Strategies for Investing in Opportunity

Methodology

This document describes the methodology used in the tool in greater detail. It discusses indicator development, data sources, and analyses undertaken.

Indicator Development

Within each opportunity capital category and for overall neighborhood desirability, the empirical indicators chosen to represent these concepts were those that were considered to be the most theoretically predictive, a good fit using confirmatory factor analysis, and available at the census tract level. For each indicator, each neighborhood is standardized by area quintile position and assigned a score relative to its overall position in the area. Neighborhoods are represented by census tracts and 'areas' are represented by 2015 core based statistical areas (CBSAs) or if not in a CBSA, all tracts in the state not currently in a CBSA. This process yielded a value of one through five with a neighborhood receiving a one if it is located in the area quintile with the lowest values and five if it is located in the area quintile with the highest values. For indicators in which high values are undesirable (eg. percent in poverty), quintile positions were reversed so that a value of five always indicates the most desirable position. Adjusted quintile positions, one through five, were then summed by category to represent a neighborhood's relative position to other area neighborhoods across all category indicators. Neighborhoods were then again assigned to their area quintile based on this total, with a value of five representing the highest quintile. In this way, neighborhoods do not receive a raw score per se, but a score representing their relative position to other neighborhoods in their area. If a neighborhood was missing data for one indicator within a category and there were at least ten census tracts in the area, the summed quintile score was calculated based on the remaining available indicators. If a neighborhood was missing data for more than one indicator within a category or was located in a CBSA with fewer than ten census tracts, its quintile position was not determined in order to eliminate bias based on low variation within the area.

Previous to scale construction, confirmatory factor analysis was used to validate indicator choices within each category. Models composed of various potential indicators were assessed based on a number of goodness of fit statistics including the overall model chi square value, the root mean squared error or approximation (RMSEA), the comparative fix index (CFI), and the coefficient of determination (CD). Final models yielded the best 'goodness of fit' measures as well as strong theoretical importance.

Opportunity Capital Indicators

The opportunity capital indicators selected for this analysis fall into four main categories, which represent core concepts considered by scholars to be significant contributors to economic mobility and wellbeing: labor market access, educational opportunity, health outlook, and transit access. The indicators, theoretical rationale, source, and studies supporting their inclusion are listed below. Indicators with a '+' sign indicate that a higher value positively affects the overall opportunity score, while a '-' sign indicators that a higher value negatively affects the opportunity score. Again, quintiles were reversed for indicators with negative impacts, so that the fifth quintile is always the best outcome when the indicators are added to create an overall scale.

Labor Market Access Indicators

Neighborhood Indicator	*Rationale*	Source	Reference
+ Percent of workers with less than a 30 minute commute	*A higher percent of workers with shorter commutes should mean that there are more jobs available within that area.*	American Community Survey 2014-2018	Chetty et al. (2017)[1]
+ Local job access	*A higher number of jobs per person in an area should make it easier to find work.*	HUD Location Affordability Index 2012-2016	Jin (2018)[2]; Andersson, et al. (2014)[3]
+ Labor force participation rate	*Actual labor force participation. A higher rate of people working should mean that jobs are more prevalent in that area.*	American Community Survey 2014-2018	Solignac, (2016)[4]
- Unemployment rate	*The higher the unemployment rate, the more difficult if might be to find jobs in an area.*	American Community Survey 2014-2018	Weinberg, et al. (2004)[5]
+ Percent of adults with a high school degree or more	*The higher percent of people with the labor force capital needed for entry level professional jobs, the more these jobs may be available in an area. Professional jobs would tend to pay higher wages.*	American Community Survey 2014-2018	

Educational Opportunities Indicators

Neighborhood Indicator	*Rationale*	Source	Reference
+ Percent of 4th graders at grade reading/math level	*A higher percent of students meeting schooling expectations should be related to higher school quality and a higher percent of students ready for academic advancement.*	HUD School Proficiency Index 2017	Chetty, et al. (2017)[6]
- Student-teacher ratio of closest school	*A lower student-teacher ratio should increase teacher attention, which should lead to better educational outcomes for students.*	National Center for Education Statistics Common Core of Data 2015-2016	Chetty, et al. (2011)[7]
+ ACT/SAT completion rate	*A higher percentage of students taking college-prep exams should suggest better preparation for college by the local school and a greater likelihood for academic advancement.*	USDE Civil Rights data 2015-2016	
+ Percent ages 3-5 enrolled in school	*A higher percent of students engaged in early education should signal a focus on learning and lead to better educational outcomes.*	American Community Survey 2014-2018	Morrissey, (2017)[8]

Transit Access Indicators

Neighborhood Indicator		Source	Reference
+ Percent of workers using Public Transit to Commute	*A higher percent of people using public transit should signal that the neighborhood is accessible via public transit.*	American Community Survey 2014-2018	Pendall, (2015)[9]
+ Percent of households with at least one vehicle	*A higher percent of households with at least one vehicle suggests that more households have the ability to access jobs from their neighborhood via driving.*	American Community Survey 2014-2018	
- Distance to CBSA centroid	*The closer the neighborhood is to the area center, the more central it is and the easier it should be to access jobs and services.*	Census 2010	

- Average commuting time	*The lower the average commuting time, the closer the neighborhood is to jobs via transit.*	American Community Survey 2014-2018	Chetty et al. (2017)[10]

Health Outlook Indicators

Neighborhood Indicator	*Rationale*	Source	Reference
- Cancer Risk	*The lower the cancer risk, the more likely that the neighborhood is free from environmental hazards that cause cancer and subsequent labor force interruptions.*	Environmental Justice Mapping and Screening Tool 2019	Correia, (2013)[11]; Stingone, (2016)[12]
- Percent of homes built before 1960	*The fewer homes built before 1960, the less likely they will contain lead, asbestos or other health hazards.*	American Community Survey 2014-2018	Jacobs, (2002)[13]
- Number of Risk Management Plan sites within 5km	*The fewer industrial sites handling materials that require an EPA risk management plan, the more likely the neighborhood is free from potential environmental hazards.*	Environmental Justice Mapping and Screening Tool 2019	Garcia-Perez, (2015)[14]; Benedetti, (2001)[15]; Geschwind, (1992)[16]; Bulka, (2013)[17]
+ Number of primary care doctors per person	*The more doctors per person, the more quickly and regularly person may be able to see a physician and avoid health-related job disruptions.*	National Plan and Provider Enumeration System (NPPES) Data Dissemination July 2020	Zerehi, (2008)[18]; Starfield, (2005)[19]; Macinko, (2007)[20]; Shi, (2003)[21]
- Chance of being more than 1 mile away from grocery store	*The smaller the chance that a neighborhood is located an unwalkable distance from healthy food options, the more likely that residents will be able to access healthy food.*	USDA Food Desert Database 2017	

Neighborhood Desirability

Though related to opportunity, neighborhood desirability or perceived quality can be considered a different concept that can impact economic mobility through different means. This analysis utilizes five main indicators to represent neighborhood desirability, based on previous research studies and confirmatory factor analysis; vacancy rate for all homes, the percent of households with annual incomes over $200,000, median housing value, the violent crime index score, and the percent of people in poverty. As with opportunity capital, indicators areas are standardized by quintile position, summed into a total score, and further broken

into area quintiles. The indicators, source, and rationale for inclusion are listed below. Indicators with a '+' sign indicate that a higher value positively affects the overall neighborhood desirability score, while a '-' sign indicators that a higher value negatively affect the neighborhood desirability score. Again, quintiles were reversed for negative affecting indicators so that the fifth quintile is always the best outcome in the overall scale of neighborhood desirability.

Neighborhood Desirability Indicators

	Neighborhood Indicator	*Rationale*	Source	Reference
-	Vacancy rate	*The higher the vacancy rate for all units, the less desirable the neighborhood, leaving it open to disrepair and further residential and business exits.*	USPS Vacancy Data 2018 Quarter 1	Jones, (2018)[22]
+	Percent of households with over $200,000 in annual income	*A higher percent of high-income households may help to anchor property values and bring new amenities into a neighborhood.*	American Community Survey 2014-2018	Casciano, et al. (2008)[23]; Crane, (1991)[24]; Brooks-Gunn, et al. (1997)[25]
+	Median housing value	*The higher the property values, the more desirable the neighborhood.*	American Community Survey 2014-2018	
-	Violent crime index	*The lower the rate of violent crime compared to other neighborhoods, the more safe people will fee living and doing business in the neighborhood.*	Applied Geographic Solutions Crime Data 2018	Chetty, et al (2017)[26]
-	Percent of population in poverty	*The lower the percent of the population in poverty, the more likely that there is access to jobs, resources, and amenities in a neighborhood.*	American Community Survey 2014-2018	Chetty, et al (2017)[27]; Sampson et al. (2002)[28]; Small, et al. (2001)[29]; Harding, et al. (2003)[30]

Neighborhood Desirability Change and Trajectory

Neighborhood change is incorporated into the analysis by assessing whether each indicators increased, decreased, or remained the same between 2006-2010 and 2011-2015. Neighborhoods experiencing improving outcomes are classified as 'upwardly transitioning.' Neighborhoods experiencing a decline in indicator outcomes are labeled 'downwardly transitioning' and neighborhoods with no change are classified as 'stable.' In the table below, indicators with a '+' sign indicate that an increase will classify the neighborhood as upwardly transitioning, while a '-' sign indicates that an increase will classify the neighborhood as downwardly transitioning. The overall neighborhood trajectory was calculated by assigning tracts one point for increases in desirability, zero points for no change, and negative one points for decreases in desirability. The sum of these values was used to determine overall neighborhood trajectory. A positive score

indicates a neighborhood is transitioning upward, a score of zero signifies it is remaining the same, and a negative score signifies the neighborhood is transitioning downward.

Since many neighborhoods experienced a decline during 2010-2015, the period just after the Great Recession, we also assessed how each neighborhood performed relative to their area. Neighborhoods were assigned one point for moving more quickly than their area toward a desired result or more slowly towards an undesirable result, zero points for moving at the same rate as the area or experiencing no changes, and negative one points for moving more quickly than their area towards an undesirable result. This approach captures the relative rate of change for each neighborhood to take into account the externality of the 2008 Recession. The sum of these values were used to determine the overall neighborhood trajectory relative to the area. Neighborhoods with positive scores are classified as outpacing the area, a score of zero as on par or just behind the area, and a negative score as lagging behind the area.

Neighborhood Trajectory Measures

	Neighborhood Indicator	Source
+	Change in number of households with annual Incomes over $200,000	American Community Survey 2014-2018 and 2009-2013
+	Change in median housing value	American Community Survey 2014-2018 and 2009-2013
-	Change in average total crime index	Applied Geographic Solutions Crime Data 2018 and 2013
-	Change in number of people poverty	American Community Survey 2014-2018 and 2009-2013
-	Change in the number of vacant units	USPS Vacancy Data 2018 and 2013

Federally Assisted Housing Units by Opportunity Capital and Neighborhood Desirability Quintiles

Analyses of the percent of federally assisted units in neighborhoods with typical or above levels of opportunity capital overlays the distribution of an area's project-based assisted housing portfolio on the opportunity capital scores and neighborhood desirability rankings across the area. Assisted rental property data come from the National Housing Preservation Database (NHPD). The NHPD is a de-duplicated inventory of all federally subsidized housing properties, with the exception of some small subsidy programs and tenant-based vouchers. Properties located in US territories or with imprecise latitude and longitude coordinates are also excluded from the NHPD. More information about the NHPD can be found at www.preservationdatabase.org. Each assisted property in the NHPD was matched to its census tract and subsequently its opportunity capital score and neighborhood desirability ranking. Once matched, the number of assisted housing properties located in each neighborhood was calculated. The count of assisted housing properties in each area opportunity capital quintile was then summed to then yield the percent of the assisted housing stock located in neighborhoods falling into each of the five quintiles. Neighborhoods were further classified as 'below typical' if they fell into the first or second quintile of opportunity capital. Neighborhoods were classified as 'typical or above' if they fell into the third

through fifth quintiles in overall opportunity capital. This method was also used to identify the percent of the assisted housing portfolio in each of quintile of neighborhood desirability.

The 'typical' amount of an indicators is assumed to represent the range of median values in the middle (or third) quintile. In some cases, the actual area median of opportunity capital or neighborhood desirability is located in the second quintile. Quintiles were used in this analysis rather than the true median in order to describe simultaneously the assisted housing assets offered in the top neighborhoods as well as the assisted housing assets offered in a 'typical' area neighborhood. In cases where there was little variation among indicators, quintiles may be missing. Neighborhoods missing multiple indicators were excluded from the analysis as described above as were assisted housing units located in these areas. Opportunity capital or neighborhood quality rankings for neighborhoods missing one value on an opportunity capital or neighborhood desirability indicator were calculated using the quintile distribution of the remaining indicators if there were more than ten census tracks in the CBSA or non-CBSA area of the state as described above. In some cases, neighborhood quintile values may be skewed downward if there is little variation in indicator values. For example, an area that has ten census tracts containing the same value on an indicator only has one area quintile since the indicator is distributed equally across neighborhoods. In this case, where the standard deviation of an indicator was zero, each neighborhood in the area was assigned to the third, or median, quintile.

To calculate the percentage of units in each category of neighborhood change and neighborhood trend, units were summed within each neighborhood by neighborhood change or trend grouping. The percent of the area's assisted units in each group was then calculated to yield the percent of the area's stock in upwardly transitioning, stable, and downwardly transitioning neighborhoods as well as in neighborhoods outpacing their area, neighborhoods on par/just behind, and neighborhoods lagging behind their area. Opportunity capital scores, neighborhood desirability rankings, and neighborhood change and trend groupings were then overlaid using a variety of cross-tabulations to describe the overall status of the assisted housing portfolio in relation to the areas in which units are located in terms of opportunity capital and neighborhood desirability trends.

Citations

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