EXPANDING MOBILITY:
The Power of Linked Administrative Data for Spatial Analysis

AISP

Acknowledgments

"Expanding Mobility: The Power of Using Linked Administrative Data for Spatial Analysis" was created by Actionable Intelligence for Social Policy (AISP) at the University of Pennsylvania. The report is part of our series on administrative data use for economic mobility research and analysis. It was developed based on findings from our 2020 national survey and landscape analysis of data integration efforts across the U.S., interviews with AISP Network sites and domain experts, and more than a decade of working with and learning alongside our Network and Learning Community Sites.

AISP is supported by grant funding from the Bill & Melinda Gates Foundation and the Annie E. Casey Foundation. The findings and conclusions contained within are those of the authors and do not necessarily reflect positions or policies of the funders.

Many thanks to everyone who made it possible.

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We would like to recognize the following individuals for reviewing and contributing their expertise to the report: Katie Barghaus, Claudia Coulton, and Amy Hillier. A special thank you to Leah Hendey and the National Neighborhood Indicators Partnership for your insights, recommendations, and continued partnership.

This report is dedicated to our late friend and colleague, Ken Steif.

Ken's belief in the power of spatial analysis to transform urban planning and public policy was infectious. His memory lives on in the Master of Urban Spatial Analytics (MUSA) program he founded at Penn, which teaches students how to put coding and GIS skills to use for public good. His textbook, "Public Policy Analytics: Code & Context for Data Science in Government," distills lessons from the program, and is available for purchase here or free online. Ken will be greatly missed at AISP and by all who knew him.

Suggested Citation: Jenkins, D., Berkowitz, E., Burnett, T., Culhane, D., Hawn Nelson, A., Smith, K., and Zanti, S. (2021). Expanding Mobility: The Power of Linked Administrative Data for Spatial Analysis. Actionable Intelligence for Social Policy. University of Pennsylvania.

Introduction

Fighting poverty and boosting economic mobility have long been central policy goals for local, state, and federal administrations. Despite this, poverty remains persistent and pervasive, with over 34 million Americans considered poor in 2019.[1] Moreover, mobility out of poverty in the United States is declining. Evidence shows that a child's chances of earning more than their parents in adulthood have continued to decline despite broad economic growth.[2]

Economic mobility is not a matter of perseverance or hard work alone; a person's well-being and ability to achieve upward mobility depend on their whole ecosystem: their relationships, their sense of community, and, more materially, their access to basic needs (e.g., transportation, nutritious food) and assets (e.g., stable housing, wealth equity, credit). Places, where we are born, where we live and work, directly impact that ecosystem and the resources and opportunities available to us.

Mobility is highly inequitable and hyper-local. Children from low-income families growing up in Southeast Washington, D.C., are, on average, expected to make between $20k and $25k annually in adulthood, while just a few blocks away, in the Capitol Hill neighborhood, despite similar household earnings, children are expected to make $45k when they grow up.[3] Further, these inequities can be seen across cities, counties, and neighborhoods, particularly along racial lines. When data are disaggregated by race, findings show that, on average, Black children from low-income families have lower incomes in adulthood than their low-income White peers. White Americans hold more wealth, experience more upward mobility, and—perhaps most strikingly—are far more likely to maintain generational wealth than any other racial or ethnic group.[4] Nationally, Black and Native children born into families within the top fifth of the income distribution have only an 18% and 23% chance, respectively, of remaining there. When we compare these rates to those for White children (41.1%), Hispanic children (30.6%), and Asian American children (30.6%), the relationship between class and race in the U.S. becomes even more clear.[5]

Mobility is also cumulative. Children who spend more time in areas with greater economic mobility have a higher probability of moving up the income ladder relative to those who spend less time in those same areas, suggesting that "the effects of place" deepen over time.[6] For example, Chetty and Hendren (2018) looked at differences in sibling outcomes for families that moved from low-mobility areas, in order to assess how spending *more* time in environments associated with better outcomes (e.g., less income inequality, less concentrated poverty, appropriately resourced schools) impacts later outcomes. By looking at sibling pairs of different ages, they found that for every year a child spent in a higher-mobility neighborhood, adult income increased by 0.5%.[7]

These differences are not surprising given what we know about the ways that both opportunity and disadvantage compound. They are also not accidental: **Differences in rates of mobility by city or neighborhood are not driven just by individual choice; rather, they reflect long histories of deindustrialization, segregation, dis/investment, and discriminatory and preferential government policies.[8]** These historical inequities are often perpetuated by current-day zoning rules, school catchment areas, and decisions

about development,[9] which are locally determined. Spatial data can help us better understand the history of places as well as current resident experiences that are likely to impact mobility. These data are also essential tools for zooming in on the contexts where people live and develop.

Since mobility is about more than individual education, employment, and earnings, it is essential that we "spatialize" more than income data. To craft solutions that *expand* economic mobility, we need to study it holistically. This means spatializing cross-sector data on the conditions, exposures, and opportunities that promote or inhibit human flourishing.

This brief outlines the unique benefits of conducting spatial analysis with administrative data that have been linked across multiple sources to explore the many dimensions of our environment that impact mobility. In the first section, we explore the historical, built, and social dimensions of place and how they impact mobility. In the second section, we describe why cross-sector administrative data on both people and places, linked at the individual level, better allow researchers to incorporate these dimensions of place in their analysis of mobility. In the third section, we describe how jurisdictions are building the capacity to use linked, cross-sector data for spatial analysis, and dive into one example of how partners in Cuyahoga County, Ohio, are turning analysis into action by unifying "people" and "place" data. We close with recommendations for those working at this important intersection to advance equity and mobility.

This report is the second in the three-part "Expanding Mobility" series exploring the use of integrated data and IDS to deepen understanding of economic mobility. To learn more about how we can take a holistic approach to understanding and expanding mobility, read our first report, "Expanding Mobility: The Power of Linked Administrative Data and Integrated Data Systems" here.

The Dimensions of Place and Space that Impact Mobility

There is broad consensus that upward mobility requires access to opportunities and resources at an individual and neighborhood level. Inequity is organized, maintained, and reinforced spatially. The precise mechanisms that drive inequity and create disadvantage, though, are often context-specific. To deepen our analysis of mobility, it is important to leverage data across multiple dimensions of environmental context: the historical environment, the built environment, and the social environment. In the United States, all three dimensions of environmental context are undergirded by structural racism and the often unspoken and unconscious collective ideology of white supremacy. For this reason, we strongly recommend that all data use include a race-explicit lens[10] that acknowledges this reality.

White supremacy refers to "a political, economic, and cultural system in which whites overwhelmingly control power and material resources, and in which white dominance and non-white subordination exists across a broad array of institutions and social settings." For more, see *Stirring the Ashes: Race, Class and the Future of Civil Rights Scholarship (1989).*

Historical Environment

The historical environment is made up of *the events and policies of the past that continue to echo in the present*. For example, historical investment in some areas and disinvestment in others continues to drive neighborhood inequality in many places.[11] Redlining, racial residential segregation, exclusionary zoning,[12] and government control over tribal lands and reservations[13] are manifestations of structural racism that impact educational, social, and health outcomes. Modern-day policies build upon these historic legacies, and new forms of harm continue to manifest in today's policy environment, including deregulation of financial institutions that target real estate,[14] "urban renewal" projects that fund exploitive public–private partnerships in resource-poor neighborhoods,[15] and mortgage lending schemes that reinvent redlining without explicit mention of race.[16] Absent targeted policies to disrupt the enduring legacy of structural racism and these reinvented forms of exploitation, neighborhoods will continue to be highly segregated and unequal.[17] Furthermore, social perceptions rooted in our history of structural racism drive lingering stereotypes, biases, and misconceptions that worsen inequality—particularly for Black, indigenous, and people of color (BIPOC).[18]

Built Environment

The built environment is the physical space and resources that make a community. Spatial proximity to certain elements of the built environment—whether positive or negative—impacts well-being. For example, neighborhoods with higher shares of Black people and people experiencing poverty have been found to experience higher rates of harmful hazardous environmental exposure, because companies are more likely to build factories or manufacturing plants that cause pollution where they live.[19] Conversely, neighborhoods with higher shares of people with high incomes are more likely to have amenities correlated with healthy growth and achievement, like public schools with clean drinking water[20] and grocery stores with affordable and healthy foods.[21] As these risks and benefits compound over time, so does inequality.

Social Environment

The social environment is made up of the people who share our built environment—the individuals we routinely interact with at school, religious services, or the park. These people have a profound effect on our experiences and outcomes. Prior research, like the Adverse Childhood Experiences Study, or ACES,[22] has shown a bridge between neighborhood- and individual-level factors that impact child development, adult outcomes, and even life expectancy, and have inspired interventions that similarly bridge these domains.[23] People also matter for well-being and mobility: supportive relationships with caregivers have a profound impact on resiliency, serving as protective factors against the effects of childhood trauma.[24] Even our broader community climate[25] and peer networks[26] influence behavior and opportunity.[27]

Capturing Dimensions of Place and Space with Cross-Sector Administrative Data

Each of these dimensions of our environment—the historical, the built, and the social—leads to important research questions related to mobility. To answer these questions, we need data on both people and places, and often we need data on both over time. Ideally, we also want these data to be integrated or linked at the individual level—in other words, we need to join or merge data on people across sources based on common data fields (such as personal identifiers or common encrypted "unique IDs"). This is important because it gets us closer to seeing a "whole person view" and may allow us to unpack causal relationships. So, what does this look like in practice?

First, integrated individual-level data provide longitudinal views of large population cohorts that allow us to explore current outcomes for people through the lens of historical policies and structural racism. Researchers may "spatialize" both historical information (like exclusionary lending practices captured on neighborhood redlining maps) and current information (like neighborhood rates of preterm births), using maps to visualize place-based factors that drive inequity in compelling ways. [28]

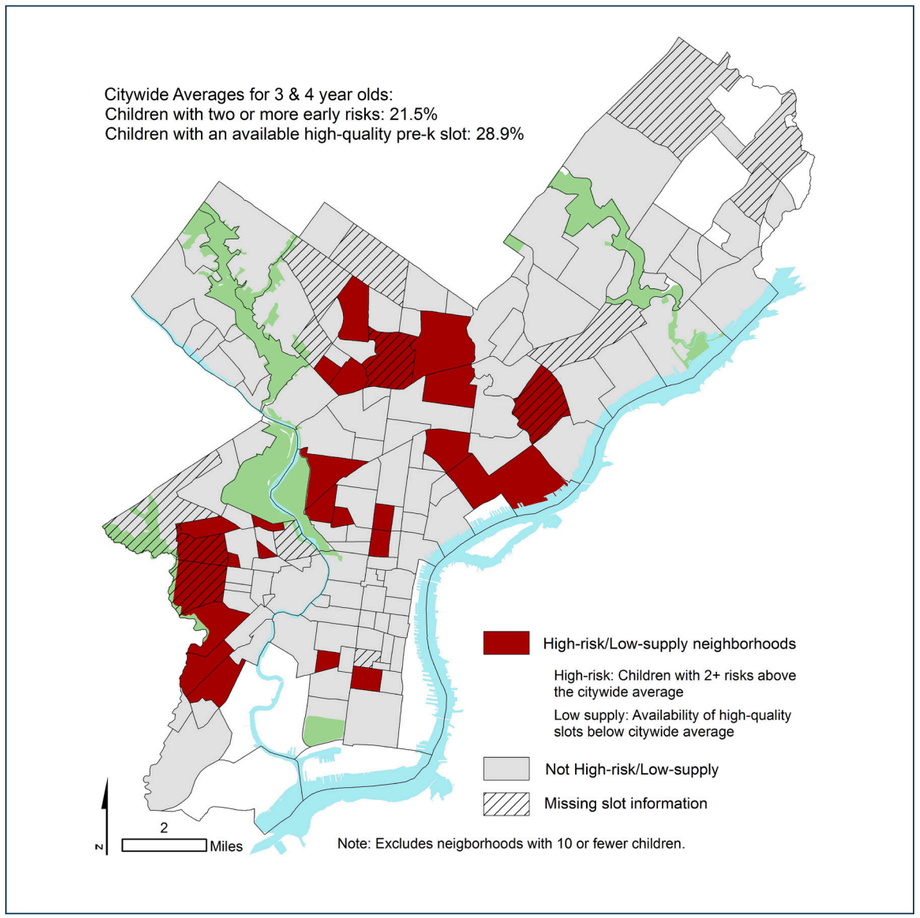
Second, if researchers want to understand the impact of policies that funnel resources to some areas more than others, these data can help them document the cumulative effects of investment and disinvestment on people and places. A 2015 study, for example, analyzed how school finance reforms that increased investment in under-resourced areas impacted long-term outcomes like graduation rates and income in adulthood.[29] Researchers looked back at a wave of policy reforms in the 1970s that aimed to decrease school funding inequities through new court-mandated funding formulas. The staggered rollout of these reforms across states created natural comparison groups, and longitudinal, integrated administrative data allowed the researchers to evaluate differences in outcomes. They found that reforms that led to funding increases "helped reduce the intergenerational transmission of poverty," underscoring that money matters and its impacts compound over time.

Finally, cross-sector integrated data allow researchers to map people's exposure to hazards over time to identify important risk factors in the built and social environments, as well as protective factors that help to mitigate harm. For example, in Washington, D.C., researchers from Urban Spatial and Predict/Align/Prevent worked with local agencies to develop an innovative model to predict geospatial risk of child abuse and neglect.[30] They used findings from a prior gaps analysis that showed which areas did or didn't have resources that protect against maltreatment, in order to determine the optimal geographical areas to deploy the city's limited resources and help keep more children safe. Researchers then published the model in an open-source tool that can be used to support future evaluation and decision-making.[31]

This type of analysis is not theoretical—it can support rapid-cycle improvements to policies and programs that boost mobility. For example, in 2017, a collaboration between the City of Philadelphia's Data Management Office and researchers from the Penn Child

Research Center at the University of Pennsylvania leveraged cross-sector data to inform implementation of a new publicly funded pre-K program.[32] Using data that were linked at the individual level and then aggregated to the neighborhood level, researchers identified where children were experiencing a high concentration of risk factors associated with educational problems in K-3rd grade, and therefore would benefit most from expanded access to high-quality pre-K. By overlaying this "demand" map with a "supply" map of existing high-quality programs, the city focused in on neighborhoods where new programs should be located. They were also able to better coordinate outreach to connect families whose children experienced multiple risks to new preschool opportunities. In just the first year of implementation alone, 20% of the neighborhoods identified as high-quality preschool "deserts" no longer met these criteria thanks to the creation of new programs and seats. Evaluation of the program and subsequent implementation tweaks have continued to be fueled by cross-sector data and spatial analysis.

PHILLY NEIGHBORHOODS WITH HIGH NUMBER OF RISKS AND LOW SUPPLY OF PRE-K



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Bringing People and Place Data Together for Impact

As the examples above show, there are several key ways that cross-sector administrative data allow us to better capture the dimensions of place and their impacts on individual people and communities. Bringing together data on people and places is not always a simple task—no one dataset or even data-holding agency is likely to have all the information in one place. However, state and local governments and their research partners are increasingly building the capacity to integrate population-level administrative data across agencies. At Actionable Intelligence for Social Policy (AISP), we support a Network of 36 state and local cross-agency collaborations, or integrated data systems (IDS). Each IDS has a governance structure, legal framework, technical infrastructure, and staff that support routine data sharing, linkage, and use. Data are linked at the individual level and then aggregated for analysis, providing rich detail while also protecting privacy.

AISP Network sites link longitudinal "people" data across a wide range of domains, including child development, health, human services, education, and workforce, allowing for analysis of individual and family trajectories. While many of these "people" data sets include some information on place (e.g., addresses at the point in time when services were delivered), they do not generally include detailed data on the properties or "parcels" where people live. More nuanced parcel data generally come from local government sources and, while variables differ somewhat by location, they include information on assessed value, sales and ownership history, FEMA floodplain designation, abandonment, tax or utility arrears, and more.[33] Parcel data are helpful because they contain information on aspects of the built environment that impact mobility.

In the following section, we describe how one AISP Network site, a team at the Center on Urban Poverty and Community Development at Case Western University (hereafter referred to as the Poverty Center), in partnership with the local community, conducted spatial analysis with integrated data. The team used two integrated, cross-sector datasets—one linking "people" data and the other linking "place" data—to understand the effects of housing quality and the built environment on young children and early development. Specifically, we describe the unique benefits of linking administrative data at the person level with parcel data at the building level to capture the precise ways housing conditions impact children before they even enter kindergarten. We also explore how these administrative data linkages were first made possible, and then made actionable, by an IDS governed by a university public partnership. And we highlight how findings were used to improve local risk prevention and response in coalition with public, nonprofit, and private sector partners. Evidence and data have helped drive new policy with clear impact for Cleveland families and young children.

Work in Action

How Linking People and Place Data in Cleveland Drove Action on Lead Poisoning Prevention

The Team

The Poverty Center is home to the Child Household Integrated Longitudinal Data (CHILD) system, which includes data on children and young adults living in Ohio's Cuyahoga County beginning with a 1989 birth cohort. The Poverty Center team has been gathering and processing administrative data since 1992, and the CHILD system has enabled data integration since 2001—making it one of the earliest and longest-running IDS efforts. Today, the Poverty Center links data from approximately 35 agencies to better understand and address cross-sector policy issues and program needs.

Rationale

A child's home and their surrounding neighborhood makes up much of their built environment and therefore profoundly impacts their development over time. In 2016, with many families experiencing housing instability and moving to and from distressed housing, researchers and local stakeholders in Cleveland decided to leverage their existing data to better understand the issue and take action. At the time, much of the city's housing stock did not meet health standards. Many units were built before 1978, the year lead-based paint was banned from use, while others, following the predatory lending and housing crisis in 2008, were abandoned and left in disrepair.

Approach

Capturing the dynamic and nuanced impacts of these housing conditions on child development was no easy task, but researchers at the Poverty Center were able to leverage their existing birth cohort data to meet the challenge. Researchers and community partners wanted to know how different housing conditions and experiences in the years preceding kindergarten influence risk factors and school readiness.

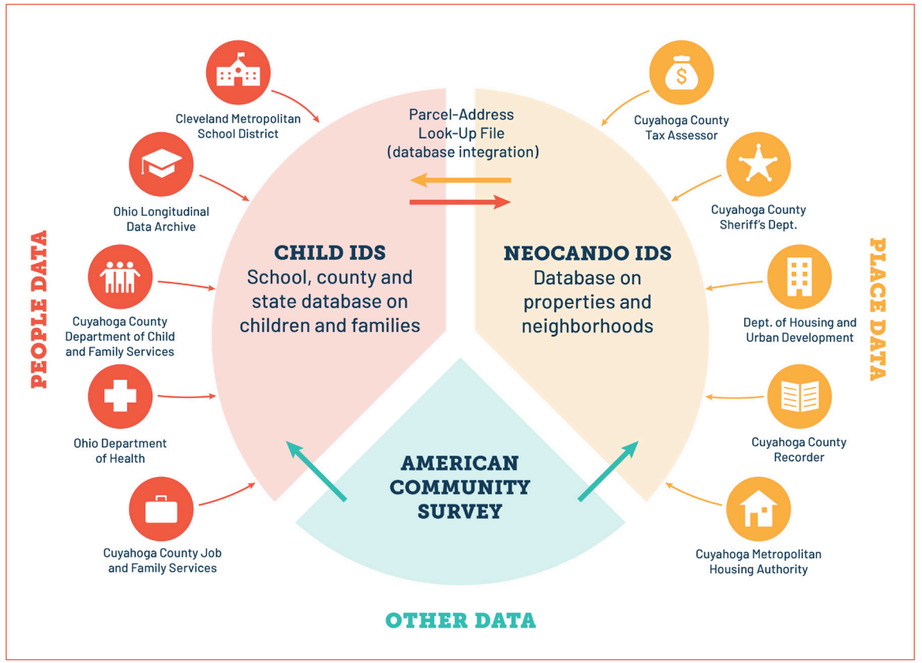
To answer this question, the team focused on a cohort of nearly 14,000 children who entered kindergarten in the Cleveland Metropolitan School District between the years of 2007 and 2010, and took a comprehensive and longitudinal look at their experiences and outcomes. Researchers linked individual-level records to multiple measures and geographic levels of housing conditions in order to assess the status of properties where children lived, observe the properties nearby and in surrounding areas, and capture how these environments changed over the observation period (i.e., the years preceding kindergarten entry). Measures included housing type, value, land use codes, foreclosure and vacancy status, and voucher receipt, among others. Conditions indicated whether children were living in substandard or financially distressed housing, or in neighborhoods or blocks with similarly vulnerable properties and households. Data were pulled from two separate IDS—one linking the individual-level "people" data and the other linking the parcel-level "place" data—to examine multiple dimensions of the environment and the influence of extended exposure over time.

People data were sourced from the CHILD system and included information on early development risk factors and kindergarten readiness from education, social service, and health agencies. Various child and maternal characteristics, child treatment investigations and reports, lead screening tests, and assessments of kindergarten readiness were also used in their analysis.

Place data were sourced from both the Northeast Ohio Community and Neighborhood Data for Organizing (NEOCANDO) Property Data Portal and the Neighborhood Data Warehouse. Together these tools gather data from over 30 administrative data resources, which are then processed, cleaned, and linked before being geocoded and aggregated to small and standardized geographies to protect privacy and allow comparisons across topics and time periods.

Then, information was linked in order to understand the influence of and relationship between housing, neighborhoods, and families. Researchers converted street address data to NEOCANDO parcel numbers for each month during the observation period. By bringing together longitudinal people and place data, researchers could control for other factors—like income and family education—in order to untangle the cause-and-effect relationships between place (e.g., housing, neighborhood) and people (e.g., families, peers). This expansive view of children's housing situations during their early years is rare for academic studies and allowed the research team to estimate "the cumulative effect of living in substandard housing or financially distressed housing."

Data Sources



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Findings

Findings demonstrated the immense impact of the built environment on kindergarten readiness and health. Researchers found that elements of the built environment, like distressed housing (e.g., poor quality, low market value) and exposure to disadvantaged neighborhoods during early childhood, were associated with lower kindergarten readiness scores. These effects were partially mediated by other risk factors, including maltreatment incidences, residential instability, and elevated blood lead levels. Additionally, results showed that, of the nearly 14,000 children who began public kindergarten in Cleveland between 2017 and 2010, 40% tested positive for elevated lead levels prior to entering school. That distressed housing was exposing so many children to toxic conditions was an immediate call to action for the community. Results underscored the fact that agencies, service providers, and policymakers should consider exposure to distressed housing as a cause of disparities in early child development and school readiness.

Impact

The report's findings sounded alarm bells across Cleveland, moving city and community leaders to action and supporting a new preventative approach to finding sources of lead prior to exposure, rather than waiting to act until after a positive lead test was reported. In January 2019—just a few months after the study findings were made public—the Lead Safe Cleveland Coalition (LSCC) was formed with a mission to address lead poisoning in the community. LSCC is a public–private partnership made up of hundreds of members from 120 organizations that represent nonprofit groups, state and local government agencies, and families impacted by lead, as well as contractors, landlords, and advocates.

As part of their mission, the Coalition developed recommendations on upstream policy approaches to share with the local city council in May 2019. The Poverty Center team contributed an issue brief about the impact of lead on kindergarten readiness and an assessment of different strategies for lead hazard control. As the authors explain, the report "document[s] the extent to which screening is occurring, the prevalence of exposure, and preliminary local evidence around the detrimental effects of exposure on kindergarten readiness." Linked birth and lead testing records from the Department of Health were used to determine prevalence of lead toxins in Cleveland's children. Linked Medicaid enrollment information was used to identify whether lead testing for young kids—required by Medicaid—was being followed. Researchers found that, among children on Medicaid in Cleveland, just 50% were screened for lead at age 1 and 34% at age 2, suggesting that lead poisoning in the city is going unidentified in some of the most important years during a child's development. Other Poverty Center reports include a study of downstream costs associated with exposure and metrics to monitor progress and outcomes of children exposed.

In July 2019, shortly after LSCC's recommendations were shared, Cleveland City Council passed the Lead Safe Certification (LSC) (Ordinance 747-2019). The ordinance requires all residential rental units built before 1978 to receive a lead safe certification from the city's Director of Building and Housing. To be certified, rental property owners must provide the city with a clearance examination or lead risk assessment showing that hazards were not identified in the unit. If lead or related hazards are identified during an exam or assessment, then the landlord must take proper steps to renovation, repair, and/or repaint to remediate the problem. To support implementation, evaluation, and enforcement of the policy change, the Poverty Center developed a landscape profile of rental housing stock and landlords, which identified properties and landlords beyond the local rental registry system.

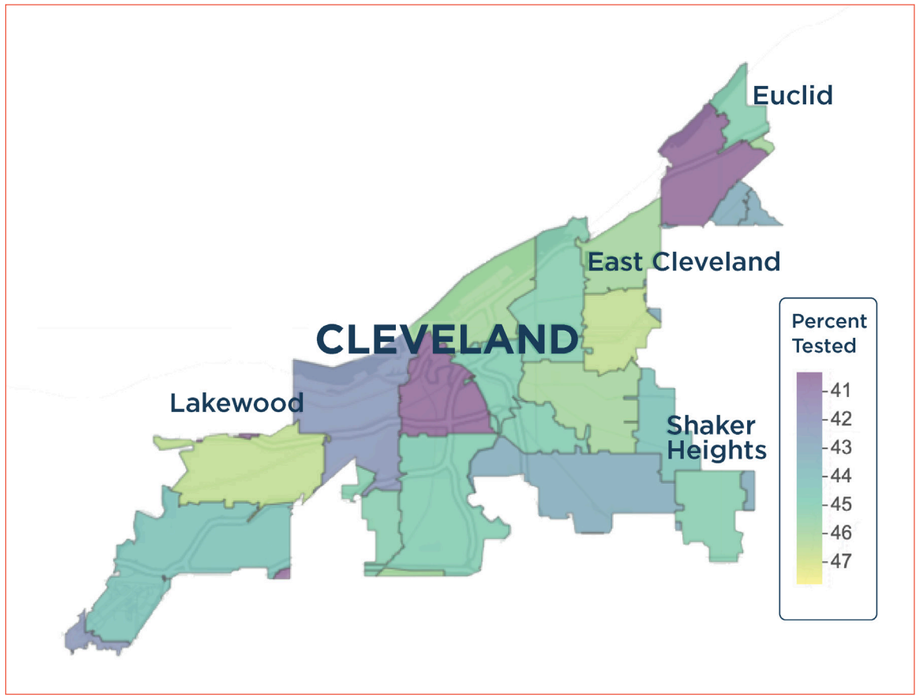
Testing and certification requirements went into effect in March 2021, and rollout was staggered over 17 months, with the aim that all units will be lead safe certified by March 2023. This progressive implementation by zip code, supported by city and nonprofit partners and data on at-risk properties, has been key to stakeholder buy-in; it helps the program build over time without overwhelming landlords and renters, government agencies, and contractors while addressing unsafe properties as soon as possible.

> **"Documenting the downstream consequences of lead poisoning can help society acknowledge and appreciate the costs of inaction—and to target resources where they are most needed."**
>
> —Rob Fischer, Poverty Center Co-Director and LSCC member

The city is taking a "carrot-and-stick" approach to rental property owners compliance; rather than fine or reprimand building owners where lead is detected, the city offers support in identifying resources to remediate their rental units through the LSCC Lead Safe Home Fund. To avoid potential bottlenecks—where there is high demand for either lead safe certification or lead remediation and not enough workers for the jobs—the city has partnered with the U.S. Environmental Protection Agency to conduct Lead Safe Worker and Clearance Technician trainings at no cost to participants.

As rollout continues, the Poverty Center team and the LSCC Research and Evaluation Committee are playing a lead role in the effort to monitor progress, developing a Lead Safe Cleveland Coalition Data Dashboard. The dashboard provides information on "common questions on the rollout of this new law and how it is affecting children, families and neighborhoods." Lead data are provided by the Department of Health, while rental registration information is provided by the Department of Building and Housing, and eviction case counts are scraped weekly from the Cleveland Municipal Court docket system. All of this information is then compiled and visualized by the Poverty Center team. The Poverty Center's NEOCANDO system also powers a healthy housing data system, run by the Cleveland Healthy Home Data Collaborative, designed to help renters find lead-safe housing and areas with lower risks of asthma.

LSCC DATA DASHBOARD: PERCENT OF CHILDREN TESTED BY LOCATION



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Many children have undoubtedly already benefited from this new, proactive approach to lead exposure, made possible by integrated data on people and places. The Poverty Center is also working to ensure that these data are a public good in Cleveland, making information available through public dashboards and geospatial tools in formats that are accessible and actionable for agencies, community organizations, and even families themselves.

For more on the impact of the Poverty Center and CHILD system in advancing the use of linked data to capture the built environment, read "Using Integrated Data to Identify and Solve Housing Conditions that Harm School Readiness: A Cleveland Case Study" from the Annie E. Casey Foundation.

To take a more in-depth look at the research, read the research study.

Recommendations

As the examples above demonstrate, bringing together cross-sector data on people and places for analysis drives innovative research and enables governments to turn insights into action. In that spirit, we offer recommendations below for anyone seeking to use cross-sector data on people and place to better understand and expand mobility, at any stage of IDS development.

- **Start with the "people" data you already have.** While you may not have access to detailed "place" data, many administrative datasets on people include address information that can be used to map experiences and outcomes. Be sure to assess the quality of the geographic identifiers and consider which geographic units of analysis (address, block, block group, zip code, neighborhoods, school catchment, etc.) will be most meaningful in your context and for the question at hand.

If you don't yet have routine access to cross-sector linked data, explore whether an IDS might be right for your context, using AISP's Quality Framework. While quality data sharing and integration will look different depending on who you are, where you are, and the goals of your effort, the framework is designed to help you think through the universal components of strong collaborations.

- **Find local experts to help you explore new sources of information and understand which neighborhood indicators are already being used in your community.** Many organizations are already using neighborhood-level information to explore local context. Some may even have conducted surveys or engaged in other local data collection efforts that could supplement/complement your administrative data assets. If you're unsure where to start, check to see whether you have an NNIP partner in your community, or connect with your local and regional planning agencies or university-based applied research centers.

The National Neighborhood Indicators Partnership (NNIP) has long supported and regularly convenes community data organizations that specialize in "place" data, neighborhood indicators, and spatial analysis. NNIP partners in more than 30 cities work closely with residents, community organizations, foundations, and government agencies to understand neighborhood conditions and improve outcomes where they live. Partners' data holdings vary but usually contain both publicly available data on open data portals, like property records or crime reports, and aggregated confidential data, like student records, as well as pre-aggregated data from the Census Bureau and other federal agencies.[34] In addition to disaggregating this data by neighborhood, NNIP partners focus on disaggregating data by race and are committed to ensuring that their communities have access to data and the skills to use information to advance equity. While NNIP partners often use data from across sectors, they do not typically integrate "people"

data at the individual level over time in the routine way that IDS can. Cuyahoga County is a notable exception—a member of both the NNIP and AISP networks—and a leading innovator across their fields.

Learn more about NNIP at their website, and read about how they promote the use of integrated data to improve communities.

- **Seek out more detailed "place" data and work to link parcels to the people who live there.** Cuyahoga County has shown what's possible when we link people and place data at the individual level as well as at the systems level. Place data may be gathered from a variety of public sources that can include information on basic property characteristics (e.g., number of units, building age), property owners, foreclosure and eviction filings, assessed value and condition, tax exemption status, voucher use, and much more. Parcels are often used to connect people and place data because they are geocoded and so can be linked to address- or point-level information held in individual-level datasets. -

Looking to find information on administrative place data and parcels for your community? Get started with an overview of national and local data sources in NNIP's "Guide to Measuring Neighborhood Change to Understand and Prevent Displacement."

For an example of place and people data linkage and analytic methods, check out the Poverty Center's brief, "Building a Profile of Rental Properties and Landlords."

- **Use maps and other spatial tools to share insights and engage in dialogue with your community.** Spatial tools like online dashboards and mapping projects transform individual-level records into insights for a wide audience, while keeping confidential information safe and secure. Unlocking information previously available only to analysts or government officials not only expands the use and impact of this information but can also build trust between agencies and the community, and foster collaboration between researchers and impacted populations.

In Allegheny County, a joint effort between the County Health Department and the Department of Human Services aims to put more detailed information about accidental overdoses into the hands of the community. The interactive Overdose Dashboard provides users with tools to explore details and trends in fatalities and overdoses, as well as interventions like naloxone administration. Users can explore the data through maps and charts with customizable filters. Importantly, the dashboard is accompanied by a detailed data dictionary, plain language descriptions of trends in the data, and resources for people who use drugs.

To learn more about engaging community members, see "Integrating and Distributing Administrative Data to Support Community Change."

- If you've succeeded in bringing together person and place data, explore new ways to **capture even more detail about movement, experience, and exposure through alternative data collection methods.** There are many ways to capture the characteristics of place and space beyond household surveys and administrative data. As the use of cross-sector administrative data becomes more routine, there will be more opportunities for complex, mixed-methods spatial analysis.

Explore methods that have enhanced spatial analysis and related research examples (linked in the endnotes):

- Systematic observation of built environment (i.e., measuring and coding different characteristics of space and place like litter or blighted structures)[35]
- Remote systematic observation of built environment (i.e., using virtual technologies like Google Street View to "audit" space and environment)[36]
- Qualitative interviews, focus groups, and photo elicitation (i.e., providing cameras or recording technology to people to document how they move through and experience their world) to capture individual experiences and exposures[37]
- Walking or "go along" interviews to capture exposure, movement patterns, and individual experience[38]
- Biometric observation of individuals to measure experience and exposure (i.e., using health technologies to measure exposure to pollution, or physiological reactions to certain exposures or experiences)[39]
- Smart phone location data to observe and map how people move[40]
- Mapping publicly available finance and spending data to explore how investments in systems/institutions contribute to neighborhood change.[41]

As always, decisions about which of these innovative methods to pursue should involve ethical consideration of the risks and benefits, and if possible, should involve community voice. For example, community-based participatory or action research methods directly involve community members in the research process from start to finish, including the prioritization of questions and the collection and interpretation of data. Learn more at UC Berkley's Youth Participatory Action Research Hub, and check out their lesson plan on CPAR basics for a deeper dive.

- If you want to dig deeper into the temporal dimensions of people, place, and space, **explore how a multi-generational lens might apply to future spatial analysis.** Multi-generational (multi-gen) approaches to mobility focus on the persistence of poverty across generations, as well as how relationships influence adult outcomes.

Learn more about multi-gen linkages using linked data in AISP's companion report: "Expanding Mobility: The Power of Linked Administrative Data for Multi-Gen Analysis."

Conclusion

This report began by underscoring how the many dimensions of place—including the historical, built, and social environments—shape our experiences and opportunities. We close by emphasizing that building the capacity to study and spatialize these dimensions of place using cross-sector administrative data is both challenging and rewarding work. As the example from Cuyahoga County demonstrates, it takes time and it takes a village, but it pays off. We hope you'll join us in exploring new ways to leverage both people and place data to craft partnerships and policies that promote equity and expand economic mobility.

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THIS REPORT is the second in AISP's 3-part "Expanding Mobility" series, which explores how linked administrative data can be used to deepen understanding of economic mobility. The two complementary reports, linked below, focus on the use of integrated administrative data for mobility research and multi-gen analysis.

- *Expanding Mobility: The Power of Linked Administrative Data and Integrated Data Systems*
- *Expanding Mobility: The Power of Linked Administrative Data for Multi-Gen Analysis*

To learn more about building and scaling IDS, visit the AISP website and view our Quality Framework.


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