



Demographic Analysis of Property Tax Outcomes in DC

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Office of the Chief Financial Officer
Government of the District of Columbia

Research Questions:



1. Do higher- and lower-valued properties have similar property tax outcomes using two standard measures of the property tax assessment process: 1) assessment sales ratios and 2) effective tax rates?
2. Using the same measures of ASRs and ETRs, do properties in Census Tracts with higher shares of minority homeownership have different outcomes?

Key Variable #1: Assessment Sales Ratio



- Assessment Sales Ratio (ASR or AS Ratio) = assessment level/sale price
 - ASR <1 = under-assessed; ASR >1 = over-assessed.
 - OA properties taxed higher relative to the property value than UA properties.

Example:	Assessment:	Sale Price:	ASR:	Tax:
House 1	\$500,000	\$505,000	0.99	\$4,250
House 2	\$500,000	\$495,000	1.01	\$4,250
House 3	\$800,000	\$875,000	0.91	\$6,800

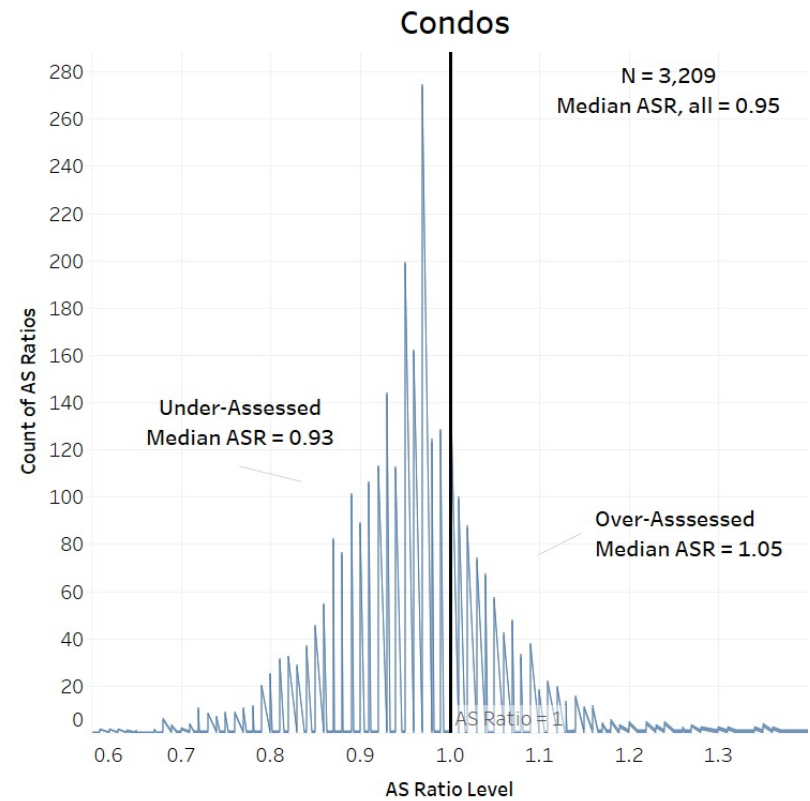
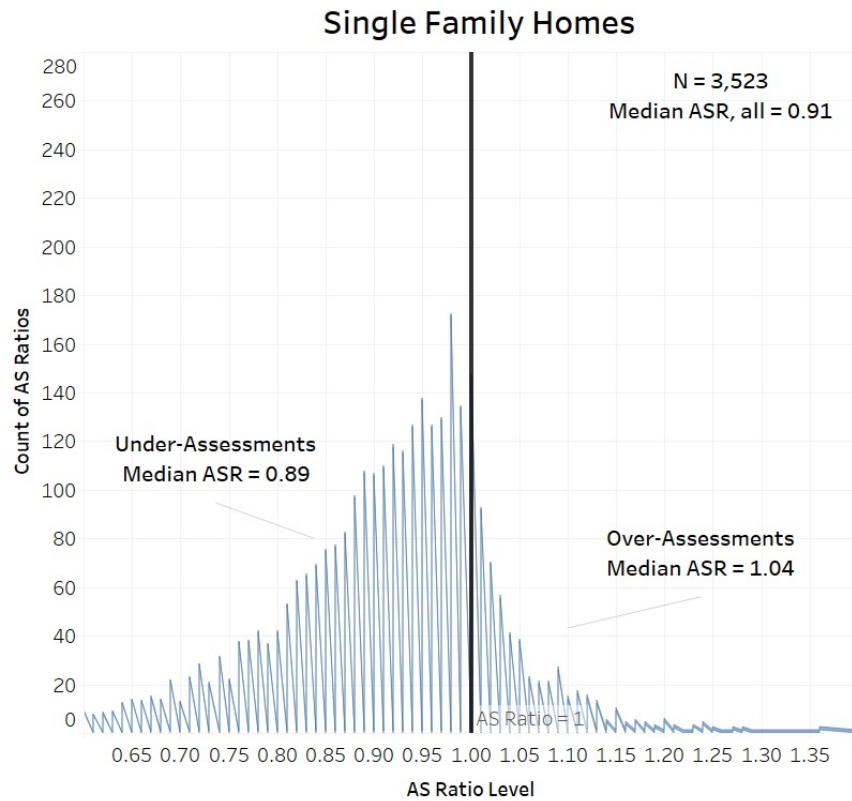
Key Variable #2: Effective Tax Rate



- Effective Tax Rate (ETR) = property tax paid/sale price

Example:	Assessment Value:	Sale Price:	Taxable value (- Homestead Deduction)	Tax Paid	Effective Tax Rate:
House 1	\$500,000	\$505,000	423,650	\$3,601	0.71%
House 2	\$500,000	\$495,000	423,650	\$3,601	0.73%
House 3	\$800,000	\$875,000	\$723,650	\$6,151	0.70%

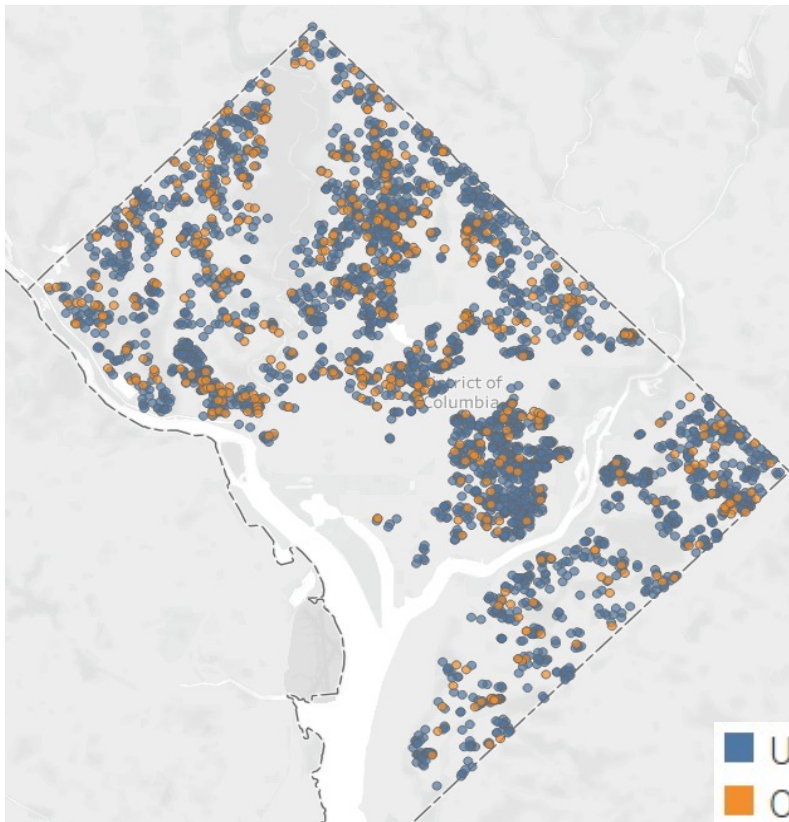
Distribution of AS Ratios Around 1



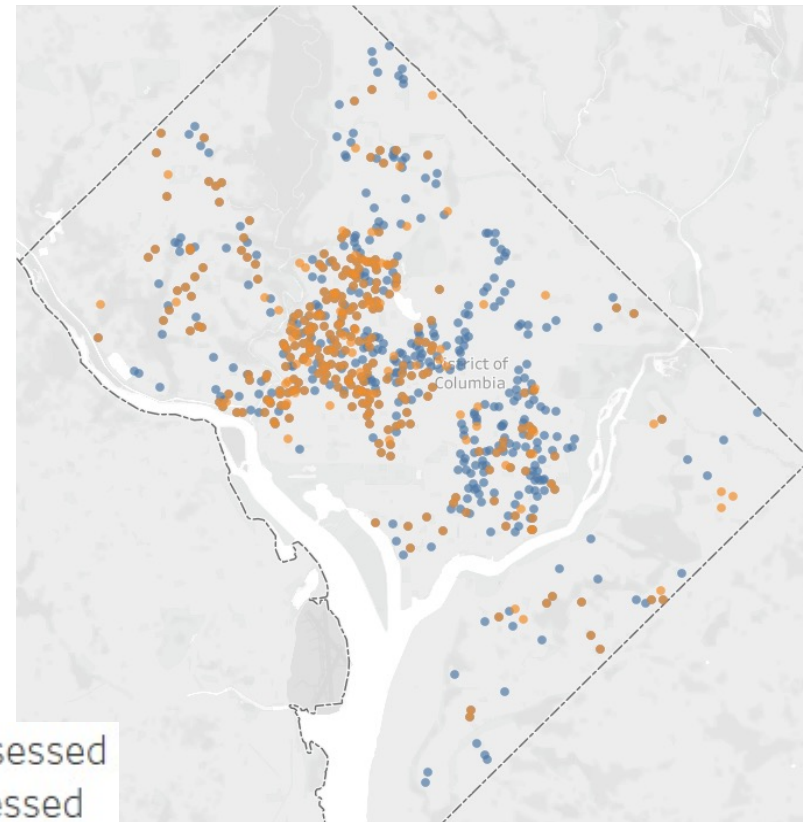
Map of Under- and Over-Assessments



Single Family Homes



Condos



■ Under-Assessed
■ Over-Assessed

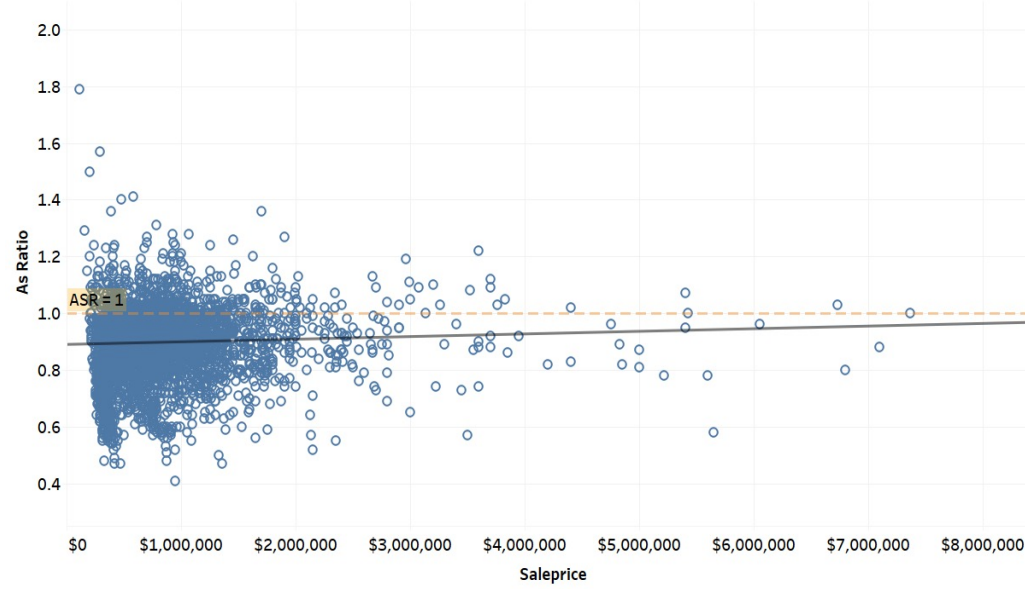


Assessing Vertical Equity: Do Higher Valued Properties Have Different Property Tax Outcomes than Lower Valued Properties?

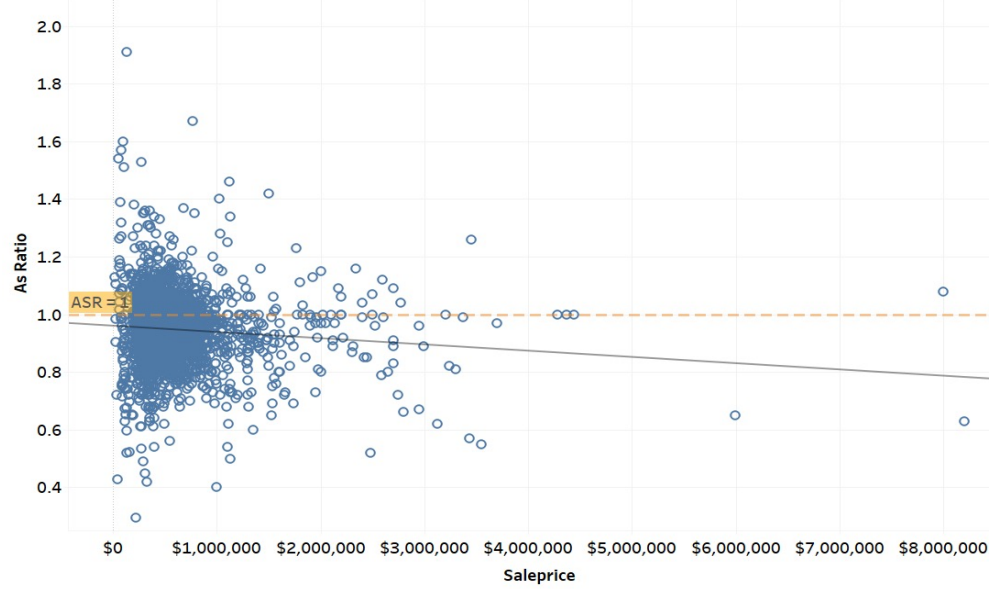
Assessment Sales Ratios by Sale Price



Assessment Sales Ratio by Saleprice - SFH



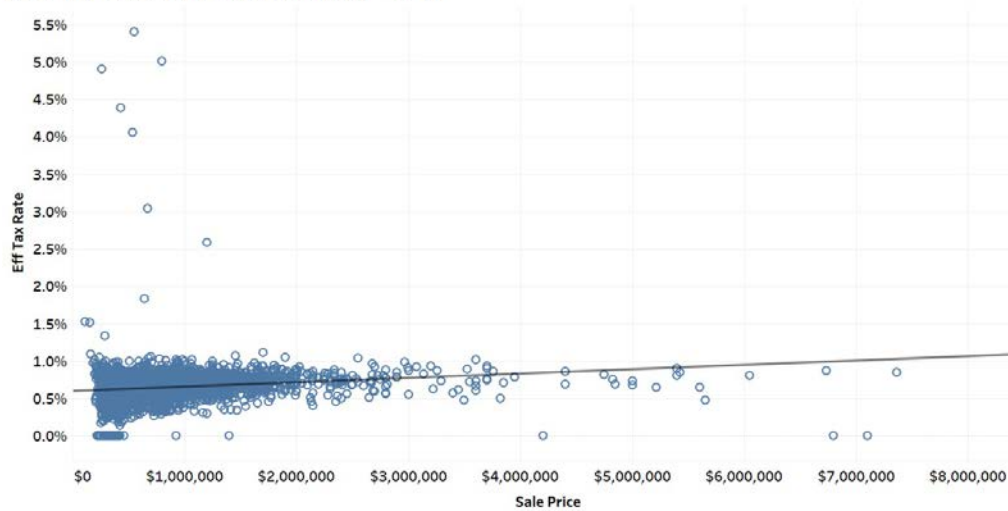
Assessment Sales Ratio by Saleprice - Condos



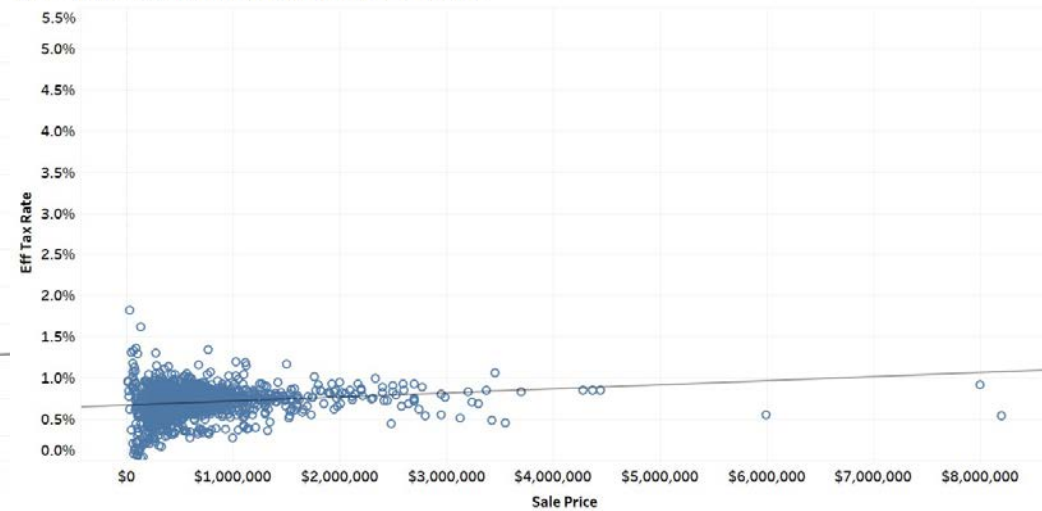
Effective Tax Rates by Sale Price



Effective Tax Rate by Saleprice - SFH



Effective Tax Rate by Saleprice - Condos



Sale Price Deciles – SFHs and Condos



SFHs

Decile	# of Homes in Decile	Median Sale Price	Median ASR	Median ETR
1	352	\$ 310,250	0.84	0.47%
2	353	\$ 399,999	0.91	0.57%
3	352	\$ 495,000	0.92	0.64%
4	361	\$ 600,000	0.94	0.67%
5	342	\$ 700,000	0.935	0.67%
6	353	\$ 780,000	0.93	0.69%
7	352	\$ 875,000	0.93	0.71%
8	358	\$1,000,000	0.92	0.71%
9	348	\$1,249,250	0.89	0.70%
10	352	\$1,800,000	0.91	0.74%

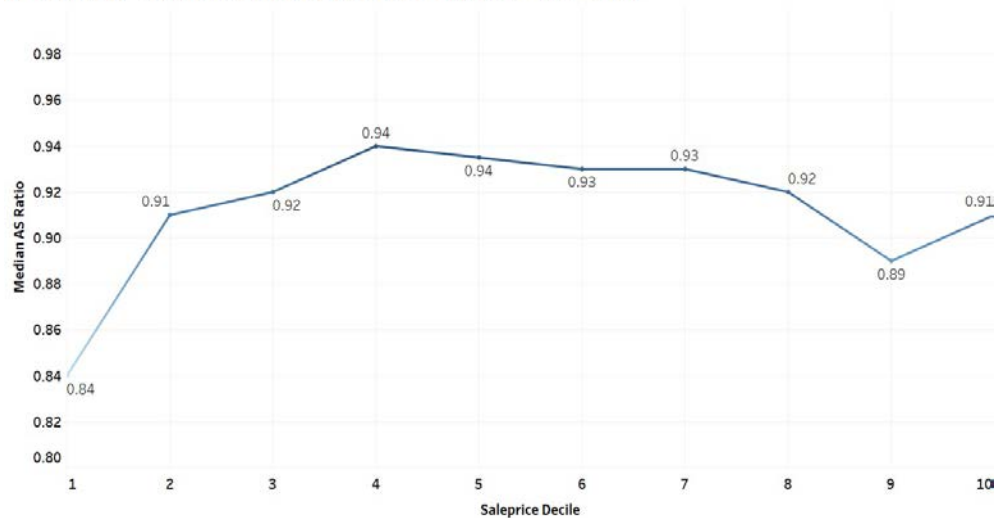
Condos

Decile	# of Homes in Decile	Median Sale Price	Median ASR	Median ETR
1	320	\$ 230,000	0.95	0.61%
2	317	\$ 305,000	0.95	0.62%
3	325	\$ 359,000	0.96	0.65%
4	316	\$ 402,000	0.96	0.66%
5	322	\$ 450,000	0.96	0.69%
6	324	\$ 500,000	0.95	0.70%
7	320	\$ 565,000	0.96	0.71%
8	321	\$ 645,000	0.95	0.72%
9	324	\$ 760,023	0.95	0.74%
10	320	\$ 1,150,000	0.93	0.75%

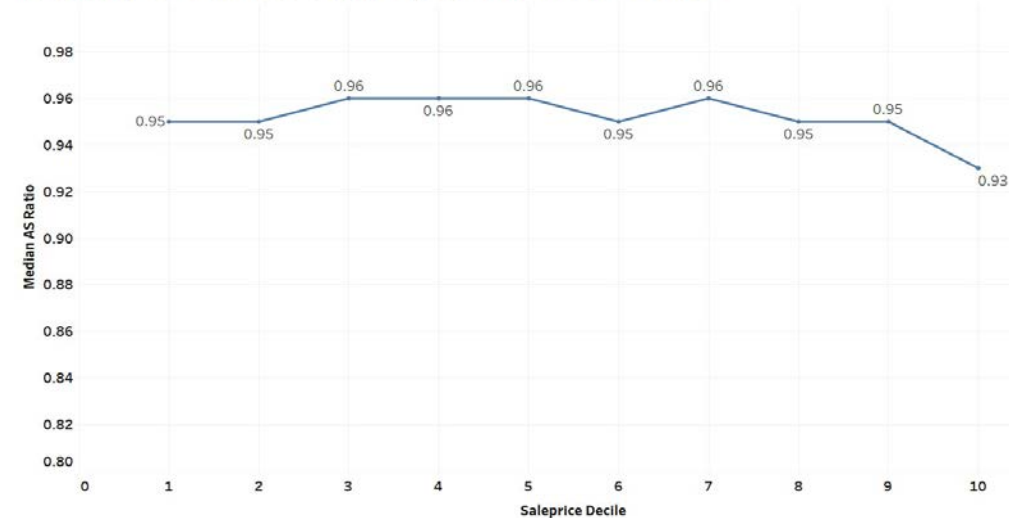
Assessment Sales Ratios by Sale Price Decile



Median Assessment Sales Ratio by Saleprice Decile - SFH



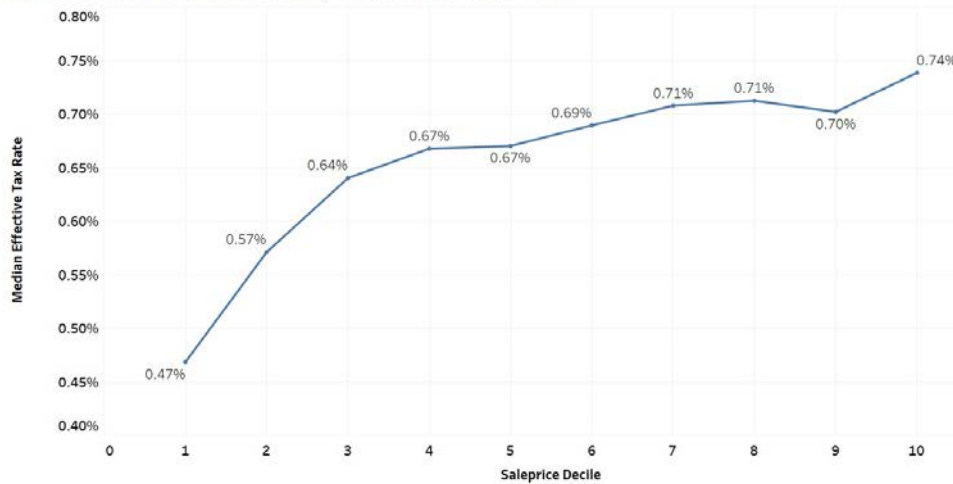
Median Assessment Sales Ratio by Saleprice Decile - Condos



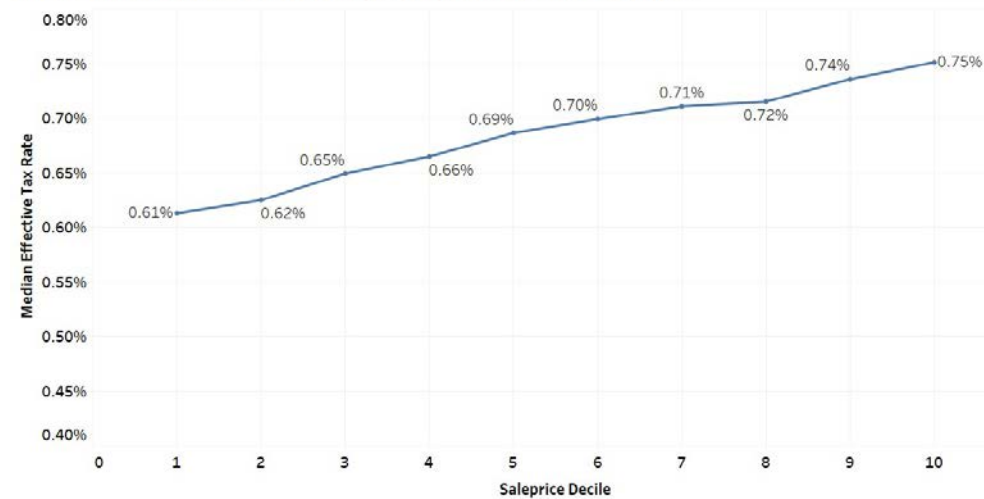
Effective Tax Rates by Sale Price Decile



Median Effective Tax Rate by Saleprice Decile - SFH



Median Effective Tax Rate by Saleprice Decile - Condos



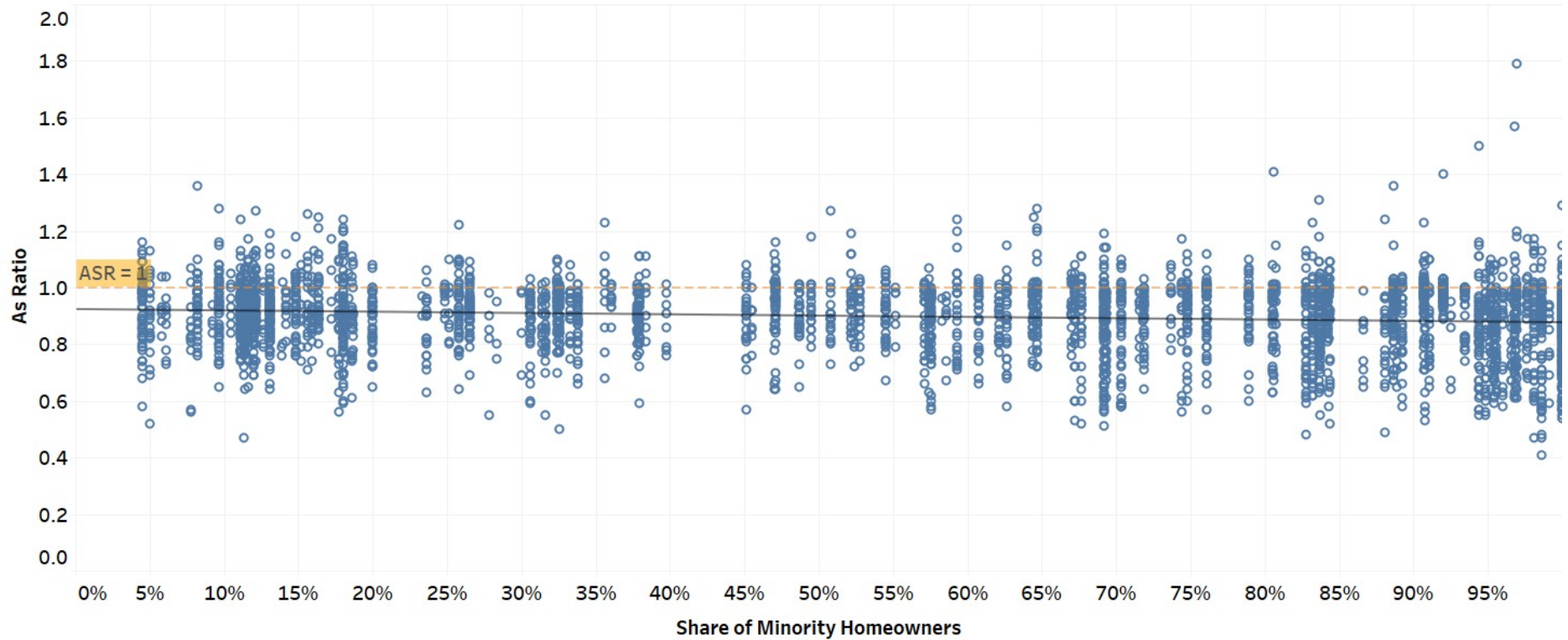


Assessing Horizontal Equity with Census data on level of minority homeownership by Tract

Assessment Sales Ratios by Share of Minority Homeowners in Property's Census Tract



Assessment Sales Ratios by Share of Minority Homeowners - SFH

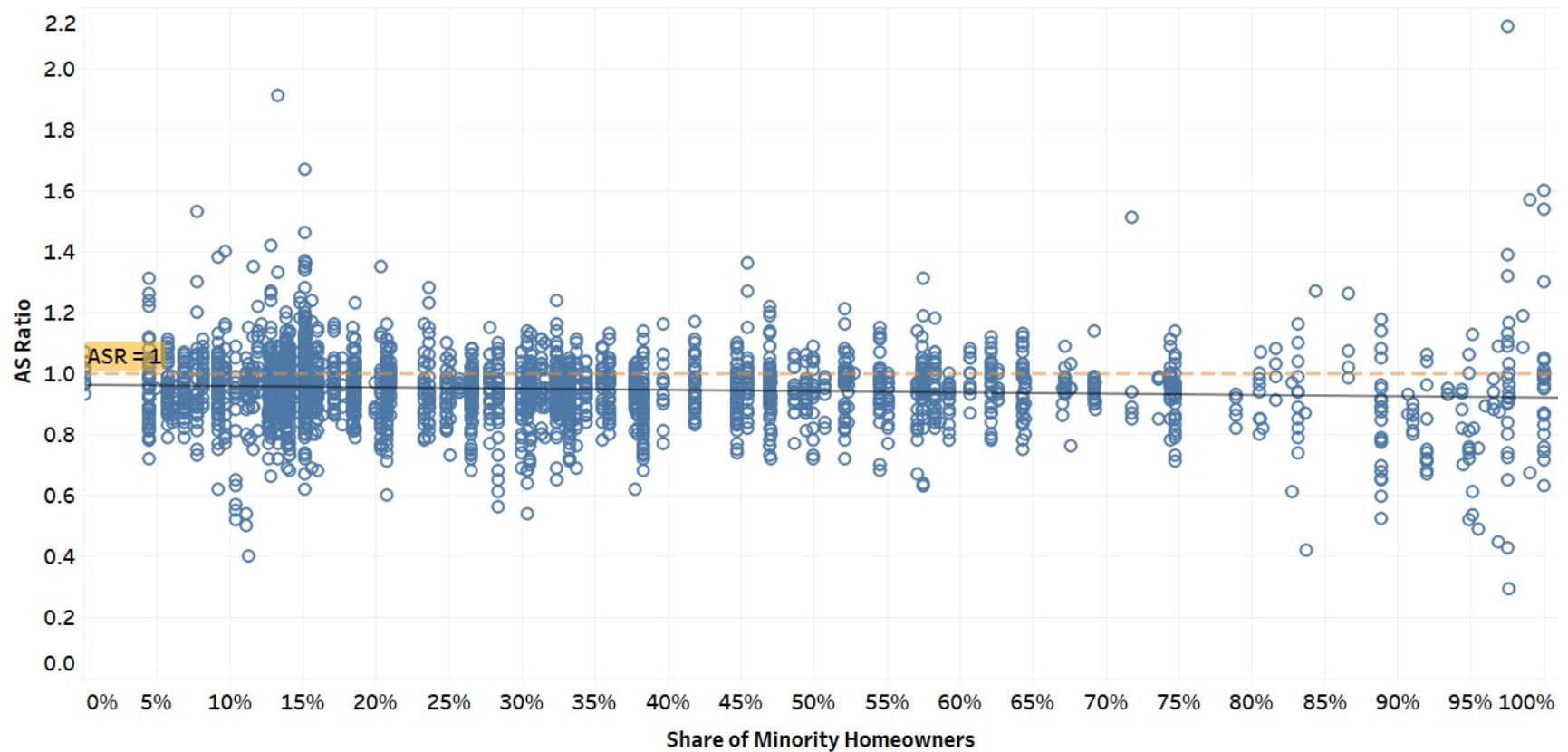


Note: Excludes one outlier of ASR=2.8, at 90% share of minority owners

Assessment Sales Ratios by Share of Minority Homeowners in Property's Census Tract



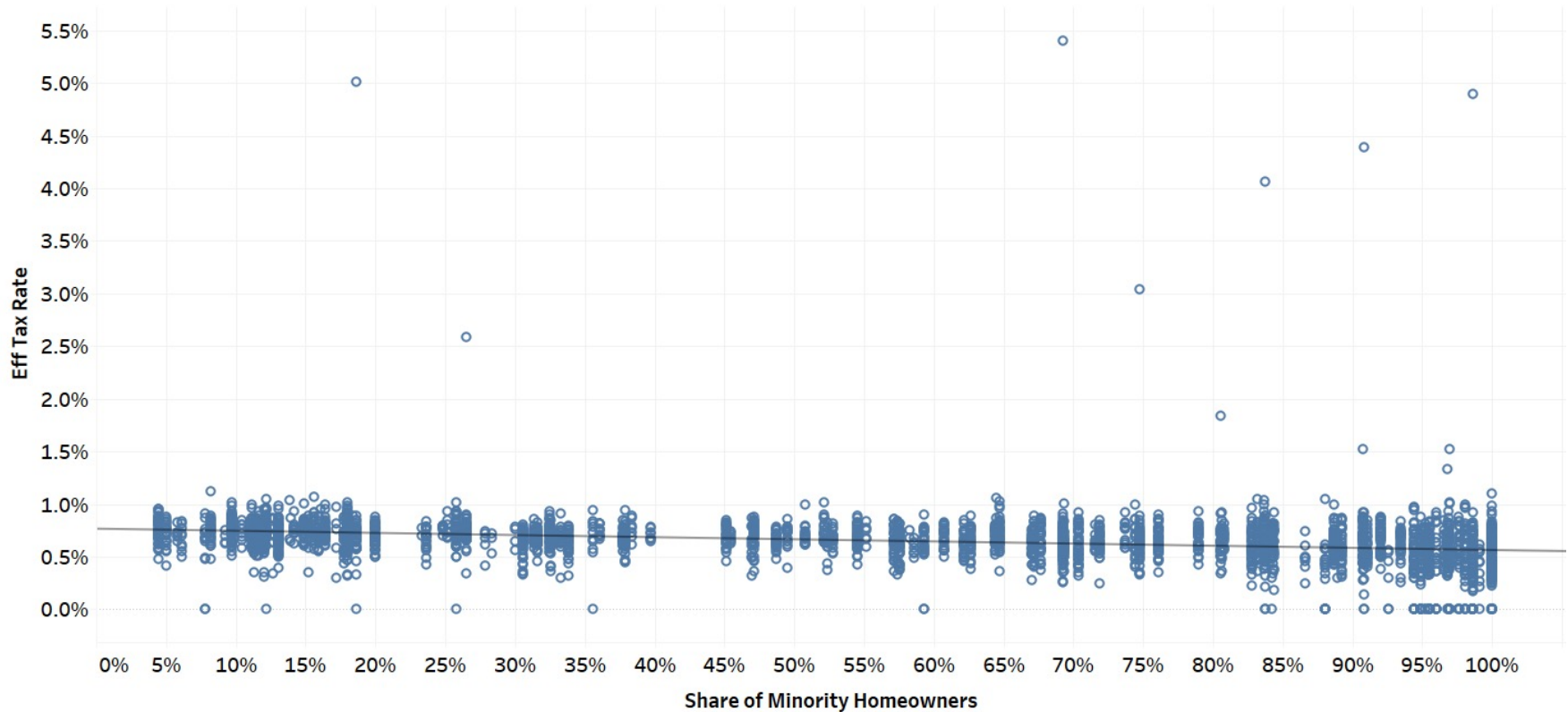
Assessment Sales Ratio by Share of Minority Homeowners - Condos



Effective Tax Rates by Share of Minority Homeowners in Property's Census Tract - SFH



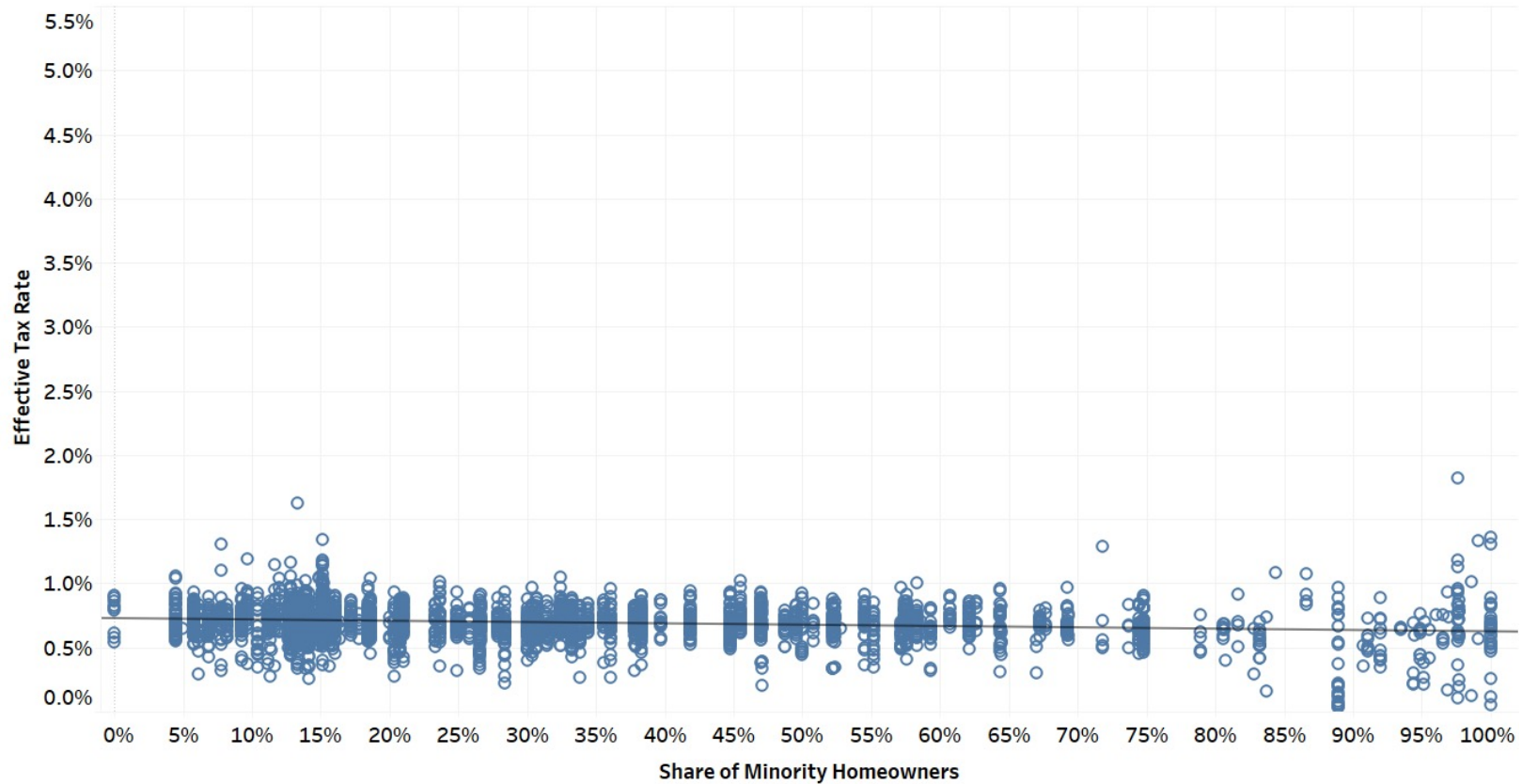
Effective Tax Rate by Share of Minority Homeowners - SFH



Effective Tax Rates by Share of Minority Homeowners in Property's Census Tract - Condo



Effective Tax Rate by Share of Minority Homeowners - Condo



Summary of Results



Vertical Equity:

- ASRs of SFHs are increasing with sale price; ASRs of Condos are decreasing with sale price. Decile analysis flattens condo trend though median ASRs still decrease for top sale price decile
- Decreasing ASR trend for condos is concerning and signals possible regressivity. However, ETRs are increasing as sale price increases for both SFHs and condos, reflecting homestead deduction and other tax relief

Horizontal Equity:

- ASRs and ETRs decrease slightly as the percentage of minority homeowners (by census tract) increases for both SFHs and condos, indicating no observable racial disparities in the aggregate

Concluding thoughts



- Mass appraisal systems may lead to some less-than-ideal outcomes. There are many reasons for both under- and over-assessment. We saw some issues in the data we analyzed, especially with some higher valued homes
- However, the effective tax rate analysis shows that our tax policy in DC is correcting much of the regressivity we saw
- We do not see evidence of racial disparities in assessments, based on our analysis.



Thank you!
Questions?

Extra Slides

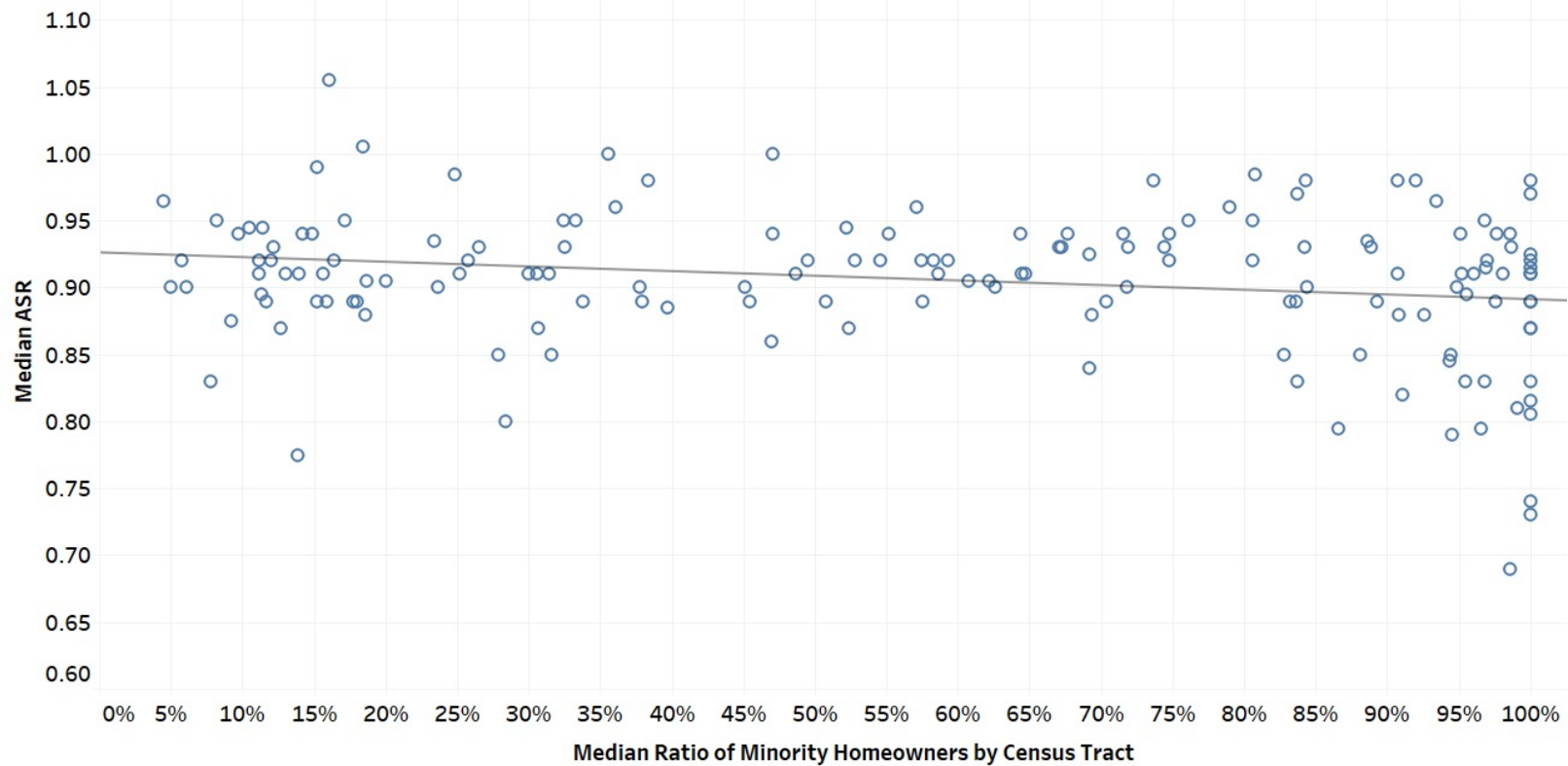


Some recent analyses found racial disparities in property assessments

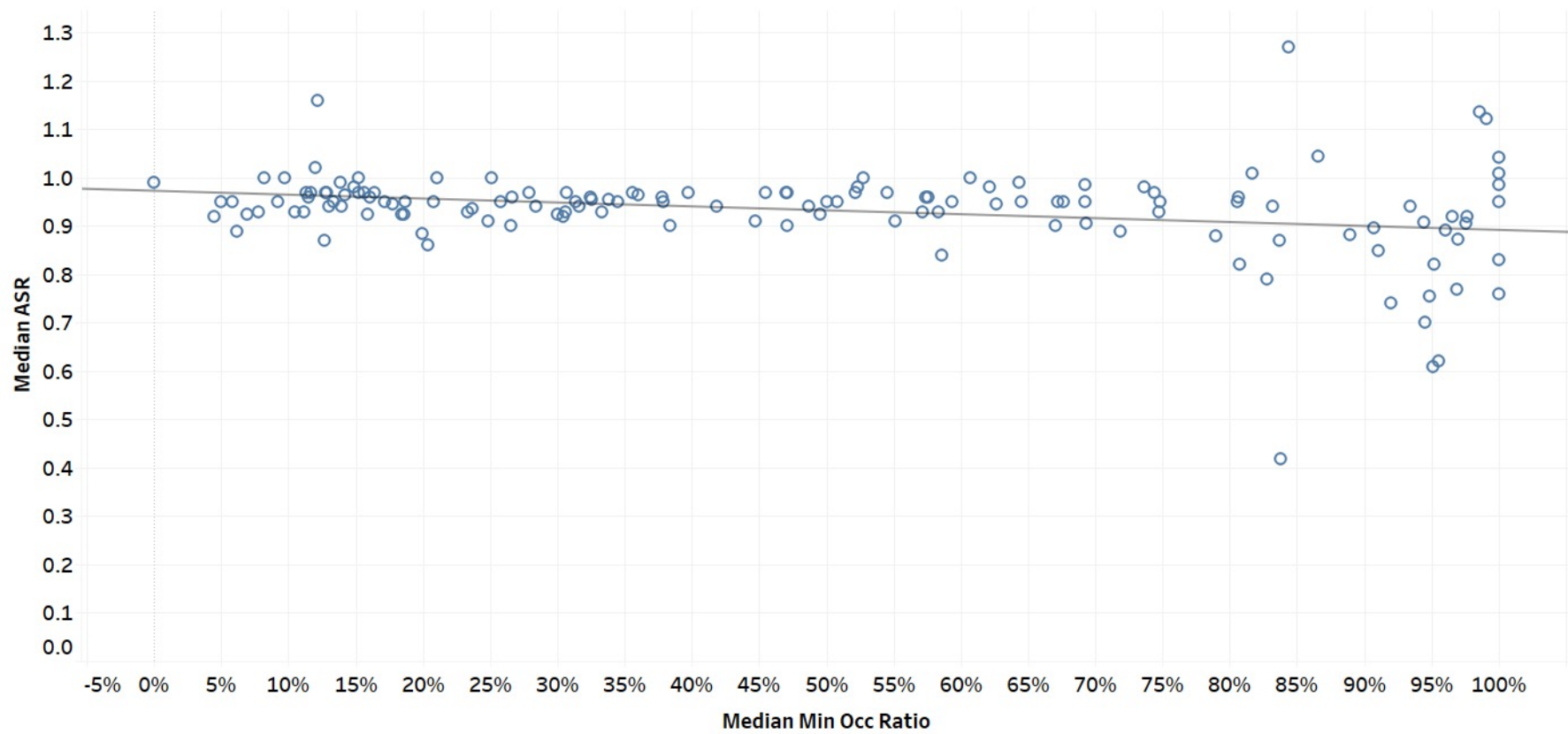


- Avenancio and Leon (2020)/Washington Center for Equitable Growth
 - Nationwide, did not include DC in findings
- Berry (2021)/Univ. of Chicago Center for Municipal Finance
 - Nationwide analysis, includes DC data from 2008 – 2017
- Franklin County, OH Auditor (2021) – Columbus, Ohio
- Ihlanfeldt and Rodgers (2021) – State of Florida

Median Census Tract AS Ratio by Ratio of Minority Homeowners in Tract - SFH



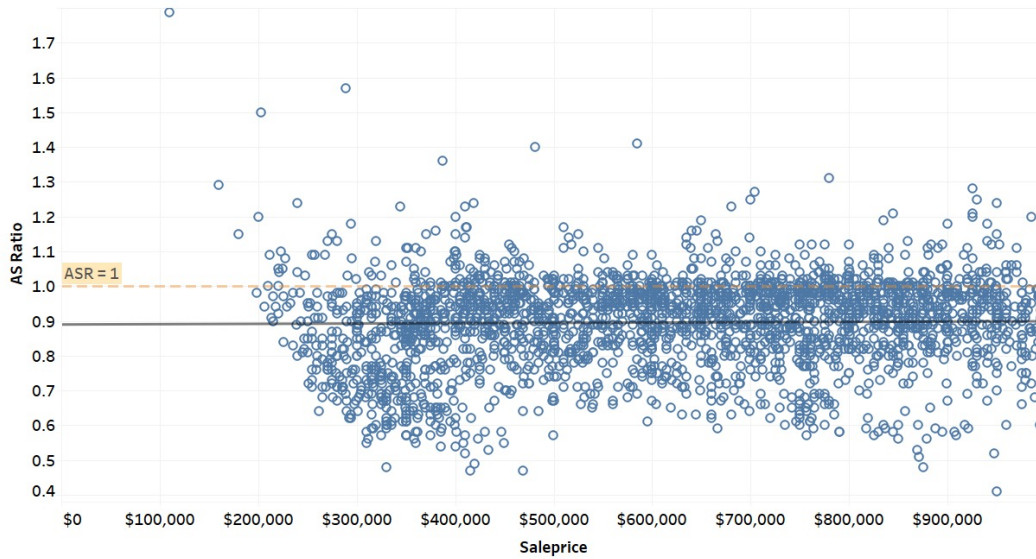
Median Census Tract AS Ratio by Ratio of Minority Homeowners in Tract - Condos



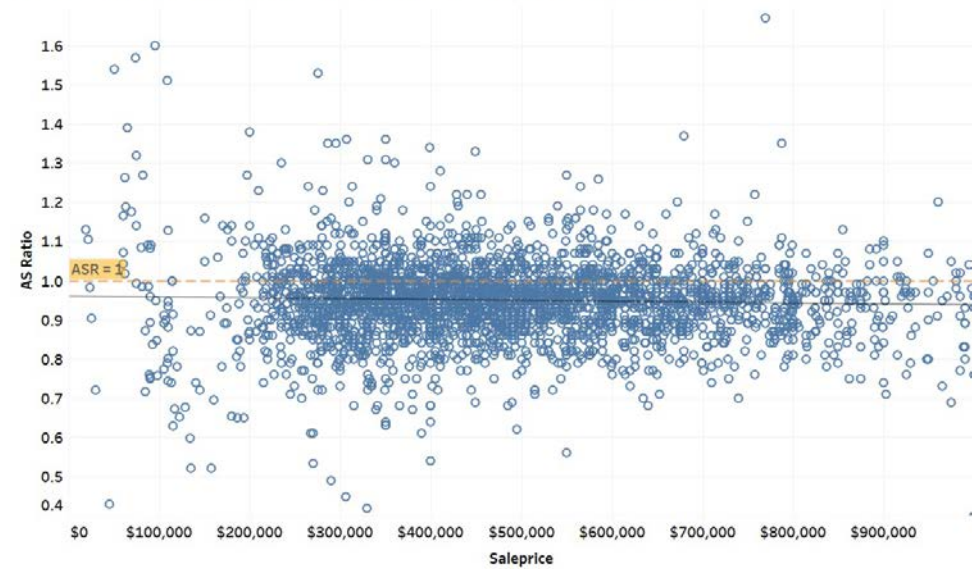
Assessment Sales Ratios by Sales Price



Assessment Sales Ratio by Saleprice - up to \$1 mil - SFH



Assessment Sales Ratio by Saleprice - up to \$1 mil - Condos

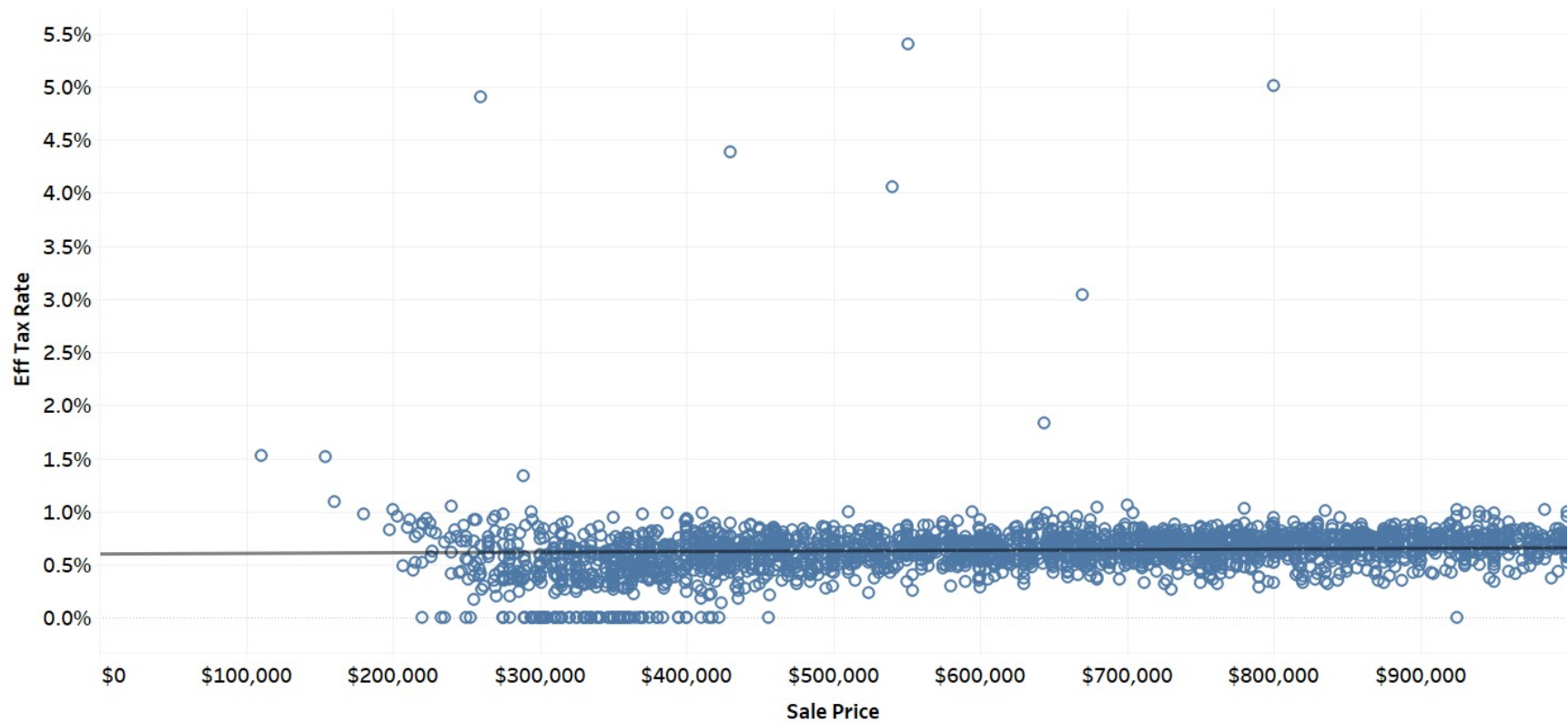


Note: Sale prices up to \$1 million are presented in the charts; the trend lines represent the full data.

Effective Tax Rates by Sale Price



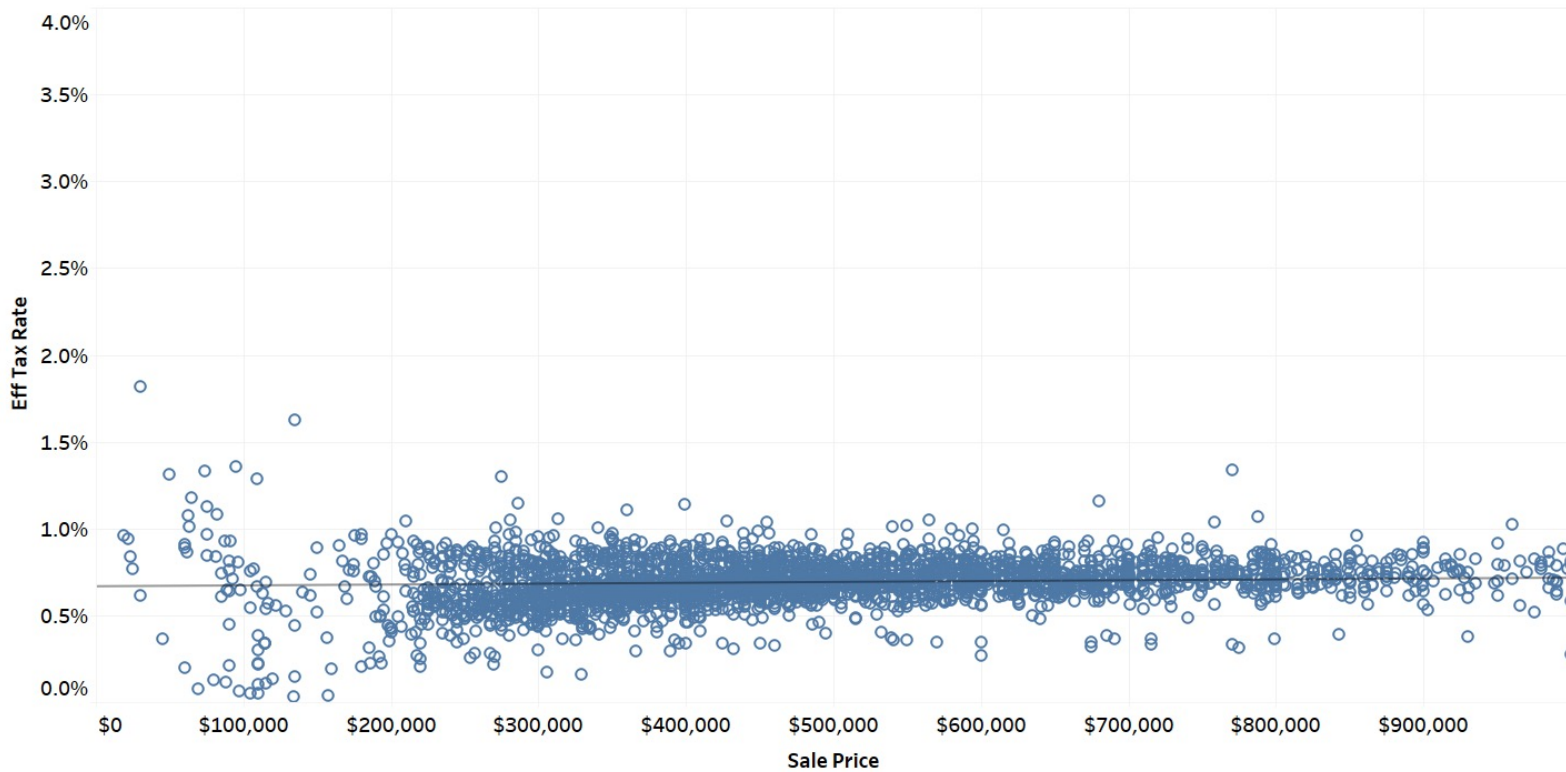
Effective Tax Rate by Saleprice - SFH



Effective Tax Rates by Sale Price



Effective Tax Rate by Saleprice - Condos



Other measures of assessment, COD and PRD



- In property assessment, a measure of variation, or the relative spread of the data around a typical ratio, is called the coefficient of dispersion (COD). A higher coefficient of dispersion shows where there is the most variation in assessment sales ratios within a jurisdiction.
- For SFHs, we calculated COD of median ASRs by Ward and neighborhood.
- Deanwood, Woodridge, Trinidad, and Marshall Heights stand out as having the most variation in 2019; these neighborhoods with the most variation have very high shares of minority homeowners.
- A second way to study variation is a statistic called the Price Related Differential (PRD), which is a measure of whether lower valued homes are assessed at lower ratios (then the PRD is under 1), or if higher valued homes are assessed at lower ratios (then the PRD would be over 1). A value of 1 is a perfect measure.
- At the District, Ward, and neighborhood level, our calculated PRD scores fall within the acceptable ranges set by the IAAO and do not indicate any vertical inequity