



# Levied:

*Rectifying Hamilton County's Racial and Economic Unjust Property Taxes*

**JUNIA HOWELL**

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# EXECUTIVE SUMMARY

Like many other counties in the nation, Hamilton County (Cincinnati), Ohio's recent reassessment resulted in the largest single year increase in property taxes in the county's history. However, this jump in taxes was not spread equally among all residents. This study finds that:



**Property tax bills rose over twice as much for Hamilton County residents living in communities of color or poorer neighborhoods.** On average, property tax bills increased by \$990 in communities of color compared to \$430 in White neighborhoods. Likewise, bills rose by \$730 in low-income areas and \$410 in high-income communities.



**Contrary to common assumptions, uneven increases in property tax bills are not explained by changes in the housing market.** When sales price and property feature changes are held constant, the average property tax bills in communities of color and poorer neighborhoods still increased twice as much as property tax bills in White and wealthier communities.



**Relative to household means, White and more affluent neighborhoods pay lower tax rates than communities of color and lower-income areas.** The poorest households' property taxes are 18 times more of their income, 4 percent more of their accumulated housing wealth, and \$600 more per equivalent land access than their wealthiest neighbors. Similar inequities are also observed across racial groups.

Adopting a taxation system that more precisely taxes residents based on their income, wealth, and land access will increase racial and economic equality as well as increase the affordability and sustainability of low-income housing. Through immediate interventions, alternative processes, and reimagined policies, local residents, city elected leaders, county officials, and state representatives can take actionable steps to build a more equitable and just county.




# INTRODUCTION

Echoing national trends, Hamilton County, Ohio's (home of Cincinnati) recent property reassessment combined with changes in tax levies resulted in the largest increase in property tax bills in the county's history.<sup>1</sup> However, not all residents are equally affected.

Mirroring another countrywide phenomenon, communities of color and lower-income neighborhoods saw larger increases in their property tax bills than their White and higher-income counterparts. This inequity engenders both an immediate concern for property owners unable to afford the large tax increases and a subsequent concern about a potential violation of Fair Housing legislation.

Using over 20 years of tax, property, housing market, and population data, this report investigates the racial and economic inequality in Hamilton County's property tax policies and how municipal, county, state, and federal officials can cultivate equity in the short and long term. Specifically, I ask three questions:

-  **Did the 2024 property taxes increase equally for all residents?**
-  **Were the uneven increases in property taxes due to housing market trends?**
-  **Are residents taxed equitably relative to their means?**

Establishing the extent of racial and economic inequality in property tax policies and the specific state, county, and municipal laws, procedures, and levies creating these inequities will enable local residents, elected officials, and civil servants to work together towards a more equitable system. In what follows, I outline the processes that can unintentionally create property tax inequality, my empirical findings, alternative tax policies, and suggested action steps.

## THE HISTORY OF PROPERTY TAX

Property tax is Ohio's oldest form of taxation, tracing back to the settler colonial territory. In the early days, property taxes only included the projected value of the land.<sup>2</sup> This approach had multiple benefits over other forms of taxation including its relative simplicity and comprehensiveness.

### Administrative Simplicity

While income and sales taxes required residents to accurately account for their earnings, expenses, and transactions, property taxes were issued by the government based on their estimates of land value. With minimal administrative cost, this ensured taxes were relatively consistent.

### Comprehensive Taxation

Unlike income or sales taxes that based taxation on only one factor, property taxes were conceptualized as simultaneously taxing residents' earnings, wealth, and land privileges. In an agricultural society, larger and more fertile land correlated with higher gross

earnings, wealth accumulation, and control over development. Moreover, the approximation of a property's value corresponded with the size, fertility, and future value of the property.<sup>3</sup> Thus, levying taxes based on these approximate values enabled governments to issue higher tax bills to residents with more earnings, wealth, and land access.

As Ohio industrialized and urbanized, some residents' earnings and wealth was increasingly reflected in their elegant city homes rather than in vast farm lands. Reflecting this new reality, in 1825, Ohio expanded property tax to include buildings.<sup>4</sup> This ensured the property tax did not unjustly burden rural residents. However, the change also presented the challenge of accurately taxing residents' earnings, wealth, and land access with property taxes.

Over time, other forms of taxation, primarily income and sales taxes, were introduced to levy taxes across diverse forms of economic activity. Yet, local governments still levy taxes on property as a proxy for residents' earnings, wealth, and land access—even though the calculation of these taxes has become increasingly complicated.



## HOW CONTEMPORARY PROPERTY TAX BILLS ARE CALCULATED

At their core, property taxes are calculated like any other form of taxation—a taxable value (e.g., income, sales price, property assessment) is multiplied by the applicable tax rate. However, unlike other forms of taxation, the process of deriving a property’s taxable value and effective tax rate requires multiple steps implemented by a variety of government agencies and authorities.

### Determining a Property’s Taxable Value

In many states, including Ohio, a property’s taxable value is estimated by the county auditor’s office and then approved by the state’s department of taxation. Both the county auditor’s office and the state’s department of taxation use three figures to determine and check a property’s taxable value: (1) approximate market value, (2) exemption programs, and (3) assessment level.

First, the **approximate market value** is what the county estimates a property’s purchase price might be if put up for sale. Since properties do not sell every year, taxing authorities cannot solely rely on documented transactions.<sup>5</sup> Instead, auditors use recently sold homes to derive an equation that estimates the relationship between property features and sale prices. The county then plugs data on each parcel into the equation to derive an estimated market value.<sup>6</sup>

Second, **exemption programs** reduce the taxable value of homes based on specified criteria. Ohio has one statewide exemption program—the Homestead exemption. This exemption subtracts \$26,200 from a property’s approximate market value for low-income seniors or disabled homeowners who apply for the program.<sup>7</sup>

Third, the **assessment level** is the proportion of the property’s value that can be taxed. In Ohio, the assessment level is set by the state government and is currently 35 percent of the approximate market value.<sup>8</sup>

Using the derived approximate market value, prescribed assessment level, and applicable exemption programs, the county auditor determines the property’s taxable value.<sup>9</sup>

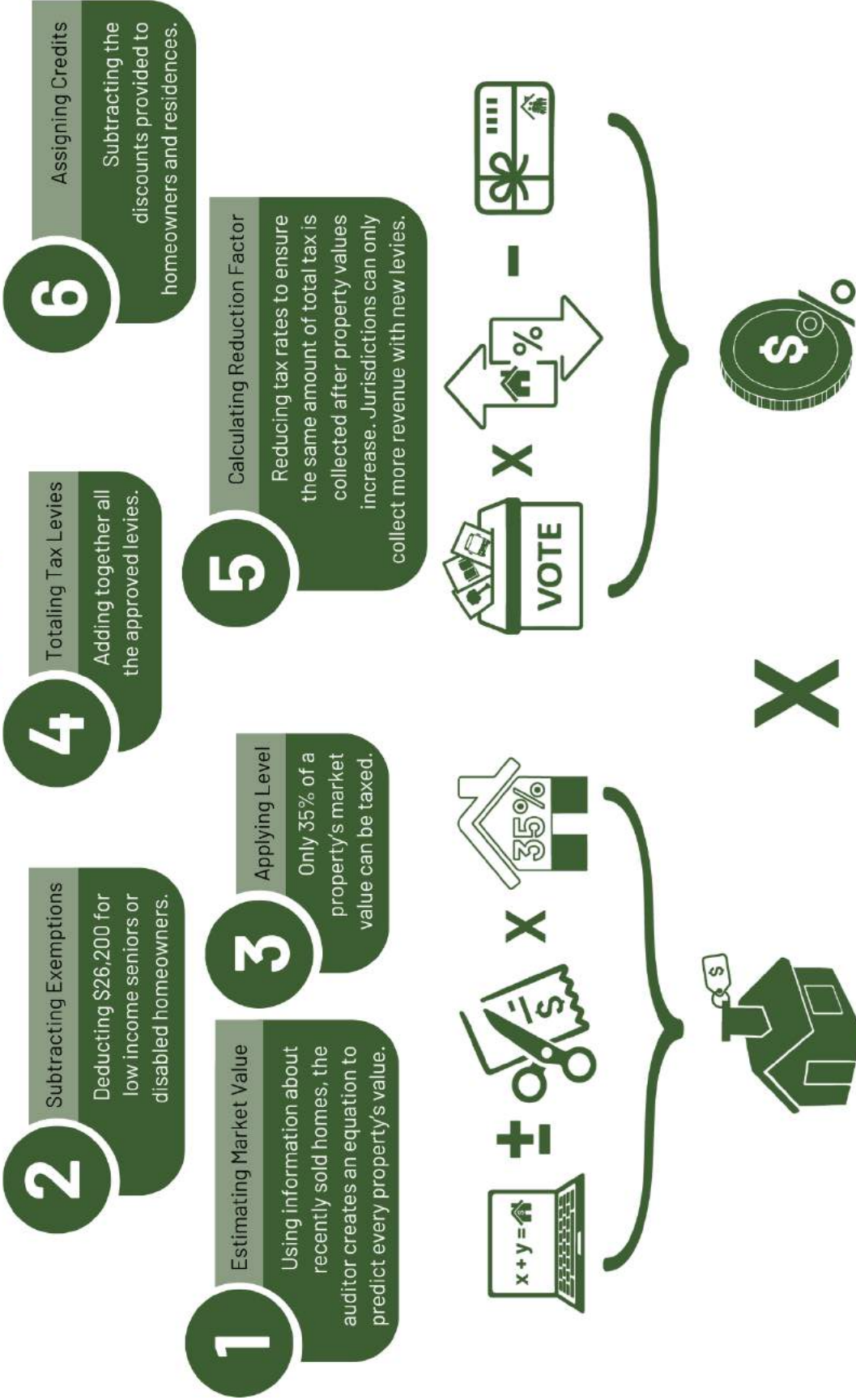
### Deriving the Effective Tax Rate

Auditors also derive the property’s effective tax rate based on three components: (1) total tax rate, (2) reduction factor, and (3) tax credits.

First, the **total tax rate** is the combination of all legislative and ballot approved levies within the county, township, municipal corporation, school district, joint vocational school district, and special service taxing jurisdictions.<sup>10</sup>

Second, the **reduction factor** is a jurisdiction-wide adjustment used to account for new property assessments. This component is unique to property tax and is often misunderstood. In Ohio, a levy sets the total amount a jurisdiction can collect from all residents. To help residents comprehend the personal implications of tax levies, this total amount is typically divided by all current taxable values in the jurisdiction. Initiatives then report levy increases as the number of dollars per \$1,000 in taxable property value. However, if all the county properties get reassessed, then the auditor recalculates the tax rate by dividing the new total property values in the jurisdiction by the original total tax amount. Consequently, the total tax amount collected by the jurisdiction does not increase with assessment values. Rather, reassessment merely redistributes how much each parcel is contributing to the jurisdictions’ revenue. State law requires auditors to summarize their

### Process for Calculating Property Tax Bills



recalculations in a reduction factor that is multiplied by the total tax rate.<sup>11</sup>

Third, **tax credits** are local or state initiatives implemented by legislation or ballot measures to reduce the effective tax rate for certain parcels. Currently, Ohio has two statewide tax credits: (1) non-business credit for residential and most agricultural properties<sup>12</sup> and (2) owner-occupancy credit for owner-occupied homes.<sup>13</sup> Additionally, Hamilton County has a sale tax credit for owner-occupied homes that is a result of changes made to the tax code to build two sport stadiums in the late 1990s.

Once a property's taxable value and effective tax rate are derived, the two values are multiplied to determine the amount of taxes owed. Although the auditor is responsible for calculating the owed taxes, the components they use to derive these values are established by state and local legislators and ballot initiatives. Thus, tax inequality is the result of processes and policies across various levels of government.

## HOW PROPERTY TAX CALCULATIONS CREATE INEQUALITY

Scholars across the nation have repeatedly demonstrated residents of color and low-income households pay a higher share of property taxes.<sup>14</sup> This inequality often results from a combination of three factors: uneven property value estimates, unequal effective tax rates, and inaccurate estimates of residents' means.

### Uneven Property Value Estimates

Studies have demonstrated communities of color and lower-income neighborhoods are overassessed compared to their property



sale prices while the opposite is true of Whiter and higher-income communities.<sup>15</sup> This inequity arises from the approaches used to approximate market values and implement exemption programs.<sup>16</sup>

First, common assessment approaches used to **approximate market values** create racial and economic inequality in taxable values. Many auditor offices, including Hamilton County's auditor, contract a private company to derive the mass assessment regression equation.<sup>17</sup> Private company models are often proprietary—limiting the public's and auditor's knowledge about critical data decisions. However, scholars have repeatedly shown these models pull values to the mean, resulting in an overvaluation of lower valued properties and an underassessment of higher valued properties. For more technical details on how this transpires mathematically, see Appendix A. Additionally, the processes available for individual property owners to challenge their reassessments often favors residents with more education and financial

resources, further exacerbating racial and economic inequity in assessed values.<sup>18</sup> Second, **exemption programs'** requirements can exacerbate racial and economic inequalities. Even programs designed to reduce inequality by providing reductions to seniors can unintentionally create or exacerbate other forms of inequality because of their cumbersome applications, exclusion of renters,<sup>19</sup> or implications for new migrants.<sup>20</sup> Granted, some well-designed and implemented exemption programs have been successful at meaningful reductions in inequality.<sup>21</sup> Yet, these successes often require intentionality and ongoing monitoring for unintended consequences.

### Unequal Effective Tax Rate

For over a century, communities of color—especially Black residents—have routinely been charged higher property tax rates.<sup>22</sup> This inequality results from a combination of jurisdictions' total tax rates and available tax credits.<sup>23</sup>

First, the intersection of residential segregation and racialized appraisal methods results in White neighborhoods and more affluent residents having lower **total tax rates** than their counterparts of color and lower-income neighbors. Since the 1930s, market appraisal methods (which are different from tax assessment approaches) have evaluated homes in White communities as more valuable than comparable homes in similar neighborhoods of color.<sup>24</sup> This practice both entrenched and exacerbated residential segregation.<sup>25</sup> Consequently, Whiter areas can collect larger revenues with lower total tax rates than jurisdictions with larger Black, Indigenous, and Latinx proportions.<sup>26</sup> White residents often use the lower tax rates in Whiter school districts to justify their

residential and school choices,<sup>27</sup> creating cascading consequences for cities and school districts with more residents of color.<sup>28</sup>

Second, like exemption programs, **tax credits** can increase racial and economic inequality in effective tax rates. This occurs when the requirements or conditions make the credits more available or commonly used by affluent and racially privileged residents.<sup>29</sup>

### Inaccurate Estimates of Residents' Means

Over time, the increasing dissonance between property values and residents' means—including their household income, wealth, and land access—has resulted in property taxes becoming more regressive and disproportionately levied on communities of color and lower-income residents.

First, **wage** inequality has significantly outpaced property value inequity. For example, the average household income among Hamilton County's bottom income quintile (20 percent) only increased \$5,500 from 2004 to 2024 while those in the top quintile saw their incomes increase by \$128,600. Put another way, the wealthiest Hamilton County residents saw their incomes increase 23 times more than their lower-income counterparts. During this same time period, home values also increased unevenly. However, unlike the 23 fold increase in income inequality, houses in the top quintile only increased three times more than those in the bottom quintile. In sum, property values have increased faster relative to income for those on the bottom of the income distribution than those on the top. As a result, annual property tax is an increasingly inaccurate estimate of residents' means.



Second, divergent home appreciation has resulted in a growing divide between annual property taxes and **wealth accumulation**. Property values experience cyclical appreciation and depreciation based on the community's racial composition.<sup>30</sup> Consequently, communities of color are often forced to buy homes at peak prices and sell after depreciation. Not only does this mean they accumulate less wealth through homeownership but their annual taxes often reflect the peak prices from when they bought their homes. Additionally, the federal tax code enables landlords to pass on annual property taxes to their tenants. As a result, renters, who are disproportionately households of color and low-income, pay the tax on their landlord's wealth accumulation. Unlike other forms of wealth taxes, annual property taxes are increasingly unable to accurately tax owners' wealth accumulation.

Third, property values are decreasingly related to residents' **land access**—meaning residents' access to private lawns, public parks, quiet streets, infrastructure, and amenities. Over time, property values are increasingly correlated with the surrounding community's racial demographics.<sup>31</sup> Consequently, taxes based on property values do not correlate with residents' access to amenities, as is usually presumed.

Together, property taxes' unequal rates, assessments, and means' approximation results in households of color and lower-income families carrying a larger tax burden than their White and more affluent counterparts. I now examine the extent to which this is occurring in Hamilton County.





# METHODS

## DATA SOURCES

### Property Tax Records

I use the publicly available Hamilton County's auditor's records on property features, transactions, tax bills, and payments from 2003 to 2024.<sup>32</sup> This data includes information on the taxing jurisdiction, plot acreage, property code classification, building square footage, number of rooms, number of bathrooms, year(s) built, construction grade, transfer dates, sale prices, owner names, auditor's market value assessment, tax bills, and delinquent taxes for every parcel (or plot of land) within the county.<sup>33</sup>

### Census Bureau Surveys

To estimate residents' demographics, I used the U.S. Census Bureau's 2000 Decennial Census and the 2006-2022 American Community Survey (ACS).<sup>34</sup> I defined neighborhood racial composition as the census tracts' White proportion<sup>35</sup> and neighborhood income as the census tracts' mean annual household earnings. For household estimates, I use the number of households in each census income category by race.<sup>36</sup>

## ESTIMATING RACIAL AND ECONOMIC INEQUALITY IN PROPERTY TAXES

To examine to what extent Hamilton County's tax bills and their recent increases are equitably distributed across residents, I examine differences across neighborhood and household racial and economic demographics.

For neighborhoods, I conduct linear regressions examining the relationship between property tax bills and the census tracts' White proportion and mean income. I use the regression results to predict mean outcomes in White neighborhoods (defined as 100 percent non-Hispanic White residents), communities of color (defined as 0 percent non-Hispanic White residents), wealthy neighborhoods (defined as a mean income of \$295,000) and poor neighborhoods (defined as a mean income of \$20,000).

For households, I assume census tract mean tax bill changes and amounts are evenly distributed across residents within the neighborhood. I use these means to calculate the impact of tax bills across household income and race.

See Appendix B for more information.



# FINDINGS

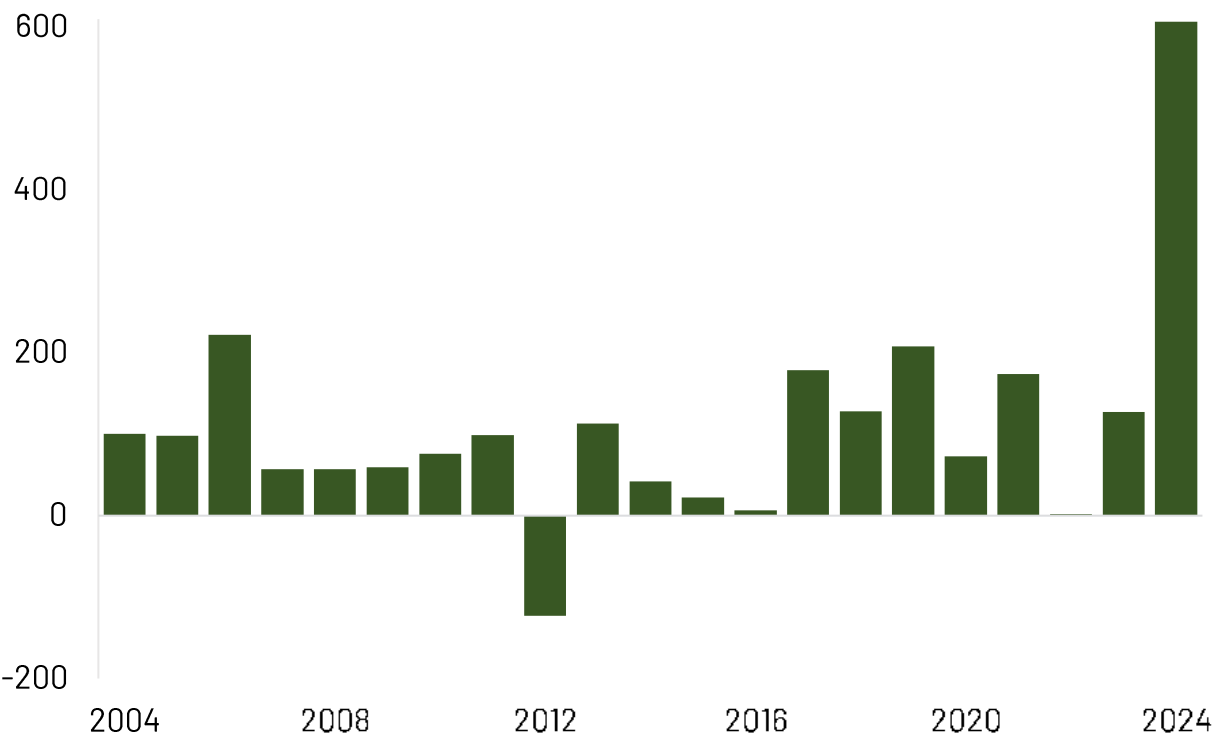
In 2023, Hamilton County’s auditor conducted the legally required sexennial reassessment. The increases in residential property sale prices in the preceding years resulted in the average residential parcel’s estimated market value appreciating by \$61,000 (or 48 percent).<sup>37</sup>

Combined with the levies passed in 2023, these changes led to the average resident tax bill increasing by \$610 (or 30 percent).<sup>38</sup> This change is nearly seven times larger than the average annual increase across the last twenty years.<sup>39</sup>

Figure 1

## Mean Annual Increase in Residential Property Tax Bills

Hamilton County, Ohio, 2003-2024



Source: Authors’ analysis of Hamilton County Assessors’ Tax Records 2003, 2005-2006, and 2009-2024.

Within Hamilton County's largest city,<sup>40</sup> Cincinnati, tax bills increase even more, \$810 (or 46 percent) on average. This increase is 9.5 times greater than the city's typical annual increase. See Appendix C: Cincinnati Findings for figures visualizing this and other city specific results.

If these dramatic and historically unprecedented increases in tax bills were shared evenly across the county's residents, they would still have a more severe impact on residents with fewer resources to pay them. Yet, if the changes are inequitable, then impacts of these tax changes will likely be even more consequential.

To investigate whether racial and economic inequality increased after the county's most recent reassessment, I answer my three research questions.

In 2024, the average increase in property tax bills was \$990 (or 83 percent) for neighborhoods with no White residents (hereafter communities of color). As the White proportion in the neighborhood increased, the change in property tax bills decreased. In fact, in neighborhoods with all-White residents (hereafter White neighborhoods) the average property bill increased by \$430 (or 8 percent).

On the household level, this means the average White Hamilton County resident experienced an increase of \$550 (or 23 percent) in their tax bill. This was lower than all groups of color. Specifically, the average Black resident saw a \$770 (or 47 percent) increase, the average Latinx resident experienced a \$640 (or 36 percent) increase and all other residents of color saw an average increase of \$600 (or 29 percent).

A similar pattern of unequal increases is observed across household incomes. Hamilton County's poorest neighborhoods saw an average increase of \$730 (or 56 percent) in their property tax bills while the county's wealthiest neighborhoods saw a \$410 increase (or -12 percent).<sup>41</sup>

On a household level, families whose annual income was less than \$25,000 saw an average increase of \$740 (or 46 percent) on their property tax bill.<sup>42</sup> Conversely, households who



### Question 1: Did the 2024 property taxes increase equally for all residents?

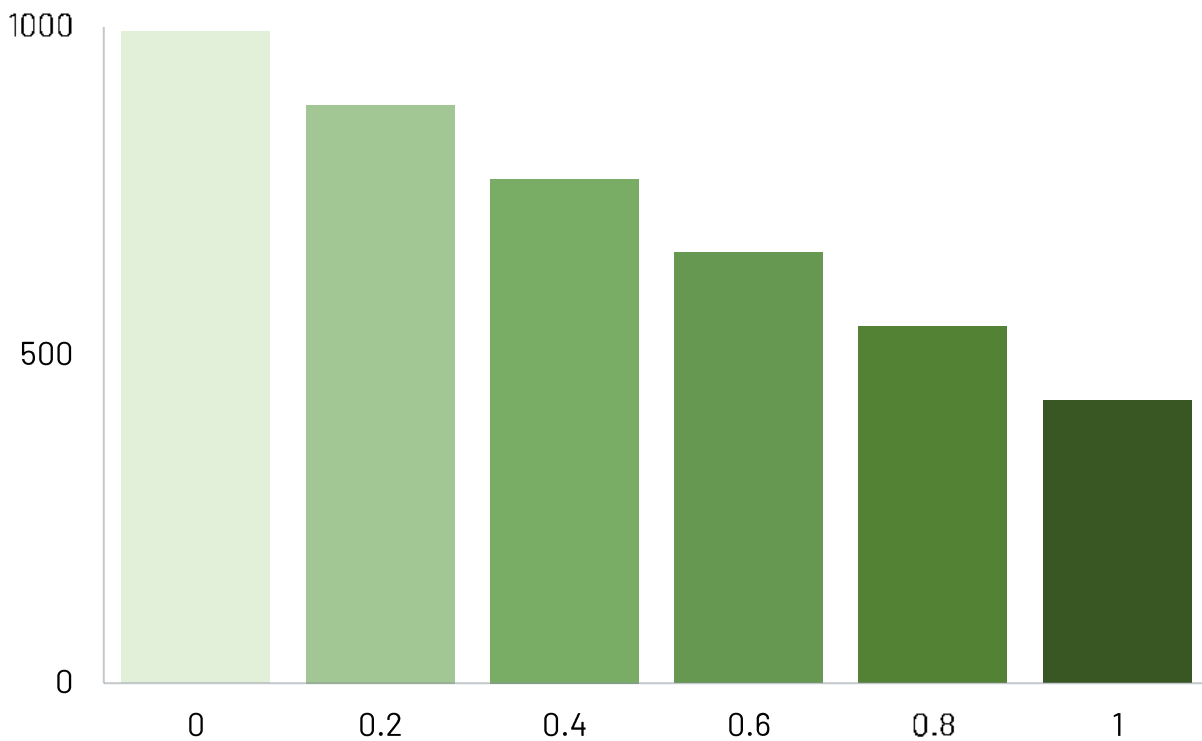
Hamilton County's residents of color and lower-income households experienced a larger increase in their property tax bills than their White and higher-income counterparts. This was true at both the neighborhood and the household level.



Figure 2

### Mean Increase in Residential Property Tax Bills by White Population

Hamilton County, Ohio, 2023-2024



Source: Authors' analysis of Hamilton County Assessors' Tax Records 2023-2024 and 2018-2022 American Community Survey 5-year estimates.

make \$150,000 or more a year only experienced a \$530 (or 18 percent) increase.<sup>43</sup> Hamilton County's households with the fewest means experienced the largest inflation in their property tax bills.

In short, Hamilton County's property tax bills did not go up equally for all residents. Neighborhoods and residents of color as well as lower-income households experienced larger increases in their property tax bills—as measured by both percentage and absolute dollars. This suggests there are likely many households experiencing an unexpected financial burden by their new tax bills. However,

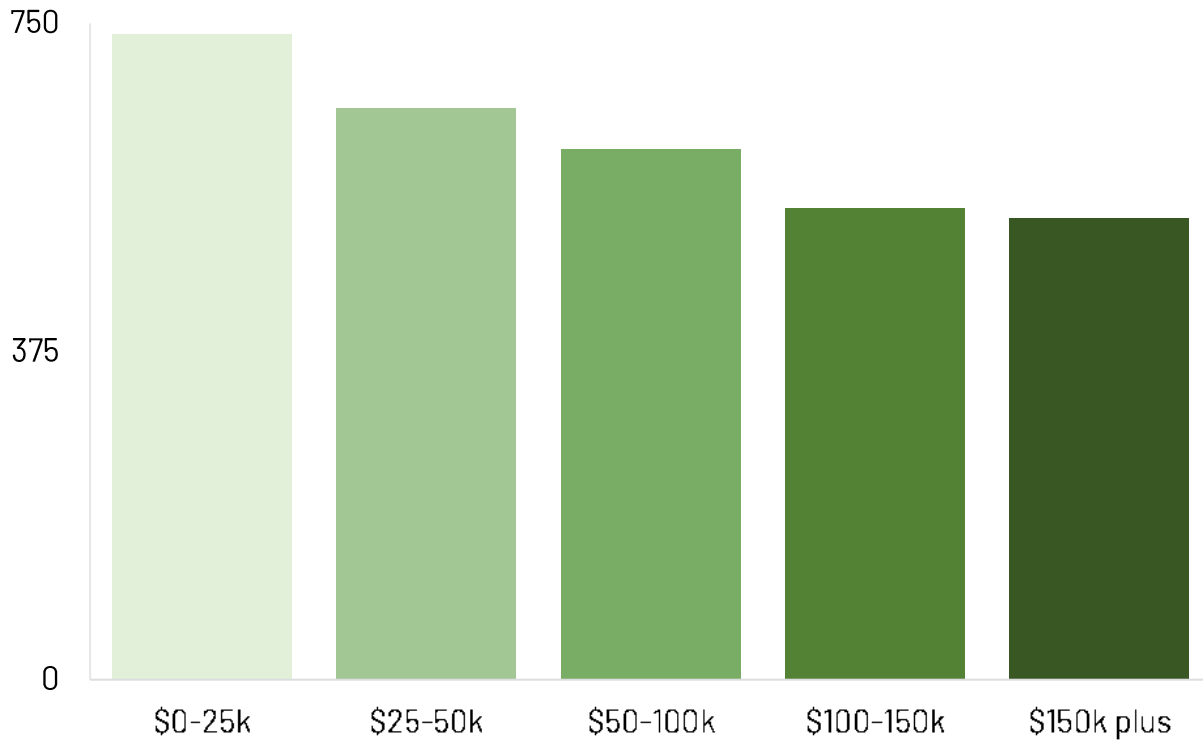
it does not necessarily mean the reassessment or new levies are unjustified under current law.

Ohio law specifies that auditors must assess properties based on recent market data.<sup>44</sup> Thus, if homes in communities of color and lower-income areas appreciated quicker than their counterparts in White neighborhoods and higher-income areas, then current legislation would require auditors to make adjustments that would result in the observed inequity. To examine whether the unequal increases in tax bills can be explained by housing market trends, I turn to my second question.

Figure 3

### Mean Increase in Residential Property Tax Bills by Household Income

Hamilton County, Ohio, 2023-2024



Source: Authors' analysis of Hamilton County Assessors' Tax Records 2023-2024 and 2018-2022 American Community Survey 5-year estimates.



#### Question 2: Were the uneven increases in property taxes due to housing market trends?

Across the county, the average property sale increased \$61,000 (or 45 percent) since the last assessment adjustment.<sup>45</sup> This closely mirrors the change in county assessments suggesting the overall increases in assessments due reflect the housing market. However, this average likely disguises any inequities arising from the mass assessment process.<sup>46</sup>

To investigate whether the observed racial and economic inequality in property tax increases

is explained by changes in the local property sales, I hold constant the neighborhood's housing market trends. Specifically, I account for the changes in the neighborhoods' average sale prices and property features. This enables us to distinguish the amount of observed inequality that is the result of changes in the housing market versus the county's tax policy.

I found property taxes in White neighborhoods with the average change in home purchase prices and features increased \$430 (or 20 percent) while property taxes in communities of color with comparable changes in their housing market increased by \$1,000 (or 59 percent).<sup>47</sup> In other words, the real dollar difference between White neighborhoods and communities of color

is not explained by trends in the housing market—suggesting the inequality is resulting from how property values and rates are calculated, not property sales.<sup>48</sup>

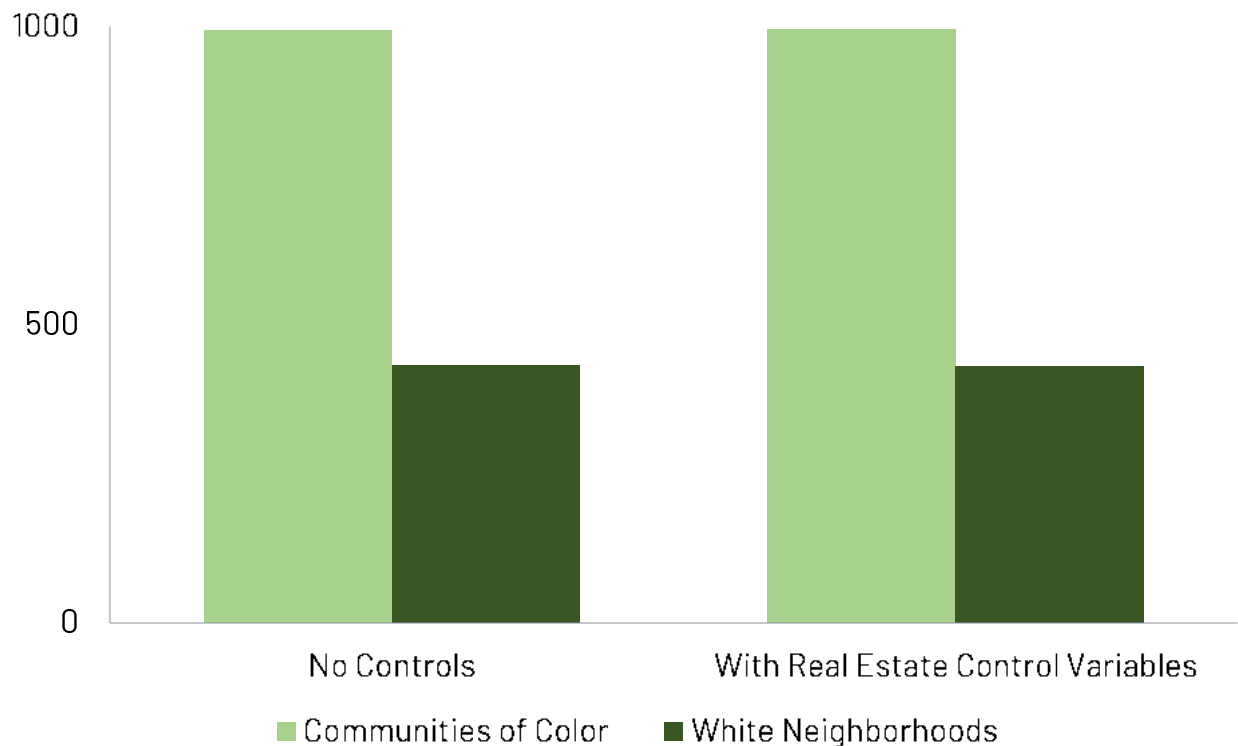
A comparable pattern is observed when examining the inequity in tax bill changes across the average household income in the neighborhood. Holding housing sale prices and features constant, the poorest neighborhoods still saw their tax bills increase nearly twice as much as the wealthiest neighborhoods (\$750 compared to \$380 or 42 percent compared to 16 percent).

Housing market trends do not fully explain the racial or economic inequality in property tax increases. Yet, existing inequality in the more recent tax increases, does not necessarily mean tax bills unjustly tax communities of color or poorer neighborhoods. It is possible past tax distributions were unduly carried by White and wealthier neighborhoods and these recent changes are merely adjusting for this historical imbalance. To examine this possibility, I now investigate if property tax bills (not just the recent changes) are equitable across race and class.

Figure 4

### Mean Increase in Residential Property Tax Bills in White Neighborhoods and Communities of Color

Hamilton County, Ohio, 2023-2024



Source: Authors' analysis of Hamilton County Assessors' Tax Records 2023-2024 and 2018-2022 American Community Survey 5-year estimates.



### Question 3: Are residents taxed equitably relative to their means?

As outlined above, theoretically, property tax is levied based on a combination of residents' earnings, wealth, and land access. To evaluate whether Hamilton County's current property tax bills are equitable, I examine the extent to which the taxes reflect residents' household income, housing wealth, and land access.

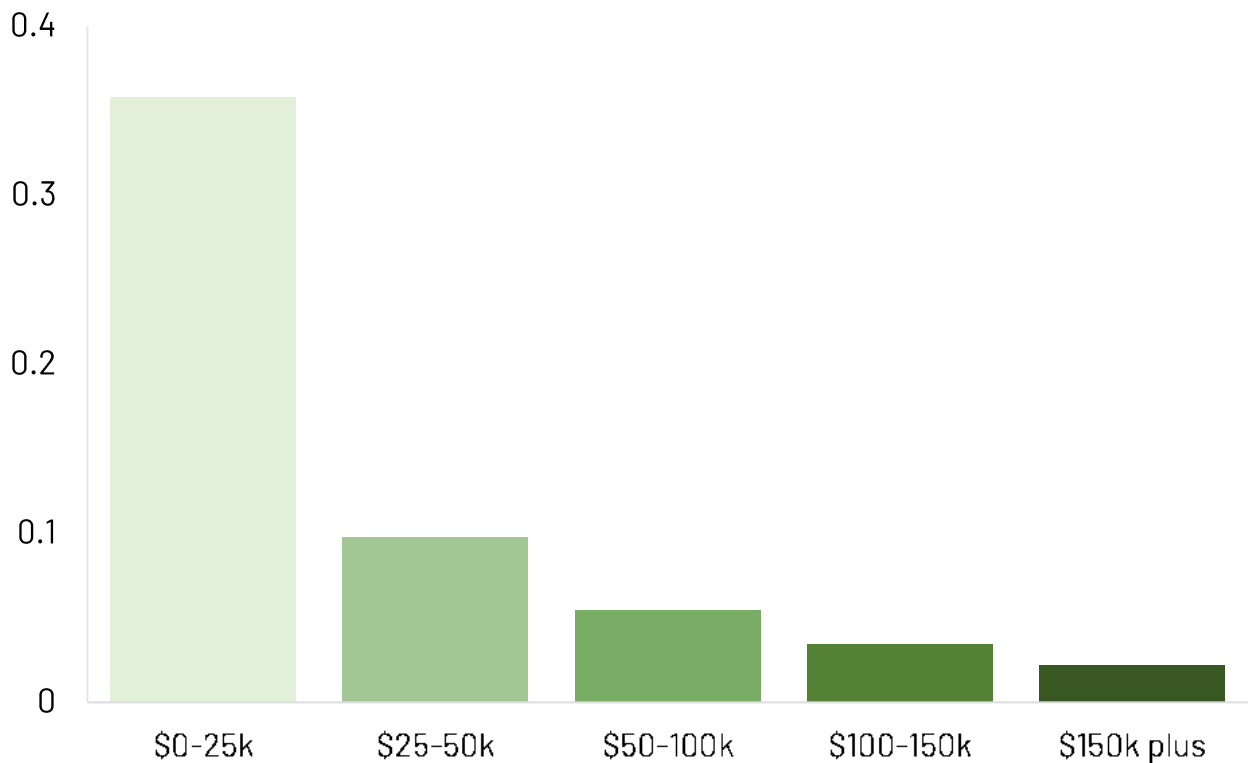
### Proportion of Household Income Spent on Property Taxes

For the last two decades, the average Hamilton County resident spent nine percent of their household income on property tax. In 2024, this increased to 11 percent. After twenty years of relative consistency in the amount of income spent on property taxes, this two percent increase is a surprising and substantial change in most families' budgets. However, as with the tax increases, this change was not shared equally across county residents.

Figure 5

### Proportion of Household Income Spent on Property Tax Bills by Income

Hamilton County, Ohio, 2024



Source: Authors' analysis of Hamilton County Assessors' Tax Records 2023-2024 and 2018-2022 American Community Survey 5-year estimates.



In 2024, Hamilton County’s average White neighborhoods’ property tax bills were three percent of their household income while communities of color spent 16 percent of their income on property taxes—a 400 percent difference. Moreover, from 2023 to 2024, the percent of household income spent on property taxes increased three percent in communities of color while remaining unchanged in White neighborhoods.

A similar pattern exists across neighborhood income with the wealthiest neighborhoods paying less than a percent of their income on property taxes while the poorest neighborhoods spend 13 percent of their income on property

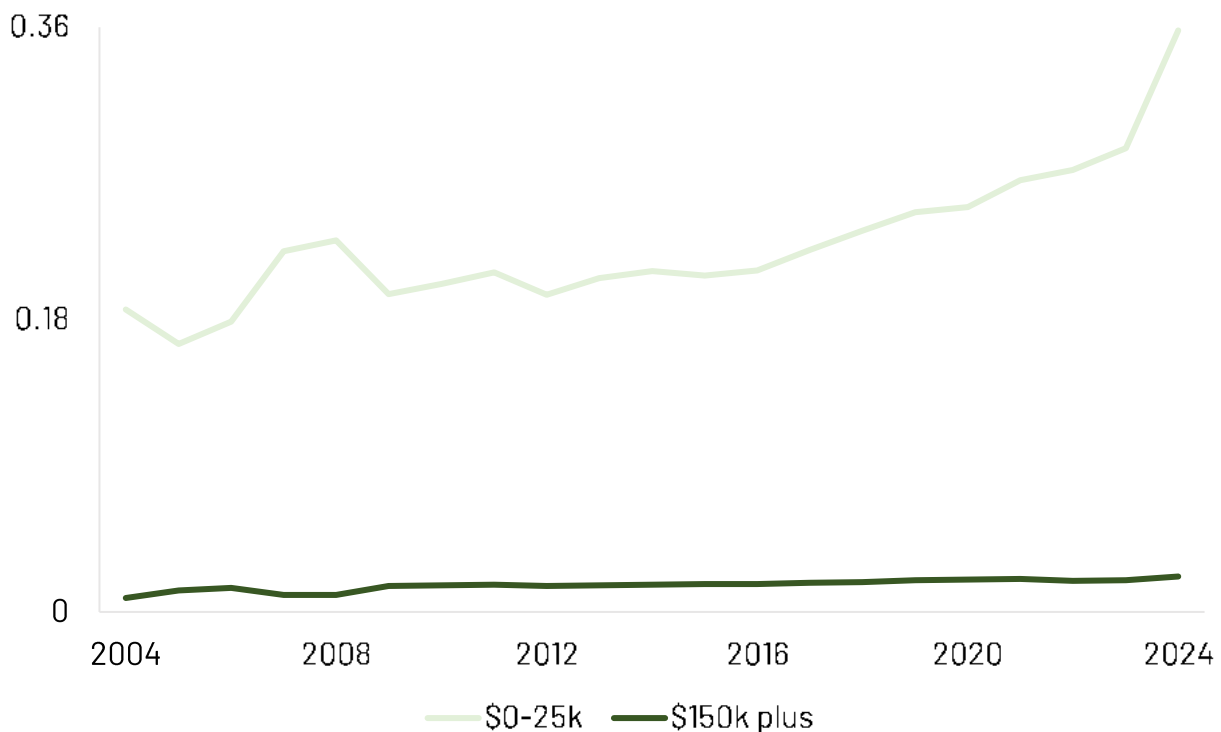
taxes. On a household level, families making less than \$25,000 a year are paying 36 percent of their household income on property taxes. This is greater than the recommended 30 percent of income spent on all housing expenses. On the other end of the spectrum, households making more than \$150,000 a year are paying only two percent of their income on property taxes.

Since 2004, the percent of household income spent on property tax bills has increased by 17 percent for families making less than \$25,000 per year. Conversely, households making over \$150,000 only saw the percent of their income spent on property tax bills increase by one percent.

Figure 6

### Proportion of Household Income Spent on Property Tax Bills by Income

Hamilton County, Ohio, 2004-2024



Source: Authors’ analysis of Hamilton County Assessors’ Tax Records 2003, 2005-2006, and 2009-2024, the 2000 Decennial Census, and the American Community Survey 5-year estimates from 2006-2010, 2007-2011, 2008-2012, 2009-2013, 2010-2014, 2011-2015, 2012-2016, 2013-2017, 2014-2018, 2015-2019, 2016-2020, 2017-2021, and 2018-2022.

Together these findings provide strong evidence that Hamilton County's annual property taxes are not equitably distributed across residents' earnings. Instead, annual property taxes are disproportionately levied on residents of color and lower-income households.

### Proportion of Housing Wealth Spent on Property Taxes

I now consider whether annual property taxes are equitably distributed across residents' housing wealth.<sup>49</sup> On average, residential property sold between January 2020 and December 2022<sup>50</sup> were bought for \$113,000 more than its last purchase price. Put another way, those who recently sold homes in Hamilton County gained, on average, \$13,900 a year. This was the largest average home appreciation in the county's history. Even so, the average resident spent 75 percent of their gained wealth in annual property taxes.

Moreover, like the other patterns observed in this data, residents in White neighborhoods and wealthier communities accumulated more wealth in their property sales and paid a smaller proportion of it in taxes than their counterparts in communities of color and lower-income neighborhoods. The average White household's annual property tax is 74 percent of their gained housing wealth while Black households paid 78

percent of their gained housing wealth in annual property tax.

Likewise, residents in the wealthiest neighborhoods paid 72 percent of their gained housing wealth in annual property taxes while the poorest neighborhood residents paid on average 76 percent of their gained housing wealth in annual property taxes.<sup>51</sup>

### Property Taxes Per Land Access

Finally, I consider if annual property taxes are equitably distributed across residents' land access as measured by their property's acreage and the residential density of their neighborhood. Residents in White neighborhoods paid \$4,210 less in property tax than residents in communities of color with equivalent land. Likewise, residents in the county's wealthiest neighborhoods paid \$600 less than those in the poorest neighborhoods for equivalent parcels.

The observed inequities across household income, housing wealth, and land access suggest that Hamilton County's communities of color and lower-income residents are paying a disproportionate amount of the county's annual property taxes. Moreover, this inequity has increased over time and will continue to expand if the county does not revise their taxation approach.





# AN ALTERNATIVE TAXING APPROACH

A more equitable taxing approach would divide the cost of governance and services across residents' earnings, wealth, and land privileges.

## INCOME TAX: EARNINGS EQUITY

To ensure equity across household incomes, municipal, school, and county services should be funded through earnings taxes. Ideally, the majority of these taxes would be collected through federal and state income taxes and provided to local governments through intergovernmental transfers. This approach ensures increased equity across places and people because federal and state income taxes are allowed to be progressive and redistributive.

## TRANSFER TAX: WEALTH EQUITY

The wealth gained by owning property should

be taxed directly. At the time of sale, a seller would be taxed on their gained wealth—the difference between the property's sale price and initial purchase price.<sup>52</sup> This approach allows local governments to still benefit from rising housing prices while ensuring long-term residents do not lose their homes due to increasing annual property taxes.<sup>53</sup>

## RESIDENT TAX: LAND EQUITY

Residents' access to and use of land should be taxed with a residence tax. Residence taxes divide communal infrastructural costs across parcels based on each parcel's environmental and social impact. This would enable local governments to incentivize behaviors that serve the collective and ensure residents pay more when they use more of the collective resources.



# ACTION STEPS

To move towards a more equitable taxing approach, Hamilton County’s municipal, county, and state officials should consider the following concrete steps.

## IMMEDIATE INTERVENTIONS 6 TO 12 MONTHS

Hamilton County’s auditor, treasurer, and municipal governments can mitigate the detrimental effects of the recent property tax increases through changing administrative processes, implementing data-informed assistance, and reducing municipal tax regressivity.

### Changing Administrative Processes

County auditor and treasurer offices have discretion on how they identify and apply assessment exemptions and payment plans. Implementing new processes could increase equity.

The **auditor’s office** could ensure all residents who qualify for the Homestead exemption are receiving it by using county data to identify and notify those who qualify.<sup>54</sup>

The **treasurer’s office** could eliminate late fees

and restrain from tax lien sales for all owner-occupied households whose new property tax bill exceeds five percent of their household earnings and/or was a 75 percent or more increase from the previous year. They could also uniformly provide five-year payment plans for all residents, no matter the avenue by which they request a payment plan.

### Implementing Data-Informed Assistance

Combining existing administrative data, county and municipal governments could identify households who need immediate assistance and proactively offer government or nongovernmental aid. Strategic outreach can ensure households with the least access to information or resources have equal access to available aid.

### Reducing Municipal Tax Regressivity

Municipal governments can immediately reduce the regressivity of their tax base by replacing municipal property tax with earning taxes. For example, Cincinnati could replace the \$40,739,000 it collects in property tax<sup>55</sup> with a 0.2 percent increase in earnings taxes.<sup>56</sup> Replacing municipal property taxes with earnings tax would result in savings for approximately 98 percent of city households with the average resident saving \$550.

## ALTERNATIVE PROCESSES

### 2 TO 4 YEARS

Over the next two to four years, Hamilton County’s auditor, school districts, county commissioners, and state representatives can reduce the observed racial and economic inequality in property tax bills by introducing new assessment methods, altering school district revenue sources, and transforming the property transfer tax.

#### Introducing New Assessment Methods

Previous scholarship has suggested alternative assessment models (e.g., housing price index or location interaction coefficients) could reduce racial and economic inequality.<sup>57</sup> The county auditor’s office should investigate whether these alternatives or other existing methods would increase equity in Hamilton County. They should then work towards implementing these alternatives during the 2026 triannual update.

#### Altering School District Revenue

Ohio school districts can collect revenue through the state income tax system. However, Hamilton County’s largest school districts do not currently use this option—instead collecting all their direct revenue through property taxes. Much like the proposed reduction in municipal tax regressivity above, school districts could shift their revenue from property taxes to income taxes—resulting in savings for the vast majority of residents. Yet, unlike municipal governments, school district changes would require two steps.

Immediately, school districts can shift all revenues above the current required property tax rate to income taxes.<sup>58</sup> For Cincinnati Public Schools, this would be slightly over half the collected revenue. Second, Ohio Senate Bill 221 would need to be revised to enable school

districts to either meet the current required property tax rate minimum or an equivalent income tax minimum. This would allow school districts to choose the most equitably taxing approach for their district.

These changes alongside the ongoing effort to reform the state funding formulas could finally address the Ohio Supreme Court’s 1997 ruling that the state’s school funding system is unconstitutional.<sup>59</sup>

#### Expanding Residential Tax Credits

Municipal governments could alter existing or introduce additional tax credit programs targeted at lower-income rental property. These expanded credits could incentivize affordable housing units while minimizing the role these programs play in the exacerbating of observed inequality.

#### Transforming the Property Transfer Tax

County commissioners could increase the current county transfer tax to 0.3 percent, collecting approximately \$7.5 million more per year for the county general fund and allowing the county to decrease annual property taxes.

However, to move towards a more equitable approach, state representatives would have to enact a new provision that would allow counties to collect transfer tax on only the gained wealth (sale price minus purchase price) and use a higher tax rate than the current 0.3 percent limit. This change would not need to be required by all counties but given as an option to counties who are interested in piloting the new approach.

## REIMAGINED POLICIES

### 5 TO 10 YEARS

Beyond the immediate interventions and alternative processes, local, state, and federal officials can work towards enacting more equitable tax policies by implementing a residence tax and increasing intragovernmental transfers.

#### Implementing a Residence Tax

Although an equitable approach requires collecting the majority of local revenue from earnings and wealth taxes, residence taxes can enable the local government to collect resources for infrastructure while incentivizing behavior that aids the collective. Designing an equitable, transparent, and predictable system would require a mix of resident engagement, model testing, ballot initiatives, and legislative approval from the state to pilot a new form of taxation.

#### Increasing Intergovernmental Transfers

In recent decades, federal and state governments have reduced the amount of residents' income tax they allocate to local governments. Consequently, local governments have been forced to rely on less progressive taxing approaches (e.g., property tax, sales tax, flat-rate earnings tax). Enacting state and federal legislation that requires budgets to have larger intergovernmental transfers will enable more equity in local taxing approaches.





## CONCLUSION

The combination of new levies and property reassessments has resulted in Hamilton County's communities of color and lower-income residents seeing much larger increases in their 2024 property tax bills than their White and wealthier counterparts. This is true even when increases in property sale values are taken into account. Moreover, residents of color and lower-income households are paying more property taxes relative to their household income, housing wealth, and land access than their more privileged neighbors. These inequalities exacerbate the county's housing affordability crisis and racial wealth gaps.

When it was first implemented, Hamilton County's property values were seen as an efficient and effective way of estimating residents' earnings, wealth, and land access. Over 200 years later, property values are no longer a robust estimate of residents' resources—resulting in an increasingly regressive tax system. Rectifying this inequity requires adapting a new taxing approach built for the 21st century economy. We need new, transparent, democratically-governed assessments of residents' income, wealth, and land access.

# APPENDIXES

## APPENDIX A. DOUBLY DISADVANTAGED: HOW APPRAISAL AND ASSESSMENT METHODS EXACERBATE RACIAL INEQUALITY

Research has repeatedly established that properties within Black, Indigenous, and Latinx communities are under evaluated by market appraisers and over valued by tax assessors.<sup>60</sup> Consequently, residents in these communities are able to access less capital for building, purchasing, or remodeling homes, accumulate less wealth through homeownership, and still pay larger proportions of their houses' value in annual property taxes.

Initially, these findings seem contradictory. However, the distinction between how market appraisers and tax assessors estimate a property's value illuminates why this seemingly antithetical phenomenon occurs.

### Market Appraisal Practices

Starting with the publication of the first federal underwriting manual in 1936, the most common method used by certified appraisers to estimate residential property is the sales comparison approach.<sup>61</sup> This method has three primary steps: (1) comparable properties selection, (2) price per square footage calculation, and (3) feature adjustments.

First, certified appraisers select three to five recently sold, comparable properties within the same or a similar neighborhood. Appraisers define neighborhood boundaries as well as comparable areas by the residents' racial composition.<sup>62</sup> This ensures properties in the

same location continue to be appraised at similar prices.

Second, the appraiser calculates each comparable sale's price per square foot.<sup>63</sup> They then multiply the square footage of the house they are appraising by each of the comparable sales' price per square foot.

Third, the appraiser makes additional adjustments to the estimated values by adding or subtracting set dollar amounts based on differences in property features. For example, if the home being appraised had a large deck that is not present at any of the comparable homes, the appraiser might add \$5,000 to the value of the home. Appraisers often use the same dollar amount for a given feature adjustment (e.g., deck, fireplace, additional bathroom, pool) no matter the location of the house.

This method ensures square footage adjustments are shaped by the property's location while the feature adjustments are often consistent across places. This is a critical distinction between market appraisals and tax assessments.

### Tax Assessment Approaches

Government auditors are unable to do individual appraisals on all properties within their jurisdictions. Therefore, unlike market appraisers, auditors employ mass assessment models. This approach also has three primary steps: (1) identifying open market sales, (2) deriving an assessment equation, and (3) estimating property assessments.



First, the auditor identifies all recent property sales that were sold on the “open market.” This process ensures sales conducted at a discount between family members, friends, or business partners does not influence the estimates of another property’s market value.

Second, a computer-generated mathematical model uses the sale prices and property features of all recent open market sales to derive an equation estimating the relationship between home characteristics (e.g., finished square footage, number of rooms, bathrooms, garage size, acreage).

Third, the auditor inserts the property features for each house into the derived equation to create an estimated market value.

Although the utilized models mirror components of the market appraisal approach, the difference in how they calculate price per square footage can be consequential. Many

auditors, including Hamilton County, contract with a private company for the creation of the mass assessment models. These are often proprietary, limiting what the county officials or the public know about the model’s terms. However, based on their estimations, most of these models do not alter the price per square footage by location. In mathematical language, they do not include an interaction term between location and square footage. By using the same price per square footage for homes in all communities, tax assessments often overestimate values in communities of color and underestimate values in White neighborhoods.

Some scholarship has suggested that auditors could use mass assessment models with locational interaction terms or local based housing price indexes<sup>64</sup> to reduce the dissonance between market appraisals and tax assessments.<sup>65</sup>



## APPENDIX B. METHODOLOGY: VARIABLES, MODELS, AND ESTIMATES

In this appendix, I outline how all variables, models, and estimates were calculated.

### Independent Variables

For all three of my research questions, I examined whether property taxes were equitable across both race and class. I operationalized these two variables as follows.

#### Racial Categories

I examined racial equity at both the neighborhood and household level. For neighborhoods, I defined racial composition as the proportion of the census tract's households that identified as non-Hispanic White.<sup>66</sup> For households, I used four categories: non-Hispanic White, non-Hispanic Black, Latinx, and all other non-Hispanic households. The Census Bureau categorizes the household race based on the racial identification of the primary resident as defined by the person who completed the survey.

#### Economic Classifications

Similar to my measures of racial categories, I also examined economic equity at the neighborhood and household level. For neighborhoods, I used the census tract's median annual household income. For households, I combined the Census Bureau's 17 income categories<sup>67</sup> into five groups: less than \$25,000, \$25,000 to \$49,999, \$50,000 to \$99,999, \$100,000 to \$149,999, and \$150,000 and above. The number of households in each of these categories were roughly equivalent—making them a good estimation of quintiles.<sup>68</sup>

### Dependent Variables

In this report, I examined two primary outcome variables: (1) change in property tax bills (the focus of the first two research questions) and (2) tax bills relative to residents' means (the focus of the third research question).

#### Change In Property Tax Bills

I defined the change in property tax bills from 2023 to 2024 as the mean census tract difference. Specifically, for every parcel, I calculated the difference between the 2024 tax bill issued and the 2023 tax bill. Using the parcel differences, I then derived the census tract's mean difference.

Although my primary focus is the absolute dollar difference in property tax bills, I also calculated the proportional change. For this parameter, I divided each parcel's absolute dollar difference by its 2023 tax bill. I calculated the mean proportional change within the census tract. Racial and economic inequality were comparable across both the absolute dollar and proportional change parameters.

To ensure census tract means were not skewed by outliers, I used a Thompson Tau test to identify and exclude extreme values. I used this test for all census tract means calculated across every variable in this report.

#### Tax Bills Relative to Residents' Means

As discussed in the introduction, property value has been conceptualized as a proxy for residents' earnings, wealth, and land access. To examine whether annual property taxes are equally distributed across residents' means, I examined tax bills relative to residents' household income, housing wealth, and land access.

I defined **household income** as the total annual earnings within the household as reported on the American Community Survey. However, I did not have access to the restricted household level survey data. Thus, I estimated household incomes with census tract income categories. Specifically, I assumed households made the median value within their income category and divide the census tract mean property tax bill by their estimated income.<sup>69</sup> For my household estimates, I used all the income categories. For neighborhood level estimates, I used the neighborhood's model income category.

**Housing wealth** was measured as the difference between a property's sale price and its purchase price. For consistency across properties that were owned for vastly different amounts of time, I divided the total wealth by the number of years the property was owned. The result is an estimate of gained housing wealth per year. I divided the gained housing wealth per year by the parcel's most recent annual tax bill. I then calculated the census tract's mean proportion of annual gained housing wealth spent on property tax. Mirroring the tax assessment process, I included all sales from the previous three years in the estimates to provide a more robust census tract average.<sup>70</sup>

I operationalized **land access** as including both the acreage of individual parcels and the density of the surrounding area. For density, I divided the total number of households in the census tract by the residential parcel acreage. I then standardized and inversed the census tract density. I also standardized the parcel acreage across all residential properties in the county. Finally, I added these two standardized scores together for a land access ranking. I divided each parcel's annual property tax bill by its standardized land access score and derived the mean of this quotient for each tract.

## Control Variables

For my second question investigating whether the observed inequality is due to housing market trends, I introduced control variables into my models to examine whether they are responsible for the observed inequalities.

### Census Tract Mean Change in Home Sale Prices

To examine whether the changes in property tax bills reflected the changes in home sale prices, I calculated the difference in sale prices. Desiring to emulate the auditor's process of evaluating the housing market, I compared the sale prices considered in this reassessment (homes sold from January 2020 to December 2022) to those sold during the last adjustment period (homes sold from January 2017 to December 2019). Moreover, I only included sales that the auditor considered valid, open-market transactions.<sup>71</sup>

I calculated the mean sale price for each census tract for both time periods. I then examined the difference between the two periods. For my models using the absolute difference in property tax bills, I used the mean absolute difference in census tract sale prices. For my models examining the proportional difference, I used the proportional difference in sale prices.

### Census Tract Changes in Building Characteristics

Neighborhood level changes in assessments could also be due to changes in property characteristics. For example, assessment could be increasing due to a sizable number of new and/or larger houses being built. To take these into consideration, I controlled for changes in residential dwellings' finished square footage, number of rooms, number of bathrooms,<sup>72</sup> and year built.<sup>73</sup>

I calculated the census tract mean for each of these variables. Then I derived the absolute and proportional change between 2001 and 2024 to reflect the corresponding assessment and sale price changes.

## Models

To examine the equity of tax bills across racial and economic groups, I used linear regression models.

For the first research question, I ran bivariate regressions models estimating the change in tax bills using neighborhood non-Hispanic White proportion and mean household income. For the second research question, I reran these models adding the control variables.

For the third research question, I ran bivariate regressions for each of the dependent variables. The proportion of household income spent on tax bills was calculated for each income category. For the neighborhood average, I used the model income category proportion. The proportion of household wealth spent on tax bills and the tax bills per land access score were operationalized as neighborhood means.

## Estimates

To comprehend the real world implications of the models, I used the model coefficients to estimate residents' 2024 tax bills relative to the previous year, household income, housing wealth, and land access.

For all models using the neighborhood White proportion, I used the coefficient to estimate the average tax bill relative to the previous year, household income, housing wealth, and land access in neighborhoods with zero, 20, 40, 60, 80 and 100 percent White residents.

For all models using the neighborhood mean value, I used the coefficient to estimate the average tax bill relative to the previous year, household income, housing wealth, and land access in neighborhoods with mean incomes of \$20,000 and \$295,000.<sup>74</sup>

Household estimates for research questions one and three were derived by calculating countywide weighted means. That is, for each category of interest (e.g., Black households, households with an annual income of \$150,000), I multiplied the proportion of that group living in a particular neighborhood by the census tract's mean 2024 tax bill relative to the previous year, household income, housing wealth, and land access. I then summed these components for the average experience of each group across the county. For research question two, I did a similar approach but instead of using the absolute mean for each tract, I used the multiple regression models to estimate each tract's average increase in tax bills if their change in housing market values was held at the county's mean.



## APPENDIX C. CINCINNATI FINDINGS

As the largest municipality within Hamilton County, it is helpful to consider the trends occurring within the city's boundaries. This appendix provides equivalent findings and figures as the main report but for neighborhoods within the city borders.<sup>75</sup>

As mentioned, in the report's main findings Cincinnati residents saw an \$810 (or 46 percent) increase in their tax bill. An increase that is over 9.5 times the average annual increase. This finding suggests that Cincinnati residents, as a whole, are experiencing the largest consequences from the recent changes. However, it does not necessarily mean the inequality within the city is the same as the county.

Figure C1

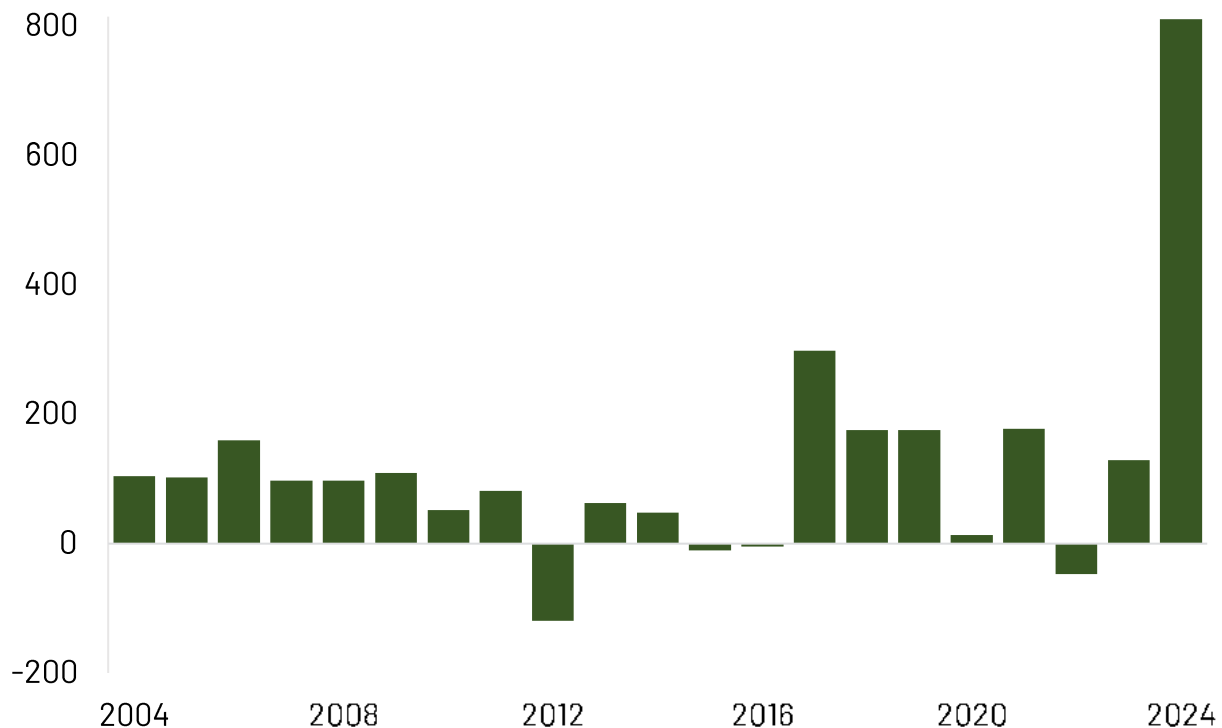
### Question 1: Did 2024 property taxes increase equally for all residents?

Like the county as a whole, Cincinnati's residents living in communities of color and lower-income neighborhoods experienced a higher increase in their tax bills than their White and higher-income counterparts.

In 2024, the average increase in property tax bills was \$1,200 (or 90 percent) for communities of color and only \$480 (or 14 percent) for White neighborhoods. This difference between communities of color and White neighborhoods' tax bills is slightly bigger than the difference observed within the county. This is surprising because everyone within the city has the same total tax rate—suggesting the reassessment had a large impact on the unequal increase in the city's tax bills.

### Mean Annual Increase in Residential Property Tax Bills

Cincinnati, Ohio, 2003-2024

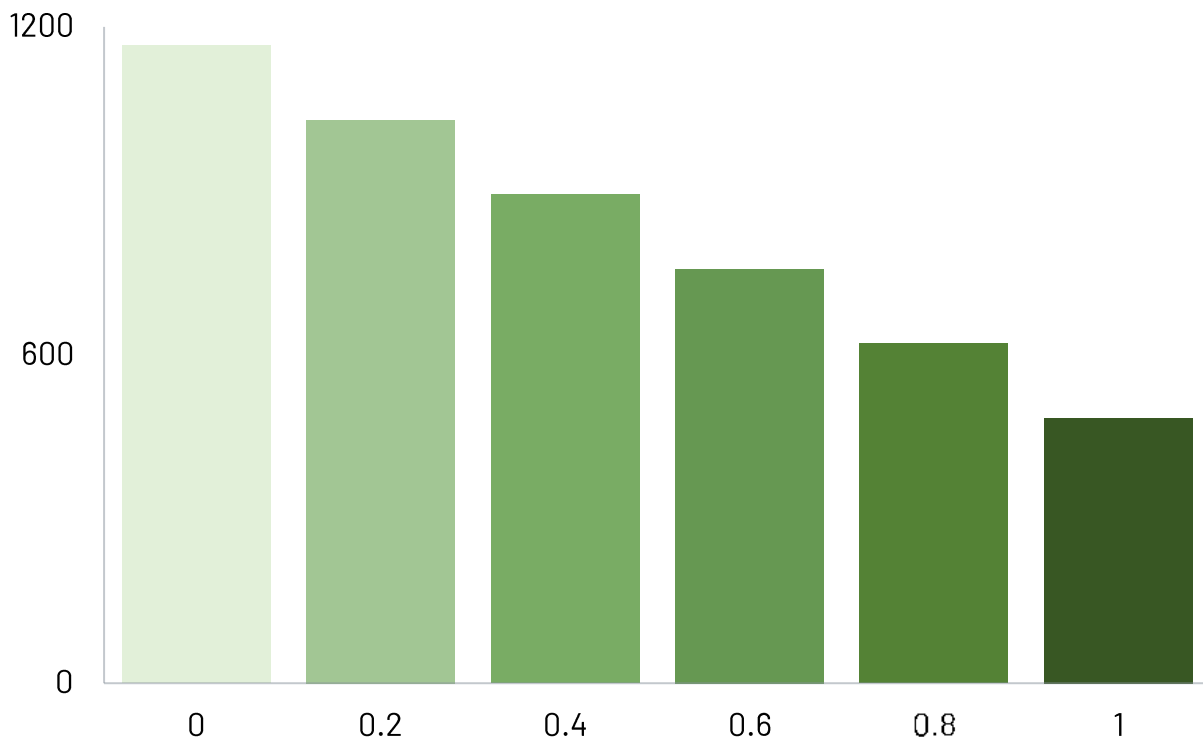


Source: Authors' analysis of Hamilton County Assessors' Tax Records 2003, 2005-2006, and 2009-2024.

Figure C2

### Mean Increase in Residential Property Tax Bills by White Population

Cincinnati, Ohio, 2023-2024



Source: Authors' analysis of Hamilton County Assessors' Tax Records 2023-2024 and 2018-2022 American Community Survey 5-year estimates.

The average White Cincinnati experienced an increase of \$700 (or 36 percent) in their tax bill while Black Cincinnati saw a \$1,000 (or 61 percent) increase, Latinx Cincinnati saw a \$820 (or 56 percent) increase, and all other Cincinnati of color experienced a \$730 (or 43 percent) increase.

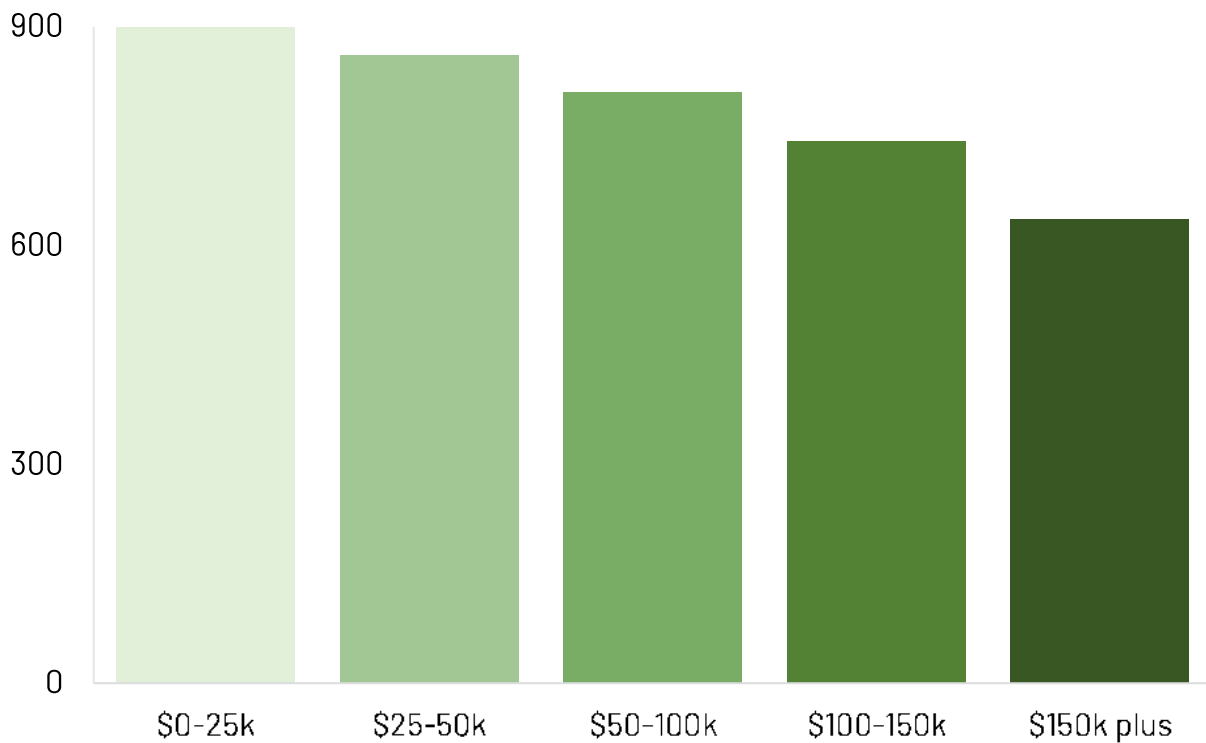
Cincinnati's poorest neighborhoods saw an average \$950 (or 74 percent) increase in their property tax bills while the county's wealthiest neighborhoods saw an increase of \$470.<sup>76</sup> The inequality between the poorest and richest neighborhoods is larger within the city than the county.

Cincinnati's households with the fewest resources saw the largest increases in their property tax bills. Cincinnati's households with the fewest resources saw the largest increases in their property tax bills. Cincinnati's households with the fewest resources saw the largest increases in their property tax bills.

Figure C3

### Mean Increase in Residential Property Tax Bills by Household Income

Cincinnati, Ohio, 2023-2024



Source: Authors' analysis of Hamilton County Assessors' Tax Records 2023-2024 and 2018-2022 American Community Survey 5-year estimates.

#### Question 2: Were the uneven increases in property taxes due to housing market trends?

In Cincinnati, sales increased \$64,000 (or 55 percent) since the last assessment readjustment. Like the county, this average is similar to the changes in the assessed values (\$56,000 or 57 percent). However, this does not mean the housing market explains the observed racial and economic inequality in property taxes. To estimate the inequality, I used regression models holding constant the neighborhoods' change in sale prices and property features.

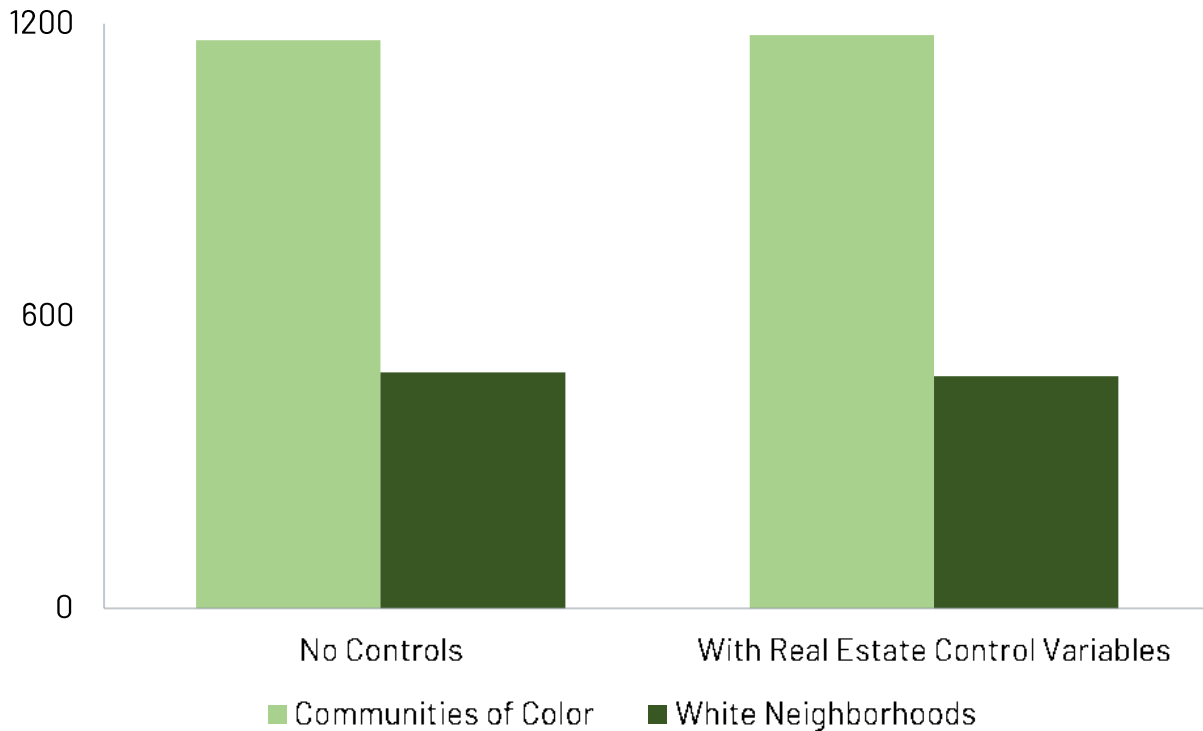
Holding constant changes in the neighborhoods' sale prices and home features,<sup>77</sup> Cincinnati's White neighborhoods' property bills increased \$480 (or 27 percent) while property taxes in communities of color increased by \$1,200 (or 74 percent). Like observed in the county, the housing market trends within the city can not explain the inequality in the property tax bill increases.

Likewise, holding housing sale prices and features constant, the poorest neighborhoods still saw their tax bills increase over three times as much as the wealthiest neighborhoods (\$970 compared to \$300 or 63 percent compared to 6 percent).

Figure C4

### Mean Increase in Residential Property Tax Bills in White Neighborhoods and Communities of Color

Cincinnati, Ohio, 2023-2024



Source: Authors' analysis of Hamilton County Assessors' Tax Records 2023-2024 and 2018-2022 American Community Survey 5-year estimates.

#### Question 3: Are residents taxed equitably relative to their means?

For this report, I measured tax equity by examining the proportion of household's income and housing wealth spent on property taxes.

#### Proportion of Household Income Spent on Property Taxes

For twenty years, the average Cincinnati's property tax bill was equivalent to 10 percent of their household income. In 2024, this

increased to 13 percent. For context, the Cincinnati earnings tax rate is only 1.8 percent. Thus, this change in property tax is equivalent to doubling the earning tax for the average city resident—a substantively significant change for most household's budgets. Yet, some residents experienced an even larger change.

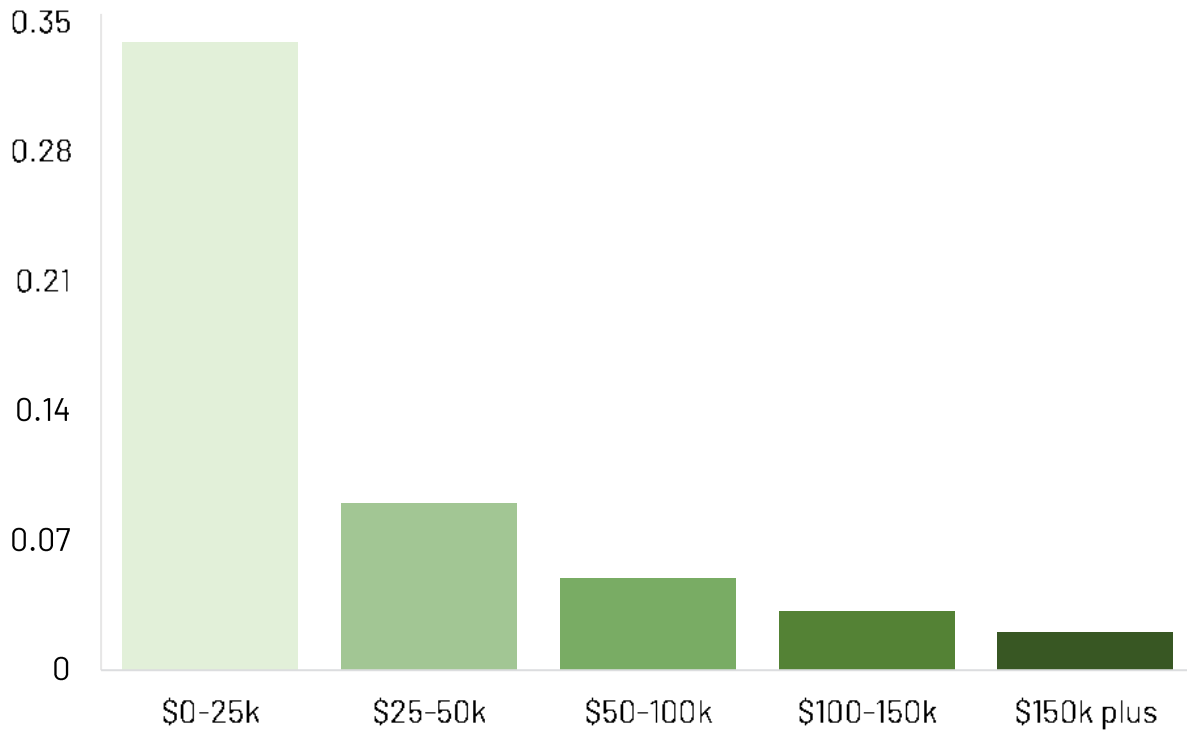
Cincinnati's White neighborhoods' property tax bills were only five percent of their household income while the city's communities of color spent 17 percent of their income on annual property tax. The 2024 changes increased the percent of household income spent on property



Figure C5

### Proportion of Household Income Spent on Property Tax Bills by Income

Cincinnati, Ohio, 2024



Source: Authors' analysis of Hamilton County Assessors' Tax Records 2023-2024 and 2018-2022 American Community Survey 5-year estimates.

taxes in White neighborhoods by one percent while increasing the percent of household income spent on property taxes in communities of color by four percent.

Likewise, Cincinnati's wealthiest neighborhoods pay less than a percent of their income on property taxes while the poorest neighborhoods spend 18 percent of their income on property taxes. Households making less than \$25,000 a year are paying 34 percent of their household income on property taxes. On the other end of the spectrum, households making more than \$150,000 a year are paying only two percent of their income on property taxes.

In Cincinnati from 2004 to 2024, the percent of

household income spent on property tax bills increased 16 percent for families making less than \$25,000 per year. Households making over \$150,000 only saw the percent of their income spent on property tax bills increase one percent in this same time period.

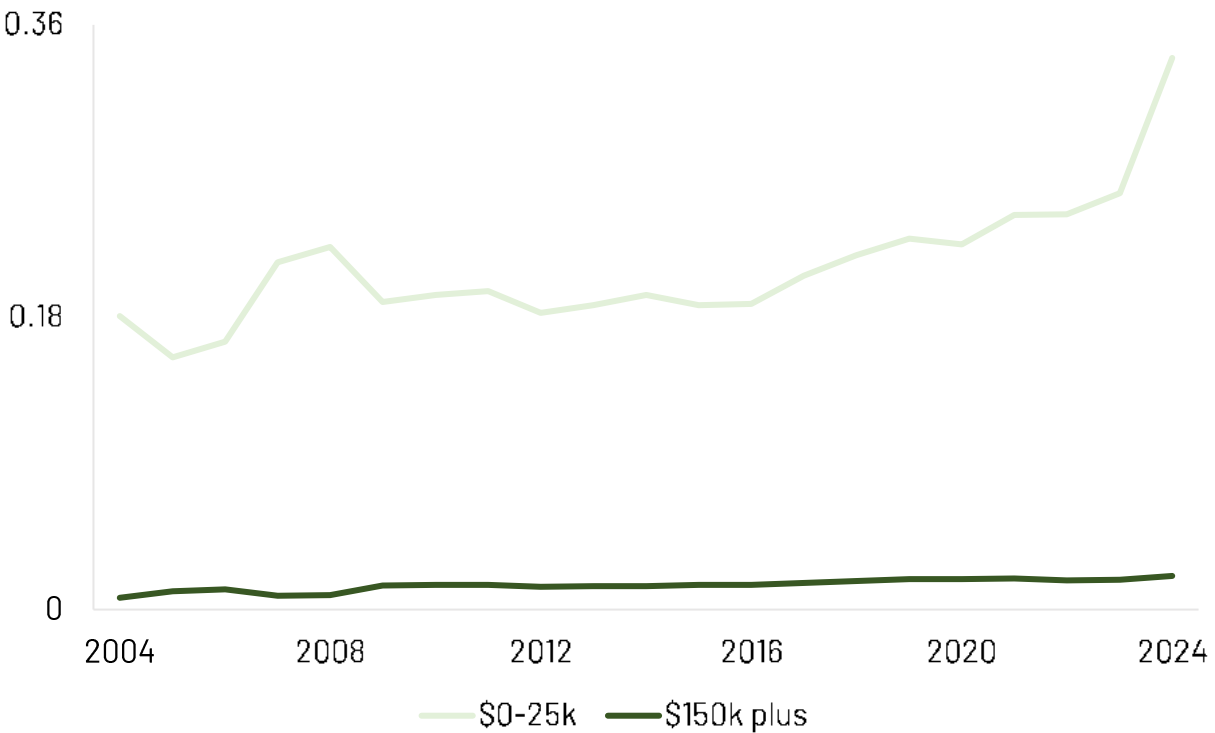
### Proportion of Housing Wealth Spent on Property Taxes

Much like the county as a whole, Cincinnati saw notable increases in the profits residents made from selling their homes, \$16,000 per year of ownership. However, residents in communities of color still paid a larger proportion of their profits (75 percent) on property taxes than residents in White neighborhoods (67 percent).

Figure C6

### Proportion of Household Income Spent on Property Tax Bills by Income

Cincinnati, Ohio, 2004-2024



Source: Authors' analysis of Hamilton County Assessors' Tax Records 2003, 2005-2006, and 2009-2024, the 2000 Decennial Census, and the American Community Survey 5-year estimates from 2006-2010, 2007-2011, 2008-2012, 2009-2013, 2010-2014, 2011-2015, 2012-2016, 2013-2017, 2014-2018, 2015-2019, 2016-2020, 2017-2021, and 2018-2022.

Cincinnati's residents in the wealthiest neighborhoods paid 23 percent less of their gained housing wealth in annual property taxes than residents in the city's poorest neighborhoods (78 percent compared to 55 percent).

#### Property Taxes Per Parcel Acreage

Cincinnati's residents in White neighborhoods paid \$6,000 less in property tax than residents in communities of color with equivalent land. However, within the city, the wealthiest neighborhoods paid \$300 more than those

in the poorest neighborhoods for equivalent parcels.

Similar to the findings at the county level, Cincinnati's communities of color and lower-income residents are paying a disproportionate amount of the city's annual property taxes. Additionally, this inequality is growing over time, suggesting new policies and practices need to be introduced to ensure a more equitable taxing approach.

## APPENDIX D. SUPPLEMENTAL FIGURES AND MAPS

Table D1

### Median Change in Residential Property Taxes by Assessment Area

Hamilton County, Ohio, 2023-2024

Assessment Area	Change	Assessment Area	Change
1. Evanston	0.76	51. Forest Park	0.10
2. East Westwood	0.61	52. Greenhills	0.10
3. Bond Hill	0.61	53. Clifton	0.10
4. Roselawn	0.53	54. Sharonville	0.09
5. Westwood	0.50	55. Amberley	0.08
6. East Price Hill	0.48	56. Linwood	0.07
7. Madisonville	0.45	57. Reading	0.07
8. Mt Airy	0.44	58. Madeira	0.07
9. College Hill	0.44	59. Walnut Hills	0.07
10. West Price Hill	0.44	60. Springfield	0.07
11. Carthage	0.35	61. East End	0.06
12. Northside	0.34	62. Hyde Park	0.06
13. Hartwell	0.34	63. Wyoming	0.06
14. Kennedy Heights	0.33	64. Sycamore	0.06
15. North Avondale	0.33	65. Over the Rhine	0.06
16. Elmwood Place	0.30	66. East Walnut Hills	0.06
17. Mt Auburn	0.29	67. South Fairmount	0.06
18. CUF	0.28	68. Cleves	0.06
19. Delhi	0.26	69. Indian Hill	0.06
20. Golf Manor	0.26	70. Crosby	0.05
21. Cheviot	0.25	71. Mt Adams	0.04
22. Spring Grove Village	0.25	72. Winton Hills	0.03
23. St Bernard	0.25	73. Whitewater	0.03
24. Paddock Hills	0.24	74. English woods	0.03
25. Avondale	0.24	75. Terrace Park	0.02
26. Norwood	0.21	76. Blue Ash	0.02
27. Loveland	0.21	77. Montgomery	0.01
28. Corryville	0.21	78. Deer Park	0.01
29. Anderson	0.18	79. Jakley	0.00
30. Silverton	0.17	80. South Cumminsville	0.00
31. Mt Washington	0.16	81. Lockland	0.00
32. Saylor Park	0.16	82. Miami	-0.01
33. West End	0.15	83. Millvale	-0.01
34. Pendleton	0.15	84. Lower Price Hill	-0.01
35. Harrison Village	0.15	85. Evendale	-0.01
36. Green	0.15	86. Glendale	-0.02
37. Mt Healthy	0.14	87. Arlington Heights	-0.03
38. Newtown	0.13	88. Queensgate	-0.03
39. Springdale	0.13	89. Mt Lookout	-0.03
40. Lincoln Heights	0.13	90. Riverside	-0.03
41. Fairfax	0.13	91. Addyston	-0.04
42. Colerain	0.12	92. Fairfield	-0.05
43. Harrison Township	0.12	93. North Fairmont	-0.05
44. Pleasant Ridge	0.12	94. Mariemont	-0.06
45. Columbia Tusculum	0.11	95. Fay Apartments	-0.06
46. Woodlawn	0.11	96. Sedamsville	-0.07
47. Columbia	0.11	97. Central Business District	-0.07
48. Symmes	0.11	98. California	-0.07
49. North College Hill	0.11	99. North Bend	-0.08
50. Camp Washington	0.10	100. Milford	-0.11

Source: Authors' analysis of Hamilton County Assessors' Tax Records 2023-2024.

Table D2

## Mean Changes in Residential Property Taxes by Assessment Area

Hamilton County, Ohio, 2023-2024

Assessment Area	All	Quartile 1	Quartile 2	Quartile 3	Quartile 4
1. Addyston	0.30	-0.40	-0.12	0.19	1.53
2. Amberley	0.09	-0.09	0.03	0.14	0.29
3. Anderson	0.17	-0.06	0.12	0.24	0.40
4. Arlington Heights	0.13	-0.19	-0.06	0.01	0.76
5. Avondale	0.40	-0.20	0.07	0.38	1.33
6. Blue Ash	0.07	-0.17	-0.03	0.09	0.40
7. Bond Hill	0.74	0.06	0.48	0.78	1.62
8. California	-0.01	-0.41	-0.09	-0.02	0.47
9. Camp Washington	0.53	-0.14	0.01	0.33	1.92
10. Carthage	0.41	-0.05	0.23	0.45	1.03
11. Central Business District	-0.02	-0.19	-0.11	-0.02	0.23
12. Cheviot	0.31	-0.03	0.18	0.31	0.79
13. Cleves	0.09	-0.28	-0.01	0.11	0.55
14. Clifton	0.14	-0.06	0.05	0.13	0.43
15. Colerain	0.19	-0.12	0.06	0.20	0.63
16. College Hill	0.49	-0.01	0.37	0.54	1.04
17. Columbia	0.15	-0.17	0.02	0.20	0.54
18. Columbia Tusculum	0.32	-0.12	0.04	0.24	1.14
19. Corryville	0.36	-0.10	0.06	0.37	1.08
20. Crosby	0.10	-0.15	0.00	0.10	0.43
21. CUF	0.40	-0.10	0.19	0.34	1.18
22. Deer Park	0.03	-0.12	-0.02	0.04	0.22
23. Delhi	0.27	-0.02	0.19	0.32	0.60
24. East End	0.11	-0.28	-0.01	0.22	0.50
25. East Price Hill	0.72	-0.16	0.22	0.78	2.01
26. East Walnut Hills	0.16	-0.14	0.01	0.16	0.61
27. East Westwood	1.30	-0.15	0.29	1.03	4.05
28. Elmwood Place	0.50	-0.17	0.16	0.38	1.65
29. English Woods	0.11	-0.42	-0.02	0.04	0.86
30. Evanston	0.91	-0.03	0.45	0.97	2.23
31. Evendale	-0.01	-0.15	-0.04	0.01	0.13
32. Fairfax	0.15	-0.13	0.07	0.17	0.46
33. Fairfield	-0.08	-0.26	-0.12	-0.05	0.00
34. Fay Apartments	-0.11	-0.34	-0.08	-0.05	0.02
35. Forest Park	0.14	-0.10	0.05	0.16	0.45
36. Glendale	0.01	-0.20	-0.06	0.02	0.27
37. Golf Manor	0.29	-0.12	0.16	0.35	0.77
38. Green	0.17	-0.09	0.09	0.21	0.46
39. Greenhills	0.13	-0.11	0.06	0.14	0.41
40. Harrison Township	0.12	-0.16	0.06	0.16	0.44
41. Harrison Village	0.19	-0.08	0.09	0.20	0.57
42. Hartwell	0.41	-0.07	0.21	0.47	1.04
43. Hyde Park	0.09	-0.09	0.02	0.10	0.32
44. Indian Hill	0.09	-0.07	0.03	0.11	0.31
45. Kennedy Heights	0.40	0.04	0.27	0.40	0.90
46. Lincoln Heights	0.59	-0.43	-0.02	0.39	2.43
47. Linwood	0.32	-0.16	0.01	0.18	1.26
48. Lockland	0.12	-0.20	-0.04	0.06	0.67
49. Loveland	0.20	0.00	0.15	0.24	0.40
50. Lower Price Hill	0.30	-0.37	-0.11	0.08	1.60

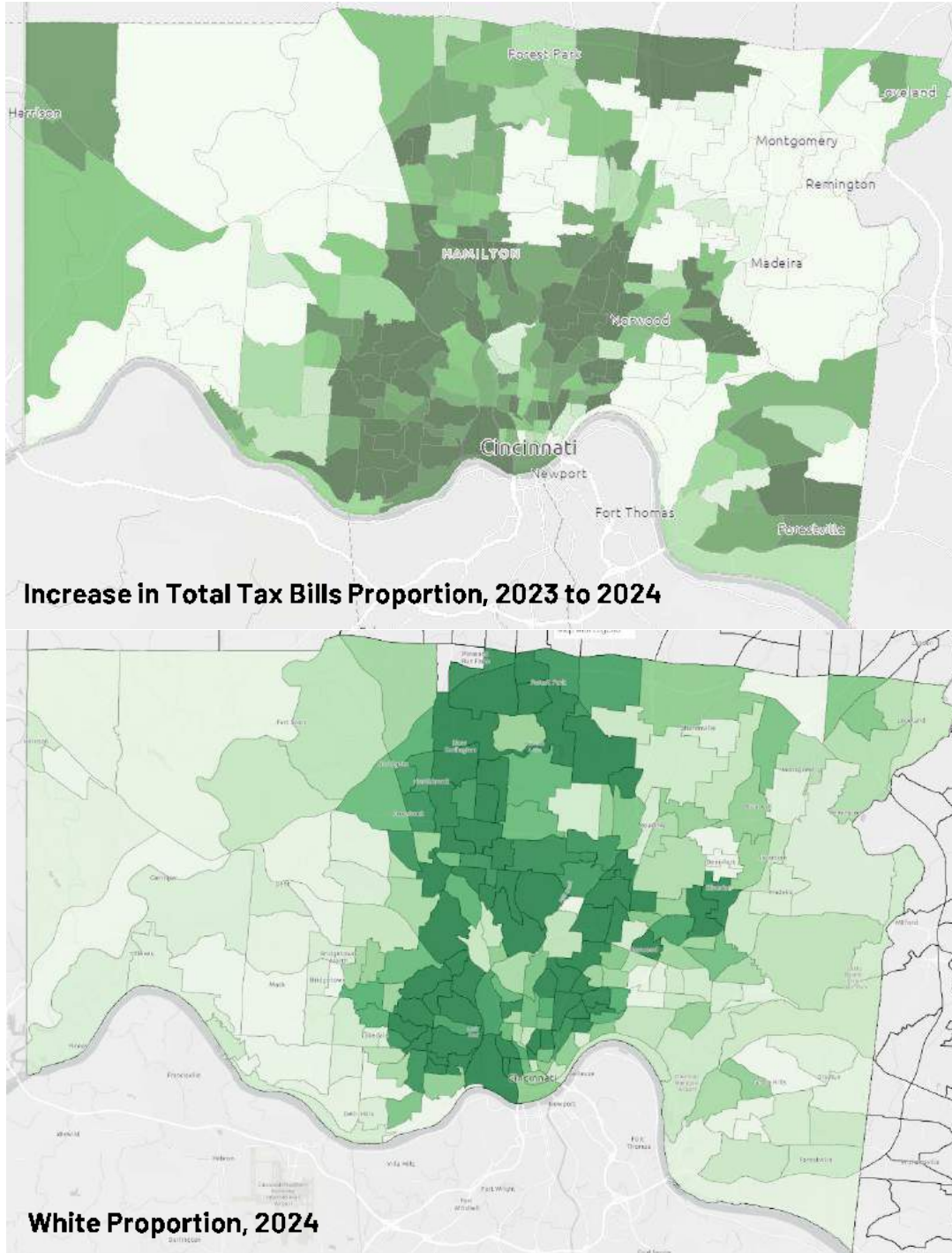
Assessment Area	All	Quartile 1	Quartile 2	Quartile 3	Quartile 4
51. Madeira	0.07	-0.11	0.03	0.12	0.26
52. Madisonville	0.49	0.01	0.34	0.52	1.11
53. Mariemont	-0.03	-0.18	-0.10	-0.02	0.16
54. Miami	0.02	-0.21	-0.06	0.07	0.27
55. Milford	-0.06	-0.26	-0.18	-0.01	0.24
56. Millvale	0.09	-0.42	-0.10	0.11	0.76
57. Montgomery	0.03	-0.13	-0.02	0.06	0.24
58. Mt Adams	0.14	-0.12	0.00	0.09	0.60
59. Mt Airy	0.48	0.05	0.33	0.54	1.01
60. Mt Auburn	0.57	-0.15	0.12	0.55	1.74
61. Mt Healthy	0.23	-0.15	0.07	0.25	0.75
62. Mt Lookout	0.01	-0.14	-0.06	0.01	0.22
63. Mt Washington	0.18	-0.03	0.11	0.21	0.44
64. Newtown	0.16	-0.05	0.08	0.18	0.42
65. North Avondale	0.43	0.00	0.22	0.42	1.06
66. North Bend	0.00	-0.25	-0.12	-0.03	0.40
67. North College Hill	0.14	-0.25	0.02	0.20	0.61
68. North Fairmont	0.14	-0.47	-0.10	0.07	1.05
69. Northside	0.44	-0.10	0.19	0.48	1.17
70. Norwood	0.26	-0.07	0.14	0.27	0.69
71. Oakley	0.05	-0.12	-0.04	0.05	0.32
72. Over the Rhine	0.33	-0.21	-0.01	0.18	1.34
73. Paddock Hills	0.29	-0.03	0.19	0.30	0.72
74. Pendleton	0.37	-0.12	0.05	0.26	1.28
75. Pleasant Ridge	0.15	-0.06	0.07	0.14	0.45
76. Queensgate	0.20	-0.20	-0.06	0.00	1.09
77. Reading	0.11	-0.15	0.02	0.13	0.45
78. Riverside	0.02	-0.35	-0.07	0.01	0.50
79. Roselawn	0.59	0.04	0.44	0.65	1.21
80. Saylor Park	0.22	-0.09	0.11	0.24	0.63
81. Sedamsville	0.07	-0.44	-0.11	0.00	0.83
82. Sharonville	0.09	-0.11	0.03	0.14	0.31
83. Silverton	0.20	-0.08	0.10	0.24	0.53
84. South Cumminsville	0.18	-0.36	-0.09	0.17	1.03
85. South Fairmount	0.27	-0.40	-0.03	0.19	1.32
86. Spring Grove Village	0.36	-0.08	0.14	0.39	0.99
87. Springdale	0.13	-0.12	0.08	0.18	0.36
88. Springfield	0.12	-0.18	0.00	0.14	0.51
89. St Bernard	0.30	-0.09	0.16	0.32	0.82
90. Sycamore	0.07	-0.15	0.02	0.11	0.31
91. Symmes	0.10	-0.11	0.05	0.15	0.29
92. Terrace Park	0.02	-0.12	0.00	0.04	0.15
93. Walnut Hills	0.38	-0.14	0.00	0.26	1.39
94. West End	0.85	-0.12	0.05	0.41	3.07
95. West Price Hill	0.60	-0.04	0.33	0.65	1.47
96. Westwood	0.57	-0.03	0.37	0.63	1.32
97. Whitewater	0.13	-0.18	-0.02	0.08	0.65
98. Winton Hills	0.17	-0.14	-0.04	0.15	0.70
99. Woodlawn	0.15	-0.15	0.02	0.18	0.54
100. Wyoming	0.06	-0.13	0.02	0.10	0.25

Source: Authors' analysis of Hamilton County Assessors' Tax Records 2023-2024.

Figure D1

### Census Tract Change in Total Tax Owed and White Proportion

Hamilton County, Ohio, 2024

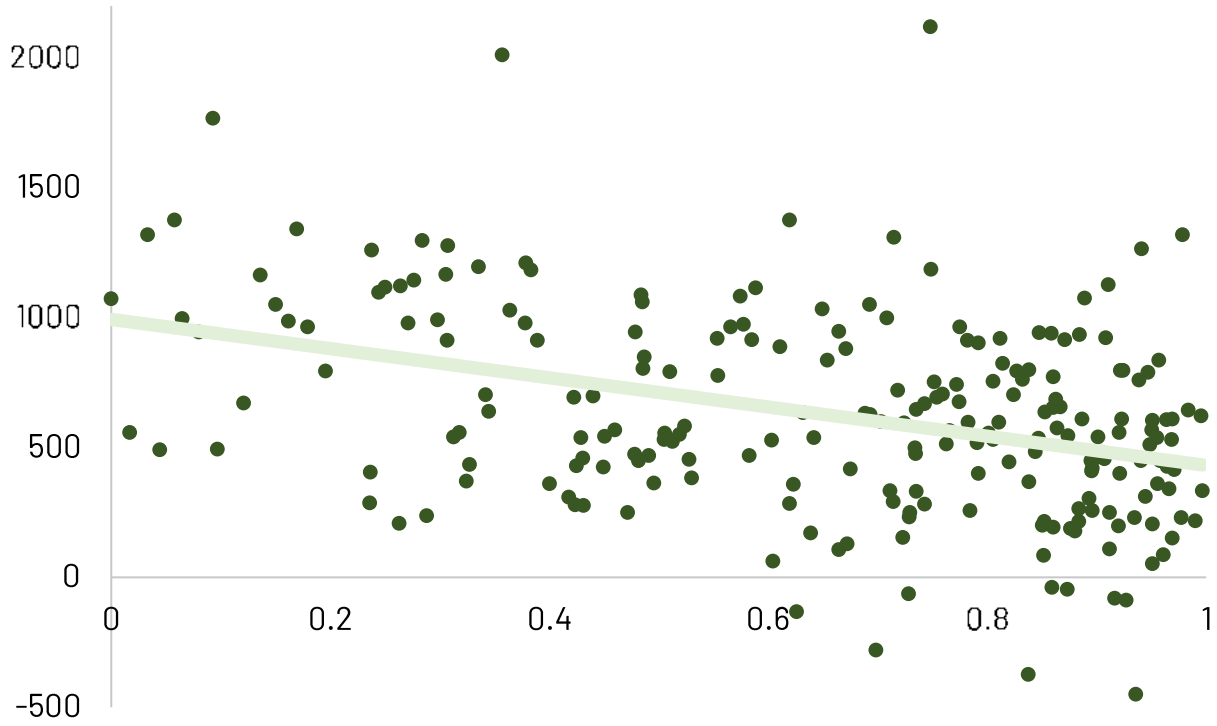


Source: Authors' analysis of Hamilton County Assessors' Tax Records 2023-2024 and American Community Survey 5-year estimates 2018-2022.

Figure D2

### Mean Increase in Residential Property Tax Bills by White Population

Hamilton County, Ohio, 2023-2024



Source: Authors' analysis of Hamilton County Assessors' Tax Records 2023-2024 and 2018-2022 American Community Survey 5-year estimates.

## APPENDIX E. REGRESSION RESULTS

Table E1

### Coefficients from Linear Regressions Predicting Increases in Residential Property Tax Bills by White Proportion

Hamilton County, Ohio, 2023-2024

	Real Dollars		Proportional Change	
	Model 1	Model 2	Model 1	Model 2
White Proportion	-\$562	-\$566	-0.75	-0.39
Changes in Property Sale Prices		\$0		0.52
Changes in Property Features				
Finished Square footage		\$3		4.01
Number of Rooms		-\$410		-2.22
Number of Bedrooms		\$546		0.12
Year Built		\$2		-41.12
<b>Constant</b>	\$993	\$971	0.83	0.34
<b>R<sup>2</sup></b>	0.1466	0.1629	0.3077	0.5640

Source: Authors' analysis of Hamilton County Assessors' Tax Records 2023-2024 and 2018-2022 American Community Survey 5-year estimates.



Table E2

### Coefficients from Linear Regressions Predicting Increases in Residential Property Tax Bills by White Proportion

Cincinnati, Ohio, 2023-2024

	Real Dollars		Proportional Change	
	Model 1	Model 2	Model 1	Model 2
White Proportion	-\$681	-\$700	-0.77	-0.47
Changes in Property Sale Prices		\$0		0.42
Changes in Property Features				
Finished Square footage		\$2		4.23
Number of Rooms		-\$877		-4.16
Number of Bedrooms		\$1,714		2.81
Year Built		\$9		-19.75
<b>Constant</b>	\$1,166	\$1,194	0.90	0.50
<b>R<sup>2</sup></b>	0.2066	0.2310	0.2966	0.5237

Source: Authors' analysis of Hamilton County Assessors' Tax Records 2023-2024 and 2018-2022 American Community Survey 5-year estimates.

Table E3

### Coefficients from Linear Regressions Predicting Increases in Residential Property Tax Bills by Neighborhood Household Income

Hamilton County, Ohio, 2023-2024

	Real Dollars		Proportional Change	
	Model 1	Model 2	Model 1	Model 2
Average Income (in 100,000s)	-\$115	-\$134	-0.24	-0.10
Changes in Property Sale Prices		\$0		0.58
Changes in Property Features				
Finished Square footage		-\$2		4.78
Number of Rooms		\$460		0.33
Number of Bedrooms		\$358		-1.29
Year Built		-\$3		-52.57
<b>Constant</b>	\$751	\$701	0.61	0.16
<b>R<sup>2</sup></b>	0.0349	0.0572	0.1873	0.5219

Source: Authors' analysis of Hamilton County Assessors' Tax Records 2023-2024 and 2018-2022 American Community Survey 5-year estimates.

Table E4

### Coefficients from Linear Regressions Predicting Increases in Residential Property Tax Bills by Neighborhood Household Income

Cincinnati, Ohio, 2023-2024

	Real Dollars		Proportional Change	
	Model 1	Model 2	Model 1	Model 2
Average Income (in 100,000s)	-\$220	-\$240	-0.36	-0.21
Changes in Property Sale Prices		\$0		0.45
Changes in Property Features				
Finished Square footage		-\$3		3.96
Number of Rooms		\$1,027		3.63
Number of Bedrooms		\$1,567		-1.38
Year Built		-\$11		-43.34
<b>Constant</b>	\$994	\$993	0.82	0.42
<b>R<sup>2</sup></b>	0.0713	0.1002	0.2216	0.4959

Source: Authors' analysis of Hamilton County Assessors' Tax Records 2023-2024 and 2018-2022 American Community Survey 5-year estimates.

Table E5

### Coefficients from Linear Regressions Predicting Proportion of Household Income, Housing Wealth, and Land Access Spent on Property Tax Bills

Hamilton County, Ohio, 2024

		Income	Wealth	Land
<b>White Proportion</b>	Coefficient	-0.13	-0.00	-4211
	Constant	0.16	0.75	3806
	R <sup>2</sup>	0.1434	0.000	0.0100
<b>Average Income (in 100,000s)</b>	Coefficient	-0.06	-0.02	-229
	Constant	0.14	-0.77	1298
	R <sup>2</sup>	0.1634	0.0026	0.0002

Source: Authors' analysis of Hamilton County Assessors' Tax Records 2023-2024 and 2018-2022 American Community Survey 5-year estimates.

Table E6

### Coefficients from Linear Regressions Predicting Proportion of Household Income, Housing Wealth, and Land Access Spent on Property Tax Bills

Cincinnati, Ohio, 2024

		Income	Wealth	Land
<b>White Proportion</b>	Coefficient	-0.12	-0.08	-5994
	Constant	0.17	0.75	5142
	R <sup>2</sup>	0.0860	0.0092	0.0104
<b>Average Income (in 100,000s)</b>	Coefficient	-0.10	-0.11	120
	Constant	0.20	0.80	1778
	R <sup>2</sup>	0.2189	0.0546	0.000

Source: Authors' analysis of Hamilton County Assessors' Tax Records 2023-2024 and 2018-2022 American Community Survey 5-year estimates.

## ENDNOTES

### 1. Recent coverage includes:

Barrier, Katherine. 2024. "[Cincinnati City Council Member Mark Jeffreys Launches Task Force to Address Recent Property Tax Increases.](#)" *CityBeat*.

Jacobs, Chris. 2024. "[Homeowners Experiencing Sticker Shock with Large Increases In Property Tax Bills.](#)" *WLWT5*.

Lyons, Valerie. 2024. "[It's Terrifying': Hamilton County Property Owners Plead with Commissioners Amid Historic Tax Increase.](#)" *ABC9*.

Marshall, Payton. 2024. "[Realtor Weighs in on Property Tax Bill Increase in Ohio.](#)" *Fox19*.

Pilcher, James. 2024. "[Hamilton County Homeowners Looking to Fight Back Against Surging Property Tax Bills.](#)" *Local12*.

Rowan, Andrew. 2024. "[R.I.P. Ohio Homeowners': Homemade Tombstones Used to Protest Property Tax Increases in Hamilton County.](#)" *WCPO9*.

2. Ohio Governmental Records. [Taxation in Ohio: History of Major Changes](#).

3. Carlson, Richard Henry. 2005. "[A Brief History of Property Tax.](#)" *Fair & Equitable*.

Wallis, John Joseph. 2001. "A History of the Property Tax in America." Pp. 123-147 in *Property Taxation and Local Government Finance*, edited by Wallace E.

Oates. Cambridge: Lincoln Institute of Land Policy.

4. Ohio Governmental Records. [Taxation in Ohio: History of Major Changes](#).

Wallis, John Joseph. 2001. "A History of the Property Tax in America." Pp. 123-147 in *Property Taxation and Local Government Finance*, edited by Wallace E. Oates. Cambridge: Lincoln Institute of Land Policy.

5. This is distinct from other common forms of taxation (e.g., income and sales tax) which are based on known transactions. For example, income tax is derived based on documented annual earnings and sales tax is calculated based on an item's purchase price.

6. The Ohio Revised Code Section 5715.33, Sexennial Reappraisal, requires all counties to conduct a complete reassessment every six years and an adjustment every three years.

7. As of 2024, to qualify for the exemption, households needed to have an annual income (including Supplemental Security Income (SSI) and Social Security Disability Insurance (SSDI)) less than \$38,600, live in an owner-occupied dwelling, and be at least 65 years old or certified as "totally disabled." No other exemption programs currently exist in Hamilton County.

8. See [Ohio Administrative Code 5703-25: Equalization - Appraisals](#) for more information.

**9.** For example, if the auditor determines a property's approximate market value is \$100,000 and qualifies for the homestead exemption, they would subtract \$26,200 from the approximate market value and multiply the difference by 35 percent  $((100,000-26,200)*0.35)$ , resulting in a property's taxable value of \$25,830. The total discount on eligible residents' tax bills depends on their tax jurisdiction's effective tax rate. In the city of Cincinnati, the 2024 homestead exemption provides residents with a discount of \$635.50.

**10.** Some taxing jurisdictions are embedded within one another. For example, all municipal corporations might be entirely within county boundaries. However, they can also overlap in a multitude of ways. For example, a school district can stretch across three municipal corporations and one township.

**11.** Ohio's reduction factor is regulated by Section 319.301: Determining and certifying tax reduction percentage for carryover property. The reduction factor is reported in mills (or dollars per \$1,000 in taxable property value) and inverse is multiplied by the total tax rate (e.g., total tax rate  $*(1-\text{reduction factor})$ ). This law also makes an exception to reduction factors for school districts. To ensure school funds are adjusted for inflation, the reduction factor cannot reduce the school district tax below two percent (or 20 mills) of the taxable value and cannot reduce joint vocational schools rate

below 0.2 percent (or two mills). For more information, see: [Section 319.301](#).

To further understand how this works, consider an example of three properties whose taxable values were \$50,000, \$100,000, and \$150,000 when a park levy of 0.5% was passed. These properties would pay \$250, \$500, and \$750 retrospectively in park levies. During the next reassessment, the auditor recalculates these same three properties taxable values at \$80,000, \$120,000, and \$175,000. The auditor is still only allowed to collect \$1,500 in park levies from these three houses. Therefore, they have to recalculate the taxable rate by dividing the total amount they are to collect in taxes (\$1,500) by the total amount of taxable property values (\$375,000). For this example, the new effective tax rate would be 0.04% (or a reduction factor of 0.2). Consequently, although all three houses' taxable values went up, the tax bill would only increase for the first house—rising to \$320 while decreasing for the second two houses—\$480 and \$700 respectively. This is because the increase in their taxable property value did not increase as much relative to the first house.

**12.** As defined by Ohio Revised Code [Section 319.302: Reduction of remaining taxes](#).

**13.** As defined by Ohio Revised Code [Section 323.152: Reductions in taxable value](#).

**14.** Atuahene, Bernadette. 2018. "[Our Taxes Are Too Damn High: Institutional Racism, Property Tax Assessment, and the Fair Housing Act.](#)" *Northwestern University Law Review*. 112(6):1501.

Avenancio-León, Carlos F. and Troup Howard. 2022. "[The Assessment Gap: Racial Inequalities in Property Taxation.](#)" *The Quarterly Journal of Economics*. 137(3):1383–1434.

Berry, Christopher R. 2001. "[Reassessing the Property Tax.](#)" *University of Chicago's Harris School of Public Policy*.

Ihlanfeldt, Keith and Luke P. Rodgers. 2021. "[Explaining Racial Gaps in Property Assessment and Property Taxation.](#)" *Florida State University*.

McMillen, Daniel and Ruchi Singh. 2020. "[Assessment Regressivity and Property Taxation.](#)" *The Journal of Real Estate Finance and Economics*. 60(1): 155–169.

**15.** Avenancio-León, Carlos F. and Troup Howard. 2022. "[The Assessment Gap: Racial Inequalities in Property Taxation.](#)" *The Quarterly Journal of Economics*. 137(3):1383–1434.

Berry, Christopher R. 2001. "[Reassessing the Property Tax.](#)" *University of Chicago's Harris School of Public Policy*.

**16.** In some cases, unequal application of assessment levels also creates inequality across communities. However, in most states (including Ohio), this is illegal and exceptionally rare.

**17.** Tyler Technologies is the largest company providing this service to counties.

**18.** Outrich, Michael, Glennon Sweeney, Mikyung Baek, Kip Holley, and Claire Mei. 2021. [Franklin County Auditor Report: Investigating the Appraisal Process.](#) Columbus: The Kirwan Institute for the Study of Race and Ethnicity at The Ohio State University.

**19.** According to IRS publication 527, landlords are able to deduct annual property tax as an expense. This means they can legally pass on the cost of annual property tax to their renters without paying taxes on it. Thus, exemption programs targeting homeowners place a disproportionate tax burden on lower-income residents and communities of color who are more likely to be renters.

**20.** An extreme example of a policy that excludes new migrants and exacerbates inequality is California's Proposition 13. Although often discussed as primarily benefiting aging seniors, its implementation has created massive inequities in taxable values between longtime and more recent California residents—which exacerbated racial and economic inequality in the state.

**21.** Exemption programs from affordable housing programs are one such exception.

**22.** Kahrl, Andrew W. 2024. *The Black Tax: 150 Years of Theft, Exploitation, and*

*Dispossession in America*. Chicago, Illinois: University of Chicago Press.

**23.** Like assessment levels, reduction factors are equally applied to all parcels within a jurisdiction. Therefore, they do not impact the inequality in effective tax rates. However, given taxable values are becoming more unequal over time, the practice of using reduction factors does exacerbate the proportion of the total tax that marginalized communities pay.

**24.** Howell, Junia and Elizabeth Korver-Glenn. 2018. "[Neighborhoods, Race, and the 21st-Century Appraisal Industry.](#)" *Sociology of Race and Ethnicity* 4(4): 473-490.

Howell, Junia and Elizabeth Korver-Glenn. 2021. "[The Increasing Effect of Neighborhood Racial Composition on Housing Values, 1980-2015.](#)" *Social Problems*. 68(4): 1051-1071.

Howell, Junia and Elizabeth Korver-Glenn. 2022. [Appraised: The Persistent Evaluation of White Neighborhoods as More Valuable than Communities of Color.](#) eruka.

**25.** Faber, Jacob W. 2020. "[We Built This: Consequences of New Deal Era Intervention in America's Racial Geography.](#)" *American Sociological Review*. 85(5): 739-775.

**26.** Kahrl, Andrew W. 2024. *The Black Tax: 150 Years of Theft, Exploitation, and Dispossession in America*. Chicago, Illinois: University of Chicago Press.

**27.** Lareau, Annette and Kimberly Goyette. 2014. *Choosing Homes, Choosing Schools*. New York City, New York: The Russell Sage Foundation.

**28.** Black, Derek W. 2023. "[Localism, Pretext, and the Color of School Dollars.](#)" *Minnesota Law Review*.

Walsh, Camille. 2018. *Racial Taxation: Schools, Segregation, and Taxpayer Citizenship, 1869-1973*. Durham, North Carolina: University of North Carolina Press.

**29.** As with exemption programs, credits can be designed and implemented in a manner that reduces or does not affect inequality.

**30.** Gotham Kevin Fox. 2014. *Race, Real Estate, and Uneven Development: The Kansas City Experience, 1900-2000*. Albany: State University of New York Press.

Howell, Junia and Elizabeth Korver-Glenn. 2021. "[The Increasing Effect of Neighborhood Racial Composition on Housing Values, 1980-2015.](#)" *Social Problems*. 68(4): 1051-1071.

Stuart Guy. 2003. *Discriminating Risk: The US Mortgage Lending Industry in the Twentieth Century*. Ithaca, NY: Cornell University Press.

**31.** Howell, Junia and Elizabeth Korver-Glenn. 2018. "[Neighborhoods, Race, and the 21st-Century Appraisal Industry.](#)"



*Sociology of Race and Ethnicity* 4(4): 473–490.

**32.** Specifically, I use the following files: `bldginfo`, `HistoricSalesExport`, `transfer_files` (1998 to 2023), and all `TaxYearPayExport` files payable in the years 2003 to 2024 (except for years 2004, 2007, and 2008 which are not available on the auditor’s website). These are all available for download on the Hamilton County’s auditor’s website. I focus on residential property although supplemental analyses were run on all property types. I conceptualize residential property as all locations where people live—no matter their ownership status. Specifically, my definition includes single family homes (property code 510), condominiums (property code 550), mobile homes (property code 560), residential local income tax credit parcels (property code 569), two family dwellings (property code 520), three family dwellings (property code 530), apartment buildings with four to 19 units (property code 401), apartment buildings with 20 to 39 units (property code 402), apartment buildings with 40 or more units (property code 403). The auditor excludes large apartment buildings (property codes 401, 402, and 403) from their residential classification. Together, these three categories only make up 2.45 percent of the residential properties and the vast majority (84 percent) of these are four to 19 unit buildings. I ran supplemental analysis without these codes and results were comparable. I elected to include this more comprehensive definition of

residential to capture all households paying this tax directly or indirectly (through mortgage or rental payments). Unlike often discussed, renters do pay property taxes through their monthly payments since the tax code allows landlords to write off property tax as an expense—ensuring they can pass it on to their tenants. See county auditor page for full list of property classifications available within the data.

I also ran supplemental analyses using only owner-occupied housing units. All findings were comparable when rental units were excluded from the analyses.

**33.** As a robustness check, I also used the Federal Housing Finance Agency’s Uniform Appraisal Dataset to examine the average sale and refinance market appraisal in each census tract. There were some notable differences between the market appraisals and purchase prices. However, they did not substantially change any results. Thus, I elected to streamline the presented findings by only using the property sale price data.

**34.** Census tract data is not publicly released in the 1-year summary files. Therefore, I used the following 5-year summary files: 2006–2010, 2007–2011, 2008–2012, 2009–2013, 2010–2014, 2011–2015, 2012–2016, 2013–2017, 2014–2018, 2015–2019, 2016–2020, 2017–2021, and 2018–2022. I employed linear imputation to estimate the demographics on non-surveyed years.

**35.** I conducted supplemental analysis using the census tracts' Black, Latinx, and residents of color (Black, Indigenous, and Latinx) proportions. As established in previous literature, the census tract's White proportion has the strongest correlations with property appraisal and assessment values. Thus, I elect to use this summary measure for the presented findings.

**36.** Census income categories include: \$0 to \$9,999, \$10,000 to 14,999, \$15,000 to \$19,999, \$20,000 to \$24,999, \$25,000 to \$29,999, \$30,000 to \$34,999, \$35,000 to \$39,999, \$40,000 to \$44,999, \$45,000 to \$49,999, \$50,000 to \$59,999, \$60,000 to \$74,999, \$75,000 to \$99,999, \$100,000 to \$124,999, \$125,000 to \$149,999, \$150,000 to \$199,999, and \$200,000 or more. I defined household racial categories as non-Hispanic Black, Hispanic or Latinx, non-Hispanic White, and all other non-Hispanic residents. For households, the Census Bureau only provides the household race of the primary person as defined by the households themselves.

**37.** These averages are means. The median parcel change in estimated market value increased by \$56,000 (or 45%). For both dollar and percentage changes, I first calculated the change for individual parcels and then calculated the mean and medians of these changes. For example, if the parcel property tax increased from \$1,000 to \$1,500. I calculated that as a raw dollar increase of 500 and a proportional increase of 0.5

((1500-1000)/1000). I then calculated the mean and median across all parcels.

**38.** As discussed above, reassessments by themselves do not necessarily increase tax bills because of the reduction factor. However, as explained in endnote 11, there is an exception for school districts. In Ohio, school districts' property tax cannot fall below two percent of a property's taxable value. Consequently, increases in assessments can automatically increase school district taxes if they are set at or fall below the minimum rate. None of Hamilton County's school districts have levies that are at the minimum rate.

**39.** Annual property taxes rose every year in the last two decades except 2012. The first reassessment of all properties after the 2008 Housing Crash occurred in 2011. This led to a depreciation of property assessments and average tax bills.

**40.** Cincinnati is the largest municipality within Hamilton County containing 40 percent of the county's parcels, 48 percent of the county's census tracts, 42 percent of the county's households, 33 percent of the county's White households, 59 percent of the county's Black households, 45 percent of the county's Latinx households, and 52 percent of the county's other households of color.

**41.** Like the regression models looking at neighborhood race, these models used a continuous measure of neighborhood mean income. To summarize our findings,

I use estimates for poor and wealthy neighborhoods. I defined poor neighborhoods as those with a median income of \$20,000 (the bottom 1 percent of the county's neighborhoods) and wealthy neighborhoods as those with a median income of \$295,000 (the top 1 percent of the county's neighborhoods). For the wealthiest neighborhoods, the proportional change was negative. In other words, the mean property tax bill decreased in these communities.

**42.** I categorize households into approximate quintiles. Specifically, 18 percent of Hamilton County's households make between \$0-25,000 a year, 21 percent of the county's households make between \$25,000-\$50,000, 26 percent make between \$50,000-\$100,000, 16 percent make between \$100,000-\$150,000 and 19 percent make over \$150,000.

**43.** Compared to their household income, the difference between Hamilton County's poorest and wealthiest households is even more stark. For households making less than \$25,000 their average property tax bill increase translates to a 3 percent increase in their household income spent on property tax. Conversely, for the wealthiest families the increase was less than 0.3 percent of their income.

**44.** Specifically, Ohio Administrative Code Chapter 5703-25: Equalization - Appraisals outlines that appraisers can use market data or the income or cost

approach to derive the "true value" of the property.

**45.** The 2023 reassessment was based on arm's length transactions (e.g., transactions conducted on the "open" market) completed between January 1, 2020 and December 31, 2022. To mirror the auditor's process, I calculated an average sale price in each census tract across all three years. I evaluate changes in sale prices by comparing the average across these three years to the average between January 1, 2017 to December 31, 2019 (the dates used for the previous auditor adjustment conducted in 2021).

**46.** As explained above, mass assessment models tend to produce assessments that overestimate the value of properties in lower-income neighborhoods and communities of color while under estimating the value of parcels in higher-income areas and White neighborhoods.

**47.** Home features include finished or livable square footage, number of rooms, number of bathrooms, and year built. I also included construction grade in these models. This variable had no impact on the models but due to larger numbers of missing data I excluded it from the final models presented here.

**48.** When considering the inequality in the proportional change, the observed inequity does decrease some when housing market trends are taken into consideration. In fact, about a third of the neighborhood racial inequality in

proportional change can be explained by the proportional changes in sale prices. However, the majority still remains unexplained.

**49.** Mirroring social science research, I conceptualize wealth as the financial gains accumulated during home ownership. Specifically, I operationalize housing wealth as the difference between the price an owner sold the house for and the amount they spent on purchasing it.

**50.** These were included because these are the sales used to inform the recent reassessment.

**51.** The cumulative effect of this inequity on wealth accumulation is even greater than its initial impact. Not only are residents in more affluent and whiter neighborhoods paying a smaller proportion of their housing wealth in taxes but, on average, more of their wealth is invested in assets with considerably lower tax rates (e.g., stocks, bonds, etc.). Conversely, homes are often the largest financial investment made by lower-income households and families of color. Paying all their gains in property taxes significantly decreases their wealth.

**52.** For example, if a family bought a home in 2004 for \$120,000 and sold it in 2024 for \$220,000, their gained wealth would be \$100,000. At the current sale tax rate, 6.5 percent, the seller would pay \$6,500 of their gained wealth in state and local taxes. This would replace Hamilton

County's current real estate transfer taxes which at 0.3 percent of a property's purchase price (0.1 percent for the state and 0.2 percent for the county).

**53.** An additional benefit of this approach is it would eliminate developer's avoiding transfer taxes by trading properties for zero dollars. They could still conduct transactions for zero dollars but next time they go to sell the property they would pay the wealth tax on the entire sale price, making it much less financially enticing. Additionally, it would not be triggered when relatives inherit property, unless the transfer included a financial transaction.

**54.** Currently, several households who qualify for the exemption are not receiving it because they are either unaware of its existence or have been unable to submit the required application. The proposed approach would ensure more of the qualifying households received the exemption.

**55.** See the City of Cincinnati's [All Funds Biennial Budget](#).

**56.** This increase could be introduced by the city council or a ballot measure.

**57.** Avenancio-León, Carlos F. and Troup Howard. 2022. "[The Assessment Gap: Racial Inequalities in Property Taxation](#)." *The Quarterly Journal of Economics*. 137(3):1383–1434.

**58.** In 1977, Ohio Senate Bill 221 introduced a requirement that all school

districts collect at least 2 percent (also referred to as 20 mill) of taxable property values. This was introduced to ensure public school budgets kept up with inflation.

**59.** Tebben, Susan. 2024. "[Study: Ohio Ranks 21st in School Funding Fairness, Ranks Low in Equal Opportunity.](#)" *Ohio Capital Journal*.

**60.** Avenancio-León, Carlos F. and Troup Howard. 2022. "[The Assessment Gap: Racial Inequalities in Property Taxation.](#)" *The Quarterly Journal of Economics*. 137(3):1383–1434.

Howell, Junia and Elizabeth Korver-Glenn. 2022. [Appraised: The Persistent Evaluation of White Neighborhoods as More Valuable than Communities of Color.](#) eruka.

**61.** Before this point, appraisers used a variety of methods depending on their location and training. In the 1920s, the National Association of Real Estate Boards (which changed its name to National Association of REALTORS® (NAR) in 1972) hired Frederick Babcock to write the first text on appraising methods. Building off the work of his mentor, Richard T. Ely, he elevated the sales comparison approach because of its ability to centralize neighborhood demographics as the key defining feature in appraised values. For more on this history, see Winling, LaDale C. and Todd M. Michney. 2021. "[The Roots of Redlining: Academic, Governmental, and Professional Networks in the Making of](#)

[the New Deal Lending Regime.](#)" *Journal of American History*. 108(1): 42–69.

**62.** Initially, the Federal Housing Agency's underwriting manual and accompanying color-coded maps explicitly directed appraisers to use race and class as defining characteristics of neighborhoods. Black, Indigenous, and Latinx activists illuminated the injustice of this practice leading to a series of legislative actions in the late 1960s and 1970s that outlawed the explicit use of race as a justification for value. However, appraisers are still taught to think in racialized terms when conceptualizing an "ideal buyer" and where else they might purchase a house. For more on this history and contemporary practices, see:

Korver-Glenn, Elizabeth. 2021. *Race Brokers: Housing Markets and Segregation in 21st Century Urban America*. Oxford University Press

Marchiel, Rebecca K. 2020. *After Redlining: The Urban Reinvestment Movement in the Era of Financial Deregulation*. Chicago, Illinois: The University of Chicago Press.

Michney, Todd M. 2022. "[How the City Survey's Redlining Maps Were Made: A Closer Look at HOLC's Mortgagee Rehabilitation Division.](#)" *Journal of Planning History*. 21(4): 316–344.

Taylor, Keeanga-Yamahtta. 2019. *Race for Profit: How Banks and the Real Estate Industry Undermined Black*

*Homeownership*. Chapel Hill, NC: University of North Carolina Press.

Winling, LaDale C. and Todd M. Michney. 2021. "[The Roots of Redlining: Academic, Governmental, and Professional Networks in the Making of the New Deal Lending Regime.](#)" *Journal of American History*. 108(1): 42-69.

**63.** They calculate the price per square foot by dividing the comparable sale purchase price by the property's square footage. Some appraisers use a flat rate square footage adjustment rather than one determined by the comparable sale itself. However, these rates often vary by the price per square foot in the neighborhood. Both approaches ensure neighborhood location influences the magnitude of the home square footage coefficient.

**64.** Housing price indexes are the average proportional change in sales value within a given location between two points in time. These can be multiplied by the last purchase price of a property to estimate what that same property might sell for contemporarily if it appreciated at the average rate in the neighborhood. Theoretically, this more closely mirrors the sales comparison approach which also assumes homes within a given location are appreciating at the same rate. The Federal Housing Finance Agency produces housing price indexes at various geographies, including census tracts. They could also be derived or adjusted with county administrative data.

**65.** Avenancio-León, Carlos F. and Troup Howard. 2022. "[The Assessment Gap: Racial Inequalities in Property Taxation.](#)" *The Quarterly Journal of Economics*. 137(3):1383-1434.

**66.** As mentioned above, I also conducted supplemental analysis using the census tracts' Black, Latinx, and residents of color (Black, Indigenous, and Latinx) proportions. Echoing previous scholarship, the census tract's White proportion has the strongest correlations with property appraisal and assessment values.

**67.** Census income categories include: \$0 to \$9,999, \$10,000 to 14,999, \$15,000 to \$19,999, \$20,000 to \$24,999, \$25,000 to \$29,999, \$30,000 to \$34,999, \$35,000 to \$39,999, \$40,000 to \$44,999, \$45,000 to \$49,999, \$50,000 to \$59,999, \$60,000 to \$74,999, \$75,000 to \$99,999, \$100,000 to \$124,999, \$125,000 to \$149,999, \$150,000 to \$199,999, and \$200,000 or more.

**68.** Hamilton County's households are distributed across the five income categories as follows: 18 percent, 21 percent, 26 percent, 16 percent, and 19 percent.

**69.** For the top income category, \$200,000 or more, I used the aggregated income of the census tract to estimate the mean income in this category. Specifically, I assumed that all other households made the median household income within their income category and subtracted this total from the census tract aggregate income. I then divided

the remaining aggregate income by the number of households in the \$200,000 or more category.

**70.** For the 2024 property tax bills, I include properties sold between January 2020 and December 2022. Likewise, for the 2001 property tax bills, I include properties sold between January 2017 and December 2019 and so on.

**71.** I estimate whether the auditor considered a sale as sold on the open market by whether they assessed the home within 10 percent of its purchase price.

**72.** I counted half bathrooms as 0.5 and summed the total number of full and half bathrooms for each parcel before calculating the variable number of bathrooms in the building.

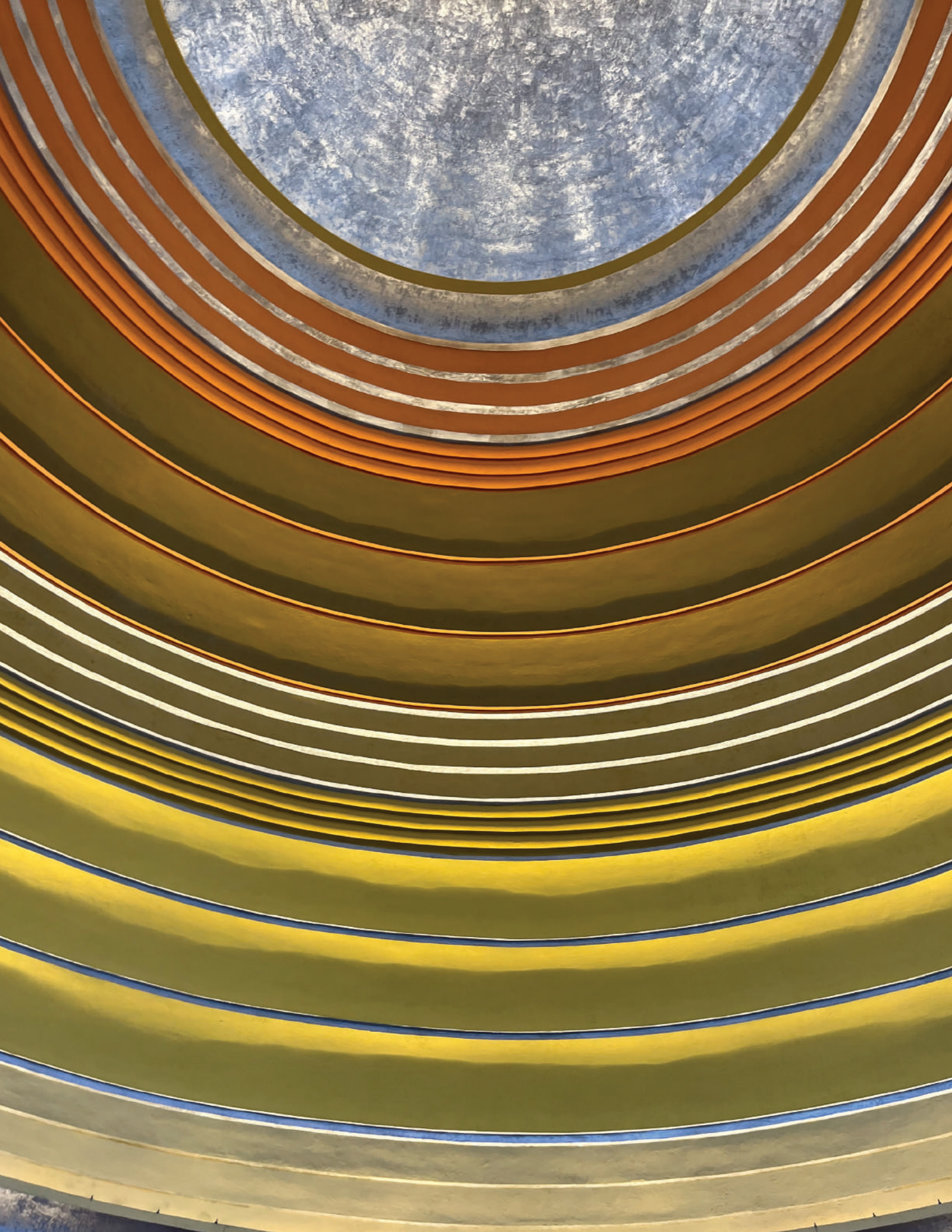
**73.** For parcels with multiple buildings, I used the year the oldest building on the parcel was built.

**74.** For estimates within the city, I used the mean incomes of \$20,000 and \$240,000 because the wealthiest census tracts within the city have lower mean incomes than those within the county.

**75.** A few census tracts include parcels that are considered within Cincinnati and ones that are outside the city boundary. For my analysis, I needed to determine whether the majority of the census tract was within or outside the city. I defined this as census tracts where the modal taxing jurisdiction was the city of Cincinnati. I classified 107 (out of 225) census tracts as within the city boundaries.

**76.** I defined Cincinnati's poor neighborhoods as those with a median income of \$20,000 (the bottom 1 percent of the city's neighborhoods) and wealthy neighborhoods as those with a median income of \$245,000 (the top 1 percent of the city's neighborhoods).

**77.** Home features include finished or livable square footage, number of rooms, number of bathrooms, and year built. I also included construction grade in these models. This variable had no impact on the models but due to larger numbers of missing data I excluded it from the final models presented here.





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In August 2023, Hamilton County's Auditor's Office released the new tentative assessment data. After looking at my own home's reassessment and the publicly available aggregated assessment summaries, I was concerned the new assessments would increase racial and economic inequality in the county.

I reached out to Auditor Brigid Kelly to share my concerns. She respectfully listened to my observations and generously offered to provide me with all the parcel assessment estimates. As I dove into the data, it was clear racial and economic inequality was going to increase with the new assessments but the mechanisms driving the inequality were different than I initially hypothesized. Thus, it took several more months than originally anticipated to fully unpack and understand the tax inequity in the county. During this time, we lost Auditor Kelly to cancer. However, this report and our efforts to make a more fair and just tax system in our county will forever be indebted to Auditor Kelly's commitment to transparency and equity.

Over the last several months, this research and report was tremendously improved by the thoughtful feedback and suggestions of several generous colleagues, including: Arushi Gupta, Clementine Deck, Connor Bailey, Elisabeth Risch, Elizabeth Korver-Glenn, Shannon Liu, Stacy Purcell, and Stephanie Moes. All mistakes and assertions remain the sole responsibility of the author.

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## ABOUT THE AUTHOR

**Junia Howell, Ph.D.** (she/her), is an urban sociologist and race scholar who uses quantitative and qualitative tools to identify and dismantle the policies, processes, and practices that uphold White supremacy. Dr. Howell's research has won multiple national awards, been featured in hundreds of news articles, and been used as the bases for local and federal legislation. Dr. Howell received her PhD from Rice University. She currently holds a faculty position at the University of Illinois-Chicago and is the founder and director of eruka.

## ABOUT eruka

[eruka](#) is a housing and finance non-profit that seeks to cultivate equity across people and places by providing alternative financial services. eruka uses empirical research to innovate alternative methods for property appraisals, mortgage loans, and real estate transactions.

## ABOUT HOME

[Housing Opportunities Made Equal of Greater Cincinnati](#) (HOME) is a nonprofit fair housing organization. HOME's mission is to eliminate unlawful discrimination in housing in the Greater Cincinnati area. HOME advocates and enforces housing regulations for all protected classes and promotes stable, integrated communities.

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