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THE RACIAL WEALTH GAP IN WASHINGTON, D.C.

RESEARCH AND ANALYSIS IN SUPPORT OF THE COUNCIL OFFICE
OF RACIAL EQUITY, COUNCIL OF THE DISTRICT OF COLUMBIA

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Introduction

“Wealth,” according to the Organisation for Economic Co-operation and Development, “is the difference between all financial and non-financial assets (such as dwellings, land, currency and deposits, shares and equity) owned by [individuals or] households and all their financial liabilities (such as mortgages and consumer loans)” [1]. Wealth enables freedom from want and determines quality of life and life expectancy [2].

In Washington, D.C. (“District” or “D.C.”), wealth disparities between Black and White residents are stark. At most recent data collection (2013–2014), the median White household in our nation’s capital had a net worth of \$284,000—81 times the median Black household net worth of \$3,500ⁱ [3]. The median White D.C. resident’s income is over three times the median Black resident’s income [4]; On average, Black-owned homes are valued at half the value of White-owned homes; and over 25% of Black residents experience poverty, compared to 5.9% of White residents [5].

Recognizing wealth disparities between Black and White Washington, D.C. residents and the disproportionate impact of these disparities on the wellbeing of the District’s Black residents, the District of Columbia’s Council Office of Racial Equity (CORE) requested an analysis of the Black-White “racial wealth gap”¹ to guide future research in support of racially equitable policy design, and inform Council legislative deliberations.

MITRE offers the following report in response to this request. This report outlines a data-driven systems approach to understanding the racial wealth gap in the District and provides insights that can inform future research, analysis, solution design, and strategic planning.

THIS REPORT OUTLINES A DATA-DRIVEN SYSTEMS APPROACH TO UNDERSTANDING THE RACIAL WEALTH GAP IN THE DISTRICT AND PROVIDES INSIGHTS THAT CAN INFORM FUTURE RESEARCH, ANALYSIS, SOLUTION DESIGN, AND STRATEGIC PLANNING.

A system is a group of interacting components that “together exhibit behavior or meaning that the individual constituents do not” [6]. Systems can be technological, natural, or social; computers, organisms, organizations, and economies are all examples of systems [7]. A systems thinking approach of an observed problem treats that problem as the result of a system rather than a single component, and uses systems analysis—the process of identifying the system components and studying the structure of the relationships between them—to find interventions that could change the output to address the problem [8].

MITRE used a systems thinking approach to inform CORE’s efforts to design a more equitable system for creating and sustaining wealth in Washington, D.C. Our approach included the following steps:

- Building and analyzing a conceptual model of the current wealth building system in D.C. to establish shared understanding of how it operates and how to introduce change;

¹While Washington D.C. is racially and ethnically diverse, this inquiry focuses on Black and White residents, who together comprise the majority of the city’s population (92%).

- Providing methodologies for exploring how Black and White D.C. residents of different socioeconomic profiles experience the system differently, and drawing on these lived experiences to identify leverage points best suited to address the racial wealth gap; and
- Offering considerations for future planning based on equity-centered design and change management best practices.

The conceptual models and frameworks in this document represent a starting point for shared understanding. They build on, and are meant to complement, the work of research economists and social scientists. They must be refined and improved in partnership with D.C. residents, especially those residents who are experiencing these inequities, along with other key parties inside and outside of government. MITRE offers these models to help leaders gain clarity, use data more effectively, and strategize and decide on policy action.

The report that follows begins by describing systems analysis methods, including the use of causal loop diagrams to model system relationships. Drawing on this analysis, the following section explains how feedback loops comprised of multiple system components drive a wealth building system that produces racially disparate outcomes in Washington, D.C. Next, the report identifies three main feedback loops driving this system. The final section considers how these models can guide policy intervention that disrupts this system and leads to improved wealth building for Black residents and greater overall equity in Washington, D.C.

Supporting appendices provide additional detail.

Appendix A describes each of six main categories of factors identified in MITRE's systems analysis.

Appendix B captures lived experiences of D.C. residents and shows how they validate the system model. **Appendix C** discusses how to model system dynamics, or rates of change, of racial equity in wealth for Washington, D.C and considers some of the relevant dynamics. **Appendix D** considers different theoretical frames for defining successful progress toward racial equity outcomes.

Appendix E provides examples from other jurisdictions aiming to address racial disparities in wealth or achieve other racial equity strategic goals. **Appendix F** offers an overview of historical factors contributing to the current racial wealth gap in Washington, D.C.

Key Observations

- Systemic racism² underlies the racial wealth gap in Washington, D.C. This system creates socioeconomic conditions that accelerate wealth building predominantly for White residents and slow wealth building predominantly for Black residents. It is comprised of a complex set of intersecting factors that amplify each other in feedback loops, creating entrenched disparate outcomes and extending inequities across generations.
- A one-time change in the current value of any individual factor in this wealth building system (e.g., formal education level or income) is unlikely to drive the overall system behavior to a sustained racially equitable state. Given the variety of starting points, needs, and opportunities among D.C. residents, decision

²Systemic or structural racism (in many ways synonymous) is defined as: "A system in which public policies, institutional practices, cultural representations, and other norms work in various, often reinforcing ways to perpetuate racial group inequity. It identifies dimensions of our history and culture that have allowed privileges associated with "whiteness" and disadvantages associated with "color" to endure and adapt over time. Structural racism is not something that a few people or institutions choose to practice. Instead it has been a feature of the social, economic and political systems in which we all exist" [93].

makers will need to affect multiple feedback loops and coordinate interventions across multiple factors to generate, accelerate, and sustain wealth building for Black residents.

- Decision makers can address the racial wealth gap by coordinating strategies that target key forces driving the wealth building system operating in the District. Based on research and a causal loop diagram (CLD) developed with CORE, MITRE identified three key feedback loops that drive wealth accumulation or protect against loss of wealth, thereby sustaining the racial wealth gap in the District. The three loops are: (1) Investing in Employment, (2) Building Financial Resilience, and (3) Increasing Rates of Return.
- The models contained in this report offer organizing constructs for developing and evaluating policy solutions and a long-term strategy for change. However, they are preliminary and must be calibrated, validated, and enhanced using additional data and insights about the District and its residents. D.C. residents, particularly those most impacted by racial wealth disparities, must be at the center of a participatory process to create a shared understanding of the problem and collaborate on solutions.
- Reaching racial equity in wealth among District residents will require coordinated, transformative efforts by all sectors (e.g., academic, public, private, nonprofit) in partnership with D.C. residents. Because the introduction of interventions will change the system's dynamics, decision makers will also need to continuously monitor the wealth system to proactively identify inequities and adjust the interventions in response to the changing system.

A Systems Analysis of the Racial Wealth Gap in Washington, D.C.

Systems Analysis Using Causal Loop Diagrams

The racial wealth gap between Black and White Washington, D.C. residents is significant, with the ratio of White to Black household net worth as high as 81:1 [3].

Working with CORE, MITRE used a systems analysis to model the multiple, complex, interconnecting factors that influence wealth

building. A system is a group of interacting components that “together exhibit behavior or meaning that the individual constituents do not” [6]. Systems can be technological, natural, or social; computers, organisms, organizations, and economies are all examples of systems [7]. A systems thinking approach, or systems analysis of an observed problem, treats that problem as the result of a system rather than a single component and focuses on the structure of relationships between system components to identify interventions that could change the problem’s outcomes.

MITRE and CORE developed a CLD to illustrate this system. A CLD shows how components of a system influence each other (Figure 1).

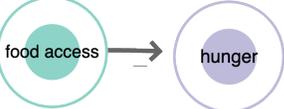
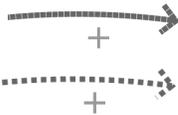
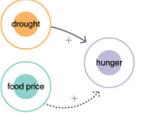
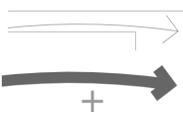
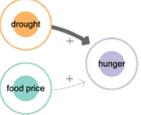
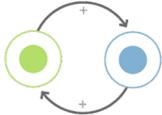
DIAGRAM	DEFINITION	EXAMPLE	EXAMPLE DESCRIPTION
	Node (or Variable or Component). A single part in a system, with a value that can go up or down.		Food price is a node in food systems. Food price can go up or down.
	Node Value. The more a node circle is filled in, the greater its current value.		There is greater food access in region B than in region A.
	Positive Causal Link (Or Edge). One node increases another node.		Drought increases hunger.
	Negative Causal Link (Or Edge). One node decreases another node.		Food access decreases hunger.
	Delay. Arrow dashes represent delay in the effect. Looser dashes denote longer delays.		Hunger increases immediately following drought; food prices increase hunger.
	Link Strength. Arrow width represents link strength. Thicker width denotes a stronger causal influence.		Drought has a stronger causal effect on hunger than food price.
	Feedback Loop. Causal links completing a circle.		Wealth supports formal education, which in turn unlocks more opportunities for wealth.

FIGURE 1: BUILDING BLOCKS OF A CLD

THE RACIAL WEALTH GAP IN WASHINGTON, D.C.

RESEARCH AND ANALYSIS IN SUPPORT OF THE COUNCIL OFFICE OF RACIAL EQUITY, COUNCIL OF THE DISTRICT OF COLUMBIA

To identify components and relationships between components, MITRE drew on research reports, as well as a collaborative process with CORE to document and integrate different mental models, or individual representations of what causes or inhibits wealth-building in the District.

The CLD presented in **Figure 2** conveys the scope and complexity of the wealth building system in Washington D.C. Although community

participation was not viable due to time limitations, a participatory approach can produce a causal model with even greater accuracy and resonance. Collaboration among a diverse cross-section of experts, including D.C. residents, researchers, policymakers, and community leaders builds a shared understanding and vocabulary for describing system dynamics, and allow co-creation of future solutions.

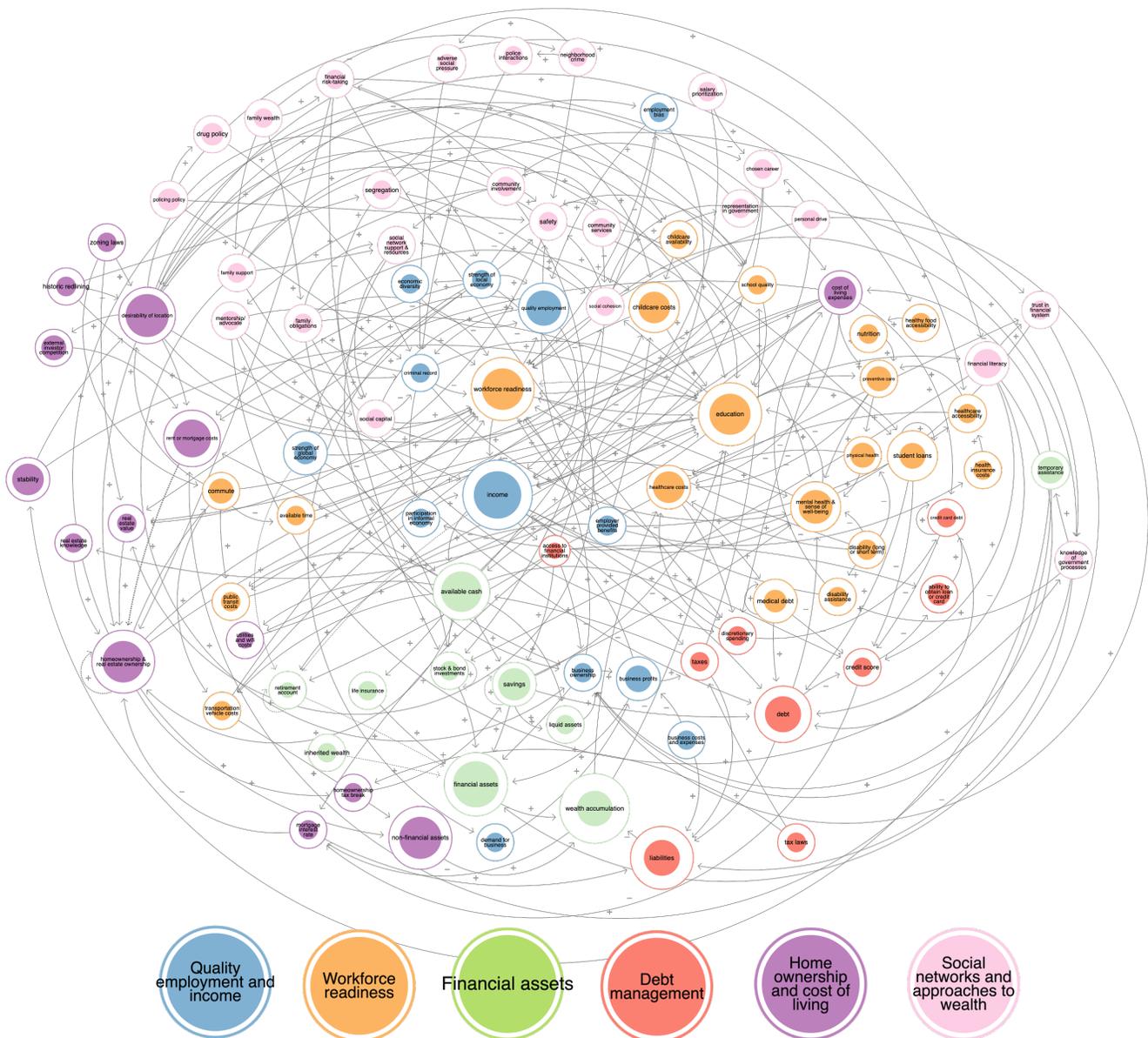


FIGURE 2: CLD OF WEALTH BUILDING SYSTEM IN WASHINGTON, D.C.

Based on this model, MITRE organized the many different factors and influences relating to wealth building into six primary categories:

1. Quality Employment and Income
2. Workforce Readiness
3. Financial Assets
4. Debt Management
5. Homeownership and Cost of Living
6. Social Networks and Personal Values

While these factors are highly connected and may overlap, categorization makes it easier to appreciate the breadth of factors contained in this system.

Table 1 provides an overview of these categories and corresponding example policy interventions. See **Appendix A: Wealth as a System of Systems** for a more detailed discussion of each category and **Appendix B: Lived Experiences in Washington, D.C.’s Wealth Building System** to see how stories from real people experiencing the racial wealth gap informed this causal model.

This model illustrates systemic racism in Washington, D.C. In other words, this model demonstrates that it is not a single component, but a set of interacting components shaped by current and historical policies and practices that perpetuate socioeconomic inequities between

CATEGORY DESCRIPTION	FACTORS	POLICY INTERVENTION EXAMPLES
Quality Employment and Income Factors that influence the availability of employment and income that provide the basis for wealth building	<ul style="list-style-type: none"> • Strength and diversity of the local economy • Employment biases • Income 	<ul style="list-style-type: none"> • Zoning policy • Minimum wage • Small business loans • Employer-provided benefits
Workforce Readiness Factors that prepare a person to obtain and sustain employment	<ul style="list-style-type: none"> • Education and skills • Mental and physical health • Childcare availability and costs • Commute times and cost 	<ul style="list-style-type: none"> • Job training programs • Childcare programs • Transportation subsidies • Healthcare subsidies • Public school investments • Community college programs
Financial Assets Factors relating to liquid, non-tangible assets	<ul style="list-style-type: none"> • Financial investments • Cash • Retirement savings • Insurance 	<ul style="list-style-type: none"> • Baby bonds/child savings accounts • Employer retirement matching • Universal basic income
Debt Management Factors relating to debt and liabilities	<ul style="list-style-type: none"> • Credit card debt • Credit score • Taxes • Debt consolidation 	<ul style="list-style-type: none"> • Postal banking • Loan assistance and/or loan forgiveness • Tax policies • Finance laws
Homeownership and Cost of Living Factors relating to the maintenance of one’s current lifestyle, including non-financial assets	<ul style="list-style-type: none"> • Real estate assets • Car • Rent 	<ul style="list-style-type: none"> • Zoning policy • Affordable housing • Energy efficiency programs or utility subsidies • Investments in neighborhood amenities
Social Networks and Personal Approaches to Wealth Factors relating to the relationships and views that influence wealth building	<ul style="list-style-type: none"> • Mentorship • Family obligations • Chosen career • Education 	<ul style="list-style-type: none"> • Child or employee investment accounts • School or community integration • Community internship programs • Mentorship programs • Financial empowerment programs

TABLE 1. CATEGORIES AND FACTORS IN THE CLD AND CORRESPONDING POLICY INTERVENTIONS EXAMPLES

Black and White D.C. residents. Identifying the observable components and dynamics in this system of racial inequities guides decision makers toward interventions that result in greater racial equity among D.C. residents.

How Feedback Loops Drive Washington, D.C.’s Wealth Building System

In a system, some components cause changes in each other over time. When the output of a component changes the component itself, whether directly or through a chain of other components, this relationship is called a feedback loop. A feedback loop is reinforcing when the feedback from a change in a component induces further change to that component in the same direction. For example, when a savings account earns interest, the interest is added to the original savings (principal), which in turn generates more savings and more interest (Figure 3). Similarly, debt earns interest, adding to the amount owed, which in turn incurs more debt and more interest.

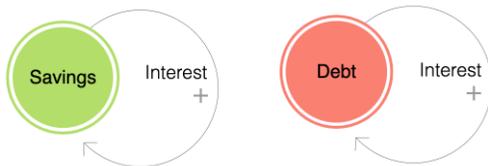


FIGURE 3. EXAMPLE REINFORCING FEEDBACK LOOPS

A feedback loop is balancing when the feedback from a change in a component “resists” that original change (Figure 4). An example that illustrates this concept: some benefit programs might aim to help District residents experiencing poverty through job training and job placement that increase their spendable income.

After completing the program, residents might increase their spendable income, but not enough to make a meaningful difference in their living conditions in the District. These residents might then leave the District. While the initial result of the benefit program is an increase in the number of residents with spendable income, this change is “resisted” by the balancing loop of residents leaving the neighborhood once they have the means to do so, driving back down the number of residents in the District with spendable income.

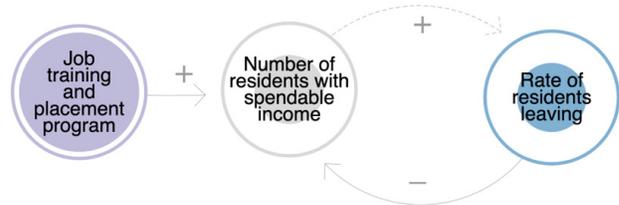


FIGURE 4. BALANCING FEEDBACK LOOP EXAMPLE

Feedback loops greatly influence the output of a system [9] and, in the case of the wealth system, perpetuate socioeconomic inequities between Black and White residents of the District (Figure 5).

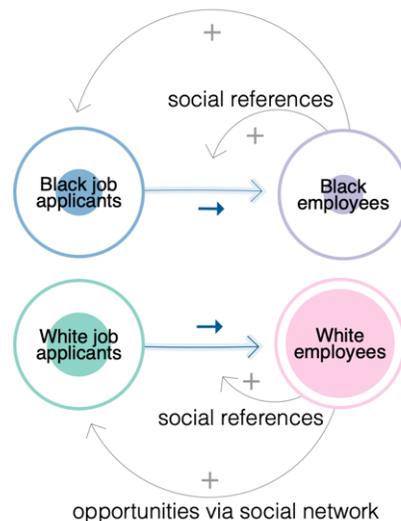


FIGURE 5. HOMOGENOUS JOB NETWORKS REINFORCING FEEDBACK LOOP

For example, racially homogeneous job networks [10] mean that racial gaps in specific professions perpetuate racial inequities in hiring. In this reinforcing feedback loop, White D.C. residents are more likely than Black D.C. residents to have access to high salary social or professional networks, through which they become more aware of job opportunities and are more likely to receive a social reference. These resources boost White residents' chances of securing a high salary job, which in turn further expands their job network.

In Washington D.C., like many cities in the United States with a history of redlining and continued residential segregation (**Figure 6**), system components that accelerate or prevent wealth building are often correlated with geographical location. Neighborhoods with more White residents have greater concentration of social and environmental assets that contribute to positive wealth building feedback loops, while neighborhoods with more Black residents have fewer such assets. This can include proximity and ease of access to higher-paying jobs as well as public and private investments that help sustain higher home values, support workforce readiness, and enable longer life expectancy [11] [12].

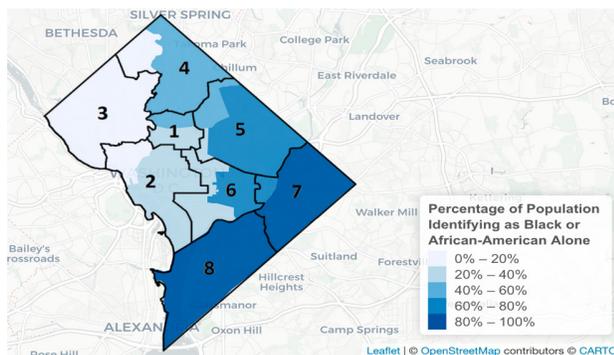


FIGURE 6. PERCENTAGE OF WASHINGTON, D.C. POPULATION IDENTIFYING AS BLACK OR AFRICAN-AMERICAN ALONE (2014–2019)ⁱⁱ [3]

For example, in the District, predominantly Black Wards 4, 5, and 7 are childcare deserts, meaning there are not enough childcare facilities to serve families in the area [13]. Scarcity of facilities in these neighborhoods make it difficult for parents to participate in the workforce or pursue opportunities that lead to higher income, driving down local income levels. Depressed local income levels, in turn, disincentivize investment in quality, affordable childcare in the area. Further, childcare expenses are high; infant care in D.C. costs approximately \$24,000 annually [14]. These costs reduce household income, which can affect how residents invest in workforce readiness for themselves and for future generations (**Figure 7**).

System components that contribute to wealth building feedback loops cluster geographically and also with each other. Wards 7 and 8, which are 90% Black, not only have fewer childcare facilities than neighborhoods with more White residents [15], but they also have fewer pharmacies [16] and grocery stores [17], have longer commute times [18] and require more driving-oriented commutes while having lower car access [19]. These system components all constrain positive wealth building feedback loops for Black residents.

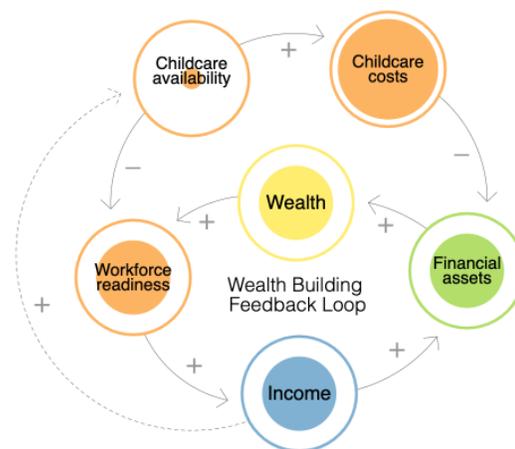


FIGURE 7. IMPACT OF CHILDCARE DESERTS ON A WEALTH BUILDING FEEDBACK LOOP

The effect of the concentration of social and environmental assets that strengthen positive wealth building feedback loops can also be seen when examining education and employment data across different wards in D.C. In Ward 3, a predominantly White neighborhood, a high school degree was the highest educational attainment for only 3.7% of adults age 25+, compared to 38% in Ward 8, a predominantly Black neighborhood [20] [21]. This disparity has been attributed, in part, to the routine underfunding of D.C. public school programs meant to support students who are at risk of academic failure, contributing to downstream opportunity gaps in employment and income [22] [23]. As of May 2021 Ward 3's unemployment rate was only 2.9% while it was 14.9% in Ward 8 [20]. In Ward 3, the median income is \$126,184, while in Ward 8, the median income is \$34,034 [24]. Reinforcing feedback loops relating to lower quality education, lower educational attainment, unemployment, underemployment, and low-income can minimize wealth building resources for current and future generations and, over time, lead to increased debt to cover living expenses. In D.C., communities of color are five times more likely to have debt in collections than White communities [25].

Income gaps perpetuate wealth gaps because higher incomes lead to more savings, higher rates of investment, and higher rates of return on investment (Figure 8) [26]. When people have more money after covering living expenses, they are able to invest more, in turn earning larger returns on the larger principal. Some financial tools and services, like high-interest savings or brokerage and advisory accounts, may require a minimum deposit, and/or market only to customers in a higher income bracket. Further, high-return investments carry greater risk of financial loss, especially in the short term, and the financial stability of people with lower income is more

sensitive to that risk [26]. Racial income disparity like that in Washington, D.C. results in higher rates of return on investment for White households compared to Black households [27]. Over time White household wealth (assets) grow exponentially larger than that of Black households even if their starting wealth were equalized.

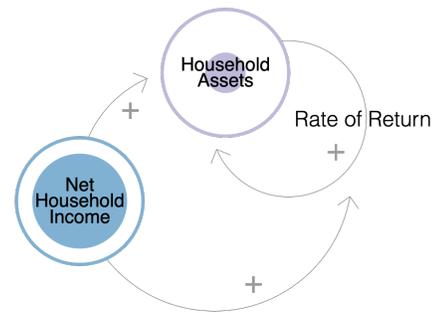


FIGURE 8. IMPACT OF INCOME ON ASSETS

Overall, this wealth building system model illustrates “advantage to the advantaged” system behavior (Figure 9). That is, White Washington D.C. residents start in a stronger position than Black residents and are therefore better able to continue building wealth over time.

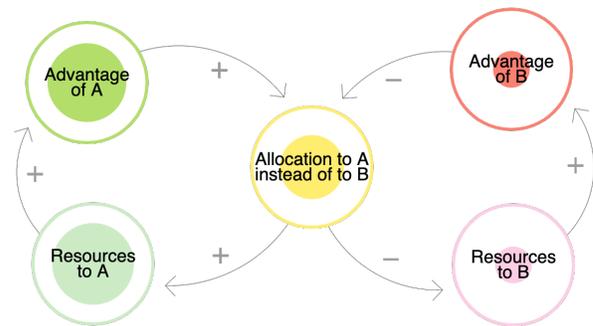


FIGURE 9. ADVANTAGE TO THE ADVANTAGED SYSTEM

White D.C. residents have higher median incomes, higher median home values, and larger median amounts of liquid assets and lower median debt values [3]. This leads to greater control over their costs than their Black counterparts; a larger financial cushion for shocks, stressors, or missteps; as well as more resources to invest in high reward payoffs whether better employment or higher return investments. In addition, the wealth building system, through mechanisms like interest rates, favorable tax policies, and in-group biases (i.e., people tend to favor others of the same race, class, or education level), provides additional benefits to those who already have wealth, further sustaining racial inequities. This means that “closing the gap” (if indeed this is the goal— see **Appendix D: Defining Success: Racial Equity and Wealth**) requires well-coordinated, targeted interventions across multiple factors to disrupt current system dynamics.

Causal Loop Diagrams of Main Feedback Loops in Washington, D.C.’s Wealth Building System

Understanding feedback loops as drivers of the racial wealth gap is critical for developing effective intervention strategies.

Economists debate over the most influential historical driver of the racial wealth gap. Gaps in income [28], homeownership [27], education [27], financial rate of returns [29], and incarceration rates [30] are all considered drivers. These factors are also all shaped by explicit discrimination, bias, and public policy impacts [31].

A systems analysis recognizes that multiple, interconnected factors and ongoing feedback loops, rather than standalone factors, create and sustain the racial wealth gap in Washington, D.C. In a system, each individual factor is both a cause and result of wealth disparities between Black and White residents [9].

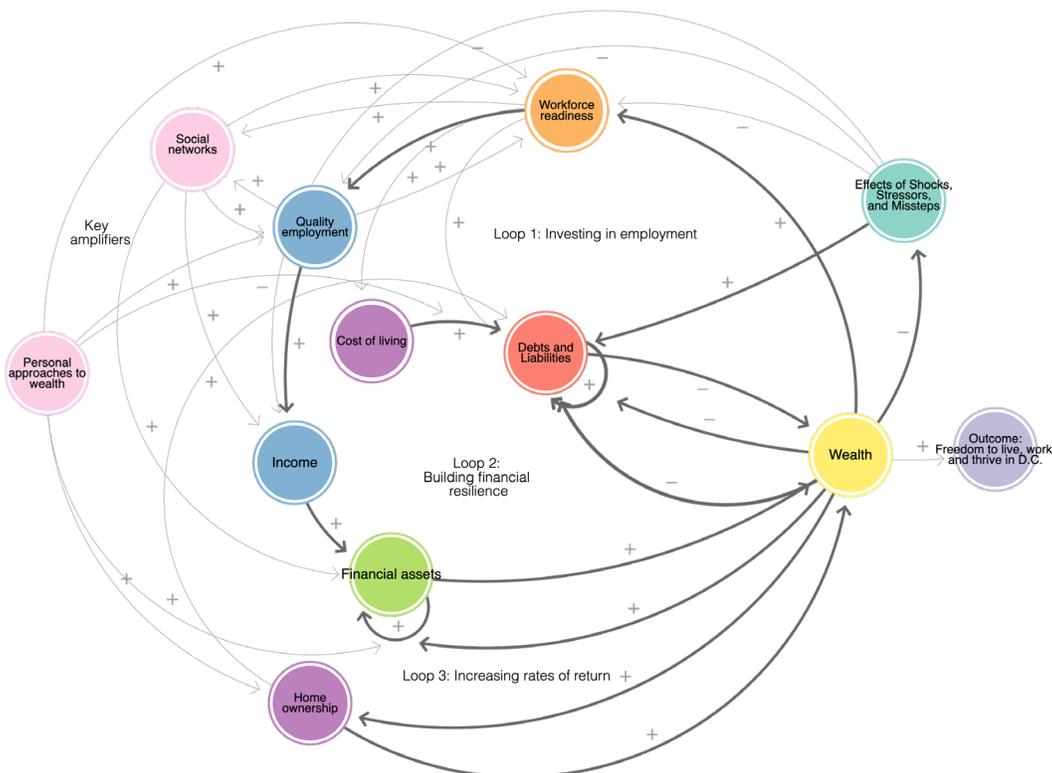


FIGURE 10. MAIN FEEDBACK LOOPS IN WASHINGTON, D.C.’S WEALTH BUILDING SYSTEM

Based on MITRE’s analysis of the wealth building system model (Figure 2) we identified three main feedback loops that drive wealth building (Figure 10). Those feedback loops are:

- Investing in Employment (Figure 11)
- Building Financial Resilience (Figure 12)
- Increasing Rates of Return (Figure 13)

CLDs modeling each of these loops show typical relationships among factors or categories of factors for common scenarios (e.g., job loss or gain, debt accrual) or personas (e.g., student, homeowner), but cannot represent every possible case. The loops are summarized in Figure 10.

▪ Investing in Employment (Figure 11):

This loop illustrates that the more wealth an individual or family has, the more they can invest to further increase employment income. Ability to invest in education, healthcare, access to infrastructure such as transportation and childcare, access to career opportunities such as internships and apprenticeships, and access to professional social networks all contribute to workforce readiness and quality employment. Quality employment increases income, in turn increasing access to these resources. Key nodes in this loop include: workforce readiness, quality employment, income, and financial assets.

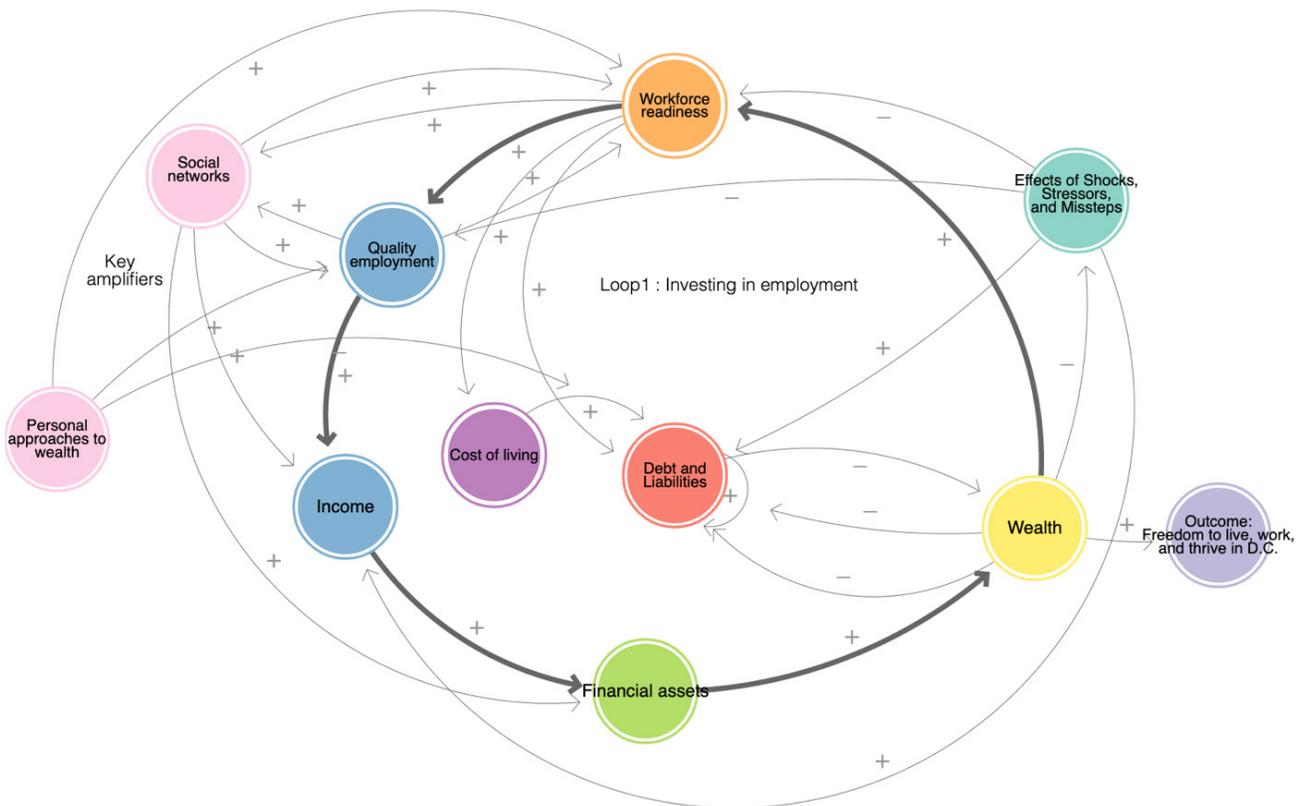


FIGURE 11. INVESTING IN EMPLOYMENT

▪ **Building Financial Resilience (Figure 12):**

This loop considers whether an individual family has enough income and accumulated wealth to cover living expenses and to absorb the impact of financial shocks, stressors, or missteps. Residents with more wealth maintain more financial freedom and ability to invest in workforce readiness (Investing in Employment

loop), whereas residents with less wealth may take on debt to cover living expenses or absorb financial shocks, in turn creating further financial precarity. Key nodes in this loop include: income, cost of living, financial assets, debts and liabilities, and the effects of shocks, stressors, and missteps.

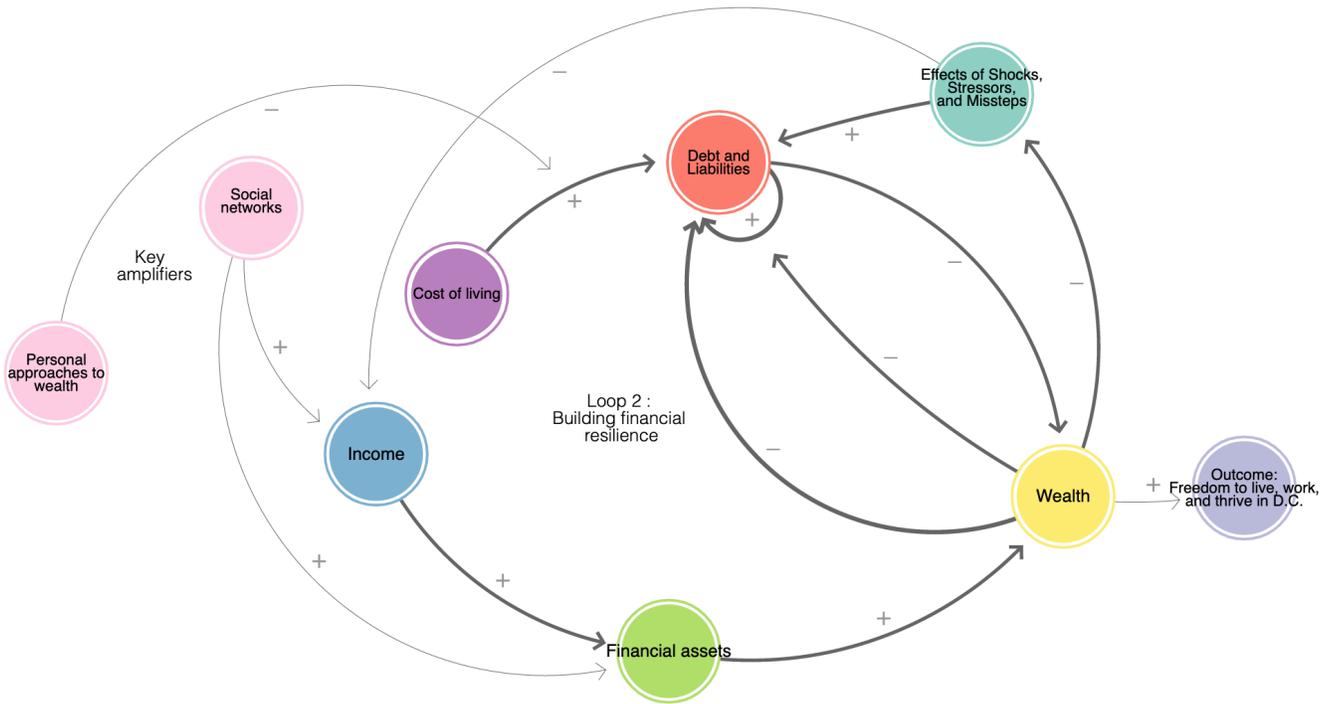


FIGURE 12. BUILDING FINANCIAL RESILIENCE

- Increasing Rates of Return (Figure 13):**
 This loop shows that investment in a range of financial tools accelerates short- and long-term wealth building. When individuals or families have enough money to invest in assets like a home or stocks and bonds, the return on these investments increases the amount of money they can further invest. Key nodes in this loop include: homeownership and other financial assets.

In addition to three main feedback loops, the model includes two main amplifiers. Amplifiers are influences that increase or decrease the speed or strength of a feedback loop. In this system, the two main amplifiers are:

- Social Networks:** Through shared social bonds, social networks can provide access to resources and opportunities that help build wealth. For example, people may learn about job openings or available housing from contacts in their social network, gain knowledge about navigating tax benefits that help increase wealth, or even receive temporary financial or housing assistance from friends and family. Conversely, social networks may also consume resources like money or time that are necessary for wealth building. For example, if a social network includes more family or friends who need financial assistance, these constraints may reduce available money to invest in financial assets, workforce readiness, and other forms of wealth building.



FIGURE 13. INCREASING RATES OF RETURN

- **Personal Approaches to Wealth:** Family and cultural norms, personal traits, and other social and psychological influences shape an individual's beliefs about wealth, and the choices they make in accordance with those beliefs. These may include risk tolerance and how wealth is prioritized compared to other values or goals, among other factors. Personal approaches also include skills and knowledge, such as financial literacy. These personal factors influence education, career, spending, and investment choices.

Informing Future Decisions

Given the breadth of starting points, needs, and opportunities among D.C. residents, decision makers will need to intervene on multiple loops and coordinate across multiple nodes to generate, accelerate, and sustain wealth building for Black residents. Data-informed models about the city will help determine which types of interventions are needed and how to tailor them for greatest effect. In addition, because the introduction of interventions will change the system dynamics, decision makers will also need to continuously monitor critical indicators (metrics) for each node, as well as for overall racial equity in wealth, and adjust interventions in response to the changing system.

Changing the Behavior of the System

How do we alter the behavior of an entire system? System behavior is a result of the relative direction, strength, and timescale of the feedback loops. We want to bolster feedback loops that work in favor of the desired outcome (e.g., increasing wealth), minimize the loops that work against the desired

outcome, and in some situations, build new loops. We focus on leverage points, aspects of the system “where a small shift in one thing can produce big changes in everything” [32].

A one-time change to the current value in an individual node is rarely a robust solution to changing overall system behavior [32]. Even if we instantaneously close the racial income gap for one generation, current U.S. intergenerational income mobility trends by race predict that three generations later Black Americans would still be more likely to end up in the lower two income quintiles than the top two quintiles (See **Appendix C: From Feedback Loops to Racial Wealth Gap Trends**). These trends indicate the presence of an equilibrium state of balancing feedback loops that resist change and push the system back from income equality to income inequality.

Even sustained intervention in a key node may not close the racial wealth gap on its own. While education appears as the most-connected node in our system model of wealth accumulation (see endnoteⁱⁱⁱ for more information on the node analysis), the formal educational degree attainment rate differences for Black and White D.C. residents accounts for less than half of the racial pay gap (in terms of mean income from wages or salary), let alone the entire wealth gap, as we discuss in **Appendix C: From Feedback Loops to Racial Wealth Gap Trends**.

Rather, different feedback loops dominate the wealth trajectories for people and families in various socioeconomic, familial, and geographic situations. For example, racial gaps in homeownership rates play a larger role in driving the racial wealth gap for families near median wealth than for the wealthiest or cash-strapped [29].

When considering a city and not just a set of individuals, the flow of people in and out of the city affects the racial wealth gap as well. The timing of coordinated interventions becomes especially relevant when interventions could affect population movement. For a hypothetical example: if a city offers a one-time stimulus check to lower income residents (who are disproportionately Black residents in D.C.) without appreciably improving their local long-term opportunities, the stimulus check may rationally be used to move out of D.C.

Evaluating Intervention Impact

System models offer organizing constructs for developing and evaluating policy solutions; however, they must be calibrated, enhanced, and validated using additional data about the District and its residents. To start, it may be helpful for decision makers to develop a baseline assessment of how opportunities, distribution of resources, and outcomes may currently differ between Black and White residents within each of the three main feedback loops identified in the system model. This baseline understanding must include identifying prior efforts by residents, communities, and the District that have been successful, including exploring what assets and systems enabled that success. In **Appendix D: Defining Success: Racial Equity and Wealth**, MITRE applies the definition of racial equity from D.C. Law L23-0181, the Racial Equity Achieves Results (REACH) Emergency Amendment Act of 2020, to the concept of wealth and research on equity and offers a series of questions and considerations that decision makers can apply to each of the three feedback loops [33]. This analysis helps decision makers explore at a more detailed and actionable level whether the conditions exist to support a change in system behavior toward greater racial equity in wealth for District residents.

As a next step, the District can develop a series of personas representative of its residents. These personas will reflect the race and characteristics (e.g., neighborhood, employment status, education levels, and median financial and non-financial wealth levels) that shape wealth building potential. These personas will help decision makers explore which loops are most impactful and which factors must be mutually supportive for building wealth. Decision makers can use this analysis to define the portfolio of coordinated interventions that will be required to make progress against the District's racial wealth gap, including key scoping parameters that can help define intervention targets and duration.

In addition, models and personas can help decision makers explore the effects of different proposed policy interventions (e.g., universal basic income, home-buying incentives, or property tax subsidies) on different populations and assess their impact on the overall wealth gap. To complete this type of data-driven impact analysis, decision makers must also have a common definition of success for racial equity in wealth and agreement on how success will be measured (See **Appendix D: Defining Success: Racial Equity and Wealth**). These critical tools can drive the selection of interventions and determine whether they successfully address the racial wealth gap and meaningfully improve the financial wellbeing of Black residents in the District. With this information, the combination of models and data can inform the difficult tradeoffs policymakers face and bring to focus the potential outcomes for groups experiencing inequities in the wealth building system.

Centering Washington, D.C. Residents

Analysis and decision making based on models like CLDs are most effective when they include a diverse and comprehensive set of perspectives. When designing for equity, it is particularly important to center the voices of those who have the lived experience of the inequity. Due to time limitations, this analysis of the racial wealth gap in Washington, D.C. included only a few personal stories (See **Appendix B: Lived Experiences in Washington, D.C.'s Wealth Building System**). For future analysis, MITRE recommends a much more robust effort to engage D.C. residents from diverse wealth statuses and racial identities, centering Black residents, to:

- Gather additional data on the impact of specific historical policies and practices that caused harm to D.C. residents and on solutions that have been effective in addressing the racial wealth gap in the District (See **Appendix D: Defining Success: Racial Equity and Wealth**).
- Validate and refine the models and the identified feedback loops.
- Shape the selection and development of personas.
- Determine the definition of success and the strategy for measuring progress over time.
- Collaboratively evaluate the impact of proposed solutions on D.C. residents and explore policy tradeoffs.
- Co-create interventions to target identified inequities.

Centering D.C. residents as “citizen experts,” alongside experts from academia, the private sector, nonprofit organizations, and government can enhance the accuracy and completeness of these models and increase the likelihood that recommended solutions are actionable and effective.

Planning and Managing Transformative Change Across Sectors

The ability to create and sustain wealth in Washington, D.C., is the outcome of a unique, complex, and dynamic system. This system is shaped by layers of federal and local policy; the realities of D.C.-specific systems, industries, and cultures; individual approaches to wealth building; and systemic racism, the legacy of slavery, and racist policies and practices in the District (See **Appendix F: An Abbreviated History of the Racial Wealth Gap in Washington, D.C.**) and the nation. Current social inequities result in stark disparities in Black-White wealth in the District. Creating racial equity in wealth will require focused, coordinated, transformative efforts from all sectors. Successful strategies for such a transformation are:

- Co-created with the community they are intended to benefit and reliant on the expertise of all parts of the local community.
- Oriented around a clear definition of success and a shared understanding of the problem space.
- Adopted and managed across organizational boundaries, all operating with a common view of success and an understanding of how each organization contributes to it.
- Monitored over time to assess progress and adjust course as needed. While some solutions might show an immediate impact on wealth and quality of life, others require years.

In **Appendix E: Considerations from Other Jurisdictions**, MITRE summarizes how other jurisdictions have planned and executed comprehensive strategies to address racial wealth gaps or racial equity more generally, or have adopted inclusive techniques to target specific

priority policy areas. Washington, D.C. can build on the momentum from the REACH Act, the establishment of CORE, and the appointment of the Chief Equity Officer by adopting and tailoring some of these best practices for transformative change.

Conclusion

The racial wealth gap in Washington, D.C., is shaped by social and historical patterns that have accelerated wealth building predominantly for White residents and slowed wealth building predominantly for Black residents. Three main feedback loops – Investing in Employment, Building Financial Resilience, and Increasing Rates of Return – drive this system. Coordinated policy efforts targeting these feedback loops can change the behavior of the entire system, leading to greater wealth building for Black residents and improved social and racial equity in Washington, D.C.

The model was created following an iterative process that included:

- Secondary research on wealth building and the racial wealth gap in Washington, D.C.
- Research team and Washington, D.C.'s CORE discussion and consolidation of independent mental models, or individual representations, into a single diagram of what causes or inhibits wealth building in the District
- Subject matter expert review, validation, and revision
- Gathering personal stories to exemplify different experiences, challenges, and opportunities of D.C. residents relating to wealth (limited in scope due to time) and, in a workshop with CORE, revising the system model to reflect the factors and dynamics illuminated in the personal stories

The model is not presented here as a complete artifact. Due to time constraints, community participation in this modeling process was limited. Ideally, this model would have been co-created with a diverse cross-section of experts, including citizen experts, researchers, policymakers, and representatives from both nonprofit and for-profit organizations, who would have produced not only a system model for wealth building, but also a shared vocabulary for describing the system's factors. The process of collaboratively developing and analyzing the model provides an opportunity for all participants to improve their understanding of the factors and system dynamics by exposing assumptions and filling gaps in knowledge. In addition, detailed derivative models can be created that offer a more sophisticated view of the relationships between particular nodes, including the strength of the relationship, time delays, starting values, and relative importance, forming the basis of quantitative model development. This could become a policy "flight simulator," i.e., an executable model that simulates the effects of policy interventions.

In **Figure 14**, we use the CLD to capture the many intersecting factors influencing wealth building, organize them into six primary categories, and explore relationships within and across those categories. While the interdependence of these factors makes precise distinctions between categories difficult, categorization makes it easier to appreciate the breadth of factors comprising this system. Below, we describe each major category independently and offer empirical evidence about how it applies to wealth building, relating specifically to D.C. where data is available. Cited research examines wealth at the individual, family, and/or household level.

Quality employment influences the availability of employment, and thereby income and benefits that provide a basis for wealth building. Quality employment is more than just being employed; it is employment that leads to or provides income in excess of cost of living and allows residents to thrive and/or invest in other wealth building feedback loops.

The strength of the global and local economy influences both job availability and employee income. The Washington, D.C., Metro Area's economy is ranked fifth largest in the nation and generated \$541 billion in 2018 [34]. The federal government accounts for the largest sector of D.C.'s economy, comprising over 30% of D.C.'s gross domestic product [35]. This unique characteristic of D.C.'s economy indicates that the area may have more economic opportunity and be more resilient to shocks such as the Great Recession and COVID-19 pandemic.

Category 1: Quality Employment and Income

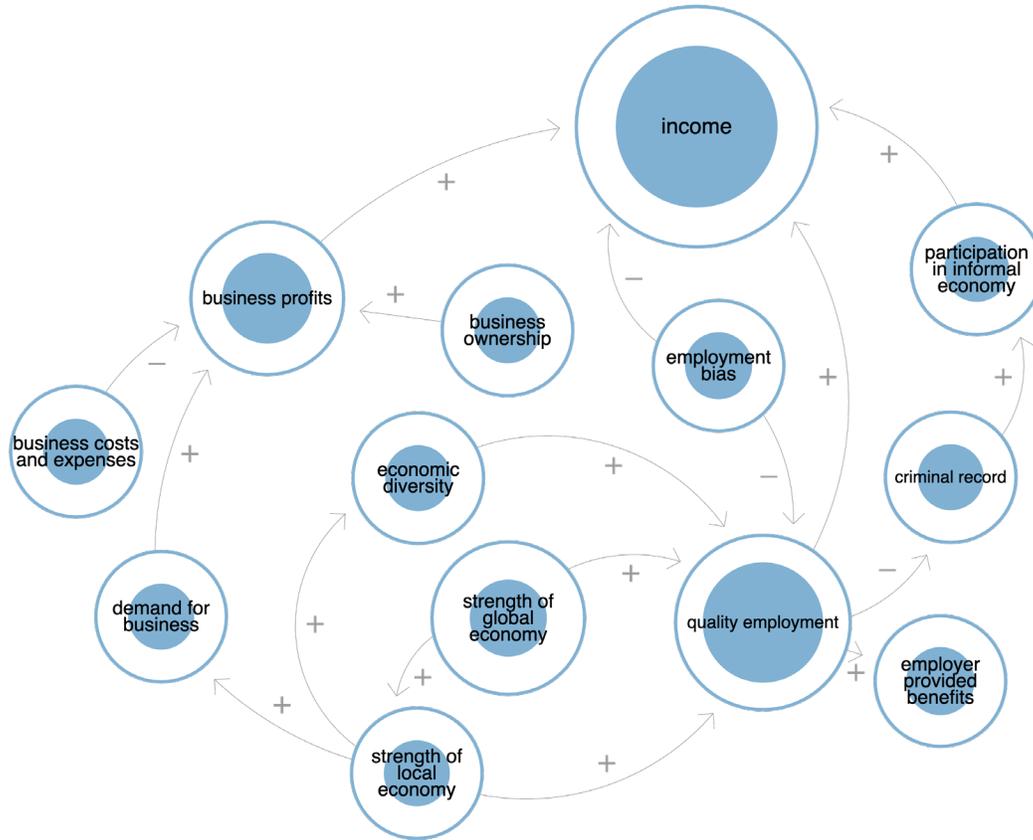
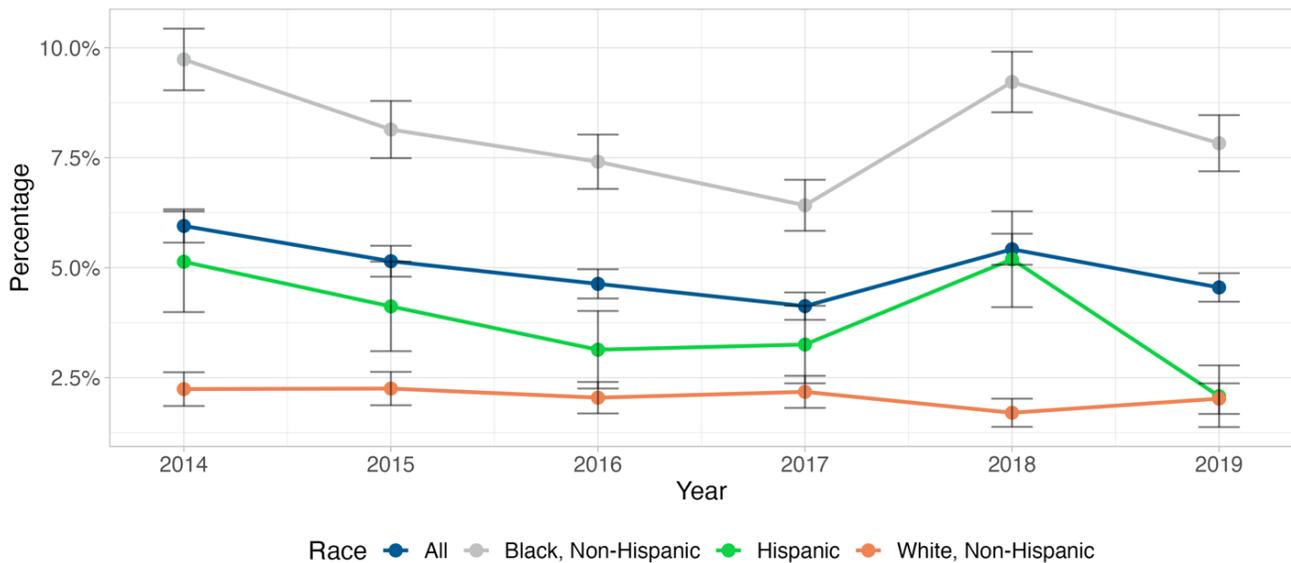


FIGURE 15. QUALITY EMPLOYMENT AND INCOME FACTORS

Evidence suggests, however, that while the federal government may add stability to the D.C. economy, these benefits have limited effect for Black residents. In 2020, Black residents in the District experienced a 3.4% change in unemployment rate compared to 1.7% for White residents [36]. See **Figure 15**. Nationally, it takes longer for Black families to recover from economic shocks due to higher unemployment rates that last longer, “confirming Black workers’ status as ‘last hired’ during economic recoveries” [36], [37]. Although unemployment rates for Black residents have improved over time, they remain higher than those of other races or ethnicities in the District (**Figure 16**).

In 2018, Black D.C. residents were 5.4 times more likely to be unemployed than White residents, and D.C. had one of the highest Black unemployment rates in the country owing in large part to marked occupational segregation [38]. Many Black residents in the District are employed in positions that make it more difficult to accumulate wealth not only due to a lower income amount, but also due to limited employer-provided benefits that offer financial resilience, support workforce readiness, and help build personal assets and wealth, such as retirement matching programs, company stock options, tuition assistance, and health insurance.



Source: U.S. Census Bureau; American Community Survey, 2014 - 2019 American Community Survey 1-Year Estimates

FIGURE 16. UNEMPLOYMENT RATE IN WASHINGTON, D.C., BY RACE^{iv} AND ETHNICITY^{vi} (2014–2019) [5]

The most common occupations for Black employees in the District are cashiers, janitors, and administrative assistants. In comparison, White residents are most commonly employed as lawyers or managers [4].

Employment bias continues to impede efforts by Black Americans to find quality employment and generate wealth. Nationally, Black Americans have faced consistent hiring discrimination for the past 25 years. For example, one meta-analysis of field studies related to discrimination in hiring since 1990 demonstrated that White Americans receive 36% more callbacks for job applications than Black Americans with the same resume [39].

Employment bias against residents with an arrest, conviction, or incarceration history may present an additional barrier to quality employment that disproportionately affects Black residents in the District. Although Black residents are 46% of the D.C. population, between 2009 and 2011 over 80% of all arrests and 90% of drug offense arrests in D.C. were of Black people [40]. More than 19

out of 20 of these arrests were for nonviolent offenses [40]. The Court Services and Offender Supervision Agency (CSOSA), which helps D.C. residents who have been released from prison find jobs, reports that despite D.C.’s “Ban the Box” initiative, which bars employers from asking prospective employees about their criminal record, its clients face substantial difficulties in gaining employment. According to CSOSA, employers still conduct background checks, which results in the disqualification of formerly incarcerated residents from employment. CSOSA’s clients in Ward 8, the largest share of all their clients, had an employment rate of only 42% in 2018 [41].

Even in the same occupations, there are notable disparities in pay between Black and White workers. For example, in the District’s tipped workforce, Black workers are paid 23% less per hour in combined wages and tips than White workers [42]. In most occupational categories, average salary for Black employees in D.C. is lower than for most other races (Figure 17).

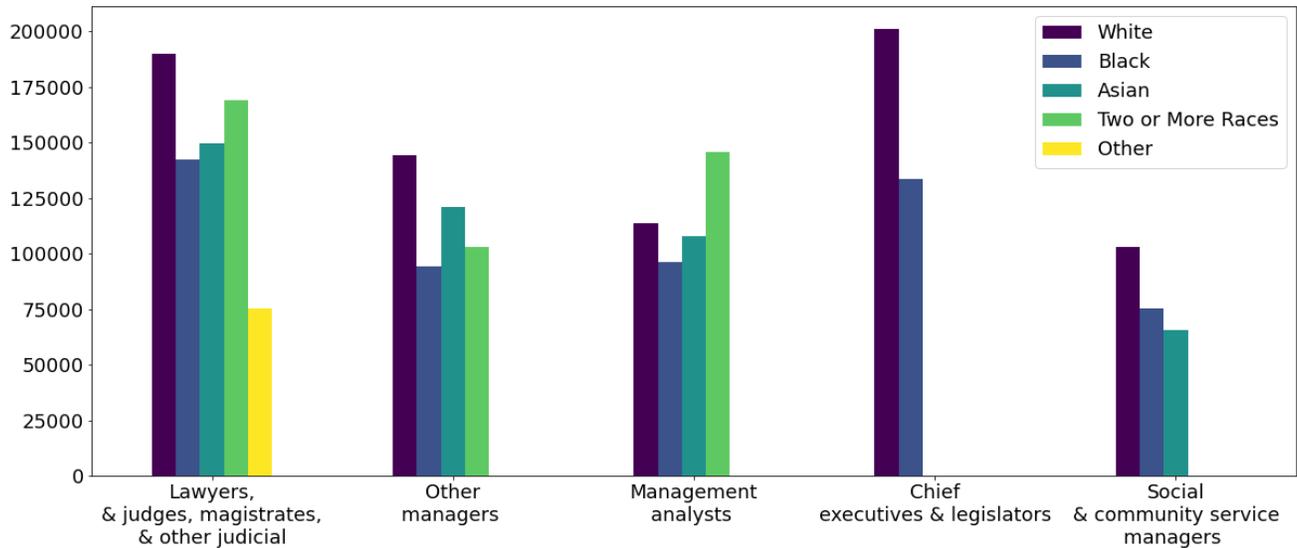
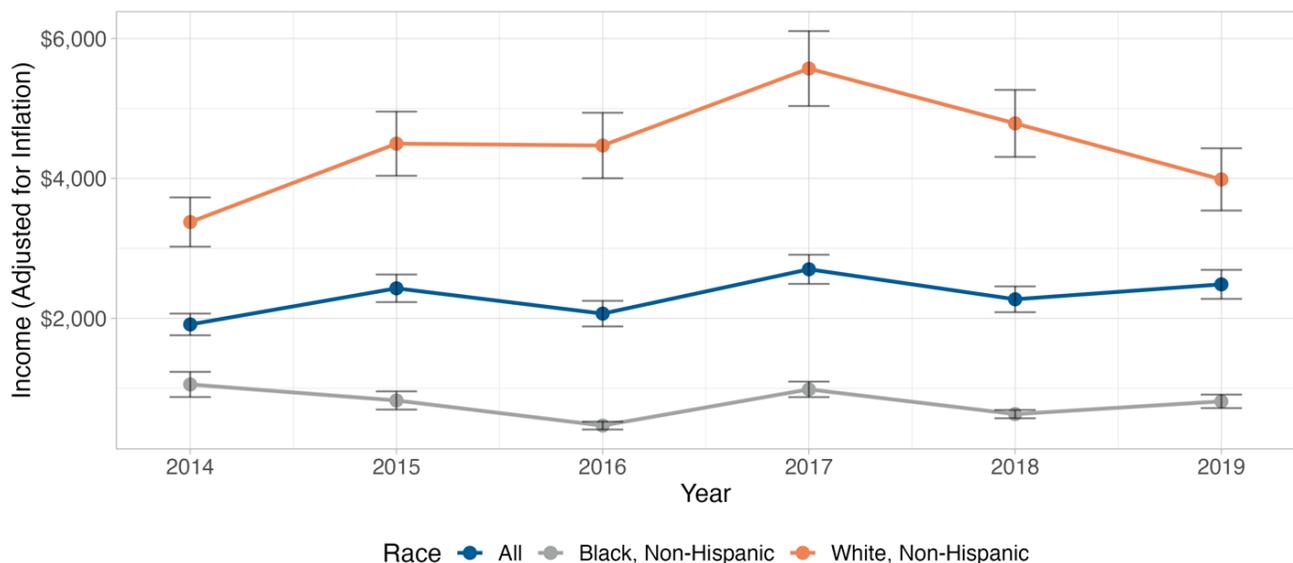


FIGURE 17. WAGES IN COMMON JOBS IN WASHINGTON, D.C., BY RACE AND ETHNICITY (2014–2019) [43]

Business ownership can be a large source of income for individuals and households, but Black District residents are less likely than White residents to own businesses, and Black-owned businesses have lower revenue than White-owned ones [44]. Families with less wealth generally have fewer assets [3], which may make it more

difficult to secure low-interest business loans. Turning instead to high-interest loans, businesses see reduced profits while they pay these loans and interest, in turn restricting asset growth and wealth building. In 2019, self-employed Black D.C. residents had a mean income 79.6% lower than self-employed White D.C. residents (Figure 18).

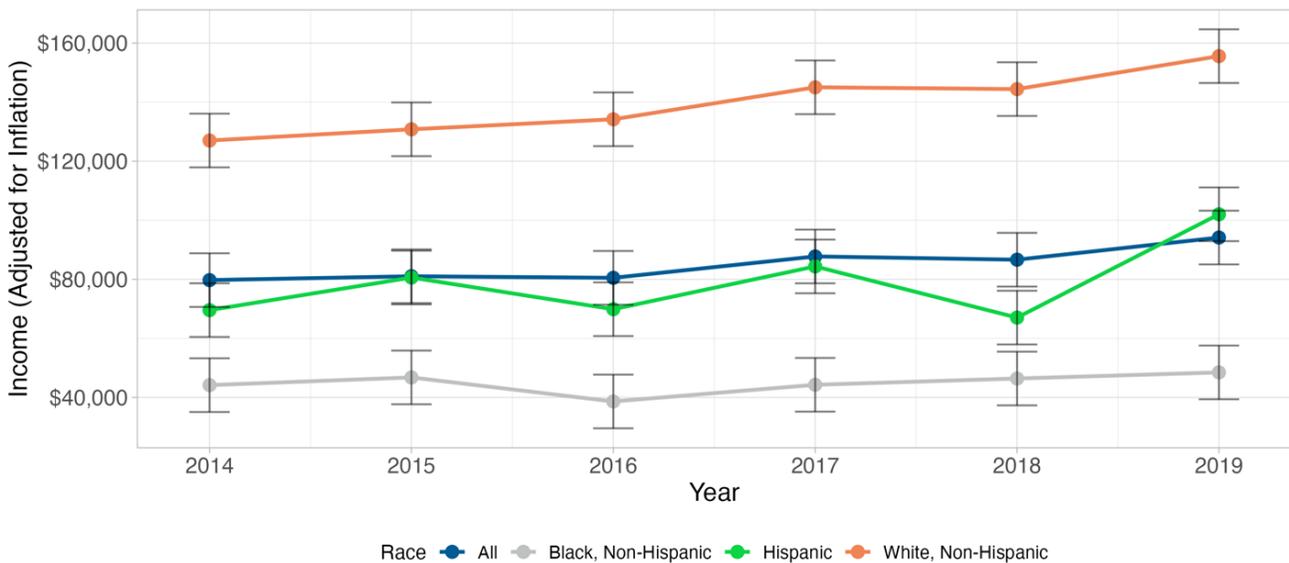


Source: U.S. Census Bureau; American Community Survey, 2014 - 2019 American Community Survey 1-Year Estimates

FIGURE 18. AVERAGE SELF-EMPLOYMENT INCOME IN WASHINGTON, D.C. IN PAST 12 MONTHS, BY RACE (2014–2019) [5]

In the District, nearly 30% of all businesses are Black-owned. On average, Black-owned D.C. businesses generate the same number of jobs as White-owned businesses (16.4 and 16.9 employees, respectively). However, there are far fewer Black-owned businesses; For every 1,000 D.C. residents, there are five Black-owned businesses and 29.8 White-owned businesses. Further, Black-owned businesses generated \$1.9 million in sales revenue in 2017, less than 10% of the District’s total, while White-owned businesses brought in \$3.1 million [44]. The average annual revenue for Black-owned businesses was also less than 15% that of White-owned businesses [44].

When examining median income by race in Washington, D.C., there is a large disparity between Black and White residents. In 2019, the median income^{vii} for Black households^{viii} was \$48,487^{ix} while the median income for White households was \$155,562 (**Figure 19**). Between 2008 and 2018, Black households maintained the same median income, while White households saw an increase of around \$17,000 in median income over the same time period [4]. Income disparities are observed between neighborhoods, as well. In Ward 3, a predominantly White neighborhood, median income from 2014–2019 was \$126,184, while in Ward 8, which is predominantly Black, median income was \$34,034 [24].



Source: U.S. Census Bureau; American Community Survey, 2014 - 2019 American Community Survey 1-Year Estimates

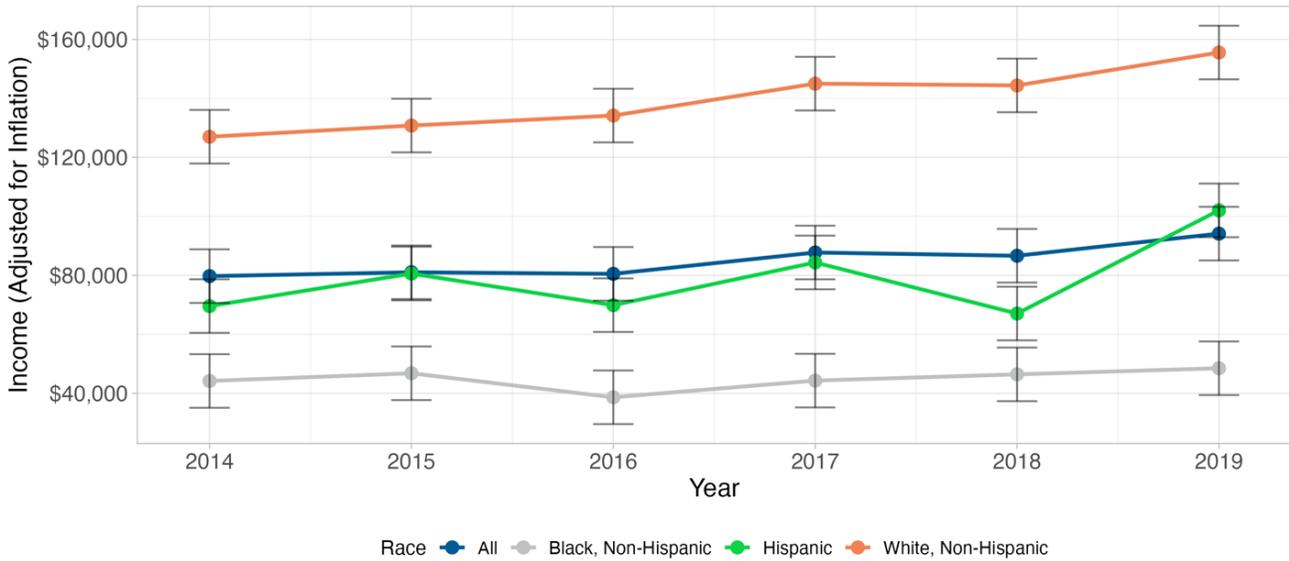
FIGURE 19. MEDIAN HOUSEHOLD INCOME IN WASHINGTON, D.C. IN PAST 12 MONTHS, BY RACE (2014–2019) [5]

Income can include salary and wages as well as other non-salary income from financial assets. Black D.C. residents are less likely than White residents to receive non-salary income, and therefore salary and wages form most of their income. Between 2014 and 2019, Black residents

saw less average wage growth in D.C. than White residents (**Figure 20**); during this period, average annual salary increased by \$9,168 for Black residents, compared to \$10,340 for White residents.

THE RACIAL WEALTH GAP IN WASHINGTON, D.C.

RESEARCH AND ANALYSIS IN SUPPORT OF THE COUNCIL OFFICE OF RACIAL EQUITY, COUNCIL OF THE DISTRICT OF COLUMBIA

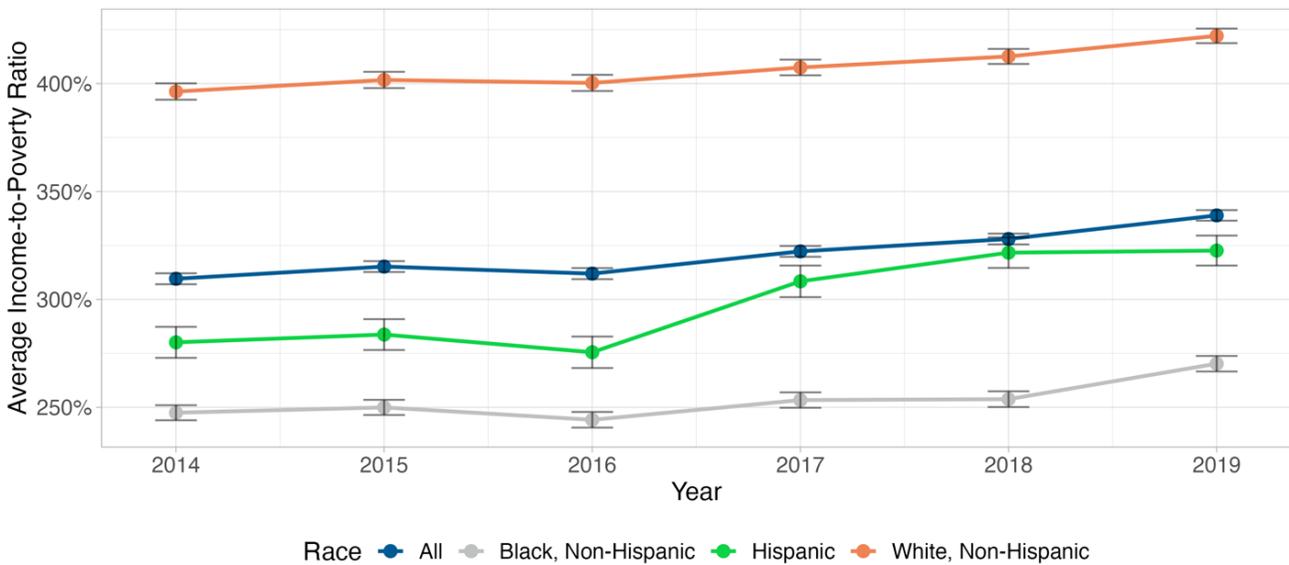


Source: U.S. Census Bureau; American Community Survey, 2014 - 2019 American Community Survey 1-Year Estimates

FIGURE 20. AVERAGE WAGES OR SALARY INCOME IN PAST 12 MONTHS IN WASHINGTON, D.C., BY RACE (2014–2019) [5]

Stagnant wage growth has had a devastating effect on Black residents managing costs of living in the District and has extended the racial wealth gap. The average income-to-poverty ratio is much

lower for Black D.C. residents than for White residents, meaning as a demographic group, Black residents are closer to poverty (Figure 21).



Source: U.S. Census Bureau; American Community Survey, 2014 - 2019 American Community Survey 1-Year Estimates

FIGURE 21. AVERAGE INCOME-TO-POVERTY RATIO BY RACE (2014–2019) [5]

Black residents are not alone in experiencing the effects of unemployment and underemployment in the District, but Black residents are the largest demographic group experiencing poverty (**Figure 22**),

and at the second highest rate (**Figure 23**). Despite representing 46% of the city’s population, Black residents represent 71.51% of all D.C. residents with income below the federal poverty line [43].

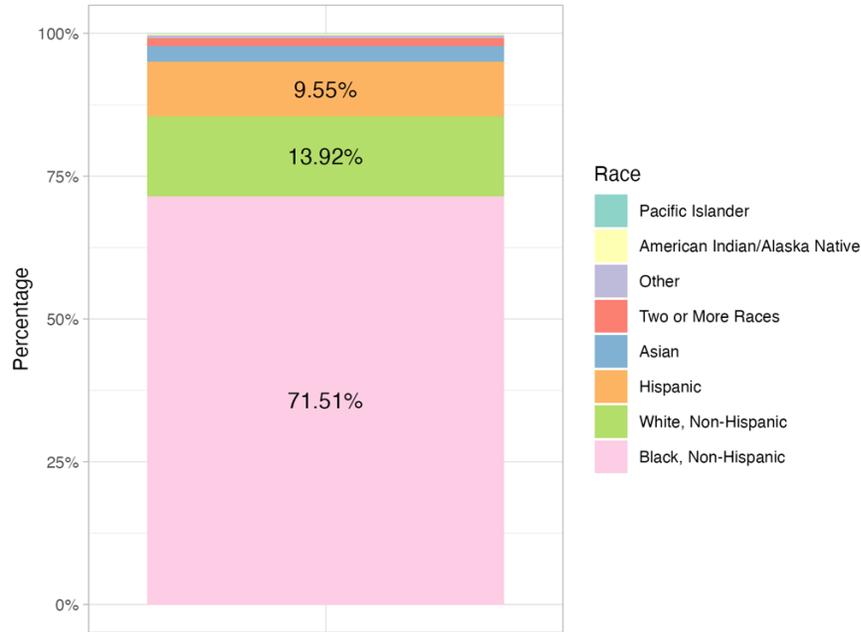
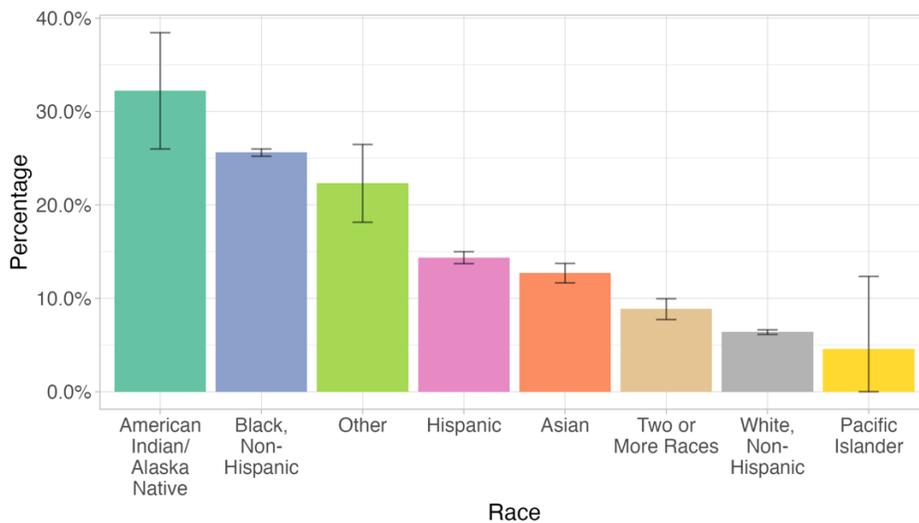


FIGURE 22. POPULATION WITH INCOME BELOW POVERTY LINE BY RACE AND ETHNICITY IN WASHINGTON, D.C. (2014–2019) [43]



Source: U.S. Census Bureau; American Community Survey 2014 - 2019 American Community Survey 1-Year Estimates

FIGURE 23. POVERTY RATE BY RACE AND ETHNICITY IN WASHINGTON, D.C. (2014–2019) [43]

Category 2: Workforce Readiness

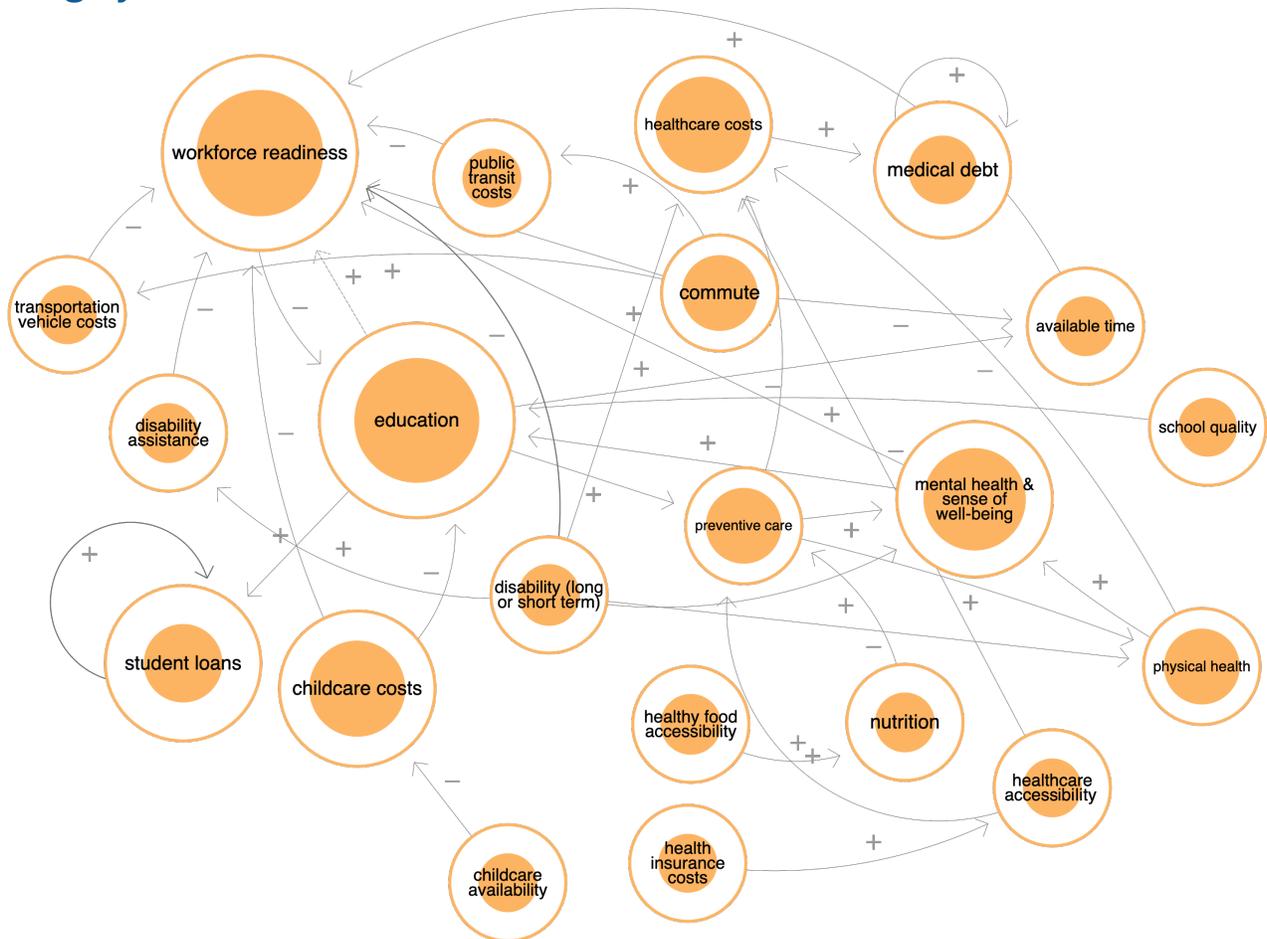


FIGURE 24. WORKFORCE READINESS FACTORS

Workforce readiness includes factors like health, education, transportation, and childcare that enable a person to obtain a job and sustain employment (**Figure 24**). Many of these factors share a mutually reinforcing loop with income, meaning that improvements in income enable better health and allow for investments in education, transportation, and childcare, that in turn support further growth in income and wealth.

Employment disparities noted in the prior section may partially be explained by a gap in the education or skills desired by employers in the District. In Ward 3, for example, 98% of students receive a high school diploma compared to 83% of students in Ward 8 [20]. The unemployment rate is only 4% in Ward 3 compared to 23% in Ward 8 [20]. As noted earlier, the disparity in high school graduation has been attributed, in part, to the routine underfunding of D.C. public school programs meant to support students who are at risk of academic failure, contributing to

downstream opportunity gaps [22]. The modeling approaches in **Appendix C: From Feedback Loops to Racial Wealth Gap Trends** can be applied to further assess the strength of the relationship between education and employment status.

Educational attainment positively influences employability and wage growth, but not everyone has equal access to quality education. In Washington, D.C., 17% of students attend private schools, which are more likely to offer individualized education and additional resources to help students prepare for their college education [45]. Private school students are disproportionately White while D.C. Public School (DCPS) students are majority Black [46]. Enrollment in DCPS has increased over the past several years, and graduation rates have improved from 57% in 2012 to 73% in 2017. This improvement is large, but this rate is still below the nation's average high school graduation rate of 83% [47]. Perhaps more important, only 33% of students meet expectations on English standardized tests and 29% meet expectations on math tests [47]. These points indicate that, even though graduation rates are improving, the quality of education that DCPS students receive may not adequately prepare them for higher education. As unemployment in the District is highest among residents with only a high school diploma, educational attainment is a contributing factor to the racial wealth gap in D.C. [48].

Wealth can be a limiting factor for education quality and attainment. Families in the bottom two quintiles (40%) of net worth in the United States account for only 12% of new college graduates, and this rate has been the same since the 1990s. Meanwhile, families in the top quintile (20%) of net worth account for 60% of new graduates, and this share has increased by almost 15% over the

same time period [49]. Ninety percent of White D.C. residents hold a bachelor's degree or higher compared to only 27% of Black residents, which impacts employability and income [50]. Black D.C. households are also more likely than White households to have student loan debt [3]. Student loan debt reduces the ability to save money for a home or other financial assets and can hurt credit scores. Nearly half of the nation's 7.3 million Pell Grant recipients fail to complete their bachelor's degree in six years, and 60% of Pell recipients are people of color [49]. Taking student loans without completing a degree makes it harder to pay back the loans and can increase personal debt very early in life.

Mental and physical health affect a person's ability to learn and work, and therefore to build wealth. The District's Black residents have higher rates than White residents of diabetes, obesity, high blood pressure, asthma, lung disease, and heart disease [51]. Additionally, residents in D.C.'s lowest income neighborhoods, many of which are home to large populations of color, are more likely to report experiencing poor mental and physical health [52]. Poor health could be due to inadequate access to healthcare, high healthcare costs, low quality of healthcare, and/or stresses related to food and housing stability and other psychosocial stress. Healthcare is a significant expenditure in the U.S. and the average American household spends \$5,000 on healthcare annually [53]. While only 3.8% of D.C. residents of color are uninsured, low-income families may be less inclined to pay for preventive care measures such as check-ups, prescriptions, and flu vaccines to avoid unwanted healthcare costs [43]. Lack of preventative care may cause adverse health effects, which can result in higher costs and greater medical debt in the long run.

Access to nutritious food and healthcare also influence health. More than 75% of D.C.'s food deserts, or areas with limited access to food, are located in predominantly Black Wards 7 and 8 [17]. There are also fewer pharmacies located in Wards 7 and 8, which are an important healthcare resource that increases accessibility to acute and preventive care [19]. Currently, D.C. has no hospital in Ward 8, although there are plans to build one [54]. Transportation also limits D.C. residents' ability to access these resources in other neighborhoods; residents in Wards 7 and 8 have lower access to cars than residents in other wards, restricting access to health resources in other areas. Limited transportation access also limits employment; opportunities are furthest away from Wards 7 and 8, and residents in these wards are more likely to drive to work than any other ward, despite having less access to transportation [19]. Improving infrastructure, access to healthy food, and access to healthcare, including preventative care, can improve health outcomes and quality of life for D.C. residents and increase ability to participate in the workforce.

Childcare deserts exist in Wards 4, 5, 7, and 8, all of which have substantial impact on their predominantly Black populations [13]. Childcare enables parents to participate in the workforce. Inadequate supply of local childcare facilities and high childcare costs create barriers for D.C. parents entering the workforce. The District offers free preschool and childcare subsidies for eligible parents, but these programs offset only some childcare costs. Infant care in the District, for example, costs \$24,000 annually, making childcare too expensive for some people in D.C. to work [14]. These barriers are especially hard on young, single, low-income mothers. Notably, women aged 25–34 are most likely to be in poverty in D.C. [43].

Category 3: Financial Assets

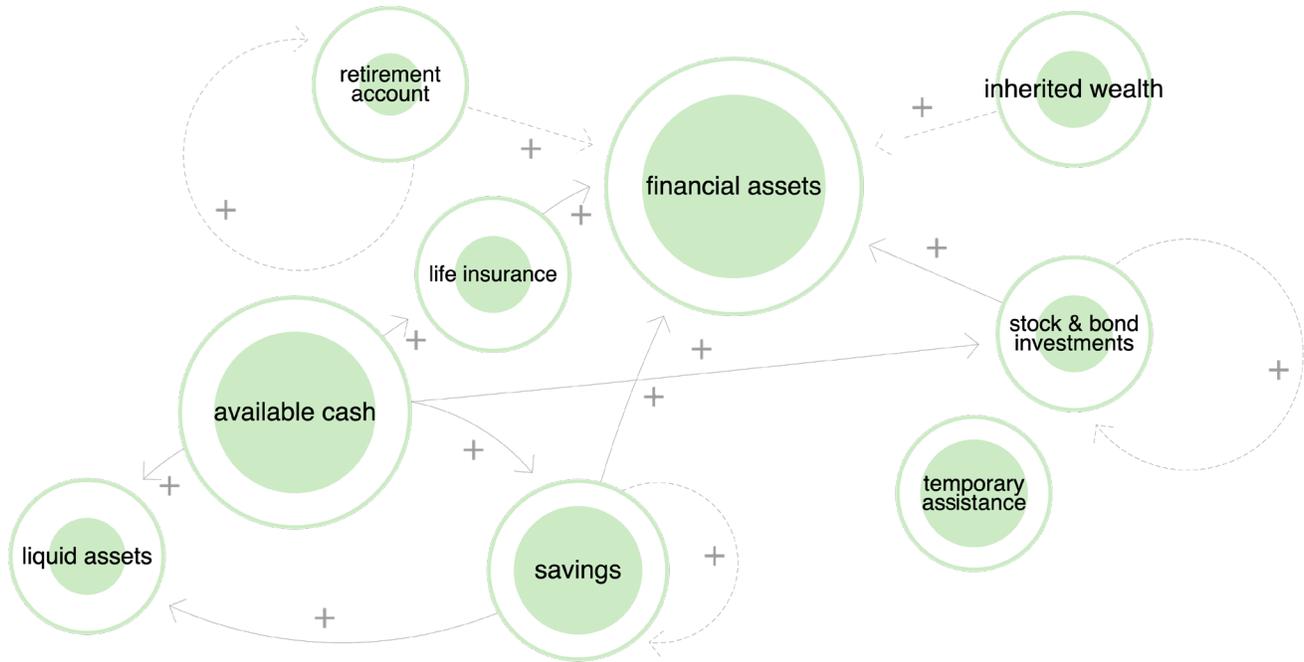


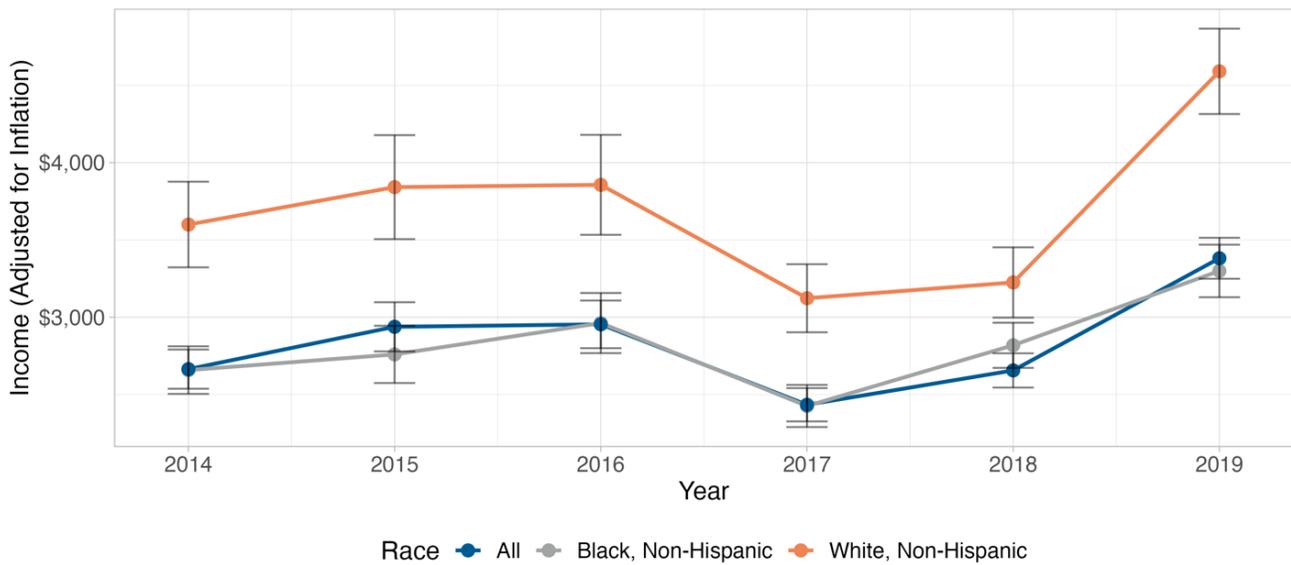
FIGURE 25. FINANCIAL ASSETS FACTORS

After paying taxes and covering cost of living, income directly impacts ability to save money that can be used to invest for greater returns, leading to more savings that protects against shocks, stressors, and missteps. Financial assets include cash, retirement accounts, life insurance, and other stock and bond investments (Figure 25). One 2016 study found that White families in D.C. have a median value of \$65,000 in liquid assets while Black families have only \$2,100 [3].

Nationally, Black families are more likely to be unemployed or employed part time and are therefore less likely to have access to employer-sponsored retirement plans, including plans with an employer match [55]. In addition, retirement account participation rates are lower for Black families [55]. These differences may be caused by any number of factors, including whether or not a family has sufficient income to enable saving in this manner, the types of funds offered by

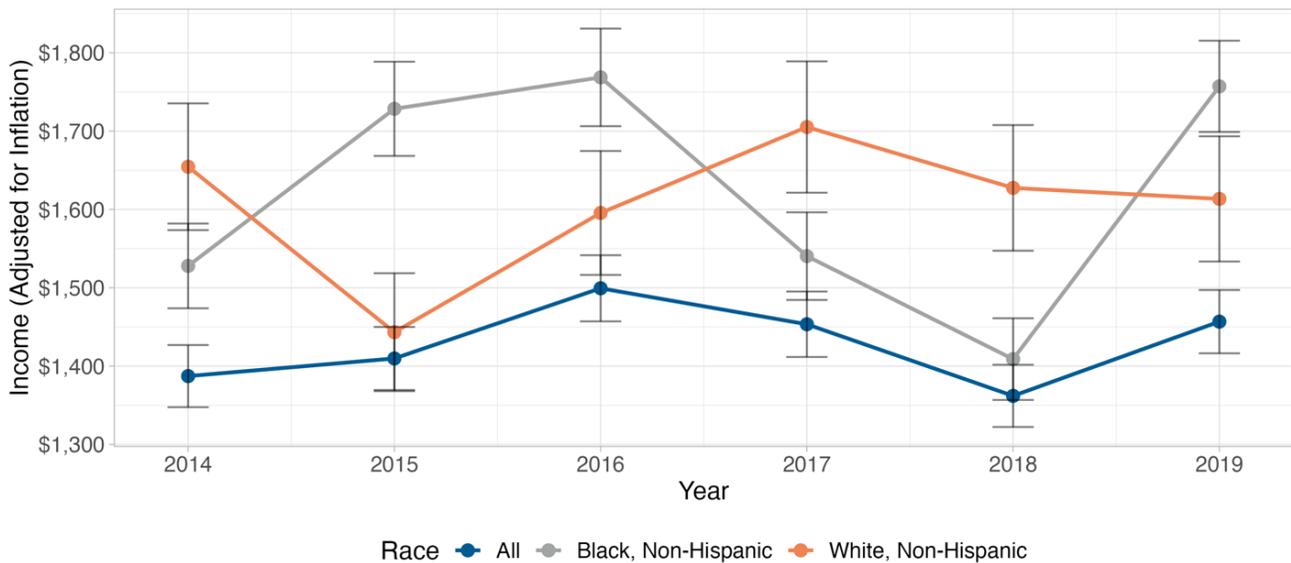
employer-sponsored plans, whether participation is by default or not, and financial literacy [55]. Lower retirement income can lead to loss of intergenerational wealth transfers as financial and non-financial assets are consumed during retirement. Black District residents have lower retirement income compared to White residents (Figure 26 and Figure 27) [5].

In addition to income and employer retirement contributions, inheritances are a major source of financial assets. Nationally, inheritances account for roughly 4% of annual household income, much of which goes untaxed by the U.S. government [56]. On average, inheritances for Black families in the United States are 35% of those for White families, which lowers the starting level of wealth for Black households and limits the resources available to invest in education or buy a house, both of which are pivotal components of wealth building [57].



Source: U.S. Census Bureau; American Community Survey, 2014 - 2019 American Community Survey 1-Year Estimates

FIGURE 26. AVERAGE RETIREMENT INCOME IN PAST 12 MONTHS IN WASHINGTON, D.C., BY RACE (2014–2019) [5]



Source: U.S. Census Bureau; American Community Survey, 2014 - 2019 American Community Survey 1-Year Estimates

FIGURE 27. AVERAGE SOCIAL SECURITY INCOME IN PAST 12 MONTHS IN WASHINGTON, D.C., BY RACE (2014–2019) [5]

Access to financial institutions also affects the ability to save money, and low-income neighborhoods tend to have less access to banks. In D.C., Black families are more likely to be unbanked or underbanked in comparison to White families, which leads to reliance on higher-cost alternative financial services (e.g., check

cashing and prepaid cards). Being underbanked or unbanked also limits the ability of Black families to accumulate interest over time and accelerate wealth building through higher return financial investments [3]. White families are more likely to invest in the stock market and have riskier investments with higher rewards [58].

Category 4: Debt Management

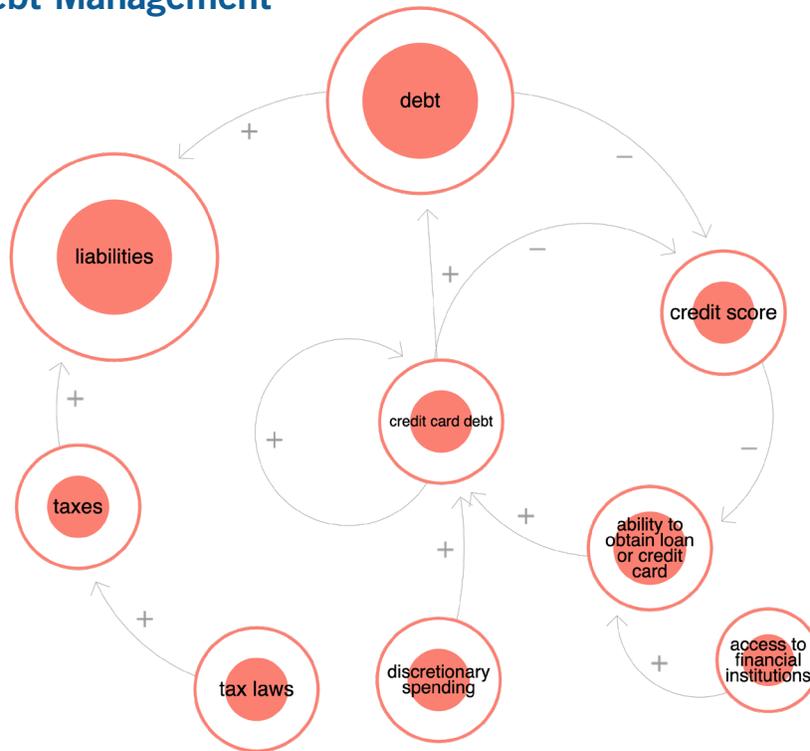


FIGURE 28. DEBT MANAGEMENT FACTORS

Since many Black families in the District have fewer assets and less collateral, they are subject to high interest rates and predatory loan practices when borrowing money (Figure 28). Debt can stem from medical expenses, student loans, auto loans, and credit card charges. It limits the ability to build wealth. In Washington, D.C., communities of color are five times more likely than White communities to have debt in collections [25]. Being in debt can be a cyclical process if loan interest rates are high or if income is insufficient to keep up with payments. Poor loan payment history has a negative effect on credit scores, which makes interest rates on loans increase. This cycle of debt can intensify over time, which increases liabilities and decreases overall wealth accumulation.

Bank access and bank policy can also affect debt management. In majority White neighborhoods in the United States, there are 41 banks per 100,000 people while there are only 27 per 100,000 people in neighborhoods of color. Due to higher banking fees and lower incomes, banks in Black neighborhoods require customers to deposit approximately 60% of their income to avoid fees and account closure compared to 28% of income in White neighborhoods [59]. These additional hurdles, combined with distrust due to prior discriminatory and predatory practices undertaken by financial institutions against communities of color, cause some Black borrowers to avoid using banks for loans and instead to turn to more convenient short-term options. Many of these options, like payday loans or informal savings clubs, have higher fees and fewer consumer protections.

Category 5: Homeownership and Living Expenses

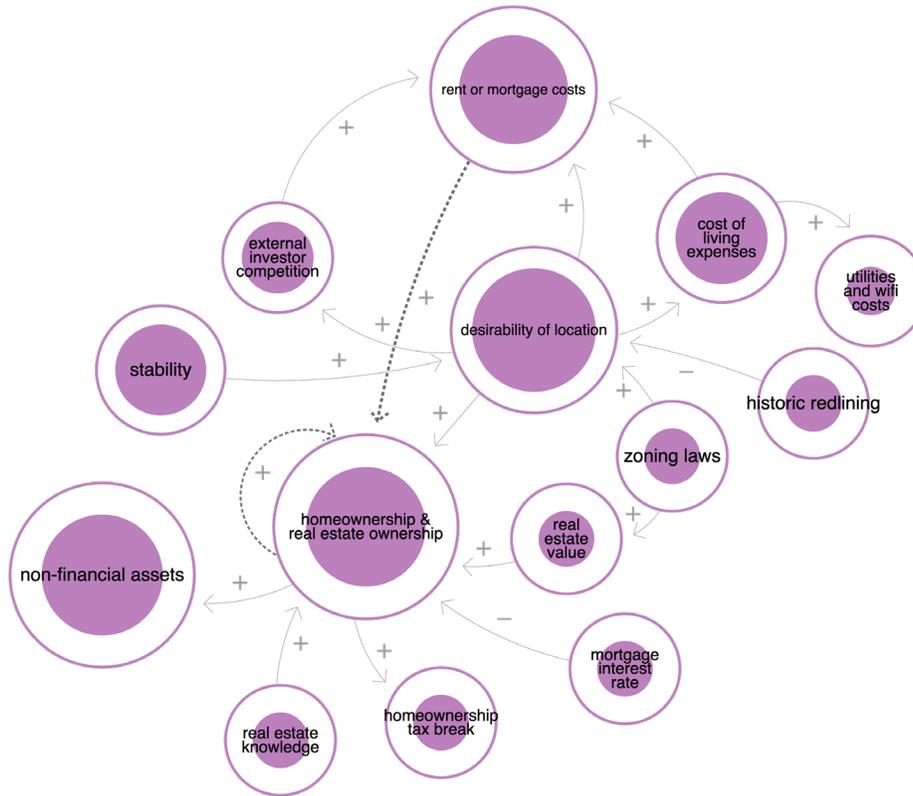


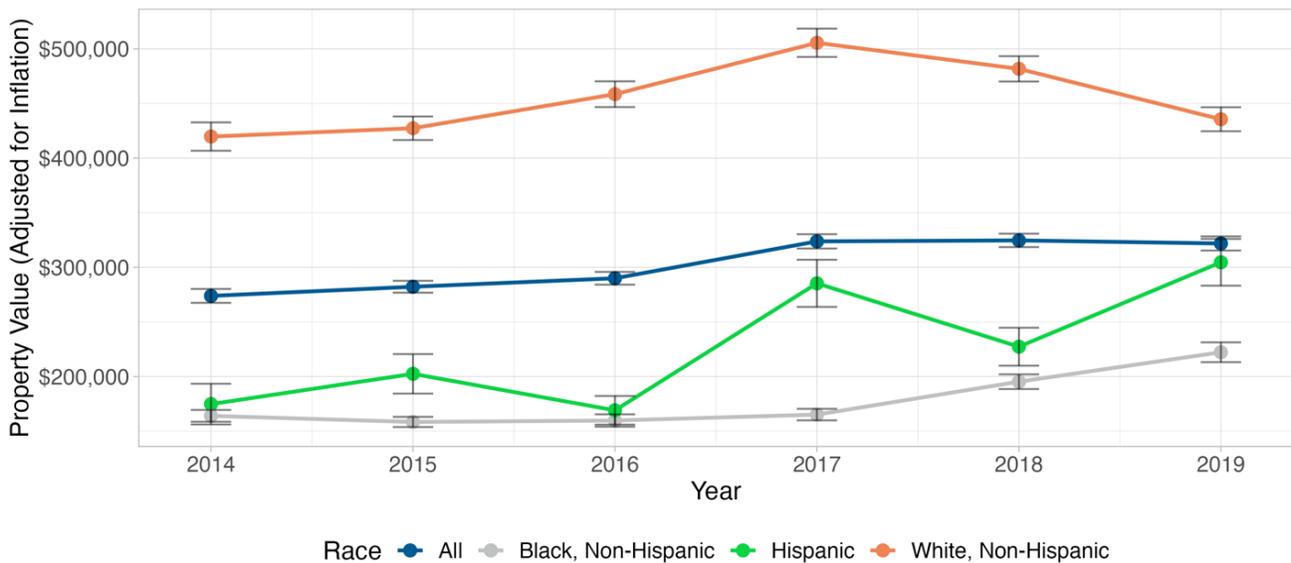
FIGURE 29. HOMEOWNERSHIP AND LIVING EXPENSE FACTORS

Homeownership is one of the largest sources of wealth. In D.C., 58% of Black families own their home compared to 78% of White families [3]. While D.C. has a higher rate of Black homeownership than the rest of the country, Black-owned homes in D.C. are valued at half that of White-owned homes, on average (Figure 30) [3]. Income and available cash are two factors that may restrict property investments. Black households also spend a higher percentage of their incomes than White households on homeownership costs [60].

The location of a home affects home value, as well as other factors such as educational quality, commute time, and transportation costs.

Historically, redlining practices forced Black residents into poorer neighborhoods by restricting mortgage loans and home sales in affluent areas. Today, the legacy of this practice continues to impact both homeownership rates and the value of homes, two key drivers of wealth, over time.

The ability to secure a good mortgage rate is a defining factor for homeownership. In 2015, Black homebuyers in the United States had a mortgage loan denial rate of 27% compared to 11% for White homebuyers [61]. Black homebuyers are also more likely to be targeted for higher interest rates, making the cost of homeownership much more expensive over the life of the loan. During the early 2000s housing boom, Black families

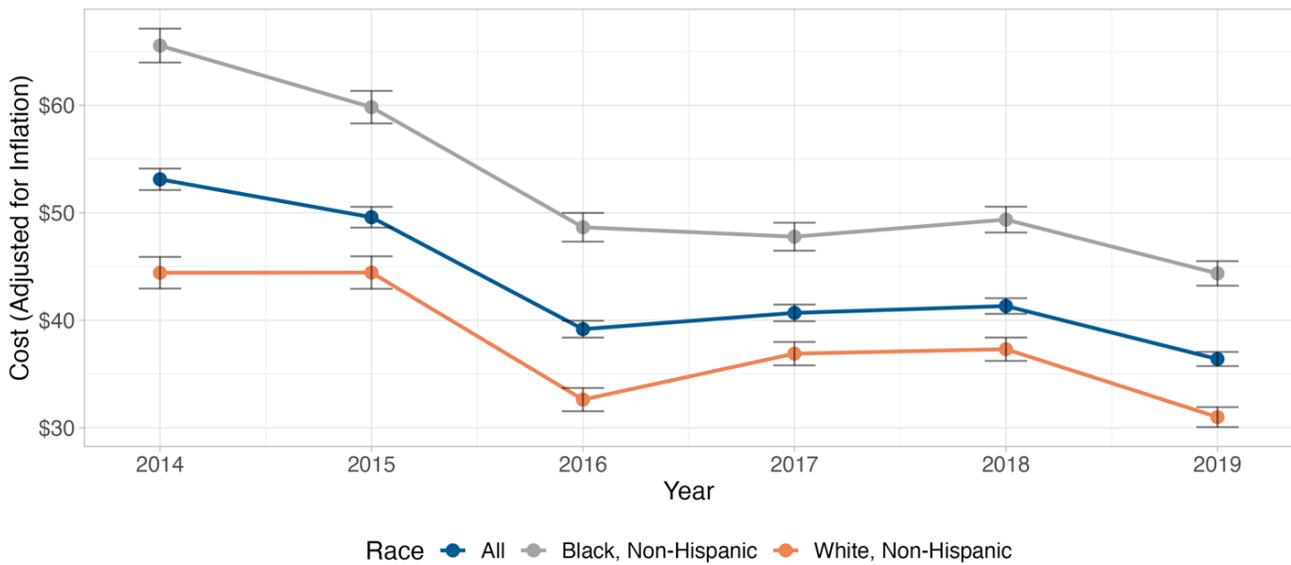


Source: U.S. Census Bureau; American Community Survey, 2014 - 2019 American Community Survey 1-Year Estimates

FIGURE 30. AVERAGE PROPERTY VALUE IN WASHINGTON, D.C., BY RACE/ETHNICITY (2014–2019) [5]

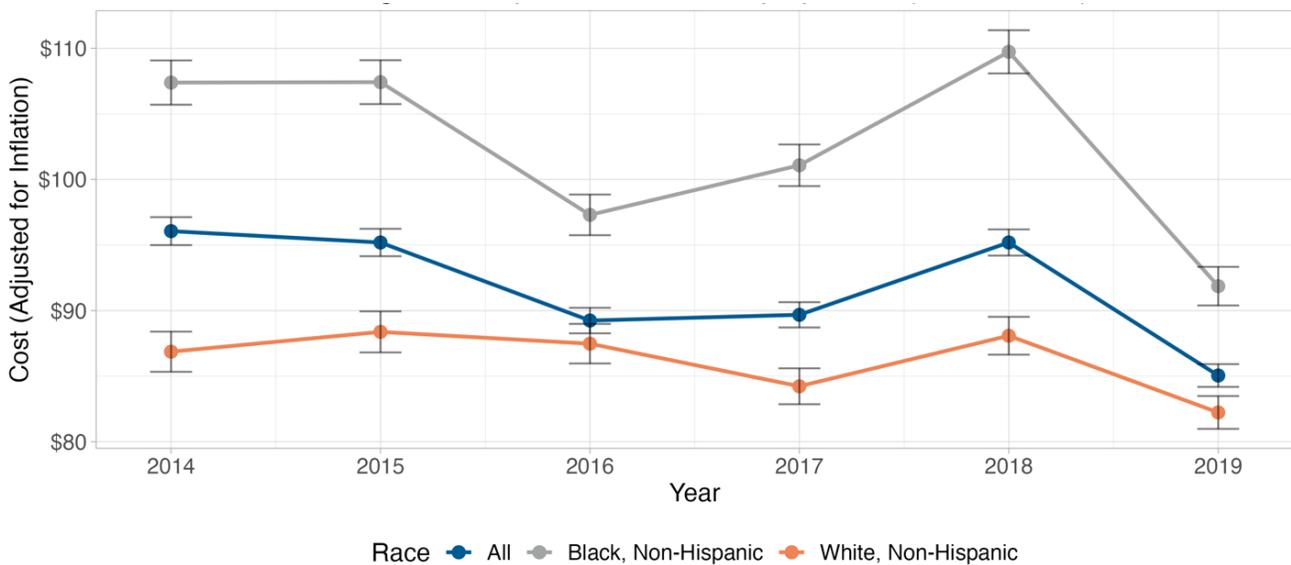
were three times more likely than White families to be targeted for a subprime mortgage loan, even when they were well qualified for traditional loans. “In 2006, at the height of the housing boom,” Bloomberg reported, “Black and Hispanic families making more than \$200,000 a year were more likely on average to be given a subprime loan than a White family making less than \$30,000 a year” [62]. Homeownership was also more likely to end in foreclosure for Black homeowners [3]. Populations that have high mortgage rates have increased liabilities, which decreases wealth.

Another cost associated with homeownership is the price of utilities, such as gas and electricity. In D.C., mean utility costs are higher for Black residents than White residents, regardless of income level (**Figure 31** and **Figure 32**). Nationally, people of color are subject to higher utility bills because they are often segregated into communities with older homes and higher occupancy levels per housing unit, and landlords often fail to invest in energy efficiency resulting in higher energy usage per square foot [63]. These higher costs reduce available cash and savings for Black residents trying to buy a home or keep up with rent.



Source: U.S. Census Bureau; American Community Survey, 2014 - 2019 American Community Survey 1-Year Estimates

FIGURE 31. AVERAGE MONTHLY COST OF GAS IN WASHINGTON, D.C., BY RACE (2014–2019) [5]

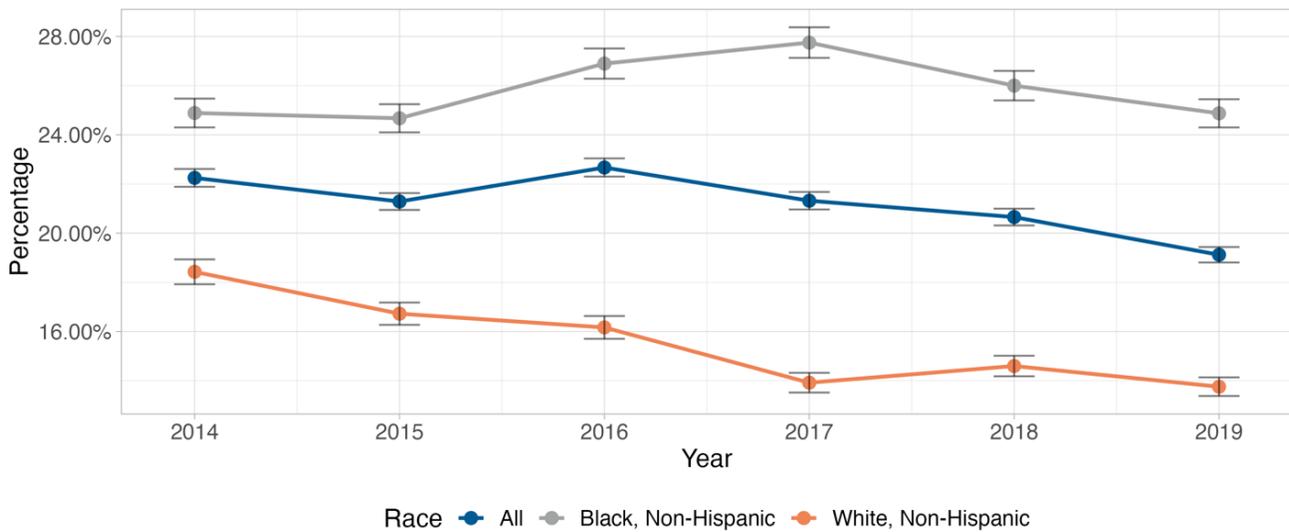


Source: U.S. Census Bureau; American Community Survey, 2014 - 2019 American Community Survey 1-Year Estimates

FIGURE 32. AVERAGE MONTHLY COST OF ELECTRICITY IN WASHINGTON, D.C., BY RACE (2014–2019) [5]

The majority of D.C.’s residents rent their home, but gentrification and external investors are making it harder for them to stay in the city. Median rent has increased by 56% since 2000 and almost half of D.C. renters pay over 30% of their salary in rent [64]. Increasing rent costs affect many Black D.C. residents who do not own their own home and have lower incomes. Rent takes up a higher portion of Black household income in D.C. compared to White household income (**Figure 33**).

Between 2000 and 2010, the supply of apartments with low rent decreased by half to 34,000 units [3]. As a result, 14% of Black families have moved out of D.C. due to their inability to pay rent compared to only 4% of White families. Additionally, a recent survey shows that 20% of residents in predominantly Black Wards 7 and 8 indicated they would most likely move in the next three years due to high rent prices [65].



Source: U.S. Census Bureau; American Community Survey, 2014 - 2019 American Community Survey 1-Year Estimates

FIGURE 33. AVERAGE GROSS RENT AS A PERCENTAGE OF HOUSEHOLD INCOME IN THE PAST 12 MONTHS IN WASHINGTON, D.C., BY RACE (2014–2019) [5]

Category 6: Social Networks and Personal Approaches to Wealth

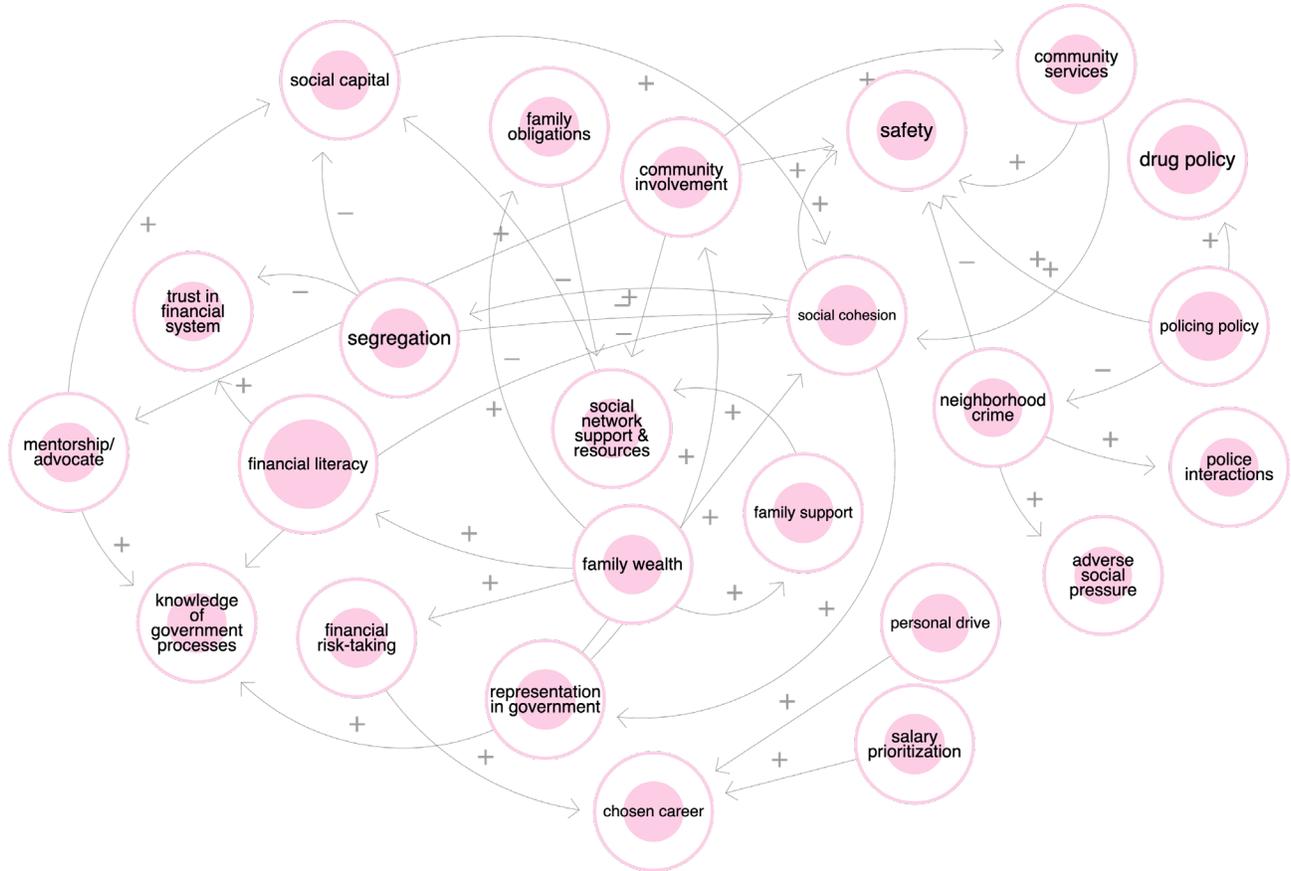


FIGURE 34. SOCIAL NETWORKS AND PERSONAL APPROACHES TO WEALTH FACTORS

Social networks can amplify or constrain an individual or family’s ability to build wealth (Figure 34). One very direct impact of a social network is the degree to which the network provides money to support wealth building (or slow wealth loss) or consumes money that would otherwise be used for wealth building. Black families are more likely to have family members who need financial support, and the decision to provide financial support can decrease wealth accumulation over time for the provider. White families are more likely to be in a position to provide financial support that protects against economic hardship or enables White residents

to accelerate wealth building (e.g., down payment on homes, money to pay for SAT preparation), but their family members are less likely to require financial support and will also have more options available should economic hardship arise [66].

Social networks are also critical to improving awareness of and access to quality employment, housing, and education. In one study, White D.C. residents had larger professional social networks than Black residents, and all networks were generally racially homogenous [10] Since Black people are underrepresented in executive positions and leadership roles, this trend limits

the ability of Black residents to access individuals in professional leadership roles who can offer information about or mentor candidates into better quality or higher income jobs. Similar trends held true across education and housing networks, as well. Homogenous and comparatively small networks for Black residents can perpetuate racial inequities by limiting access to information and opportunities that are more widely available among White networks [10].

Some studies also suggests that high levels of racial and economic segregation of neighborhoods are among the most important factors that impact economic mobility [67]. Areas with high levels of racial and economic segregation also segregate access to wealth building assets such as job, education, and housing networks as well as quality education and other workforce preparedness resources, healthy food and quality medical care, environmental safety (e.g., low levels of lead and smog) and physical safety. Owing to the legacy of residential segregation and the disinvestment that followed, neighborhoods with more White residents have greater concentration of social and environmental assets that contribute to wealth building, while neighborhoods with more Black residents have fewer such assets.

Neighborhood segregation can be observed by examining race and ethnicity data in public schools. In the District, Wards 1, 2, 3, 4, and 6 are considered more diverse, while Wards 5, 7, and 8 are less diverse and have a higher concentration of Black students [48]. Compounding this racial segregation is economic segregation, as predominantly Black D.C. neighborhoods are 10 times more likely to be poor [68]. In the District, 25% of all children live in high poverty areas—but 40% of the District's Black children live in high poverty areas [69]. Notably, children in the lowest quarter of D.C.'s income distribution have lower incomes as adults than their peers in neighboring Maryland and Virginia counties [70]. This research suggests community relationships and other social factors, such as location, impact economic mobility later in life [10]. These neighborhood-specific experiences not only shape employability and health outcomes, but also the social networks and personal approaches to wealth that influence financial risk-taking, career selection, and education and homeownership decisions.

Appendix B: Lived Experiences in Washington, D.C.'s Wealth Building System

Personal Stories

Designing for equity centers the voices of those most impacted by inequality. Due to time limitations, MITRE's analysis of the Black-White racial wealth gap in Washington, D.C. included only a few personal stories representing the lived experiences of D.C. residents. These are true stories, though the pictures and names are not real. In addition to secondary research, MITRE and CORE used these stories to build our CLD modeling wealth building in Washington, D.C (Figure 2).



“IT’S MY RESPONSIBILITY TO TAKE CARE OF MY CHILDREN, AND I’M DOING ALL THAT I CAN. I’M JUST WORRIED I WON’T HAVE EVERYTHING IN PLACE BEFORE TIME RUNS OUT AND I REALLY DON’T WANT TO MOVE AGAIN.”

Mom Getting Back on Her Feet

Nicole is a mom of an 11-year-old and an 8-month-old currently living in a quiet NE neighborhood. She works hard to take care of her two children. She suffers from severe anxiety as a result of prior trauma. This affects her ability to work consistently. She was temporarily homeless and is now in a rapid rehousing program in DC. As a part of this program, she sees a therapist and is in training to become a security guard, one of the higher paying jobs for people with high school diplomas. She also drives for Uber Eats on occasion, often bringing her children with her since childcare can be difficult to find at times (her grandmother helps when she can). She is responsible with money, pays her rent obligation, and saves what she can, and is often providing financial support to her extended family.

She is happy to have a fresh start in a new neighborhood, away from the site of her earlier trauma, but is worried she can't afford to stay in this neighborhood once her housing benefits end next year. She's thinking about moving to Maryland when she exits the rehousing program due to the lower cost of living. However, she doesn't want to leave DC - she will miss her grandmother and the higher food and Temporary Assistance for Needy Families benefits that she'll continue to need as she gets back on her feet.



“I WANT TO WORK, LIVE AND PLAY IN THE SAME NEIGHBORHOOD. THE INVESTORS HAVE DEEP POCKETS. I DID NOT ASK FOR THIS; I AM NOT BENEFITING FROM THE CONSTRUCTION NEXT DOOR. YET I’M LEFT TO DEAL WITH ALL OF IT ON MY OWN. I SEE HOW VULNERABLE WE ARE AS SMALL BUSINESS OWNERS. I JUST WANT TO MAINTAIN MY BUSINESS AND MY SANITY. ”

Adaptive Business Owner

Lauren runs a thriving beauty salon with three employees out of a rowhouse she owns in Mt. Pleasant. She hadn’t planned to be a property owner when starting her salon but purchased her first property when she realized she could buy the building for the same price her landlord charged in rent. She relied on money she had in an old life insurance policy and an unsecured line of credit she took out years earlier.

Lauren learned the business of salon ownership through relationships with vendors, clients, and bank tellers. Since starting her business, property taxes have gone from \$4k/year to \$20k/year due to the continuous development around her. She’s frustrated that she pays for her own trash removal. She lost her trade name in 2010 when, unbeknownst to Lauren, the Dept of Consumer and Regulatory Affairs changed their deadline, and another resident registered the name.

Today, Lauren is in her second location within the city limits after taking a small buyout from investors in her old neighborhood. Now, investors are building on the parking lot adjacent to her property – their purchase and plans were a surprise to Lauren. Lauren has been warned that her business may have to shut down during the construction.



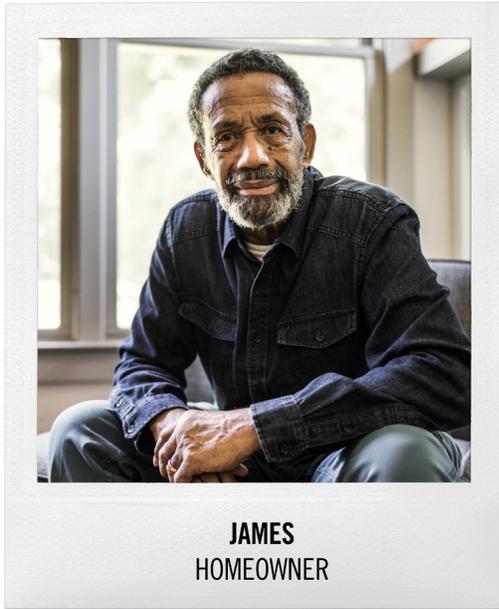
“AS I GET OLDER, I DON’T KNOW EXACTLY WHAT MY FUTURE WILL BE,” SAYS GABE. “I COULD SEE GETTING A GOOD JOB OR MAKE ONE MISTAKE AND BE HOMELESS AND ON THE STREET. SO I’M JUST TRYING TO SEE WHAT LIFE DEALS ME.”

Student on Razor’s Edge

Gabe grew up in NE and attended Dunbar High School. He was accepted to the George Washington University in NW and is the first in his household to attend college. Gabe was a good student, mostly steering clear of trouble in the neighborhood and making use of the resources available to him at Dunbar. He sees a college degree as the key to stability and is happy an opportunity opened up for him in DC.

Although he received an academic scholarship, Gabe has to pay room and board, which he can’t afford. He has a part time job on campus, but it’s not enough to cover his school supply needs. With no room on campus and no car, he commutes back to NE via bus and metro. He doesn’t like to go home often because there are always distractions and some of his neighborhood friends have started getting in real trouble. Plus, he misses the campus environment, although he feels a little out of place when he’s there too. To minimize costs, he sleeps on a friend’s dorm room couch during the school week and some of his classmates buy his meals.

Gabe is having trouble with some of the math and economics requirements in sophomore year. He doesn’t feel well prepared; the other students seem to do just fine. Plus, he can’t afford all of his books and has limited study time since taking on more hours at work. He begins to fall behind in classes. His scholarship is in jeopardy and he’s uncertain about what to do next.



“I’VE BEEN HERE ALL MY ADULT LIFE. I WORKED HARD FOR THIS HOME AND WOULD LIKE TO KEEP IT IN THE FAMILY. I DON’T WANT TO MOVE BUT IT FEELS LIKE THIS ISN’T THE PLACE FOR US ANYMORE.”

Long-time Homeowner

James has owned his home in Ward 7 for 45 years. Even though his wife passed away a few years ago, James does not want to leave his home. The neighborhood is changing. Several homeowners on his street have sold over the years and the new owners turned their single-family homes into multi-family units. The new investment is driving up both home values and property taxes; James is not sure he can afford the new property tax bill. For the first time in years, there are white residents in his neighborhood paying \$3000+/month in rent. Now construction is beginning next door, and their changes also require construction on his property. He doesn’t understand why, doesn’t know what to do about it, and isn’t sure he can afford to fight it.

His son, daughter-in-law, and grandchildren used to live with him, but moved to Maryland for better schools and more space and he’s considering going to live with them. He’s received an offer on his home for \$500K but his son advised him that his house is worth much more than that based on recent sales in the neighborhood.

Application of Personal Stories to System Modeling

These stories validate and refine MITRE’s wealth building system model and support the development of interventions to address D.C.’s racial wealth gap. Below, we provide an example

of how we can diagram these stories to inform this model. Based Nicole’s story (Mom Getting Back on Her Feet, above), we can draw the following CLD (Figure 35):

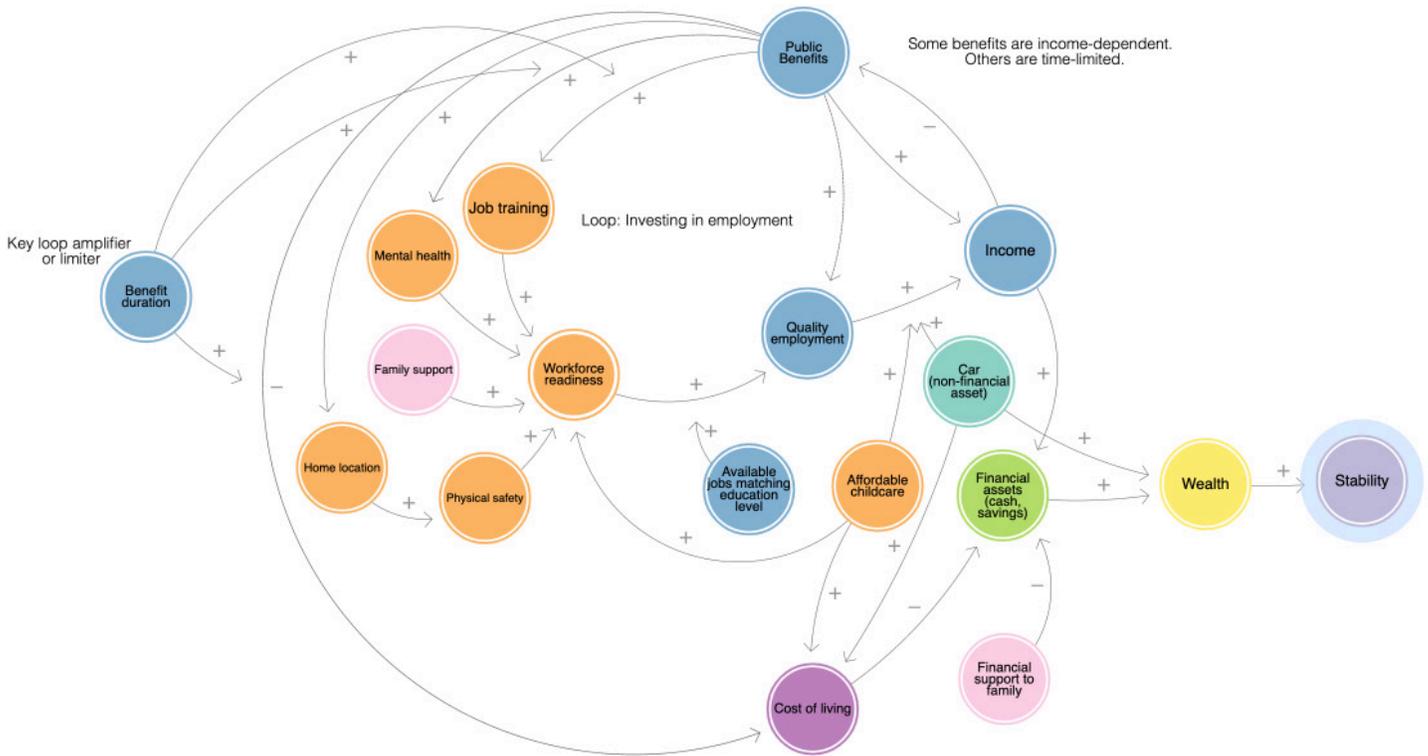


FIGURE 35. NICOLE'S CLD

Observations from this diagram include:

- Nicole is actively in the Investing in Employment loop.
- Public benefits are providing the investment that is moving her toward quality employment, and Nicole is also contributing through income of her own.
- As she exits the rapid rehousing program, health insurance, income, and access to knowledge about training and job opportunities (Nicole’s own knowledge or that of her social network)

will need to replace the role of the program, which currently provides job training and job placement services, behavioral healthcare, support searching for housing, and subsidized rent.

- Nicole’s time in the rapid rehousing program has also afforded her the opportunity to enter the Building Financial Resilience loop because it has allowed her to save money. However, this loop seems fragile for Nicole, because housing or moving costs may deplete her savings once she leaves the program.

- Nicole is not actively in the Increasing Rates of Return loop.
- Available jobs meeting Nicole's income needs constrain her ability to achieve quality employment, higher income, and wealth accumulation.
- In addition to job training, access to mental healthcare, housing stability, and access to affordable childcare are key causal factors shaping Nicole's workforce readiness. Access to affordable childcare may also limit her income.
- If Nicole is unable to secure a new job with higher income, housing she can afford independently, and manage her mental health, Nicole's exit from the rapid rehousing program and loss of its support benefits could undermine her financial resilience and create a shock that results in a debt spiral.

Appendix C: From Feedback Loops to Racial Wealth Gap Trends

Note: This appendix includes models and figures derived from American Community Survey data that are presented as examples and should be considered preliminary. If the Council Office on Racial Equity (CORE) takes interest in a particular statistic, MITRE can validate that finding and provide relevant statistical context for its interpretation.

Now that we have explored the breadth of wealth accumulation influences, identified key loops, and developed a sense for how persistent and entrenched racial disparities are throughout the system, we now discuss how to model the dynamics of the racial wealth gap—the rates of change—and consider some of the relevant rates.

From Feedback Loops to System Dynamics

Thus far, we have focused on conceptual models, especially causal loop diagrams (CLDs), to capture both residents' experiences and social science research-identified determinants.

CLDs provide a common language to share, compare, and synthesize perspectives on the causes and effects of an observed problem. They can instigate thinking about feedback loops, leverage points, and side effects of the intended effect to take advantage of or to avoid.

Once key loops and potential drivers of a problem are identified based on the CLDs, we can ask: how confident are we in these explanations? To what extent do these explanations account for historical trends? To evaluate these explanations, we build system dynamics models—an extension of CLDs with hypotheses about the strength, scales, delays, limits, thresholds, flow rates, and other details of links between variables (i.e., system components)

to simulate system output (e.g., family net worth) over time. With appropriate historical data, these models can be run over historical periods or run in reverse from current conditions and compared to the observed trends in an approach called “backcasting” [71]. Calibrating with and evaluating against historical data builds confidence in the implications and forecasts of the model.

Beyond explanations and forecasts, a system dynamics model can help answer “what if” questions (counterfactuals) to support policy design: If factor X were different by this amount, or if process Y slowed down by a delay of this duration, how different would the system output be?

There are two levels of system dynamics relevant to modeling socioeconomic equity in a city. The first level is the dynamics of finances over time for an individual or family, i.e., how an individual or family experiences wealth building or loss, debt, poverty, financial struggle over time. The second level considers the flow rate of people or households moving from one condition to another and leaving or entering the District.

The CLD in **Appendix A: Wealth as a System of Systems (Figure 14)** is a conceptual model that can be further developed into a system dynamics model for the first level of dynamics, to compare trajectories of individual or family wealth by race. Current wealth trajectories differ by race due to historical oppression, persisting barriers, and disparately impactful policies, which translate into different starting conditions and rates of change for residents that correlate by race. These differing conditions and rates, in turn, drive diverging wealth outcomes by race. The diagram in **Figure 36** shows some of the financial variables a systems dynamics

model may include to transform a portion of the CLD—with general components such as income, debt, costs, and homeownership—into a model that can be calibrated to data on household finances.

We can use both demographic and qualitative data (i.e., residents’ personal stories) to build and forecast these financial trajectories for different pairings of neighborhood, family size, employment status, needs, education levels, and median financial and non-financial wealth levels.

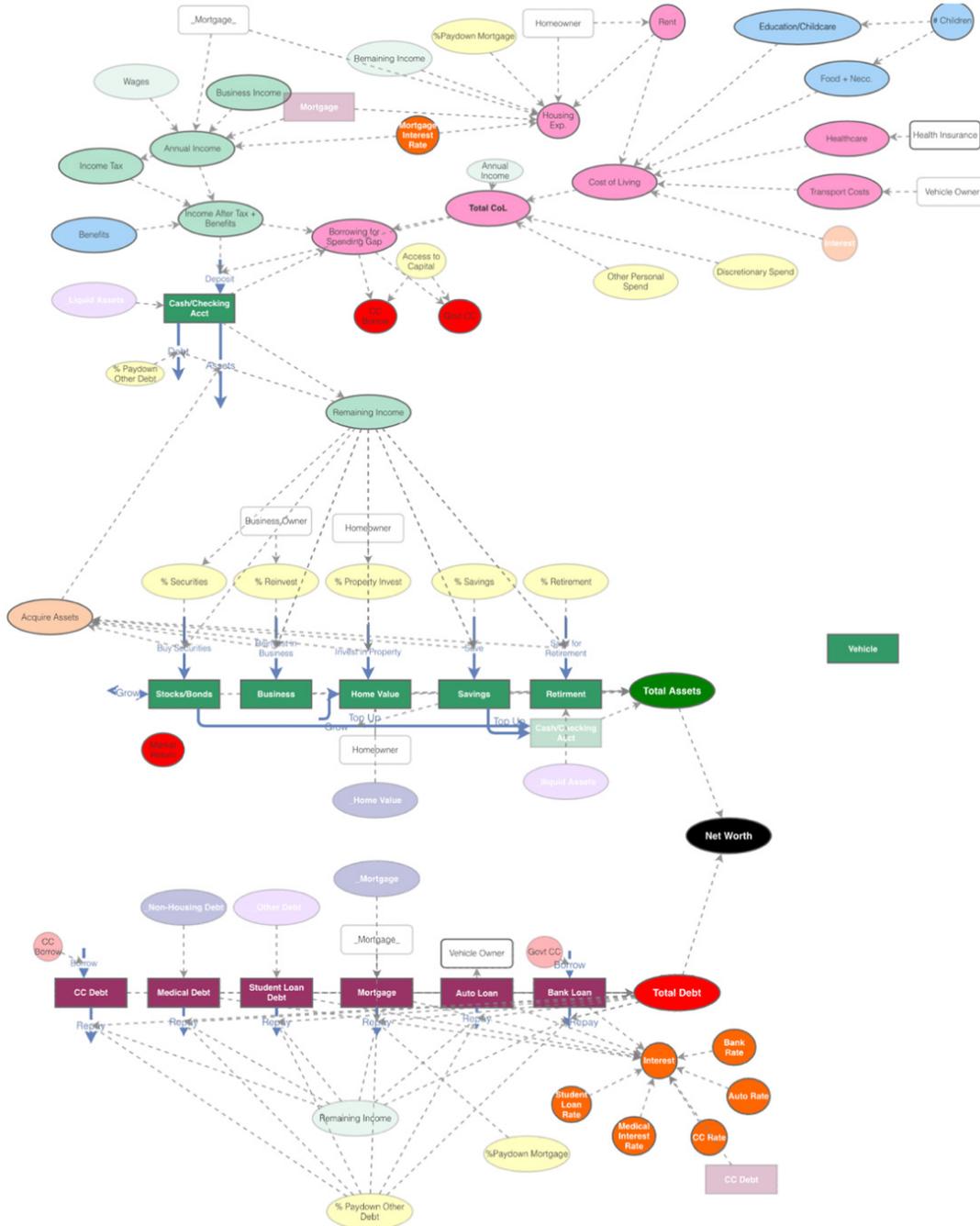


FIGURE 36. SYSTEM DYNAMICS MODEL FOR HOUSEHOLD FINANCES

Modelers can leverage demographic data to establish the prevalence of different social conditions in the District to create a wide-ranging view of wealth trends for residents for different groups. When system dynamics models are tailored to the micro-level—such as individuals or families—and then run on demographic data-informed profiles (a synthetic population), this technique is called microsimulation [72]. Instead of representing average policy outcomes as a variable, in a system dynamics model, a microsimulation simulates outcomes on the micro level and then computes the average (or other statistics of interest) by aggregating the simulated micro-level outcomes. This process is notionally illustrated in **Figure 37**. Step 1 shows a population

represented as several demographic profiles. Step 2 notionally shows what the typical dynamics might be for each individual/household profile—here, exponential growth of wealth for families with inherited wealth via investments; professional degree student spending for tuition but later gaining wealth with a high salary; a small business owner with a cycle of profit and loss; a family with starting assets incurring ongoing healthcare costs; a wage worker paying off debts. Step 3 runs the dynamics on a synthetic population with some variation of the profiles, and the resulting distributions of population outcomes can then be studied. The black line in Step 3 represents the mean for the population. (For an example of MITRE’s microsimulation work, see [73].)

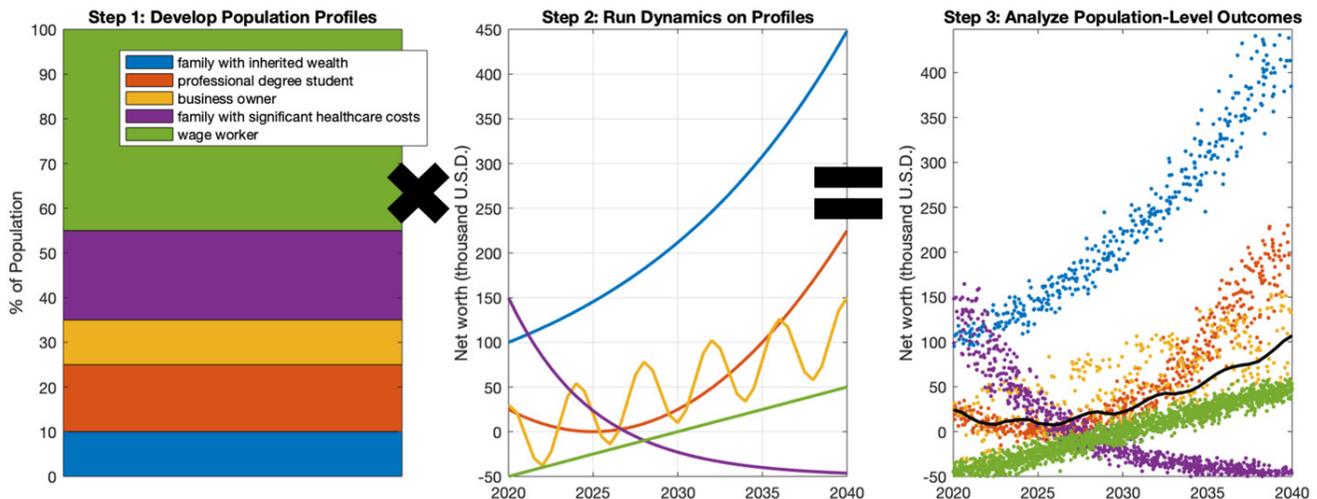


FIGURE 37. MICROSIMULATION: A POPULATION IS REPRESENTED THROUGH DEMOGRAPHIC DATA-INFORMED PROFILES (STEP 1); DYNAMIC MODELS ARE RUN ON THE VARIOUS DEMOGRAPHIC PROFILES (STEP 2); RESULTS FOR THE VARIOUS PROFILES, WEIGHTED BY THEIR FREQUENCY IN THE POPULATION, ARE ANALYZED IN AGGREGATE TO REPRESENT ENTIRE POPULATION (STEP 3). BLACK LINE REPRESENTS THE MEAN FOR THE POPULATION. THE TRENDS AND COLORS HERE ARE ARBITRARY, FOR CONCEPTUAL ILLUSTRATION ONLY.

THE RACIAL WEALTH GAP IN WASHINGTON, D.C.

RESEARCH AND ANALYSIS IN SUPPORT OF THE COUNCIL OFFICE OF RACIAL EQUITY, COUNCIL OF THE DISTRICT OF COLUMBIA

Applying the second level of systems dynamics, we can see population flows across regions, as well as the corresponding flow of wealth (notionally illustrated in **Figure 38**; large arrows indicate the flow direction, with thickness proportional to the flow rate. The smaller arrows are symbols to distinguish flows from the +/- causal links in CLDs).

In Washington, D.C., for example, we see that the number of Black and White families moving to D.C. are different from those leaving D.C. In a sample of 176 Black and 740 non-Black households, within the census-defined North Public Use Microdata Area^x of D.C. (Ward 4 and parts of 1 and 5), the ratio of non-Black homeowners^{xi} to Black

homeowners ratio is 8x higher among households who moved in fewer than two years ago^{xii} (7.3:1) than among households in their current residences for more than two years (0.9:10) (calculated using [5]). In contrast, in a sample of 553 White households and 879 non-White households in the North region, the ratio of non-White homeowners to White homeowners who moved in less than two years is 1:2. The same ratio for homeowners who have owned their home for more than two years is 2:1. Suggesting the new homeownership ratio for White residents in the North region is 4 times higher (calculated using [5]). These flows directly impact the D.C. racial wealth gap in addition to indirectly affecting neighboring communities.

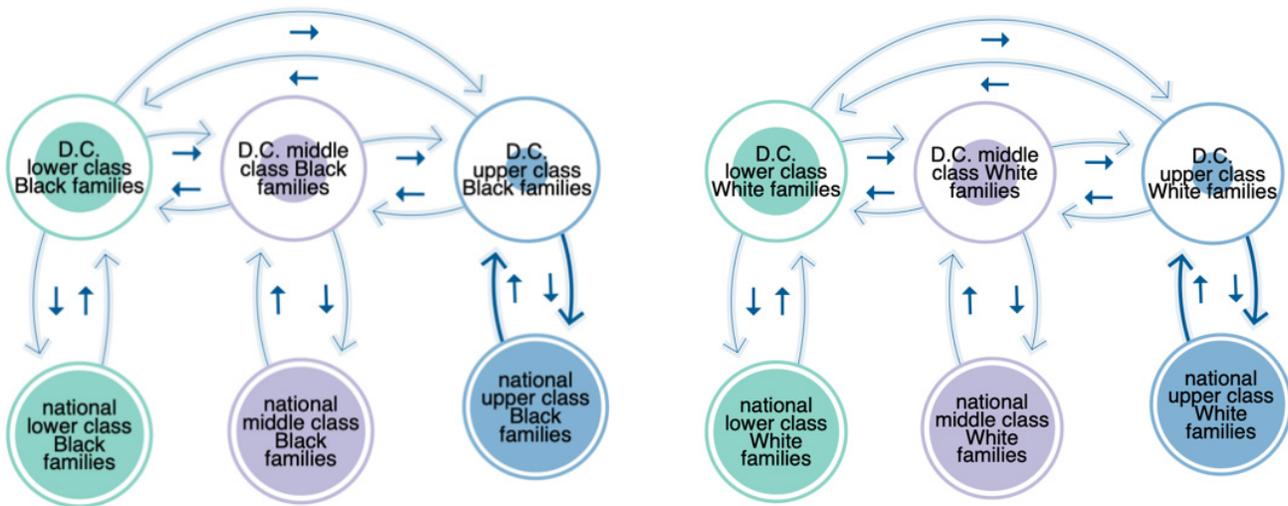


FIGURE 38. NOTIONAL REPRESENTATION OF POPULATION FLOWS TO/FROM A CITY AND BETWEEN ECONOMIC CLASSES

Rates of Change

Building and calibrating a complete system dynamics model of the racial wealth gap in Washington, D.C. is beyond the scope of this initial report. However, we can develop intuition about the relative rates of change for typical Black and White household wealth using a very simple dynamics model: constant net income (defined as taxes and cost of basic needs subtracted from income) with constant rate of return/interest (See endnote^{xiii} for the equation.). For now, we use the racial equity metric considered in *The Color of Wealth in the Nation's Capital*: the ratio of net worth of a median White household to a median Black household [3].

In this constant net income and rate of return model, if the rate of return on assets—such as home equity—is equal for both families, then the ratio between two families' net worth approaches the ratio of their excess incomes plus their annual return rate times initial asset value. However, if one household has a higher rate of return over the other, then the net worth ratio will grow exponentially.

From this idealized model, differences in rates of return drive an ever-growing net worth ratio. But even if rates of return were equalized, the net worth ratio would approach an unequal ratio based on gaps in income and in current net worth. This exercise points to the primary influence of income in enabling access to higher rates of return, i.e., the ability to buy a home or invest in assets at all, whereas the secondary influence is through growing those investments.

For example, gaps in rates of return appear in both access to homeownership and the appreciation of home equity. Between 2015 and 2019, an estimated 50% of White households in D.C. owned their home, while only 35% of Black households

did. Yet homeownership rates are not proportional to ability to pay, as approximately 11% of Black households and 11% of White households own their home without a mortgage (calculation from [5]).

For households with Black D.C.-born householders,^{xiv} the rate of homeownership is even lower, about 16% compared to 20% for White D.C.-born householders (calculation from [5]). For Black D.C. householders born elsewhere, homeownership rates increase to 25% and for White D.C. householders born elsewhere, the rate is 40%. This rate increases to 53% for Black D.C.-born individuals living elsewhere in the country, compared to White D.C.-born homeowners at 71% elsewhere in the country (calculation from [5]). It appears that Black D.C.-born individuals who move away from D.C. are more likely to own a home than those who stay, and new Black residents of D.C. own homes at higher rates than Black residents born in D.C. We can consider phenomena like this in the second system dynamics modeling level, the rates of change between group conditions.

Income Mobility Rates

To get a sense of other important rates for wealth in the second modeling level—the rates of change between group conditions—we can look at intergenerational income mobility. Here, we consider household income quintiles, sorting household income into five equally sized groups in order from lowest income (1st or lowest quintile) to highest income (5th or top quintile) [74]. Nationally, Black Americans experience net downward income mobility in that, no matter their parents' income, Black Americans are more likely to end up in the lower two income quintiles than the top two [74].

Figure 39 shows the national income trends by quintile for Black and White Americans, compared to random (i.e., if children born in any household income quintile have equal probability of living in a household at age 35 of any income quintile).^{xv} The horizontal axis represents a child’s household income quintile, the color-coded bars represent a child’s household income quintile in adulthood, and the vertical axis values indicate the probability that said child will end up in the adult income quintile, minus 20%. The upward (positive) blue bars for Quintile 4 as Children and Quintile 5 as Children in the graph for White Americans in **Figure 39** (top) indicate that those children have a higher chance than random of having a top-quintile household income as adults. For Black Americans, the opposite is the case—the downward blue bars for Black children in Quintiles 4 and 5 indicate that those children have a lower chance than random of having a top-quintile household income as adults. Overall, we see that Black Americans experience net downward income mobility in that, no matter their parents’ income, Black Americans are more likely to end up in the lower two income quintiles than the top two.

If these income mobility probabilities are to continue across three generations, we can roughly estimate the probability that great-grandchildren of a certain household income quintile will end up in a certain household income quintile. **Figure 40** presents this theorized three-generation mobility for Black and White Americans. Note that mobility is now roughly similar between great grandparent quintiles—the chance of Black individuals in the top and bottom quintiles have roughly the same chance of having great grandchildren in the top household income quintile. But, that chance is very low—almost 15% less than random (20%); instead, they are almost 10% more likely than random to have great grandchildren in the bottom household income quintile. Meanwhile, White Americans of any household income quintile are more than 10% more likely than random to have great grandchildren in the top two quintiles.

In other words, simply closing the income gap for one generation does not necessarily mean the income gap stays closed without also addressing why Black American families are subjected to downward income mobility while White American families experience slight upward income mobility.

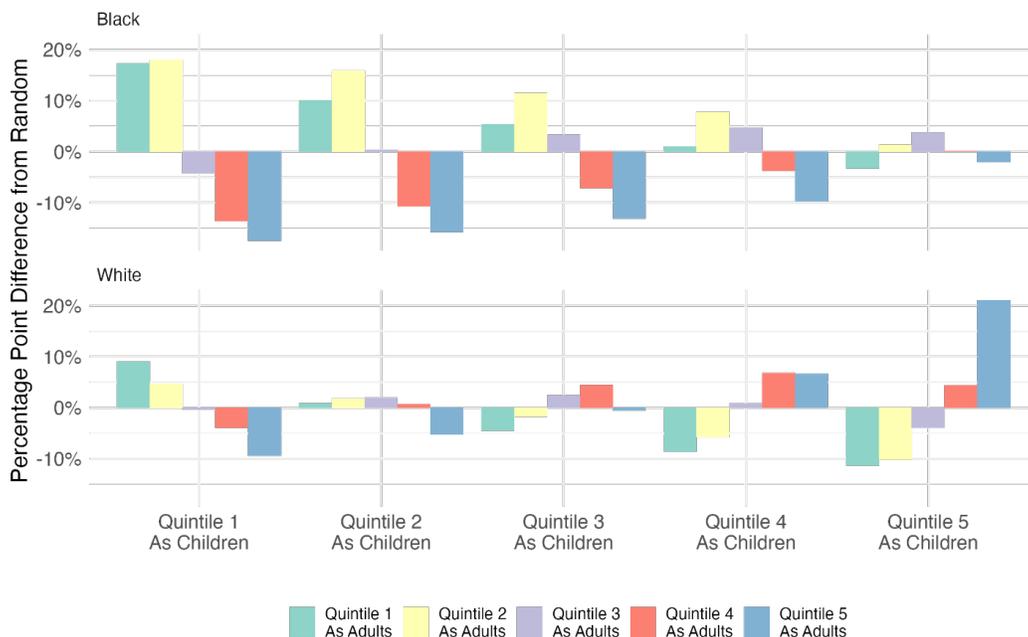


FIGURE 39. NATIONAL INCOME MOBILITY PER PARENT INCOME QUINTILE

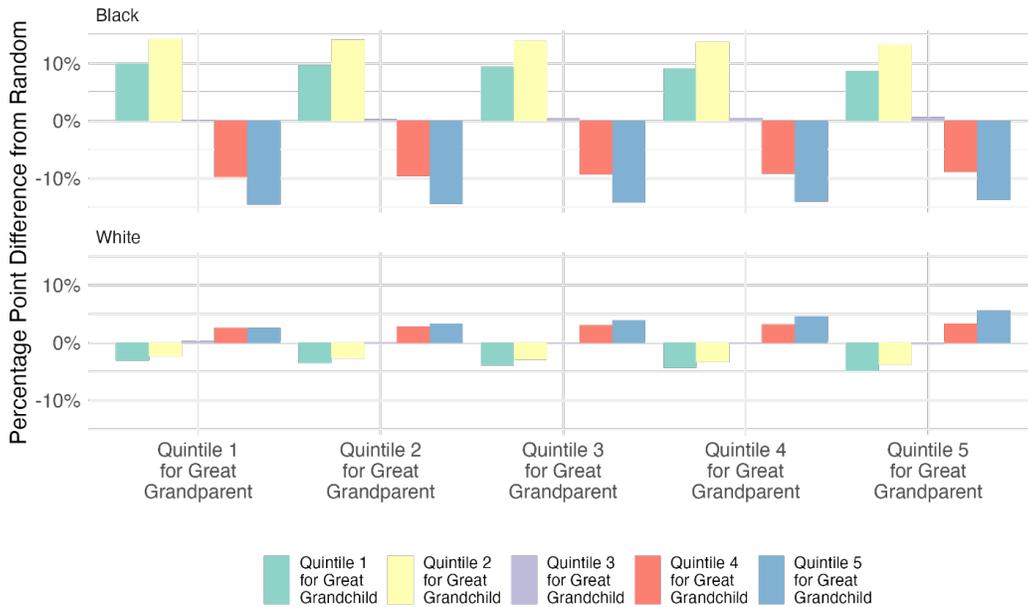
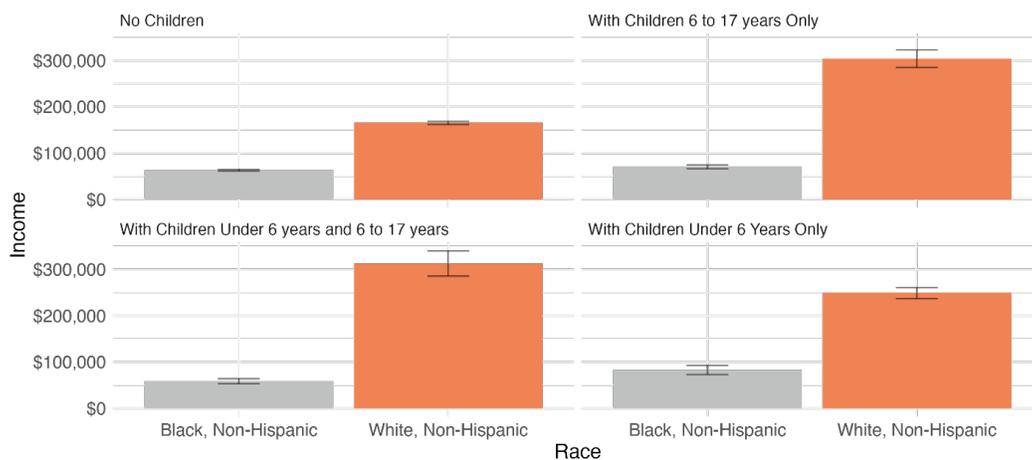


FIGURE 40. NATIONAL INCOME MOBILITY PER GREAT GRANDPARENT INCOME QUINTILE

This example yet again illustrates that one-time changes to a single factor (e.g., current income) are unlikely to eliminate entrenched racial inequity without addressing other root causes in tandem.

These models illustrate income mobility by race per household income starting point, without commenting on the distribution of starting points.

Yet we know that those starting points in D.C. are far from equitable. Among families with at least one child aged 16 to 17 and at least one child under age 6, White households have on average four times the household income of Black households (Figure 41).



Source: U.S. Census Bureau; American Community Survey 2019 American Community Survey 5-Year Estimates

FIGURE 41. AVERAGE HOUSEHOLD INCOME IN WASHINGTON, D.C. BY HOUSEHOLD PRESENCE AND AGE OF CHILDREN (2015–2019), SEGMENTED BY RACE

Reflecting national trends, income mobility is also highly localized. Income mobility in Washington, D.C., varies substantially from block to block. For a stark example from The Opportunity Atlas [75]: In one census tract in southeast D.C. (**Figure 42**; red), Black men born to parent(s) in the 100th income percentile earn, on average, a household income of \$8,700 at age 35, and have an incarceration rate of 47%; income for Black men jumps to \$120,000 for those born in the neighboring tract on to the north with about half as many non-White residents (**Figure 42**; blue), with an incarceration rate of less than 1%. While estimates are not available for White men in the southeastern tract, they are for White residents of all genders: \$110,000 household income and less than 1% incarceration rate. Unemployment and incarceration form a reinforcing feedback loop: the longer a person is incarcerated, the more difficult it is to attain a job upon reentry, and the longer a person spends unemployed the more likely they are to violate parole and be incarcerated once again. This feedback loop profoundly impacts families and neighborhoods.

Data-Driven “What If?” for Single Factors

For factors that we think have a direct relationship, such as the influence of formal educational degrees on earnings, and for which we have individual or household data, we can explore how much of an effect a change in the factor could have on the result. For example, we can divide (“decompose”) D.C.’s racial income gap into “income gap accounted for by racial disparities in educational attainment” (“composition effect”) and “income gap not accounted for by the racial disparities in educational attainment” (“unaccounted effect”), where the latter may include multiple factors ranging from explicit employment discrimination to differences in age of the populations, among others [76], [77], [78].

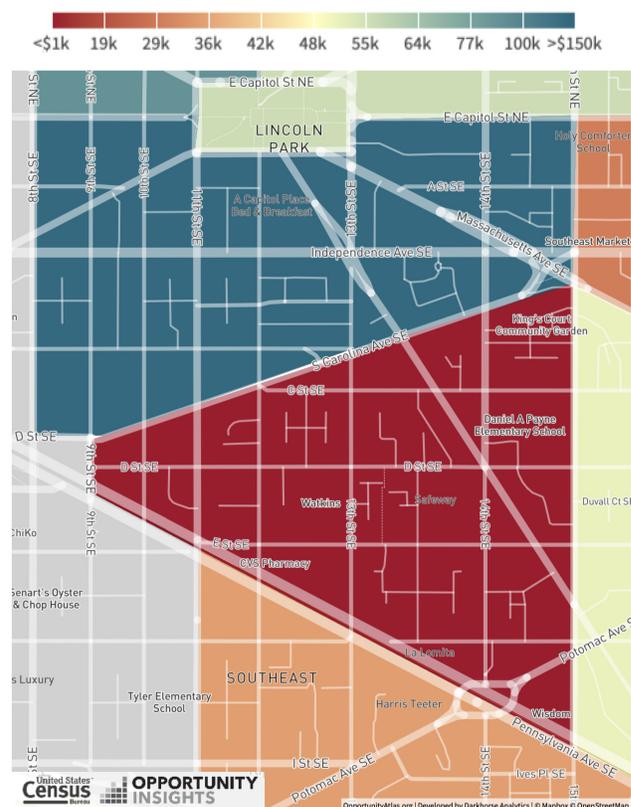


FIGURE 42. NEIGHBORING CENSUS TRACTS WITH OVER \$100K DIFFERENCE IN AVERAGE HOUSEHOLD INCOME FOR BLACK MEN BORN THERE TO FAMILIES IN 100TH INCOME PERCENTILE [75]

A common fallacy in social policy design is the assumption that cause-and-effect relationships are universal, i.e., thinking, “My earnings increased by \$40,000/year after getting a bachelor’s degree, therefore we can increase all earnings of those without bachelor’s degrees by \$40k by supporting them through a bachelor’s degree.” This thinking ignores the effect of many other factors that prevent such a significant increase in earnings, in particular racial discrimination.

The decomposition approach avoids this fallacy by asking, “What if Black D.C. residents received formal educational degrees at the same rate of White residents but are still paid what Black

residents are currently paid at the same degree level? What would the average earnings of Black residents be?” The increase here is the composition effect, and the remaining gap is the unaccounted effect.

Most White D.C. residents have a bachelor’s degree, while most Black residents do not (Figure 43). However, even after controlling for degree, racial wage/salary income disparities persist (Figure 44). On average, White D.C. residents have higher income from salary/wages than Black residents at every level of educational degree. In terms of the White to Black earnings ratio, the gap is largest for those with a high school degree or GED as their highest formal education attainment,

which warrants further analysis. The gap is next largest for some college, where White residents’ income from salary/wages is 95% higher, followed by some high school, where White residents’ income is 77% higher. Further analysis of income gaps should consider age, gender, employment status, family status, and other variables.

Which contributes more to the racial income gap, racial disparities in formal educational attainment, or in income per degree level? The answer depends on what metric is used, for whom, and from which baseline. We review the meaning of these choices in **Appendix D: Defining Success: Racial Equity and Wealth.**

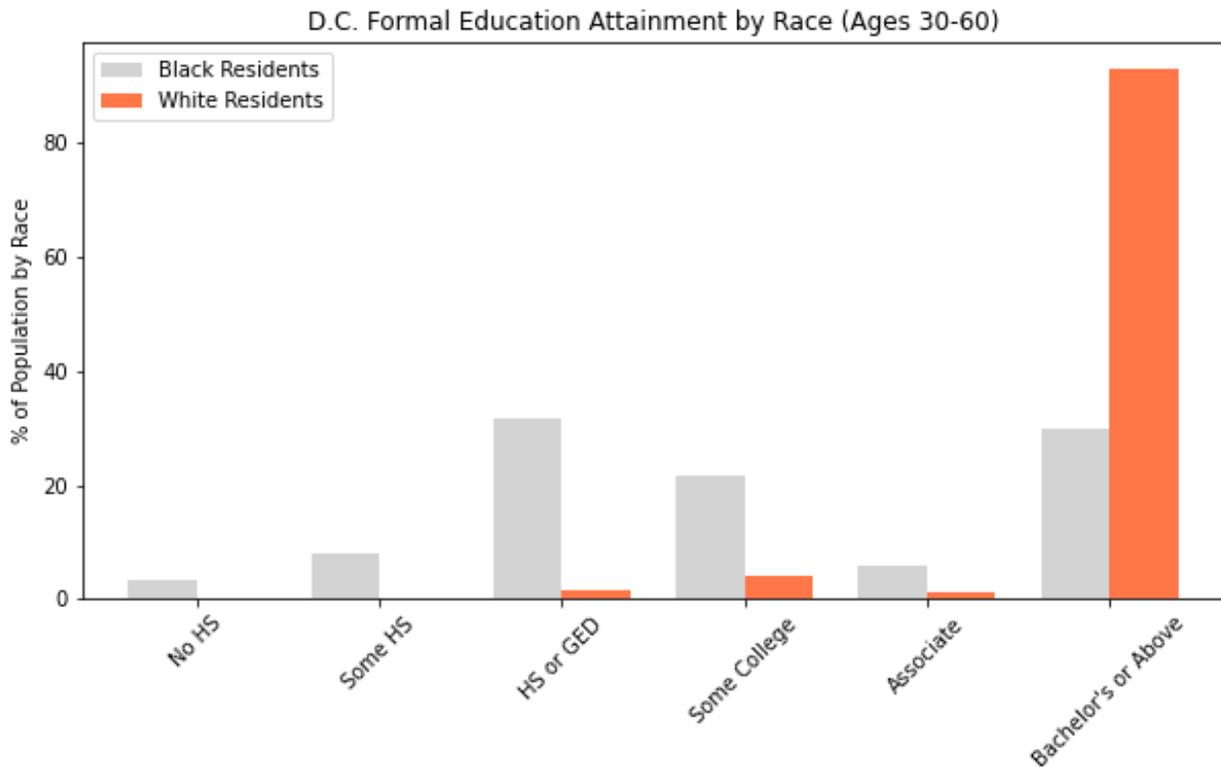


FIGURE 43. HIGHEST FORMAL EDUCATIONAL ATTAINMENT FOR D.C. RESIDENTS AGES 30–60 (2014–2019) [5]

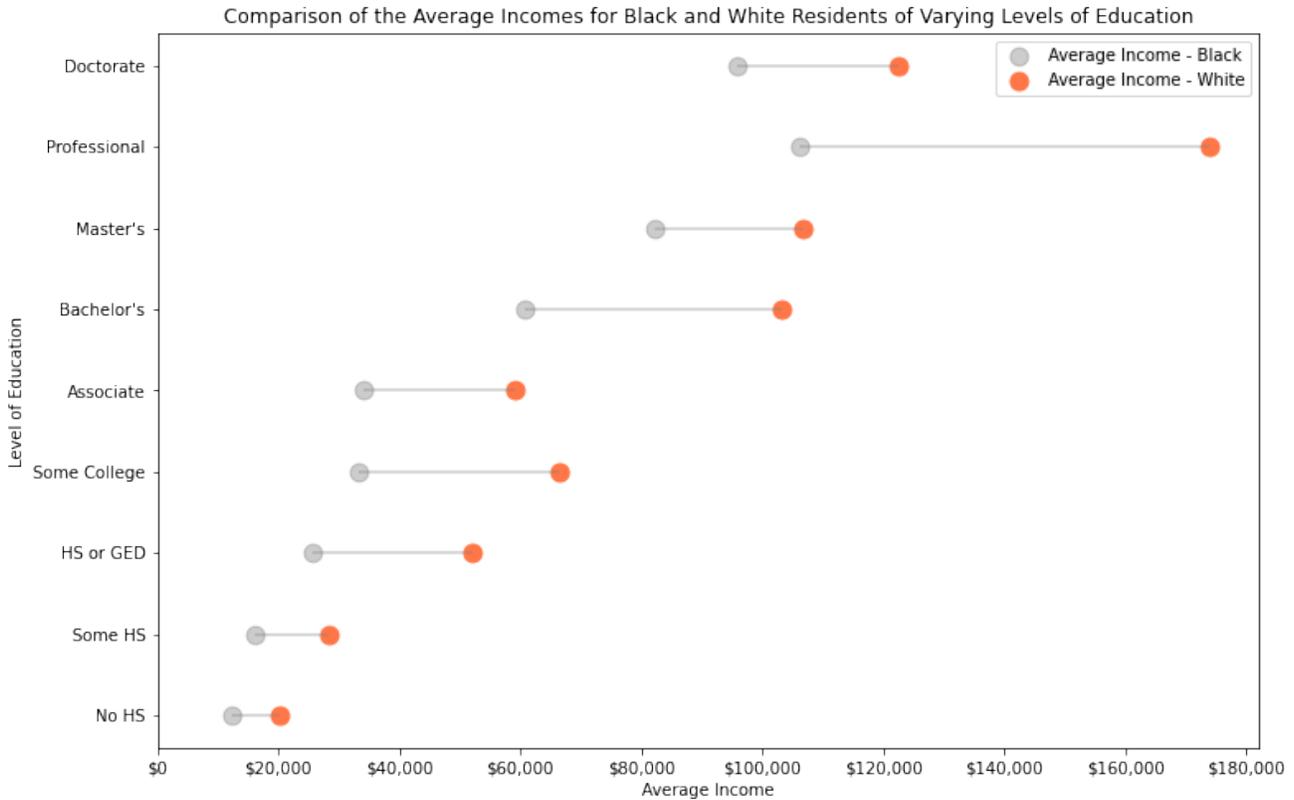


FIGURE 44. MEAN INDIVIDUAL INCOME FROM SALARY/WAGES BY HIGHEST FORMAL EDUCATIONAL ATTAINMENT FOR WASHINGTON, D.C. RESIDENTS AGES 30–60 (2014–2019) [5]

By mean (average) wage/salary income, this rudimentary analysis^{xvi} estimates the effect of the racial disparities in formal educational attainment (a “compositional” effect) at a difference of \$34k and the effect racial disparities in income at degree level (an “unaccounted effect”) at a difference of \$39k. Effectively, this implies racial disparities in formal educational attainment

accounts for less than half of the racial income gap. Disparity decompositions like these, in conjunction with participatory processes, can help ground policy considerations in what currently is and is not working for affected communities instead of relying on the stated policy goals alone.

Appendix D: Defining Success; Racial Equity and Wealth

Achieving racial equity in wealth requires a measurable definition of success. This measure is essential, both to inform how Washington, D.C. redesigns its wealth building system for equity and to help the public and policymakers assess the impact and effectiveness of policy interventions. Because interventions change how the system operates, decision makers will need to continuously monitor the wealth building system and adjust interventions as needed to achieve success. Measuring success will also require more regular collection of detailed data about wealth and the various factors that contribute to wealth building in the District. Notably, household wealth is a lagging indicator, i.e., takes time to observe, so monitoring changes requires attention to both short-term and long-term indicators along each system node or feedback loop.

The Racial Equity Achieves Results (REACH) Emergency Amendment Act of 2020 defines racial equity as, “the elimination of racial disparities such that race no longer predicts opportunities, outcomes, or the distribution of resources for residents of the District, particularly for persons of color and Black residents [33].” This definition provides a useful framework for beginning to define and measure success; however, additional questions remain:

1. Is wealth an outcome? What does it mean for race to no longer predict wealth? Given the “advantage to the advantaged” archetype for wealth, what does it mean for racial disparities in wealth to be eliminated?
2. Is wealth a means to an end, i.e., a resource for achieving other life outcomes (e.g., freedom of choice, health-related quality of life, life expectancy, etc.)? What wealth-related

outcomes matter to D.C. residents, and what is the relationship between wealth and those outcomes? What is necessary in wealth to support those outcomes? How does a disparity in wealth as a resource lead to disparities in those outcomes, and how do wealth-related outcomes improve as more Black residents have equitable access to resources and opportunities for wealth building?

Answers to these questions are necessary for establishing a vision for achieving racial equity in the District, and they will also inform how the District measures progress towards this vision.

In **Table 2**, MITRE defines key opportunities, distribution of resources, and outcomes as they apply to wealth, and offers a series of questions and considerations that can be:

- Applied to each of the three key feedback loops described above in Feedback Loops Driving the District’s Wealth System to build a baseline assessment of programs, policies, and gaps for the District, and
- Used to select indicators against which the District can collect data to assess progress and inform the next phase of strategic, policy, or budgetary planning.

The list of example areas for assessment and intervention, described in **Table 2**, is not exhaustive. Its application should consider all sectors and systems within the District and all assessments should include both quantitative and qualitative input from D.C. residents, particularly those who have been excluded from D.C.’s wealth accumulation system.

Many resources or outcomes may vary—not just between groups, but within a group—such that the variation can be described by a distribution (and visually depicted by a histogram) for each

group. How do we evaluate the similarity of two distributions to understand whether they are becoming more similar or less similar over time?

Racial equity in wealth means that race no longer predicts:		Example areas for assessment and intervention
Opportunities – Are they real for all residents?	The existence of wealth building opportunities in one’s community	<ul style="list-style-type: none"> • Employment, internship, and apprenticeship opportunities • Personal investment opportunities • Pathways to homeownership • Nearby business districts
	Awareness of wealth building opportunities in one’s community	<ul style="list-style-type: none"> • Advertising/outreach and through which means (e.g., overreliance on Internet access) • Credible sources of information and addressing disinformation
	Willingness to engage wealth building opportunities	<ul style="list-style-type: none"> • Civic engagement • Community perceptions of opportunities • Application and business ownership rates
	Readiness and eligibility for wealth building opportunities	<ul style="list-style-type: none"> • Physical and mental health • Basic needs addressed, such as housing and food security • Required or implied prerequisites like insurance, licenses, or training
	Access to wealth building opportunities in one’s community	<ul style="list-style-type: none"> • Safety and security • Transportation time, cost, and reliability • Dependable, available Internet access • Application times/costs • Completion time/cost
	Successful completion of, engagement in, or throughput for programs/services that support wealth building	<ul style="list-style-type: none"> • Graduation rates • Successful exit of support service
<i>Continued on Next Page</i>		

TABLE 2. KEY OPPORTUNITIES, DISTRIBUTION OF RESOURCES, AND OUTCOMES AS THEY APPLY TO WEALTH

	Racial equity in wealth means that race no longer predicts:	Example areas for assessment and intervention
Resources – Are they available to everyone?	Information or expertise in building, sustaining, or protecting wealth	<ul style="list-style-type: none"> • Financial coaching • Knowledge of how to navigate public/private systems to greatest advantage
	Sources of wealth building	<ul style="list-style-type: none"> • Stable income above cost of living • Homeownership and home value • Investments and retirement accounts
	Mitigations against potential losses of wealth	<ul style="list-style-type: none"> • Savings • Social networks that mitigate consequences of shocks, stressors, and missteps • Creditworthiness • Employability • Health insurance • Transportation to education or employment • Unbiased hiring practices • Available jobs for a variety of skills/education, diversity of industry • Social cohesion
	Means that contribute to wealth building	<ul style="list-style-type: none"> • Access to in-demand skills or quality education • Access to capital, real estate, and infrastructure, especially in favorable arrangements • Access to power/ability to protect interests • Internet access • Affordable transportation to jobs or education • Initiative and engagement; a belief that wealth is accessible • Sense of belonging in public and private wealth building systems
	Relationships that contribute to wealth building	<ul style="list-style-type: none"> • Social networks that support job searches or that loan money or other resources • Mentors that build hope and offer training • Financial advisors
Outcomes – What do opportunity and resources enable?	Wealth	<ul style="list-style-type: none"> • Social networks that support job searches or that loan money or other resources • Mentors that build hope and offer training • Financial advisors
	Freedom from need	<ul style="list-style-type: none"> • Likelihood of living below the poverty line • Demand for supplemental income or other public benefits/services
	Wealth-related life outcomes	<ul style="list-style-type: none"> • Life expectancy • Safety and stability • Access to choice: neighborhoods, careers, etc.

TABLE 2 (CONTINUED). KEY OPPORTUNITIES, DISTRIBUTION OF RESOURCES, AND OUTCOMES AS THEY APPLY TO WEALTH

While there are many similarity/dissimilarity metrics to choose from, they differ in which attributes of equity/inequity they indicate.

If the equity target is **equal distribution of a resource to each group**, then we consider the ratio or difference between the **mean value** for each group. This ratio measures the total amount belonging to each group, scaled to the size of the group.

However, when the within-group distribution is skewed, such as with income (i.e., most households have incomes under \$100k; some households have over a million dollars; and very few, if any, have a negative million dollars), then most households will have incomes far below the mean value. If the equity target is closing the gap for the typical person or household, then we compare the **median values** for each group. A ratio of medians was the key statistic in the *The Color of Wealth in the Nation’s Capital* study—“White households in D.C. have a net worth 81 times greater than Black households”—refers to the ratio of median White household net worth to median Black household net worth [3].

A ratio of averages (mean or median) on its own cannot tell the full story of equity/inequity. In **Figure 45**, we come up with a hypothetical situation in which achieving equal means or medians of a resource between two groups conceals significant inequity. We notionally consider vehicle availability, a commonly used indicator of wealth in wealth inequity assessments [79], for households in Group A and Group B. In Panel 1, the vast majority of Group A has three or fewer cars, while the vast majority of Group B has three or more cars, yet the two groups share a median of three cars. In Panel 2, 80% of Group A has no car, while 100% of Group B has at least one car, yet the groups share a mean number of cars (1.2).

Instead of equality of mean or median, another possible indicator of equity is parity of some significant condition involving the resource under consideration (e.g., the proportion of people above some resource-plenty marker, or below a resource-scarce marker). For net worth or income, this may be the proportion of the group below a poverty line, or above a luxury line. These metrics quantify disparities in particular experiences of concern or of interest to a community based on resource value.

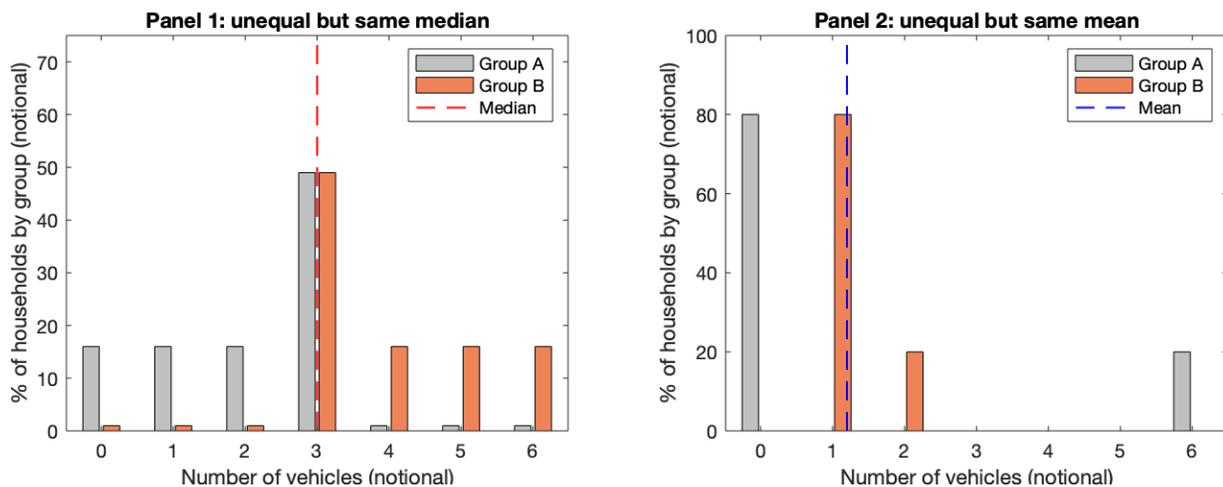


FIGURE 45. TWO NOTIONAL SETS OF VERY UNEQUAL DISTRIBUTIONS THAT SHARE THE SAME MEDIAN AND MEAN, RESPECTIVELY

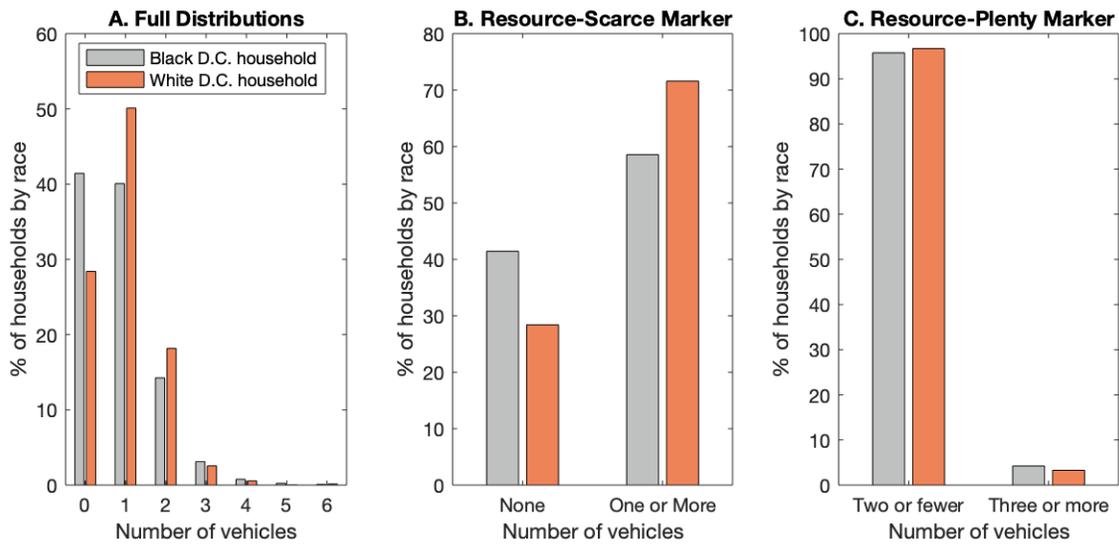


FIGURE 46. VEHICLE AVAILABILITY TO HOUSEHOLDS IN D.C. BY RACE AS AN EXAMPLE OF METRIC SELECTION. DATA FROM AMERICAN COMMUNITY SURVEY, 2019 5-YEAR VINTAGE

In **Figure 46**, we illustrate this distinction via vehicle availability for D.C. households (this time with real data). Panel A shows the full distribution of number of cars available to Black and White D.C. households, which we want to summarize into a wealth metric. The dashed vertical lines show two proposed thresholds for the metric, implemented in Panels B and C. Panel B illustrates a threshold for a simple resource-scarce condition: availability of any vehicles, i.e., one or more. Panel C illustrates a threshold for a simple resource-plenty condition: availability of three or more vehicles. Note that for the resource-plenty metric (Panel C), the gap is less than 1% Black and White D.C. households, while for the resource-scarce metric (Panel B), the gap is 13%. This shows how different metrics on the same base quantity perform different comparisons and highlight different aspects of equity/inequity.

In tracking progress via comparing summary metrics for two groups over time, considering both “difference” and “ratio” is important, as the two comparisons can tell different stories on their own. Effectively, difference treats the resource as equally valuable at any starting point—\$100

is \$100 whether the recipient is wealthy or experiencing poverty. Thus, the gaps described in difference are often larger if considering larger numbers to begin with. Ratio better captures relative standing but is very sensitive around zero and undefined (as a metric) when one group’s value dips to zero or negative (e.g., comparing \$100,000 net worth to -\$1,000 net worth). Racial wealth gap studies differ in whether to focus on the ratio [3] or absolute difference [27] of median household net worth.

In **Figure 47**, we look at two notional wealth trend scenarios between two groups, in which the ratio and difference metrics tell conflicting stories of increasing or decreasing inequity. In scenario 1 (**Figure 47**, top left), Group A and Group B start at different levels of wealth but are both experiencing the same rate of return on their accruing household wealth, resulting in proportional exponential growth. Applying the ratio metric to the wealth trajectories of Group A and Group B, we see the ratio remains constant over time—the gap is neither growing nor shrinking (top right, red line). However, the absolute difference between the two groups’ household wealth is not only increasing

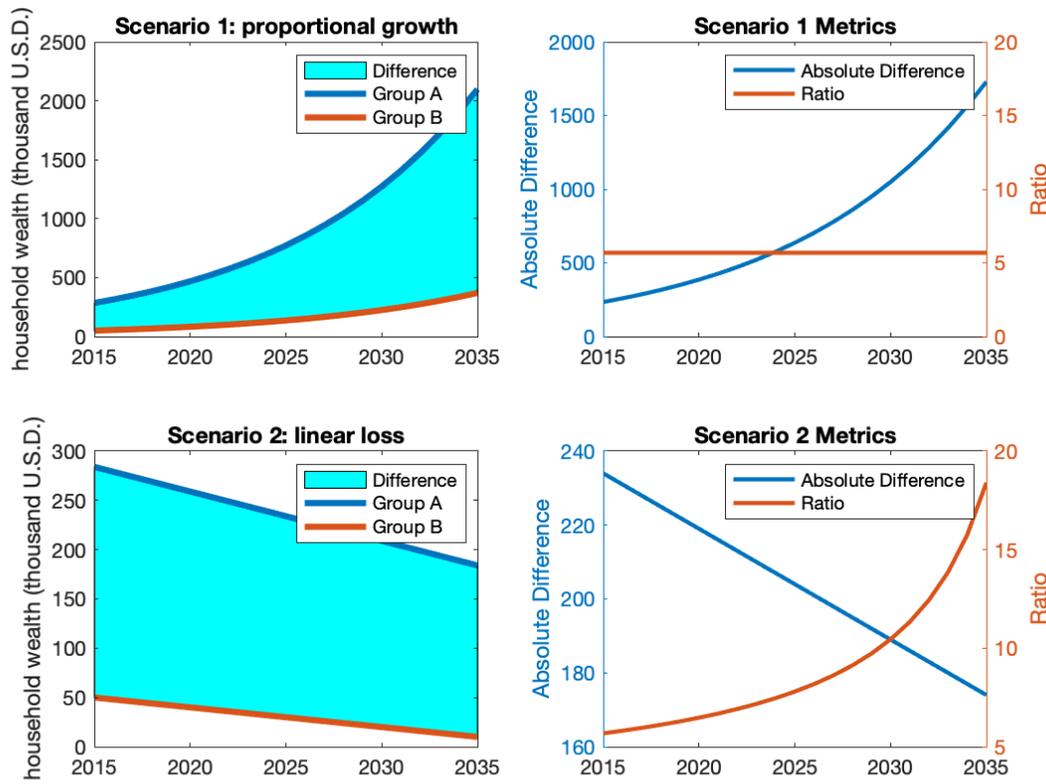


FIGURE 47. BEHAVIOR OF DISPARITY METRICS FOR TWO NOTIONAL DYNAMICS: PROPORTIONAL GROWTH AND LINEAR LOSS. NOTE THAT ABSOLUTE DIFFERENCE INCREASES EXPONENTIALLY WHEN BOTH GROUPS EXPERIENCE EXPONENTIAL GROWTH, WHILE RATIOS GROW QUICKLY AS THE DENOMINATOR APPROACHES ZERO.

but increasing exponentially (top right, blue line). Is the level of inequity stable, or is the inequity accelerating? The answer depends on the metric selected, which depends on the aspect of equity being evaluated.

Similarly, in scenario 2: Group A and Group B start with unequal wealth, and both incur constant costs beyond their incomes, resulting in linearly decreasing wealth. In this notional example, Group A has higher net losses than Group B—\$5,000/year vs. \$2,000/year. As a result, the gap as defined by absolute difference in household wealth (bottom right, blue line) is shrinking, linearly. And yet, the ratio of their wealth (bottom right, red line) is accelerating from below 6x to above 18x over the span of twenty years, as

Group B’s wealth approaches zero. Is the inequity shrinking or growing? Again, this depends on the metric selected, which depends on the aspect of equity being evaluated. Robust equity goals and assessments employ multiple metrics with a clear understanding of the relationship between the metrics and the aspects of equity they measure.

So far, we have focused on gaps, motivating metrics that use means, medians, thresholds, differences, and ratios. But the concept of freedom from discrimination—an individual experience—can also motivate system-level metrics. One can evaluate the accuracy with which someone with malicious intent could discriminate against or target individuals based on race using knowledge of the resource level in question (e.g., a list of wealth profiles) without knowing individuals’ races.

Similarly, the concept of freedom from disparate impact racial discrimination and statistics-based racial prejudice can also motivate a metric. The statistical correlation of race with the resource, for example, can quantify the extent to which individuals will experience racial inequity when decisions are made by ostensibly “race neutral” factors only. Statistical correlation is one metric of many that can serve to quantify the “predictive value” of including race in a prediction of the per-person resource level.

Appendix E: Considerations from Other Jurisdictions

Racial disparities in wealth exist in communities across the nation. Each city has its own unique history, systems, policies, and cultures that impact how the city tackles racial inequities. MITRE offers a few examples here for consideration as the District develops plans for addressing its racial wealth gap.

1. **Long Island** is taking steps to encourage more equitable opportunities through efforts in two areas: financial security and well-paying employment for Black residents in the community.
2. **Pittsburgh** is regularly assessing disparities in racial equity and using the results of their assessment to inform policy and budgetary initiatives.
3. **New York City** is leveraging participatory budgeting to engage historically disenfranchised communities in the budget process.
4. **Los Angeles** established a Community Land Trust to ensure long-term housing affordability in gentrification-prone areas.

Long Island, New York Pathways to Well-Paying Employment and Financial Security

Despite Long Island's prosperity, there are persistent disparities in opportunity by race. Black households earn 79 cents on the dollar in median income compared with White households and have higher rates of unemployment [80].

The Long Island Community Foundation, a public charity and division of the New York Community Trust, is taking steps to encourage

a more equitable Long Island. To this end, the Long Island Community Foundation convened a group of donors, funders, and partners to support nonprofits that are currently working to advance equity and are positioned to have more impact if given additional, strategic financial resources. The group, called the Long Island Racial Equity Donor Collaborative, chose to focus on supporting new and ongoing efforts in two areas:

- Pathways and connections to good, well-paying employment (e.g., job apprenticeships, successful entrepreneurship)
- Financial security (e.g., bank access, access to affordable credit, financial management, debt reduction)

The Long Island Racial Equity Donor Collaborative chose to invest in well-paying employment and financial security because research shows large disparities in these two areas [81]. A 2017 PolicyLink report indicates that wages for Black Long Island workers decreased by 6%, although wages generally grew on Long Island between 2000 and 2014 [82]. The report also notes that Black workers tend to be more concentrated in industries and occupations with lower pay and less upward mobility [82]. Another report from the Federal Reserve Bank of New York focuses on Long Islanders' financial wellbeing. The report found that nine ZIP codes on Long Island rank among the worst places in the country in credit access and debt management. Six of the ZIP codes are in predominantly Black towns [83]. Finally, the Long Island Racial Equity Donor Collaborative chose to focus on these areas because strong organizational support for education and housing equity already exists on Long Island, and fewer resources have been specifically directed to support racial equity in these areas.

In partnership with the Urban Institute, the Long Island Racial Equity Donor Collaborative grounded its strategy by conducting additional research to clarify the specific conditions and limitations driving racial inequality in employment opportunities and financial security. Research activities included a landscape scan in which the Long Island Racial Equity Donor Collaborative conducted interviews and focus groups with 22 key Long Island representatives from government, nonprofit, educational, and workforce sectors. Both research and the landscape scan identified key challenges and opportunities to improve racial equity around employment opportunities and financial security in Long Island.

Key challenges hindering efforts to advance equity include:

- Perceptions of Long Island as a prosperous place with many opportunities
- Underdeveloped capacity in the nonprofit sector, especially in areas related to employment and entrepreneurship
- Geographic issues inhibiting cross-program collaboration and duplication

Key opportunities to improve racial equity are:

- Use existing funding to strengthen connections between job training opportunities and employers.
- Expand and/or replicate promising and successful efforts.

Pathways and Connections to Good, Well-Paying Employment

Next steps in the focus area of “Pathways and connections to good, well-paying employment” are:

- Identify and fill holes in the local workforce systems infrastructure.

- The degree to which nonprofits on Long Island are supporting workforce development remains unclear; data indicates fewer nonprofits support job training.
- Continue mapping job placement and job training programs, particularly programs offered by nonprofits.
- Support, expand, and replicate promising and successful training efforts.
- Connect underserved residents to apprenticeship programs—such as apprenticeship programs with Estee Lauder and Northwell—to gain stable, well-paying, high-opportunity jobs.

Consider the following best practices and opportunities to widen pathways and connections to good, well-paying employment:

- Using existing funding, establish stronger connections between job training opportunities and employers.
- Expand and/or replicate existing promising and successful efforts.
- Build stronger workforce partnerships by examining other funder collaboratives supported by the National Fund for Workforce Solutions.

Financial Security

Next steps to support new and ongoing efforts pertaining to financial security are:

- Establish the extent and needs of unbanked and underbanked Long Island consumers.
- Offer a multi-pronged approach to serving low- and moderate-income consumers, including employing local staff that can connect with potential customers.
- Use alternative forms of payment history, such as timely payment of utilities and rent, when making lending decisions.

Consider the following to support equitable advances in financial security:

- Expand and/or replicate promising and successful efforts.
- The Financial Clinic in New York City has a model of financial counseling that has been studied and shown to reduce debt.
- Long Island has programs that currently offer financial management and debt reduction coaching (Community Development Corporation's Financial Health and Wellness Program).

Pittsburgh, Pennsylvania Equity Indicators

"One report or one budget cycle will not undo decades of disinvestment and systemic structural barriers. This requires a sustained, community effort to improve." Mayor William Peduto

Pittsburgh's Resilience Strategy Plan identified racial and economic inequity as a chronic stress impacting Pittsburgh's resilience and called for the implementation of equity indicators to measure the gaps in outcomes experienced between Pittsburghers, in particular focusing on how outcomes differ between Black and White populations. In 2017, Pittsburgh launched the Pittsburgh Equity Indicators Project [84]. The City University of New York Institute for State and Local Governance supported the project with funding and strategic guidance. The RAND Corporation led the research effort and developed a framework and associated indicators to measure equality in both outcomes and opportunities in the city.

The purpose of the research was to measure how Pittsburgh had progressed toward equitable opportunities and outcomes for its residents. RAND looked at 80 equity indicators in four domains: (1) Health, Food, and Safety;

(2) Education, Workforce Development, and Entrepreneurship; (3) Housing, Transportation, Infrastructure, and Environment; and (4) Civic Engagement and Communications.

In its most recent Equity Indicators report [84], Pittsburgh confirmed that inequality persists in the Pittsburgh region. The city used the equity indicators as an input to fiscal and policy planning for the city, including using the equity scores to prioritize funding for efforts addressing the greatest disparities, including housing, childcare, and financial empowerment for residents. In addition, Pittsburgh continues to foster partnerships with universities, foundations, community organizations, research entities, and the private sector to address identified gaps that are beyond the scope of government. Mayor Peduto recently released Pittsburgh's 2021 Investment Prospectus [85]. The document builds on Pittsburgh's Resilience Strategy and the progress scores captured in the Equity Indicators Report and serves as a blueprint for how the city will fund initiatives in critical areas (i.e., housing affordability, social safety nets, early childhood education, green space).

Participatory Budgeting In New York City, New York

Participatory budgeting (PB) is an innovative policy-making tool that directly involves community residents in the allocation of public funds. Community members decide which social domains, problems, and opportunities should receive a portion of the budget. They are empowered to make decisions by sharing ideas, developing proposals, and voting on community projects. PB emphasizes targeted outreach and collaboration with community-based organizations. It is an effective way to engage historically disenfranchised communities in the budgeting process.

Participatory Budgeting in New York City (PBNYC) is recognized as the largest and fastest-growing participatory budgeting process in the United States. The process effectively focuses on four conditions: (1) institutional infrastructure that includes a central office, community-level staff, an inclusive Steering Committee, and grassroots community partners; (2) legislation and rules that establish a community-driven process; (3) equitable allocation of funds across the city and within neighborhoods; and (4) sufficient funding for the process and its implementation.

PBNYC allows the New York City Council offices to hear in depth what community residents care about and their priorities for their neighborhoods [86]. Residents from across the city participate in neighborhood assemblies over the eight-month period of each participatory budgeting cycle. Participants brainstorm spending ideas that could improve their communities. From these meetings, “budget delegates” are identified and they work with their elected officials to represent their community’s spending priorities and create project proposals.

During each PBNYC cycle, a Steering Committee is formed with representation from grassroots organizations, government officials, community stakeholders, and diverse residents. The Steering Committee lays out the framework and rules for PBNYC with the goal of engaging

residents who have the highest barriers to civic participation. District Committees, which are local to each Council District, are also convened. This approach fosters broader support for PBNYC and systematically changes relationships between government and the people.

In a recent budget cycle, over 51,000 city residents voted on projects they wanted to see implemented in their communities and oversaw the spending of approximately \$32 million in neighborhood improvements. Twenty-three percent of those who participated in the recent budget cycle had a barrier to voting in regular elections, including those who had felony convictions or who were under the age of 18. The majority of participants (57%) identified as people of color. PBNYC’s community-led approach serves as a model for participatory budgeting across the country. **Table 3** below shows a snapshot of New York City–funded projects that community residents voted on as part of the Participatory Budgeting process.

Even New York City schools have adopted the participatory budget process. As of the 2019–2020 school year, all Comprehensive Support and Improvement schools are required to implement a participatory budgeting process or select from an approved list of alternatives to participatory budgeting. Approved alternatives include school focus groups, ongoing school surveys, a Climate

Funded Project	Purpose	Amount
Technology upgrade for public schools	Support growing technology demands in every District 3 public school	\$350,000
Dyckman Houses Community Center ADA Ramp	Make community center accessible to more residents and community members	\$850,000
NYPD security cameras	Fund and install four NYPD security cameras in District 19 to enhance crime prevention	\$141,000
Technology upgrade at Borden Avenue Veterans Shelter	Fund new computers, network infrastructure upgrade, and a new facility-wide paging system	\$79,000

TABLE 3. NEW YORK CITY PARTICIPATORY BUDGETING FUNDED PROPOSALS

Survey Inquiry Team, and schoolwide voting. This requirement is designed to increase student/family participation in decision making and promote civic engagement. These examples show that participatory budgeting educates, empowers, and engages community participants by making budgeting accessible.

Los Angeles, California Community Land Trusts

Neighborhood “revitalization” that spurs private real estate investment in disinvested neighborhoods has, intentionally and unintentionally, contributed to gentrification and displacement in low-income communities. Community Land Trusts (CLTs) are used as tools to combat these consequences.

CLTs are nonprofit, community-based organizations governed by a board of residents and public representatives that work to ensure community-held decision making and shared equity homeownership opportunities. Under this model, the community-controlled organization retains ownership of a plot of land and sells or rents the housing on that land to lower-income households. In exchange for below-market prices, purchasers agree to resale restrictions that keep the homes affordable to subsequent buyers while also allowing owners to build equity. The CLT also prepares home buyers to purchase property, supports them through financial challenges, and manages resales and rental units. This provides a powerful platform for wealth building and family stability. CLTs shift leadership, power, and decision making to residents and help equip communities with the resources to endure the potential impacts of nearby gentrification, such as displacement and sociocultural alienation.

T.R.U.S.T. South Los Angeles

Housing in Los Angeles is among the least affordable in the United States, for both buyers and renters. Lack of affordable housing can mean unreasonable rents, displacement, and even homelessness for working and low-income families. The Los Angeles County Affordable Housing Action Plan identified CLTs as a mechanism to address the need for affordable housing for low- and moderate- income residents. T.R.U.S.T. (Tenemos Que Reclamar Y Unidos Salvar La Tierra) South LA is an example of a CLT that was established to ensure long-term housing affordability in gentrification-prone areas and to promote inclusive community development.

T.R.U.S.T. South LA is a community-based initiative, established in 2005, to stabilize the neighborhoods south of downtown Los Angeles [87]. It was originally formed as a land acquisition group, targeting neighborhoods filled with vacant lots and deteriorated housing, and surrounded by areas under increasing development pressures. Since its inception, T.R.U.S.T. South Los Angeles has taken on a broader organizing role to raise funding for transportation and green space improvements in its neighborhood. T.R.U.S.T. South LA also participates in coalitions to support broader citywide policies such as increased funding for affordable housing. As a standalone organization, T.R.U.S.T. South LA considers itself part of the development team on housing projects, partnering with others to purchase, finance, and construct or rehabilitate housing. Since its inception, this CLT has improved the lives of residents and business.

Los Angeles: Pilot Community Land Trust Partnership Program

Los Angeles launched the Pilot Community Land Trust Partnership Program to give CLTs access to tax-defaulted properties seized by the city at below-market rates. The pilot program, proposed by the Los Angeles County Supervisor, partners with CLTs across Los Angeles County to identify Chapter 8 properties for purchase. The city provides funding to buy and refurbish

the properties. Once the units have been refurbished, the CLTs take over the properties to create affordable, low-income housing for community residents in need. Each property is guaranteed to remain affordable for 99 years. This is significant especially considering pandemic-related evictions and foreclosures. The goal of the pilot program is to preserve approximately 55 homes. If the pilot is successful, the program may become permanent.

Appendix F: An Abbreviated History of the Racial Wealth Gap in Washington, D.C.

For a more thorough understanding of how history shaped the racial wealth gap in Washington, D.C., see *The Color of Wealth in the Nation's Capital* [3] and *Discriminatory Housing Practices in the District: A Brief History* [91]. The following is a brief summary of policies and practices in hiring, homeownership, and education that have led to wealth disparities in the District.

- In 1808, the Black Code was passed into law, the beginning of over 50 years of laws punishable by fines and even jail time. The Black Code was aimed at economically disabling Black people, impacting both enslaved and freedmen, denying them opportunities to build wealth and assets. The laws enforced stringent curfews, imprisoned freed Black Americans who were unable to present documents verifying “good character” and proof of freed status, barred Black Americans from jobs in lucrative sectors, and denied ownership of restaurants. The code governed all aspects of life and behavior for Black Americans in the District.
 - In the 1860s, the passage of the Compensated Emancipation Act provided the opportunity for slaveholders to collect up to \$300 per formerly enslaved person, in compensation for their losses; however, the formerly enslaved people were only granted up to \$100 if they chose to emigrate from the United States. Otherwise, the newly emancipated were not compensated at all. Legislation in 1862 designated a portion of Black-paid taxes to be spent on Black schools, but only a small fraction in comparison to that spent on White schools [88], [89].
- In 1867 the federal government purchased 375 acres of land in Anacostia for the settlement of Black Americans after the Civil War. Its distance from downtown D.C., however, led to municipal neglect. Then, in 1941, the government seized several acres to build public housing. As the Black population grew, Black Americans were forced to move to rural areas, which included Anacostia. By 1943, the government began seizing some of the land in Anacostia to construct major roads, displacing over 100 families.
- In 1901, Congress codified District laws and did not incorporate civil rights provisions into municipal code, which made segregation legal. The 1930s and 1940s saw redlining, a practice that “graded” areas of cities according to factors, including race. People living in lower-graded areas were denied both mortgages by banks and subsidized Federal Housing Administration insurance products. Victims of redlining were forced to live with racially restrictive housing deeds and covenants and segregated schools. Black families and other families of color were effectively forced to remain as renters in substandard housing.
- In the 1950s, Black families continued to be excluded from most suburban developments, confining them to central cities while federal housing policy drew White families, and their tax base, out to the segregated suburbs. Racially restrictive housing agreements made it difficult for Black people to find suitable housing. In August 1954, large sections of housing in Southwest (SW) were razed.

- By the 1960s–1970s, urban renewal swept through D.C. Largely Black SW neighborhoods were targeted by eminent domain. More than 500 acres were bulldozed, along with 1,500 businesses—including many Black-owned businesses—and 6,000 homes. Approximately 23,000 residents, predominantly Black, were displaced with little compensation. The 5,800 new homes were to be inhabited by 13,000 middle- and upper-middle-class residents [3]. Zoning policy sustained and entrenched racial and economic segregation as some areas of the city were zoned exclusively for single-family units, unaffordable to the Black homeowner who has been excluded from high-paying jobs through pervasive education and employment discrimination [88].
- In the 1980s, after years of racial and economic segregation and underinvestment in Black neighborhoods, the District became the epicenter of the nation’s drug wars, gun violence, and mass incarceration. District and federal drug, policing, and sentencing policies led to disparate effects on Black residents of the District. Due in part to these trends and frustrations with the District’s education system, the District saw a 26% decrease of middle-class Black families [90] during this time.

Appendix G: References

1. OECDiLibrary, “How’s Life? 2020: Measuring Well-being. 2 Income and Wealth,” 2021. [Online]. Available: <https://www.oecd-ilibrary.org/sites/2e9dd941-en/index.html?itemId=/content/component/2e9dd941-en>. [Accessed 19 August 2021].
2. S. H. Woolf, L. Y. Aron, L. Dubay, S. M. Simon, E. Zimmerman and K. Luk, “How Are Income and Wealth Linked to Health and Longevity?,” 13 April 2015. [Online]. Available: <https://www.urban.org/sites/default/files/publication/49116/2000178-How-are-Income-and-Wealth-Linked-to-Health-and-Longevity.pdf>. [Accessed 15 June 2021].
3. K. Kijakaz, R. Atkins, M. Paul, A. Price, D. Hamilton and W. Darity, “The Color of Wealth in the Nation’s Capital,” Urban Institute, November 2016. [Online]. Available: https://www.urban.org/sites/default/files/publication/85341/2000986-2-the-color-of-wealth-in-the-nations-capital_8.pdf.
4. D. Crawford and K. Das, “Black Workers Matter,” 28 January 2020. [Online]. Available: <https://www.dcfpi.org/all/black-workers-matter/>. [Accessed 4 June 2021].
5. United States Census Bureau, “ACS 5-Year Estimates – Public Use Microdata Sample,” 2021. [Online]. Available: <https://data.census.gov/mdat/#/search?ds=ACSPUMS5Y2019>. [Accessed 14 June 2021].
6. H. Sillitto, J. Martin, D. McKinney, R. Griego, D. Dori, D. Krob, P. Godfrey, E. Arnold and S. Jackson, “Systems Engineering and System Definitions version 1.0,” INCOSE, 2019.
7. R. Adcock, “Introduction to System Fundamentals,” [Online]. Available: https://www.sebokwiki.org/wiki/Introduction_to_System_Fundamentals. [Accessed 18 August 2021].
8. R. D. Arnold and J. P. Wade, “A Definition of Systems Thinking: A Systems Approach,” *Procedia Computer Science* 44, p. 669–678, 2015.
9. D. N. Ford, “A behavioral approach to feedback loop dominance analysis,” *System Dynamics Review*, vol. 15, p. 3–36, 1999.
10. C. Busette, J. S. Lawrence, R. V. Reeves and S. Nzau, “How We Rise: How social networks impact economic mobility in Racine, WI, San Francisco, CA, and Washington, DC,” 12 January 2021. [Online]. Available: <https://www.brookings.edu/essay/how-we-rise-how-social-networks-impact-economic-mobility-in-racine-wi-san-francisco-ca-and-washington-dc/>. [Accessed 4 June 2021].
11. R. Nelson and E. Ayers, “Not Even Past: Social Vulnerability and the Legacy of Redlining,” [Online]. Available: <https://dsl.richmond.edu/socialvulnerability>. [Accessed 14 August 2012].
12. M. Godoy, “In U.S. Cities, The Health Effects of Past Housing Discrimination Are Plain To See,” NPR, 19 November 2020. [Online]. Available: <https://www.npr.org/sections/health-shots/2020/11/19/911909187/in-u-s-cities-the-health-effects-of-past-housing-discrimination-are-plain-to-see>. [Accessed 14 August 2021].
13. Childcare Deserts, “Do You Live in a Child Care Desert?,” 2021. [Online]. Available: <https://childcaredeserts.org/>. [Accessed 11 June 2021].
14. E. Berkon, “For Some D.C. Parents, It’s Too Expensive To Work,” NPR, 9 January 2020. [Online]. Available: <https://www.npr.org/local/305/2020/01/09/794851835/for-some-d-c-parents-it-s-too-expensive-to-work>. [Accessed 4 June 2021].
15. Center for American Progress, “U.S. Childcare Deserts,” 2020. [Online]. Available: <https://childcaredeserts.org>. [Accessed 11 June 2021].

16. Y. S. Taylor and K. Zickuhr, "Pharmacy access varies greatly across D.C.," 3 June 2019. [Online]. Available: <https://www.dcpolicycenter.org/publications/pharmacy-access-varies-greatly-across-d-c>. [Accessed 4 June 2021].
17. R. Smith, "Food access in D.C. is deeply connected to poverty and transportation," 13 March 2017. [Online]. Available: <https://www.dcpolicycenter.org/publications/food-access-dc-deeply-connected-poverty-transportation/>. [Accessed 4 June 2021].
18. R. Smith, "Commute times for District residents are linked to income and method of transportation," 23 March 2017. [Online]. Available: <https://www.dcpolicycenter.org/publications/commute-times-for-district-residents-are-linked-to-income-and-method-of-transportation/>. [Accessed 14 August 2021].
19. Y. Taylor, "The demographics of walking and biking to work tell yet another story of gentrification," 6 June 2017. [Online]. Available: <https://www.dcpolicycenter.org/publications/the-demographics-of-walking-and-biking-to-work/>. [Accessed 11 June 2021].
20. E. Cunha, "62 Years Later: It's Time to Desegregate DC Schools," The DC Post, 8 July 2020.
21. DC Health Matters, "Population Age 25+ with Less Than High School Graduation," 2021. [Online]. Available: <https://www.dchealthmatters>.
22. Q. Huddleston, "New Report: Money Matters: Adequate and Targeted Education Funding Can Boost Student Outcomes, Reduce Opportunity Gaps," 26 February 2020. [Online]. Available: <https://www.dcfpi.org/all/new-report-money-matters-adequate-and-targeted-education-funding-can-boost-student-outcomes-reduce-opportunity-gaps/>. [Accessed 16 June 2021].
23. Department of Employment Services, "District of Columbia Labor Force, Employment, Unemployment and Unemployment Rate by Ward," May 2021. [Online]. Available: https://does.dc.gov/sites/default/files/dc/sites/does/release_content/attachments/DC%20Ward%20Data%20Jun21-May21-Jun20OPA.pdf. [Accessed 30 August 2021].
24. DC DataViz, "Ward Income Indicators," 2021. [Online]. Available: <https://dcdataviz.dc.gov/page/ward-income-indicators>. [Accessed 4 June 2021].
25. Urban Institute, "Debt in America: An Interactive Map," December 2020. [Online]. Available: https://apps.urban.org/features/debt-interactive-map/?type=overall&variable=pct_debt_collections&state=11. [Accessed 4 June 2021].
26. A. V. Banerjee, "Inequality and Investment," 2004.
27. A. Traub, L. Ruetschlin, L. Sullivan, T. Mescede, L. Dietrich and T. Shapiro, "The Racial Wealth Gap: Why Policy Matters," 21 June 2016. [Online]. Available: <https://www.demos.org/research/racial-wealth-gap-why-policy-matters>. [Accessed 14 June 2021].
28. D. Aliprantis and D. R. Carroll, "What Is Behind the Persistence of the Racial Wealth Gap?," Federal Reserve Bank of Cleveland, 2019.
29. J. P. Thompson and G. Suarez, Federal Reserve Board of Governors, Washington, D.C., 2015.
30. K. Zaw, D. Hamilton and W. Darity, "Race, Wealth and Incarceration: Results from the National Longitudinal Survey of Youth," Race and Social Problems, no. 1, p. 103–115, 2016.
31. W. Darity, D. Hamilton, M. Paul, A. Aja, A. Price and C. Chiopris, "What We Get Wrong About Closing the Racial Wealth Gap," April 2019. [Online]. Available: <https://socialequity.duke.edu/portfolio-item/what-we-get-wrong-about-closing-the-racial-wealth-gap/>. [Accessed 17 June 2021].

32. D. Meadows, “Leverage Points—Places to Intervene in a System,” *Thinking in Systems*, p. 152–172, 2021.
33. D.C. Law Library, “D.C. Act 23-521. Racial Equity Achieves Results (REACH) Emergency Amendment Act of 2020,” 7 December 2021. [Online]. Available: <https://code.dccouncil.us/dc/council/acts/23-521.html>. [Accessed 14 June 2021].
34. M. Perry, “Understanding America’s enormous \$20.6T economy by comparing US metro area GDPs to entire countries,” 18 December 2019. [Online]. Available: <https://www.aei.org/carpe-diem/understanding-americas-enormous-20-6t-economy-by-comparing-us-metro-area-gdps-to-entire-countries/>. [Accessed 3 June 2021].
35. D.C.’s Economic Strategy, “Core Sectors - Federal Government,” [Online]. Available: <https://dceconomicstrategy.com/coresectors/federal-government/>. [Accessed 4 June 2021].
36. K. Moore, “State unemployment by race and ethnicity,” March 2021. [Online]. Available: <https://www.epi.org/indicators/state-unemployment-race-ethnicity/>. [Accessed 10 June 2021].
37. K. A. Couch and R. Fairlie, “Last Hired, First Fired? Black-White Unemployment and the Business Cycle,” *Demography*, vol. 47, no. 1, p. 227–247, February 2010.
38. S. A. Simons, “D.C.’s Black Unemployment Rate Remains Among Highest In The Country,” 18 May 2018. [Online]. Available: <https://wamu.org/story/18/05/18/d-c-s-black-unemployment-rate-remains-among-highest-country/>. [Accessed 4 June 2021].
39. Harvard Business Review, “Hiring Discrimination Against Black Americans Hasn’t Declined in 25 Years,” 11 October 2017. [Online]. Available: <https://hbr.org/2017/10/hiring-discrimination-against-black-americans-hasnt-declined-in-25-years>. [Accessed 16 June 2021].
40. Washington Lawyers’ Committee for Civil Rights & Urban Affairs, “Racial Disparities in Arrests in the District of Columbia, 2009-2011: Implications for Civil Rights and Criminal Justice in the Nation’s Capital,” Washington, D.C., 2013.
41. R. Selwitz, “Obstacles to employment for returning citizens in D.C.,” 17 August 2018. [Online]. Available: <https://www.dcpolicycenter.org/publications/barriers-to-employment-for-returning-citizens-in-d-c/>. [Accessed 4 June 2021].
42. D. Cooper, “Why D.C. should implement Initiative 77: Tipped workers do better in ‘one-fair-wage’ cities; restaurants continue to thrive,” 12 September 2018. [Online]. Available: <https://www.epi.org/publication/tipped-workers-do-better-in-cities-where-they-are-paid-the-regular-minimum-wage-and-the-restaurant-industry-continues-to-thrive-why-dc-should-implement-initiative-77/>. [Accessed 10 June 2021].
43. Data USA, “Data USA: Washington, DC,” [Online]. Available: <https://datausa.io/profile/geo/washington-dc/>. [Accessed 4 June 2021].
44. United States Census Bureau, “2017 Data Release New and Notable,” 8 April 2021. [Online]. Available: https://www.census.gov/programs-surveys/acs/news/data-releases/2017/release.html#par_textimage_11. [Accessed 10 June 2021].
45. S. Dalphonse, M. Davant, K. Hinman, L. Mullins and R. Yu, “Private School Confidential: 25 Things Washington Parents Need to Know,” *The Washingtonian*, 18 October 2018.
46. N. McClucksey, “DC Private Schooling: A Portrait in Diversity?,” 22 January 2018. [Online]. Available: <https://www.cato.org/blog/dc-private-schooling-portrait-diversity>. [Accessed 18 June 2021].
47. “D.C. Chamber of Commerce Report,” D.C. Chamber of Commerce, October 2018.

48. C. Coffin, "Landscape of Diversity in D.C. Public Schools," 17 December 2018. [Online]. Available: <https://www.dcpolicycenter.org/publications/landscape-of-diversity-in-dc-public-schools/>. [Accessed 4 June 2021].
49. M. Bohanon, "Closing the Graduation Gap: How Colleges Can Reverse Higher Education's Greatest Inequity," 2 July 2018. [Online]. Available: <https://www.insightintodiversity.com/closing-the-graduation-gap-how-colleges-can-reverse-higher-educations-greatest-inequity/>. [Accessed 4 June 2021].
50. TownCharts, "Washington District of Columbia Education Data," [Online]. Available: <https://www.towncharts.com/District-of-Columbia/Education/Washington-city-DC-Education-data.html>. [Accessed 4 June 2021].
51. S. Kathpalia and K. Zickuhr, "COVID-19: At-risk populations in the District," 17 April 2020. [Online]. Available: <https://www.dcpolicycenter.org/publications/coronavirus-populations-at-risk/>. [Accessed 4 June 2021].
52. K. Rabinowitz, "The health wealth gap in D.C.," 2 May 2017. [Online]. Available: <https://www.dcpolicycenter.org/publications/health-wealth-gap-d-c/>. [Accessed 4 June 2021].
53. Elite Personal Finance, "Average Household Budget and Expenses in America 2021," 21 April 2021. [Online]. Available: <https://www.elitepersonalfinance.com/average-household-budget/>. [Accessed 4 June 2021].
54. T. Browne, "Pushing through complacency to fight health disparities in D.C.'s African American communities," 18 May 2017. [Online]. Available: <https://www.dcpolicycenter.org/publications/health-disparities-in-d-c-s-african-american-communities/>. [Accessed 4 June 2021].
55. N. Bhutta, A. Chang, L. Dettling, J. Hsu and J. Hewitt, "Disparities in Wealth by Race and Ethnicity in the 2019 Survey of Consumer Finances," 28 September 2020. [Online]. Available: <https://www.federalreserve.gov/econres/notes/feds-notes/disparities-in-wealth-by-race-and-ethnicity-in-the-2019-survey-of-consumer-finances-20200928.htm>. [Accessed 11 June 2021].
56. K. McIntosh, E. Moss, R. Nunn and J. Shambaugh, "Examining the Black-white wealth gap," 27 February 2020. [Online]. Available: <https://www.brookings.edu/blog/up-front/2020/02/27/examining-the-black-white-wealth-gap/>. [Accessed 11 June 2021].
57. N. Noel, D. Pinder, S. Stewart and J. Wright, "The economic impact of closing the racial wealth gap," 13 August 2019. [Online]. Available: <https://www.mckinsey.com/industries/public-and-social-sector/our-insights/the-economic-impact-of-closing-the-racial-wealth-gap>. [Accessed 4 June 2021].
58. F. Killewald, T. Pfeffer and J. N. Schachner, "Wealth Inequality and Accumulation," *Annual Review of Sociology*, vol. 43, no. 1, p. 379–404, July 2017.
59. A. Florant, J. P. Julien, S. Stewart, N. Yancy and J. Wright, "The case for accelerating financial inclusion in black communities," 25 February 2020. [Online]. Available: <https://www.mckinsey.com/industries/public-and-social-sector/our-insights/the-case-for-accelerating-financial-inclusion-in-black-communities#>. [Accessed 4 June 2021].
60. United States Census Bureau, "American Community Survey Data," [Online]. Available: <https://www.census.gov/programs-surveys/acs/data.html>. [Accessed 11 June 2021].
61. D. DeSilver and K. Bialik, "Blacks and Hispanics face extra challenges in getting home loans," 10 January 2017. [Online]. Available: <https://www.pewresearch.org/fact-tank/2017/01/10/blacks-and-hispanics-face-extra-challenges-in-getting-home-loans/>. [Accessed 4 June 2021].

62. E. Badger, “The Dramatic Racial Bias of Subprime Lending During the Housing Boom,” 13 August 2013. [Online]. Available: <https://www.bloomberg.com/news/articles/2013-08-16/the-dramatic-racial-bias-of-subprime-lending-during-the-housing-boom>. [Accessed 18 June 2021].
63. B. Mock, “Neighborhoods With More People of Color Pay Higher Energy Bills,” 25 November 2019. [Online]. Available: <https://www.bloomberg.com/news/articles/2019-11-25/why-white-households-pay-less-for-utilities>. [Accessed 4 June 2021].
64. National Equity Atlas, “When Renters Rise, Cities Thrive,” 2017. [Online]. Available: <https://nationalequityatlas.org/sites/default/files/WashingtonDC-Fact-Sheet.pdf>. [Accessed 4 June 2021].
65. Government of the District of Columbia, Washington, D.C., “DC Housing Survey Report,” June 2019. [Online]. Available: https://dmped.dc.gov/sites/default/files/dc/sites/dmped/publication/attachments/Formatted%20DC%20Housing%20Survey%20Report_FINAL%206-24_1.pdf. [Accessed 18 June 2021].
66. B. Jarosz, S. Park and F. Pfeffer, “Disadvantage for Black Families Compounded by Economic Circumstances of Kin,” 16 April 2020. [Online]. Available: <https://www.prb.org/resources/disadvantage-for-black-families-compounded-by-economic-circumstances-of-kin/>. [Accessed 11 June 2021].
67. D. Thompson, “The Curse of Segregation,” 5 May 2015. [Online]. Available: <https://www.theatlantic.com/business/archive/2015/05/the-curse-of-segregation/392321/>. [Accessed 11 June 2021].
68. The Annie E. Casey Foundation, “Concentrated Poverty,” [Online]. Available: <https://www.aecf.org/topics/concentrated-poverty>. [Accessed 11 June 2021].
69. The Annie E. Casey Foundation, “Children Living in High-Poverty, Low-Opportunity Neighborhoods,” [Online]. Available: <https://www.aecf.org/resources/children-living-in-high-poverty-low-opportunity-neighborhoods>. [Accessed 11 June 2021].
70. DC Fiscal Policy Institute, “Economic Mobility in DC Lower Than Neighboring Counties,” 2 November 2017. [Online]. Available: <https://www.dcfpi.org/all/economic-mobility-dc-lower-neighboring-counties/>. [Accessed 4 June 2021].
71. H. Cole and R. C. Curnow, “‘Backcasting’ with the World Dynamics Models,” *Nature*, May 1973.
72. Urban Institute, “Microsimulation,” [Online]. Available: <https://www.urban.org/research/data-methods/data-analysis/quantitative-data-analysis/microsimulation>. [Accessed 18 June 2021].
73. The MITRE Corporation, “Can Data Modeling and Analytics Help Reduce Pregnancy-Related Deaths?,” August 2019. [Online]. Available: <https://www.mitre.org/publications/project-stories/can-data-modeling-and-analytics-help-reduce-pregnancy-related-deaths>. [Accessed 18 June 2021].
74. R. Chetty, N. Hendren, M. R. Jones and S. R. Porter, “Race and Economic Opportunity in the United States: an Intergenerational Perspective,” *The Quarterly Journal of Economics*, vol. 135, no. 2, 2 May 2020.
75. “The Opportunity Atlas,” [Online]. Available: <https://www.opportunityatlas.org/>. [Accessed 17 June 2021].
76. V. Chernozhukov, I. Fernandez-Val and B. Melly, “Inference on Counterfactual Distributions,” *Econometrica*, vol. 81, no. 6, p. 2205–2268, November 2013.
77. V. Chernozhukov and I. Fernandez-Val, “Distribution Regression and Counterfactual Analysis,” 15 June 2021. [Online].
78. M. Gittleman and E. Wolff, “Racial Wealth Disparities: Is the Gap Closing?,” August 2000. [Online]. Available: <http://www.levyinstitute.org/pubs/wp311.pdf>. [Accessed 15 June 2021].

79. National Equity Atlas, “Car Access,” [Online]. Available: https://nationalequityatlas.org/indicators/Car_access#/. [Accessed 18 August 2021].
80. K. S. Brown, D. Charleston, K. Ramakrishnan and L. Ford, “Long Island Racial Equity through Economic Advancement,” March 2020. [Online]. Available: https://www.urban.org/sites/default/files/publication/101820/long20island20racial20equity20through20economic20advancement_1.pdf. [Accessed 4 June 2021].
81. O. Winslow, “Segregation of blacks, whites was built into the history of Long Island and persists today,” 17 November 2019. [Online]. Available: <https://projects.newsday.com/long-island/segregation-real-estate-history/>. [Accessed 15 June 2021].
82. PolicyLink, “An Equity Profile of Long Island,” [Online]. Available: <https://www.policylink.org/resources-tools/long-island-equity-profile>. [Accessed 15 June 2021].
83. K. Hamdani, C. Mill, J. Battisto and S. Lieberman, “Long Island Credit Profile 2017,” [Online]. Available: <https://www.newyorkfed.org/medialibrary/media/outreach-and-education/community-development/credit-conditions/LongIsland-CreditProfile-2017.pdf>. [Accessed 15 June 2021].
84. City of Pittsburgh, “Pittsburgh Equity Indicators,” [Online]. Available: https://www.urban.org/sites/default/files/publication/85341/2000986-the-color-of-wealth-in-the-nations-capital_1.pdf. [Accessed 15 June 2021].
85. City of Pittsburgh, “One PGH: Resilient Pittsburgh Investment Prospectus,” [Online]. Available: <http://onepgh.org/documents/ONEPGH-Investment-Prospectus-2021.pdf>. [Accessed 15 June 2021].
86. New York City Council, “About PBNYC,” [Online]. Available: <https://council.nyc.gov/pb/>. [Accessed 17 June 2021].
87. T.R.U.S.T. South LA., “About Us,” [Online]. Available: <https://trustsouthla.org/about-us/>. [Accessed 15 June 2021].
88. J. P. Rodriguez, *The Historical Encyclopedia of World Slavery*, Santa Barbara, CA: ABC-CLIO, 1997.
89. H. Gillette, *Between Justice and Beauty: Race, Planning, and the Failure of Urban Policy in Washington*, Philadelphia: University of Pennsylvania Press, 2006.
90. R. Castaneda, “Washington’s Ferguson Next Door,” 8 September 2014. [Online]. Available: <http://www.politico.com/magazine/story/2014/09/washingtons-ferguson-next-door-110707>. [Accessed 15 June 2021].
91. K. Zickuhr, “Discriminatory housing practices in the District: A brief history,” 18 October 2018. [Online]. Available: <https://www.dcpolicycenter.org/publications/discriminatory-housing-practices-in-the-district-a-brief-history/>. [Accessed 18 June 2021].
92. H. Sillitto, J. Martin, D. McKinney, R. Griego, D. Dori, D. Krob, P. Godfrey, E. Arnold and S. Jackson, “Systems Engineering and System Definitions version 1.0,” [Online].
93. Aspen Institute, “Glossary for Understanding the Dismantling Structural Racism / Promoting Racial Equity Analysis,” [Online]. Available: <https://www.aspeninstitute.org/wp-content/uploads/files/content/docs/rcc/RCC-Structural-Racism-Glossary.pdf>. [Accessed 39 August 2021].

Appendix H: Acronyms

ACS	American Community Survey
ADA	Americans with Disabilities Act of 1990
CLD	Causal Loop Diagram
CLT	Community Land Trust
CORE	Council Office of Racial Equity
CSOSA	Court Services and Offender Supervision Agency
DCPS	D.C. Public School
NASCC	National Asset Scorecard for Communities of Color (NASCC)
NYPD	New York Police Department
PB	Participatory Budgeting
PBNYC	Participatory Budgeting in New York City
PUMS	Public Use Microdata Sample
PUMA	Public Use Microdata Area
REACH	Racial Equity Achieves Results Emergency Amendment Act of 2020
SW	Southwest

Endnotes

- i We cite the 2013–2014 figure presented in [3] based on the National Asset Scorecard for Communities of Color (NASCC) for Washington, D.C. 2013–2014 phone survey as, to our knowledge, the most recent publicly available District-specific accounting of assets by race. While we use the U.S. Census Bureau American Community Survey (ACS) for data on some socio-economic indicators in this report, it does not collect asset data comparable to NASCC. The Survey of Income and Program Participation does, but it does not provide a representative sample by race for the local level.
- ii The smallest geographic region for which ACS Public Use Microdata Sample (PUMS) is segmented is the Public Use Microdata Area (PUMA): <https://www.census.gov/programs-surveys/geography/guidance/geo-areas/pumas.html>. The District is partitioned into five PUMAs: Central, East, North, Northeast, and West. The PUMA boundaries differ from the boundaries of the eight D.C. municipal wards.
- iii Network Analysis of a CLD: We converted the CLD to an unweighted digraph (directed graph), considering the direction but ignoring the polarity and weight of the links. We applied the following four centrality metrics, which take different approaches to calculating how “central” a node is in a network based on its connections to other nodes, as implemented in the Python NetworkX toolbox (<https://networkx.org>):
 - Degree centrality – how many directly connected nodes
 - Closeness centrality – reciprocal of sums of shortest lengths to all other nodes (i.e., higher closeness, shorter average path to all other nodes)
 - Betweenness centrality – how many shortest paths pass through the node (i.e., how critical is the node)
 - Eigenvector centrality – influence – how many connections to other influential nodes

In models with many nodes and links, these metrics help pick out the nodes central to the model, but they are only as good as the model. They also do not consider the rates of change (e.g., while node A may be most central to the model, node B that influences A with no other links may be a better leverage point).

In the wealth conceptual model MITRE developed with CORE, education (1st), workforce readiness (2nd), and income and mental health (3rd by different metrics) are the central factors in the model followed by credit score, social cohesion, and desirability of location (4th) based on this network analysis.
- iv Race/Ethnicity: We use the ACS PUMS field recoded detailed race code (RAC1P) for an individual’s racial identity, and recoded detailed Hispanic origin (HISP) for Hispanic/Latinx ethnic identity. Due to smaller sample sizes for other demographics, we focus on presenting statistics for Non-Hispanic Black (alone) and Non-Hispanic White (alone). When we present a statistic for Hispanic individuals, this includes individuals of any racial identity (per RAC1P) who identify as Hispanic (per HISP).
- v Data Source: we calculated individual and household statistics from ACS PUMS 1-Year Estimates for each year from 2014–2019 for the District, as well as the 2019 5-Year Estimate (2015–2019). We adopted 2014 as the starting year for presentation of yearly trends, as the last National Asset Scorecard for Communities of Color (NASCC) for Washington, D.C. was conducted over 2013–2014.

Data Cleanup: Numerical values corresponding to N/As according to the PUMS Data Dictionary (https://www2.census.gov/programs-surveys/acs/tech_docs/pums/data_dict/PUMS_Data_Dictionary_2019.pdf) as well as unspecified flag values found in the data, were excluded from the sample statistics.

- vi Error Bars: Error bars indicate standard error values. Standard error values were calculated using the ACS formulas for generalized standard error (https://www2.census.gov/programs-surveys/acs/tech_docs/pums/accuracy/2019AccuracyPUMS.pdf) using design factors (https://www2.census.gov/programs-surveys/acs/tech_docs/pums/accuracy/2019_PUMS_1yr_Design_Factors.csv).
- vii Weighted Median: Medians from the ACS PUMS data were calculated as weighted medians. The 50th percentile in a weighted median is the value at which the sum of weights of all observations less than the value accounts for 50% of the total sum of weights.
- viii Race/Ethnicity of Household: We refer to the racial/ethnic identity of a household based on the racial/ethnic identity of the “householder” as designated by the U.S. Census Bureau (https://www.census.gov/glossary/?#term_Householder). Further research should separately account for the difference in experiences of households with members of a uniform racial/ethnic identity and those with members of more than one racial/ethnic identity. We identify householders in the ACS dataset by selecting person records with Person Number (SPORDER) equal to 1. Because race/ethnicity of the householder is a “household” characteristic, we still calculate household averages and counts using the household weight (WGTP).
- ix Inflation: We adjusted 2014–2019 U.S. dollar values to 2019 U.S. dollars using inflation adjustments provided by ACS based on the national Consumer Price Index. ACS provides separate adjustment factors for income fields (ADJINC) and housing fields (ADJHSG). We applied the inflation adjustment directly for the 2019 PUMS 5-Year Estimate data, while for 2014 1-Year Estimate data applied the 2014 to 2018 inflation factor from the 2018 PUMS 5-Year Estimate, and then the 2018 to 2019 rate.
- x Public Use Microdata Area: The smallest geographic region for which ACS Public Use Microdata is segmented is the Public Use Microdata Area (PUMA): <https://www.census.gov/programs-surveys/geography/guidance/geo-areas/pumas.html>. The District is partitioned into five PUMAs: Central, East, North, Northeast, and West. The PUMA boundaries differ from the boundaries of the eight D.C. municipal wards.
- xi Homeownership Rates: We consider “owned” as Tenure = 1 (Owned with mortgage or loan) or 2 (Owned free and clear). We exclude N/A (Group Quarters or Vacant) from the denominator.
- xii New Homeownership Rates: We consider households that have moved within the last two years based on the householder’s value for “When moved into this house or apartment” (MV), i.e., the elapsed time at the time of the survey. ACS does not survey a household more frequently than once every five years, so households are not being double-counted.

- xiii Constant Income with Investment: The idealized constant income with interest model is simply a linearly separable differential equation:

$$\frac{dW}{dt} = RoR * W(t) + income/time - costs/time = RoR * W(t) + i_{net}$$

with solution

$$W(t) = \left(\frac{i_{net}}{RoR} + W_0 \right) exp(RoR * t) - \frac{i_{net}}{RoR}$$

where $W(t)$ is wealth at time t , i_{net} is constant net income rate, and RoR (rate of return) is the continuously-compounded rate of return.

For two households experiencing the same RoR , the ratio $\frac{W_1(t)}{W_2(t)}$ approaches $\frac{\frac{i_{net,1}}{RoR} + W_{0,1}}{\frac{i_{net,2}}{RoR} + W_{0,2}}$

If the starting wealth values are small, then $\lim_{t \rightarrow 0} \frac{W_1(t)}{W_2(t)} \cong \frac{i_{net,1}}{i_{net,2}}$

- xiv D.C. Born and Migration: We select D.C.-born homeowners via field POBP (Place of birth recode), and identify those who moved out of D.C. by looking at the PUMS dataset for the entire U.S. with MIGSP field (Migration recode – State or foreign country code) of 11 (District of Columbia).

- xv Income Mobility: $P_{kth\ generation} = P^k$ where P is the markov transition matrix (constant) for one-generation household income mobility from “National Child and Parent Income Transition Matrices by Race and Gender” (https://opportunityinsights.org/data/?geographic_level=0&topic=0&paper_id=992#resource-listing). The elements of P reflect “The fraction of children with parents in quintile j who are in quintile i of the national distribution of household income,” interpreted as a conditional probability of quintile-to-quintile movement, with separate matrices by race (https://opportunityinsights.org/wp-content/uploads/2018/04/table_3.pdf). For more information, see Raj Chetty, Nathaniel Hendren, Maggie R. Jones, Sonya R. Porter, Race and Economic Opportunity in the United States: an Intergenerational Perspective, The Quarterly Journal of Economics, Volume 135, Issue 2, May 2020, Pages 711–783, <https://doi.org/10.1093/qje/qjz042>. nPlot style adopted from Richard V. Reeves and Christopher Pulliam, “No room at the top: The stark divide in black and white economic mobility,” Brookings, February 2019, <https://www.brookings.edu/blog/up-front/2019/02/14/no-room-at-the-top-the-stark-divide-in-black-and-white-economic-mobility/>.

xvi Income Disparity Counterfactual: This example is for conceptual demonstration only. Data is from the American Community Survey (ACS) Public Use Microdata Sample (PUMS) 5-Year Estimate 2019 Vintage (2015–2019). Due to small sample sizes, we recoded answers for “no schooling” through grade 8 (SCHL values 01–11) to “no high school,” grades 9 through 12 with no diploma (SCHL values 12–15) as “some high school,” high school diploma or GED (SCHL values 16–17) as “High school or GED,” “some college but less than 1 year” and “1 or more years of college credit no degree” (SCHL values 18–19) to “some college.” SCHL values 20–24 are maintained individually. We consider $E[salary_{race}] = \sum_{education} E[salary_{race}(education)] P_{race}(education)$, where $E[salary_{race}(education)]$ is estimated by the sample mean per formal education level, and $P_{race}(education)$ is the proportion of the sample with the given formal education level (weighted by PWTGP). We decompose the disparity into

$$Compositional\ Effect = E[Salary_{counterfactual}] - E[Salary_{Black}]$$

$$Unaccounted\ Effect = E[Salary_{White}] - E[Salary_{counterfactual}]$$

where the counterfactual mean is

$$E[Salary_{counterfactual}] = E[Salary|Education_{White}, Salary_{Black}(education)]$$

We also constructed the full counterfactual distribution using this method. We limited the sample to ages 30–60 to roughly exclude most residents of school age and retirement age; further analysis warrants controlling more directly for school enrollment and employment-seeking status, as well as consideration of family status, gender identity, and other demographics to better understand who experiences this gap.

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