The Child Opportunity Index 2.0: MCH Research and Practice Applications

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diversitydatakids.org

data for a diverse and equitable future

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Early Childhood
Income, Work and Family
Neighborhoods
Centering children's rights
Mobilizing data for equity
Access raw datasets
Explore our research
Learn about racial patterns of child opportunity

Webinar goals

To introduce the Child Opportunity Index 2.0 (COI)

To learn from you and get your feedback on whether the COI may be helpful in your work and how:

- Do you do community needs assessments?
- Do you use community level data for targeting services or programs?
- Do you use community level data to facilitate community and stakeholder engagement?

What is the Child Opportunity Index 2.0?

A measure of neighborhood conditions and resources that matter for children's healthy development:

- 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
- Housing vacancy and home ownership rates
- Poverty and employment rates
- Share of adults with high-skill jobs

Child Opportunity Index 2.0

Multi-dimensional: 29 indicators capturing three domains of opportunity:

- Education
- Health and Environment
- Social and Economic

Data on nearly all U.S. neighborhoods (72,000 census tracts)

- Available for any geographic area you are working in and can be customized

Why do neighborhoods matter?

Family factors (e.g., family poverty) matter for children's healthy development, and

the neighborhoods where children grow up matter too…

ACE's/multiple risks matter

Neighborhoods influence the quality of experiences children have today

- Green space and playgrounds
- Quality of early childhood education
- School quality

Neighborhoods influence children's health and education

- Air quality
- Access to healthy food
- Walkability
- Heat
- Neighborhood schools: teacher experience, poverty rate, educational achievement

Neighborhoods influence children's norms and expectations for the future

- Graduation rates in neighborhood schools
- College attendance
- Employment prospects

Because of their influence during critical developmental years, neighborhoods also influence children's long-term outcomes as adults

- Health and life expectancy
- Adult income
- Adult family formation

Education

Early childhood education (ECE)
ECE centers within five miles
High quality ECE centers within five miles
ECE enrollment

Primary school
Third grade reading proficiency
Third grade math proficiency

Secondary and post-secondary
High school graduation rates
AP enrollment
College access/enrollment

Resources
School poverty
Teacher experience
Adult educational attainment

Health and Environment

Healthy environments
Access to healthy food
Access to green space
Walkability
Housing vacancy rates

Toxic exposures
Superfund sites
Industrial pollutants
Microparticles
Ozone
Heat

Health care access
Health insurance coverage

Social and Economic

Economic opportunities
Employment rate
Commute duration

Economic resource index
Poverty rate, public assistance rate, high skill employment, median household income, home ownership

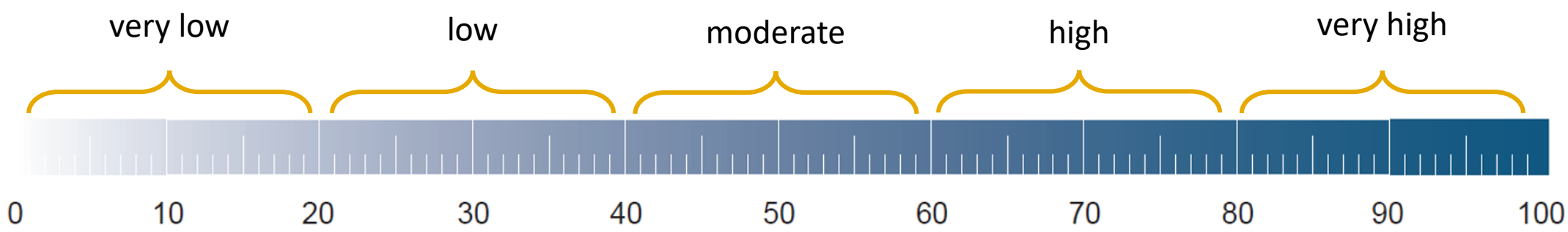
Family structure
Single parenthood

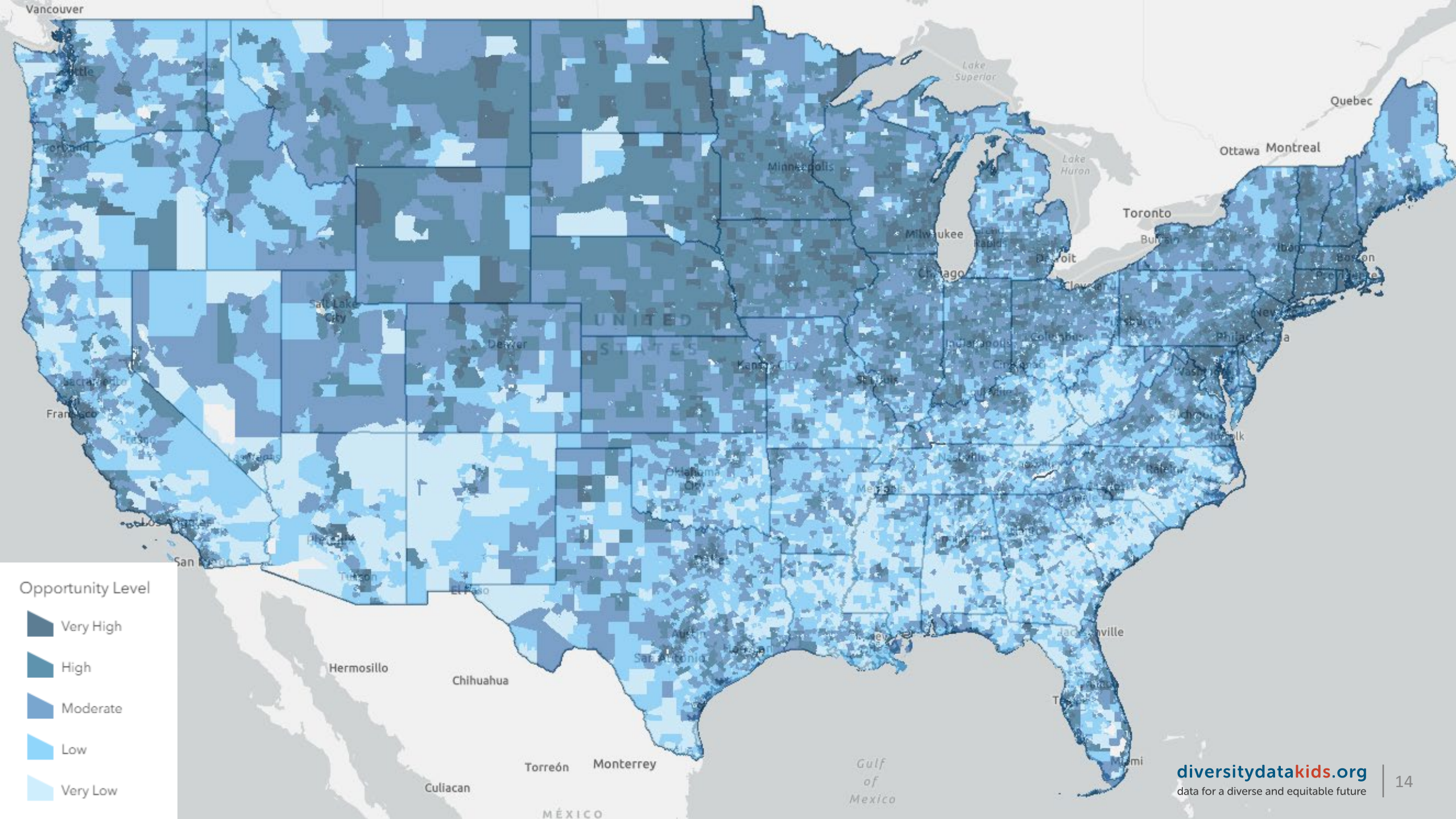
Child Opportunity Levels

Five categories: very low, low, moderate, high, very high

Rank all neighborhoods according to their Child Opportunity Index (z-scores)

Divide neighborhoods into 5 categories each containing 20% of the child population

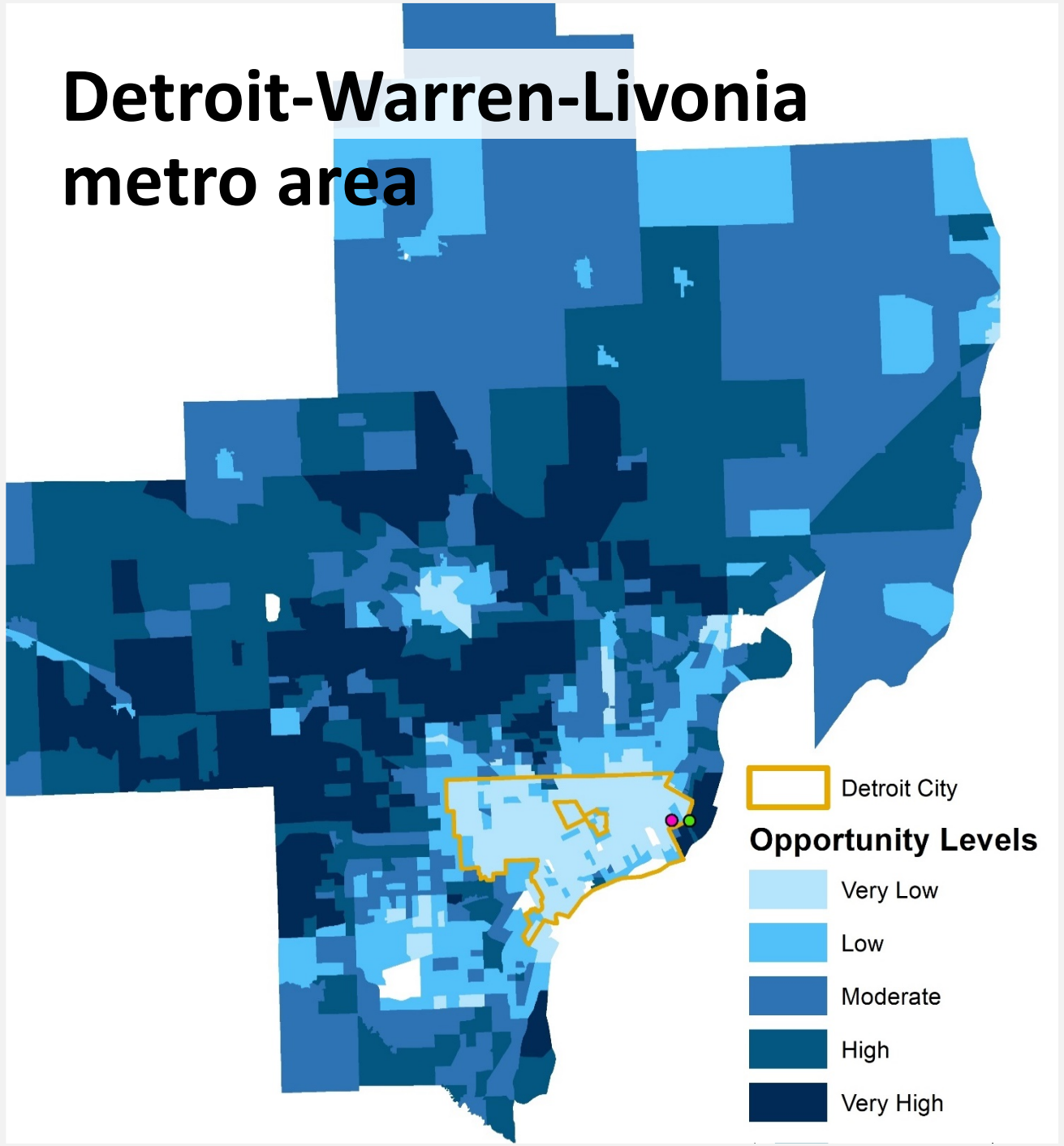



Opportunity Level
Very High
High
Moderate
Low
Very Low
Vancouver
Seattle
Portland
Minneapolis
Lake Superior
Lake Huron
Quebec
Ottawa
Montreal
Toronto
Milwaukee
Detroit
Chicago
Boston
Salt Lake City
Denver
UNITED STATES
Kansas City
St. Louis
Indianapolis
Columbus
Cincinnati
Pittsburgh
Philadelphia
Sacramento
San Francisco
Fresno
Las Vegas
Phoenix
Tucson
San Diego
El Paso
Oklahoma City
Memphis
Nashville
Raleigh
Norfolk
Jacksonville
Miami
Tampa
Austin
San Antonio
Houston
Hermosillo
Chihuahua
Torreón
Monterrey
Culiacan
MÉXICO
Gulf of Mexico

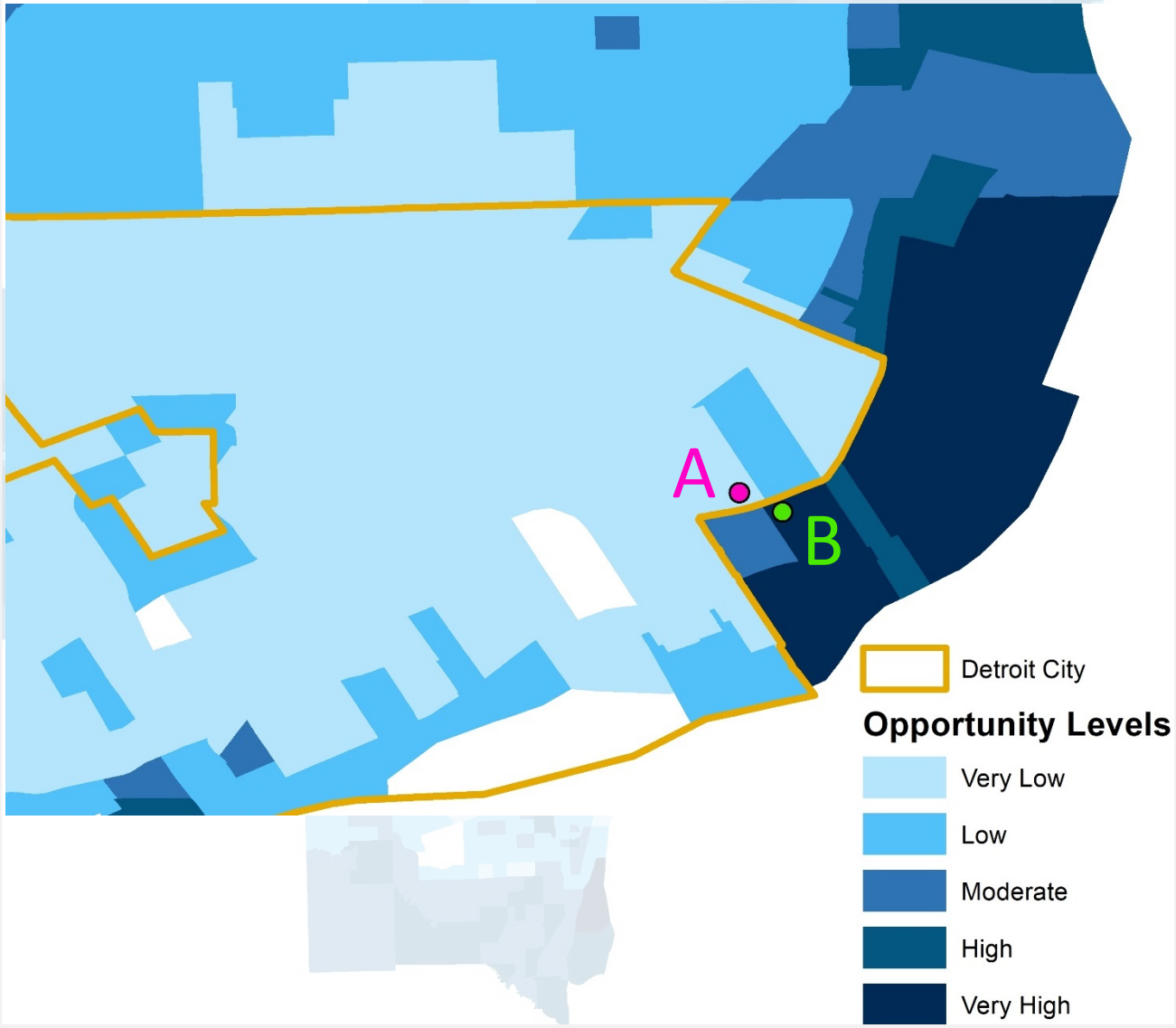
Two Detroit Neighborhoods

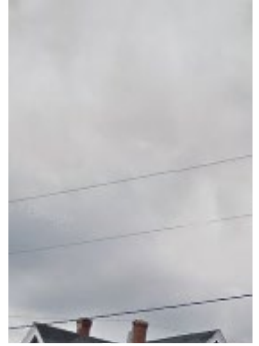
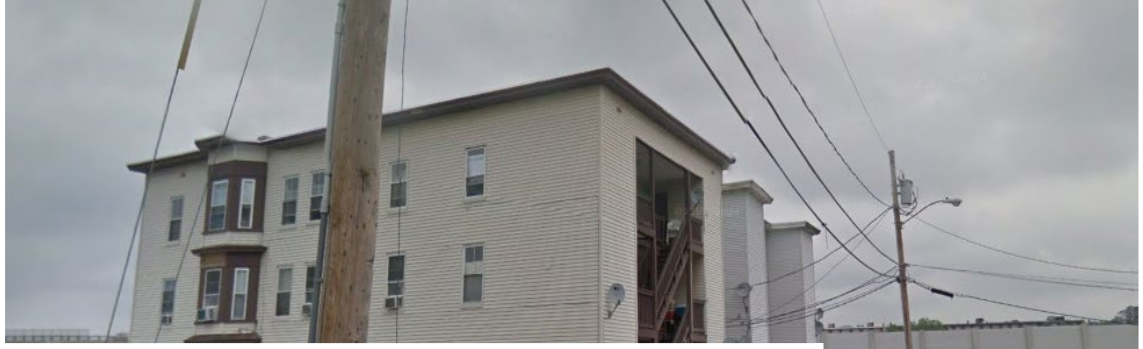
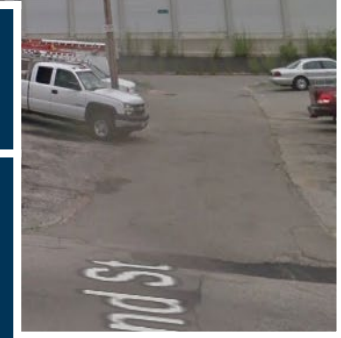
A few miles away, a world apart in child opportunity

Detroit-Warren-Livonia metro area

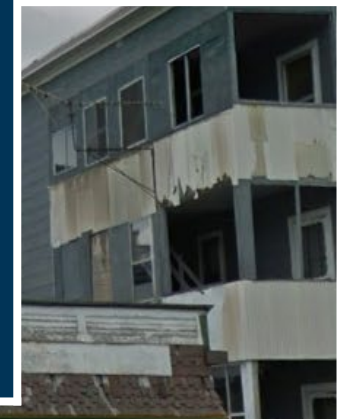


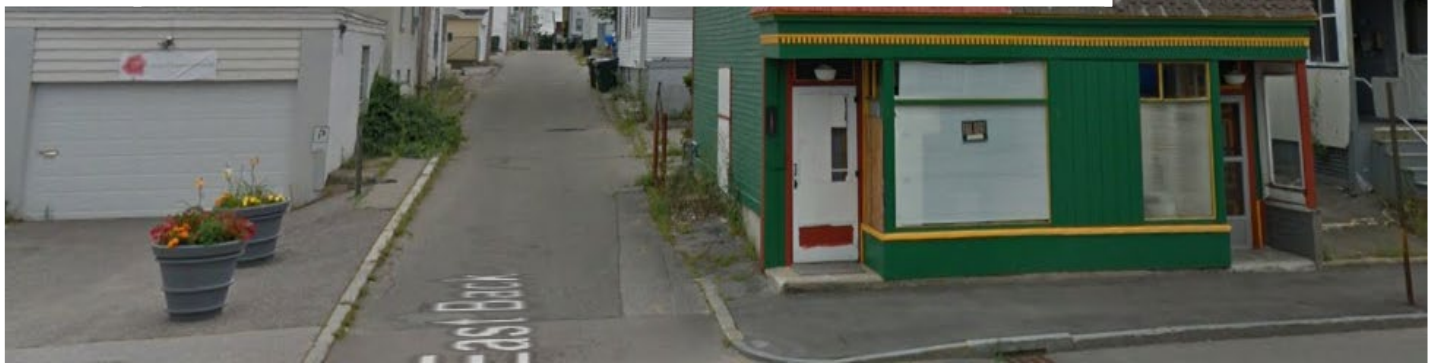
Detroit-Warren-Livonia metro area

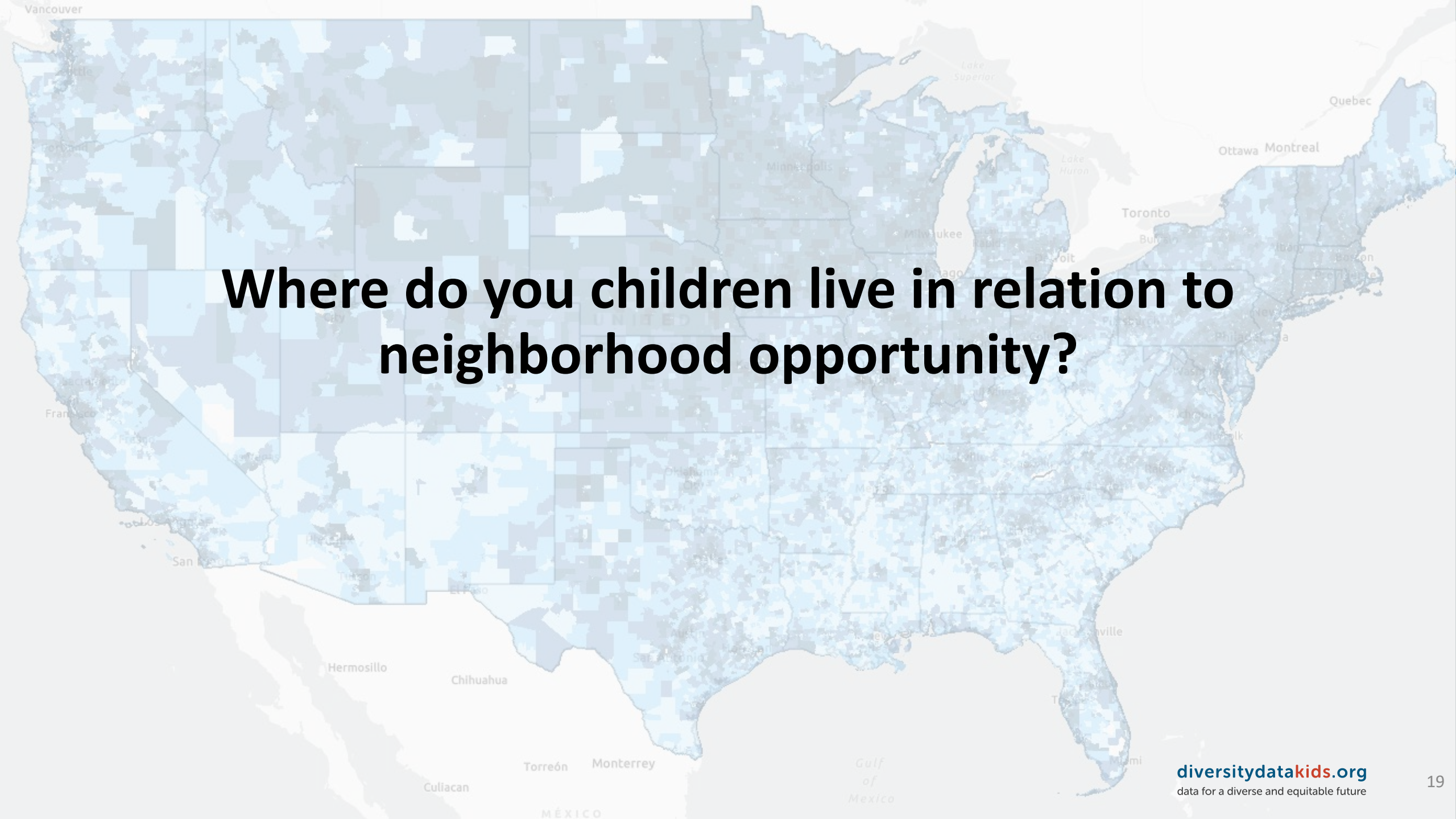


Selected COI 2.0 indicators	Neighborhood A	Neighborhood B
Neighborhood poverty rate	52%	5%
Enrollment in early childhood education	30%	52%
Lack of green space	60%	39%
Limited proximity to healthy food	11%	0.2%
Housing vacancy rate	28%	0.3%

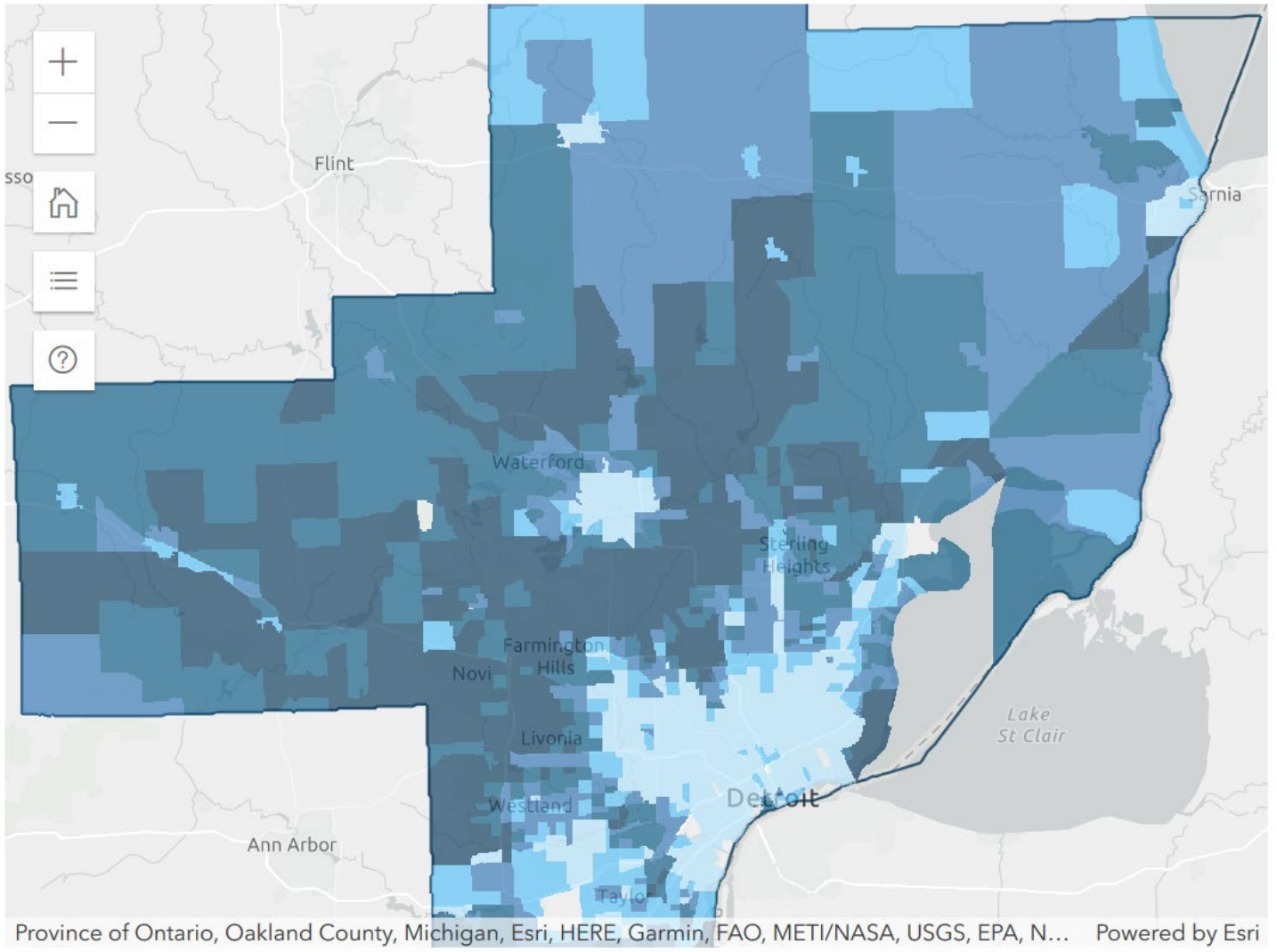





Where do you children live in relation to neighborhood opportunity?

Child Opportunity Levels

Child Opportunity Levels group neighborhoods into five levels from very low to very high opportunity, containing 20% of the metro child population each.

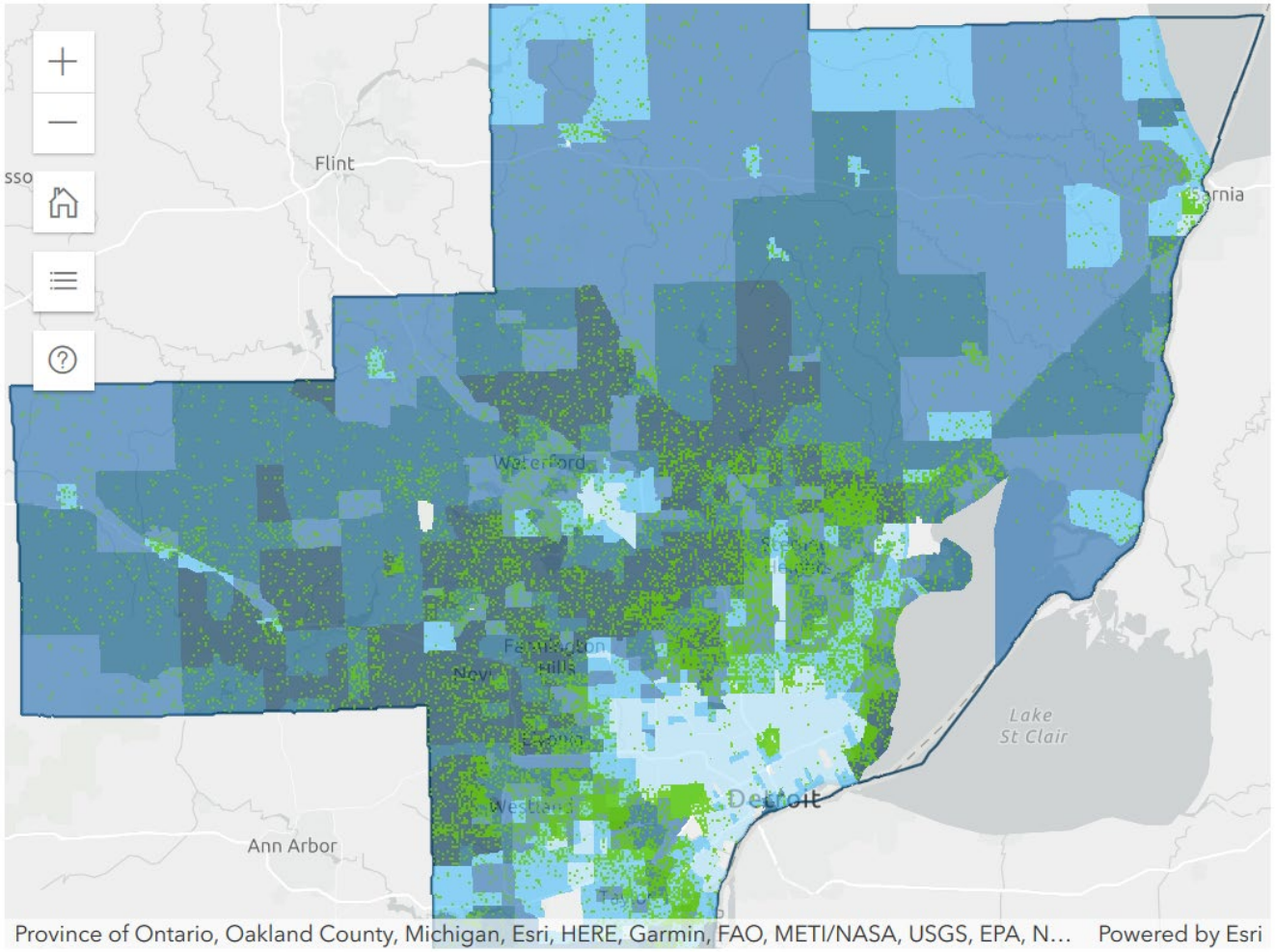


Source: diversitydatakids.org. Child Opportunity Index 2.0 Database. 2015 metro normed Child Opportunity Levels.

White children's access to neighbor-hood opportunity

Child Opportunity Levels

1 Dot = 20 children aged 0-17 years



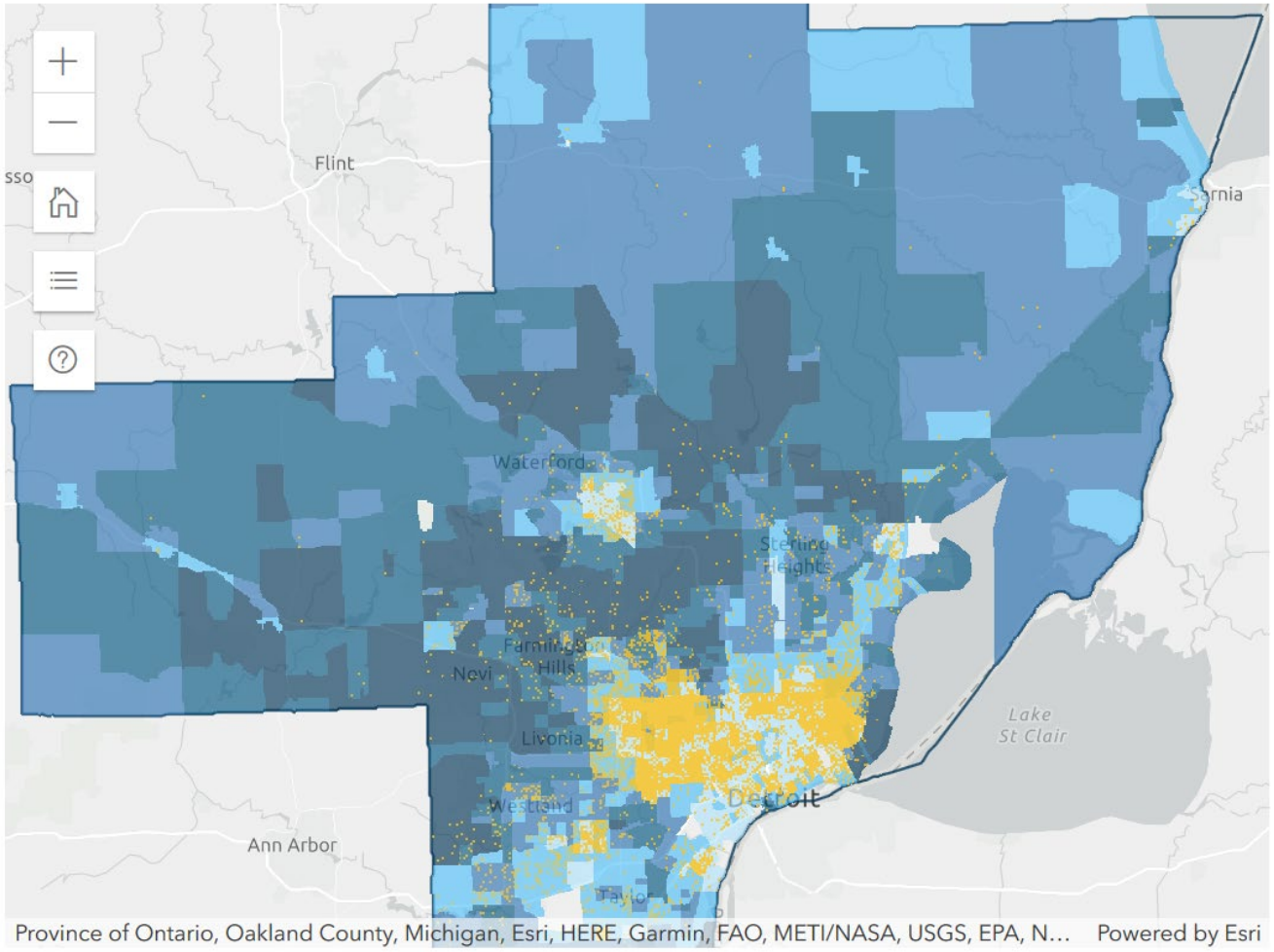
Source: diversitydatakids.org. Child Opportunity Index 2.0 Database. 2015 metro normed Child Opportunity Levels. Population data from American Community Survey 5-Year Summary Files.

DETROIT METRO AREA

Black children's access to neighbor-hood opportunity

Child Opportunity Levels

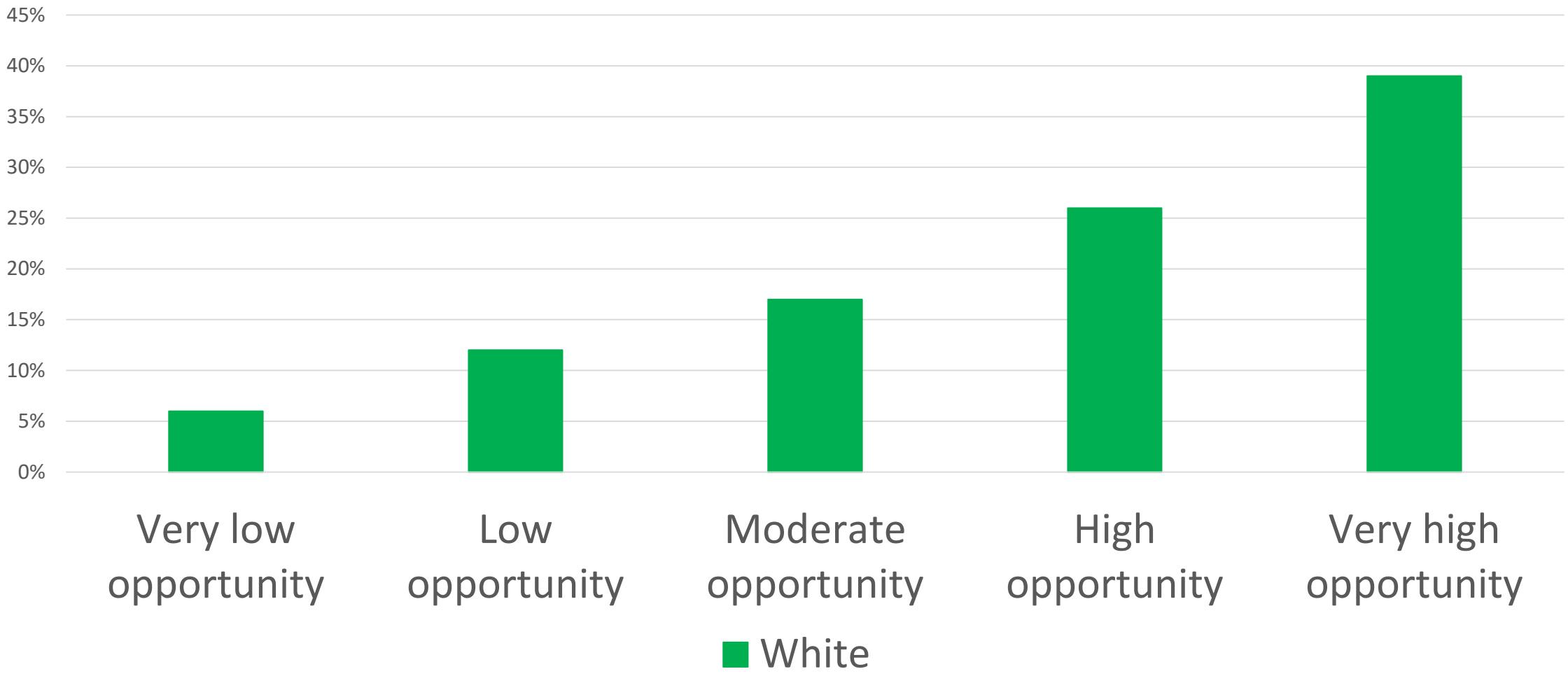
1 Dot = 20 children aged 0-17 years



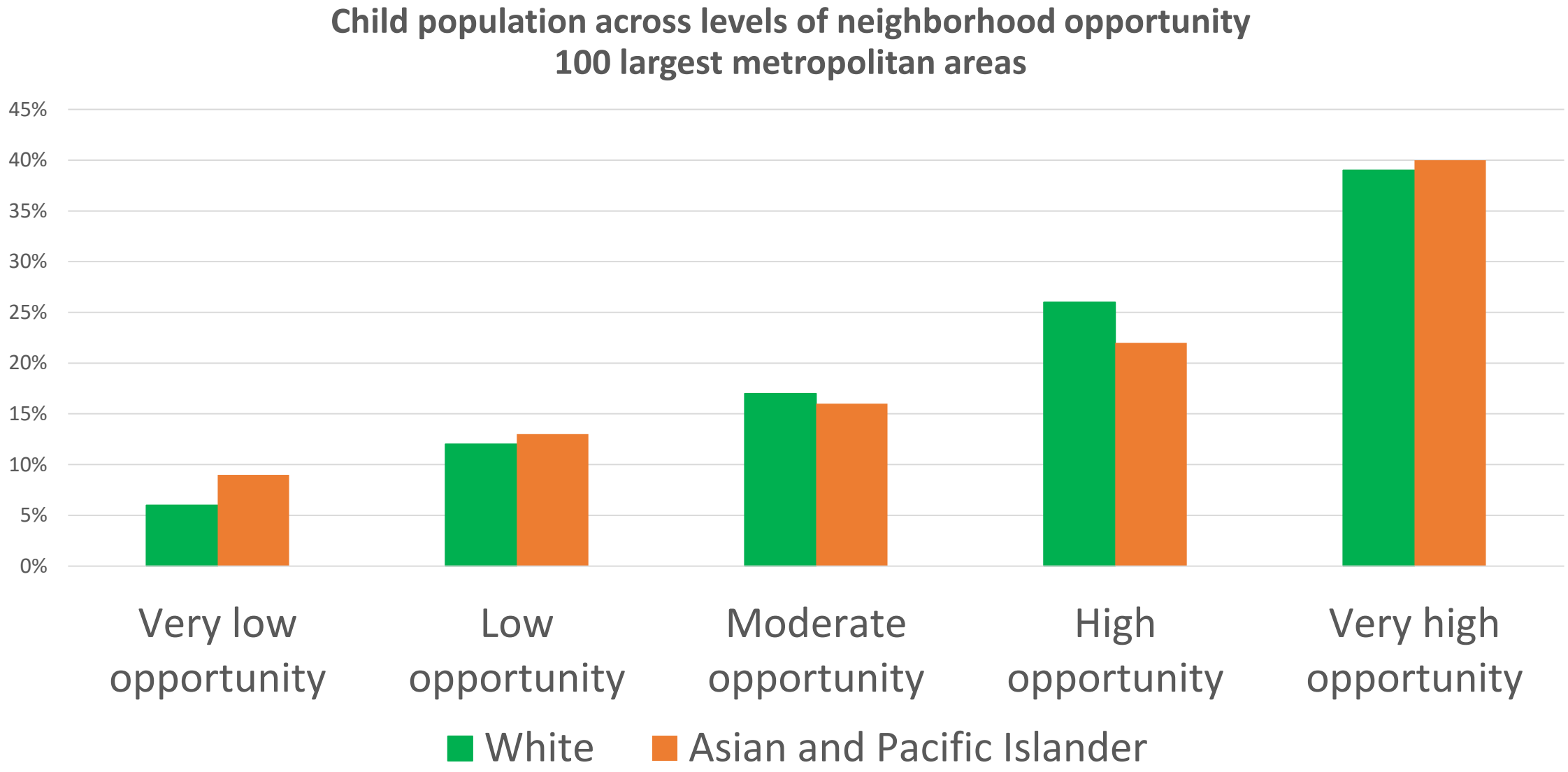
Source: diversitydatakids.org. Child Opportunity Index 2.0 Database. 2015 metro normed Child Opportunity Levels. Population data from American Community Survey 5-Year Summary Files.

The majority of White children live in high- (26%) or very high- (39%) opportunity neighborhoods

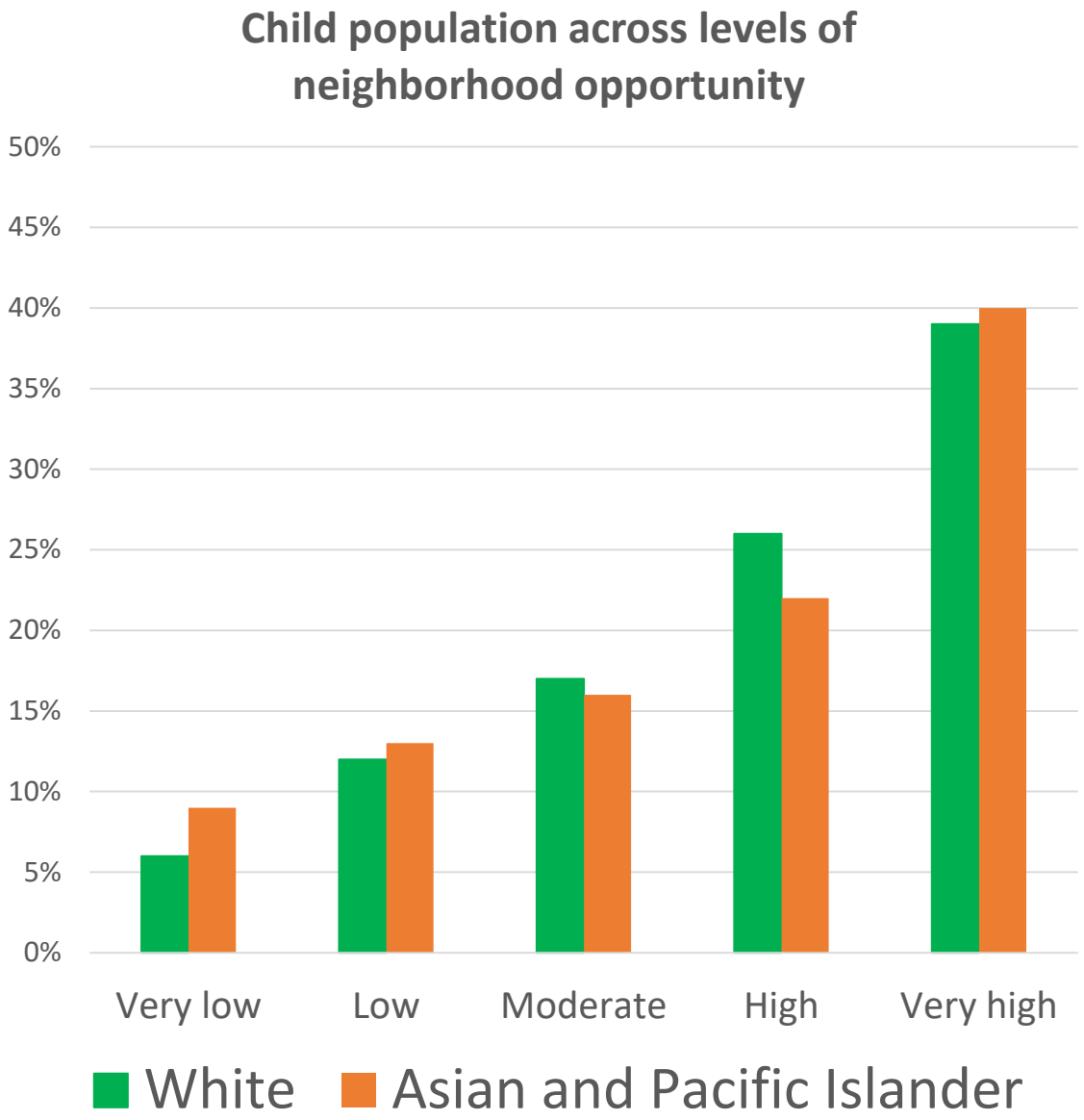
Child population across levels of neighborhood opportunity, 100 largest metropolitan areas

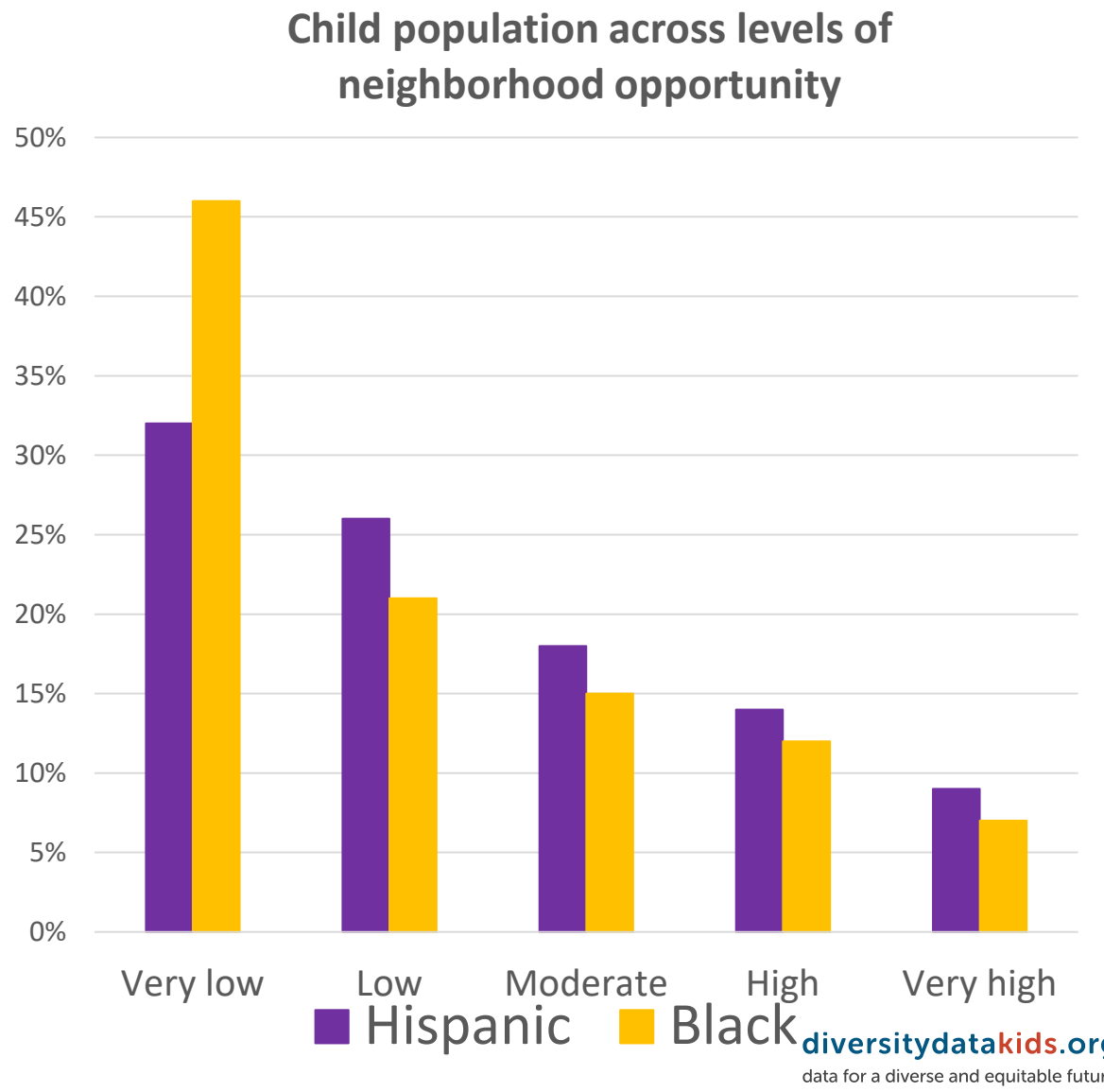


The majority of Asian and Pacific Islander children live in high- (22%) or very high- (40%) opportunity neighborhoods

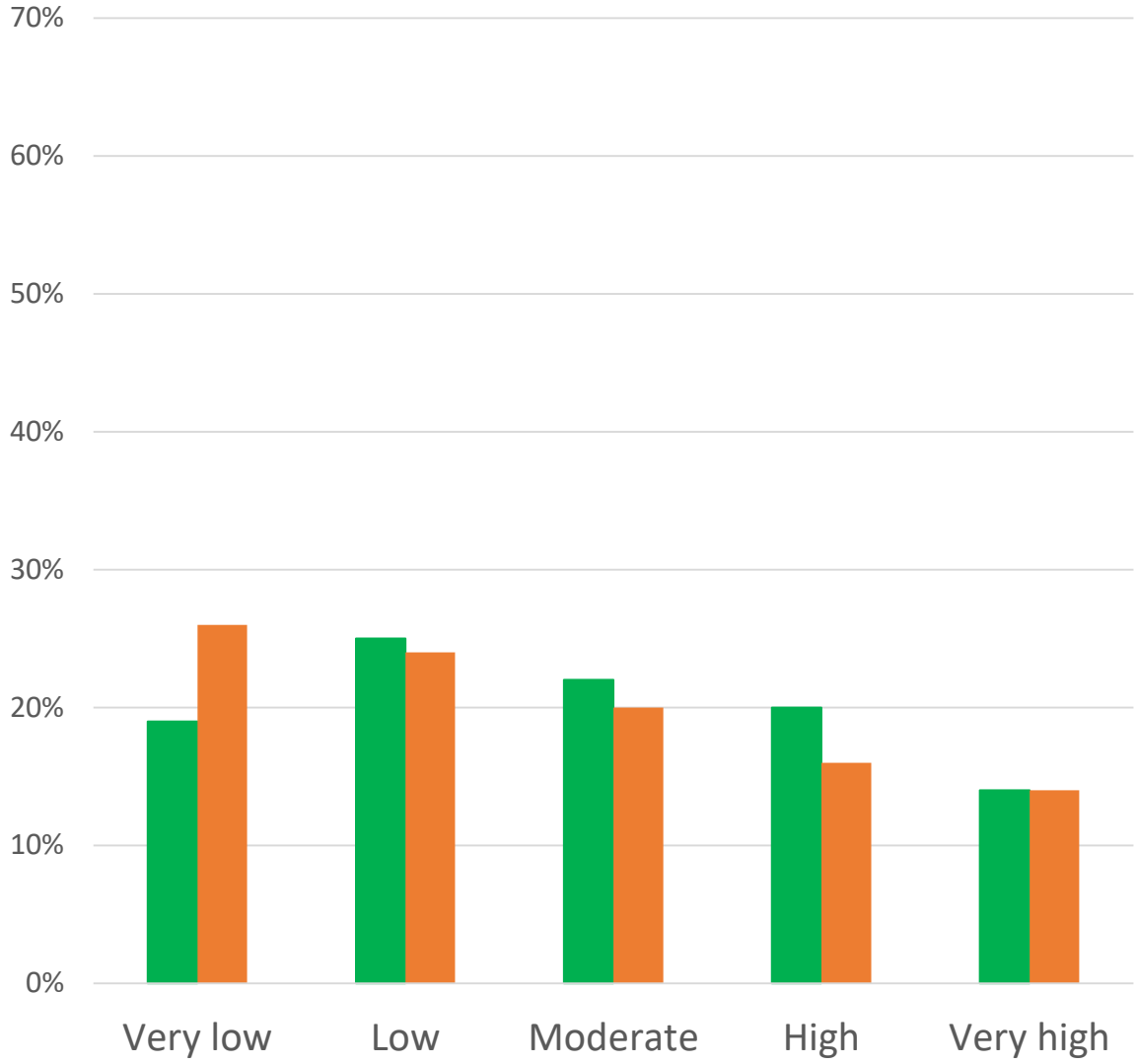


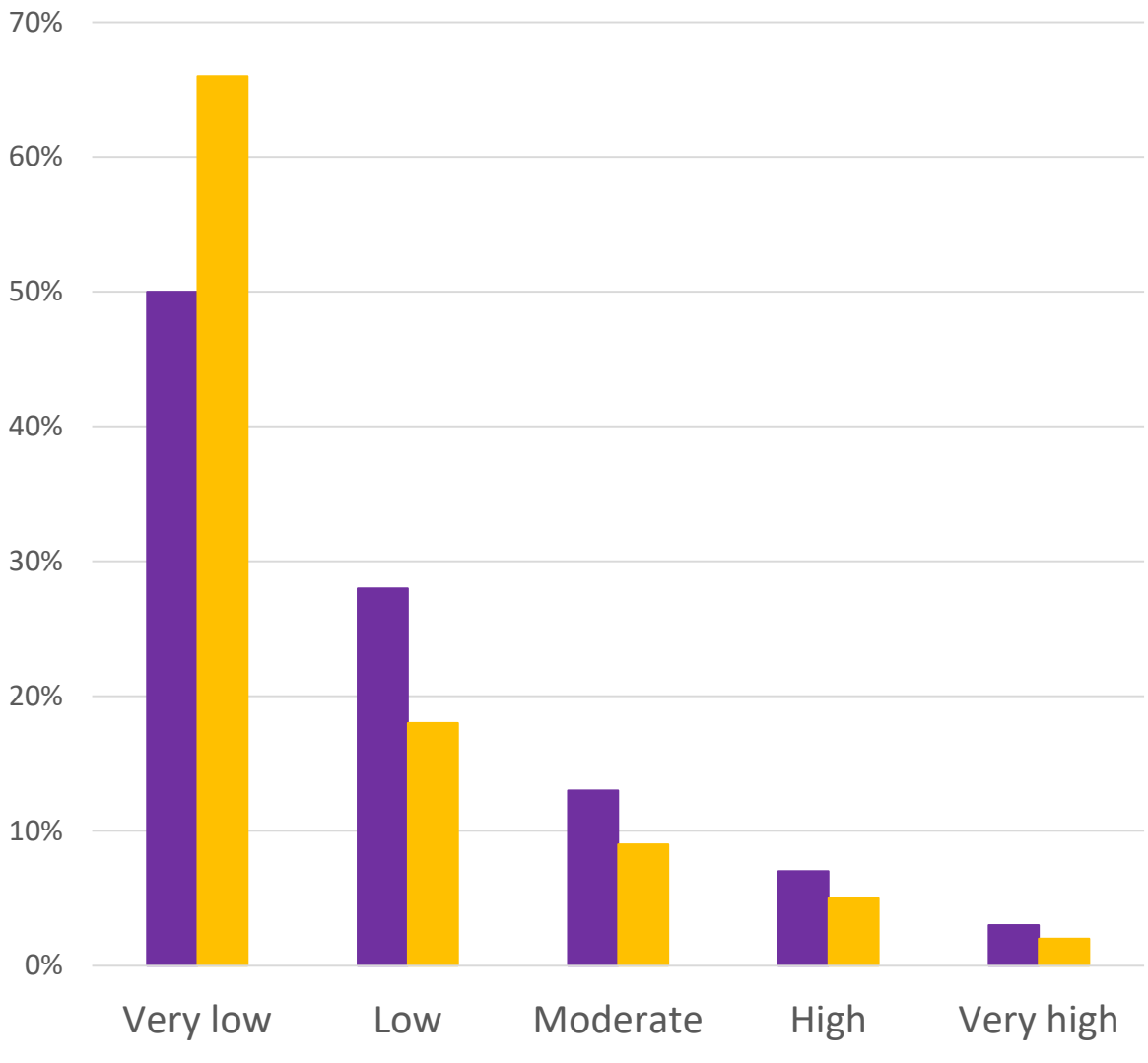
The majority of Black and Hispanic children live in very low- or low-opportunity neighborhoods





Poor black and Hispanic children are much more concentrated in very low-opportunity neighborhoods than poor white children





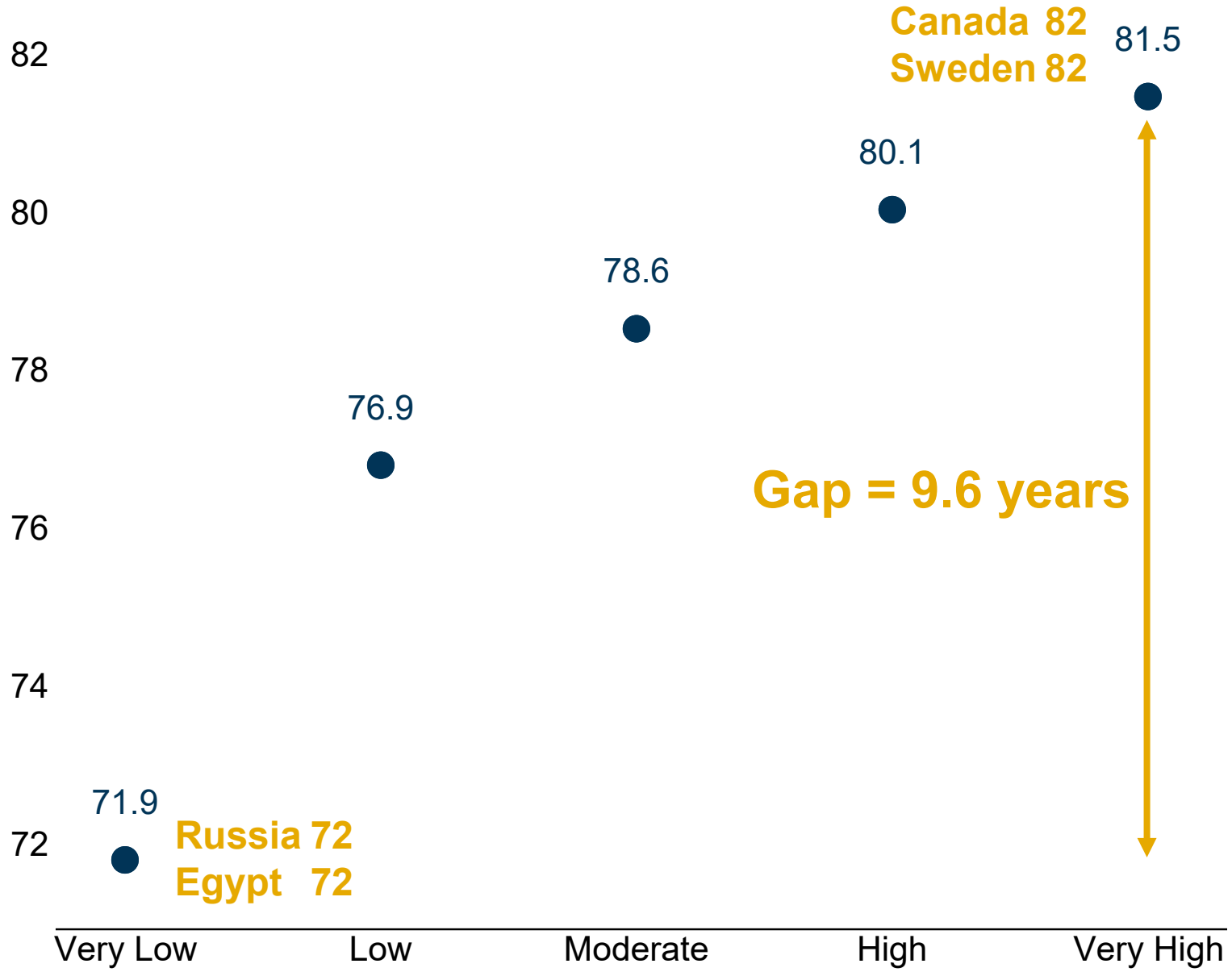
Measures of child opportunity should be associated with measures of how well children will do in the future

BALTIMORE-COLUMBIA-TOWSON METRO AREA

Life expectancy by Child Opportunity Level

The average number of years a person can be expected to live at birth

Child Opportunity Levels

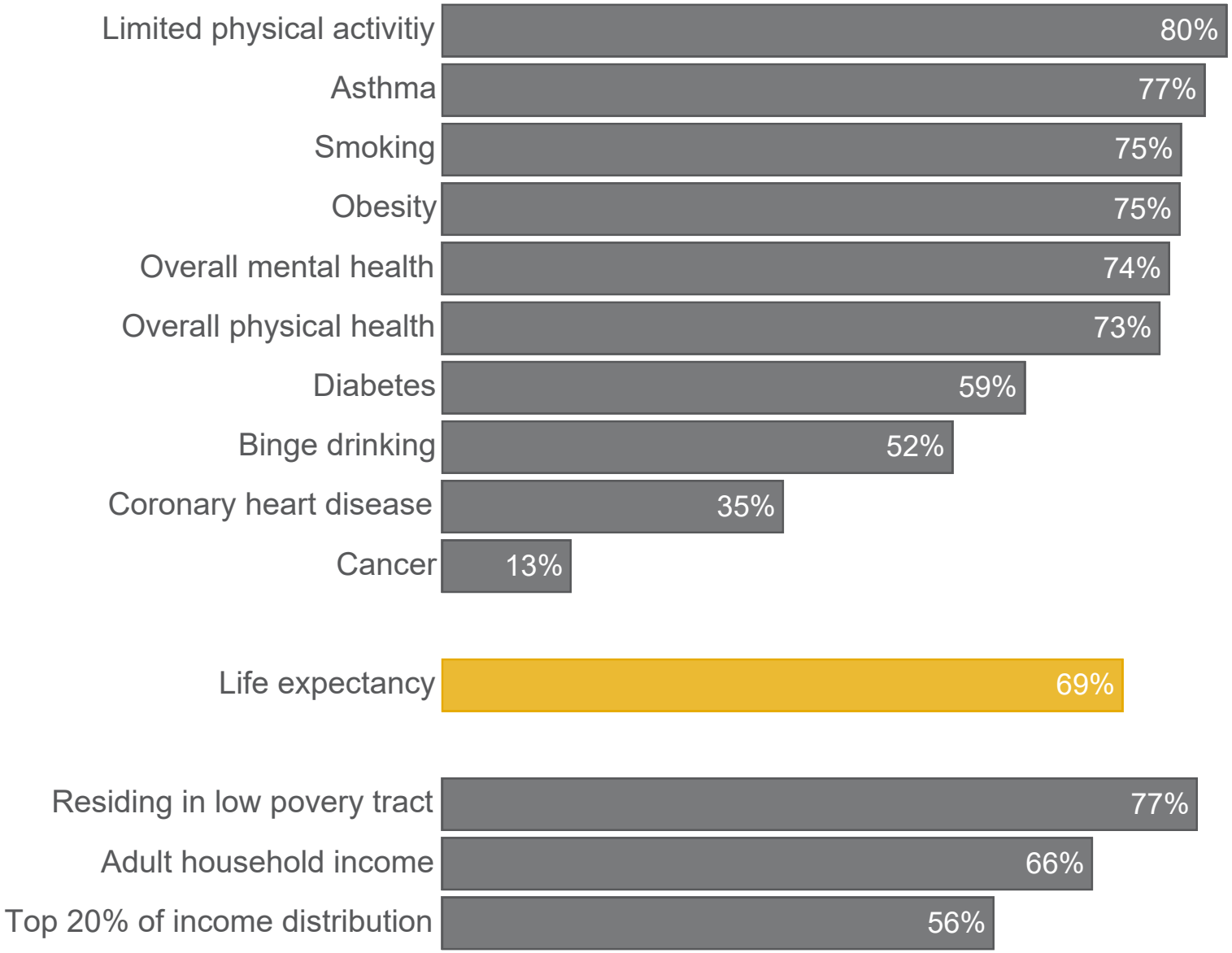


Sources: diversitydatakids.org, Child Opportunity Index 2.0 Database, 2015 metro normed Child Opportunity Levels; National Center for Health Statistics, United States Small-area Life Expectancy Estimates Project (USALEEP), World Bank.

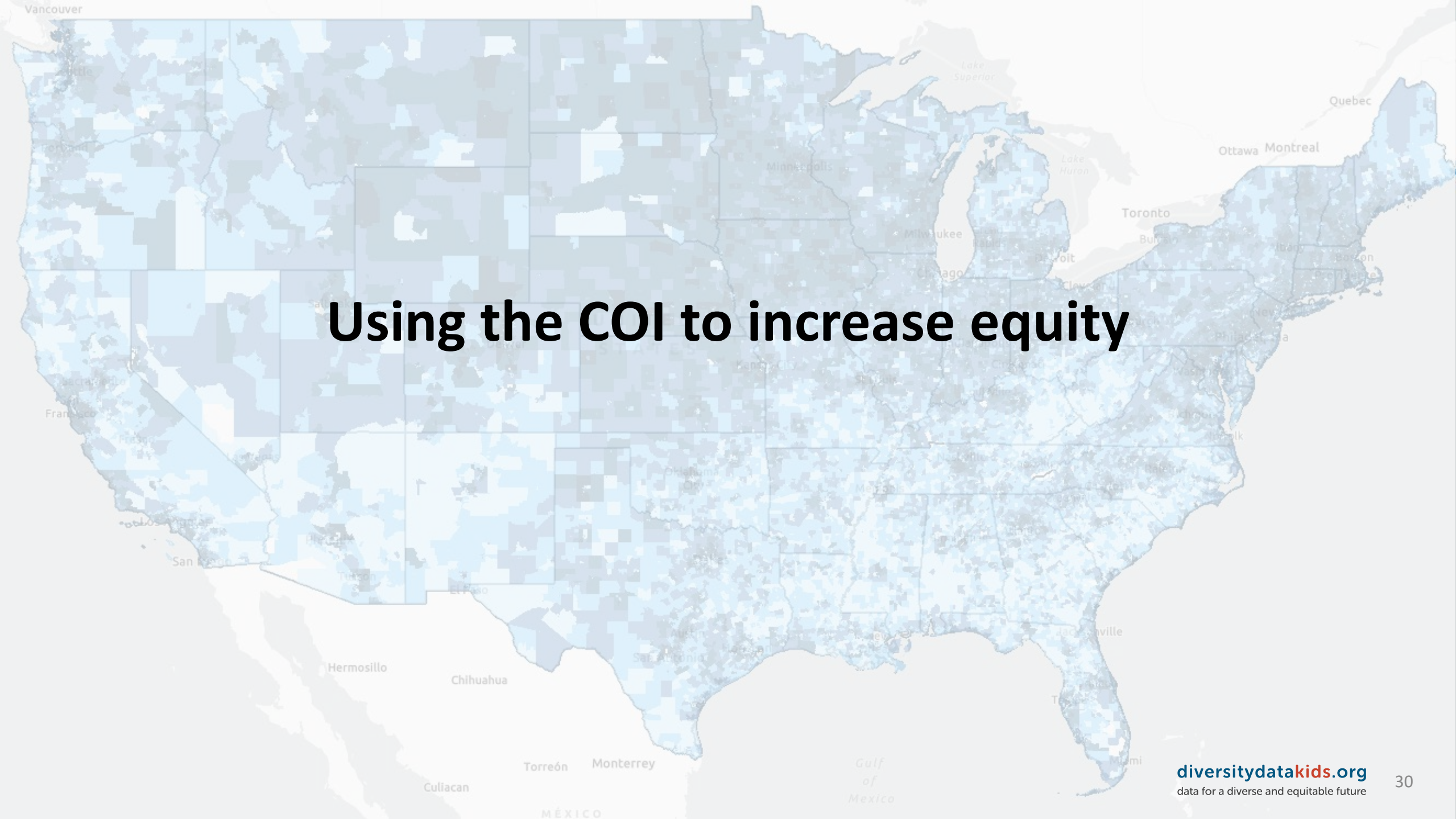
BALTIMORE-COLUMBIA-TOWSON METRO AREA

Percent variance in adult outcomes across neighborhoods accounted for by the COI

R^2 statistics from regressions of 14 health and socio-economic adult outcomes on COI 2.0 overall average z-score



Sources: diversitydatakids.org, Child Opportunity Index 2.0 Database. Chetty et al., Opportunity Atlas. NCHS, 500 Cities and USALEEP.



Using the COI to increase equity

Users

Academic researchers

Departments of public health

Hospitals

Local government agencies

Housing mobility projects

Community foundations

Media

Uses

Research

- Monitoring
- Benchmarking
- Measuring community assets and needs
- Studying associations between neighborhood opportunity and children's outcomes

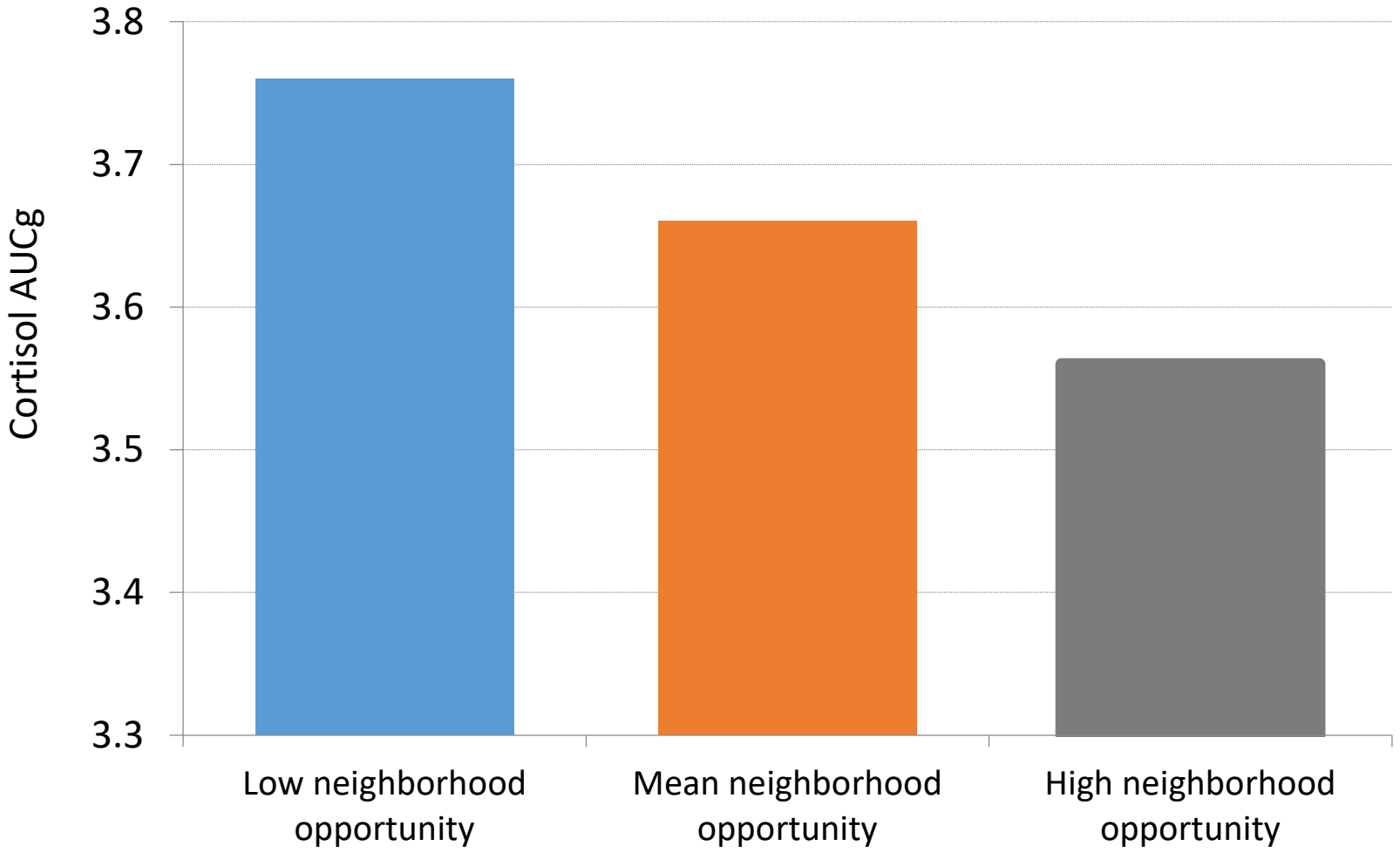
Decision making

- Data-driven place-based targeting of investments / services

Raising awareness within organizations, locally, and nationally

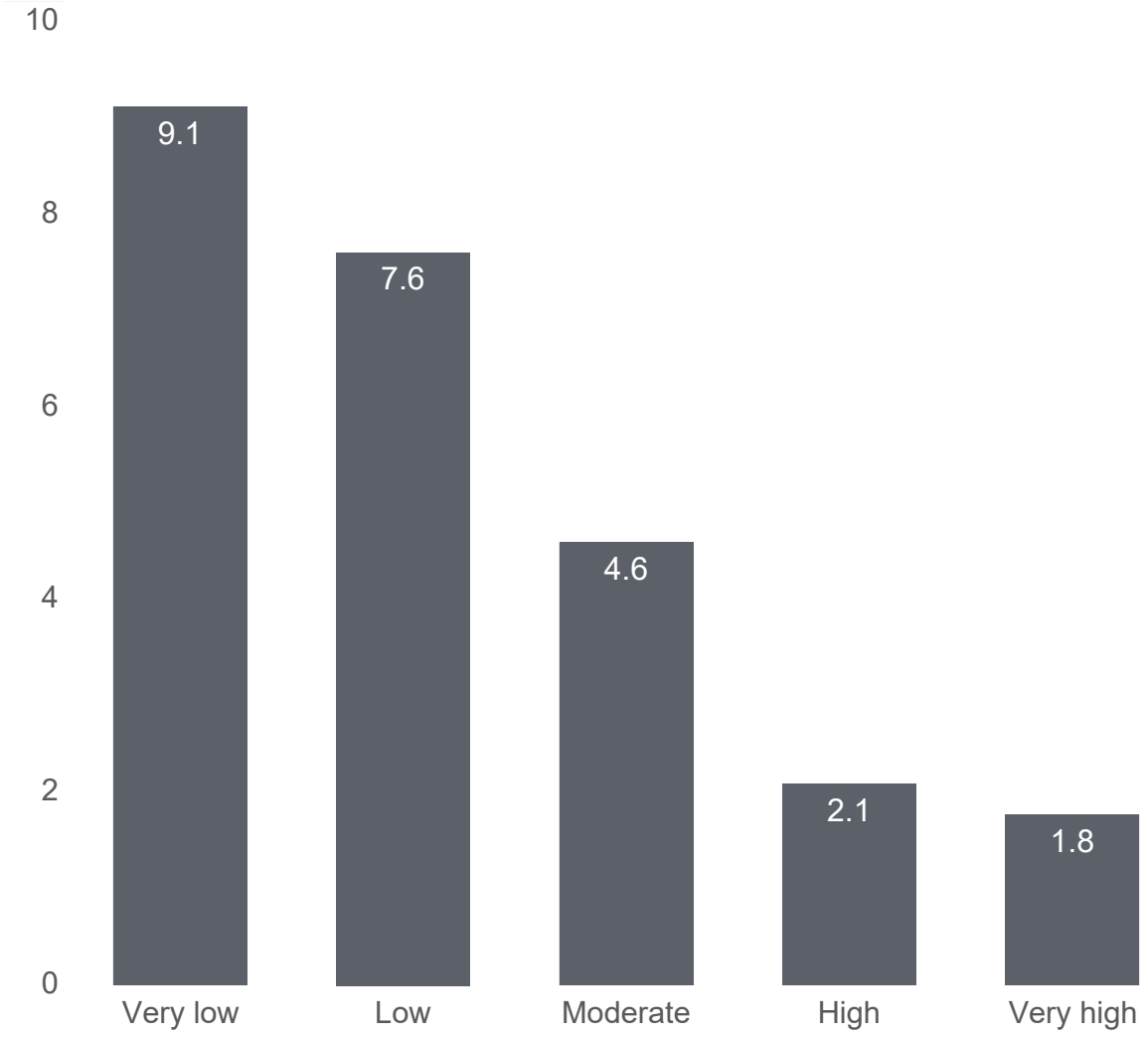
- Racial/ethnic justice, neighborhood and racial/ethnic inequities in access to opportunity

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



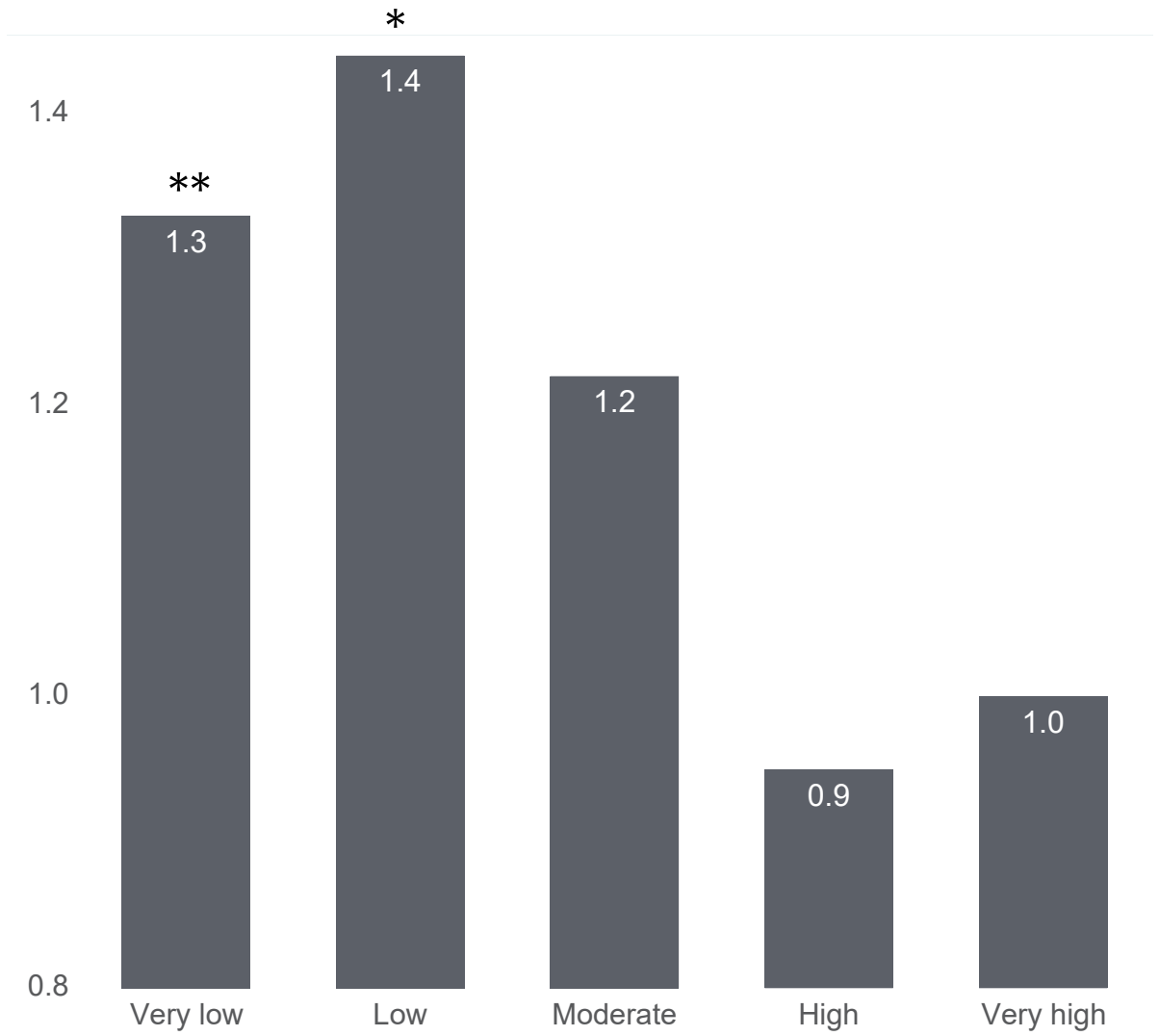
Roubinov, DS, et al. (2018). Family Socioeconomic Status, Cortisol, and Physical Health in Early Childhood: The Role of Advantageous Neighborhood Characteristics. Psychosomatic Medicine, 80(5), 492-501.

Rate of pediatric asthma hospitalizations is lower in higher opportunity neighborhoods



Beck, AF, et al. (2017). The Child Opportunity Index and Disparities in Pediatric Asthma Hospitalizations Across One Ohio Metropolitan Area, 2011-2013. *The Journal of Pediatrics, 190*, 200-206.e201. doi:10.1016/j.jpeds.2017.08.007

Children in lower opportunity neighborhoods have greater odds of acute care hospital admissions



Kersten, EE, et al. (2018). Neighborhood Child Opportunity and Individual-Level Pediatric Acute Care Use and Diagnoses. *Pediatrics, 141*(5), e20172309. doi:10.1542/peds.2017-2309

Moving Data to Action: Chicago Department of Public Health

Used COI in 2015 community health improvement plan:

Neighborhood-level analysis of health inequities across the city

Award of community seed grants

Targeting of place-based interventions

http://diversitydatakids.org/research-library/impact-story/moving-data-action-chicago

Lurie Children's Hospital, Chicago - Community Health Needs Assessments and Implementation Plans

2013

Did not address health equity or social determinants of health

No geographic focus for analysis

No geographic targeting for interventions

2016: Adopted COI for CHNA

2019

Racial equity framework

Prioritize lower-opportunity neighborhoods

Target two neighborhoods for interventions and work with community organizations

Address racism in health care

Rush University Medical Center, Chicago

Used COI in community health needs assessment:

Analyze causes of morbidity

Identify neighborhoods for interventions / provision of services

> *"What neighborhoods should we focus our community services on? Where are we sending our volunteers? Are they servicing the right neighborhoods based on what we know?*

Children's Hospitals

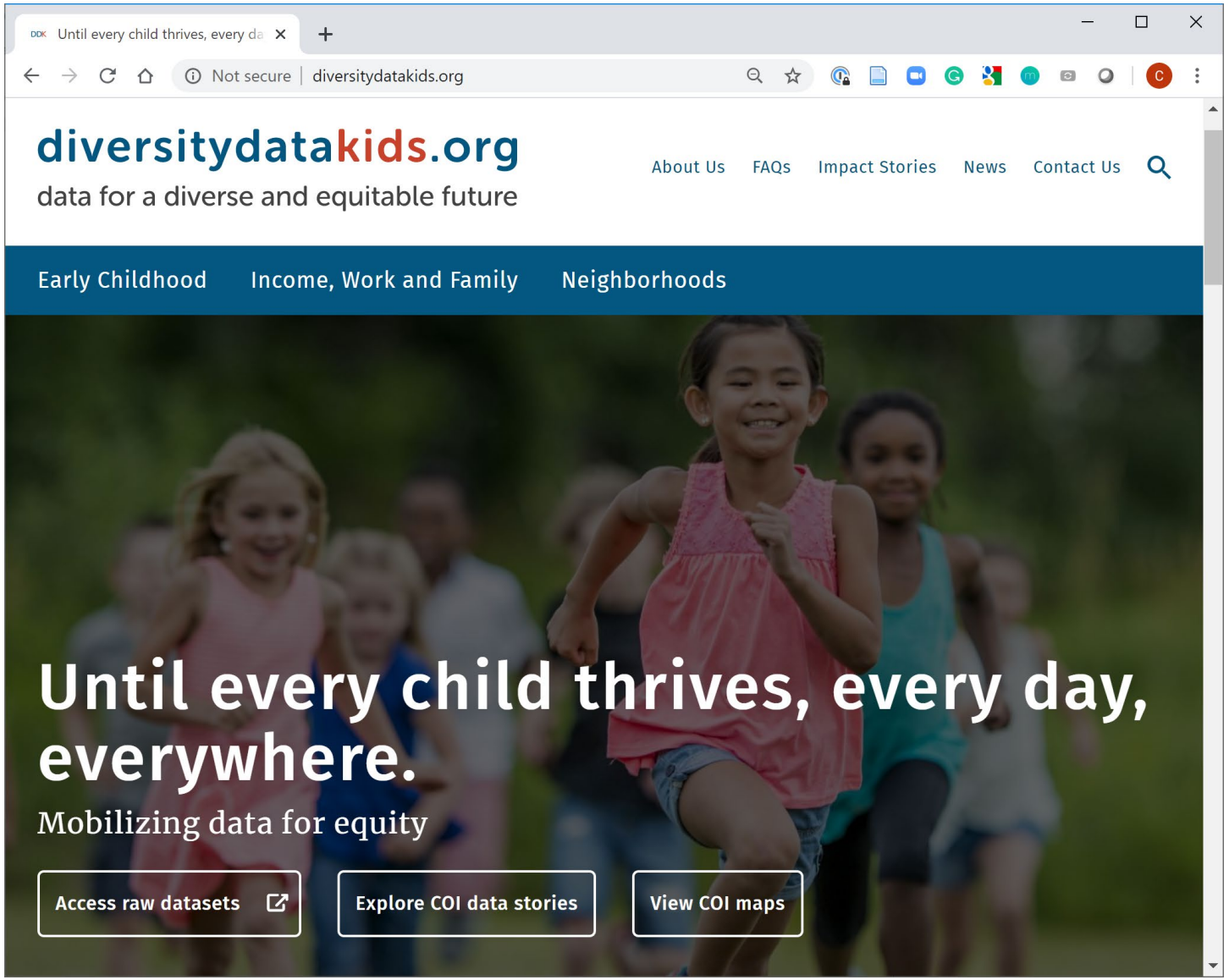
Collaboration with the Children's Hospital Association

Role of COI in Community Health Needs Assessments and related implementation

Adding COI information about children's neighborhoods to pediatric medical records

HOW TO ACCESS COI 2.0 DATA

- ✓ Go to diversitydatakids.org
- ✓ Click “Access raw datasets”
- ✓ Click “Child Opportunity Index 2.0 database”
- ✓ Preview/download dataset



Thank you!

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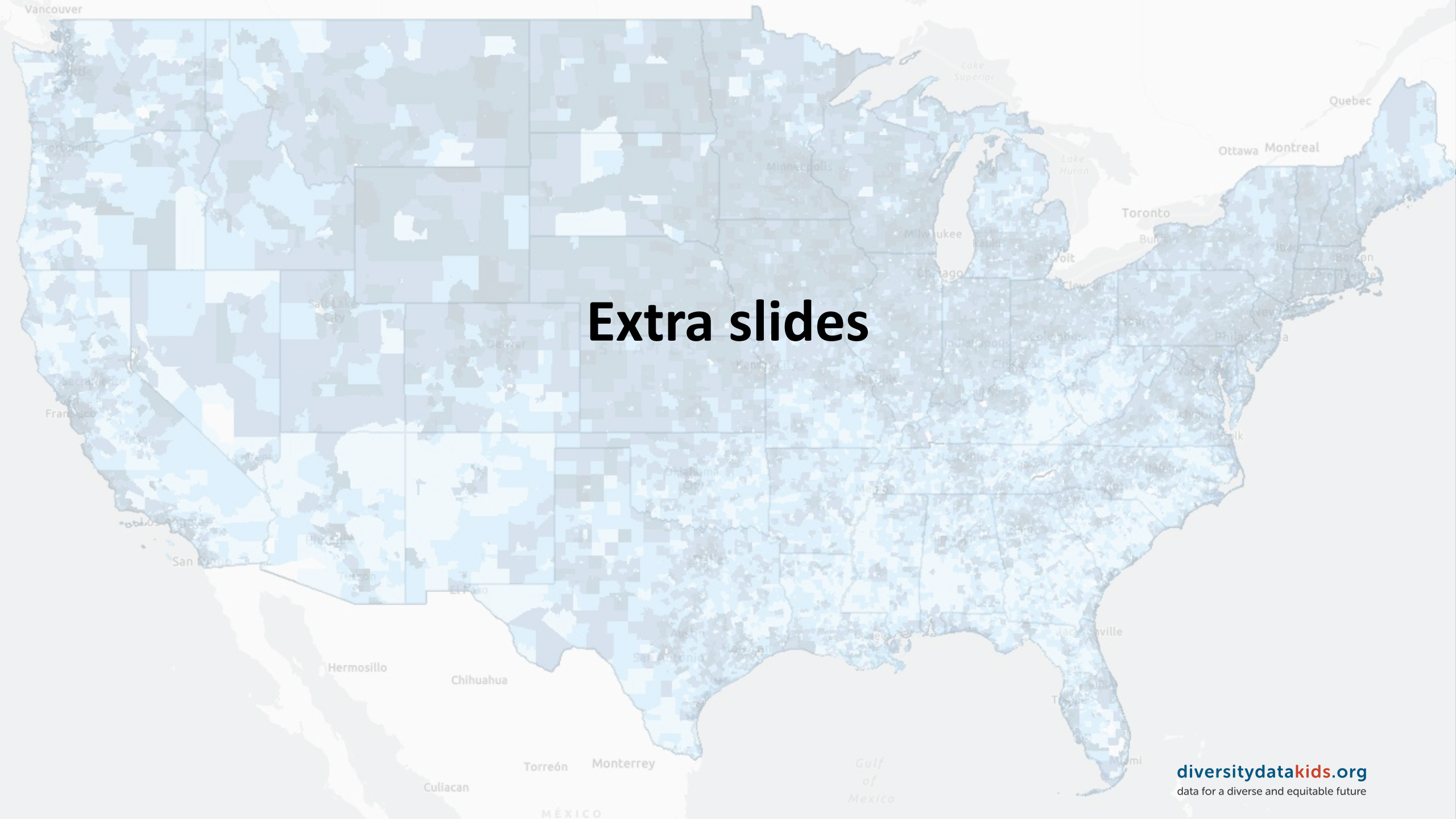
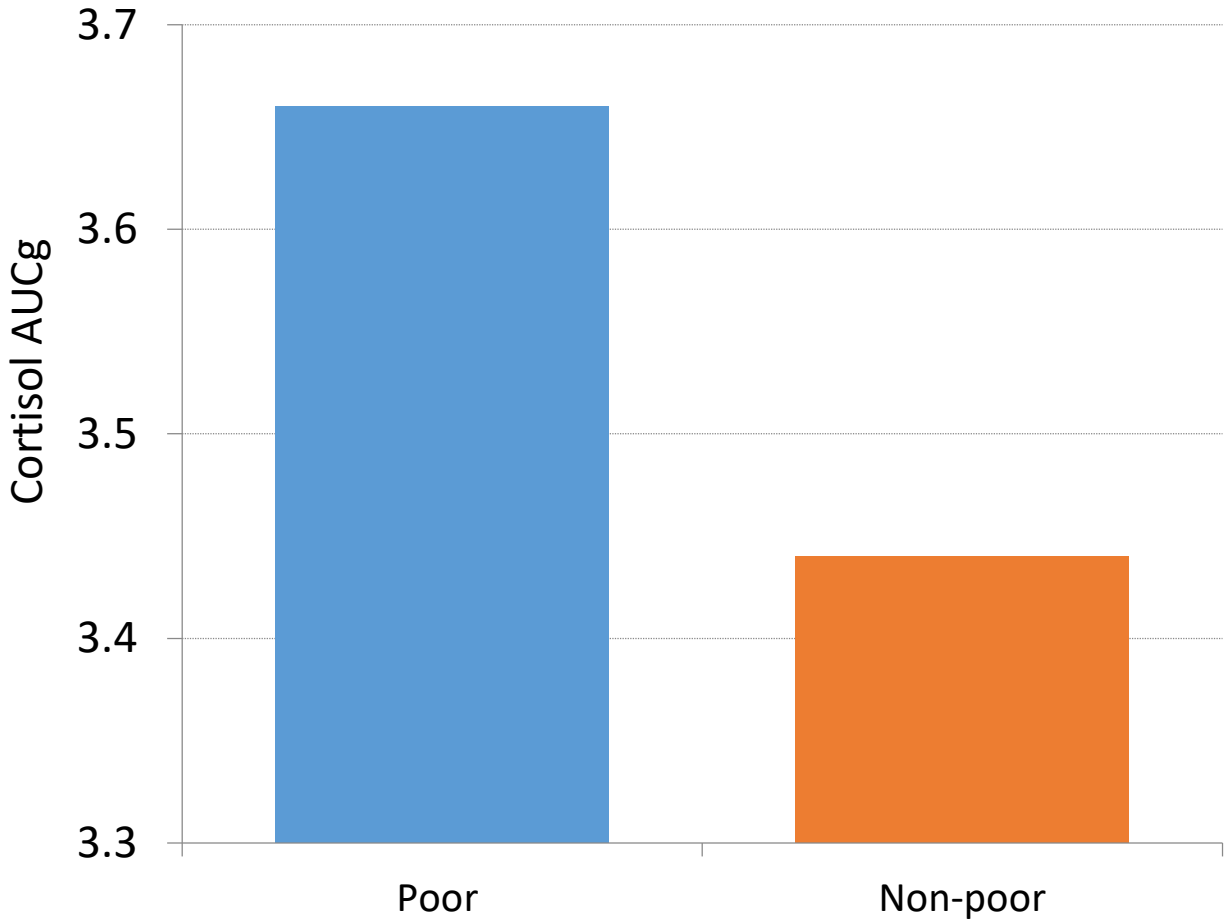
data for a diverse and equitable future



Extra slides

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



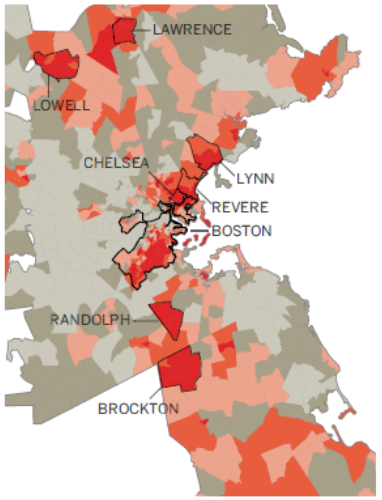
Roubinov, DS, et al. (2018). Family Socioeconomic Status, Cortisol, and Physical Health in Early Childhood: The Role of Advantageous Neighborhood Characteristics. Psychosomatic Medicine, 80(5), 492-501.

BOSTON SUNDAY GLOBE

Opportunity and subsidized housing

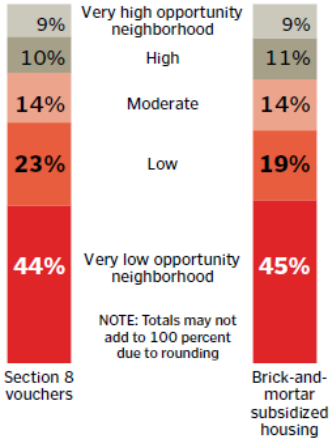
Brick-and-mortar subsidized housing tends to cluster in struggling neighborhoods. And so do the Section 8 housing vouchers that can, in theory, be used anywhere.

NEIGHBORHOOD OPPORTUNITY LEVEL



OPPORTUNITY INDEX

Just 9 percent of brick-and-mortar subsidized housing is in very high opportunity neighborhoods, with the best access to jobs, healthy food, and quality schools:



CNN health

How healthy is your neighborhood for your child? Take a look

by Sandee LaMotte, CNN

Vox EXPLAINERS POLITICS & POLICY WORLD CULTURE MORE

The enormous racial opportunity gap in America's metro areas

The Washington Post
Democracy Dies in Darkness

Economy

What shapes a kid's opportunities? Researchers say look to the neighborhood.

TIME

INEQUALITY

DATA

We Tried to Find the Most Equal Place in America. It Got Complicated

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AXIOS

Jan 22, 2020

America's hardest places to grow up

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npr

NATIONAL

In Nearly Every U.S. Metro Area, New Data Show Opportunity Lags For Kids Of Color

December 18, 2019 · 3:18 PM ET

U.S.News & WORLD REPORT NEWS

Childhood Opportunity Varies Dramatically by Neighborhood

A new report shows stark inequities in neighborhood conditions for children across the country, holding serious implications for later in life.

SECCIONES univision EN VIVO

TV SHOWS NOTICIAS FAMOSOS DEPORTES RADIO

SALUD INFANTIL

Cuando tu vecindario marca tu futuro: el mapa que retrata la gran desigualdad en EEUU

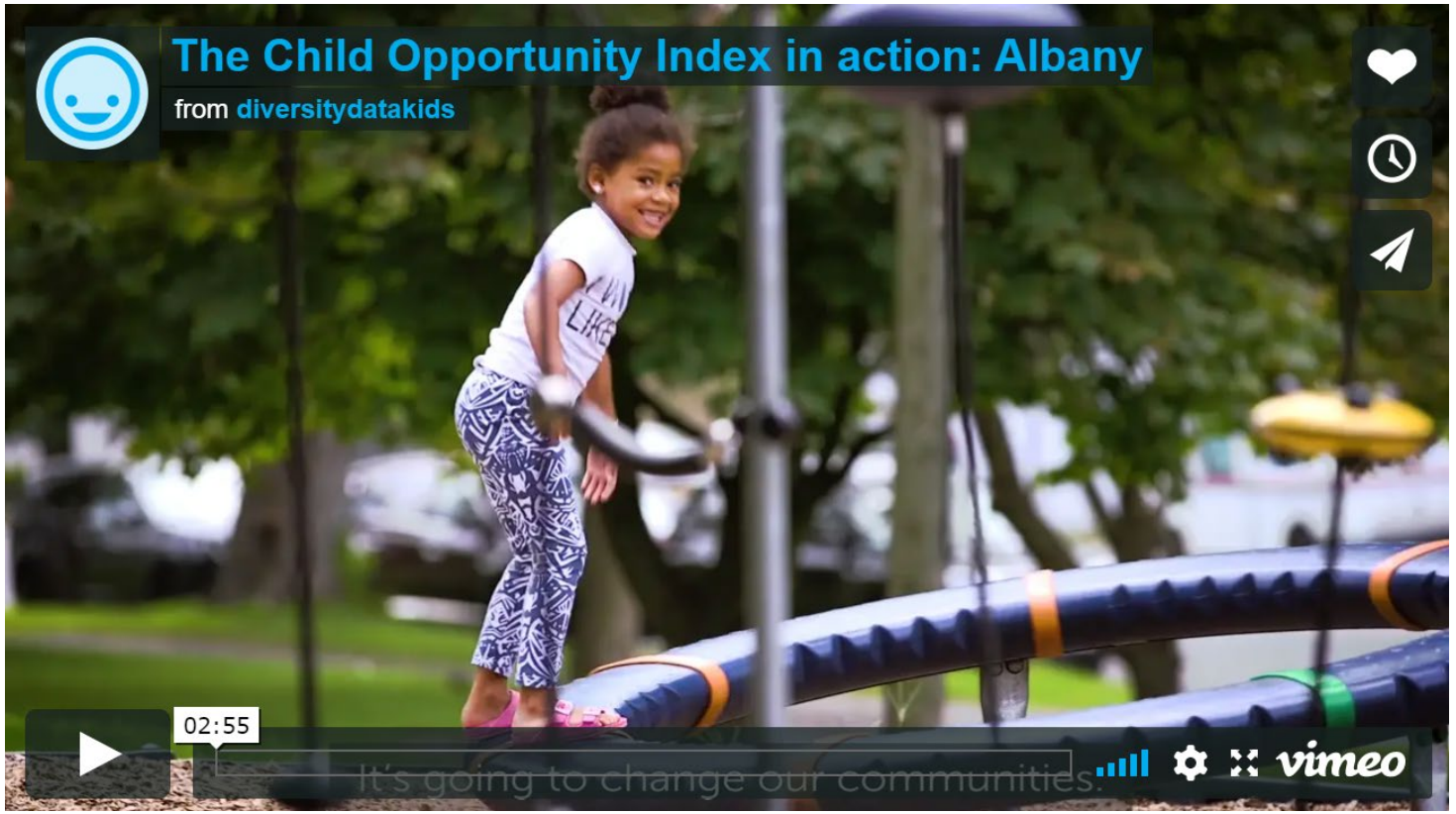
California cities rank among country's best and worst places to raise kids, study says

City of Albany, NY

“That data was my awakening. I was relatively new in the role, and the data showed me what my main focus needed to be: thinking about how to create more equitable neighborhoods.”

Jonathan Jones, Commissioner of Recreation, Youth and Services, Albany, NY

Five-year capital improvement plan to revitalize Albany’s highest used and most in-need parks and playgrounds



http://diversitydatakids.org/research-library/impact-story/keeping-kids-active-Albany
http://diversitydatakids.org/research-library/impact-story/watch-revitalizing-parks-and-playgrounds-albany

Juvenile Welfare Board, Pinellas County, Florida

Taxing authority supporting programs for children and youth, uses the COI to

Target services to areas of need

Monitor change over time

Identify issues/areas requiring further investigation

http://diversitydatakids.org/research-library/impact-story/digging-disparities-florida

Kids Data Center

JWB is a data-driven organization: we pursue innovation and use the latest research, professional knowledge, and best practices to address the needs of Pinellas County children and families. The Kids Data Center features key community indicators, child well-being data, and data stories designed to bring the numbers to life.

*PINELLAS CHILD WELL-BEING DATA SHEET

*PINELLAS CHILD WELL-BEING DATA SOURCE GUIDE

Pinellas Child Opportunity Index

The Pinellas Child Opportunity Index (PCOI) is a composite index designed to measure child opportunity and gauge the health of our neighborhoods at the census tract level. This research ranks every neighborhood on indicators that contribute to a child's healthy development. It provides a richer, more granular view than prior high-risk zones which were based on ZIP codes and focused on a singular variable: poverty.

Outcomes used for constructing weights

Socio-economic outcomes from Opportunity Atlas (Chetty et al.)

- Mean household income rank in adulthood (parents at median of parent income distribution)
- Probability of living in a low poverty census tract in adulthood (parents at median of parent income distribution)

Summary health outcomes from 500 Cities Project (CDC, RWJF)

- Mental health not good for 14 or more days among adults
- Physical health not good for 14 or more days among adults

Combining empirical and constant weights

Empirical weights reflect how well indicators predict outcomes

Need: Average causal effect for all indicators

Have: Estimated (conditional/unconditional) association between each indicator and tract-level SES and health outcomes in representative/recent data

Constant weights: Each indicator counts equally

Least worst solution in the absence of any information on what weights should be

For COI 2.0, we combined both approaches

We average empirical and constant weights to guard against bias in the empirical weights

Averaging empirical and constant weights shrinks large empirical weights and inflates small empirical weights towards a domain specific constant

Combining empirical and constant weights

How we calculate weights

Estimate bivariate correlation (Pearson's rho) between indicator z-scores (2010) and each of the four outcomes

Average rho's for each indicator j across outcomes (= rho_j)

Rescale rho_j to sum up to number of indicators in each domain

Calculate weight for indicator j as $w_j = (rho_j + 1) / 2$

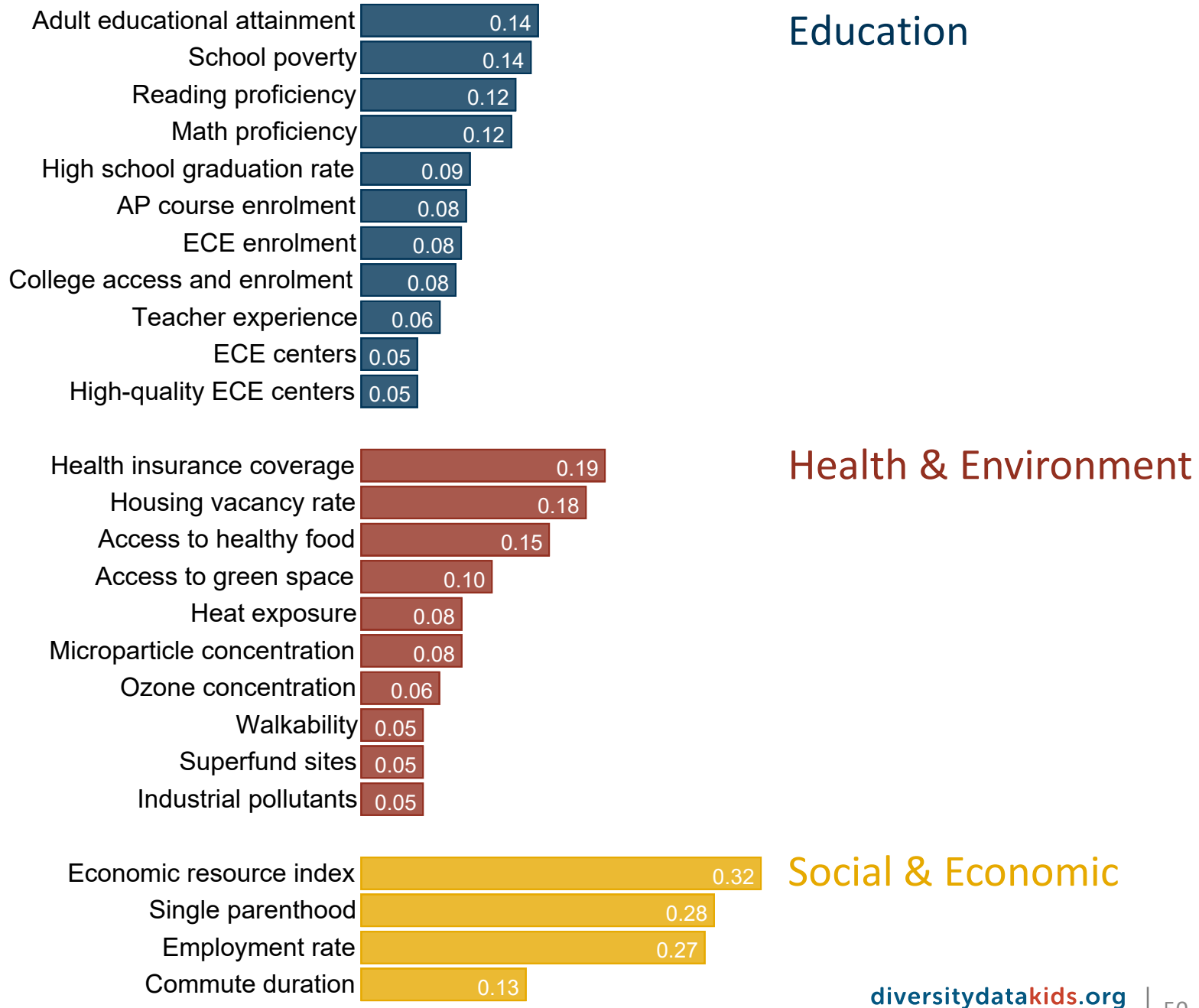
Rescale w_j to sum up to one in each domain

Sensitivity analyses

Re-estimate correlations with county fixed effects and controlling for economic resources and population density

Indicator weights by domain

Weights sum to one in each domain

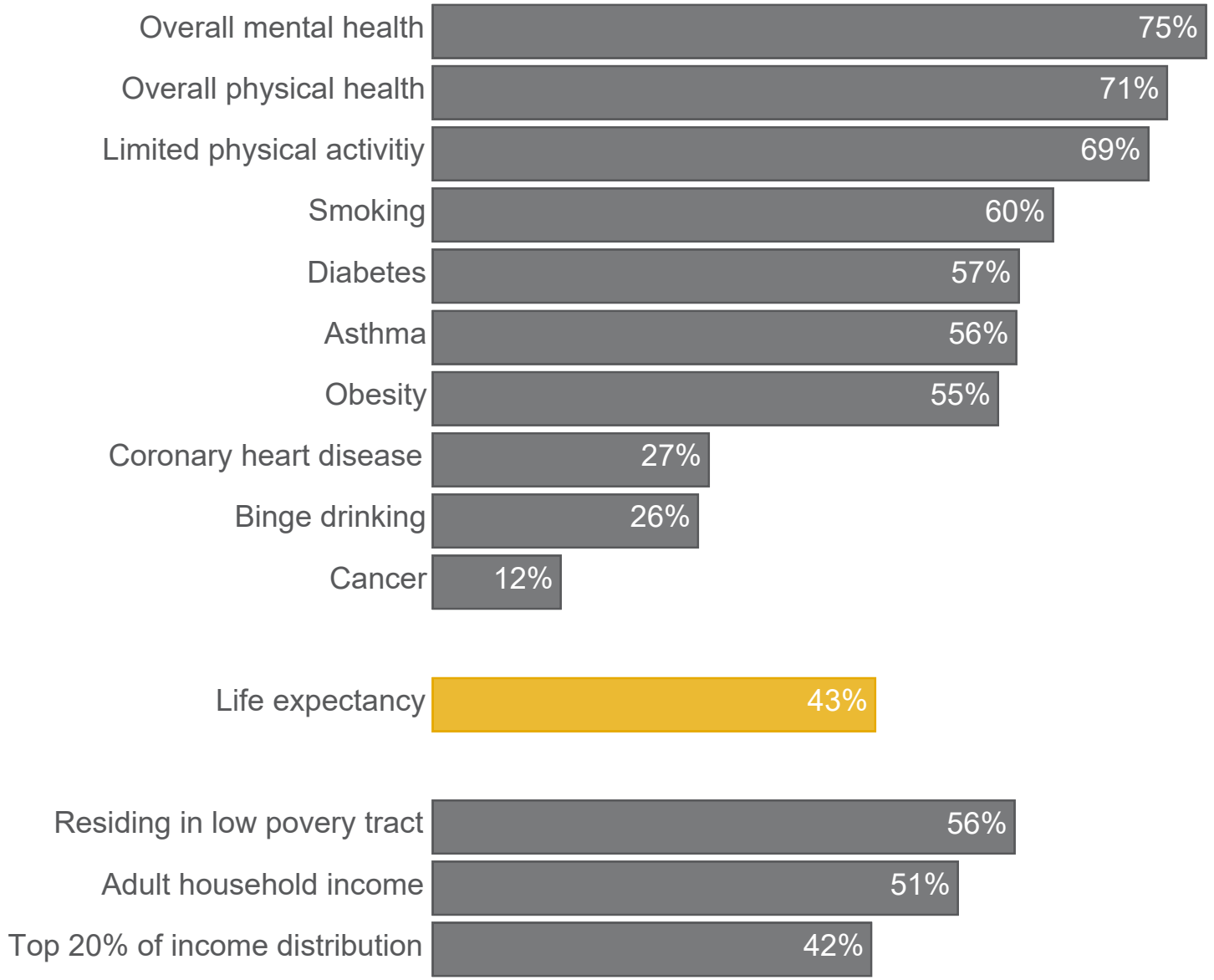


Sources: diversitydatakids.org

Percent variance explained across different outcomes

R^2 statistics from regressions of 14 health and socio-economic adult outcomes on COI 2.0 overall average z-score

Data for all US census tracts



Sources: diversitydatakids.org, Child Opportunity Index 2.0 Database. Chetty et al., Opportunity Atlas. NCHS, 500 Cities and USALEEP.

Next steps: Root causes of racial/ethnic inequality

Link racial/ethnic inequities in child neighborhood opportunity to past and present policies

- To demystify segregation as an inevitable feature of American metros and cities

Explore whether differences in extent of inequities in neighborhood opportunity are due to past racist policies such as redlining