Appendix: For Online Publication Only

A   Classification of Assessment Cap Regimes

The Lincoln Institute of Land Policy's Significant Features of the Property Tax database contains annual detail on a range of property tax policies for all states. Our focus is only on *assessment* caps.[14] Based on a review of all policies related to tax limitations for each state and each year from 2006 to 2016, we classify regions as a no-cap region or as a cap-region. In most instances, the classification is straightforward and unambiguous. There are several instances that require judgment. The remainder of this section outlines these cases.

Connecticut has a law permitting municipalities to phase-in assessment increases over a period of up to 5 years.[15] We are not able to observe specific localities that may have opted into implementing this policy. Many local governments in the U.S. are empowered with "home rule" authority, which permits any governance choice that is not explicitly prohibited in state (or federal) law. We interpret this Connecticut provision as empowering local assessment districts analogously to any district in a home rule state without explicit statewide policies concerning assessment, and accordingly classify Connecticut as a no-cap regime.

In contrast, Montana has a statewide phase-in policy that specifies reassessment every five years, with a 16.66 percent phase-in every year.[16] Phase-in policies are not an explicit cap on assessment growth. However, by definition, a phase-in policy drives a wedge between assessment and market values (conditional on strictly positive price growth). Accordingly, we classify Montana as a cap-region. Because there is no specific cap limit, we do not code Montana observations as binding-cap observations. Montana is a "non-disclosure" state which means our dataset contains very few observed transaction prices, and therefore very few assessment ratios from Montana enter the baseline sample.

Illinois imposed several iterations of an "Alternative General Homestead Exemption" law in Cook County only between 2004 and 2013 (an initial version and then two renewals).[17,18] While the impact of this law was to cap growth in property tax bills at 7 percent year to year, the implementation of the law appears to have operated more as an exemption policy than an assessment cap: an unconstrained "Equalized Assessed Value" (EAV) of each property was still imputed, but the portion of EAV used as the basis for computing the homeowner's bill

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14. Some states, for example, have policies which cap the total amount of revenue that can be raised through the property tax, but do not constrain the dynamics of property assessments in any way. For our purposes, these are "no-cap" states: there is not cap on assessment growth.

15. Conn. Gen. Stat. § 12-62c, as cited by https://www.lincolninst.edu/tax-limit/municipal-option-assessment-phasing-connecticut-2009. (2009 example).

16. Mont. Code Ann. §15-6-193; Mont. Code Ann. §15-7-111, as cited by https://www.lincolninst.edu/tax-limit/assessment-phasing-montana-2014 (2014 example).

17. https://www.lincolninst.edu/tax-limit/local-option-alternative-general-homestead-exemption-illinois-2006

18. A 2014 report from the Taxpayer's Federation of Illinois contains a helpful historical summary of the Alternative General Homestead Exemption. (Moretto, Kara; "Homestead Exemptions: Confusing, Complicated and Costly")

was constrained to grow at no more than 7 percent year-over-year. Because this policy did not cap the local valuations used as inputs for the EAV, we code Illinois as a no-cap region.

Georgia has two policies which require interpretation. Across all years in the sample, Georgia has legislation empowering local districts to implement an assessment freeze. As with the phase-in option in Connecticut, we view this as analogous to according Georgia localities home rule flexibility with assessment limitations, and accordingly assign Georgia to no-cap status. From January 2009 to January 2011, Georgia imposed an assessment freeze.[19] This policy, which was explicitly a reaction to the housing crisis and Great Recession, was implemented at a time when home price growth was negative in most regions. Our ZIP code HPIs contain 1331 ZIP code-year observations for Georgia during 2009 and 2010. Growth was below zero for 97 percent of these. Using these same HPIs, growth was negative for more than 99 percent of the properties in our baseline dataset. As this two-year policy therefore essentially never bound, we do not code Georgia as a cap-region during this period. Our results are unchanged if we drop these two years from the sample instead of assigning them to no-cap status.

As noted, several states impose an aggregate cap on property tax revenues, or a cap on the millage/levy rate that can be applied to assessments. This does not induce us to code the state as a cap-region. Aggregate caps do not necessarily have any implication for growth in property-level assessments, or for the relative growth of property assessments within a taxing jurisdiction.

B   Additional Figures and Tables

The figures we present in this Appendix complement the heterogeneity analysis of Subsection 3.2. Here, we compare assessment ratio shifts between Black or Hispanic homeowners in a given bin, and white homeowners *in the same bin*. The figures in the main paper compare minority homeowners' assessment ratios (within bin) to the jurisdiction-wide average for whites. This is the meaningful statistic for quantifying changes in tax inequality. The comparisons shown here help illustrate the extent to which the overall reduction in inequality arises from differential effects across the distribution of the attribute of interest, versus changes that disproportionately affect Black or Hispanic homeowners relative to white homeowners having (or facing) similar characteristics.
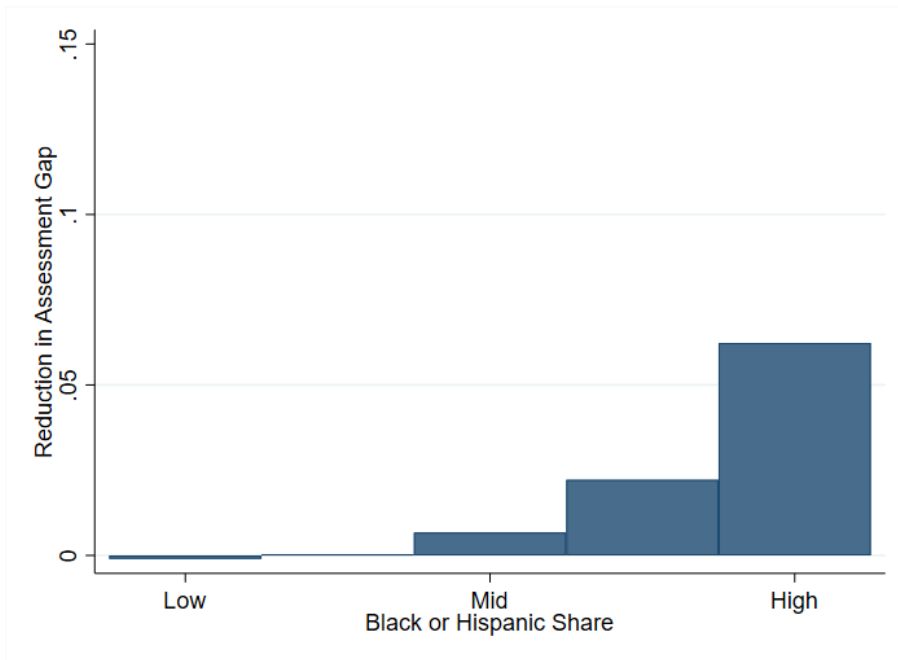
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19. Ga. Code Ann. § 48-5B-1, as cited by https://www.lincolninst.edu/tax-limit/statewide-assessment-freeze-georgia-2009

Figure B.1: Cap-Related Reduction in Inequality By Black Share
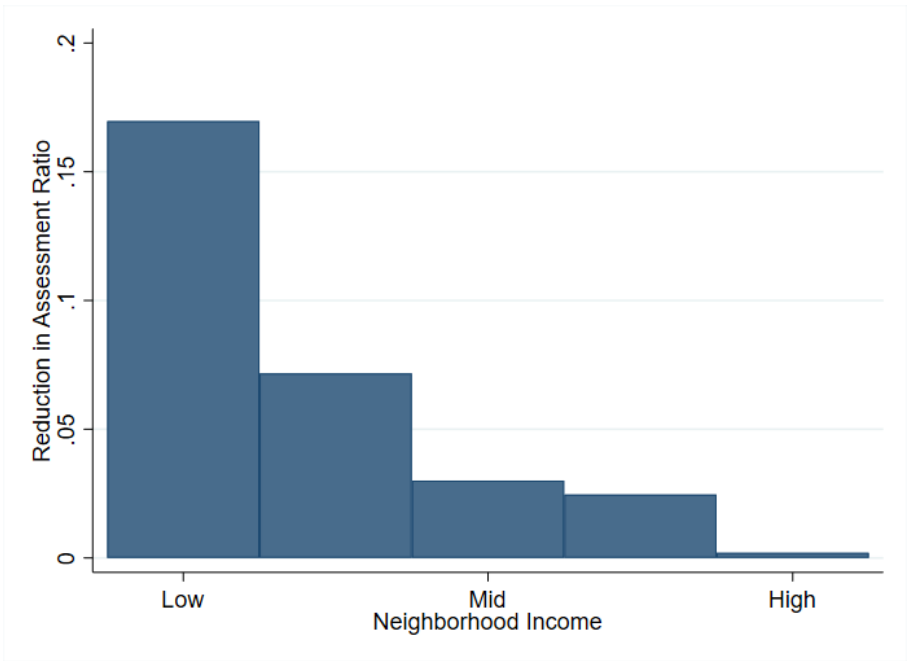
Panel A: Black Homeowners Only
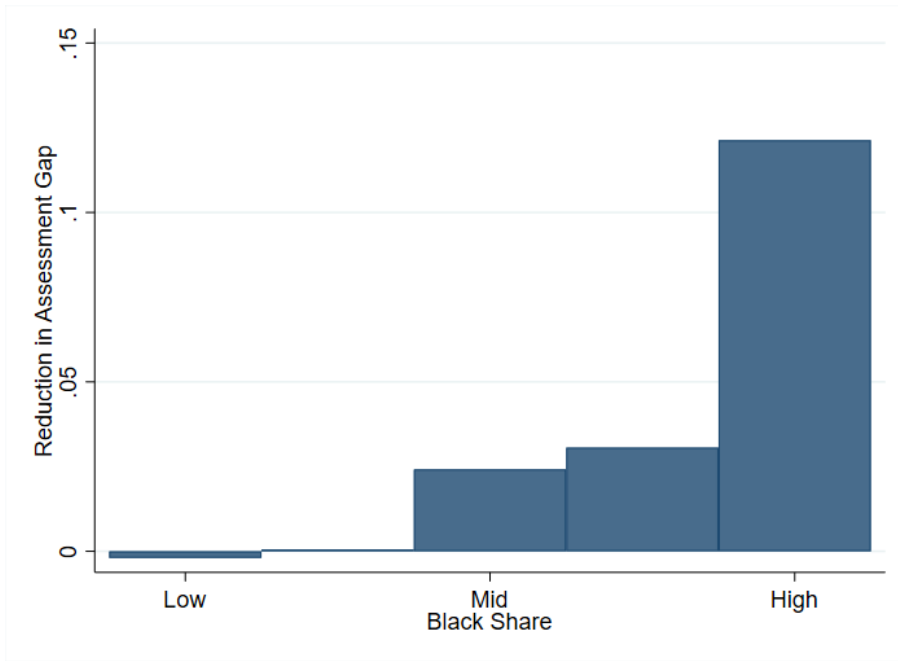
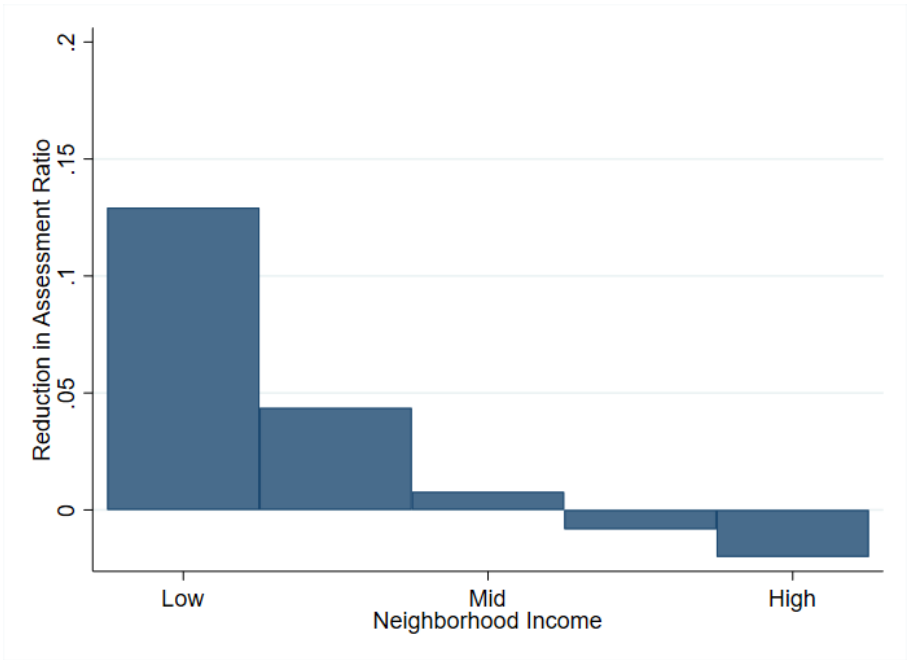**Panel B:** Black and Hispanic Homeowners

NOTES: This figure depicts the difference in assessment gap between jurisdictions with a binding cap on assessment growth and jurisdictions with no legislative caps, by Black/Hispanic share bins. Bins are constructed by sorting jurisdictions by their share of Black residents and then assigning jurisdictions into quintiles. The assessment gap for each jurisdiction-bin is constructed by taking the difference in assessment ratios between Black/Hispanic homeowners and white homeowners in the same jurisdiction-bin. For each bin, we then subtract the assessment gap of jurisdictions with no legislative caps on assessment growth from the assessment gap in jurisdictions with a binding cap; a positive difference is then indicative of a *reduction* in inequality when a cap binds. Panel A presents results for Black homeowners only. Panel B shows results for Black and Hispanic homeowners together.

Figure B.2: Cap-Related Reduction in Inequality By Neighborhood Income

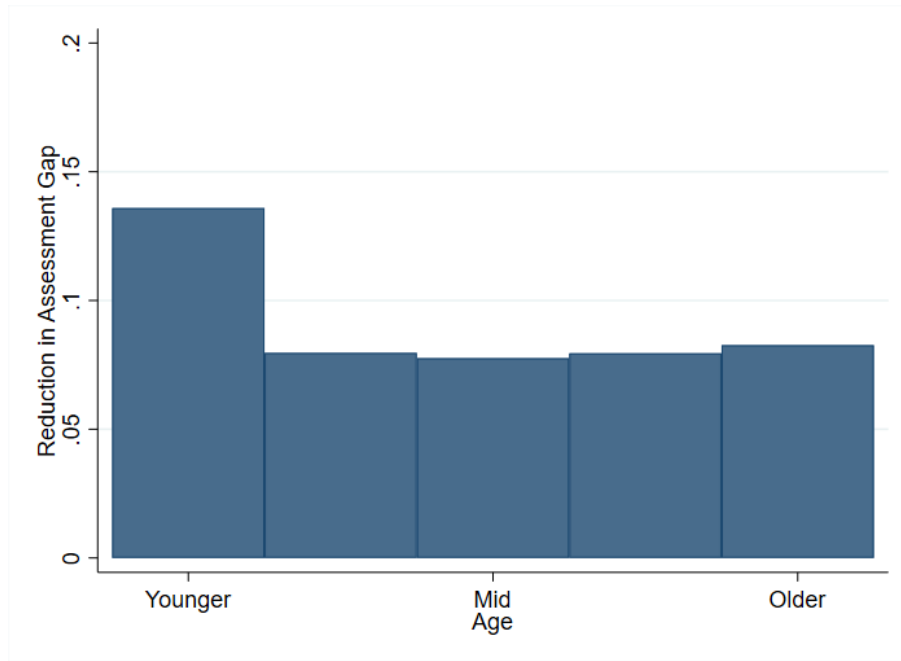**Panel A:** Black Homeowners Only

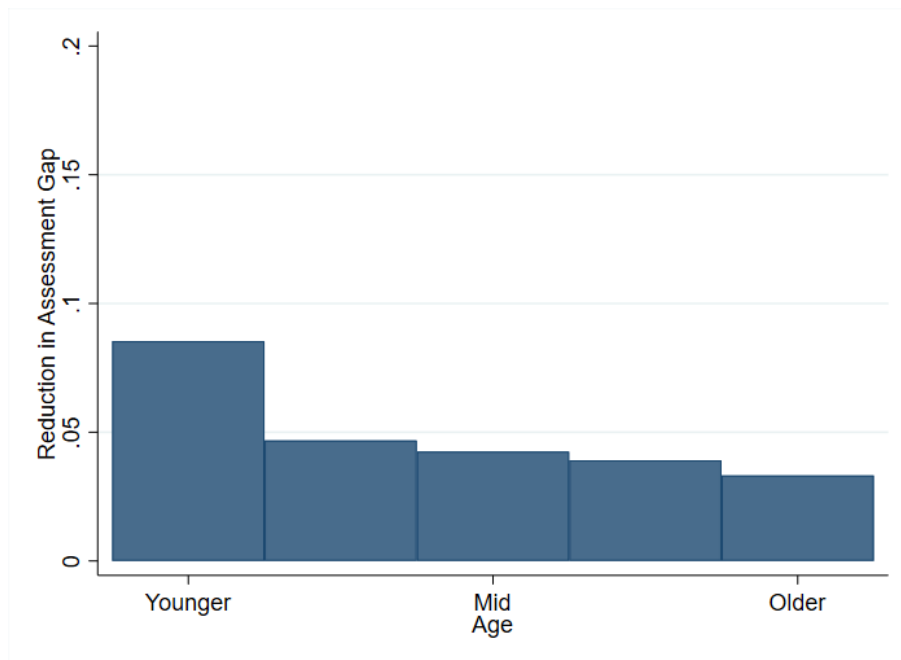**Panel B:** Black and Hispanic Homeowners

NOTES: This figure depicts the difference in assessment gap between jurisdictions with a binding cap on assessment growth and jurisdictions with no legislative caps, by neighborhood income bins. Bins are constructed by sorting jurisdictions by their average neighborhood income and then assigning jurisdictions into quintiles. The assessment gap for each jurisdiction-bin is constructed by taking the difference in assessment ratios between Black homeowners and white homeowners in the same jurisdiction-bin. For each bin, we then subtract the assessment gap of jurisdictions with no legislative caps on assessment growth from the assessment gap in jurisdictions with a binding cap; a positive difference is then indicative of a *reduction* in inequality when a cap binds. Panel A presents results for Black homeowners only. Panel B shows results for Black and Hispanic homeowners together.

Figure B.3: Cap-Related Reduction in Inequality By Age
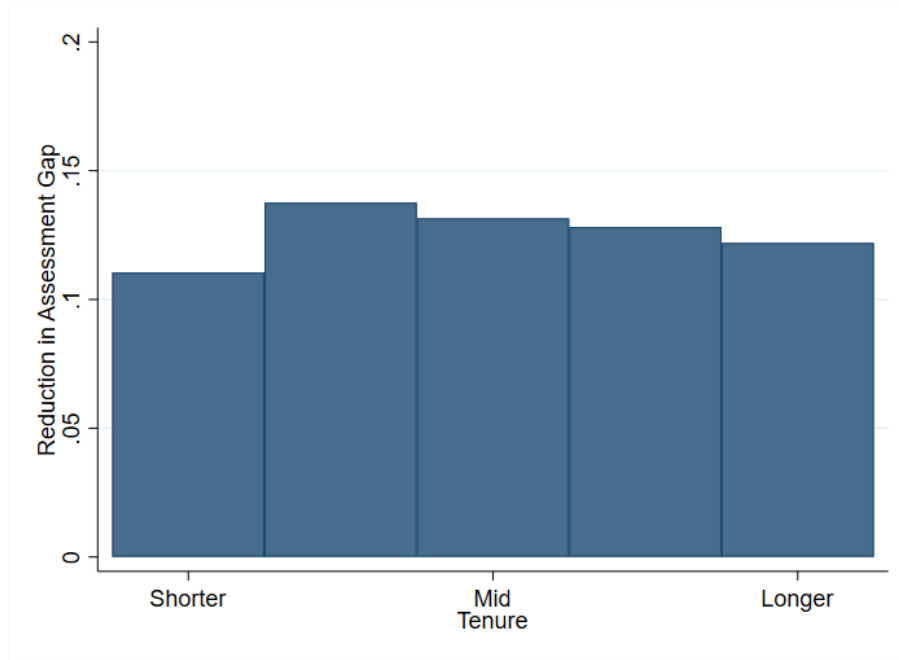
Panel A: Black Homeowners Only

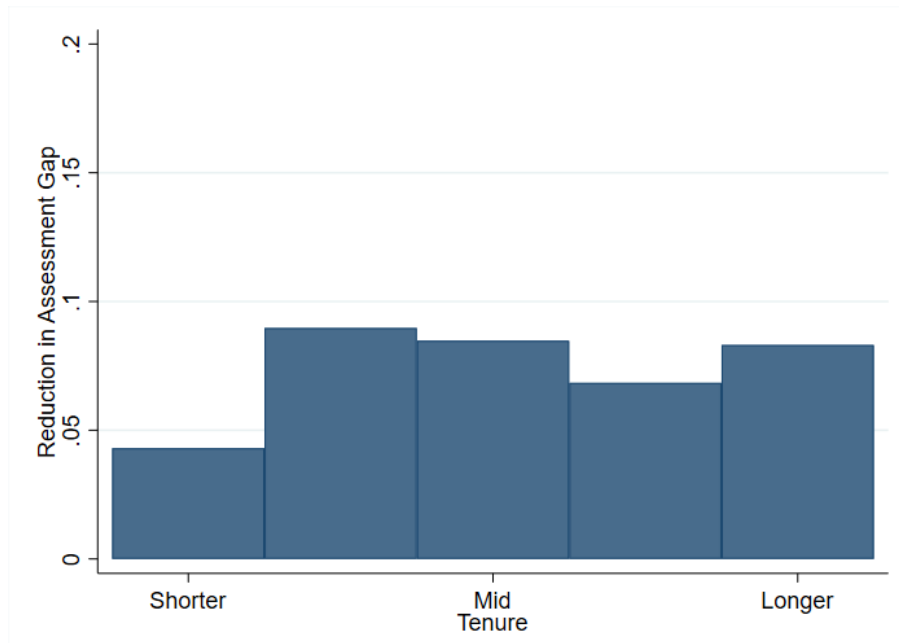**Panel B:** Black and Hispanic Homeowners

NOTES: This figure depicts the difference in assessment gap between jurisdictions with a binding cap on assessment growth and jurisdictions with no legislative caps, by median neighborhood age bins. Bins are constructed by sorting jurisdictions by their median neighborhood age and then assigning jurisdictions into quintiles. The assessment gap for each jurisdiction-bin is constructed by taking the difference in assessment ratios between Black homeowners and white homeowners in the same jurisdiction-bin. For each bin, we then subtract the assessment gap of jurisdictions with no legislative caps on assessment growth from the assessment gap in jurisdictions with a binding cap; a positive difference is then indicative of a *reduction* in inequality when a cap binds. Panel A presents results for Black homeowners only. Panel B shows results for Black and Hispanic homeowners together.

Figure B.4: Cap-Related Reduction in Inequality By Tenure

Panel A: Black Homeowners Only

Panel B: Black and Hispanic Homeowners

NOTES: This figure depicts the difference in assessment gap between jurisdictions with a binding cap on assessment growth and jurisdictions with no legislative caps, by homeowner tenure bins. Bins are constructed by sorting homeowners by their tenure and then assigning homeowners into quintiles. The assessment gap for each jurisdiction-bin is constructed by taking the difference in assessment ratios between Black homeowners and white homeowners in the same jurisdiction-bin. For each bin, we then subtract the assessment gap of jurisdictions with no legislative caps on assessment growth from the assessment gap in jurisdictions with a binding cap; a positive difference is then indicative of a *reduction* in inequality when a cap binds. Panel A presents results for Black homeowners only. Panel B shows results for Black and Hispanic homeowners together.

Figure B.5: Hedonic Models: Mismatch
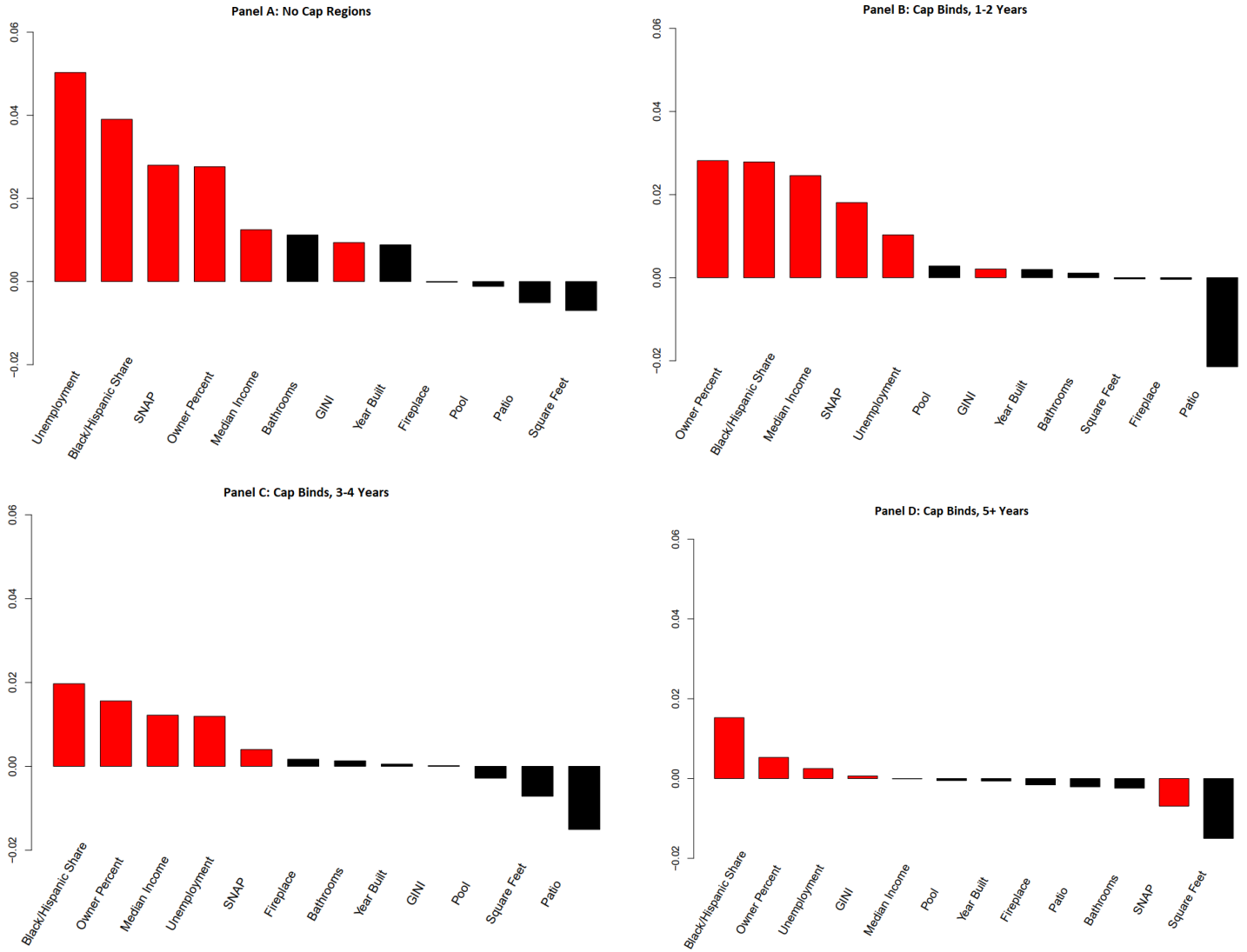
NOTES: Each bar in this figure plots the difference between two estimated hedonic prices: one estimated from a model with market values as the dependent variable, and one from a model with assessment values as the dependent variable. Otherwise, the two hedonic models are identical: all regressors are the same. Both market values and assessed values are logged in the underlying models, so the difference between the two estimated hedonic prices represents a proportional shift in the assessment ratio that arises from a one standard-deviation shift in the underlying variable. Bars in red are tract-level characteristics. Bars in black are property-level characteristics. A bar at zero would denote that the market-hedonic is the same as the assessment hedonic price. Larger bars signify a greater disconnect between market-hedonics and assessment-hedonics. Finally, bars above zero denote that estimated market hedonic prices are greater in (absolute) magnitude than assessed hedonic prices. Bars below zero denote that the assessment hedonic price is larger. Panel A shows estimates for regions with no legislative cap on assessment growth in place. Panel B shows estimates for regions where a cap has bound for 1–2 years. Panel C shows estimates for regions where a cap has bound for 3–4 years. Panel D shows estimates for regions where a cap has bound for 5+ years.