

Ohio Children's Opportunity Index: Version 3

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Executive Summary

The Ohio Children's Opportunity Index (OCOI) Version 3 (V3) represents an updated metric designed to assess neighborhood conditions associated with the health and well-being of children. The OCOI aggregates these conditions into a single Index score, reflecting overall neighborhood opportunity for healthy growth. The Index is disaggregated into eight domains: Family Stability, Infant Health, Child Health, Access to Health-Related Resources, Education, Housing, Environment, and Crime. This update, developed in State Fiscal Year 2025, marks the third version of the OCOI, with updates occurring biennially.

Data for the OCOI was collected at the census tract level across Ohio. The data sources include various state and federal agencies, such as the Ohio Department of Medicaid, Ohio Department of Health, and the American Community Survey, among others. The measures were compiled by the Ohio Colleges of Medicine Government Resource Center (GRC) at The Ohio State University Wexner Medical Center.

The construction of the OCOI involved several procedural steps. First, the domains of opportunity were selected based on their relevance to healthy growth. Indicators within each domain were refined, with updates to the most current data available. Missing values were addressed using a geographically-based imputation method. Variables were standardized and aggregated within each domain. Finally, domain scores were combined to form the overall Opportunity Index Score, ranging from 0 to 100.

The results of the construction procedures include various outputs for verification and validation. The OCOI V3 shows strong positive correlations with previous versions of the Index and the CDC's Social Vulnerability Index, indicating its validity. The update primarily involved refreshing data and refining domain measures, enhancing the accuracy and defensibility of the Index.

Despite its strengths, the OCOI has limitations. First, while the domains are equally weighted in the overall Index, they may not contribute equally to overall opportunity. Second, the Index has a Medicaid focus due to the data sources used. Third, the Index

scores are not intended to be comparable across versions. Finally, the Index should not be used to infer individual risks—it is a broad-strokes tool to represent area opportunity.

In summary, the OCOI Version 3 provides a comprehensive and updated tool for assessing neighborhood conditions affecting children's health and well-being in Ohio. The refinements and updates enhance its utility for strategic planning, targeting interventions, and resource allocation.

Background

The Ohio Children's Opportunity Index is an area-focused metric that aggregates neighborhood conditions known to be associated with health and well-being into a single index score. It is intended to represent overall neighborhood opportunity for the healthy growth of children. The neighborhood conditions are grouped into eight domains, each with a distinct relevance to opportunities for healthy growth. The Index can be disaggregated into distinct domain scores (e.g., housing, family stability) for a more nuanced perspective of an area. The OCOI is available at the census tract, zip code tabulation area, and county levels of geography, and is intended for enhancing strategic planning, supporting research studies, targeting interventions, or allocating resources.

We have written this brief report as documentation of our update of the OCOI to its third version (Version 3, developed in SFY2025) as part of an ongoing process in which we update the OCOI every second year. We wrote the report to largely focus on high level details of the methods and what has changed from Version 2 to Version 3 of the OCOI. The sections below include the procedural steps of constructing the Index, some data output that results from the procedures for the purpose of verifying and validating the product, and brief closing discussion.

Data and Methods

We collected data about factors related to healthy growth and well-being at the census tract level across Ohio. Census tracts, which are geographical subdivisions of counties, typically encompass approximately 4,000 residents each. Due to shared neighborhood characteristics within a given census tract, they are frequently used by federal and state agencies as boundaries for collecting aggregated area-based information. Census tract boundaries are updated every ten years and were last updated in 2020. Ohio had 3,168 census tracts in 2020. We attempted to collect data about all tracts in Ohio for all measures. However, 10 tracts have zero population, and data for those tracts typically have unclear meaning or do not exist. Moreover, data can be missing from populated tracts as well. We nevertheless applied a score to all tracts including these with missing

data, which was achieved with a geographically based imputation method described among the methodological steps below along with a rationale for doing so.

We acquired data for the OCOI from various state and federal sources and time frames: the Ohio Department of Medicaid (2023-2024), Ohio Longitudinal Employer-Household Dynamics (2019-2023), Ohio Department of Health (2022-2023), the Ohio Department of Education and Workforce (2023-2024), the Ohio Department of Public Safety (2022-2023), the American Community Survey (2020-2024), the United States Department of Agriculture (2017-2021), the Trust for Public Land (2016-2025), the Environmental Protection Agency (2019-2020), Federal Emergency Management Agency EJSCREEN (2024), and the Federal Communications Commission (2024). The Ohio Colleges of Medicine Government Resource Center at The Ohio State University compiled the measures used for the construction of the OCOI.

Domains and Variables

Informed by the Relative Deprivation Theory of Poverty, developed by Peter Townsend at the Townsend Centre for International Poverty Research at the University of Bristol, we implemented a multi-domain approach, where “domains” encompassed a set of variables related to socioeconomic, health, and environmental influences that were tied to each domain concept. The OCOI Version 3 included 54 constituent measures distributed across eight domains: family stability, infant health, child health, access to health-related resources, education, housing, environment, and crime. Our definitions of each domain and brief descriptions of each variable included in them are provided in section called Step 2 among the procedures described below.

Procedures Constituting the Construction of the Children’s Opportunity Index

Step 1: Select Domains of Opportunity

The following eight domains – each carried over from OCOI versions 1 and 2 and consistent across all three versions were used to compose the multi-domain construct

reflecting socioeconomic, health, and environmental factors in Ohio that signal the likelihood of healthy growth of children in an area: family stability, infant health, child health, access to health-related resources, education, housing, environment, and crime.

Step 2: Select or Refine Indicators to Measure Each Domain

Below, we describe the indicators selected for each domain. We highlight indicators that were new or removed for OCOI Version 3. Those that were carried over were updated to the most current data available. We have also summarized the commonalities and differences between Versions 2 and 3 of the OCOI in terms of measure inclusion and domain assignment in Tables 1.1 through 1.8.

Family stability: This domain assesses the consistency and quality of structural and relational features of families living in a neighborhood. *Structural stability* refers to the physical living conditions and daily routines that create a predictable and secure environment for children. *Relational stability* involves the emotional and interpersonal relationships within the family that affect a child's emotional and psychological development. Stable family environments support emotional and social development and are crucial for providing consistent care and security that positively influence children's outcomes in other areas of life. The family stability domain contains seven variables, including adult caretakers with serious mental illness, adult caretakers with substance use disorder diagnosis, child poverty rate, proportion of single parent households, area job density, unemployment, and median income. Job density (earlier in the access domain) was moved to the family stability domain in the OCOI Version 3 reflecting locally accessible sources of family income.

Infant health: This domain focuses on the health conditions of infants in a community. Healthy infants are more likely to develop into healthy children, and good health at this stage lays the foundation for healthy physical and cognitive development, influencing long-term well-being and capabilities. The infant health domain contains seven variables, including infant mortality, infant injury rate, neonatal abstinence syndrome rate, NICU stay rate, preterm birth rate, adequate well-child visits in the first 15 months of life, and mothers' severe maternal morbidity rate.

Child health: This domain extends beyond infancy to look at the broader health and wellness of children into adolescence. Good health during these years is vital for enabling children to maximize their educational opportunities and engage fully in social and physical activities. The presence of chronic conditions in children may affect their overall development. The child health domain contains eight variables, including child developmental delay rate, adequate well-child visits for children 3-6 years old, child asthma rate, child mental illness rate, child developmental diagnosis rate, child diabetes rate, child obesity rate, child psychotropic behavioral health medication rate.

Accessibility of health-related resources: This domain focuses on availability and proximity of health-related resources that are critical for a child's development. The name of this domain changed since Version 2, where it was referred to as "Access." The new name reflects a stronger focus on resources that support healthy development. High accessibility to resources allows children to grow in a healthy environment, supports educational attainment, and fosters well-rounded development. This domain contains five variables, including public transit utilization, households with no vehicle, accessibility to a supermarket, accessibility to pediatric care, and accessibility to behavioral health services. Access to pediatric care, access to behavioral health, and public transit utilization were three new variables added to the OCOI Version 3; job density was moved to the family stability domain due to a theoretically more direct impact to stability than to health resources. The average commute time was removed from the OCOI because it does not clearly add useful information to this Index of health opportunity. Finally, the measure capturing distance to the closest elementary schools was moved from this domain to the education domain; while it made sense in a domain called "Access," the new focus of this domain on access to health-related resources led us to consider distance to school a more educationally-focused measure.

Education: This domain assesses the quality, accessibility, and outcomes of educational institutions within or most-near to the neighborhood. Education is a primary driver of socio-economic mobility and is essential for providing children with the skills and knowledge they need to succeed in adulthood. The education domain contains nine variables, including distance to elementary school, distance to preschool, distance to a

public library, adult high school education, proportion of children not enrolled in school, reading ability, high school graduation rate, school performance index, and residential internet connection infrastructure availability. Residential internet connection availability, distance to preschool, distance to elementary school, and distance to public library were new variables added to OCOI Version 3 to capture additional nuances about educational opportunities in an area. Use of free or reduced lunch services was removed because theoretically it measures need rather than an opportunity in the form of a gap-filling service, and need is measured in other ways within the Index. The school value-add index was also removed due to its similarity with the school performance index (still included) and because the value-add index is measured at the school district level, somewhat complicating its use in the OCOI.

Housing: This domain assesses the quality, affordability, and stability of living conditions. Secure and quality housing reduces stress, supports stable family life, and enhances overall well-being, making it easier for children to focus on educational and personal growth. The housing domain contains six variables, including mortgage distress, rent distress, household overcrowding rate, housing stability, vacant housing, and proportion of households renting. The older-housing variable (capturing houses built before 1980), which is intended as a proxy measure for lead exposure risk, was moved to the environment domain in OCOI Version 3, as it was a better fit given its function in the Index.

Environment: This domain considers the built, structural, and ecological aspects of a neighborhood. A healthy environment reduces the risk of health problems related to pollution and provides safe spaces for children to play and learn, thereby supporting physical and mental health. The environment domain contains six variables, including older housing (lead exposure risk), non-cancer health risk from air quality, cancer risk from air quality, average distance to the nearest park, the walkability index, and levels of particulate matter of 2.5 micrometers (PM_{2.5}) or less. The PM_{2.5} levels variable was added to OCOI Version 3 to capture additional information about air quality. Two variables were removed since OCOI Version 2. First, data about areas known to have toxic algal blooms is no longer available in a form that can be included in the Index.

Second, a measure capturing the percent of land that has high density urban landcover was also removed due to ambiguity in what it measured about health opportunity.

Crime and Safety: This domain measures the safety of the neighborhood through crime rates. Ideally, we would supplement crime measures with indicators of community cohesion as well, but these are challenging to find at a census tract level of precision. Safer neighborhoods provide environments where children can move freely, interact socially, and engage in outdoor activities without fear, significantly impacting their mental health and sense of community belonging. The crime and safety domain contains six variables, including burglary and larceny rates, drug and narcotic violation rates, crime rates associated with drunkenness and driving under the influence, homicide and assault rates, robbery rates, and sexual offense rates.

Step 3: Imputation for Individual Measures

We addressed missing values for each measure within each domain with the following imputation procedure. We replaced a missing value for a tract with the mean value from its adjacent neighbor tracts. In the rare instance where these neighboring tracts also lacked data, we extended the calculation to include those neighbors' adjacent neighbors.

Ten census tracts have a population of 0. These tracts may contain airports, universities, or only water. Therefore, their measure values do not meaningfully represent the experiences of any people or communities. Opportunity scores are intended to be meaningful regarding people living in the associated area. As such, it may not be necessary to have a reasonable domain or opportunity score in tracts where people do not live. However, with consideration of the possibility of errors when geocoding the location of analytic units (e.g. Medicaid members) in a study or project that uses the OCOI, having reasonable opportunity values for tracts in which no one truly resides could be valuable. Since the values of census tracts with 0 population are sometimes extreme, missing, and not representative of any people, we set value of all measures for these tracts to missing. We then apply the same imputation procedure as we do to missing values in other tracts (impute the mean of neighboring tracts).

Step 4: Standardization of Variables and Combined Domains

As in OCOI Version 2, we sourced all variables at the Census tract level or a lower level of geography (e.g., block level or point locations). To consolidate all variables within a domain into a singular measure (i.e., a domain score), we first converted them into z-scores by dividing them by their own standard deviation. To ensure that larger (more positive) values and smaller (more negative) values had comparable meanings with respect to opportunity across all indicators, we flipped some z-scores by multiplying by -1 . The standardized variables values for each tract were then aggregated using an unweighted per-tract mean of all the variables in each domain within each Census tract. This resulted in an unstandardized domain score reflecting the average of individual measures within one domain for each tract. Subsequently, domain scores were standardized to a mean of zero and a standard deviation of one (i.e., a z-score). These standardized domain scores are published with the OCOI data package.

Step 5: Ranking and Transformation of Domain Scores

When combining domain scores to form an overall index, we followed previous iterations of the OCOI by transforming domain scores prior to combination. The purpose of the transformation was to impart a desirable property (described below) to the Index scores. The transformation first ranked the values in each domain and divided the ranks by the number of tracts to get scores in the range 0 to 1 (*adjusted rank score*) with 1 being the most deprived score. This resulted in a uniform distribution of scores that was then transformed into an exponential distribution for the purpose of combining into an overall OCOI using the following formula:

$$\text{domain score} = -23 * \log(1 - \text{adjusted rank score} * (1 - e^{-\frac{100}{23}}))$$

The exponential form of the domain scores is positively skewed in such a way that when multiple transformed domain scores are averaged together (as they are when combined to form the overall Index), a low level of opportunity with respect to one domain cannot be completely cancelled out by a correspondingly high level of opportunity on just one other domain. It will require more than one high-opportunity domain to counterbalance the depriving effect of a single low-opportunity domain. The domain scores that are

transformed in this way are not provided in the published data file because we do not recommend their use individually. We instead provide simple standardized domain scores, which can be used to reproduce the transformation described above.

Step 6: Combining Domains into a Measure of Opportunity

Finally, domain scores were added together and divided by the number of domains (8). The result was flipped so that higher values represented more opportunity and then rescaled to range from 0 to 100. The result constitutes the OCOI Score.

Results

Products of the construction procedures include various outputs intended to verify and validate the procedures and the resulting OCOI. These outputs are generated as HTML documents that are associated with this report as two appendices.

Appendix A provides a thorough description of every individual measure in each of the domains. The data descriptions are organized in tabs by domain. For each tabbed domain, the appendix includes a numeric description of each variable, a visual correlation heatmap describing the bivariate relationships among the variables in the domain, a choropleth map of each measure to visualize the geographic distribution, and a textual description of the measure and its source.

Appendix B provides the code that was used to construct the OCOI, descriptions or visualizations of intermediate calculations, a visual representation of correlations among the domain scores, choropleth maps of domain scores and the overall Index, and evidence of validity of the resulting Index.

We assessed the validity of the Index by calculating correlations between the OCOI Version 3 with other measures of opportunity for healthy living or deprivation. The calculations indicate the OCOI Version 3 has strong positive and statistically significant correlations with the Ohio Opportunity Index (OOI) Version 3 ($r = 0.81$) and the previous OCOI Version 2 ($r = 0.84$). The OCOI Version 3 also correlates strongly and statistically significantly with the 2024 National Child Opportunity Index 3.0 ($r = 0.74$). The latter correlation is notably weaker than those with other versions of the OOI and OCOI, likely

because of differing sets of measures, inclusive of Ohio-focused measures derived from Vital Statistics and Medicaid administrative data that are not available nationwide for a national index. The Centers for Disease Control's Social Vulnerability Index was also strongly correlated with the OCOI Version 3 ($r = -0.66$), but in a negative direction due to the opposing meanings of the two indices. This correlation is again weaker than the others, presumably for the same reason the National Child Opportunity Index was, but with the addition that the Social Vulnerability Index has a more general focus, as opposed to having a child focus. Thus, the OCOI Version 3 appears to be valid from the perspective that it clearly has much in common with other measures intended to capture similar constructs.

We also sought evidence of validity by evaluating the correlation of the OCOI Version 3 with a measure that theoretically ought to be correlated with OCOI Version 3, but that was not necessarily intended to measure the same construct. We used the Economic Connectedness measure from Opportunity Insights Social Capital Atlas (<http://socialcapital.org>), which measures the degree to which people with low socioeconomic status (SES) are socially connected to people with high SES, based on friendship data from Facebook. The intention of the measure is to capture the likelihood that friendship ties in an area are supportive of financial growth and opportunity. The correlation was statistically significant ($r = 0.22$) suggesting the OCOI Version 3 does explain geographical differences in economic connectedness that can provide exposure and opportunities to children and families for economic growth.

Summary

This update of the Ohio Children's Opportunity Index from the previous Version 2 to the current Version 3 consisted primarily of two types of updates. First, we updated all individual measures for which new data has become available since OCOI Version 2. This version is, therefore, more up to date regarding current conditions in Ohio's neighborhoods. The second type of update included explicitly defining each domain and refining the measures that constitute each domain. This refinement started with the specification of written nominal definitions of each domain. These definitions then acted as a guidepost for the search and selection of new variables, and the operationalization

of each variable that we ultimately included. In some cases, these guides led us to remove a variable that did not fit, was duplicative, or where it was unclear what purpose the measure was serving. In sum, this update took an important step forward in the refinement of the OCOI that lends a higher degree of confidence in its accuracy and an enhanced defensibility of the many choices that must be made in the construction of this kind of tool.

Limitations

We are aware of a few notable limitations to the OCOI. First, the eight domains are unlikely to contribute equally to overall opportunity. Nevertheless, we combined the domains with equal weight when creating the overall score. This choice followed an analysis of quantified expert opinions about the relative importance of domains and a corresponding examination of a differently weighted version of the OCOI version 2. We found that the average weights provided by the experts did not deviate greatly from an equal weighting scheme. We also found minimal statistical and geographic differences between an unweighted version and an expert-weighted version, which led us to the simpler option of an unweighted combination scheme. More details about this choice are described in the report included with the data for version 2 of the OCOI.

Second, the measures that include *health-related diagnoses* (e.g., proportion of children ages 6-17 with a diagnosis of asthma) only contained data from Medicaid service records or Vital Statistics data from Medicaid members as opposed to services and records for all Ohioans. This results in a Medicaid focus on the Index, which may be considered a benefit to some and a limitation to others.

Third, the Index and domain scores are not intended to be comparable across versions of the Index. It is therefore not justifiable to compare for a specific tract or group of tracts a value from version 2 of the OCOI to the same value in version 3. This is due to the nature of the Index being a *relative* index of opportunity across areas as opposed to an *absolute* index in which an individual index score is interpretable in and of itself. The values assigned to tracts do not have an inherent absolute meaning. They only have meaning relative to the values of other tracts in the same version of the Index.

Finally, individuals living in census tracts vary in their experiences of health opportunities. Therefore, this Index should not be used to infer an individual's risks with any level of certainty. The OCOI score for an area represents aggregate patterns in factors associated with healthy living.

Table 1.1 Children's Opportunity Index Domains and Brief Variable Definitions– Family Stability Domain

Variable	COI Version 2 Variables	COI Version 3 Variables	2025 Changes
Adult Caretaker with Serious Mental Illness (SMI) Diagnosis	Among adults served by Medicaid and living in a household with children, the proportion with an SMI diagnosis	Among adults served by Medicaid and living in a household with children, the proportion with an SMI diagnosis	None
Child Poverty Rate	The proportion of children 17 years or younger for whom poverty status is determined, with income in the last 12 months below poverty level.	The proportion of children 17 years or younger for whom poverty status is determined, with income in the last 12 months below poverty level.	None
Single parent household	Proportion of births that include no father's first/middle/last name	Proportion of households with children under 18 years of age that are headed by a single parent (either male or female)	Measure revised. New measure from ACS
Adult Caretaker with Substance Use Diagnosis	Proportion of adults served by Medicaid and living in a household with children who also have an SUD diagnosis	Proportion of adults served by Medicaid and living in a household with children who also have an SUD diagnosis	None
Job Density	NA	Number of jobs in census tract divided by the total land area of the tract (reversed).	Variable added in OCOI Version 3
Unemployment	The proportion of individuals 16 years and older among the civilian labor force that are unemployed.	The proportion of individuals 16 years and older among the civilian labor force that are unemployed.	None
Median Income	Median household income in the past 12 months (in 2023 inflation-adjusted dollars) among occupied households (reversed).	Median household income in the past 12 months (in 2023 inflation-adjusted dollars) among occupied households (reversed).	None

Table 1.2 Children's Opportunity Index Domains and Brief Variable Definitions – Infant Health Domain

Variable	COI Version 2 Variables	COI Version 3 Variables	2025 Changes
Infant Mortality	Proportion of births that resulted in an infant mortality	Proportion of births that resulted in an infant mortality	None
Infant Injury Rate	Proportion of infants (< 1 years. old) served by Medicaid who had an injury or poisoning in the first year of life	Proportion of infants (< 1 years old) served by Medicaid who had an injury or poisoning in the first year of life	None
Neonatal Abstinence Rate	Proportion of infants (< 1 years. old) served by Medicaid with neonatal abstinence syndrome	Proportion of infants (< 1 years old) served by Medicaid with neonatal abstinence syndrome	None
NICU Stay Rate	Proportion of infants (< 1 years. old) served by Medicaid who experienced a NICU stay	Proportion of infants (< 1 years old) served by Medicaid who experienced a NICU stay	None
Preterm Birth Rate	Proportion of infants born preterm	Proportion of infants born preterm	None
Well-Child Criteria Met in First 15 Months of Life	Proportion of children aged 0-15 months served by Medicaid with six or more well-child visits in the first 15 months of life	Proportion of children aged 0-15 months served by Medicaid with a well-child visit rate consistent with six or more well-child visits in the first 15 months of life (reversed)	Modified to be based on a <i>rate</i> of well-child visits to avoid a requirement that only kids observed for the entirety of their first 15 months of life could be included
Mother Serious Maternal Morbidity Rate	Proportion of infants born to Medicaid-enrolled women with severe maternal morbidity	Proportion of infants born to Medicaid-enrolled women with severe maternal morbidity	None

Table 1.3 Children's Opportunity Index Domains and Brief Variable Definitions – Child Health Domain

Variable	COI Version 2 Variables	COI Version 3 Variables	2025 Changes
Child Developmental Delay Rate	Proportion of Medicaid-enrolled children ages 1–5 with a diagnosis of developmental delay including sight and hearing impairment	Proportion of children aged 1-5 served by Medicaid with a diagnosis of developmental delay including sight and hearing impairment	None
Well-Child Criteria Met in Children 3-6 Years Old	Proportion of children aged 3-6 served by Medicaid with at least one well-child visit	Proportion of children aged 3-6 served by Medicaid with at least one well-child visit (reversed)	None
Child Asthma Rate	Proportion of Medicaid-enrolled children ages 6–17 with a diagnosis of asthma	Proportion of Medicaid-enrolled children ages 6–17 with a diagnosis of asthma	None
Child Mental Health Condition Rate	Percent of Medicaid-enrolled children ages 6–17 with a diagnosis of mental health issue	Percent of Medicaid-enrolled children ages 6–17 with a diagnosis of mental health issue	None
Child Developmental Diagnosis Rate	Proportion of Medicaid-enrolled children ages 6–17 with a diagnosis of a developmental diagnosis	Proportion of Medicaid-enrolled children ages 6–17 with developmental diagnosis	None
Child Diabetes Rate	Proportion of Medicaid-enrolled children ages 6–17 with a diagnosis of diabetes	Proportion of Medicaid-enrolled children ages 6–17 with a diagnosis of diabetes	None
Child Obesity Rate	Proportion of Medicaid-enrolled children ages 6–17 with a diagnosis of obesity	Proportion of Medicaid-enrolled children ages 6–17 with a diagnosis of obesity	None
Child Psychotropic Behavioral Health (BH) Medication Rate	Proportion of Medicaid-enrolled children ages 6–17 who received psychotropic BH medication	Proportion of Medicaid-enrolled children ages 6–17 who received psychotropic BH medication	None

Table 1.4 Children's Opportunity Index Domains and Brief Variable Definitions – Accessibility of health-related resources

Variable	COI Version 2 Variables	COI Version 3 Variables	2025 Changes
Commute Time	Average commute time	NA	Variable removed in OCOI Version 3
Distance to Physical Elementary School	Weighted average of the distance from block centroids to the nearest school, weighted by block population.	NA	Variable moved to the Education domain
Job Density	Number of jobs in census tract divided by the total land area of the tract (reversed).	NA	Variable moved to the Family Stability domain in OCOI Version 3
No Vehicle	Percent households in tract without a vehicle	Percent households in tract without a vehicle	None
Supermarket Access	Average of block level indicator of low food access, determined by population living 1 mile from nearest supermarket in urban areas, and 10 miles from nearest supermarket in rural areas, weighted by block population	Average of block level indicator of low food access, determined by population living 1 mile from nearest supermarket in urban areas, and 10 miles from nearest supermarket in rural areas, weighted by block population	None
Access to Behavioral Health Facility	NA	Rate of children on Medicaid with access to 10 or fewer behavioral health Medicaid providers. Only behavioral health providers who saw at least 10 Medicaid members in 2023 within a 15-minute drive are considered accessible to Medicaid providers.	Variable added in OCOI Version 3
Access to Pediatric Health Care	NA	Rate of children on Medicaid with access to 10 or fewer pediatric health Medicaid providers. Only pediatric health providers who saw at least 10 Medicaid members in 2023 within a 20-minute drive are considered accessible to Medicaid providers.	Variable added in OCOI Version 3
Public transit Usage	NA	Proportion of workers 16 years or older in households, who use public transportation (excluding taxicab) to get to work (reversed)	Variable added in OCOI Version 3

Table 1.5 Children's Opportunity Index Domains and Brief Variable Definitions – Education

Variable	COI Version 2 Variables	COI Version 3 Variables	2025 Changes
Distance to Physical Elementary School	NA	Weighted average of the distance from block centroids to the nearest elementary school, weighted by block population.	Variable moved from what used to be called the Access domain in OCOI Version 3
Distance to Physical Preschool	NA	Weighted average of the distance from block centroids to the nearest preschool, weighted by block population.	Variable added in OCOI Version 3
High School Education	The proportion of individuals between the ages 25 and 64 that have less than a high school graduate education.	The proportion of individuals between the ages 25 and 64 that have less than a high school graduate education.	None
Children Not Enrolled in School	The proportion of the population between 5 and 17 years who are not enrolled in public or private school	The proportion of the population between 5 and 17 years who are not enrolled in public or private school	None
Reading Ability	Average of the proportion of Kindergarten through third grade students who met reading standards. The average is taken over all elementary schools in the census tract, unless there are less than three schools in the census tract, in which case the average also includes the nearest elementary schools up to three schools (reversed).	Average of the proportion of Kindergarten through third grade students who met reading standards. The average is taken over all elementary schools in the census tract, unless there are less than three schools in the census tract, in which case the average also includes the nearest elementary schools up to three schools (reversed)	None
Variable	COI Version 2 Variables	COI Version 3 Variables	2025 Changes
Free or Reduced Lunch Rate	Average of the proportion of students with reduced price lunch.	NA	Variable removed from OCOI Version 3
High School Graduation Rate	Average of the proportion of students that graduate. The average is taken over all high schools in the census tract, unless there are less than three high schools in the census tract, in which	Average of the proportion of students that graduate. The average is taken over all high schools in the census tract, unless there are less than three high schools in the census tract, in	None

	case the average also includes the nearest high schools up to three schools (reversed).	which case the average also includes the nearest high schools up to three schools (reversed).	
Variable	COI Version 2 Variables	COI Version 3 Variables	2025 Changes
School Performance Index	Average of the performance index of all schools in the census tract, unless there are less than three schools in the census tract, in which case the average also includes the nearest schools up to three schools (reversed).	Average of the performance index of all schools in the census tract, unless there are less than three schools in the census tract, in which case the average also includes the nearest schools up to three schools (reversed).	None
School Value Add Index	Average of the value-added index of all schools in the census tract, unless there are less than three schools in the census tract, in which case the average also includes the nearest schools up to three schools (reversed).	NA	Variable removed from OCOI Version 3
Public Library Access	NA	Average distance to the nearest public library weighted by block population	Variable added in OCOI Version 3
Residential Internet Connection Availability	NA	The proportion of individuals living in a tract where the infrastructure facilitates the purchase a 300mbps or greater internet connection	Variable added in OCOI Version 3

Table 1.6 Children's Opportunity Index Domains and Brief Variable Definitions – Housing

Variable	COI Version 2 Variables	COI Version 3 Variables	2025 Changes
Mortgage Distress	The proportion of owner-occupied mortgaged housing units in which the total ownership cost is worth more than 50% of the household income.	The proportion of owner-occupied mortgaged housing units in which the total ownership cost is worth more than 50% of the household income.	None
Overcrowding Rate	The proportion of occupied housing units with more than 1 occupant per room.	The proportion of occupied housing units with more than 1 occupant per room.	None
Rent Distress	The proportion of renter-occupied housing units in which gross rent is worth more than 50% of the household income.	The proportion of renter-occupied housing units in which gross rent is worth more than 50% of the household income.	None
Proportion Renting	The proportion of individuals living in renter-occupied housing units among the population 1 year and over in households.	The proportion of individuals living in renter-occupied housing units among the population 1 year of age and over in households.	None
House Stability	The proportion of individuals who have moved within the last year among the population 1 year and over in households.	The proportion of individuals who have moved within the last year among the population 1 year of age and over in households.	None
Vacant Housing	The proportion of housing units that are vacant.	The proportion of housing units that are vacant.	None

Table 1.7 Children's Opportunity Index Domains and Brief Variable Definitions – Environment

Variable	COI Version 2 Variables	COI Version 3 Variables	2025 Changes
Older Housing	The proportion of occupied housing units built before 1980.	The proportion of occupied housing units built before 1980.	None
Non-Cancer Health Risk	Average of the respiratory, neurological, liver, developmental, reproductive, kidney, ocular, endocrine, hematological, immunological, skeletal, spleen, thyroid, and whole-body hazard quotients.	Average of the respiratory, neurological, liver, developmental, reproductive, kidney, ocular, endocrine, hematological, immunological, skeletal, spleen, thyroid, and whole-body hazard quotients.	None
Cancer Risk	Cancer risk per million people.	Weighted average of cancer risk per million people, weighted by block population.	Data are reported at the census block level for OCOI Version 3 as opposed to census tract level
Toxic Algal Bloom Proximity	Weighted average of the log of the number of times a block is within 30 miles of an algal bloom, plus the number of times a block is within 30 miles of an algal bloom, weighted by block population.	NA	Variable removed from OCOI Version 3
Average Distance to Nearest Park	Average of distance to nearest park from block centroid, weighted by block population.	Average of distance to nearest park from block centroid, weighted by block population.	None
Walkability Index	Weighted average of walkability index by block, weighted by block population (reversed).	Weighted average of walkability index by block, weighted by block population (reversed).	None
Percent High Density Urban Landcover	Proportion of given area that is covered by urban development characterized by high density.	NA	Variable removed from OCOI Version 3
PM 2.5 Levels	NA	Levels of fine inhalable particles of size 2.5 micrometers or smaller.	Variable added to OCOI Version 3

Table 1.8 Children's Opportunity Index Domains and Brief Variable Definitions – Crime

Variable	COI Version 2 Variables	COI Version 3 Variables	2025 Changes
Burglary and Larceny Rates	Rate of reports of larceny, burglary, embezzlement, blackmail, identify theft, vehicle theft, shoplifting, and credit card fraud per person.	Rate of reports of larceny, burglary, embezzlement, blackmail, identify theft, vehicle theft, shoplifting, and credit card fraud per person.	None
Drug and Narcotic Violation Rates	Rate of reports of drug and narcotic violations per person.	Rate of reports of drug and narcotic violations per person.	None
Drunkenness and DUI Rates	Rate of reports of driving under the influence and drunkenness per person.	Rate of reports of driving under the influence and drunkenness per person.	None
Homicide and Assault Rates	Rate of reports of assault, murder, and manslaughter per person.	Rate of reports of assault, murder, and manslaughter per person.	None
Robbery Rates	Rate of reports of pocket-picking, purse-snatching, and robbery per person.	Rate of reports of pocket-picking, purse-snatching, and robbery per person.	None
Sexual Offense Rates	Rate of reports of sexual offenses including rape, sexual battery, or gross sexual imposition.	Rate of reports of sexual offenses including rape, sexual battery, or gross sexual imposition.	None

