Understanding Historical Redlining's Effects on Community Health Today in Detroit: A Technological Politics Case Study

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On my honor as a University student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments.

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Introduction

At the turn of the 20th century, people migrated from Southern States to Detroit in search of work in the new manufacturing jobs during the Great Migration. Upon arriving in Detroit, African Americans immediately faced housing discrimination through a socio-technical system known as redlining. (Seale, n.d.). The discrimination that resulted from redlining immediately had consequences beyond racial segregation. Redlining caused divestment in neighborhoods of color, leading to poverty concentrations, which Moody and Grady (2021) describe as "racially segregated neighborhoods with severely disadvantaged social environments and reduced life chances."

Redlining funded housing improvement projects for Detroit's "green areas," including the building of a concrete wall in 1940 to separate the black and white communities. This divestment in housing for African American communities in Detroit has led to Detroit becoming the poorest and most racially segregated city in the country with 39.3% of residents living in poverty (Darden et al., 2010; Moody & Grady, 2021). While redlining is accredited with widespread poverty in Detroit, it is never viewed for the impacts this has on community health. By failing to understand how redlining impacts the health and wellbeing of those living in Detroit's redlined neighborhoods today, we cannot properly study the health disparities it has created.

Redlining was used to organize power and authority in Detroit, marginalizing African Americans and their access to healthcare. Redlining marginalized minority communities in Detroit throughout the 20th century, which created a lack of transportation and limited healthcare access in the city. This effectively contributed to the racial health disparities in Detroit today. Redlining has continued to marginalize minority communities in Detroit. The structures of this

socio-technical system prevented investment into very old homes, which allowed toxic lead exposures to harm future generations. Using Langdon Winner's Theory of Technological Politics, I will demonstrate how redlining functions as a socio-technical system with inherently political properties by marginalizing African Americans in Detroit and its negative health impacts. To support my argument, I will analyze how redlining prevented the creation of transportation infrastructure in Detroit, preventing the marginalized groups from accessing healthcare. I will then analyze the age of redlined homes and their proximity to lead emitting facilities in Detroit today to establish the effects of environmental toxins on the health of Detroit's future generations.

Background

Redlining was "the discriminatory practices of denying minority populations access to equal loan and housing opportunities. Emerging in the 1930s, redlining was embraced in the real estate industry for decades and shaped the social landscape of numerous American cities, large and small" (Jones, 2019). Redlining was a socio-technical system that was used to determine where and whom it would be appropriate to provide federally backed mortgage loans. The Federal Housing Administration worked with Home Owners' Loan Corporation (HOLC) to determine which neighborhoods were high risk and low risk investments in 239 cities (Jan, 2018). HOLC used the socio-technical system of redlining to grade neighborhoods on "aesthetics and age of houses, their proximity to recreational facilities and environmental hazards and the characteristics of the people who lived in each neighborhood" (Jones, 2019).

The redlining method ingrained individual biases into each neighborhood and prevented many qualified homeowners from being classified as a low risk investment based on their race, wealth, and neighbors. The HOLC categorized neighborhoods by color; green neighborhoods

were the most in-demand neighborhoods and were lacking “a single foreigner or Negro” (Lockwood, 2020). Blue neighborhoods were determined to be still desirable due to a low risk of non-white groups. Yellow areas were the neighborhoods determined to be declining and had the “threat of infiltration of foreign-born, negro, or lower grade populations.” Lastly, the red neighborhoods were “hazardous” minority-majority neighborhoods and were made ineligible for federal housing loans (Lockwood, 2020). Therefore, the nature of redlining lends itself to having a political dimension through the categorizations of neighborhoods.

Literature Review

Since the start of this century, research interest in understanding social determinants of health have skyrocketed. Among these determinants are socioeconomic status, race, and forms of structural racism. Public health scholars have explored how structural racism has negative health consequences for both the minority and majority classes, however, there has been little research on the health consequences of redlining specifically. (Williams & Collins, 2001). There is scholarly consensus that structural racism, including segregation, have negative health consequences. However, scholars have not adequately addressed how historical racist technologies and socio-technical systems, including redlining, have led to these consequences. The following analyses explore the effects of segregation on health in Detroit, but fail to consider the effects of historical practices on health today.

In Schulz et al. 's research study, *Racial and spatial relations as fundamental determinants of health in Detroit* (2002), the researchers found “African Americans have higher mortality rates than do whites living in the same city,” while studying Detroit. These differences not only persist but are widening despite the reductions in mortality rates over time. Schulz et al. suggest decreasing racial health disparities will improve the overall health of the nation. Schulz

notes that historical political, social, and economic conditions "clustered African Americans into areas characterized by high concentrations of poverty...connected with higher rates of all-cause mortality" (Schulz et al., 2002). This study lays the groundwork for future research. Schulz et al. were not able to differentiate which conditions specifically affected health in Detroit, but did distinguish that historical, political, social, and economic conditions should be considered.

In Elizabeth McClure et al.'s research study, *The legacy of redlining in the effect of foreclosures on Detroit residents' self-rated health,* the researchers studied the "association between two-year changes in home foreclosure rates following the 2007-2008 Great Recession, and residents' five-year self-rated health trajectories (2008-2013); and estimated the confounding bias introduced by ignoring historical redlining practices in the city" (McClure et al., 2018). This research builds off the foundations set by the Schulz et al. Detroit study, by considering how redlining impacts the housing situation of redlined neighborhood's residents and their health. McClure et al. claim that structural racism affects neighborhood health and that historical redlining increases vulnerability to foreclosure.

McClure et al. find that a slower foreclosure recovery rate has a 0.31 linear association with poor self-rated health. These findings also include that redlining was strongly correlated with foreclosure recovery rate and poor self-rated health, noting that redlined neighborhoods had 7 more foreclosures per 100 owner-occupied units over the 2-year period after the 2009 recession. Based on these findings, McClure et al. concluded that redlining confounds with the relationship between foreclosure recovery and health. Thus, ignoring redlining in modeling techniques introduces bias in the relationship between foreclosure recovery and health. McClure et al. introduce the idea that redlining must be considered today in order to accurately determine a neighborhood's health status.

The first source confirms that structural racism negatively impacts health in Detroit. McClure et al. then builds on those findings, discovering redlining is an important factor in determining the health of neighborhoods in Detroit following the 2009 recession. This research serves as a foundation to continue to develop an understanding of the relationship between structural racism and its effects on health. Now that scholars have established that structural racism is a determinant of health in Detroit and that ignoring redlining introduces bias in Detroit health models, I will deploy the framework of technological politics to understand how historical redlining on its own is a determinant of community health in Detroit today.

Conceptual Framework

My analysis of the effects of historical redlining on Detroit's neighborhood health today will draw on Landon Winner's Theory of Technological Politics. This framework will allow me to explore how redlining acted as an arrangement of power and authority which marginalized minority populations. Winner (1980) claims inherently political technological artifacts and socio-technical systems, "require the creation and maintenance of a particular set of social conditions as the operating environment of that system." In the context of this case study, the creation and maintenance of segregated social conditions lead to the need for a technological fix to sustain residential segregation in the United States that resulted in the system of redlining.

Winner's Theory of Technological Politics argues that the "examination of social patterns that comprise the environments of technical systems, we find certain devices and systems almost invariably linked to specific ways of organizing power and authority" (Winner, 1980). Therefore, this framework allows for one to analyze how a socio-technical system organizes power and authority with respect to the social patterns that led to its creation. Winner claims that as technological artifacts and socio-technical systems work to organize power and authority, they

privilege some people and marginalize others in the process. Thus, inherently political socio-technical systems work to marginalize certain groups given the social patterns the system's bias was created within.

I will apply Winner's concept of inherently political technological artifacts and socio-technical systems to analyze how the use of redlining developed power relations between communities in Detroit. In the following analysis, I will evaluate health disparities between Detroit neighborhoods that were redlined and those that were not. This analysis will highlight how redlining continues to marginalize communities today and the negative implications for considering this socio-technical system in a purely historical context. Redlining not only marginalized access to care in the past, but continues to create health inequities in Detroit today.

Analysis

As researchers continue to develop an understanding of the relationship between race and health in the United States, historical discrimination must be explored to understand why health inequities continue to grow each day. Redlining was a socio-technical system that was used to determine who was eligible for federally backed mortgages and prevented many homeowners from being categorized as low-risk investments based on their race, wealth, and neighbors (Lockwood, 2020). Thus, redlining is an inherently political socio-technical system that was used to marginalize communities of color in US cities. In what follows, I will demonstrate how redlining marginalized the African American communities of Detroit, and how this impacted their health in both the past and present. The impact of redlining in Detroit has been prolonged by other forms of discrimination meant to maintain racial segregation after it was made illegal by the 1968 Fair Housing Act (Brooks, 2020).

In 1977 the Community Reinvestment Act (CRA) was passed in an attempt to reverse the effects of redlining, and to encourage lenders to provide loans to those who live in redlined neighborhoods. However, the implementation of the CRA was undermined in Detroit by forming a multiple-city area designation. This designation expanded the area lenders could provide loans to beyond the city's limits, including suburban cities outside its borders, which allowed banks to legally avoid investments in the impoverished redlined neighborhoods within the city. The failure of the CRA implementation in Detroit exacerbated the poverty in African American communities within the city. Redlining and its subsequent policies were used as a political system to segregate Detroit neighborhoods, creating deeply impoverished areas which had negative impacts on community health.

Redlining in the Past - Healthcare Access Inequality

Detroit has had a public transit system since 1863. In its early years, this system was the nation's largest municipally owned electric streetcar transit system, which also contained a far-reaching train infrastructure to connect the city with its suburbs. As Detroit became known as Motor City, the city's transit system struggled to compete with the rise of the car industry. When Eisenhower signed the Federal Highway Act into law in 1956 plans were being drawn to build highways through the least desirable, redlined neighborhoods in Detroit (History.com Editors, 2020). Public transit ridership was integrated during the same time period, creating racial tension within the city. White flight from Detroit drove the city's industrial companies to move to suburbs as well, leaving redlined neighborhoods within the city without access to transportation to the new suburban jobs. (Gifford, 2021). As redlining marginalized minority communities in Detroit throughout the 20th century, a lack of transportation limited healthcare access in the city.

As shown in Figure 1, the white flight to Detroit's suburbs created high-poverty census tracts in the city. Redlining and its latter forms of structural discrimination in Detroit prevented African American's from moving to the suburbs as the jobs and resources did. By 1990, "79 percent of all residents of high-poverty census tracts were African American" (Schulz et al., 2002) and "92% of whites live in the suburbs and 80% of all blacks live in Detroit itself" (Moody & Grady, 2021). Since "studies of access to health services find health insurance and poverty status to be the strongest determinants," redlining's role in marginalizing African American communities of Detroit has restricted their access to health services (Mayberry et al., 2000).

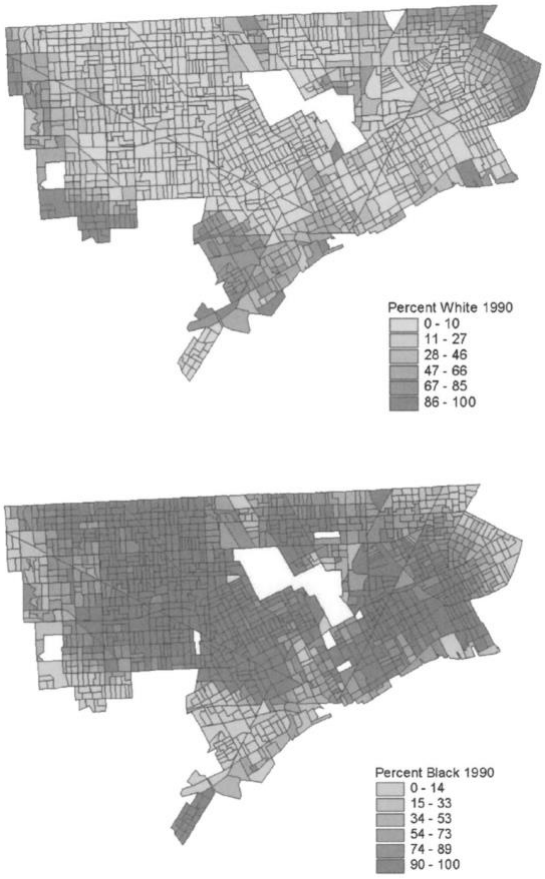

Figure 1: Map of Racial Distribution of Detroit, 1990

"Historic disinvestment in transportation infrastructure is directly related to adverse social conditions underlying health disparities in low-income communities of color" (Ingram et al., 2020). Across the country "3.6 million Americans forego medical care each year due to a lack of non-emergency transportation" (Dillahunt & Veinot, 2018). While public transportation service exists in Detroit, the divestment in this transit system has caused unreliable coverage. In Detroit, there is a lack of infrastructure for safe walking and biking, which has almost completely eliminated these transportation options for people living in redlined neighborhoods. Given these transportation barriers in the city, many older, impoverished citizens of Detroit have disabilities

or multiple chronic conditions that make it difficult to travel to a doctor's office. (Dillahunt & Veinot, 2018). This issue has led to an increased likelihood of hospital and clinic closures in urban areas (Whiteis, 1992). As redlining acted as an inherently political socio-technical system, it not only marginalized African American's access to housing, but also their access to transportation and healthcare. The lack of easily accessible medical care has caused those living in Detroit's redlined neighborhoods health conditions to worsen, adding to the existing health disparities.

As stated by political theorist Langdon Winner, "If we suppose that new technologies are introduced to achieve increased efficiency, the history of technology shows that we will sometimes be disappointed" (Winner, 1980). In this case, redlining was conceived to make it easier to determine who should and who should not receive federally backed mortgage loans. But as Winner said, with this increased efficiency harm was done by marginalizing African Americans access to housing. Exploring this harm in a historical context has shown how redlining created impoverished neighborhoods in Detroit, which greatly restricted healthcare access. Exploring redlining's effects on health today shows how this historical discriminatory tool continues to create health inequities in Detroit.

Redlining Today - Negative Health Outcomes

Redlining may be a historical socio-technical system, but its impact is still devastating the lives of African Americans in Detroit today. While redlining began in the 1930s, "black families have lost out on at least $212,000 in personal wealth over the last 40 years because their home was redlined" (Brooks, 2020). Redlining in Detroit created deep roots for poverty throughout the 20th century, that has led to Detroit having the highest rate of property tax foreclosures today. "This has resulted in about one in four Detroit homes being foreclosed on in the years 2011 thru

2015. (16 thousand Detroit properties have been foreclosed since April of 2019)" (Shelton, 2019). Modern foreclosures in Detroit are just the start of the fallout from the beginning of reverse redlining. Reverse redlining is the practice of providing predatory loans to those who live in neighborhoods that were previously redlined. Many have attributed the 2008 housing market crash that created the Great Recession to reverse redlining, including Michael Bloomberg. (Brooks, 2020). Redlining continues to marginalize minority communities in Detroit today, allowing the health inequities of the 20th century to continue to grow.

As redlining continues to exacerbate economic inequality for African Americans in Detroit, it has kept them in close contact with life altering environmental toxins. One of the thousands of prevalent toxins in Detroit is lead, a neurotoxin which has been determined to have no safe level in the human body, especially in those of developing children. 23 million IQ points are lost every year due to lead poisoning in the United States, making this issue increasingly devastating on the IQ of the nation. (Washington, 2019). The Detroit metropolitan area is at a high risk of lead poisoning due to the manufacturing industry's presence within the city and the prevalence of older homes with lead paint and pipes.

Redlining not only created a concentration of poverty within the African American neighborhoods of Detroit, but it also prevented any investments into their properties. This has created an abundance of older housing options in Detroit's highly segregated, redlined neighborhoods. Figure 2 (b) illustrates that the oldest housing options in the Detroit metropolitan area, homes built while redlining was still legally occurring in Detroit, is concentrated in the city limits. (Moody & Grady, 2021). This figure also shows that numerous lead emitting facilities surround this area. Figure 2 (a) shows that areas with the highest level of segregation are also surrounded by lead emitting facilities. The segregation index used in Figure 2 (a) measures

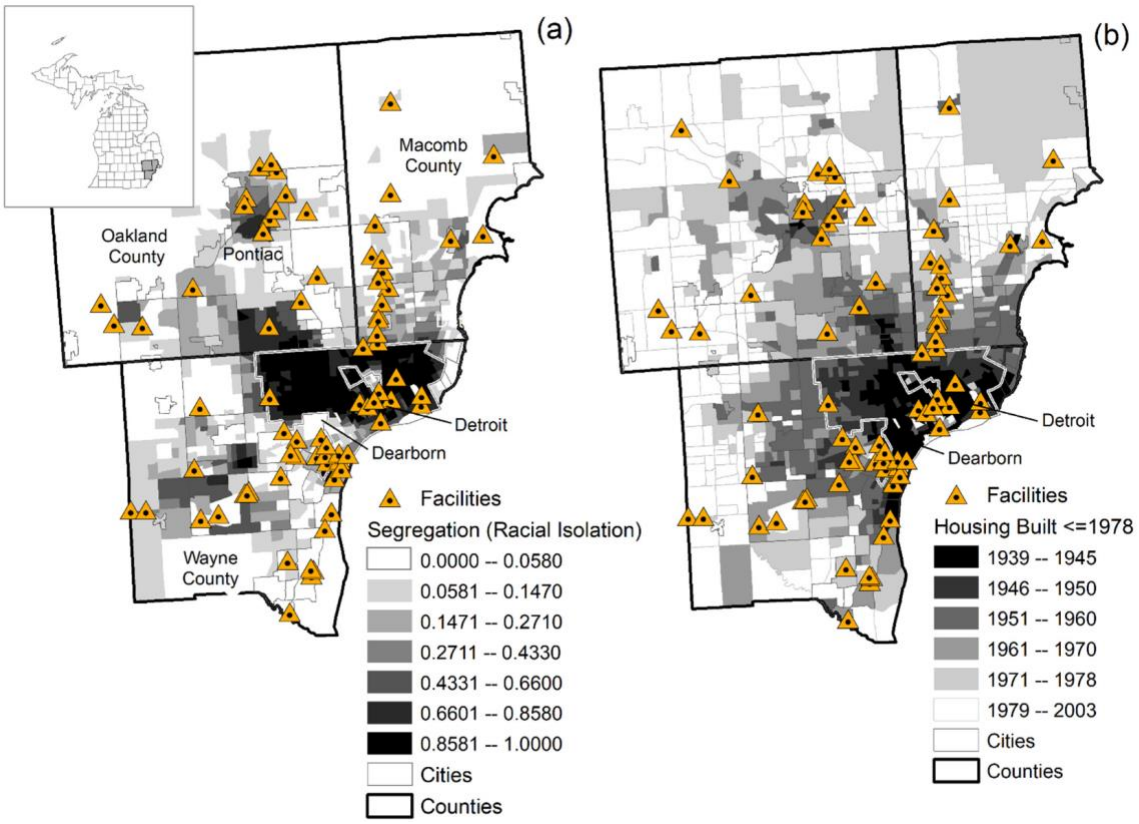

Figure 2: Map of Detroit Metropolitan Area and Lead Emitting Facilities

whether there is a larger than expected presence of African Americans over white Americans in a given location, by identifying the percentage of African Americans who would have to move for the residential distribution of the two races to be equal. Based on this figure, in certain areas of Detroit, almost all of the African American population would have to move to eliminate residential segregation in the city. Thus, redlining has perpetuated levels of residential segregation that are concentrating Detroit's African American population in the front yard of intelligence damaging lead emitting facilities.

Of the 10 ZIP codes in Michigan where more than 10% of children tested positive for lead poisoning in 2018, eight are redlined communities in Detroit. They are 48203 (11.4%), 48204 (14%), 48206 (18%), 48211 (12.7%), 48213 (12.5%), 48214 (14.3%), 48215 (10.6%), and 48238 (12.5%). (Neavling, 2020). These ZIP codes, as shown in Figure 2, have a higher-than-

average number of houses built before 1978. The concentration of lead emitting facilities in or near redlined neighborhoods plays a major role in community health. Since older homes are more likely to contain lead paint, young children are easily digesting lead from lead paint chips on the floor as they learn to crawl. At a young age, children put everything in their mouths, unfortunately for children living in the older, redlined homes of Detroit this includes lead.

The Centers for Disease Control and Prevention warn that no level of lead is safe. Long-term lead exposure not only decreases IQ, but also damages the brain and nervous system, slows growth and development, creates learning and behavior problems, as well as hearing and speech problems. (National Center for Environmental Health, 2020). High amounts of lead exposure can result in death. Thus, as redlining places Detroit's African American communities at high risk of lead exposure, it will continue to poison the health of Detroit for generations to come.

Above I have demonstrated that redlining created concentrated poverty in Detroit, which has caused insidious effects on health to those living in redlined neighborhoods today. Conversely, others argue that these health disparities do not stem from redlining at all, but merely from the natural cycle of poverty. I argue that failing to acknowledge redlining as the root cause of the cycle of poverty in Detroit continues to harm the health of those who have been adversely affected by redlining for decades. While it is easy to ignore historical forms of structural racism that are no longer legal or in effect today, doing so only harms the marginalized groups more. As COVID-19 has become a global pandemic, many have noted that the African American community has been disproportionately affected. Within Detroit, "inner city Black populations with advanced age, multiple co-morbidities, and COVID-19 may be at increased risk for ICU admission, and thereby at an increased risk of death" (Balanchivadze et al., 2020). By May 14, 65.3% of Detroit's COVID-19 cases were African Americans, while they represented

80.8% of all deaths (Bartkowiak Jr., 2020). Without acknowledging how redlining has contributed to the health disparities in Detroit, the root of the issue will not be addressed. Redlining has continued to marginalize Detroit's African American population, which has become even more evident as COVID-19 vaccines have been distributed in the city.

A mass COVID-19 vaccination center opened at Ford Field in Detroit on March 23, 2021. As a new wave of COVID-19 infections decimate the city, the location of this vaccination center was picked to focus on vaccinating Detroit's low-income, disabled, and minority residents. However, due to the lack of transportation infrastructure in the city, those who lived in Detroit's redlined neighborhoods are either unable to get to Ford Field or are afraid to take public transportation to get there. This issue that has stricken the residents of Detroit's redlined neighborhoods ability to access healthcare, is now preventing them from getting access to the COVID-19 vaccine when they need it the most. As of April 3, 2021, only 19% of Detroit's residents have received one dose of the vaccine, while they account for 12% of Michigan's COVID-19 deaths. With over 80% of those being vaccinating at Ford Field driving in from outside of the Detroit area, there is a major disparity in vaccine distribution occurring, which is increasing the marginalization felt by redlining. (Terlep, 2021). Building an understanding of how systemic problems marginalize particular communities will allow these issues to be addressed at their root causes in the future.

Conclusion

Redlining has acted as an inherently political socio-technical system since its inception in the 1930's. Redlining was used to organize power and authority in Detroit, marginalizing African Americans and their access to healthcare. As redlining marginalized minority communities in Detroit throughout the 20th century, a lack of transportation limited healthcare

access in the city, which has contributed to health disparities in Detroit today. Redlining has continued to marginalize minority communities in Detroit today, as the structures of this socio-technical system prevented investment in older homes, allowing toxic lead exposures to harm future generations.

Redlining and other forms of structural racism are often viewed with respect to their historical effects. By exploring how redlining impacts communities' health today, I have shown that this socio-technical system continues to harm the health of Detroit's residents every day. Thus, housing policies do not just affect one's ability to purchase or rehabilitate a home but can devastate the health of future generations in a community. While racial residential segregation is a violation of the United States Constitution, Bill of Rights, and the 13th, 14th, and 15th Amendments, it is still happening today in Detroit and cities all across the America. Understanding the structures that permit residential segregation and their effects on segregated communities is critical to unravel the consequences of the structural discrimination from our country's past.

Word Count: 3789

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