



Research Article

The role of organized groups in administrative burdens of property taxation

Iuliia Shybalkina*

Abstract: There is a substantial body of literature regarding the effects of administrative burdens on the take-up of safety-net programs and the role of organized groups in this process. I investigate similar issues in the context of property tax assessment appeals. Disadvantaged groups spend well over the recommended 30% of their income on housing costs that include property tax, and, on top of that, assessors often overestimate lower-value properties. Appeals may provide some relief, but the process can be burdensome. Certain localities give condominium associations the right to file one joint appeal on behalf of all unit owners. I hypothesize that this rule reduces burdens for condominium units and causes them to appeal more frequently than houses, resulting in a distributive effect that depends on the local context. I present supporting evidence from two case studies in two locations: New York City, which allows joint appeals, and Allegheny County, Pennsylvania (Pittsburgh and surroundings), which does not. Thus, while administrative burdens can span diverse contexts, engaging a third party to assist potential beneficiaries consistently increases the take-up.

Keywords: Administrative appeal, Administrative burden, Organized group, Redistribution, Taxation

Supplements: [Open data](#)

Administrative burdens decrease take-up rates for various programs. The ability to overcome burdens varies across different groups. Disadvantaged individuals tend to experience the most dramatic effects because of their limited capacity to navigate obstacles. Removing individual barriers results, at best, in modest success, perhaps because there is often a bundle of obstacles, some of which may be poorly understood. Third parties that have a stake in program participation, whether for moral or financial reasons, have proven to be useful in enhancing take-up. Examples include hospitals, unions, tax preparers, organized groups, and community organizations. The involvement of third parties may come with costs, such as cream-skimming of profitable clients, which makes it harder to serve clients without the desired help. Most of the previous literature investigates the above issues associated with safety-net government programs¹ (Currie, 2006; Heinrich, 2016; Herd & Moynihan, 2019; Moynihan, Herd, & Harvey, 2015). In contrast, I explore administrative burdens in the context of property tax assessment appeals.

Economists may consider property tax to be progressive because capital owners tend to be wealthier (Oates & Fishel, 2016).² However, poor and low-middle income homeowners spend well over the recommended 30% of their income on housing costs that include property tax, which causes difficulties in affording other necessities (Schuetz, 2019). They are also unlikely to itemize and deduct the property tax from their federal income tax (Gale et al., 2018). Renters also pay the property tax indirectly, as landlords pass at least a portion of the tax off in the form of rent increases or maintenance (NYU Furman Center, 2012). The tendency of assessors to systematically overestimate lower-value properties compounds the property tax's general effect on disadvantaged groups (McMillen, 2013; Sirmans, Gatzlaff, & Macpherson, 2008).

* Martin School of Public Policy and Administration University of Kentucky

Address correspondence to Iuliia Shybalkina at (iuliia.shybalkina@uky.edu.)

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Property Tax and Appeals

The property tax payment is a product of the assessed value of the property and the tax rate. Each applicable period, the assessor determines the value and notifies owners of their tentative assessments. Errors are common, and lower-value properties are the most likely to be over-assessed (McMillen, 2013; Sirmans et al., 2008). Taxpayers who feel that their properties are assessed too high have an option to file an appeal. Successful applicants lower their assessed value and, thus, the tax payment. Owners are not legally required to file an appeal (Slemrod & Sorum, 1984). Accordingly, the take-up rate among taxpayers varies widely. The appeal process may shift the property tax allocation away from those who appealed and onto their fellow citizens. Typically, there are no direct material benefits for owners from overpaying property taxes. The assessed value is only used for tax purposes, while banks use the appraised value. Additionally, properties with a high assessed value tend to sell for less to compensate buyers for their future tax bills (NYU Furman Center, 2012).

Property tax appeals involve substantial learning, compliance, and psychological costs (Herd & Moynihan, 2019; Moynihan et al., 2015). For example, Vaillancourt (2013) estimates the total cost of filing an appeal at CA\$180 based on a Canadian taxpayer survey. First, taxpayers must learn about the possibility of an appeal, its deadlines, and the required forms, and this information can be obtained from their tax bill, the government website, or an inquiry to the government. The next step is to complete the forms, with the most challenging part being the gathering of evidence to support a lower valuation. Forms can generally be submitted online, by email, by mail, or in person. Applicants may have to pay a fee or attend a phone or in-person hearing. Appeals may also involve various psychological costs, including stress, fear of an increase in the assessment, anxiety over complying with the building code, or uncertainty about the implications of lowering the estimate for various financial transactions. These and other costs may explain why taxpayers often do not appeal regardless of potential savings. Disadvantaged groups in particular may find these costs to be overwhelming.

The small body of literature on appeals does not apply the concept of burdens directly but instead suggests inequities in participation. An earlier finding, which is the most relevant to the present study, indicates that, in Miami-Dade County, Florida, tax representatives encourage homeowners from higher-value neighborhoods to appeal and follow through with the process more frequently than owners from lower-value areas (Doerner & Ihlanfeldt, 2015). Further, Firoozi et al. (2006) found that property tax consultancy owners undertake 2.5 times as many appeals as lay owners do. The neighborhood share of the white population appears to increase the probability of an appeal, even though the effects of neighborhood-level and individual property values, education, and income are inconsistent (Doerner & Ihlanfeldt 2014, 2015; Plummer, 2014; Weber & McMillen, 2010). According to McMillen (2013), appeals do not help to improve the accuracy of assessment at low values and instead lower estimates at high values, which increases the degree of regressivity. Hence, it is important to study the burdens related to appeals.

Condominiums and Joint Appeals

Traditional houses and condominiums afford different types of ownership. House ownership, either single- or multi-family,³ comes with surrounding land and outbuildings. In contrast, condominium ownership includes the living space inside the unit and a portion of the common areas, such as a lobby or a parking lot (US Census, 2017). Condominium ownership may apply to apartments but also to detached houses, rowhouses, or townhouses. The size of a condominium complex varies from a couple (e.g., a converted duplex) to thousands of units. All unit owners must join the condominium association and pay fees. These associations are governed by an elected volunteer board of directors that may choose to turn some or all management over to an individual property manager or a property management company (Barton & Silverman, 1994; Foundation for Community Association Research, 2018; Hyatt & French, 2008).⁴ According to the American Housing Survey (AHS), in 2017, there were 7.2 million condominium units in the United States, comprising 5.9 percent of all occupied housing, mostly in metro areas.

Some localities give condominium associations the right to file one property tax assessment appeal on behalf of all unit owners, which I will call the joint appeal rule. In theory, this rule should reduce the burdens of filing a petition for condominium unit owners relative to house owners. In such cases, the property manager

can handle the appeal process. Some condominiums may even have an attorney. For others that do not, attorneys can be secured on the basis that condominium owners may be better for business than house owners. Attorneys charge a contingency fee for their services—i.e., if the appeal is successful, a share of the first year's tax savings goes to the attorney. Thus, compensation may be more substantial for an entire condominium than for a single house. Attorneys may also charge condominiums a reduced share of the savings, thus increasing the unit owners' potential benefits. Unit owners simply need to supply their consent to a joint appeal if such approval does not already exist in the relevant laws or bylaws.

The reduction in burdens should be more significant for larger condominiums with more units. Smaller condominiums are less likely to employ a property manager, and the owners may all be board members who divide day-to-day management responsibilities (Einhorn, 2013). Attorneys may also be less likely to solicit smaller condominiums due to less compensation. Further, the joint appeal rule is crucial for the reduction in burdens. In localities that do not allow joint appeals, condominium associations can still serve as conduits of information about appeals. Unit owners can also communicate and learn from each other. However, in the end, each owner needs to file a separate form and attend their own hearing. House owners can obtain comparable assistance by conversing with their neighbors (Hayashi, 2014). Taking all the above together, I hypothesize the following:

Hypothesis 1. Joint appeals cause owners of condominium units to appeal their assessments more frequently than owners of houses.

Hypothesis 2. The above effect is more substantial for larger condominiums.

If hypotheses 1 and 2 are correct, the joint appeal rule may have a distributive effect. In this case, the shift in property tax allocation may occur from some condominium units, especially in large condominiums, to others. The direction of this distributive effect is ambiguous and depends on the differences between condominium units and houses in a particular housing market. For example, based on the AHS 2017, on average, owner-occupied condominium units in the Northeast United States are pricier than houses, and condominium owners are wealthier than house owners. In the rest of the country, owner-occupied condominium units and houses do not differ in price, but condominium owners have lower incomes than house owners. Among renters, those who rent a condominium unit are consistently wealthier than those who rent a different housing type. Various features of the property tax system may also mediate the distributive effects of joint appeals, as will be seen in the NYC case.

Cases and Data

Testing the above hypotheses is a challenging task. Comparing the probability of an appeal between houses and condominium units in a locality that allows joint appeals is the easiest but least rigorous test. Owners of condominium units may just have a higher propensity to appeal than house owners regardless of the joint appeal option. An ideal setup would be to find a locality that switches to or from allowing joint appeals and use a difference-in-differences strategy. Unfortunately, I could not find such a locality, as fiscal institutions tend to vary only a little over time (Rose, 2010). Instead, I present two case studies: one locality that allows joint appeals and one that does not. For each of the two localities, I compare the probability of a condominium unit owner appealing to the probability of a house owner appealing. While this method will not recover a causal effect of joint appeals on the probability of an appeal, I believe that this approach is an early step that will afford new insights into administrative burdens in property taxation.

The two case studies are New York City (NYC) and Allegheny County, Pennsylvania (Pittsburgh and surroundings). While these cases are different in many ways, to my knowledge, they best satisfy the four criteria of the present study. First, NYC allows joint appeals, and Allegheny County does not. Second, each locality treats its houses and condominium units in the same way—i.e., they are assessed the same way, taxes are calculated at the same statutory rate, and the same appeal rules are imposed (except for joint appeals in NYC). The equal treatment increases the chance that any observed difference in the appeal rate between houses and condominium units is due to joint appeals rather than any other differences between the two types of housing. Third, NYC and Allegheny County publish extensive and detailed administrative data on property characteristics and values, property sales transactions, and appeals. Fourth, both localities are in the same region, which

matters because, as discussed above, the AHS suggests that houses and condominium units in the Northeast may vary in different ways than houses and units outside this region.

Importantly, in NYC, I did not study all the condominiums but only those of “class 1”—i.e., those with either 1–3 stories or 1–3 units. All other residential condominiums belong to class 2. I did not include class 2 condominiums because, unlike class 1 condominiums, the city treats them differently from houses (NYU Furman Center, 2012). The NYC Department of Finance reassesses all class 1 properties annually at 6% of the estimated market value.⁵ However, the assessed value cannot increase by more than 6% in one year or 20% over five years. Limits are likely to lead to the underassessment of properties, making appeals less attractive than in jurisdictions without limits. Owners can appeal to the NYC Tax Commission from January to March by mail or in person, and an in-person hearing is optional. There is a \$175 fee if the assessed value is over \$2 million (in aggregate for condominiums). The Commission does not have the authority to increase the assessment.

The Allegheny County Office of Property Assessments conducted the last reassessment in 2012. Since then, every year, the 2012 assessed value is multiplied by the applicable assessment ratio before applying the tax rate to account for price appreciation. More specifically, the 2012 assessed value was 92% of the estimated market value in 2016, 87% in 2017, and 88% in 2018. Taxpayers can appeal their assessment through the Board of Property Assessment Appeals and Review by mail, in person, by email, and online annually between January and March, and they must appear for an in-person hearing. An increase in value is possible but rare. An in-person hearing and the possibility of an increase in value—even a distant one—should make appeals more burdensome in Allegheny County relative to NYC.

I estimated the following equations separately for NYC and Allegheny County:

$$appeal_i = \beta_0 + \beta_1 condo_i + X_i + \varepsilon_i \quad (1),$$

$$appeal_i = \delta_0 + \delta_1 condo_i + \delta_2 N\ of\ units_i + X_i + \mu_i \quad (2).$$

where i is a property; $condo$ is a dummy that takes the value of 1 for a condominium unit and 0 for a house; $N\ of\ units$ is the number of units in the condominium (this variable is always 0 for houses); X is a vector of the property- and census tract-level control variables listed in Appendix A, and ε and μ are error terms. I expected β_1 , δ_1 , and δ_2 to be positive and statistically significant for NYC but not for Allegheny County. I estimated equations (1) and (2) for the full sample of properties and only for recently sold properties. For recently sold properties, I attempted to control for the assessment accuracy by comparing the assessed value and the sales price.

I assembled data on appeals and some property and census tract characteristics in NYC and Allegheny County in 2016–2018. For both localities, I started with assessment rolls, which contain information about all the properties. Using property identification numbers, I merged the assessment rolls with appeal and sales data and geographic identifiers. Using 2010 census tracts, I further combined the assessment rolls with five-year estimates from the American Community Survey.⁶ NYC data came from the Department of Finance and the PLUTO database. Allegheny County data were obtained from the Western Pennsylvania Regional Data Center. For Allegheny County, appeal data only exist for appellants who attended their hearing because other appeals are considered automatically withdrawn. Nevertheless, only those who attend the hearing can present overvaluation evidence. Another difference is that multi-family houses can include only two to three families in NYC but two to four in Allegheny County. Dropping four-unit houses led to no meaningful change in the results. Appendix B explains the data preparation.

Table 1 presents the descriptive statistics for NYC (Panel 1) and Allegheny County (Panel 2) in 2017. There were 646,977 properties in NYC, 3.5 percent of which were class 1 condominium units. The rate of appeal was 0.2% for houses and 7.5% for condominium units. An average condominium had 71.7 units. Condominium units had a lower value and were in lower income and home value tracts than houses. As expected, due to the assessment limits, properties were assessed at 4.1–4.5% of their estimated market value, which was

below the statutory ratio of 6% of the estimated market value. In Allegheny County, there were 422,260 properties, 3.8% of which were condominium units. The rate of appeal was 0.5% for houses and 0.3% for condominium units, and an average condominium had 85.5 units. Condominium units had a higher value and were in higher income and home value tracts than houses. Properties were assessed at 89.8–90.7% of their estimated market value, which was above the statutory ratio of 87% for 2017. A subsample of recently sold properties included about 6.8% of all NYC properties and 4.9% in Allegheny County.

Table 1
Means and Standard Deviations of the Variables, 2017

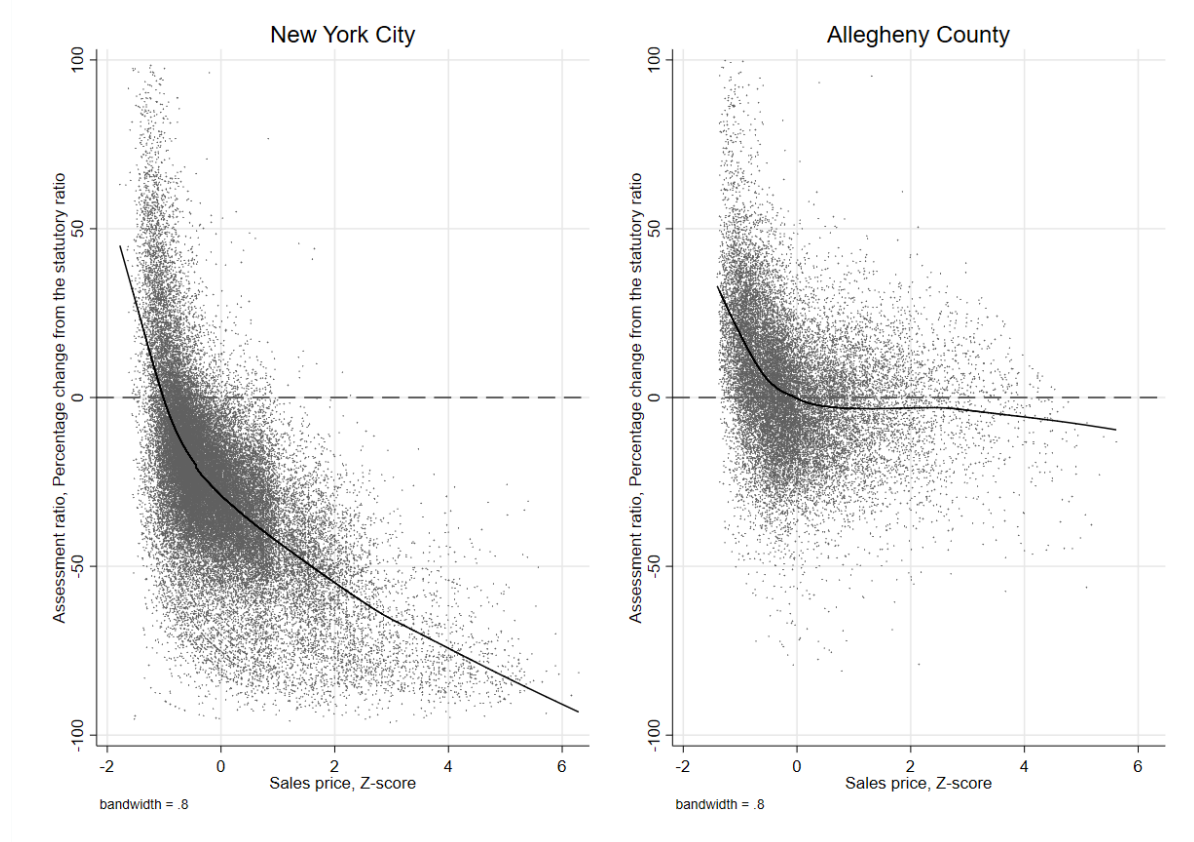
	Houses				Condominium units			
	All		Recently sold		All		Recently sold	
New York City								
Appeal	0.002	(0.042)	0.002	(0.040)	0.075	(0.263)	0.078	(0.268)
Estimated value, \$1,000	707.9	(337.2)	662.8	(307.3)	418.4	(230.3)	402.8	(207.8)
Assessment ratio			0.045	(0.016)			0.041	(0.014)
Exemption	0.555	(0.497)	0.343	(0.475)	0.584	(0.493)	0.488	(0.500)
Assessment cap	0.743	(0.197)	0.747	(0.203)	0.749	(0.186)	0.760	(0.184)
N of families (per property)	1.6	(0.7)	1.6	(0.7)	1.0	-	1.0	-
N of units (per condo)	-	-	-	-	71.7	(63.8)	72.2	(62.6)
Property age, years	74.8	(28.5)	74.0	(30.6)	29.3	(17.9)	28.9	(17.3)
Property area, 1,000 ft ²	2.0	(0.7)	1.9	(0.7)	1.2	(0.5)	1.2	(0.4)
65 and over*	0.146	(0.051)	0.145	(0.051)	0.150	(0.052)	0.153	(0.051)
Hispanic*	0.215	(0.185)	0.225	(0.191)	0.211	(0.164)	0.198	(0.144)
Black*	0.233	(0.314)	0.236	(0.307)	0.119	(0.213)	0.106	(0.204)
Bachelor's or higher*	0.307	(0.127)	0.298	(0.122)	0.336	(0.137)	0.342	(0.127)
Median income, \$1,000*	68.4	(21.9)	67.9	(22.0)	67.9	(21.7)	70.2	(20.4)
Homeowners*	0.540	(0.238)	0.548	(0.240)	0.549	(0.227)	0.580	(0.220)
Median home value, \$1,000*	553.3	(178.1)	536.8	(169.3)	525.0	(200.6)	516.1	(192.7)
N	624,076		42,041		22,901		1,972	
Allegheny County								
Appeal	0.005	(0.069)	0.010	(0.098)	0.003	(0.051)	0.005	(0.074)
Estimated value, \$1,000	146.0	(104.9)	173.0	(113.1)	163.9	(99.5)	161.7	(89.7)
Assessment ratio			0.898	(0.180)			0.907	(0.138)
Exemption	0.707	(0.455)	0.619	(0.486)	0.634	(0.482)	0.585	(0.493)
Assessment cap	1.000	-	1.000	-	1.000	-	1.000	-
N of families (per property)	1.1	(0.3)	1.1	(0.3)	1.0	-	1.0	-
N of units (per condo)	-	-	-	-	85.5	(110.5)	89.4	(117.8)
Property age, years	71.1	(30.7)	62.7	(30.5)	39.2	(24.3)	38.5	(24.8)
Property area, 1,000 ft ²	1.7	(0.6)	1.7	(0.7)	1.3	(0.5)	1.3	(0.4)
65 and over*	0.182	(0.052)	0.185	(0.052)	0.186	(0.061)	0.185	(0.058)
Hispanic*	0.019	(0.018)	0.018	(0.017)	0.020	(0.015)	0.020	(0.015)
Black*	0.124	(0.192)	0.084	(0.140)	0.057	(0.105)	0.057	(0.108)
Bachelor's or higher*	0.384	(0.182)	0.417	(0.175)	0.551	(0.170)	0.539	(0.163)
Median income, \$1,000*	63.0	(25.9)	68.8	(26.0)	68.2	(23.9)	69.0	(23.2)
Homeowners*	0.692	(0.185)	0.724	(0.171)	0.628	(0.232)	0.648	(0.222)
Median home value, \$1,000*	149.5	(85.4)	164.7	(85.6)	199.5	(86.7)	193.5	(77.4)
N	406,284		18,937		15,973		1,640	

Notes: * denotes census tract-level data. Standard deviations appear in parentheses next to the means. There were 2,167 tracts in NYC in 2017, with an average population of 3,950. In Allegheny County, there were 402 tracts, with an average population of 3,059.

Findings and Discussion

Before turning to the primary analysis, I briefly replicate the past findings indicating that lower-value properties are assessed at a higher fraction of their value than higher-value properties (McMillen, 2013; Sirmans et al., 2008). Figure 1 presents the results of locally weighted regressions of assessment ratios on sales prices in NYC and Allegheny County in 2017. Unlike Ordinary Least Squares regressions (OLS), which fit within a straight line through the data, locally weighted regressions form a smooth curve by fitting a model at each point in the data using explanatory variable values near this point. Indeed, both in NYC and Allegheny County, the assessed values of lower-value properties tend to exceed the statutory ratio. On the contrary, higher-value properties have a propensity to be slightly underassessed in Allegheny County and grossly underassessed in NYC. The situation in NYC may be due, at least partially, to limits that curb assessment increases. Higher-value properties are frequently the primary beneficiaries of limits because of a high appreciation (Haveman & Sexton, 2008).

Figure 1
Locally Weighted Regression Estimates of Assessment Ratios on Sales Prices, 2017



Notes: The assessment ratio is the ratio between the assessed value and the sales price. In 2017, the statutory ratio was 6% in NYC and 87% in Allegheny County. Algebraically, the y-axis signifies $(Ratio - Statutory Ratio) / Statutory Ratio \times 100\%$, and the x-axis signifies $(Sales\ price - Mean) / Standard\ deviation$. Dots are individual observations, solid lines represent the results of locally weighted regressions, and dashed horizontal lines represent the statutory ratio.

I start the primary analysis from a simple visual inspection of the appeal rate for houses and condominium units in each year in each locality (Figure 2). In NYC, house owners appealed at a rate of 0.2%, and the frequency was 6.3–7.5 for condominium units. In contrast, in Allegheny County, house owners appealed at a rate of 0.4–0.5%, and condominium unit owners at a rate of 0.3%. The rate was much higher for condominium units in NYC that could file joint appeals than for all other properties that had to file individually. I proceed to explore whether the differences are statistically significant and hold up after controlling for relevant property and census tract characteristics.

Figure 2
Appeal Rate

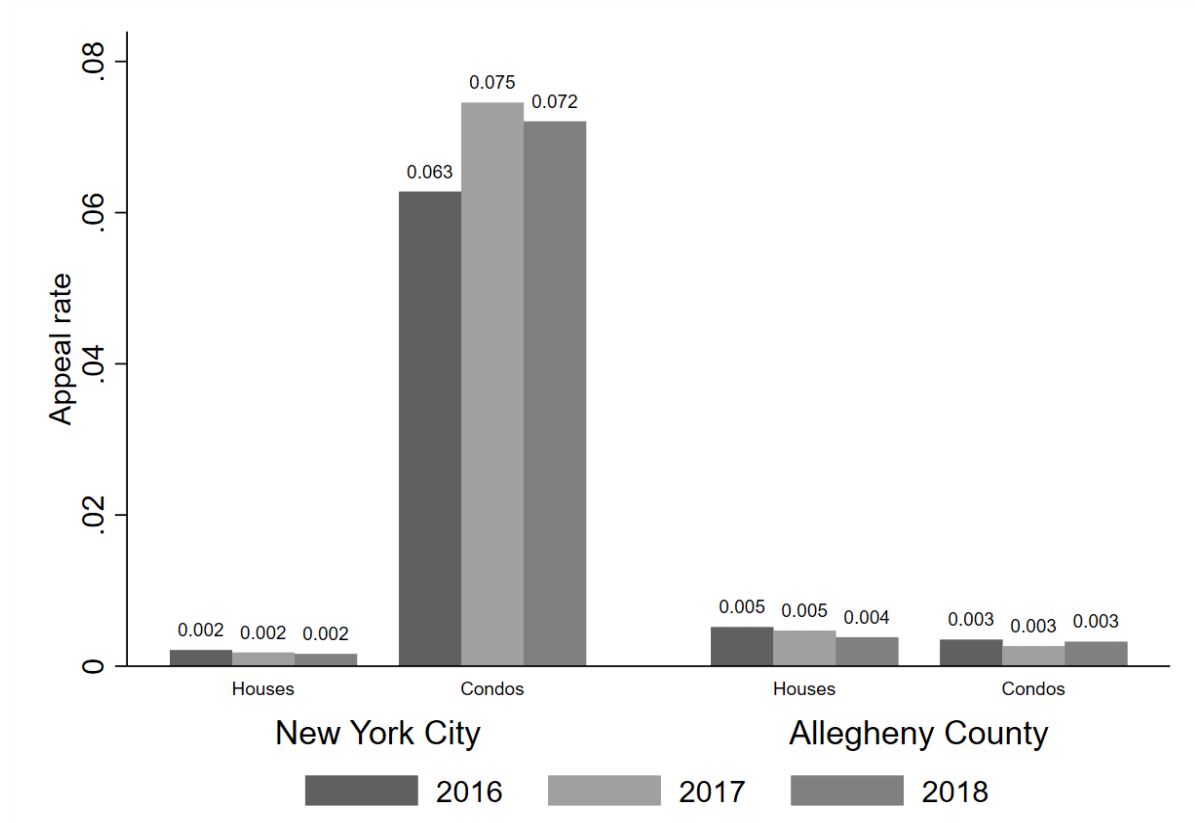


Table 2 presents the logistic estimates of equations (1) and (2) for NYC. The first two columns include no controls, and columns 3–6 include property and census tract controls. The last two columns also control for the assessment ratio and include only recently sold properties. The condominium unit coefficient is positive and statistically significant across columns, which provides some initial support for Hypothesis 1 (that owners of condominium units that have access to joint appeals dispute their assessments more often than owners of houses). The coefficient of number of units is also positive and statistically significant across columns (only at 10% in column 4), which supports Hypothesis 2 (that joint appeals are more consequential for larger condominiums). The assessment ratio and the population share with a Bachelor’s degree or higher in the census tract increased the probability of an appeal, whereas the exemption and property age decreased the probability of an appeal (older properties are more likely to have their assessed value capped in NYC). The likelihood of an appeal does not appear to be related to the property value and is higher in lower median income and home value tracts, perhaps because class 1 condominium units have a lower value and are in lower income and home value tracts than houses.

Table 2
Logistic Estimates of Appeal Determinants in NYC

	Full sample				Recently sold properties	
Condo	3.708*** (0.249)	3.159*** (0.319)	3.442*** (0.267)	2.958*** (0.354)	3.332*** (0.367)	2.868*** (0.448)
N of units		0.007* (0.003)		0.005 (0.003)		0.005* (0.002)
Estimated value, log			0.742 (0.505)	0.717 (0.511)	0.613 (0.557)	0.596 (0.556)
Assessment ratio					19.112** (6.425)	20.236** (6.553)
Exemption			-0.586*** (0.097)	-0.576*** (0.097)	-0.749*** (0.199)	-0.741*** (0.210)
Assessment cap			0.514 (1.177)	0.533 (1.171)	-1.201 (1.300)	-1.215 (1.309)
N of families			0.292** (0.098)	0.225* (0.100)	0.207 (0.189)	0.139 (0.201)
Property age			-0.015*** (0.003)	-0.016*** (0.003)	-0.024*** (0.004)	-0.025*** (0.004)
Property area, log			0.216 (0.290)	0.294 (0.288)	0.417 (0.415)	0.515 (0.408)
65 and over			0.304 (1.641)	0.116 (1.698)	0.142 (2.318)	0.152 (2.393)
Hispanic			-0.634 (0.596)	-0.889 (0.657)	2.583** (0.836)	2.247* (0.910)
Black			-1.239** (0.439)	-1.327** (0.459)	-0.422 (0.569)	-0.523 (0.589)
Bachelor's or higher			3.921*** (0.867)	3.743*** (0.866)	5.939*** (1.720)	5.568** (1.728)
Median income, log			-0.781* (0.374)	-0.806* (0.357)	-1.759** (0.677)	-1.680* (0.661)
Homeowners			1.143* (0.509)	0.792 (0.560)	3.630*** (0.833)	3.148*** (0.884)
Median home value, log			-0.766** (0.288)	-0.719* (0.306)	-0.734* (0.339)	-0.712* (0.351)
Constant	-6.294*** (0.067)	-6.294*** (0.068)	-4.508 (5.471)	-4.087 (5.416)	-1.751 (5.771)	-1.544 (5.632)
Year fixed effects	Y	Y	Y	Y	Y	Y
N	1,940,089	1,940,089	1,906,111	1,906,111	127,477	127,477
Pseudo R-squared	.201	.211	.204	.208	.262	.266

Notes: * $p < .05$, ** $p < .01$, *** $p < .001$. Standard errors clustered by census tract appear in parentheses below the coefficients.

Table 3 presents the logistic estimates of equations (1) and (2) for Allegheny County and follows a similar format to Table 2. The condominium unit's coefficient varies in sign across columns and is only statistically significant in the simple regression (column 1). This result is consistent with the idea that condominium units that do not have access to joint appeals behave similarly to houses in terms of appeals. For the full sample, units in smaller condominiums appear to have appealed more often than units in larger condominiums. However, in Allegheny County, units in smaller condominiums were more likely to be over-assessed than units in larger condominiums, which explains why the coefficient of number of units loses statistical significance when controlling for the assessment ratio. As in NYC, the assessment ratio increased the probability of an appeal, and the exemption decreased it. Unlike in NYC, the higher the property value, the higher the probability of an appeal, even though appeals were more frequent in lower home value tracts.

Table 3
Logistic Estimates of Appeal Determinants in Allegheny County

	Full sample				Recently sold properties	
Condo	-0.386** (0.132)	-0.096 (0.150)	-0.175 (0.137)	0.043 (0.155)	0.132 (0.195)	0.211 (0.203)
N of units		-0.004*** (0.001)		-0.004** (0.001)		-0.001 (0.002)
Estimated value, log			1.124*** (0.109)	1.118*** (0.109)	1.740*** (0.188)	1.735*** (0.188)
Assessment ratio					6.089*** (0.227)	6.085*** (0.227)
Exemption			-1.693*** (0.042)	-1.693*** (0.042)	-0.585*** (0.100)	-0.585*** (0.100)
N of families			-0.105** (0.041)	-0.103* (0.041)	0.154 (0.143)	0.155 (0.143)
Property age			0.006*** (0.001)	0.006*** (0.001)	0.003 (0.002)	0.003 (0.002)
Property area, log			-0.078 (0.075)	-0.080 (0.075)	0.136 (0.236)	0.133 (0.236)
65 and over			-0.542 (0.668)	-0.541 (0.668)	-1.499 (0.974)	-1.507 (0.971)
Hispanic			-1.778 (1.381)	-1.829 (1.384)	-1.075 (3.325)	-1.172 (3.341)
Black			0.812*** (0.174)	0.805*** (0.175)	0.751 (0.406)	0.740 (0.407)
Bachelor's or higher			-0.850* (0.430)	-0.805 (0.433)	0.547 (0.785)	0.584 (0.790)
Median income, log			0.287 (0.193)	0.286 (0.194)	0.484 (0.325)	0.479 (0.326)
Homeowners			-0.173 (0.301)	-0.174 (0.303)	-0.429 (0.504)	-0.423 (0.507)
Median home value, log			-0.975*** (0.157)	-0.985*** (0.158)	-1.185*** (0.290)	-1.192*** (0.290)
Constant	-5.256*** (0.057)	-5.256*** (0.057)	-5.956*** (0.867)	-5.888*** (0.873)	-15.712*** (1.534)	-15.634*** (1.548)
Year fixed effects	Y	Y	Y	Y	Y	Y
N	1,206,819	1,206,819	1,205,295	1,205,295	55,188	55,188
Pseudo R-squared	.00168	.00194	.0679	.068	.189	.189

Notes: * p < .05, ** p < .01, *** p < .001. Standard errors clustered by census tract appear in parentheses below the coefficients.

Having provided some evidence that owners of NYC condominium units, especially in large condominiums, appeal more often than those of houses, I can now discuss some consequences of joint appeals in NYC. In this paper, I focus on overcoming administrative burdens as measured by the probability of an appeal. However, the probability of a successful appeal and the reduction size are also important. I rely on aggregate data by property type from Tax Commission annual reports because NYC does not report complete property-level data on appeal outcomes. Based on these aggregate data, across 2016–2018, conditional on appealing and not controlling for any factors, house appeals were more likely to be successful than condominium unit appeals. One potential explanation is that those who face higher burdens—owners of houses, in this situation—only appeal if they have a relatively strong case (Doerner & Ihlanfeldt 2014, 2015; Plummer, 2015; Weber & McMullen, 2010). Nevertheless, in the end, not conditional on appealing, condominium units were still more likely to receive some reduction than houses because the owners of these units appealed more often than those of houses.

In NYC, appeals can only change the property tax distribution within but not among classes (NYU Furman Center, 2012). Based on the above analysis, within class 1, owners of condominium units (which are, on average, less expensive and in lower-income areas than houses) are more likely to appeal and receive some reduction than those of houses. I cannot compute the exact distributive effect of joint appeals. However, even if calculated, any effect will be small, as the share of condominium units in class 1 is only about 2%. Situations are possible in which joint appeals may play a more dominant role. For example, class 2 properties in NYC, which are not covered in this study, include large condominiums and apartments for rent, and these owners and renters are more advantaged than apartment renters. NYU Furman Center (2012) reports that class 2 condominiums are much more likely to receive a reduction than apartment buildings, which shifts the property tax toward apartments. One apparent reason is that class 2 condominiums are assessed less accurately than apartments due to the NYC system’s peculiarities. My findings suggest that joint appeals may be another contributor.

Conclusion

While most of the previous literature investigates administrative burdens in safety-net government programs, I explore this concept in the context of property taxation. I analyze the effect of organized groups, such as condominium associations, on participation in assessment appeals. I hypothesized that allowing condominium associations to file one appeal on behalf of all unit owners causes condominium units to appeal their assessments more frequently than those of houses and that the effect is more substantial for larger condominiums. I provide some preliminary evidence supporting these hypotheses from the two case studies of NYC and Allegheny County, Pennsylvania. Due to institutional circumstances and data scarcity, I do not recover a causal effect of joint appeals on the probability of an appeal, nor do I compute the exact distributive impact. It remains to future research to address these gaps. Study limitations notwithstanding, the findings offer actionable insights for the study of administrative burdens and property tax administration practice.

For the study of administrative burdens, the findings imply that burdens and the capacity of organized interests to lessen them are not limited to safety-net programs, and more research situated in diverse contexts is needed. The takeaway for property tax administrators is that the intended beneficiaries of appeals—often the owners and renters of lower-value properties—may actually suffer from the deterioration in the assessment fairness. Therefore, first and foremost, governments need to increase assessment accuracy. When it comes to appeals, the use of joint appeals as a solution remains controversial. Depending on the local housing situation, beneficiaries of such a structure can vary. Moreover, while I do not provide any evidence related to condominium association fees, these fees reduce the benefits from appeals and should be evaluated. My proposed interpretation of the findings is that it is possible to identify relevant third parties and provide them with training or incentives to assist owners. These third parties may include community-based organizations, neighborhood and housing groups, attorneys, tax and real estate professionals, and e-filing software providers.

Notes

1. Some examples include Medicaid (Aizer, 2003; Herd, DeLeire, Harvey, & Moynihan, 2013), the Earned Income Tax Credit (Kopczuk & Pop-Eleches, 2007), unemployment insurance (Budd & McCall, 1997), and veterans' disability compensation (Keiser & Miller, 2010).
2. Another standard view is that property tax is a fee for services, which renders the concept of incidence inapplicable (Oates & Fishel, 2016).
3. Houses can be single- or multi-family. A single-family house has only one residence and, thus, only one family living in it. A multi-family house has more than one residence, such as a house with a basement suite (two residences), a duplex, or a triplex. Both single- and multi-family houses have a single owner. Owners of multi-family houses either live in one residence and rent out the others or rent out all the residences.
4. Condominium associations differ from homeowner associations that own and maintain neighborhood amenities (e.g., a playground or sidewalks).
5. At least in theory, there should be no difference between taxing a certain portion of the property's estimated value (e.g., 6%) and the full value. The lower the taxed portion, the higher the statutory tax rate.
6. Geographic identifiers are missing for a small share of properties, and, further, census tract characteristics are missing for a small share of tracts.

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Appendix

Appendix A. Control Variables

Variable	Description
Estimated value	An estimation of the property's worth determined by the assessor
Assessment ratio	The ratio between the assessed value (before exemptions and after assessment caps) and the sales price (increases the potential benefit of an appeal)
Exemption	A dummy for whether the property is eligible for a homestead exemption (decreases the potential benefit of an appeal)
Assessment cap	The ratio between the assessed value after caps and the assessed value before caps (increases the potential benefit of an appeal)
Number of families	The number of families per property; single-family houses and condominium units have one family, two-family houses have two families, etc.
Property age	Property age
Property area	Property area
65 and over	The share of the population aged 65 and over in the census tract
Hispanic	The share of the Hispanic, Latino, or Spanish population in the census tract
Black	The share of the Black or African American population in the census tract
Bachelor's or higher	The share of the population with a Bachelor's degree or higher in the census tract
Median income	The median income in the census tract
Homeowners	The share of homeowners in the census tract
Median home value	The median home value in the census tract

Appendix B. Data Preparation

I cleaned the assessment rolls to eliminate irregular observations resulting from data entry errors or unusual property characteristics. I dropped a small number of properties with zero value and zero area in both localities. I further excluded some other unique properties in NYC, including easements, properties with zero residences, properties with more residences than there should have been according to their class, ultra-expensive properties, and cooperatives. While NYC assessment rolls directly specify the condominium for each unit, I used 16-digit property identification numbers to infer that information for Allegheny County. Specifically, I assigned units that had the same first ten digits to the same condominium. For Allegheny County, I had April assessment rolls for 2017 and 2018 but an August roll for 2016. Given that the County regularly updates the rolls, some of the August roll values may not be the same as they were during the application window. Therefore, I replaced the values in this roll with the values at the time of the appeal from the appeal database.

To create subsamples of recently sold properties, I excluded sales that were not representative of the current market value. For NYC, I excluded sales below \$10,001, as recommended by the NYS Department of Taxation and Finance (2010). I also discarded transactions if more than one sale happened on the same date at different prices, or if the property sold more than three times during 2015–2019. Allegheny County publishes already pre-screened data. Next, I selected only recent sales for each property year, i.e., 2015–2017 sales for 2016, 2016–2018 sales for 2017, and 2017–2019 sales for 2018. If the property sold more than once in three years, I selected the transaction closest to the beginning of the year in question. Finally, I corrected for inflation in housing prices using the House Price Index for Pittsburgh and the New York–Jersey City–White Plains metropolitan statistical areas provided by the Federal Housing Finance Agency (quarterly, purchase-only, and not seasonally adjusted).

Before the analysis, I trimmed data of properties with extreme values, sales prices, areas, or ratios (McMillen, 2013). The trimming limits were the first and 99th percentiles for the estimated value, the sales price, and the property area. For the assessment ratio, the lower bound for trimming was the 25th percentile minus three times the interquartile range, and the upper bound was the 75th percentile plus three times the interquartile range. I calculated the percentiles separately for NYC and Allegheny County, housing type (single-family houses, multi-family houses, units in condominiums with five or fewer units, and units in condominiums with more than five units), year, and area (boroughs in NYC and Pittsburgh versus surroundings in Allegheny County). About 3.7% of all property-years dropped because of trimming.