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Creating Action with Data: Using Data to Increase Equity in Urban Development

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Abstract

The use of data in urban development is controversial because of the numerous examples showing its use to reinforce inequality rather than inclusion. From the development of Home Owners Loan Corporation (HOLC) maps, which excluded many minority communities from mortgages, to zoning laws used to reinforce structural racism, data has been used by those in power to elevate some while further marginalizing others. Yet data can achieve the opposite outcome by exposing inequity, encouraging dialogue and debate, making developers and cities more accountable, and ultimately creating new digital tools to make development processes more inclusive. Using data for action requires that we build teams to ask and answer the right questions, collect the right data, analyze the data ingeniously, ground-truth the results with communities, and share the insights with broader groups so they can take informed action. This paper looks at the development of two recent approaches in New York and Seattle to measure equity in urban development. We reflect on these approaches through the lens of data action principles (Williams 2020). Such reflections can highlight the challenges and opportunities for furthering the measurement and achievement of equitable development by other groups, such as real estate developers and community organizations, who seek to create positive social impact through their activities.

Introduction

Since the Industrial Revolution, data has been used to shape cities. Historically, quantitative metrics in urban development have led to controversial results, often helping to reinforce segregation and further marginalize populations through decades of uneven urban development. However, data can play an opposite role and be used to promote equity in both decision-making and community empowerment. Recently, many cities have begun to establish equitable development initiatives and use metrics to understand and evaluate the impact of urban development to promote more equitable outcomes. Much of the impetus for these initiatives extends from the success, as well as the real and perceived limitations, of public sector programs such as Community Development Block Grants, Urban Development Action Grants, the Neighborhood Stabilization Program, inclusionary zoning, affordable housing programs, and others at the city level. As new programs are implemented, there continue to be examples that illustrate the challenge of adequately measuring equitable outcomes of urban development and related investments – and thereby limit the assessment of success or failure of initiatives intended to support equitable outcomes.

Emerging approaches that intend to promote equity and positive social impact using top-down methods of analysis have also raised important questions of accountability and community involvement. For example, the US Department of the Treasury's Opportunity Zone program has sought to draw private investment into marginalized communities. However, Opportunity Zone investments are made with little regulation or measurement for how investments would or should benefit local communities. The result, according to a report by the Urban Institute, has been that most Opportunity Zone investments have benefitted large real estate projects with questionable impacts on local businesses and residents (Theodos, González-Hermoso, and Meixell 2020). Relatedly, local governments, community organizations, and other stakeholders involved in urban development have become increasingly interested in measuring equity in urban development. In the real estate sector, the emergence of self-reported environmental, social, and governance (ESG) reporting is a promising trend for companies to disclose their societal values to socially and environmentally conscious investors, but there is nonetheless much room for improvement in this area. As new groups such as these begin to create equity-based metrics, it is important that current and future initiatives reflect on the challenges and opportunities of past work in developing metrics and taking them into action responsibly.

Following a review of the current landscape of data-driven urbanism and equitable development strategies, we use data action principles to evaluate two case studies (Williams 2020). The first is the CUNY Institute for State and Local Governance's Equity Indicators project which builds on past work with the Rockefeller Foundation and the 100 Resilient Cities project and New York

City's Equity Initiative, which started in 2014. The second case study is the Seattle Equitable Development Initiative, which began in 2015; this includes an example of how citywide indicators can provide a means to further articulate neighborhood-level metrics through community engagement and action planning. Through this evaluation, the paper seeks to identify the challenges for creating and translating data into policy action for enhancing equity in the urban development process across four key themes: (1) building a proper team and engaging stakeholders is essential to defining "equity," (2) data is biased—we must evaluate sources and their appropriateness for measuring equity, (3) data should be analyzed ingeniously and ground-truthed, (4) communicating results effectively can yield compelling insights.

Data-Driven Urbanism and Equitable Development Strategies

In looking at equity in the historical context of urban development, one must contend with the fact that some places have long been developed at the expense of others. While uneven investment and racial segregation have been a hallmark of urban inequality across history, significant actions in the 1950s made cities even more unequal. For example, the GI Bill exacerbated racial segregation and inequality, allowing for the development of primarily white suburbs that resulted in disinvestment in urban cores. The persistence of racially charged, data-driven redlining policies by the Home Owners Loan Corporation (HOLC) was followed by urban renewal and the Federal Highway Act, which tore through low-income areas and communities of color, dramatically transforming the social and spatial makeup of the American landscape (Anderson 1964). This came not without resistance – such as that in response to the drastic urban clearance and renewal projects in New York City led by Robert Moses. Several key figures such as Jane Jacobs led the charge against this form of top-down decision making, arguing that the data-driven, technocratic approach failed to capture neighborhood vitality and the importance of local-scale social networks in the larger economy (Jacobs 1961; Gratz 2010). This fight was emblematic of the stakes laid out by advocates for greater community participation in knowledge production and decision-making processes surrounding urban (re)development, such as Shelly Arnstein (Arnstein 1969), James Glass (Glass 1979), John Forester (Forester 1988, 1999), and others.

Given the history of urban inequality, research measuring the equitable outcomes of public programs has been a key concern for the academic community interested in urban justice (Walker et al. 2002; Zielenbach 2004; Hall and Handley 2011; Blanke and Walzer 2013). Much of this work is tied to a wide array of existing tools that federal, state, and local governments have used for decades. For example, the US Department of Housing and Urban Development Community Development Block Grants, Urban Development Action Grants, Community Economic Development

grant program, and Neighborhood Stabilization Program aim to promote equity for low-income, marginalized communities and prevent displacement by supporting endogenous development, urban revitalization, housing rehabilitation, public services, workforce development, and other economic development projects.

US cities have also mobilized a range of strategies to address growing inequities in the distribution and access to urban services and housing. One of the most prominent strategies has been the use of inclusionary zoning (IZ) as a means to require the meeting of certain goals for affordability and accessibility. IZ is a policy tool that leverages a local government's power to establish and enforce zoning regulations. IZ policies often establish a benchmark requiring 10-30 percent of new housing units to be affordable by setting a rent threshold of a certain percentage of the area median income (AMI) for these "affordable" units, with the remaining percentage left as "market rate." Since 2018, over 800 localities have enacted some form of IZ (King 2018). These can be voluntary or mandatory, and they vary from place to place. There is evidence to suggest that mandatory IZ policies have led to greater affordable housing production while voluntary programs may require local governments to provide substantial subsidies to developers to be successful (Pinedo 2016). IZ-based strategies have also highlighted the importance of adequately measuring the impact of investments through the development of mechanisms like impact assessments.

Impact assessments have been used to evaluate the social, economic, and environmental impacts of prospective development projects on neighborhoods, cities, and ecosystems. Such impact assessments are used by government agencies to evaluate and regulate investments of a certain scale, but they have also evolved to address issues of equity. Since the establishment of environmental impact assessments in the 1970s (Morgan 2012), the practice has grown to include socio-economic impacts of development projects (Freudenburg 1986; Becker 2001) and has been under constant refinement over the last several decades. The goals of these assessments are to evaluate the "intended and unintended consequences" of projects with an explicit plan to "bring about a more sustainable and equitable biophysical and human environment" (Vanclay 2003); they have been advanced to support human rights values including free, prior, and informed consent, culture, community, power, and place (Esteves et al. 2012). The goals of socio-economic impact assessments are therefore aligned with the goals of ensuring equity in urban development.

Community benefits agreements (CBAs) have also been used to provide accountability and transparency in the development process. CBAs are contracts that are mutually designed and signed between the community and a developer that require the developer to provide specific benefits to the community (see Salkin and Lavine 2007). Many of these agreements focus on job creation, living wages, construction of public amenities, affordable housing requirements, and others. However,

CBA programs have struggled to measure the benefits to the community over the long term due to difficulties in obtaining community buy-in (Burd-Sharps, Guyer, and Lewis 2011) and matching indicators to the specific conditions in the community (Blanke and Walzer 2013). Analytical frameworks for assessing CBAs and community development are worth considering when developing equitable development metrics (Walker et al. 2002; Madan 2007; Dorius 2011).

Relatedly, the formulation of “community-based indicators” has been useful in communicating community priorities. There are at least 200 identified community-based indicator projects across the US (Dluhy and Swartz 2006). Many indicators focus on holistic and qualitative self-assessments of quality-of-life measures (Wisner 1999). Community-based indicators are also successful because they give ownership of the indicators to the community through direct citizen involvement (Swain and Hollar 2003) and, as such, may provide meaningful assessment through fewer, context-driven metrics (Sung and Phillips 2018).

Even with a wide range of policies aimed at addressing equity in urban development in the past few decades, communities made vulnerable by the long history of urban inequality were again exposed to devastation in the wake of the 2008 housing bubble and foreclosure crisis, and they continue to face displacement, gentrification, and lack of investment. According to census data compiled in the National Equity Atlas, major demographic shifts have characterized US cities, but these shifts have not led to equity in the availability of economic opportunities within metropolitan regions. Where investment has been concentrated, gentrification and displacement remain a key concern as low-income communities of color are priced out or lack adequate means to access housing and jobs in growing areas (see PERE and PolicyLink 2016). Given this challenge, preventing or mitigating the negative effects of gentrification and preventing displacement of marginalized communities have become key areas of discussion and action.

There have also been other kinds of city-driven anti-displacement and equitable urban development initiatives in recent years. Most prominently, Seattle, Boston, Detroit, and Washington DC are actively developing equitable urban development guidelines and best practices (Joint Center for Housing Studies (JCHS) of Harvard n.d.). While there is considerable overlap in the goals of addressing gentrification and displacement of marginalized communities, the methodologies of these cities still differ, suggesting potentially complex differences in measurement and governance across localities. For example, a paper by Preis et al. (Preis et al. 2021) examined four gentrification and displacement risk models developed in Seattle, Los Angeles, Portland, and Philadelphia and showed that only two of the 18 variables across the models were common. Additionally, impact assessment methods have been used to better understand more localized (as opposed to citywide) impacts of urban development decisions. For example, in 2017, Chicago’s Department of Housing

(DOH) developed a Racial Equity Impact Assessment (REIA) which is built on community engagement and data collected by race to evaluate the impact of proposals of its housing policies like its allocation of Low-Income Housing Tax Credits (LIHTC) to developers. Chicago’s REIA evaluates the distribution of benefits and burdens across the development process, with a particular focus on racial equity that aggregates data on the demographics of developers and contractors who benefit, residents who are served (age, race, income, disability, family size, housing cost burden, etc.); this ensures that marginalized groups are not denied access, promotes mental health needs and prioritizes developments that provide workforce development and wealth-building opportunities (See CDOH 2021).

In the wake of George Floyd’s death in 2020, many cities are making strides to address the uneven legacy of urban development through the formulation of tools, indicators, and initiatives that center the measurement of racial and social inequities. Each of these equity-driven projects exists within a particular ecosystem of government agencies, philanthropic organizations, local institutions, and neighborhood organizations that often have overlapping and duplicative initiatives, along with various kinds of partnerships and levels of resident engagement that shape outcomes.

Table 1 provides a brief listing of some of these initiatives.

Table 1. Examples of Equitable Real Estate Development Guidelines and Indicators

Name	Description
“All-In Cities Initiative” by PolicyLink (2021)	Involves consultation with over 30 American cities focusing on policy and governance changes through capacity building, policy development and implementation, anti-displacement programs, and chief equity officer training. They also help communities challenge unjust development projects and policies through supported legal action and leverage available public data to ensure that equitable changes are being made over time through their work with cities.
“Health and Social Equity in Real Estate: Examples from the Field” by Urban Land Institute (Moscovich et al. 2020)	Provides a set of recommendations for equitable development through several case studies. Despite minimal emphasis on private real estate development, several principles are worthy of note: (1) transformation, not transactions, where housing, people, and profit can co-exist; (2) time and anticipation; (3) embed engagement, data; (4) maintain cultural identity; (5) community land trusts; and (6) public land for public good.
“Equitable Development Community Indicators Report” by the Office of Planning and Community Development in Seattle, Washington (Seattle Office of Planning and Community Development 2020)	Provides a city-wide analysis using census data, focusing entirely on the impact of public development, infrastructure policy, and spending. Considers the complex interrelationship between drivers of equity and racial justice across four categories of indicators: (1) home (i.e., cost, ownership, size), (2) community (i.e., food, park access, pollution), (3) transportation (i.e., sidewalks, job access, commute time), (4) education and economic opportunity (i.e., school performance, employment, poverty, business ownership).
“Equitable Development Guidelines” by CUNY Institute for State and Local Governance (Drummond et al. 2019)	Provides guidance on the process of formulating comparable metrics and draws on community participation. Outlines several private-sector-based development indicators that span five categories: (1) the overall planning process; (2) employment and procurement; (3) community, business, and non-profit spaces; (4) housing affordability and ownership; and (5) design standards.
“Principles of Equitable Development” by the American Planning Association (Eley 2017)	Aims to balance the needs of smart growth with the needs of underserved communities. Advocates for the self-determination of underserved populations and vulnerable groups in guiding the changes within their community.

Name	Description
“Ensuring Equitable Neighborhood Change: Gentrification Pressures on Housing Affordability” by US Department of Housing and Urban Development (HUD 2016)	Focuses on preserving housing affordability, encouraging more housing production, and community engagement. However, while these briefs offer model policy responses to the problems of gentrification, they don't provide specific indicators for measuring equitable development.
“Equitable Development as a Tool to Advance Racial Equity” by the Haas Institute and the Center for Social Inclusion (Curren et al. 2015)	Aims to remove the racial disparities in key life outcomes tied directly to urban development through improving government action. It provides a comprehensive set of quantified, outcome-based indicators that are measured over time, including: (1) life expectancy, (2) housing conditions, (3) commute times and proximity to public transit, (4) employment, poverty, and wealth, (5) proximity to open space, healthy food, and obesity rates, (6) proximity to environmental hazards, (7) evictions, cost burden, and homelessness, (8) stress/anxiety, (9) disruption to health care, education, social services, and school attendance, (10) financial distress or loss of wealth, (11) relocation to ill-fitting neighborhoods, and (12) segregation.
“Healthy Development Guidelines” by East Oakland Building Healthy Communities, Alameda County Public Health Department, and the City of Oakland Planning Department (Lee et al. 2020)	Reports on the outcome of a multi-year engagement process, ending in 2014 with residents and community-based organizations in Oakland CA, which identified a set of guidelines that planners and developers could use to evaluate new development projects to ensure that they meet community-identified standards for health equity. Also discusses training provided to Oakland Planning and Building Department, which resulted in the incorporation of guidelines into its Standard Conditions of Approval.
“Global Goals: A Primer on the UN Sustainable Development Goals for Real Estate” by the Urban Land Institute (ULI 2021)	Highlights the growing trend in real estate to adopt the UN sustainable development goals (SDGs) as ESG portfolio criteria. A report by ULI on SDG alignment in real estate mentions that ULI Greenprint real estate members most frequently align with goals such as climate action, followed by industry, innovation, and infrastructure; they then address responsible consumption and production. Within each goal, there are several indicators that provide finer-grain guidelines on what should be measured.

To demonstrate how equity metrics are developed and translated into action, the following brief cases are presented: (1) CUNY Institute for State and Local Governance Equity Indicator Project, and (2) Seattle Equity Indicators and Action Planning. These two cases provide a comparison between an approach taken by a research organization and an approach driven by City planning needs. Such a comparison allows us to see how in contrasting organizational contexts, equity-driven data analysis is translated into action.

CUNY Institute for State and Local Governance Equity Indicators Project

The New York City (NYC) government first established an equity initiative in 2014. Since then, NYC has compiled a comprehensive set of social equity indicators that centers the issue of equity across city departments and planning, resulting in multiple reports such as the yearly Disparity Report (2016-2021), produced by the mayor’s Center for Innovation through Data Intelligence (CIDI). This report highlighted the persistence of racial and social disparities over the previous five-year period. A more comprehensive set of indicators is compiled by the City through the Social Indicators and Equity Reports (NYC Center for Innovation through Data Intelligence (CIDI) 2016 and the NYC Mayor’s Office for Economic Opportunity (MOEO) 2019), published on the EquityNYC website (equity.nyc.gov), which visualizes an array of indicators. More recently in 2019, Executive Order 45 (EO45), known as the “OneNYC Equity Review,” requires the mayor’s office to work with NYC

departments to ensure that equity is integrated into all policymaking and initiatives and directs NYC agencies to report on a set of metrics to be compiled in the Social Indicators and Equity Report. Most indicators are thus determined by particular departmental priorities.

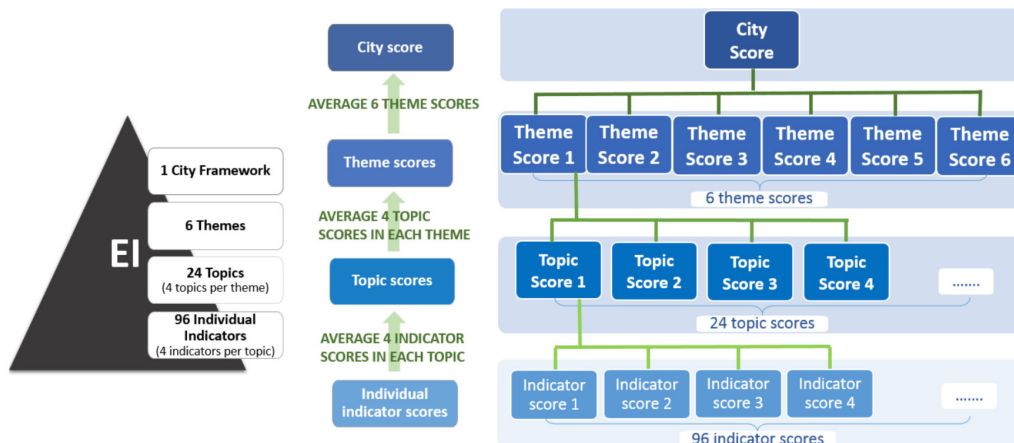
During this time, the CUNY Institute for State and Local Governance began its Equity Indicator project (later renamed the Equality Indicators project) to establish a data-driven approach to measure equity. Building on CUNY's partnership with the Rockefeller Foundation and the 100 Resilient Cities project, the Equality Indicators would not be specific to NYC; they would be transferable to other cities. Following the introduction of Equality Indicators in NYC in 2015, the work was later translated to Dallas, Oakland, Pittsburgh, St. Louis, and Tulsa. Like the NYC government's equity reporting initiatives, the CUNY Equality Indicators project (Lawson et al. 2018) was developed to connect measures of inequality across multiple domains of municipal policy making – economy, health, justice, education, housing, and services – to improve outcomes for disadvantaged communities. Each year, existing metrics and survey results are incorporated into the scoring framework to show progress (or lack thereof) over time.

The research team focused on developing an unbiased framework to improve the transferability of the Equality Indicator to other cities, drawing primarily from existing city, state, and federal data sources which could be found in similar contexts. The team deliberately did not weight any of the metrics when creating a final score for a city to enable it to avoid any bias that would privilege one specific municipal sector at the expense of others. The CUNY team also conducted a yearly multimodal survey of around 3,000 NYC residents aged 18 and older, including secondary public survey data from the American Community Survey, Current Population Survey, NYC School Survey, and the Community Health Survey.

The team solicited feedback from experts on equity-based performance metrics by hosting three citywide community meetings and engaged with the Mayor's Office of Operations for additional feedback on the metric indicators. Through that process CUNY identified 96 citywide metrics – across the topics of economy, education, health, housing, justice, and services – that measure the disparity between the most and least disadvantaged groups. Metrics placed emphasis not on absolute outcomes, but on *gaps* typically measured as a ratio by taking the metric (e.g., personal income) of the least disadvantaged group and dividing it by the metric of the most disadvantaged group. Eighty-six of the 96 metrics compare most and least disadvantaged groups through ratios such as “ratio between female and male elected officials.” The remaining 10 metrics are expressed as percentages and rates for particular groups, such as “percent of taxis that are wheelchair accessible” or “rate of crime.” Examples of potentially disadvantaged groups include children, immigrants, persons in poverty, persons with a disability, racial and ethnic minorities,

LGBTQ+ individuals, seniors, women, and others. Ratio-based scores are then stretched onto a scale of 1 to 100 with “1” (a ratio of 9.999) being completely *unequal* and “100” (a ratio of 1.000) completely *equal*. These metrics are combined to give an overall score: for example, in 2018 New York City got an overall score of 48.52 out of 100. Figure 1 shows a graphic representation of how the scores were combined.

Figure 1. The Process of Combining the Equity Scores in New York City



The scoring structure of this equality indicator provides one score for equity across NYC, which makes it difficult to discern the differences between different neighborhoods across the city. For example, the performance indicator does not provide comparison between two neighborhoods, leaving municipalities unsure of how investments should be made to improve city equality. A barrier to this level of resolution is the way data is collected. Some of the surveys are collected at the appropriate scale, whereas others are collected at the city level. This inconsistent level of resolution inevitably forced the team to default to higher, citywide-level observations. However, it does provide some measure for accountability based on how well a city is doing overall, which may provide evidence for city services or other areas of investment to prioritize. Ideally, developing and communicating the 96 metrics in more detail at the neighborhood or census tract scale could help NYC identify specifically where marginalized and underfunded neighborhoods are located and allow officials to compare approaches and outcomes.

Leveraging existing publicly accessible data, e.g., census data, from government agencies reduces the costs of directly collecting data and has the benefit of higher degrees of validation. Thus, CUNY’s Equality Indicators appeal to new cities as the cost to measure the 96 metrics is relatively low. However, many existing data sources may lack the nuance to describe the particular specificities of what “equity” means to a local community; these may include environmental factors like pollution, flood risk, demographic composition, cultures and histories, the importance of amenities, particular forms of displacement, and other disparities. Throughout the various yearly reports, CUNY

had to switch out a number of metrics and data sources that were either no longer published or had diminished in quality. The team of researchers addressed this issue by either substituting new data sources or introducing new but similar metrics.

Seattle Equity Indicators and Action Planning

Like other cities across the US, Seattle is in the process of coming to terms with a long history of unequal urban development. In 2015, Seattle passed Resolution 31577, which called for the integration of racial and social equity into comprehensive planning. A range of citywide initiatives, including the Equity and Environment Initiative (EEI) and Equitable Development Initiative (EDI), was formulated in response. These initiatives included the establishment of an Environmental Justice Fund and an Equitable Development Fund that aim to support urban development projects that empower historically marginalized communities to confront environmental issues and prevent displacement.

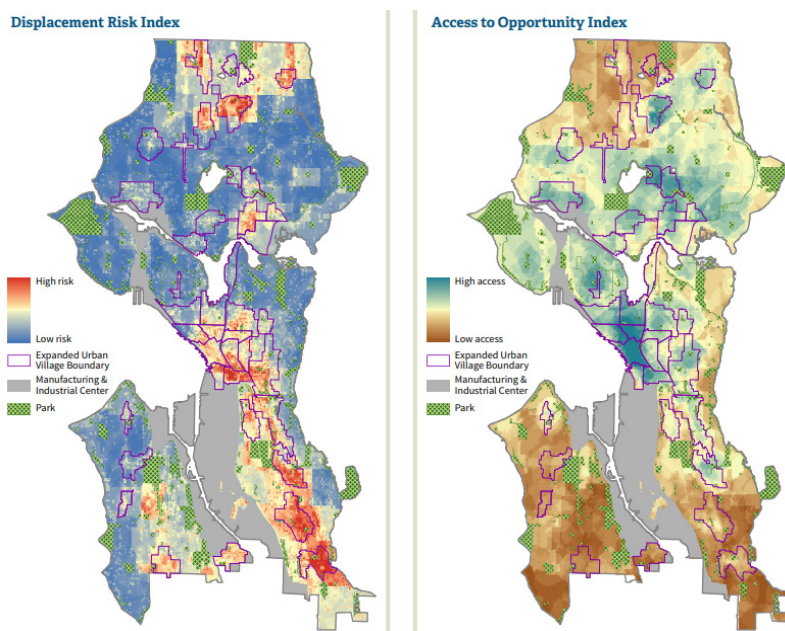
As part of the EDI initiatives, an Equitable Development Implementation Plan, which identified monitoring as a critical action to advance equity, was formulated. Since 2015, there have been several important data-driven measures to help the City prioritize planning, programming, and public investment in marginalized communities. Three of these data-driven assessments will be discussed to illustrate the gradual shift from city-level equity measurements to local neighborhood planning and monitoring. These three equity measurements include the Displacement Risk Index, Access to Opportunity Index, and the Duwamish Valley Action Plan.

In 2016 the Displacement Risk Index and the Access to Opportunity Index (Seattle OPCD 2016) were created to inform city-wide priorities for planning, programming, and public investment in particularly disadvantaged neighborhoods. Using the results of these metrics to target areas in need of further attention, the city developed the Duwamish Valley Action Plan. This plan, which represents a much more context-sensitive initiative built on an elaborate ecosystem of past community engagement initiatives, resulted in several context-specific performance metrics developed in partnership with local neighborhood organizations to evaluate implementation. These three data-driven assessments showed that involvement of the community in making decisions about what and where to invest became more central as planning shifted to the local level, resulting in the emergence of an initiative to establish a shared decision-making framework between the city, county, and several local organizations and residents through the Duwamish Valley Action Plan.

The Displacement Risk Index and the Access to Opportunity Index draw from official government sources such as the US Census Bureau's American Community Survey as well as city- and county-level indicators. The Displacement Risk Index is a composite of the following indicators:

communities of color; low English-speaking ability; low educational attainment; renter households; housing cost-burdened households and low household income; access to frequent bus service; access to light rail or streetcar; proximity to core businesses; proximity to school, park, community center, or library; proximity to a higher-income neighborhood; travel time to regional job center; development capacity; and below-average median rent. Similarly, the Access to Opportunity Index is a composite of the following indicators: high-performing elementary and middle schools, above-average high school graduation rate, the number of jobs within a two-mile radius, increase in median home value, access to frequent bus service, access to light rail or streetcar, proximity to a library, proximity to a community center, proximity to a park, proximity to a public health facility, and access to fresh produce (see Figure 2).

Figure 2. Displacement Risk Index and Access to Opportunity Index



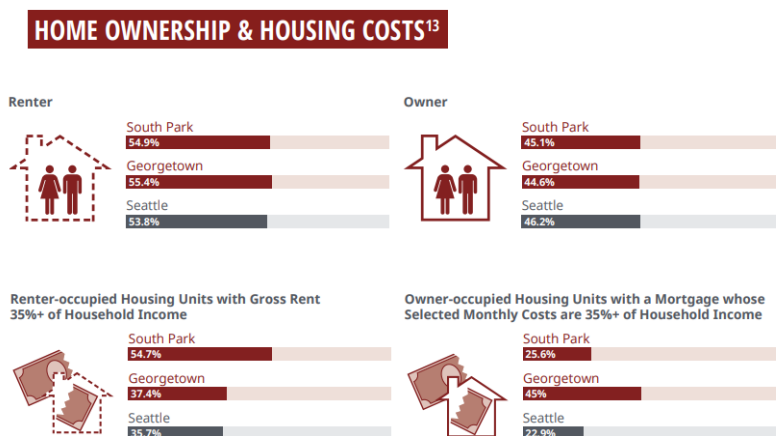
The Duwamish Valley Action plan identified place-specific strategies and an implementation process that centered on environmental justice and equitable development; in particular, it focused on the communities of South Park and Georgetown, which are composed of indigenous, minority, low-income, and immigrant residents and workers with varying levels of exposure to the risks of sea-level rise and displacement. Moreover, according to the Displacement Risk Index, the risk of displacement in those communities is high, while access to opportunity is low (as measured by the Access to Opportunity Index).

The plan itself was developed by stakeholders from the Port of Seattle, a range of other city and county agencies, and a wide array of community organizations that focus on affordable housing, environmental stewardship, and other interests. Because there exists a complex ecosystem of prior

initiatives in South Park and Georgetown, the effort also built on a range of prior community engagement initiatives. These included the Georgetown Mobility Study (Seattle DOT 2017), the South Park Public Safety Taskforce Reports and Recommendations (Quintana 2017), the Equity & Environment Initiative Community Engagement Reports (2017) and others.

The Action Plan also expanded on several indicators identified in past assessments such as the Healthy Living Assessment (see Lerman 2011 for example), with a total of 21 metrics across seven categories that identified community-specific disparities by comparing South Park and Georgetown with greater Seattle. These indicators included: (1) health and environment – life expectancy, tree canopy coverage, asthma prevalence, households living near contaminated sites; (2) access to public space – public space access score, households within a five-minute walk of public space, and households within a ten-minute walk of public space; (3) mobility and transportation – households without a vehicle, working residents with over a 30-minute commute, walkability score, adults not participating in physical activity, pedestrian collision rate, and bicycle collision rate; (4) economic opportunity and jobs – high school graduation rate, median household income, college graduation rate, and unemployment rate; (5) homeownership and housing costs – renters rate, ownership rate, renter households with 35 percent rent cost burden, and owner households with 35 percent mortgage cost burden; and (6) public safety – with crime rate as the only indicator. These indicators formed the baseline rationale for the identification of specific investment projects and built on previous community engagement initiatives to prioritize the needs of those most affected by racial inequities and health disparities.

Figure 3. Example of Indicators Identified in the Duwamish Valley Action Plan



Although important, the Action Plan is still only a communication tool within a much more complex organizational ecosystem with many other overlapping programs, projects, and initiatives such as the Port of Seattle’s own Duwamish Valley Community Equity Program initiated in 2019. While emphasizing communication, transparency, and accountability in the course of the city’s planning

and community engagement, one of the biggest challenges for translating the Action Plan (and other initiatives) into meaningful action is the complex organizational and institutional environment which makes communication across various interests and between agencies, organizations, and residents exceedingly difficult.

Without a shared decision-making framework to coordinate activities and negotiate varied interests, the continuation of uncoordinated activities and engagements could leave many community members frustrated and fatigued; furthermore, it may privilege certain interests within the community that may be able to command more resources than those without as much time and personnel. Thus, while planning and implementation proceeds, Seattle Public Utilities (SPU), a city entity that has long worked with the community to design drainage and water management infrastructure, hoped to define an adequate organizational framework for the establishment of a “resilience district” by the end of 2023. The resilience district strategy will build on and complement SPU’s past and ongoing work with the community but will center on equitable development and environmental justice while balancing complex, competing for interests (see Seattle Office of Planning and Community Development, 2018). Partnering with 18 city departments, including the Office of Housing, King County Flood Control District, King County, and the Port of Seattle, SPU has also promoted the resilience district strategy as a means to mitigate displacement risk, promote racial equity, and build community wealth. The final form of this district entity is as yet to be determined but could take the form of a community land trust, a community development organization, a quasi-public governance organization, or any number of different arrangements that build on the participation and decision-making of local residents and businesses, with a focus on Black, Indigenous, people of color, and low-income individuals.

Conclusion

The early use of data in urban management in the late nineteenth and twentieth centuries has benefited some while marginalizing others. As equity has become a greater priority for cities in the last decade, there have been attempts to use data as a way to measure equity in urban development projects – primarily focused on measuring public sector investments and activities. While most metrics are being developed by academic institutions and governments, there has been an increasing recognition of the agency and importance of other actors such as real estate developers, community organizations, and residents in historically marginalized neighborhoods in ensuring equity.

CUNY’s and Seattle’s approaches to measuring equity in urban development highlights the challenges for creating and translating data into action. These cases provide useful illustrations for

ways to better measure equity in urban development through the data action principles (Williams 2020). Four important themes are summarized below.

(1) Building a proper team and engaging stakeholders is essential to defining “equity.”

Using data for action necessitates finding the right group of people to come together to define the problem. One of the biggest issues for the development of any metric is the ability to clearly define the issues you seek to answer. This is particularly true when we are trying to create a data-driven approach to measuring equity in complex urban environments. The definition of equity is highly dependent on who is defining the problem and at what scale they hope to measure the issues. The two case studies help to illustrate that bringing a diverse group of stakeholders to the table to define a problem is not only essential for defining a successful metric, but it will also determine how the metric will be used. In the case of the CUNY Equality Indicators project, the objective of the stakeholder partnership was to be able to measure equity holistically over time and comparatively across multiple cities. Therefore, the extensive metrics defined were focused on issues that would likely appear in most cities in the US. However, this approach may not allow for some of the more nuanced ways in which equity issues uniquely manifest in each city. The city of Seattle brought together different stakeholders at different scales to measure equity – realizing that stakeholder interests were deeply connected to the investment priorities that would be set by defining which measures of equity would be included. Going even further, to ensure equity of representation in the continual process of setting new priorities, Seattle resolved to establish a new community entity that would allow for more equitable involvement from across the various community stakeholders as partners.

(2) Data is biased – we must evaluate sources and their appropriateness for measuring equity.

As noted above, defining what equity means in any context is certainly difficult, but identifying the appropriate data to measure that definition can be even harder. In the case of CUNY’s Equality Indicators project, the definitions of “equity” and “equality” were driven by the interest in establishing a comparative metric that could be measured across cities. In order to do this, the methodology was necessarily limited to data, such as census data, that could be found in all cities. While census data is a great resource to measure things at the city scale, it is less useful in capturing specific details within and across communities that are needed to understand the nuanced effects of urban investments. This means that in CUNY’s methodology, the analysis could never address some of the contextual specificity of equity issues in unique neighborhoods – for example, what would census data say about the different collective historical experiences of Harlem and Chinatown? The

selection of data sources also changed for certain years during the project, due to availability. This shows that flexibility is necessary but also that a metric created today will most likely change and evolve over time. Integrating qualitative data is also an important consideration. One of the most pressing challenges on this front is the inclusion of community voices in the assessment of equity. For example, while the city of Seattle collected data at the city level, officials found that it only helped to highlight neighborhoods using a generalized, standard index of opportunity and displacement risk. Once the neighborhoods were identified, new, more contextually specific metrics were needed to capture a more nuanced understanding of equity challenges at the neighborhoods' scale. For example, in the Duwamish Valley, the creation of jobs and affordable housing was deeply intertwined with resilience concerns.

(3) Data should be analyzed ingeniously and ground-truthed.

While it's important to find the right data to collect, it is also equally important to find the appropriate analysis techniques for translating that data into actionable knowledge. CUNY's Equality Indicators project included a comprehensive dataset of 96 indicators. However, each of the indicators were weighted equally, which precludes considerations or priorities of specific communities or cities. The overall metric established by CUNY smooths out concerns represented more by certain indicators over others that might be particularly important to the community—privileging a certain framing of the issue over other alternatives. Even though Seattle's displacement risk and opportunity indices were performed at the scale of the city, the geographical method allows a viewer to compare differences across neighborhoods and draws attention to highlighted priority areas. The method was explicitly used as an identification tool to evaluate funding priorities specifically related to equity concerns. Once a neighborhood (e.g., the Duwamish Valley) was identified, a whole new approach to data gathering and analysis was taken through action planning – involving deep community knowledge and ground truthing. This type of ground-truthing verifies the results of the analysis while providing an ability to know what data is needed at different scales. Like past planning initiatives, future conversations with community stakeholders are likely to bring additional quantitative and qualitative data into the analysis.

(4) Communicating results effectively can yield compelling insights

Finally, effectively communicating findings to nonspecialists in the community is essential for community buy-in and generating informed policy decisions. Still, many metrics may not be easy to understand, but figuring out ways to make them more accessible to the community will be important in promoting an equitable process. CUNY's Equality Indicator project communicated

metrics as standardized, abstract numbers, which can make it hard to understand intuitively. For example, what does a “40” on a scale of 1 to 100 mean for an overall category of “housing in NYC,” or even the indicator of “child homelessness and school attendance”? An interested viewer would have to comb through the methodology to find out. Likewise, many of the indicators lack direct connection to specific policy measures and thus are only able to inform policy making through benchmarking and performance evaluation in the abstract – like using a Gini index to drive policy measures. How much can an index tell us about actions one city took to increase or decrease values compared with the actions of other cities? While such indices would certainly give some insight into how a city measures up with other cities – illustrating the need for overall improvement in enhancing equity, it may provide little information to address equity at the scale of the neighborhood. While Seattle’s citywide displacement risk and opportunity indices are not without limitation, their communication as a map allows them to better express neighborhood differences and specific areas that the city could prioritize. The visualization helped to create the more intuitive approach toward a scaled-down planning process where the analysis could be informed by direct community engagement connecting citywide maps to the neighborhood mapping of the action plan.

In conclusion, measuring and evaluating equity through metrics has limitations due to the many assumptions that need to be made in the development of metrics. Metrics that are co-created with the community or that open the pathway to greater community input can lead to greater accountability and continued community involvement.

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