



4-2021

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Recommended Citation

96 Notre Dame L. Rev. 1517 (2021)

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DYNAMIC PROPERTY TAXES AND RACIAL GENTRIFICATION

*Andrew T. Hayashi**

Many jurisdictions determine real property taxes based on a combination of current market values and the recent history of market values, introducing a dynamic aspect to property taxes. By design, homes in rapidly appreciating neighborhoods enjoy lower tax rates than homes in other areas. Since growth in home prices is correlated with—and may be caused by—changing neighborhood demographics, dynamic property taxes will generally have racially disparate impacts. These impacts may explain why minority-owned homes tend to be taxed at higher rates. Moreover, the dynamic features of local property taxes may subsidize gentrification and racially discriminatory preferences.

INTRODUCTION

Although housing prices can fluctuate dramatically from year to year, real property taxes generally do not. This is because property owners are taxed on their property's assessed value, and assessed values typically do not move in lockstep with the property's fair market value. Instead, in many jurisdictions, a property's assessed value is a function of both the property's current value and its value in prior years. As a result, two properties worth the same amount today may be taxed at different rates depending on the evolution of the properties' values over time. Property taxes that depend on the history of a property's values are dynamic property taxes.

For example, many jurisdictions limit the rate at which a property's assessed value can increase over a period of years (a "cap"). For example, consider a home in New York City valued at \$800,000 in 2020, increasing in value to \$860,000 in 2021. The property's assessed value in 2021 will only be \$848,000 because its assessed value cannot increase by more than 6% in any

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* Class of 1948 Professor of Scholarly Research in Law, University of Virginia School of Law. Thanks to Jon Ashley, Cathy Hwang, Ariel Jurow Kleiman, Cathy Palombi, Mildred Robinson, and participants at the Classical Liberal Institute's conference on "The Public Valuation of Private Assets" for helpful comments. I'm grateful to the Lincoln Institute for Land Policy for financial support and CoreLogic for providing some of the data used in this Essay.

one year.¹ In other jurisdictions, properties are reappraised only every few years, and any increase in a property's value between appraisals is added to the property's assessed value in increments (a "phase-in"). Consider a home in Maryland valued at \$860,000 in 2021, valued at \$800,000 when it was last assessed in 2018.² The property's assessed value will be \$820,000 in 2021, \$840,000 in 2022, and \$860,000 in 2023.

Caps and phase-ins reduce the assessment ratio (assessed value as a share of market value) for a rapidly appreciating property. Because taxes are based on assessed values, caps and phase-ins therefore reduce the effective tax rate (ETR) for such a property.³ The result is that rapidly appreciating homes have lower ETRs compared to properties with stable values, declining values, or only modest growth rates.

I have written elsewhere about the advantages and disadvantages of caps, arguing that they either do not achieve their objectives or do so at too great a cost.⁴ In this Essay, I focus on the beneficiaries of caps and phase-ins and how the evolution of a neighborhood's racial composition interacts with dynamic property taxes to affect the property tax incidence. Home prices reflect (among other things) racial preferences for neighbors, which typically manifests as a valuation penalty in predominantly minority neighborhoods.⁵ Since property taxes are based on home prices, racial preferences influence property taxes. When home prices are stable, ETRs should be roughly constant across neighborhoods, including both those that are predominantly white and those that are composed mostly of racial minorities. But when home prices are changing, ETRs under a dynamic property tax will vary across neighborhoods. When these changes result from the interaction of racial preferences and the re-sorting of households across neighborhoods—such as in the case of gentrification—dynamic property taxes have racially disparate impacts.⁶

These impacts are nuanced and contingent on empirical facts about the incidence of dynamic property taxes and the process of neighborhood

1 This example assumes that the residential property is in property Tax Class 1. *Determining Your Assessed Value*, N.Y.C. DEP'T OF FIN., <https://www1.nyc.gov/site/finance/taxes/property-determining-your-assessed-value.page> (last visited Mar. 2, 2021).

2 In Maryland, properties are reassessed every three years. MD. CODE ANN., TAX-PROP. § 8-104(b)(1) (West 2021).

3 The effective property tax rate is the tax divided by the property's market value.

4 Andrew T. Hayashi, *Property Taxes and Their Limits: Evidence from New York City*, 25 STAN. L. & POL'Y REV. 33 (2014). For a discussion of some of the general issues created by property tax limits, see Joan M. Youngman, *The Variety of Property Tax Limits: Goals, Consequences, and Alternatives*, 46 STATE TAX NOTES 541 (2007). On the property tax generally, see JOAN YOUNGMAN, A GOOD TAX: LEGAL AND POLICY ISSUES FOR THE PROPERTY TAX IN THE UNITED STATES (2016).

5 See *infra* Section II.A.

6 Although I do not discuss it here, there is a long history of property tax discrimination against black homeowners. See generally Andrew W. Kahrl, *The Power to Destroy: Discriminatory Property Assessments and the Struggle for Tax Justice in Mississippi*, 82 J.S. HIST. 579 (2016).

change. In Part II, I describe conditions under which dynamic property taxes result in higher ETRs for black homeowners than white homeowners during a period of gentrification. This result may partially explain evidence that black homeowners face higher ETRs than similarly situated white homeowners, a fact that has been attributed to the overvaluation of black-owned properties.⁷ If dynamic property taxes—not overvaluation—are why black homeowners have higher property taxes than white homeowners, then the remedy lies in the elimination of assessment caps and phase-ins rather than more accurate valuation methodologies.

Seeing the relationship between dynamic property taxes and gentrification also reveals a problem. By lowering the ETR for rapidly appreciating homes, dynamic property taxes subsidize investments and processes that lead to rapid appreciation. The displacement of minority residents by white residents in a neighborhood is one such process, so dynamic property taxes subsidize gentrification and the racial preferences that are associated with it.

I. KEY FEATURES OF DYNAMIC PROPERTY TAXES

Evaluating the effects of dynamic property taxes requires specifying a baseline against which to measure those effects. Current-value taxation serves as an intuitive and justifiable baseline that has both efficient and equitable properties.⁸ Property values reflect local amenities and public goods—such as schools and public parks—and the expected provision of those goods in the future. A tax based on current property values captures the benefits of these public goods to the extent they are capitalized in home prices and, in this respect, operates as an efficient user fee. If home prices are correlated with homeowner wealth, then taxing homeowners based on home values is also reasonably equitable and allocates the local tax burden according to homeowners' ability to bear the costs of government. Against this baseline, dynamic property taxes lower ETRs on appreciating properties, taxing them less than properties with more stable values. But determining who actually benefits from dynamic property taxes depends on key design features of the tax.

7 Andrew Van Dam, *Black Families Pay Significantly Higher Property Taxes than White Families, New Analysis Shows*, WASH. POST (July 2, 2020), <https://www.washingtonpost.com/business/2020/07/02/black-property-tax/> (discussing Carlos Avenancio-León & Troup Howard, *The Assessment Gap: Racial Inequalities in Property Taxation* (Mar. 31, 2020) (unpublished manuscript) (<https://papers.ssrn.com/abstract=3465010>)). Conversely, when it comes to valuation for refinancing purposes, black-owned homes are often undervalued. Debra Kamin, *Black Homeowners Face Discrimination in Appraisals*, N.Y. TIMES, (Aug. 27, 2020), <https://www.nytimes.com/2020/08/25/realestate/blacks-minorities-appraisals-discrimination.html>.

8 One could also take into account characteristics of the homeowners, and many jurisdictions do provide partial exemptions for veterans, the disabled, and senior citizens.

A. Caps and Phase-Ins

The first key feature of a dynamic property tax is whether it employs caps or phase-ins. Assessment caps lower ETRs on properties that appreciate at a rate higher than the annual cap. For example, New York City's caps prevent assessments from increasing more than 6% annually or 20% over five years.⁹ The five-year cap corresponds to an annualized rate of price growth of a little over 3.7%.¹⁰ The cap confers no benefit for properties that appreciate at a rate below the cap. By contrast, phase-ins benefit all appreciating properties because any increase in market value between assessment years is added to the assessed value incrementally.

A second difference between caps and phase-ins is how they affect ETRs in a period of price stability or decline after a run-up in housing prices. In the case of caps, the appreciation accrued during the run-up may require a long period of subsequent price stability before assessed values converge to fair market values. In the case of phase-ins, by contrast, all of the gain that accrues during a housing price run-up is fully reflected in assessment ratios by the second assessment period after the boom ends.

Summarizing the differences, caps tend to benefit the fastest appreciating neighborhoods for a relatively long time. In contrast, phase-ins benefit all appreciating neighborhoods, but the benefits tend to be shorter-lived.

B. Transferability

A second important design feature of dynamic property taxes is how they treat the transfer of property. In some jurisdictions, such as California, assessed values are reset to fair market values when properties are sold.¹¹ Since this means that the current owner may have a much lower ETR for the property than a potential buyer, this discourages efficient property transfers and can create "lock-in."¹² Lock-in entrenches outdated patterns of property ownership, meaning that neighborhood demographics are more likely to be influenced by anachronistic homeownership preferences than in another jurisdiction where taxes do not create a wedge between buyer and seller valuations. For example, lock-in might inhibit neighborhood integration that would otherwise occur because of changing racial preferences.

In other jurisdictions, such as New York City, assessed values are unaffected by property transfers, and the buyer of a property inherits the seller's

9 *Determining Your Assessed Value*, *supra* note 1.

10 If the annual growth rate is g , then a home will hit the five-year cap if $(1 + g)^5 > 1.2$. This will be true if g is at least 3.71%.

11 See Nada Wasi & Michelle J. White, *Property Tax Limitations and Mobility: Lock-in Effect of California's Proposition 13*, BROOKINGS-WHARTON PAPERS ON URB. AFFS. 59, 59 (2005).

12 See Fernando Ferreira, *You Can Take It with You: Proposition 13 Tax Benefits, Residential Mobility, and Willingness to Pay for Housing Amenities*, 94 J. PUB. ECON. 661, 662 (2010); Keith R. Ihlanfeldt, *Do Caps on Increases in Assessed Values Create a Lock-in Effect? Evidence From Florida's Amendment One*, 64 NAT'L TAX J. 7, 7-8 (2011); Wasi & White, *supra* note 11, at 59-60.

assessment.¹³ Notionally, this means that the buyer of the property subject to a cap or phase-in derives a benefit from owning a property with a lower assessment ratio. Of course, sellers whose property has a favorable assessment ratio should, in theory, be able to charge a higher price in an amount equal to the present value of the property tax benefit. In jurisdictions like New York City, identifying the true beneficiaries of dynamic property taxes is not as simple as looking at the owners of properties with low assessment ratios. If those owners paid a premium to the seller for the tax benefit, then the economic beneficiary of the cap or phase-in may be long gone. And property taxes are generally—if only partially—capitalized in home values and sales prices.¹⁴ In fact, there is evidence that buyers dramatically overpay for short-term property tax benefits, so that property tax benefits are overcapitalized.¹⁵

II. DYNAMICS OF NEIGHBORHOOD CHANGE

In this Part, I explore the theoretical racial effects of dynamic property taxes under gentrification. To understand these effects, we must first understand the racial impacts of property taxes in a static environment because it is current or expected changes in that environment that drive changes in property values. Many people judge neighborhood “quality” based, in part, on the racial composition of the neighborhood. They do this either because they have direct preferences about their neighbors’ race or because they use race as a proxy for other characteristics of the neighborhood.¹⁶ Home prices should reflect the preferences of those who have the greatest ability to act on these preferences, and there is evidence that this is likely to be white homeowners.¹⁷

13 See *Determining Your Assessed Value*, *supra* note 1; *Determining Your Market Value*, N.Y.C. DEP’T OF FIN., <https://www1.nyc.gov/site/finance/taxes/property-determining-your-market-value.page> (last visited Mar. 2, 2021).

14 See N.Y.C. INDEP. BUDGET OFF., FISCAL BRIEF: AN EFFICIENT USE OF PUBLIC DOLLARS? A CLOSER LOOK AT THE MARKET EFFECTS OF THE 421-A TAX BREAK FOR CONDOS 2 (2017), <https://ibo.nyc.ny.us/iboreports/an-efficient-use-of-public-dollars-a-closer-look-at-the-market-effects-of-the-421-a-tax-break-for-condos.pdf>; Mitchell R. Livy, *Intra-School District Capitalization of Property Tax Rates*, 41 J. HOUS. ECON. 227, 232–33 (2018); G. Stacy Sirmans, Dean H. Gatzlaff & David A. Macpherson, *The History of Property Tax Capitalization in Real Estate*, 16 J. REAL EST. LITERATURE 327, 340–41 (2008). Property taxes can be very salient for homebuyers, and there is evidence that they time their purchases to minimize property tax liability. Sebastien Bradley, *Assessment Limits and Timing of Real Estate Transactions*, 70 REG’L SCI. & URB. ECON. 360, 370–71 (2018).

15 See generally Sebastien Bradley, *Inattention to Deferred Increases in Tax Bases: How Michigan Home Buyers Are Paying for Assessment Limits*, 99 REV. ECON. & STAT. 53 (2017).

16 See David R. Harris, “Property Values Drop When Blacks Move in, Because . . .”: *Racial and Socioeconomic Determinants of Neighborhood Desirability*, 64 AM. SOCIO. REV. 461, 461–62 (1999). Harris observes larger effects consistent with pure discrimination for owner-occupants than for renters. *Id.* at 474.

17 For example, there is considerable evidence that brokers “steer” black homebuyers into certain neighborhoods. See, e.g., Bo Zhao, Jan Ondrich & John Yinger, *Why Do Real*

The value of a home depends partly on factors unique to the home itself, such as the features of the structure and size of the lot. But a home's value also depends on factors particular to the neighborhood. Local amenities such as parks, good public schools, and low crime rates will generally increase homes' value in the area. The production of these amenities depends on the allocation of public resources but also on neighborhood residents' behavior. A parent considering whether to buy a home zoned for a particular public school will consider not only the school's physical plant and teacher quality, but also the students who attend that school because the other students may affect the quality of the education that her children will receive.¹⁸ Studies show that a school's racial composition predicts whether white parents will choose that school for their children.¹⁹ Specifically, white parents perceive schools with a high proportion of black students as more dangerous and of lower quality.²⁰

Similarly, a homebuyer worried about crime will consider not only things like the frequency with which police patrol the area, but also the effect of the residents themselves on crime. This effect could be negative, if residents are diligent about monitoring the area and maintaining their properties, or the effect could be positive, if they neglect their properties or commit crimes themselves. Homebuyers may think that the racial composition of a neighborhood matters here too. People perceive higher crime rates in areas with more black residents—particularly young, black, male residents—even controlling for official crime rates and other neighborhood characteristics.²¹ Whites and Latinos overestimate crime in this way more

Estate Brokers Continue to Discriminate? Evidence from the 2000 Housing Discrimination Study, 59 J. URB. ECON. 394, 397, 412 (2006).

18 Cf. Dennis Epple & Richard E. Romano, *Peer Effects in Education: A Survey of the Theory and Evidence*, in 1B HANDBOOK OF SOCIAL ECONOMICS 1053 (Jess Benhabib, Alberto Bisin & Matthew O. Jackson eds., 2011), <http://www.sciencedirect.com/science/article/pii/B9780444537072000037> (surveying models of and empirical support for “peer effects” on student education outcomes).

19 E.g., Chase M. Billingham & Matthew O. Hunt, *School Racial Composition and Parental Choice: New Evidence on the Preferences of White Parents in the United States*, 89 SOCIO. EDUC. 99, 111 (2016) (“As prior studies as well as the analyses presented here indicate, when given a choice over their children’s educational experience, white parents tend to select schools with lower proportions of African American students, and they tend to avoid schools with black majorities in the student body.”).

20 Chase M. Billingham, Shelley M. Kimelberg, Sarah Faude & Matthew O. Hunt, *In Search of a Safe School: Racialized Perceptions of Security and the School Choice Process*, 61 SOCIO. Q. 474, 491 (2020) (“Schools with high proportions of black students are more likely to be avoided by parents regardless of their security systems”); Kimberly A. Goyette, Danielle Farrie & Joshua Freely, *This School’s Gone Downhill: Racial Change and Perceived School Quality Among Whites*, 59 SOC. PROBS. 155, 170–76 (2012) (demonstrating correlation between white parents’ perception of decline in school quality and changes in racial composition, independent of other factors).

21 Lincoln Quillian & Devah Pager, *Black Neighbors, Higher Crime? The Role of Racial Stereotypes in Evaluations of Neighborhood Crime*, 107 AM. J. SOCIO. 717, 718 (2001).

than blacks do.²² Of course, what matters for home pricing are the beliefs of the marginal homebuyer about the relationship between neighborhood demographics and local amenities, regardless of their accuracy.

An alternative channel through which neighborhood demographics may affect home values is through the neighborhood's ability to obtain favorable treatment by the municipal government. Neighborhoods with wealthier residents or with social networks that include elected officials may be more effective in obtaining their preferred outcomes when it comes to things like zoning and traffic rules, obtaining and maintaining public parks, school funding, and police protection. Residents who share other affinities, such as race or religion, with local officials may be more effective in having their concerns addressed. Thus, in addition to the direct effects that neighbors may have on local amenities, they may also have an indirect effect mediated by the local government. Neighborhood demographics may affect home values for either of these reasons.

In addition to the effects of local neighborhood composition on amenities, potential entrants may also directly prefer neighbors of a particular race, age, level of income or educational attainment, and so on. Neighbors may socialize with each other, work together to solve local problems, and use their property in ways that affect others' ability to enjoy their properties. Thus, a family with children may prefer to live around other families with children to give their kids playmates, and retirees may prefer to live around other retirees because of similar interests or life experiences or taste for quiet social activity. Immigrant families may prefer to live close to others from the same country of origin because of a common language and culture's social benefits.²³ White families may prefer to live in neighborhoods with modest numbers of racial and ethnic minorities because of a taste for diversity or avoid neighborhoods with minorities because of racial animosity.

If the marginal homebuyer in an area is willing to pay a premium to have white neighbors—for any reason—then whiteness creates a sort of positive price externality for those neighbors.²⁴ Given the ubiquity of residential segregation, these neighbors themselves tend to be white, and so racial preferences tend to result in greater housing wealth for white homeowners. The fact that property values reflect racial preferences is troubling, particularly because those preferences may be rooted in animus, false beliefs, or white homeowners' ability to obtain preferential government treatment. But property taxes do not distinguish between sources of property value. Homeown-

22 See Robert J. Sampson & Stephen W. Raudenbush, *Neighborhood Stigma and the Perception of Disorder*, 24 FOCUS 7, 10 (2005).

23 Professor Dorothy Brown has argued that blacks decide to live in majority-minority neighborhoods even though these neighborhoods appreciate more slowly in value. Dorothy Brown, *How Home Ownership Keeps Blacks Poorer than Whites*, FORBES (Dec. 10, 2012), <https://www.forbes.com/sites/forbesleadershipforum/2012/12/10/how-home-ownership-keeps-blacks-poorer-than-whites/>.

24 This is an example of what Professor Nancy Leong calls "racial capitalism." Nancy Leong, *Racial Capitalism*, 126 HARV. L. REV. 2151 (2013).

ers are taxed on any value that the market ascribes to the whiteness of its neighborhood. At least, then, property taxes do not amplify the effect of racial preferences on wealth distribution.

Dynamic property taxes, however, undermine this result. As a neighborhood gentrifies—becomes whiter—and property values begin to reflect changing demographics, ETRs fall because of the caps and phase-ins. Whereas homes in stable white neighborhoods are more valuable and pay commensurately more in property taxes than homes in majority-minority neighborhoods, homes in neighborhoods that are rapidly *becoming* whiter may pay less in property taxes.²⁵ Who exactly benefits from these lower taxes depends on the details of that transition.

A. Race and Property Values

Mere correlations between the race of neighborhood residents and home prices are not, of course, proof of racial preferences in the housing market. Race is correlated with various other factors, such as income and education, that may influence how an outsider evaluates a given neighborhood. Although there may not be any study demonstrating the causal effect of homeowner race on the prices of adjacent properties that would satisfy a committed skeptic, evidence gathered using different methods and across geographic locations suggests that neighborhood demographics affect both home price values and the trajectory of those values over time.

The scholarly literature generally finds that home price growth declines with the share of black residents in an area.²⁶ Evidence from Philadelphia, Atlanta, New Jersey, Milwaukee, and national survey data shows that home price growth is slowest in neighborhoods that either have predominantly black residents or where neighborhood demographics are changing so that black residents are becoming a majority of residents.²⁷ The effect of racial

25 This assumes accurate property appraisals. Often appraisals are not accurate, but I set this aside to focus on the effect of caps and phase-ins.

26 See, e.g., Chenoa Flippen, *Unequal Returns to Housing Investments? A Study of Real Housing Appreciation Among Black, White, and Hispanic Households*, 82 SOC. FORCES 1523, 1544 (2004) (“Increase in black neighborhood representation over time detracts from property value growth over and above its association with initial minority concentration and change in poverty composition.”); David A. Macpherson & G. Stacy Sirmans, *Neighborhood Diversity and House-Price Appreciation*, 22 J. REAL EST. FIN. & ECON. 81, 87 (2001) (“When income and other variables are included, the level of African American population is not significant [in Tampa, Florida]. However, the change in percent African American still has a significant negative effect on price appreciation.”); Richard Moyer & Melvin Thomas, *Race and Housing Values: What Happens When Whites Don’t All Move Out?*, 17 CITY & CMTY. 109, 120, 124–25 (2018) (finding stable, integrated neighborhoods grow at the fastest rate); Caitlin Knowles Myers, *Discrimination and Neighborhood Effects: Understanding Racial Differentials in US Housing Prices*, 56 J. URB. ECON. 279, 299 (2004) (“House values fall as the percent of blacks in a neighborhood rises, indicating that high concentrations of blacks may be perceived as a neighborhood disamenity by some consumers.”).

27 Moyer & Thomas, *supra* note 26, at 124–25 (analyzing Philadelphia); Scott N. Markley, Taylor J. Hafley, Coleman A. Allums, Steven R. Holloway & Hee Cheol Chung, *The*

demographics on home price appears variable, with one researcher finding that the effect of racial minorities on housing price growth is largest as the share of minorities increases from 0% to 20% of the local population and as the share increases from 80% to 100% of the local population.²⁸ In the intermediate range, the effects are more modest.²⁹ Moreover, the effect of race on home values is probably variable over time. For example, in Southern California, the negative effect of minorities on home prices has declined in recent years.³⁰

If there is an effect of a neighborhood's racial composition on home price growth, then we would expect that neighborhoods in jurisdictions with dynamic property taxes that are increasing in their number of white residents—gentrifying—will have lower ETRs. In rapidly gentrifying neighborhoods, researchers will tend to observe that white homeowners have lower ETRs than black homeowners. And, in fact, there is evidence from New York City,³¹ California,³² and national surveys³³ that white homeowners have lower ETRs because of caps and phase-ins.³⁴

Limits of Homeownership: Racial Capitalism, Black Wealth, and the Appreciation Gap in Atlanta, 44 INT'L J. URB. & REG'L RSCH. 310, 323 (2020); Douglas Coate & Richard W. Schwesler, *Black-White Appreciation of Owner-Occupied Homes in Upper Income Suburban Integrated Communities: The Cases of Maplewood and Montclair, New Jersey*, 20 J. HOUS. RSCH. 127, 136 (2011); Sunwoong Kim, *Long-Term Appreciation of Owner-Occupied Single-Family House Prices in Milwaukee Neighborhoods*, 24 URB. GEOGRAPHY 212, 229–30 (2003); Flippen, *supra* note 26, at 1544 (analyzing national survey data). Economists have documented large differences in home price appreciation within cities during housing price booms, with growth being greatest in lower income areas that are adjacent to high-income neighborhoods. See, e.g., Veronica Guerrieri, Daniel Hartley & Erik Hurst, *Endogenous Gentrification and Housing Price Dynamics*, 100 J. PUB. ECON. 45, 56 (2013). The direct effects of gentrification also are largest in low-income neighborhoods. Laura H. Atuesta & Geoffrey J.D. Hewings, *Housing Appreciation Patterns in Low-Income Neighborhoods: Exploring Gentrification in Chicago*, 44 J. HOUS. ECON. 35, 45 (2019).

28 Sunwoong Kim, *Race and Home Price Appreciation in Urban Neighborhoods: Evidence from Milwaukee, Wisconsin*, 28 REV. BLACK POL. ECON. 9, 27 (2000).

29 *Id.*

30 John R. Hipp & Amrita Singh, *Changing Neighborhood Determinants of Housing Price Trends in Southern California, 1960–2009*, 13 CITY & CMTY. 254, 268 (2014).

31 Hayashi, *supra* note 4, at 45–46.

32 DOWELL MYERS, THE DEMOGRAPHICS OF PROPOSITION 13: LARGE DISPARITIES BETWEEN THE GENERATIONS AND THE UNSUSTAINABLE EFFECTS OF HOUSE PRICES 9 (2009), https://cpbus-e1.wpmucdn.com/sites.usc.edu/dist/6/210/files/2018/08/2009_Myers_Demographics-Prop-13-1gq3e45.pdf.

33 Isaac William Martin & Kevin Beck, *Property Tax Limitation and Racial Inequality in Effective Tax Rates*, 43 CRITICAL SOCIO. 221, 230–31 (2017).

34 Other researchers do not find that race is correlated with favorable assessment ratios. *Id.* at 232–33; Mark Skidmore, Charles L. Ballard & Timothy R. Hodge, *Property Value Assessment Growth Limits and Redistribution of Property Tax Payments: Evidence from Michigan*, 63 NAT'L TAX J. 509, 522 (2010). But see Bernadette Atuahene, "Our Taxes Are Too Damn High": *Institutional Racism, Property Tax Assessments, and the Fair Housing Act*, 112 NW. U. L. REV. 1501, 1547–53 (2018); Bernadette Atuahene & Christopher Berry, *Taxed Out:*

At the same time, documenting a correlation between low ETRs and race does not prove that the benefits of dynamic property taxes correlate with race. The current owner of a property subject to a cap or phase-in may have purchased the property recently and paid a premium for the tax benefit. As I illustrate in the next Section, even if home prices depended *solely* on racial preferences, dynamic property taxes could negatively or positively correlate race and ETRs in a gentrifying neighborhood. This depends on the rate of gentrification, how quickly prices adjust to reflect changing demographics, and whether the jurisdiction uses caps or phase-ins.

B. *Gentrification*

To illustrate how dynamic property taxes interact with gentrification and racial preferences, I describe a very simple process of neighborhood change in a jurisdiction with a phase-in. The example shows how even the simplest model of race-based home prices can generate different predictions about observed correlations between homeowner race and ETRs under a dynamic property tax. As noted above, these correlations only demonstrate the nominal beneficiaries of dynamic property taxes. Since the benefits of dynamic property taxes often accrue in neighborhoods with high rates of turnover, determining the true racial incidence of dynamic property taxes depends on whether sales prices reflect dynamic tax benefits.

Consider a city composed of a collection of neighborhoods, each of which has identical homes and only black or only white residents. The price of a home in the neighborhood depends only on the racial composition. Specifically, the price of a home is $p(1 + w/n)$, where w is the number of white residents. The price of a home in a white neighborhood is twice the price of a home in a black neighborhood. Suppose also that each home is taxed at rate τ , and that the properties in each neighborhood are assessed only every three years. If housing prices increase from one assessment to the next, the increase in value is phased in over three years. If neighborhood demographics are stable, then the ETR in each neighborhood, and for each resident, is τ .

How does gentrification change the racial distribution of the tax burden? The process of gentrification I examine involves the movement of white residents into a black neighborhood (the “gentrifying neighborhood”), displacing black residents into other black neighborhoods. Since the movement of black homeowners to other black neighborhoods has no effect on property values in their new neighborhoods, the movers have a tax rate of τ after moving. The movement of whites out of white neighborhoods does not affect the prices of homes in the neighborhoods from which they depart, so the effective tax rate remains τ in those neighborhoods. The critical question in understanding the racial impact of dynamic property taxes is the effective tax rate within the gentrifying neighborhood.

Consider first the following extreme case: whites buy all the homes in the gentrifying neighborhood on the eve of reassessment. The market value of homes in that neighborhood will double to $2p$, but the assessed value of each home will be $(4/3)p$ in year 1, $(5/3)p$ in year 2, and $2p$ in year 3. The ETR for white residents in the gentrified neighborhood will rise from $(2/3)\tau$ in year 1 to $(5/6)\tau$ in year 2 before reaching τ in year 3. The displaced black residents will have an ETR of τ in their new homes. Statistical correlations of race and ETRs will show that whites have lower ETRs.

Of course, gentrification does not happen all at once. The rate of gentrification will affect the observed correlation between homeowner race and ETRs. Figure 1 illustrates the relationship between the rate of gentrification and average ETRs over a three-year assessment cycle, by race. The horizontal axis represents the share of the neighborhood that is gentrified just before reassessment in year 1. I assume that the rest of the neighborhood is gentrified in equal shares just before assessments are revised upward for years 2 and 3. The vertical axis represents the average ETR for the n white and black residents who move in and out, respectively, of the gentrifying neighborhood over the three-year gentrification period.

An important factor affecting ETRs during gentrification is the expectations of buyers and sellers about future demographic change. I consider two extreme cases. The solid lines in Figure 1 correspond to the (naïve) case where buyers and sellers expect that the neighborhood's future demographics will be the same as its current demographics. The dashed lines ("RE") correspond to perfect foresight, so that as soon as gentrification begins with the first white entrants, everyone knows that the neighborhood will be entirely white in three years. If market prices adjust instantaneously to reflect these expectations, then the price of housing will change to $2p$.³⁵ In the case of perfect foresight, fair market values and assessment ratios in the years after reassessment will be the same as when gentrification happened instantaneously. The difference is that some of the reduced ETRs in the neighborhood are enjoyed by black homeowners who have not yet been displaced.

35 It will actually increase to a little less than $2p$, reflecting the fact that the neighborhood is not entirely white yet, but I ignore this modest effect here.

FIGURE 1: ETRs BY RACE DURING THREE-YEAR GENTRIFICATION PERIOD

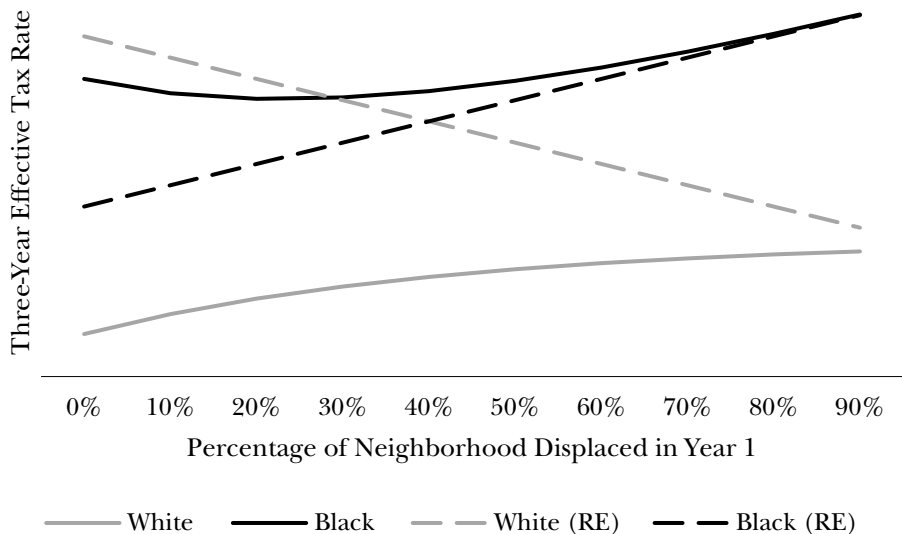


Figure 1 illustrates that—even if home prices are driven entirely by racial preferences and neighborhood re-sorting—observed ETRs could be either higher or lower for white homeowners than black homeowners. If home prices reflect only current demographics, then black homeowners will always have higher average ETRs over the three-year assessment cycle than white homeowners, with the largest gap observed in places with very high or low initial gentrification rates. But if markets are forward-looking—and they generally are—then only very rapid gentrification will result in white homeowners having lower ETRs than black homeowners. When home prices reflect anticipated gentrification, more of the beneficiaries of dynamic property taxes are the black homeowners who have not yet been displaced.

The rate of gentrification also affects how differences in ETRs by race vary over time. If less than half of a neighborhood is displaced in year 1, then black homeowners will have a lower average ETR in year 1 than white homeowners, but a higher average ETR than white homeowners in years 2 and 3. This means that observed correlations between ETRs and race will vary depending on when those correlations are estimated during the gentrification process.

There are a few takeaways from this analysis. First, gentrification interacts with dynamic property taxes to produce predictable correlations between ETRs and race. When market prices track the contemporaneous demographics of a neighborhood, ETRs will tend to be higher for black homeowners than white homeowners. When prices reflect rational expectations about future demographic change and gentrification happens very quickly, ETRs will also tend to be higher for black homeowners. Although I do not analyze them in this Section, in jurisdictions with caps (rather than phase-ins), even much slower rates of gentrification can result in higher

ETRs for black homeowners because assessed values may take longer to converge to market values. Recent evidence that black homeowners have higher ETRs than white homeowners has been explained as a valuation problem: housing price indices used to calculate market values are too coarse to account for differences in local public goods between adjacent black and white neighborhoods.³⁶ Dynamic property taxes provide an alternative explanation and require an alternative solution.

But the distributional effects are complicated. Even in cases where white homeowners have lower ETRs than black homeowners, the economic incidence of dynamic property-tax benefits may be shared by displaced black homeowners when they sell their properties. More evidence is needed about how property tax benefits are capitalized into sales prices.

Another aspect of the distributional question arises from the nature of municipal budgets: many local governments set the statutory tax rate on real property to collect a specified amount of revenue. If assessed values fall, then these rates go up. Imagine a city composed of one black neighborhood and one white neighborhood. In equilibrium, the total assessed value of all property in the city is the sum of the market values: $n_2p + np = 3np$ and the total revenue collected is $\tau 3np$. If all of the residents switched neighborhoods on the eve of the next property assessment, the aggregate assessed value of property in the city would be $n(4/3)p + np = (7/3)np$ and collecting the same amount of revenue would require setting a new, higher tax rate $\tau' = (9/7)\tau$.

Raising the tax rate means that some of the benefits of the phase-in to white gentrifiers are lost, but it also means that the ETR for black residents increases. Until assessed values converge to market values, gentrification results in what is essentially a subsidy from black homeowners to white homeowners. On the other hand, if the tax rate does not increase to compensate for lower aggregate assessed values, then property tax revenues fall. This means that the municipality will generally have to cut spending, which will have its own distributional consequences.³⁷

Second, the racially disparate impacts of dynamic property taxes raise important questions about whether these impacts are justifiable because of other benefits such taxes provide. Any such justification will probably depend on the reasons for home price growth. For example, if real estate investors tend to speculate on lower-income, predominantly black neighborhoods, perhaps lower ETRs are justified in those neighborhoods because property values do not reflect the contemporaneous benefits of living there. If property appreciation is driven by a change in residents' behavior, say by

36 Avenancio-León & Howard, *supra* note 7 (manuscript at 43). The effects of dynamic property taxes are consistent with the authors' results. Their analysis assumes that average assessment ratios should not vary by demographic group within a taxing jurisdiction, and they find that differences in ratios shrink at lower levels of geography. This is consistent with both differential amenities by neighborhood that are not accounted for in valuation, and differential growth rates under a dynamic property tax.

37 Local governments are generally prevented from borrowing to finance operating expenses.

mobilizing to improve local public safety and school quality, then perhaps lower ETRs can be justified as a way of encouraging such mobilization.

But in cases where home-price growth is generated by racial preferences, either because of a re-sorting of individuals across neighborhoods in a process of gentrification or because racial affinities allow certain residents to obtain preferential treatment by local government that increases home values, then the case for a property tax subsidy falls away. In these cases, dynamic property taxes exempt—albeit partially and temporarily—property value attributable to racial preferences. The question then is not just about how to weigh the disparate impacts of dynamic property taxes, but how to justify a tax that is based (implicitly) on race and that encourages gentrification. The answer may provide a *prima facie* case for dynamic property taxes of the opposite kind: increasing ETRs in rapidly appreciating areas.

III. EVIDENCE FROM MARYLAND

I have described in earlier work how New York City's caps create lower ETRs in neighborhoods with the highest incomes, the highest turnover, and the highest share of white residents.³⁸ In this Part, I explore Maryland's phase-ins. Maryland reassesses properties on staggered, three-year cycles. Roughly one-third of the properties in each county are reassessed each year.³⁹ If a property's appraised value is lower than its prior appraised value (determined three years earlier), then it is taxed at its current appraised value for the next three years. If the property's appraised value is greater than its previous appraised value, then the assessed value increases by one-third of the difference each year.⁴⁰ For example, a property appraised at \$300,000 in 2016 and appraised at \$330,000 in 2019 will have an assessed value of \$310,000 in 2019, \$320,000 in 2020, and \$330,000 in 2021.

A. Data

Figure 2 illustrates the evolution of residential housing prices in Maryland since 1995.⁴¹ There was a large run-up until 2008 before the steep decline associated with the Great Recession's housing market collapse. Home prices have increased steadily since 2011. To focus on phase-ins' benefits, which accrue during periods of price growth, I will focus on two points in time following periods of growth: 2008 and 2017.

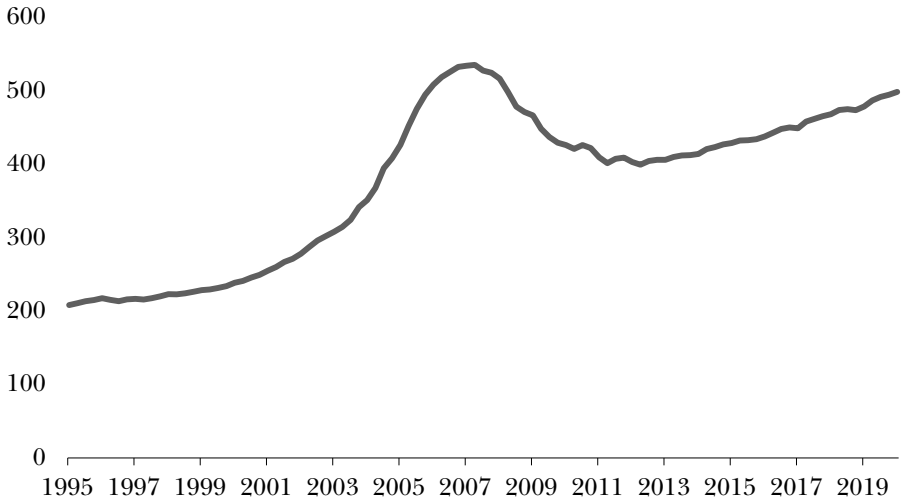
38 Hayashi, *supra* note 4.

39 This rotating system of assessment means that there is some arbitrariness in property tax liabilities each year, depending on when a property was last assessed. See Andrew T. Hayashi, *Countercyclical Property Taxes*, 40 VA. TAX REV. 1, 31–33 (2020).

40 MD. CODE ANN., TAX–PROP. § 8-103(a)(3) (West 2021).

41 *All-Transactions House Price Index for Maryland*, FED. RSRV. ECON. DATA, <https://fred.stlouisfed.org/series/MDSTHPI> (last visited Jan. 19, 2021). Monthly index is based on Q1 of 1980 being 100.

FIGURE 2: HOUSING PRICES IN MARYLAND 1995–2020



To measure the benefits of phase-ins, I use property-level tax records for the state of Maryland from 2008 to 2017.⁴² These data include detailed property-level information, including the characteristics of the property, the assessed value, and the property tax bill. I calculate the tax savings from phase-ins as the difference between the property taxes actually owed and the taxes that would be owed if the property were taxed at its market value, determined in the last year of assessment.

Data on neighborhood demographics are from the U.S. Census Bureau. The time period of the property tax data and the fine-grained level of geography for analysis in my study requires using data from two sources. The five-year American Community Survey (ACS) reports demographic characteristics by census block group, a geographical unit of 600 to 2000 people. However, to generate estimates at this level of geography, the ACS samples households over five years, meaning that the estimates reported for 2017, for example, reflect data collected from 2013 to 2017 rather than a snapshot in 2017. The five-year ACS is inappropriate for measuring year-to-year changes, but it can help identify changes over a longer period by comparing versions that do not overlap. I use the ACS estimates to study block-group demographics for the 2017 tax year. Since the ACS only began to be published in 2009, I cannot use it to look at demographics for the 2008 tax year.

42 The data were provided by CoreLogic, a commercial provider of real estate data. The evidence from Maryland that I report below uses administrative data (rather than survey data on property taxes) and census block group level demographic data. Administrative data are better than survey data because they measure property tax liability with less error and because such error may be correlated with race because of differential use of mortgage escrow by race. Andrew T. Hayashi, *The Legal Salience of Taxation*, 81 U. CHI. L. REV. 1443, 1480–81 (2014).

Instead, I use the 2000 and 2010 decennial census to study the changing demographics around the 2008 tax year.

B. Demographics and Tax Savings

In 2008, the total amount of tax savings in Maryland created by the phase-in of appreciation for owner-occupied properties was \$390.9 million. For 2017, a year following a period of less dramatic appreciation, the tax savings totaled \$162 million. To estimate the beneficiaries of phase-ins by race, I allocated the aggregate tax savings within each block group to racial groups according to their share of the population in that block group, using the 2010 decennial census for 2008 and the 2017 ACS for 2017. Table 1 compares each racial group's share of tax savings with their share of the population.

TABLE 1: SHARES OF PHASE-IN BENEFITS AND POPULATION

	2008		2017	
	% Savings	% Population	% Savings	% Population
Black	23.4%	28.5%	30.3%	29.4%
White	70.3%	62.7%	55.5%	57.2%
Asian	3.4%	4.6%	6.9%	6.2%

For 2008, I estimate that white residents benefited from phase-ins disproportionately, receiving a little over 70% of the tax savings while making up 62.7% of the population. By 2017, each racial group benefitted in roughly the same proportion as their population.

Table 2, in the Appendix, reports the racial demographic characteristics of neighborhoods depending on the median assessment ratio for that neighborhood. For each of 2008 and 2017, I focus on neighborhoods where the median assessment ratio was less than one and divided the distribution of median neighborhood assessment ratios into five quintiles. Within each quintile, I report the median home value and median assessment ratio. I also report the median population share falling into each of three racial categories corresponding to the tax year an earlier year—ten years earlier in the case of 2008 and five years earlier in the case of 2017. I have indicated in light gray (dark gray) if the median population share for a particular racial group in each quintile increased (decreased) during the interval. The last row in each panel of the table includes a neighborhood where the median assessment ratio was one.

Looking at the grayscale coding, one can see that the white population share has been decreasing while the Asian and black shares have generally been increasing. For both 2008 and 2017, the neighborhoods with the lowest assessment ratios were the only ones where the share of black residents had

declined over the change period. In 2008 that decline was accompanied by an increase in white population share.

Figure 3 plots the relationship between median neighborhood assessment ratios in 2008 and both the share of white residents in 2010 (on the left panel) and the change in white residents from 2000 to 2010 (on the right panel) for each percentile of the distribution. The share of white residents in 2010 and the increase in white residents from 2000 to 2010 are both negatively correlated with median assessment ratios. But Figure 4 shows the opposite relationship for 2017. Figures 5 and 6 focus on the relationship between demographics and assessment ratios for appreciating neighborhoods; they correspond to Figures 3 and 4 but omit neighborhoods where the median assessment ratio was one. The correlations are the same in three of the four cases, but for 2008 focusing on growth neighborhoods shows a positive relationship between the share of white residents in 2010 and neighborhood assessment ratios.

To disentangle the relationship between current demographics and changing demographics on assessment ratios, Table 3 in the Appendix reports the estimates from four regression models, corresponding to the data in Figures 3–6. Each column reports a regression of the median neighborhood assessment ratio on the contemporaneous share of white residents and the change in the share of white residents over time. Columns 2 and 4 include estimates only for growth neighborhoods, where the median assessment ratio is less than one. The story is consistent across all of the regressions: the contemporary share of white residents is associated with higher assessment ratios (lower tax savings), but the *increase* in white residents during the change period is associated with higher rates of home appreciation and therefore lower assessment ratios, and hence greater tax savings.

CONCLUSION

Although market forces can cause property values to depend on neighborhood demographics, property taxes do not generally amplify the advantages that come from proximity to white homeowners. Property value derived from racial preferences is taxed like any other source of value. But many jurisdictions have adopted dynamic property taxes that tax gentrifying neighborhoods at lower rates than other neighborhoods, encouraging processes of racial gentrification and raising difficult distributional questions that previously have been ignored.

APPENDIX

FIGURE 3: BLOCK GROUP MEDIAN ASSESSMENT RATIOS – 2008

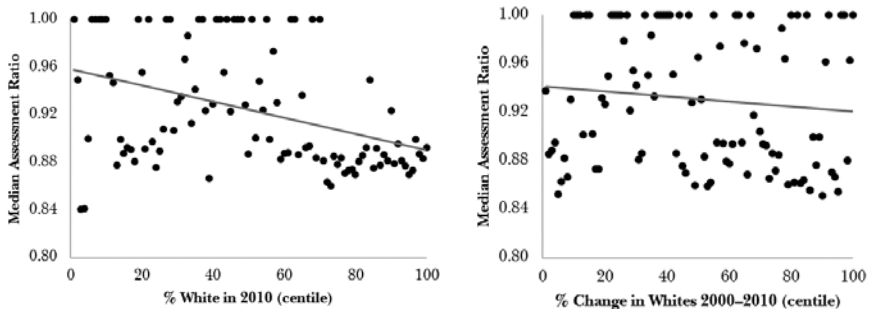


FIGURE 4: BLOCK GROUP MEDIAN ASSESSMENT RATIOS – 2017

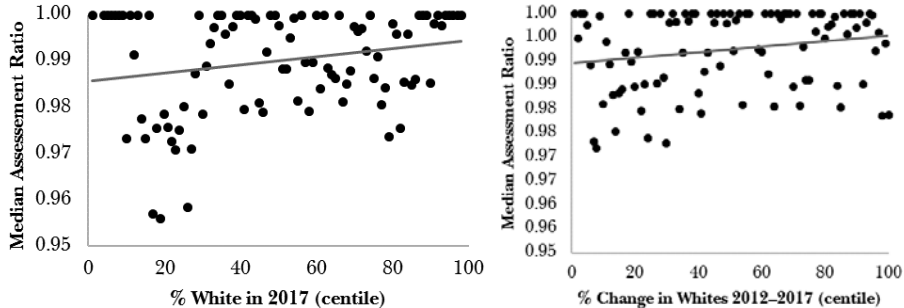


FIGURE 5: BLOCK GROUP MEDIAN ASSESSMENT RATIOS – 2008 (AR < 1)

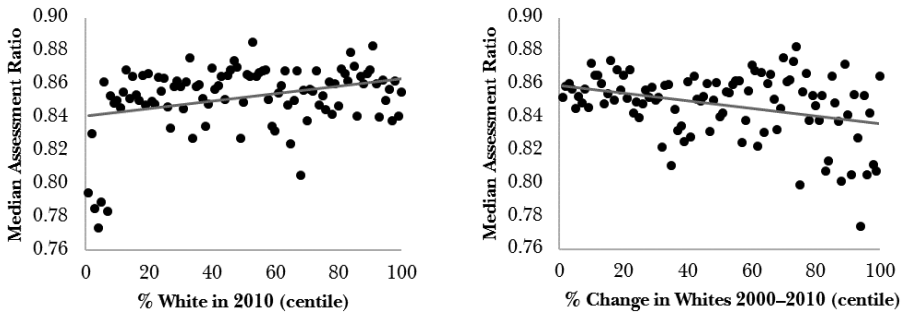


FIGURE 6: BLOCK GROUP MEDIAN ASSESSMENT RATIOS – 2017 (AR < 1)

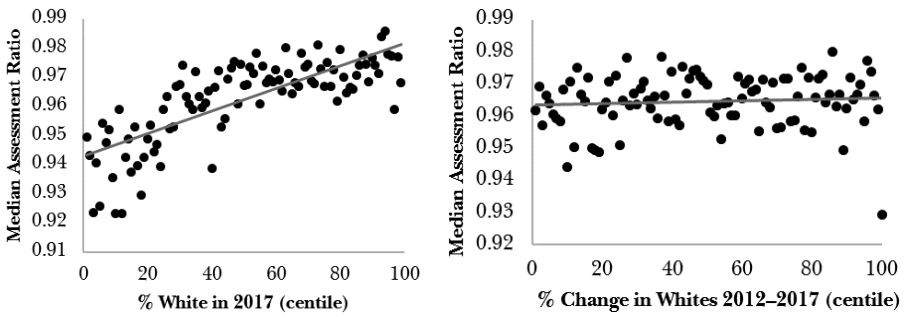


TABLE 2: CHARACTERISTICS OF CENSUS BLOCK GROUPS BY ASSESSMENT RATIO

2008										
Median AR Quintile	Median FMV	Median AR	Asian 2010	Asian 2000	Black 2010	Black 2000	White 2010	White 2000		
1	\$179,410	0.758	0.9%	0.5%	27.3%	32.7%	62.4%	60.2%		
2	\$260,040	0.827	1.4%	0.7%	10.5%	7.7%	84.4%	87.6%		
3	\$268,160	0.856	1.6%	1.0%	20.9%	17.4%	71.3%	77.3%		
4	\$341,540	0.876	1.4%	0.7%	7.9%	6.5%	85.6%	89.3%		
5	\$414,120	0.911	4.0%	3.0%	11.2%	8.5%	72.9%	81.9%		
	\$295,890	1.000	2.1%	1.3%	16.3%	15.2%	68.1%	74.8%		
2017										
Median AR Quintile	Median FMV	Median AR	Asian 2017	Asian 2012	Black 2017	Black 2012	White 2017	White 2012		
1	\$256,625	0.911	2.9%	2.9%	38.3%	42.6%	29.6%	33.2%		
2	\$272,100	0.947	3.8%	2.9%	18.6%	18.1%	61.6%	66.1%		
3	\$280,000	0.966	3.6%	2.7%	10.4%	8.4%	75.3%	77.4%		
4	\$276,125	0.978	2.5%	2.4%	11.8%	10.0%	72.3%	76.4%		
5	\$270,650	0.990	1.4%	1.1%	8.6%	8.2%	81.3%	83.7%		
	\$188,400	1.000	1.1%	0.6%	19.1%	17.8%	63.2%	67.7%		

TABLE 3: PREDICTORS OF CENSUS BLOCK GROUP ASSESSMENT RATIOS

	2008	2008 AR<1	2017	2017 AR<1
% White	0.0213** (3.13)	0.0737** (9.75)	0.0159** (8.24)	0.0435** (14.24)
Δ % White 2000–2010	-0.0744** (-3.22)	-0.186** (-6.53)		
Δ % White 2012–2017			-0.0111* (-2.15)	-0.0300** (-3.96)
Constant	0.889** (156.36)	0.776** (113.36)	0.968** (652.67)	0.930** (395.29)
Observations	2710	1523	3817	1969

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$

