Demographic Analysis of Property Tax Outcomes in DC

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Presentation for the Federation of Tax Administrators
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Disclaimer: The views presented here are our own and do not represent the OCFO
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.

<table>
<thead>
<tr>
<th>Example:</th>
<th>Assessment:</th>
<th>Sale Price:</th>
<th>ASR:</th>
<th>Tax:</th>
</tr>
</thead>
<tbody>
<tr>
<td>House 1</td>
<td>$500,000</td>
<td>$505,000</td>
<td>0.99</td>
<td>$4,250</td>
</tr>
<tr>
<td>House 2</td>
<td>$500,000</td>
<td>$495,000</td>
<td>1.01</td>
<td>$4,250</td>
</tr>
<tr>
<td>House 3</td>
<td>$800,000</td>
<td>$875,000</td>
<td>0.91</td>
<td>$6,800</td>
</tr>
</tbody>
</table>
### Key Variable #2: Effective Tax Rate

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

<table>
<thead>
<tr>
<th>Example:</th>
<th>Assessment Value:</th>
<th>Sale Price:</th>
<th>Taxable value (- Homestead Deduction)</th>
<th>Tax Paid</th>
<th>Effective Tax Rate:</th>
</tr>
</thead>
<tbody>
<tr>
<td>House 1</td>
<td>$500,000</td>
<td>$505,000</td>
<td>423,650</td>
<td>$3,601</td>
<td>0.71%</td>
</tr>
<tr>
<td>House 2</td>
<td>$500,000</td>
<td>$495,000</td>
<td>423,650</td>
<td>$3,601</td>
<td>0.73%</td>
</tr>
<tr>
<td>House 3</td>
<td>$800,000</td>
<td>$875,000</td>
<td>$723,650</td>
<td>$6,151</td>
<td>0.70%</td>
</tr>
</tbody>
</table>
Distribution of AS Ratios Around 1

Single Family Homes
- N = 3,523
- Median ASR, all = 0.91
- Under-Assessments Median ASR = 0.89
- Over-Assessments Median ASR = 1.04

Condos
- N = 3,209
- Median ASR, all = 0.95
- Under-Assessed Median ASR = 0.93
- Over-Assessed Median ASR = 1.05
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
## Sale Price Deciles – SFHs and Condos

### SFHs

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

### Condos

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

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 Rates by Share of Minority Homeowners in Property’s Census Tract - Condo

Effective Tax Rate by Share of Minority Homeowners - Condo

Share of Minority Homeowners

Effective Tax Rate

0.0% 0.5% 1.0% 1.5% 2.0% 2.5% 3.0% 3.5% 4.0% 4.5% 5.0% 5.5%
0% 5% 10% 15% 20% 25% 30% 35% 40% 45% 50% 55% 60% 65% 70% 75% 80% 85% 90% 95% 100%
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?
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
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

Office of the Chief Financial Officer
Government of the District of Columbia
Effective Tax Rates by Sale Price

Effective Tax Rate by Saleprice - Condos

Sale Price

Eff Tax Rate

$0 $100,000 $200,000 $300,000 $400,000 $500,000 $600,000 $700,000 $800,000 $900,000
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.