 22% compared to only 5% in Colorado Springs.

In both Detroit and Colorado Springs, a child living in a very low-opportunity neighborhood experiences worse conditions than other children in their metro area. While it is never easy for a child to live in a very low-opportunity neighborhood, it is even more challenging in Detroit than in Colorado Springs.

Disturbingly, at the other end of the opportunity spectrum, children in very high-opportunity neighborhoods experienced even more privileged conditions in Detroit than in Colorado Springs. This is why we characterize Detroit's situation as opportunity hoarding and Colorado Spring's as opportunity sharing.

Figure 6: Opportunity hoarding and sharing in Detroit and Colorado Springs



We now focus on two metros with very high Child Opportunity Scores. While wide Child Opportunity Gaps signal inequities in children's neighborhood environments everywhere, they are especially troublesome in metro areas with overall high levels of child opportunity.

Both Hartford, CT, and Minneapolis, MN have a Child Opportunity Score of 80 indicating very high overall opportunity. However, they have vastly different Child Opportunity Gaps: 89 in Hartford and 65 in Minneapolis. This difference is driven by very low-opportunity neighborhoods in Hartford being left behind, despite their metro's overall high opportunity. We characterize a situation like Hartford's as opportunity hoarding and a situation like Minneapolis as opportunity sharing. While very low-opportunity neighborhoods in Hartford have a score of 9, very low-opportunity neighborhoods in Minneapolis have a score of 32. A child growing up in a very low-opportunity neighborhood encounters much better resources and conditions in Minneapolis than in Hartford.

HOARDING AND SHARING IN THE HIGHEST OPPORTUNITY METROS

Both Hartford, CT and Minneapolis, MN have very high levels of overall neighborhood opportunity, among the highest in the country. However, these metros are very different in the extent to which this high overall opportunity helps lift up their lower opportunity neighborhoods.

A child living in a typical very low-opportunity neighborhood in Hartford experiences worse conditions than 91% of U.S. children. A child in a very low-opportunity neighborhood in Minneapolis experiences worse conditions than 68% of U.S. children. What does this mean for an individual child?

In Hartford, a child in a very low-opportunity neighborhood experiences a community with high economic vulnerability. In her neighborhood's public schools, 86% of students need free or reduced-price lunch, while in a similar neighborhood in Minneapolis only 69% of children do. This is serious because a high proportion of low-income students is linked to lower educational achievement.

Neighborhood physical conditions are also worse in Hartford. In a typical Hartford very low-opportunity neighborhood, only 22% of families own their home and 13% of housing units are vacant, which may indicate worse neighborhood upkeep and more physical distress. In contrast, in Minneapolis 45% of families own their home and only 6% of housing units are vacant.

Hartford's very low-opportunity neighborhoods are also less walkable, which means that a child may have fewer opportunities for physical activity and for developing social connections. According to the EPA Walkability Index, which ranges from 1 (least walkable) to 20 (most walkable), the walkability score of the neighborhood where the typical Hartford child lives is 7.6, much lower than the 13.5 score of the neighborhood of the typical Minneapolis child.

While similar in their overall high opportunity, these two metros are very different in the conditions they offer to children living in their very low-opportunity neighborhoods. In Minneapolis, the narrower gap between the highest and lowest opportunity neighborhoods suggests that opportunity is shared, while in Hartford, the wide gap between highest and lowest opportunity neighborhoods points to opportunity hoarding.

The Child Opportunity Gap matters because it reflects differences between very low- and very high-opportunity neighborhoods in the conditions that children experience every day. For example, nationally the neighborhood poverty rate is only 4% in very high-opportunity neighborhoods but 32% in very low-opportunity neighborhoods.

IMPLICATIONS OF THE CHILD OPPORTUNITY GAP

The gap between very low- and very high-opportunity neighborhoods reflects wide inequities along many important dimensions of neighborhood environment. To get a sense of what living in a very low-opportunity neighborhood compared to living in a very high-opportunity neighborhood means for a child, we can compare specific COI indicators.

Within the combined 100 largest metropolitan areas, there is a very wide gap in indicators for each of the three COI domains. In very low-opportunity neighborhoods, 32% of families have incomes below the federal poverty line, while in very high-opportunity neighborhoods only 4% of families are under the poverty line—a poverty gap of 28 points. Research evidence suggests that children in neighborhoods with higher poverty rates tend to have unfavorable outcomes, such as lower reading and math achievement.[2] Poverty is an important dimension of neighborhood inequality—one that has been examined extensively in research—but other dimensions are important too.

Conditions in low-opportunity neighborhoods are not conducive to strengthening education and human capital. The gap between very low- and very high-opportunity neighborhoods in young children's enrollment in preschool is 22 percentage points (42% enrollment versus 64%), and lower proportions of students graduate from high school than in higher opportunity neighborhoods. In addition, very low-opportunity neighborhoods are less likely to have green space and more likely to experience days of extreme heat, both of which are associated with worse child health outcomes. And very low-opportunity neighborhoods also have higher proportions of residents who lack health insurance.

3. RACIAL/ETHNIC INEQUITY IN CHILD OPPORTUNITY

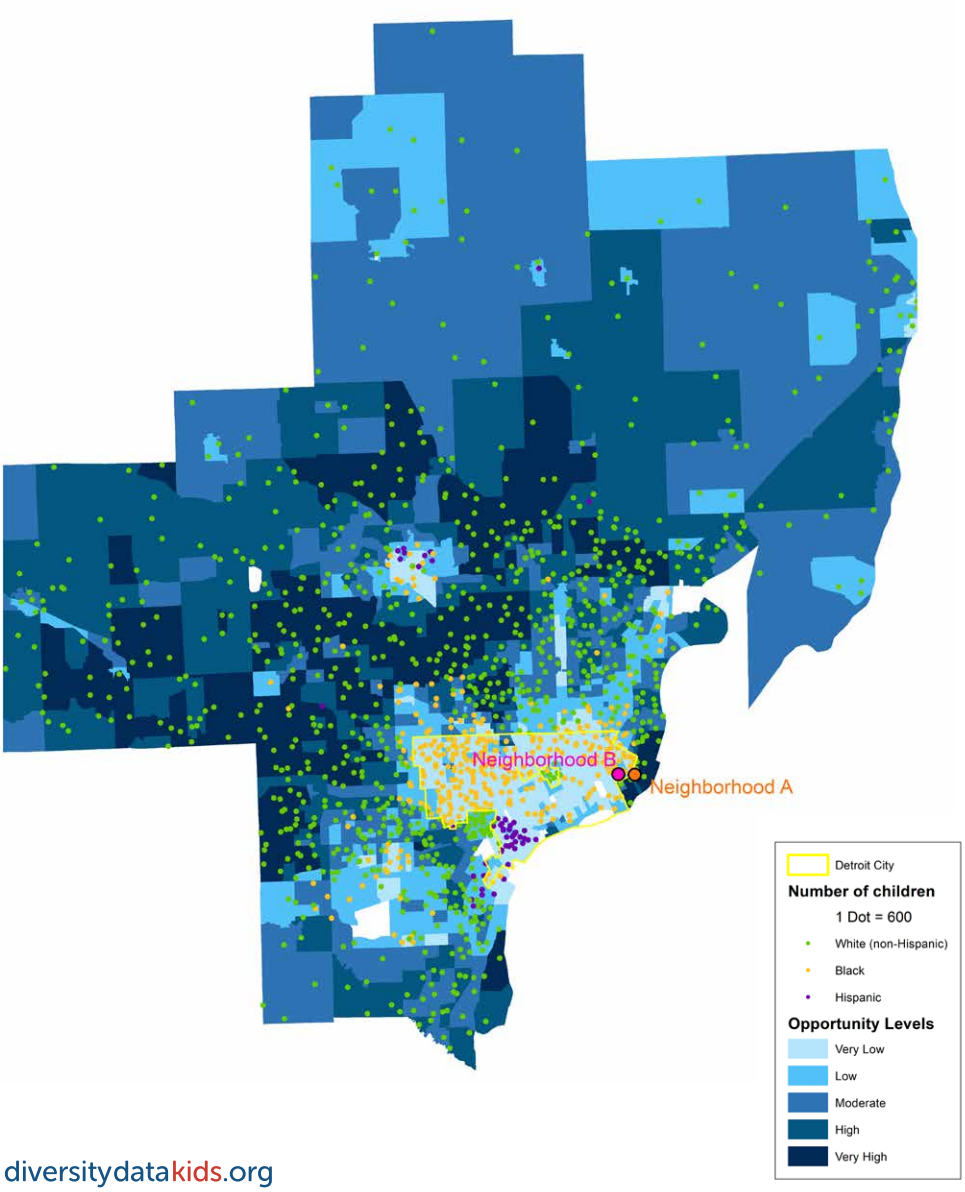
In this section, we explore who has access to child opportunity. The wide gaps between lower and higher opportunity neighborhoods within metro areas raise two important questions:

- Where do children live in relation to neighborhood opportunity?
- Do all children have equal access to neighborhood conditions and resources that help them thrive?

To answer these questions, we first use child opportunity maps for a given metro area and layer on the distribution of the child population across neighborhoods. Children are highly residentially segregated (i.e., they tend to live in separate neighborhoods) by race/ethnicity. Therefore, we examine where children live in relation to opportunity not only for all children but also separately for each racial/ethnic group.

The map below shows child opportunity in the Detroit metro area. Black children (shown by the yellow dots) are concentrated in the city of Detroit, which has lower opportunity than the rest of the metro area. White children (shown by the green dots) live in the suburbs, which have much higher opportunity. Neighborhoods A and B have not only vastly different child opportunity—as we described earlier—but also very different racial/ethnic compositions of their child population. Of the 828 children living in Neighborhood A, 94% are non-Hispanic white. Of the 1,070 children in Neighborhood B, 94% are black.

Figure 7: Detroit metro area: Distribution of the child population by race/ethnicity across levels of child opportunity



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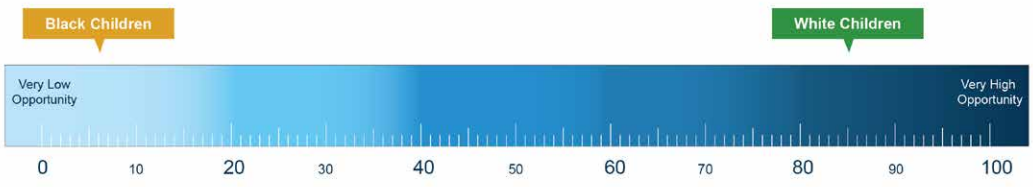
While maps and comparisons between specific neighborhoods are powerful ways of picturing racial/ethnic inequities in opportunity, it is helpful to have summary measures to quantify the extent of inequities in a given metro and compare inequities between metros.

RACIAL/ETHNIC OPPORTUNITY GAPS

To summarize inequities in children's access to opportunity, we calculate Child Opportunity Scores by racial/ethnic group for each metro. The score for a given racial/ethnic groups may be interpreted as the score of the neighborhood experienced by the typical (median) child of that group. As shown in Figure 8, in the Milwaukee metro, the typical white child enjoys a neighborhood with a Child Opportunity Score of 85, while the typical black child lives in a neighborhood with a score of only 6. This racial gap in Milwaukee is wider than the gap we saw earlier across the 100 largest metros between Bakersfield (20) and Madison (85). As another point of comparison, this racial gap in Milwaukee represents about three opportunity levels: the typical black child lives in a very low-opportunity neighborhood, while the typical white child lives in a high-opportunity neighborhood.

Figure 8: Opportunity Gap between white and black children: Milwaukee, WI



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The Milwaukee opportunity chasm

These racial/ethnic gaps in opportunity reflect that black and white children are growing up in neighborhoods with vastly different conditions. A child growing up in a Milwaukee neighborhood with a score of 6, which is typical for black children, attends schools where only 54% of ninth graders graduate on time. This may instill in her low expectations about her own graduation prospects and discourage her from applying herself in school.

In sharp contrast, a child growing up in a neighborhood with a score of 85, which is typical for white children, attends schools where 88% of ninth graders graduate on time. This clearly signals to her that educational achievement is the norm.

The neighborhoods of black and white children are very different in other ways too. The typical black child lives in a neighborhood where only 28% of families own their home, while in the neighborhood of the typical white child 70% do. This means that the typical black child experiences a community where wealth is low, and therefore, economic vulnerability among neighbors is high. On the other hand, the typical white child is growing up in a community where economic security is the standard.

Other forms of community vulnerability are also very different. In the neighborhood of the typical black child, 16% of people lack health insurance, while in the neighborhood of the typical white child only 4% do. Having health insurance protects families' both health wise, by giving them access to timely medical care, and economically, by lowering their risk of unexpected health care expenses.

Racial/ethnic differences in Child Opportunity Scores for the 100 largest metros

Racial/ethnic group	Child Opportunity Score
White children	73
Asian children	72
Hispanic children	33
Black children	24

The Child Opportunity Score for white children is three times the score for black children and more than two times the score for Hispanic children.

The pattern of racial/ethnic inequity that we observe in Milwaukee is remarkably consistent across the U.S. For the 100 largest metro areas combined, the score for white children is 73 compared to 72 for Asian children, 33 for Hispanic children and 24 for black children. The Child Opportunity Score for white children is more than three times the score for black children and more than two times the score for Hispanic children.

Figure 9: Opportunity Gap between white, Hispanic, black and Asian children in the 100 largest metropolitan areas

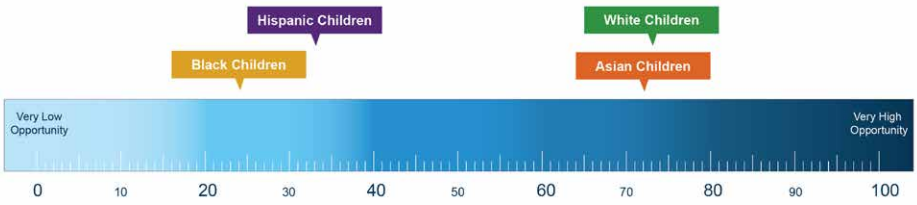

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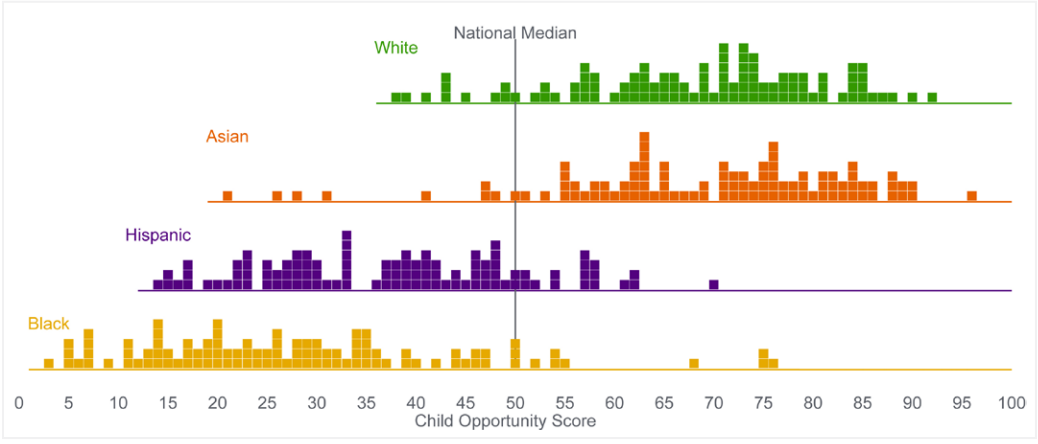
Figure 10 shows the distribution of race/ethnicity specific Child Opportunity Scores across the 100 largest metro areas. The green histogram is the Child Opportunity Score distribution for white children. While there is variation in the opportunity scores for white children across metros, the entire distribution is shifted towards the right of the national median: in the vast majority of metros, the typical white child enjoys neighborhood opportunity higher than the national median. The distribution for Asian children is similar to that for white children.

In contrast, the distributions for both Hispanic and black children are shifted towards the left: in nearly all metros, the typical Hispanic and the typical black child live in neighborhoods with opportunity scores lower than the national median.

Figure 10: Distribution of Child Opportunity Scores by race/ethnicity for each of the 100 largest metro areas



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This inequity pattern is pervasive across metros but the extent of racial/ethnic inequities varies across metropolitan areas. Table 7 shows the ten metropolitan areas with the widest and narrowest Opportunity Gaps between white children and Hispanic, black and Asian children.

Metros with worst Opportunity Gaps between white and black children

Milwaukee, WI	79
Philadelphia, PA	70
Albany, NY	69
Rochester, NY	69
Cleveland, OH	69

Metros with worst Opportunity Gaps between white and Hispanic children

Hartford, CT	63
Milwaukee, WI	60
Providence, RI	59
Buffalo, NY	56
Philadelphia, PA	55

Table 7: Metros with widest and narrowest Opportunity Gaps by race/ethnicity

Opportunity Gap between white and black children

Widest	Gap	Narrowest	Gap
Milwaukee, WI	79	Provo, UT	0
Philadelphia, PA	70	Ogden, UT	1
Albany, NY	69	El Paso, TX	3
Rochester, NY	69	Urban Honolulu, HI	10
Cleveland, OH	69	McAllen, TX	10
Buffalos, NY	68	Boise City, ID	11
Chicago, IL-IN-WI	67	Deltona, FL	15
Detroit, MI	66	Madison, WI	16
Syracuse, NY	61	Portland, OR-WA	17
New York, NY-NJ-PA	60	San Jose, CA	17

Opportunity Gap between white and Hispanic children

Widest	Gap	Narrowest	Gap
Hartford, CT	63	Urban Honolulu, HI	0
Milwaukee, WI	60	Akron, OH	4
Providence, RI-MA	59	Knoxville, TN	5
Buffalo, NY	56	Chattanooga, TN	6
Philadelphia, PA	55	Palm Bay, FL	6
Springfield, MA	55	Jacksonville, FL	8
Cleveland, OH	54	Deltona, FL	10
Allentown, PA-NJ	53	Baton Rouge, LA	10
New Haven, CT	53	El Paso, TX	12
Boston, MA-NH	52	Lakeland, FL	13

Notes: Opportunity Gaps by race/ethnicity defined as the difference in the Child Opportunity Score between the neighborhood of the typical white (non-Hispanic) child and that of the typical child of the specified race/ethnicity. Metro names abbreviated to first named city.

As a general pattern, metros with narrow gaps between white and black children are areas with small black child populations. In 8 of the 10 metros with the narrowest gaps, black children represent 3% or less of the child population (compared to representing 16% of children in the 100 largest metros overall).

For Hispanic children, the pattern is not as extreme, but for half of the 10 metros with the narrowest gaps, Hispanic children represent 11% or less of the child population (compared to representing 28% of children in large metros overall). The significant exception is El Paso, TX, a metro where Hispanic children make up 86% of its child population and the score of the typical Hispanic child's neighborhood (33) is 12 points lower than that of the typical white child's neighborhood (45).

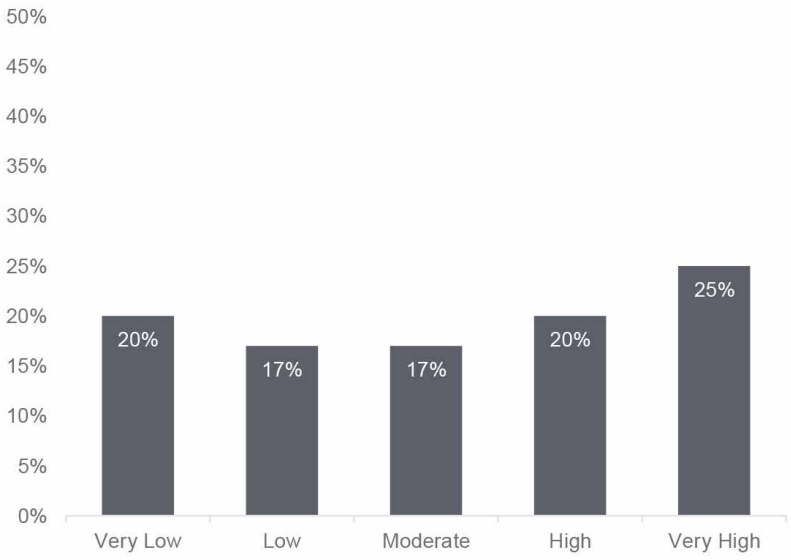
DISTRIBUTION OF CHILDREN BY RACE/ETHNICITY ACROSS OPPORTUNITY LEVELS

Across the 100 largest metros, the majority of white (65%) and Asian (62%) children live in high- or very high-opportunity neighborhoods. In contrast, the majority of black (67%) and Hispanic children (58%) live in very low- or low-opportunity neighborhoods.

Black children are 7.6 times and Hispanic children 5.3 times more likely to live in very low-opportunity neighborhoods than white children.

Another way of examining racial/ethnic inequity in access to neighborhood opportunity is by looking at the distribution of children by race/ethnicity across opportunity levels. By construction, nationally 20% of the child population lives in each opportunity level. Across the 100 largest metros, the total child population is distributed roughly evenly across opportunity levels, but with a somewhat higher share (25%) in very high-opportunity areas. If, regardless of race/ethnicity, all children were distributed evenly across opportunity levels, the race/ethnicity specific distributions would look like the distribution for the total child population shown in Figure 11.

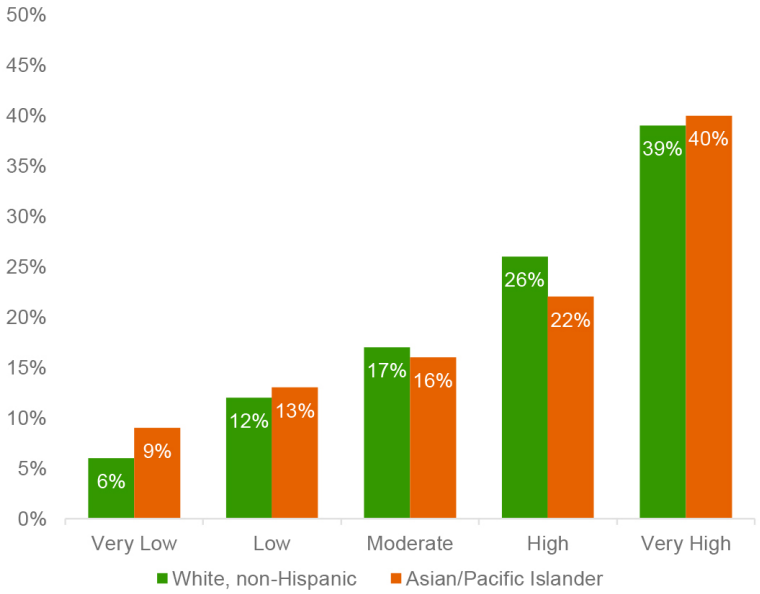
Figure 11. Percent of children at each neighborhood opportunity level (100 metros combined)



Source: Child Opportunity Index 2.0 Database, diversitydatakids.org.

However, there are significant differences by race/ethnicity. Non-Hispanic white (39%) and Asian and Pacific Islander (40%) children are concentrated in very high-opportunity neighborhoods. They are twice as likely (40% vs. 20%) to live in very high-opportunity neighborhoods than if children of all racial/ethnic groups were evenly distributed across opportunity levels.

Figure 12: Percent of white and Asian/Pacific Islander children at each neighborhood opportunity level (100 metros combined)



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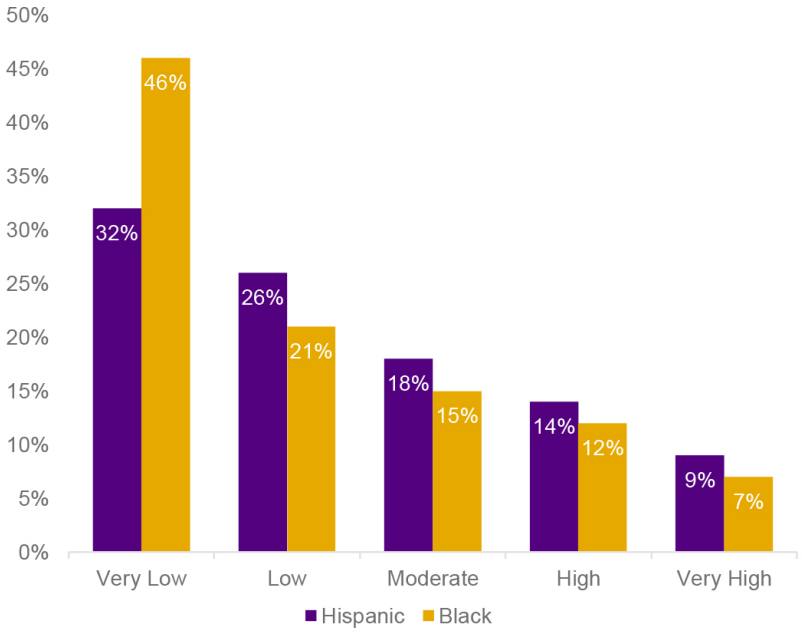
Source: Child Opportunity Index 2.0 Database, diversitydatakids.org.

In contrast, Hispanic (32%) and black (46%) children are concentrated in very low-opportunity neighborhoods. The contrast with white and Asian children is so stark that the two distributions depicted in Figure 12 and Figure 13 look like mirror images of each other.

Black children experience the highest concentration in low-opportunity neighborhoods: they are 7.6 times more likely to live in very low-opportunity neighborhoods than white children. Hispanic children are 5.3 times more likely to live in very low-opportunity neighborhoods than white children.

Figure 13: Percent of black and Hispanic children at each opportunity level (100 metros combined)



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Source: Child Opportunity Index 2.0 Database, diversitydatakids.org.

Although the racial/ethnic inequity patterns above are consistent across most metros, there is variation in the extent of concentration of children of different racial/ethnic groups in very low-opportunity neighborhoods. The proportion of white children in the lowest opportunity neighborhoods is always low, but some metros have higher concentrations (e.g., Palm Bay). The proportion of black and Hispanic children in the lowest opportunity neighborhoods is nearly always high, but some metros have extremely high concentrations. For example, in Rochester, 71% of black children live in very low-opportunity neighborhoods and in Boston, 57% of Hispanic children do (Table 8).

Table 8: Ten metros with the highest concentration of children in very low-opportunity neighborhoods by race/ethnicity

Metro	White (%)	Metro	Black (%)	Metro	Hispanic (%)	Metro	Asian/Pacific Islander (%)
Palm Bay, FL	18	Rochester, NY	71	Boston, MA	57	Minneapolis, MN	45
Provo, UT	17	Albany, NY	69	Scranton, PA	56	Syracuse, NY	38
Knoxville, TN	17	Pittsburgh, PA	68	Worcester, MA	55	Buffalo, NY	34
Portland, OR	16	Youngstown, OH	66	Allentown, PA	54	Salt Lake City, UT	31
Boise City, ID	15	Buffalo, NY	65	Providence, RI	53	Des Moines, IA	30
Ogden, UT	15	Dayton, OH	65	Des Moines, IA	53	Omaha, NE	29
Urban Honolulu, HI	15	Syracuse, NY	65	Hartford, CT	51	Madison, WI	27
McAllen, TX	14	Harrisburg, PA	64	Rochester, NY	49	Provo, UT	26
Nashville, TN	13	St. Louis, MO	63	Omaha, NE	49	Akron, OH	26
Tampa, FL	13	Des Moines, IA	63	Springfield, MA	47	Urban Honolulu, HI	24

4. CHILD OPPORTUNITY AND ADULT OUTCOMES

The Child Opportunity Index is associated with life expectancy. Across all metros, there is a seven-year difference in life expectancy between residents in very low-opportunity neighborhoods (75 years) and residents in very high-opportunity neighborhoods (82 years).

This difference is of the same magnitude as the difference in life expectancy between countries as dissimilar as Mexico and Sweden.

The quality of the neighborhoods children experience today is an important determinant of the experiences and outcomes they have during childhood, as well as of their outcomes later in life. A large body of research has examined whether the neighborhoods where children grow up influence their wellbeing as adults.

Measures of child opportunity should capture the quality of children's neighborhoods and should be predictive of how well children will do in the future. Therefore, in this report, we examine the association between the Child Opportunity Index and selected adult outcomes across the 100 largest metropolitan areas. We use high quality outcome data from vetted sources such as the U.S. Small-Area Life Expectancy Estimates Project (CDC-NCHS) and the Opportunity Atlas.

CHILD OPPORTUNITY AND ADULT HEALTH: THE LIFE EXPECTANCY GAP

Very low- and very high-opportunity neighborhoods vary considerably not only in the conditions and resources they offer to children, but also in the health and life prospects of their residents. Figure 14 shows the relationship between child opportunity and life expectancy at birth. While this is not a causal relationship, there is a strong association and a clear gradient between increasing child opportunity and increasing life expectancy.

Across the 100 largest metropolitan areas, there is a difference of seven years in life expectancy between residents in very low-opportunity neighborhoods (life expectancy of 75) and residents in very high-opportunity neighborhoods (life expectancy of 82) (Figure 14). This is the same difference in life expectancy that exists between Sweden (82) and Mexico (75).[9]

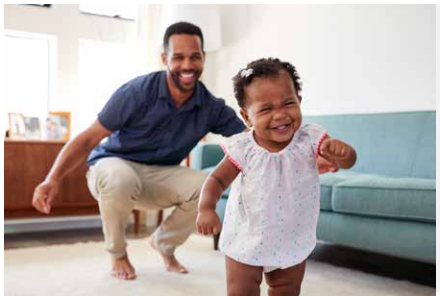
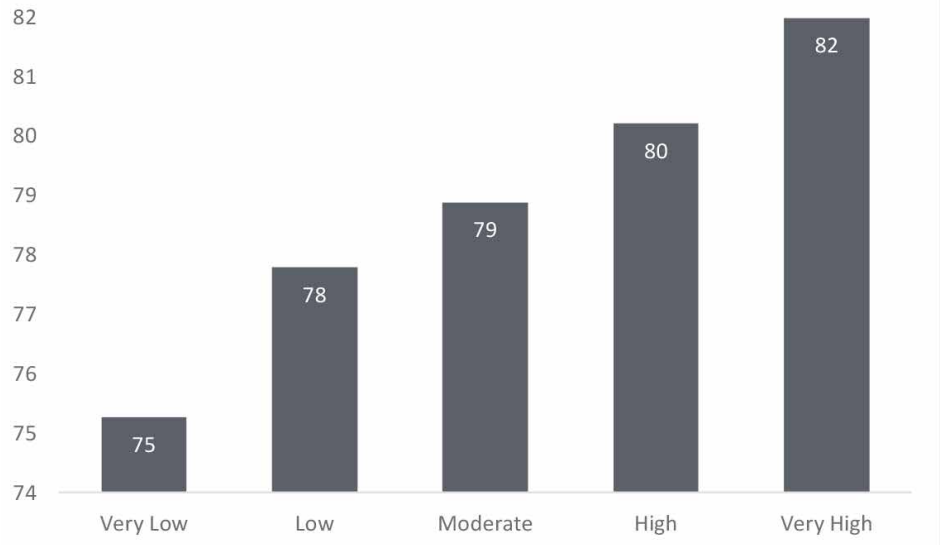


Figure 14: The life expectancy gap

Life expectancy at birth by Child Opportunity Level (100 largest metro areas)



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Notes: Life expectancy is the average number of years a person can expect to live at birth for individuals born in a given neighborhood (census tract) for the period 2010-2015. Each neighborhood is assigned to one of five opportunity levels (very low, low, moderate, high or very high) based on their COI 2.0. Each opportunity level contains 20% of the U.S. child population. We calculated average life expectancy at birth across all tracts with the same opportunity level weighted by the population of children aged 0-17 years in each tract.

Sources: Child Opportunity Index 2.0, 2019, available from diversitydatakids.org. Life expectancy data from the U.S. Small-Area Life Expectancy Estimates Project (CDC-NCHS).

While for the 100 largest metro combined there is a clear association between child neighborhood opportunity and life expectancy, the extent of inequity in life expectancy between very low- and very high-opportunity neighborhoods (life expectancy gap) varies by metro. Table 9 shows the 10 metros with the widest and the 10 with the narrowest life expectancy gaps. In Detroit, which has a very large Opportunity Gap (93) between very low- and very high-opportunity neighborhoods, we observe a corresponding life expectancy gap of 9.6 years. On the other hand, in San Jose, where the Opportunity Gap is small (63), the life expectancy gap is 3.3 years.

Table 9: Ten metro areas with the widest and narrowest life expectancy gap (100 largest metropolitan areas)

Widest life expectancy gap (years)		Narrowest life expectancy gap (years)	
Metro	**Gap**	**Metro**	**Gap**
Dayton, OH	10.0	Provo, UT	2.1
Cincinnati, OH	9.8	McAllen, TX	2.7
Baltimore, MD	9.7	El Paso, TX	2.8
Detroit, MI	9.6	San Jose, CA	3.3
Columbus, OH	9.6	Oxnard, CA	4.2
Birmingham, AL	9.6	San Diego, CA	4.4
Toledo, OH	9.4	Boise City, ID	4.8
Cleveland, OH	9.3	Worcester, MA	4.8
Indianapolis, IN	9.3	Providence, RI	4.9
Memphis, TN	9.3	Cape Coral, FL	4.9

Notes: Life expectancy gap defined as the difference in average life expectancy at birth between the 20% of neighborhoods with the lowest opportunity and the 20% of neighborhoods with the highest opportunity in the specified metro area. Metro names abbreviated to first named city.

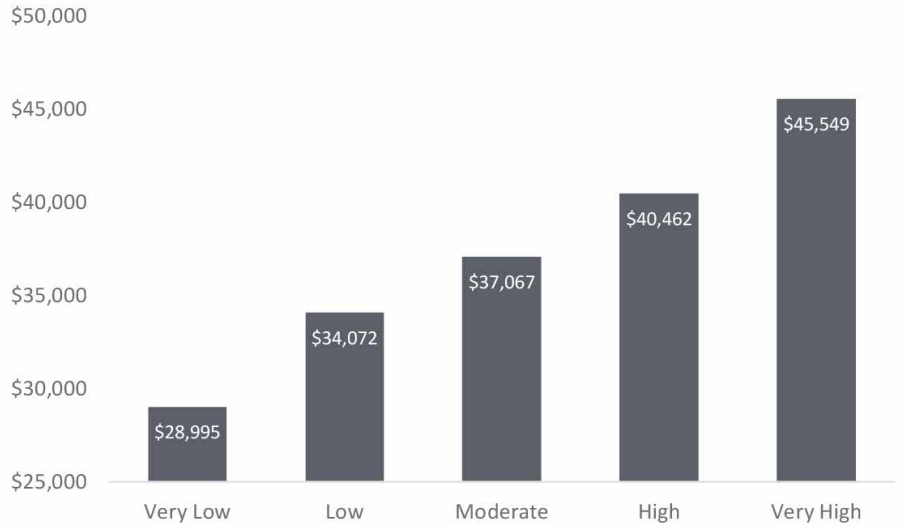
Sources: diversitydatakids.org Child Opportunity Index 2.0; American Community Survey, 5-Year Summary Files; U.S. Small-Area Life Expectancy Estimates Project (CDC-NCHS).

CHILD OPPORTUNITY AND INTERGENERATIONAL SOCIOECONOMIC MOBILITY

Child opportunity is also strongly associated with socioeconomic mobility outcomes. Like life expectancy, socioeconomic mobility (defined as the place in the household income distribution that individuals attain as adults compared to the place in the income distribution their parents had) varies considerably across neighborhoods (Chetty et al., 2018) and is strongly associated with child opportunity. As shown in Figure 15, the income attained at age 35 for a child growing up at the 25th percentile of the parent income distribution varies from $29,000 in very low-opportunity neighborhoods to $45,000 in very high-opportunity neighborhoods. This means that two children from equally poor families could have very different adult incomes depending on the type of neighborhood they grew up in.

Figure 15: Adult socioeconomic mobility

Adult household income (in thousands) at age 35 for children growing up in households at the 25th percentile of the parent income distribution by Child Opportunity Level (100 largest metropolitan areas)



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Sources: Child Opportunity Index 2.0, 2019, available from diversitydatakids.org. Average household income at age 35 from the Opportunity Atlas (Chetty et al.).

Notes: Average household income (2019 U.S. Dollars) is the household income at age 35 for individuals born between 1978 and 1983 with parents at the 25th percentile of the parent income distribution. It is measured at the neighborhood (census tract) level, based on information of individual's place of residence during childhood and adolescence. Child opportunity levels are based on the Child Opportunity Index 2.0. Each neighborhood is assigned to one of five opportunity levels (very low, low, moderate, high or very high) based on their COI 2.0. Each level contains 20% of the child population. We calculated average household income at age 35 by averaging household income across all neighborhoods with the same opportunity level weighted by the population of children aged 0-17 years in each tract.

The extent of inequity in socioeconomic mobility between very low- and very high-opportunity neighborhoods (socioeconomic mobility gap) varies across metros. Table 10 shows the 10 metros with the widest and the 10 with the narrowest socioeconomic mobility gaps.

Again Detroit, an area with a wide Child Opportunity Gap (93)—and a wide life expectancy gap—also has a wide socioeconomic mobility gap. There is a difference of $20,751 between very low- and very-high opportunity neighborhoods in household income at age 35 for children growing up at the 25th percentile of the parent income distribution. On the other hand, Portland, Oregon, an area with a narrow Child Opportunity Gap (67), has a socioeconomic mobility gap of $8,471.

Table 10: Ten metro areas with the widest and narrowest socioeconomic mobility gap (100 largest metropolitan areas)

Widest socioeconomic mobility gap		Narrowest socioeconomic mobility gap	
Metro	**Gap**	**Metro**	**Gap**
Philadelphia, PA	$23,408	McAllen, TX	$2,842
Cleveland, OH	$23,080	El Paso, TX	$6,323
Richmond, VA	$22,594	Boise City, ID	$6,388
Baltimore, MD	$21,928	Provo, UT	$7,417
Chicago, IL	$21,386	Urban Honolulu, HI	$7,525
Omaha, NE-IA	$21,250	Scranton, PA	$7,867
Detroit, MI	$20,751	Portland, OR	$8,471
Toledo, OH	$20,415	Deltona, FL	$8,580
Buffalo, NY	$20,351	Stockton, CA	$8,709
Milwaukee, WI	$20,270	Charleston, SC	$9,581

Notes: Socioeconomic mobility gap is defined as the difference in average household income at age 35 for individuals born between 1978 and 1983 with parents at the 25th percentile of the parent income distribution between the 20% of neighborhoods with the lowest opportunity and the 20% of neighborhoods with the highest opportunity in the specified metro area. Metro names abbreviated to first named city.

Sources: diversitydatakids.org Child Opportunity Index 2.0; American Community Survey, 5-Year Summary Files; Opportunity Atlas (Chetty et al.)

CONCLUSION

Growing evidence shows that neighborhoods are critical to child health and wellbeing. In the previous decade, a central challenge to promoting equitable access to healthy neighborhoods was a lack of systematic information and usable data tools for monitoring neighborhood conditions and resources. To fill this gap, diversitydatakids.org and the Kirwan Institute developed the Child Opportunity Index (COI) 1.0. Since its launch in 2014, the COI has drawn users from diverse sectors and communities who have used the Index to increase awareness of equity and promote community discussions; target services and programs; better understand the connections between neighborhoods and health; and inform needs assessments, resource allocation, and policy development. In response to the demand for the COI 1.0, diversitydatakids.org has updated and improved the Index. This report marks the launch of the Child Opportunity Index 2.0 and presents findings from the first analysis of the data.

Analysis of the Child Opportunity Index 2.0 shows that children's access to neighborhood conditions that promote their health and development varies considerably across the U.S. Variation is even greater between lower and higher opportunity neighborhoods within metropolitan areas. The Child Opportunity Gap (the difference in neighborhood conditions between very high- and very low-opportunity neighborhoods) is extremely high in many metropolitan areas. We find metro areas where some children enjoy the very best neighborhood conditions available in the entire country, while other children in the same metro endure the very worst conditions in the entire country. This has profound implications.

As a nation, our children face stark inequities in opportunity. While the overall level of economic prosperity of a metro is important, the extent of inequity between neighborhoods within the same metro indicates that existing resources could be more equitably shared to ensure that all children have a fair chance. Responsibility for more equity resides in all of us. Our goal should be that in ten years, analysis of the Child Opportunity Index will reveal that all children—whether they live thousands of miles or blocks apart—live in neighborhoods rich with opportunities that allow them to thrive.

Equally disturbing is the fact that inequities in neighborhood opportunity display a stark racial/ethnic divide. Children's race and ethnicity strongly predict whether they live in a place with access to quality early childhood education, good schools, healthy foods, parks and playgrounds, and good jobs and adequate income for the adults in their lives. The majority of black (67%) and Hispanic (58%) children live in lower opportunity neighborhoods. In contrast, the majority of white (65%) and Asian/Pacific Islander (62%) children live in higher opportunity neighborhoods. Black children are 7.6 times more likely and Hispanic children are 5.3 times more likely than white children to live in neighborhoods with very low-opportunity to grow up healthy.

For many children—especially Hispanic and black children—these inequities significantly limit their chances of reaching their full potential, satisfying their needs and enjoying childhood in a supportive environment. And because the foundations of adult wellbeing, health and productivity are established in childhood, improving child opportunity and narrowing inequities among children is essential for attaining a healthy adult population and future economic productivity. The U.S. is becoming increasingly racially and ethnically diverse, particularly among the young. Children of racial/ethnic minority groups are already about half of the child population, and this share is projected to rise to over 60% by 2050, with particularly strong growth of the Hispanic child population. In the next decades, as our children grow up and become a diverse adult population, our health and productivity will reflect the conditions for healthy development that children are experiencing today. Therefore, the harms of inequities in neighborhood opportunity will affect not only a growing share of the child population but all of us.

While it is essential to have rigorous, nationally comprehensive data to monitor neighborhood opportunity, data are only helpful if they inform efforts to improve children's access—equitable access—to opportunity. Many communities around the country are working to improve children's access to neighborhood opportunity, and many are using the first Child Opportunity Index. We hope that the availability of our new, improved COI 2.0 and the initial findings from this report will motivate these and other communities to continue their work. Be in touch to get data, maps and findings for your community. Tell us your story. Join us in our mission to produce and mobilize the most rigorous data for equity until every child thrives, every day, everywhere.

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TECHNICAL APPENDIX

The Child Opportunity Index (COI) 2.0 is an index of neighborhood features that help children develop in a healthy way. It combines data from 29 neighborhood-level indicators into a single composite measure that is available for nearly all U.S. neighborhoods (about 72,000) for 2010 and 2015.

The 29 indicators cover three domains: education, health and environment, and social and economic. Indicators in the education domain reflect quality and access to early childhood education, quality of elementary and secondary schools, and social resources related to educational achievement. The health and environment domain reflects features of healthy environments, such as access to healthy food and green space, and features that are toxic, such as pollution from industry and exposure to extreme heat. The social and economic domain contains nine indicators measuring access to employment and neighborhood social and economic resources. All indicators are measured at the census tract level, which corresponds to the Census Bureau's definition of neighborhoods.

We convert each indicator to z-scores, a common statistical procedure that puts indicators measured on different scales (e.g., counts, percentages, dollars) onto a common scale that is comparable across indicators, neighborhoods and over time. We then take a weighted average of the indicator z-scores within a domain to obtain a domain average z-score. Next, we take a weighted average of the averaged domain z-scores to create an overall index z-score that combines all indicators into a single measure, the Child Opportunity Index. The weights used in each step are calculated to reflect how strongly a given indicator or domain z-score predicts four different census tract-level outcomes: two indicators of intergenerational economic mobility taken from the Opportunity Atlas[1] and two health indicators taken from the 500 Cities health indicator database.[2; 3]

Based on the domain scores and the overall score, we create two neighborhood level measures that allow us to compare opportunity across neighborhoods and over time in an intuitive way: Child Opportunity Scores and Child Opportunity Levels.

Child Opportunity Scores

Child Opportunity Scores can be used to compare neighborhood opportunity on a scale from 1 (lowest) to 100 (highest). To construct Child Opportunity Scores, we rank all neighborhoods nationally in terms of the overall index z-scores from lowest to highest and divide the neighborhoods into 100 rank-ordered groups. Each of the groups contains 1% of the child population and is assigned a Child Opportunity Score, from 1 to 100. The 1% of children living in the very lowest ranked neighborhoods (with a score of 1) face some of the worst neighborhood conditions in the U.S. The 1% of children living in the highest opportunity neighborhoods (with a score of 100) experience some of the best conditions available to children. We use percentiles, weighted using the total number of children in

a given tract, to exactly define the cut points dividing neighborhoods into groups that contain 1% of the child population each. We also build—using the same procedure—Child Opportunity Scores for each of the three COI domains: education, health and environment, and social and economic.

For some analysis in this report, neighborhood-level Child Opportunity Scores are aggregated to reflect neighborhood opportunity experienced by the typical (median) child in a given metro area. We calculate aggregate opportunity scores for individual metros by taking the median value of scores across all tracts in the metro of interest, using the total number of children in each tract as weights. In addition, we present aggregate racial/ethnic opportunity scores that reflect the neighborhood opportunity experienced by the typical child of each major racial/ethnic group in a given metro, using the total number of children of that racial/ethnic group in each tract as weights. We also calculate aggregate Child Opportunity scores for the 100 largest metros combined, by taking the median value of scores across all tracts in the 100 largest metros, using the total number of children in each tract as weights.

Child Opportunity Levels

Child Opportunity Levels are five categories of neighborhood opportunity ranging from very low- to very high-opportunity. Child Opportunity Levels are constructed in much the same way as Child Opportunity Scores. We first rank neighborhoods and then divide them into ordered categories. In this case, we divide neighborhoods into five groups, each containing 20% of the child population. To facilitate interpretation, we label these groups as very low-, low-, moderate-, high-, and very high-opportunity neighborhoods. We again use percentiles, weighted using the total number of children in a given tract, to exactly define the cut points dividing neighborhoods into groups that contain 20% of the child population each.

Both Child Opportunity Scores and Levels are relative measures of opportunity, i.e., the score or level assigned to a neighborhood depends on the set of neighborhoods to which it is being compared. When we create a Child Opportunity Score or level for a neighborhood based on its rank relative to all other neighborhoods in the U.S., we refer to that score or level as being “nationally normed.” For example, nationally normed Child Opportunity Levels are constructed by ranking all neighborhoods nationwide and dividing them into five groups containing 20% of the child population each. In contrast, metro normed Child Opportunity Levels are constructed by ranking all neighborhoods in a given metro and dividing them into five groups containing 20% of the metro area’s child population each. Nationally and metro normed scores are different but strongly correlated. Nationally and metro normed levels are often the same and very highly correlated in most places.

In this report, we present only nationally normed Child Opportunity Scores. However, depending on the focus of the analysis, we sometimes present nationally normed Child Opportunity Levels and sometimes present metro normed Child Opportunity Levels. When we report results for the 100 largest metro areas combined, we use nationally normed levels. When we report results for individual metros in the context of a national story, we also use nationally normed levels. However, we generally use metro normed levels when we report results for individual metro areas.

Child Opportunity Gaps

Child Opportunity Gaps measure how far apart neighborhoods are in terms of opportunity for children living in very low- and very high-opportunity neighborhoods in each metro area. To quantify how unequal metro areas are in terms of neighborhood opportunity for children, we calculate Child Opportunity Gaps for each of the 100 largest metro areas. Specifically, we compare two groups of neighborhoods in each metro area, those with very low- and those with very high-opportunity, using metro normed Child Opportunity Levels to define each group. We then calculate the median opportunity scores for each of these two groups using nationally normed opportunity scores, weighted by the total number of children in each tract. The Child Opportunity Gap for a metro area is the difference between the median opportunity score of its very high-opportunity neighborhood and the median score of its very low-opportunity neighborhood. We calculate a similar measure for the 100 largest metro areas combined, using the nationally normed Child Opportunity Levels to define the very low- and very high-opportunity scores.

Racial/Ethnic Opportunity Gaps

Racial/ethnic opportunity gaps reflect the extent to which the neighborhood opportunity of a typical child of a specified race/ethnicity differs from the neighborhood opportunity of a typical child of another race/ethnicity in the same metro area. In this analysis, we primarily compare Hispanic and black children to white children. We first calculate the opportunity score (nationally normed) for the neighborhood of the typical (median) child of a given racial/ethnicity in a given metro, weighting the score by the number of children of the specified racial/ethnic group in each neighborhood within the metro. We replicate this process to obtain the opportunity score for the neighborhood of the typical white child within the same metro. We then calculate the difference between the median opportunity score for white children and the median opportunity scores for children of other racial/ethnic groups. These differences are the racial/ethnic opportunity gaps. We also present racial/ethnic opportunity gaps for the 100 largest metros combined by comparing the weighted median opportunity scores of children of specified race/ethnicity with the scores of white children living in the 100 largest metros as a whole.

Child opportunity and life expectancy

We examine differences in life expectancy in neighborhoods of different levels of neighborhood opportunity as well as the gap in life expectancy between children living in very high-opportunity neighborhoods and those living in very low-opportunity neighborhoods. Life expectancy is the average number of years a person can expect to live at birth for individuals born in a given neighborhood (census tract) for the period 2010-2015. Census tract level data on life expectancy is obtained from the U.S. Small-Area Life Expectancy Estimates Project (USALEEP), produced by the National Center for Health Statistics at the Centers for Disease Control and Prevention.[4; 5]

For analysis of individual metros, we calculate average life expectancy for children residing in neighborhoods at each of the five opportunity levels in each of the 100 largest metro areas, using metro normed Child Opportunity Levels. For analysis of the 100 largest metros combined, we calculate average life expectancy for children residing in neighborhoods at each of the five opportunity levels, using nationally normed Child Opportunity Levels. For both analyses we weight the tract level life expectancy by the total number of children in a given tract.

Child opportunity and intergenerational socioeconomic mobility

We examine differences in intergenerational socioeconomic mobility in neighborhoods of different levels of neighborhood opportunity as well as the gap in intergenerational socioeconomic mobility between children living in very high-opportunity neighborhoods and those living in very low-opportunity neighborhoods. Census tract level data on intergenerational socioeconomic mobility is taken from the Opportunity Atlas.[1] The indicator of mobility we chose is household income at age 35 for children having grown up in “poor” households across all census tracts in the U.S., where poor is defined as having parents at the 25th percentile of the parent income distribution.

For analysis of individual metros, we calculate average household income at age 35 for children residing in neighborhoods at each of the five opportunity levels in each of the 100 largest metro areas, using metro normed Child Opportunity Levels. For analysis of the 100 largest metros combined, we calculate average household income at age 35 for children residing in neighborhoods at each of the five opportunity levels, using nationally normed Child Opportunity Levels. For both analyses we weight the tract level income data by the total number of children in a given tract, across all the tracts in the metro of interest or across all tracts in the 100 largest metros.

Other data and methodological issues

Children are defined as people aged 0-17 years.

Metropolitan areas are defined using 2015 Office of Budget and Management definitions.

Data on race/ethnicity is taken from the 2017 American Community Survey 5-Year summary files, using the Census Bureau's definition of racial/ethnic groups. Hispanic or Latino children can be of any race. White children only include those of non-Hispanic ethnicity. Black and African American children as well as Asian and Pacific Islander children include children of those races of both Hispanic and non-Hispanic ethnicity. Because children can be classified as both Hispanic and as a member of a racial group (except for whites), racial/ethnic categories are not mutually exclusive and will not sum to the total child population.

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