Comment on Jack Goodman's "Houses, Apartments, and the Incidence of Property Taxes"

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Abstract

Goodman finds from his analysis of the 2001 Residential Finance Survey that multifamily housing bears a higher effective property tax rate (EPTR) than single-family owner-occupied housing and argues that much of the differential is associated with the lower average property value of apartments. We offer comments on how this important research can be enhanced and analyze the EPTR by using a different database, the Public Use Microdata Sample (PUMS) of the decennial census.

Like Goodman, we find from the PUMS that the EPTR of multifamily housing is high relative to that of single-family detached housing and that lower-value multifamily housing has a higher EPTR relative to that of higher-value multifamily units. We offer preliminary findings from the PUMS on the implications of the EPTR for development patterns (it may discourage smart growth), equity (the poor and minorities bear a higher tax burden), and housing (high EPTRs challenge affordability).

Keywords: Rental housing; State and local governments; Tax issues

Property tax perspective and public finance housing research

While its significance has slipped over time, the property tax remains a critical source of revenue for local governments. In 1950, the property tax comprised $7.0 billion or 50 percent of the total $14.0 billion in local[1] general[2]

[1] As defined by the census, local governments comprise counties, municipalities, townships, school districts, and special districts.

[2] As defined by the census, general revenues comprise all revenues except those from utility, insurance trust, and liquor categories.

revenues in the United States. In 2002, the property tax amounted to $269.4 billion of the $995.9 billion in local general revenue—only 27 percent of the total and about half of its percentage share in 1950—yet it still far surpassed other local revenues such as sales taxes ($46.4 billion) and individual income taxes ($17.2 billion) (U.S. Bureau of the Census 2004). The significance of the property tax varies considerably by state; in 2002, it ranged from over 50 percent of local general revenues in Connecticut, Maine, New Jersey, and Rhode Island to less than 15 percent in Alabama, Arkansas, Louisiana, and New Mexico (U.S. Bureau of the Census 2004).

It is not surprising that the property tax, given its significance and variations, has been the subject of an extensive literature largely focused on public finance topics, such as the stability of the tax versus other sources of revenue and its regressive or progressive impact. By contrast, much less attention has been paid to the property tax as it affects various facets of housing, such as cost, location, and form.

It is in this housing–property tax nexus that Goodman's article makes a distinct, important, and overdue contribution. We present comments on the database on which the article is based, the housing categories it uses, and the analysis. Following those comments, we will present some of our ongoing work on property tax rates and the implications of varying rates for spatial development, equity, and housing affordability—all subjects of concern to Goodman.

Data on property tax rates

Information on property taxes is available from the census and other sources, including the Public Use Microdata Sample (PUMS) of the decennial census, the biennial American Housing Survey (AHS), and the decennial Residential Finance Survey (RFS). One of Goodman's many contributions lies in deriving property tax data from the latest release of the RFS. He also refers to tax rates available from the AHS and to census-derived median tax rates.

As we seek to better understand the changing property tax environment, it is useful to consider the different national public sources of data on property taxes and their characteristics. First, we need to know the basics, such as sample size, periodicity, geographic reporting units, and other defining characteristics, as shown in table 1. Second, and more important, we should consider the relative merits of these data sources for analytic purposes. For example, since the AHS is updated most frequently—every 2 years, compared with the 10-year cycle of the PUMS and the RFS—it will typically provide the most current information on tax rates. Yet the AHS has the least geographic detail

Table 1. Three Sources of Data on Property Taxes

Characteristic Profile Information	PUMS (from the Decennial Census)	AHS	RFS
Source	U.S. Bureau of the Census	U.S. Department of Housing and Urban Development and U.S. Bureau of the Census	U.S. Bureau of the Census
General description/purpose	Consists of microdata generated from the U.S. census of population and housing	Describes current housing conditions across the United States, including cost, quality, size, tenure, and financing	Presents data for property, mortgage, and financial characteristics
Periodicity	Decennial	Every other year since 1981; metropolitan statistical area–specific survey every four years	Decennial
Sample units	Housing units/households Individuals	Housing units/households	Nonfarm, privately owned residential properties
Universe	All people and households in the United States	All housing units, which includes apartments, single-family homes, mobile homes, and vacant housing units	All housing units, which includes apartments, single-family homes, mobile homes, and vacant housing units
Sample size	1 percent and 5 percent of the total U.S. population	About 50,000 households in 1999	About 68,000 addresses in 2001
Geographic scale	National, state, super-PUMAs (1 percent file) and PUMAs (5 percent files)	National, regional, and metropolitan, including suburbs and central cities	National and state (12 states), including suburbs and central cities
Property tax information	Yearly property taxes paid Ordinal scale with 60 categories Property tax data available for owned properties only	Average monthly real estate costs in a seven-level ordinal scale Annual taxes paid per $1,000 in value Property tax data available for owned properties only	Total annual taxes Property tax data available for owned, rental, and vacant properties
Housing information	Detailed information on both owned and rented units, including number of rooms, number of bedrooms, and year built (in an ordinal scale with eight categories) Type of structure (one-family attached, one-family detached, apartment, or three- to four-unit apartment, among others—10 categories in total)	Information about the unit and the structure, including the number of stories in the structure, the presence and condition of common stairways, external building conditions, foundations, the source of water, the equipment available, air conditioning, heating, and plumbing	Information about multifamily loans and properties, including information about the loan from the lender and information about the property owner's demographic characteristics, the type of structure, and some property characteristics (e.g., year built)

PUMAs = public use microdata areas. A PUMA has a minimum population of 100,000; a super-PUMA has a minimum population of 400,000.

(see table 1). The PUMS contains the most geographic detail and its tax rate information can be linked to the full array of the census variables (e.g., race, ethnicity, income, household age, and education). Yet like the AHS, the PUMS does not provide any property tax data on rental properties; this is in marked distinction to the RFS, which uniquely informs on the tax situation of rental housing. All three sources include survey questions on unit value and property taxes (albeit with varying ordinal-interval scale specificity), with the answers provided by owner-occupants in the case of the AHS, the PUMS, and the RFS, and property owners and managers for rental/or vacant properties in the RFS.

Housing categories

Goodman focuses on two housing categories: single-family owner-occupied houses ("houses") and rental properties with five or more units ("apartments"). That typology combines housing *type* (single-family unit versus structures with five or more units) and housing *tenure* (own versus rent), which separately may influence the property tax obligation. Conflating those two influences obscures their respective potential *independent* influence on the property tax rate, influences that Goodman does a valiant job of sketching. For instance, it should be noted that a "homestead" reduction (value and/or taxes are reduced for homesteads—a household's primary owned dwelling) would relate primarily to housing tenure instead of type. By contrast, some graded tax provisions differentiate property tax obligation on the basis of housing type as opposed to tenure. Still other influences, such as location (in lower- or higher-tax jurisdictions) affect all tenures and types.

Our understanding of these different factors would be enhanced by considering the influence of housing type versus tenure separately rather than combining them in the apartment versus house categories. Even if the effects of housing type versus tenure cannot be analyzed separately (and table 1 in Goodman's article suggests that the sample size in the RFS is too small for a separate analysis), our understanding of the subject at hand would be enhanced by at least conceptually considering the potential influences of housing type versus tenure on the property tax.

Analysis

Goodman is to be complimented for a fine analysis. Any author or statistical technique would be challenged, however, by the difficulty of disentangling the inherently intermeshed influences of tax burden as it relates to housing type, tenure, location, value, and other factors. Our comments are presented to suggest future work to build on an already strong benchmark analysis.

Findings

The main goal of Goodman's article is to test whether apartments and houses are taxed differently and, if so, why. The two main hypotheses are that, controlling for location, apartments are more heavily taxed because of explicit policies (hypothesis 1) and/or because something in the tax regulations or their enforcement causes low-value properties to be taxed more heavily. Specifically, since apartments have, on average, lower values, they would have, on average, a higher tax rate (hypothesis 2).

To test these hypotheses, Goodman differentiates properties by type and value and compares the tax rates of similarly valued apartments and houses and high- and low-value properties of the same type. The finding of a strong negative correlation between tax rates and value, together with the fact that apartments are much more heavily concentrated in the low-value range, prompts the conclusion that much of the differential is due to the lower average value of apartments and, implicitly, to the higher taxation of lower-value properties (hypothesis 2).

Goodman also claims that "all but the highest-value apartments pay a higher tax rate than comparably valued houses do" (13). This would support hypothesis 1 (that policies explicitly tax apartments at a higher rate than houses).

However, this claim is somewhat exaggerated; from his table 5, we see that, after controlling for various factors, apartments have higher tax rates than houses only in the low-value range, and lower tax rates in all other ranges. Similarly, table 3 indicates that the only time apartments have a significantly higher property tax rate is when they are valued below $55,000. Otherwise, houses have either the same property tax rate or a much higher one. The empirical evidence thus provides fairly weak support for hypothesis 1 and raises the question of why low-value apartments might be taxed at a higher rate than low-value houses while all other apartments seem to be taxed at lower rates than houses of comparable value. The author forthrightly notes that "the apparent negative correlation between value and tax rate remains something of a mystery" (21).

Endogeneity of tax rates and property values and the regression model of tax rates and property values

Tax rates may depend on house values, as the regression model in table 5 shows, but as much previous theoretical and empirical work suggests, the reverse may very well also be true in that property values may depend on tax rates. The potential dependence of property values on tax rates means that the regression model in table 5 may contain some simultaneous equation bias that

could be responsible, at least to some extent, for the estimated negative relationship between tax rate and value. True, such concerns seem to be alleviated at first sight by Goodman's finding (based on 2000 census data) of only a weak relationship between median value and median tax rate among the nation's metropolitan areas. However, the relevance of this finding is limited, since it is based solely on owner-occupied houses. Moreover, many metropolitan areas are fairly large, and thus the estimated correlation may miss the potentially significant variability of tax rates and property values within these areas. Therefore, a more complete model would require a simultaneous equation system in which tax rate and property value are included as both dependent and independent variables (see, for example, the 1969 seminal paper by Oates).

Goodman does mention this in his literature review, noting that "[r]esearch has also investigated how differences in property tax rates (tax divided by value) by location can affect values, housing capital allocations, residential mobility, and tax incidence" (2) and that "movements of capital and consumers among taxing jurisdictions will themselves alter local property values, with the equilibrium results determined by supply and demand elasticities in each jurisdiction" (2).

An alternative specification of the tax rate equation would be one in which the current value/property type variables are replaced with the following variables:

$$\text{Apartment} + \text{Value} + \text{Apartment*Value} \qquad (1)$$

where Apartment is a dummy variable equal to 1 for apartment buildings, Value is the vector of dummy variables indicating the value ranges, and Apartment*Value is a vector of interactions of the Apartment dummy and the Value indicators. Such a specification would allow the analysis to more easily disentangle the effect of property type from the effect of property value on tax rate.

Endogeneity of property type and tax rate

The location variables included in the regression in table 5 might not appropriately control for the fact that apartments could be disproportionately located in jurisdictions with higher tax rates and for the resulting endogeneity bias. The issue here is whether apartments have higher tax rates (in sub-$55,000 values) because they are taxed differently or whether they are predominantly located in areas with high tax rates while sub-$55,000 houses are predominantly located in areas with lower tax rates. Additional insight about the effectiveness of the location controls in addressing this bias may be gained by examining whether tax rates vary significantly across jurisdictions in several

larger states and whether apartments—and especially low-value apartments—tend to be particularly concentrated in jurisdictions with relatively high tax rates. Thus, building on Goodman's work, researchers could begin to better address some of the endogeneity issue by examining whether low-value apartments in selected states are located in certain areas and whether property tax rates differ greatly by locality. We recognize that some new source that provides data on more detailed geographic location and the tenure type of sampled properties would be needed.

Property tax findings from the PUMS

We have been examining effective property tax rates (EPTRs—property taxes paid divided by property values) from the PUMS; the following previews some of this information and relates these data to Goodman's findings.

The 2001 RFS reports an EPTR of 0.91 percent (median) and 1.10 percent (mean) for all U.S. housing (U.S. Bureau of the Census 2005). According to the 2000 PUMS, all U.S. housing had an EPTR of 1.08 percent (median) and 1.27 percent (mean) (see table 2) (U.S. Bureau of the Census 2000). However, the RFS includes the tax rates for both ownership and rental housing, while PUMS results are confined to ownership tenure only, so the above is not an exact comparison.

A more precise comparison is based on the tax burden of single-family owner-occupied housing, which is duly reported by both the RFS and the PUMS. According to the 2001 RFS, the EPTR for this single-family stock was 0.90 percent (median) and 1.05 percent (mean) (U.S. Bureau of the Census 2005). The 2000 PUMS-reported EPTR for single-family owner-occupied houses was 1.07 percent (median) and 1.25 percent (mean) (U.S. Bureau of the Census 2000). To compare further, Goodman says in footnote 6 that the 2001 AHS indicates a single-family EPTR of 0.95 percent (median) and 1.27 percent (mean). As suggested by Goodman, the variations in these different sources may be due to such factors as differences in the treatment of outlier responses. Given that even the same community in the same year could have different reported EPTRs because of such reasons as different metrics of equalized or market value, we are struck more by the comparability of the EPTR for single-family owner-occupied housing in the RFS, the PUMS, and the AHS rather than by the differences.

We further compared the EPTR of single-family owner-occupied houses from both the RFS and the PUMS for the 12 states individually studied by Goodman. Not surprisingly, the exact figures differ. For instance, according to Goodman in table 2, the RFS-indicated median EPTRs for single-family homes

Table 2. EPTRs by Selected Jurisdictions and Locational, Housing, and Household Characteristics

	United States		Alabama		California		New Jersey		New York		Texas		Virginia	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Location														
Central city	1.33	1.11	0.47	0.38	0.88	0.79	2.78	2.68	1.27	0.77	1.88	1.88	1.17	1.12
Suburban	1.31	1.11	0.48	0.35	0.86	0.78	2.37	2.33	2.42	2.36	1.77	1.69	0.99	0.95
Nonmetropolitan	1.10	0.86	0.42	0.27	0.86	0.78	NA	0.00	2.33	2.20	1.43	1.21	0.74	0.60
Structure type														
SFD	1.25	1.07	0.43	0.33	0.82	0.77	2.32	2.29	2.25	2.26	1.75	1.69	0.92	0.87
SFA	1.41	1.20	0.53	0.43	0.93	0.87	2.49	2.36	1.35	0.84	1.78	1.71	1.13	1.08
MF	1.43	1.14	0.62	0.47	0.93	0.86	2.63	2.49	1.63	1.09	1.78	1.67	1.11	1.04
Value														
SFD under $112,500	1.33	1.11	0.48	0.35	0.96	0.89	2.64	2.58	2.60	2.58	1.74	1.62	0.95	0.85
SFD at or over $112,500	1.19	1.04	0.46	0.33	0.80	0.75	2.22	2.14	1.87	1.73	1.74	1.69	0.97	0.92
MF under $112,500	1.69	1.35	0.76	0.50	1.13	0.98	2.90	2.69	2.43	2.07	1.96	1.80	1.22	1.10
MF at or over $112,500	1.24	1.05	0.49	0.43	0.78	0.77	2.46	2.36	0.94	0.73	1.64	1.62	1.03	1.02
Year the structure was built														
1996 to 2000	1.10	0.94	0.42	0.31	1.03	0.93	2.05	2.09	1.92	1.90	1.75	1.71	0.87	0.82
1980 to 1995	1.23	1.04	0.47	0.33	1.00	0.91	2.22	2.18	2.19	2.16	1.87	1.82	0.98	0.91
1970 to 1979	1.25	1.03	0.48	0.33	0.86	0.77	2.34	2.29	2.37	2.33	1.80	1.72	0.98	0.91
1940 to 1969	1.31	1.11	0.47	0.35	0.76	0.67	2.44	2.36	2.12	2.09	1.61	1.50	0.98	0.93
1939 or earlier	1.41	1.17	0.49	0.33	0.75	0.66	2.56	2.44	1.93	1.68	1.52	1.32	0.89	0.77
Income level														
Very low income	1.33	1.02	0.58	0.33	0.94	0.77	2.56	2.43	2.03	1.67	1.68	1.41	0.98	0.78
Low income	1.31	1.05	0.51	0.33	0.91	0.77	2.56	2.44	2.14	1.91	1.64	1.44	0.96	0.82
Moderate income (50 to 80 percent of AMI)	1.30	1.09	0.49	0.33	0.89	0.78	2.53	2.44	2.19	2.08	1.67	1.50	0.95	0.85
Middle income (80 to 120 percent of AMI)	1.28	1.09	0.45	0.33	0.88	0.82	2.47	2.37	2.20	2.18	1.71	1.63	0.96	0.89
High income (120+ percent of AMI)	1.24	1.07	0.42	0.34	0.82	0.78	2.26	2.18	2.01	2.00	1.82	1.82	0.96	0.93

Table 2. EPTRs by Selected Jurisdictions and Locational, Housing, and Household Characteristics Continued

	United States		Alabama		California		New Jersey		New York		Texas		Virginia	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Race of the household head														
Non-Hispanic white	1.27	1.09	0.44	0.33	0.81	0.76	2.32	2.27	2.17	2.14	1.68	1.63	0.93	0.88
Non-Hispanic black	1.28	1.00	0.56	0.39	0.91	0.82	2.85	2.74	1.77	1.04	1.80	1.67	1.06	0.96
Hispanic	1.38	1.11	0.53	0.38	0.97	0.87	2.62	2.54	1.80	1.32	1.89	1.77	1.17	1.05
Other	1.22	0.98	0.59	0.38	0.97	0.85	2.36	2.27	1.65	1.09	1.99	1.93	1.13	1.04
Age of the household head														
Under 35	1.29	1.09	0.53	0.35	1.01	0.91	2.36	2.33	2.21	2.16	1.87	1.80	1.00	0.92
35 to 64	1.29	1.09	0.45	0.33	0.89	0.83	2.35	2.31	2.16	2.14	1.85	1.80	0.96	0.91
65 to 74	1.23	1.03	0.45	0.33	0.73	0.60	2.44	2.36	1.92	1.75	1.43	1.28	0.94	0.87
75+	1.24	1.03	0.47	0.33	0.70	0.56	2.48	2.37	1.87	1.62	1.30	1.04	0.94	0.87
Education														
Eighth grade or less	1.27	1.00	0.52	0.32	0.97	0.82	2.60	2.49	1.83	1.40	1.68	1.44	0.95	0.74
Some high school	1.28	1.02	0.50	0.33	0.93	0.78	2.59	2.48	2.05	1.82	1.66	1.46	0.96	0.82
High school graduate	1.29	1.08	0.46	0.32	0.85	0.76	2.48	2.37	2.17	2.09	1.66	1.50	0.94	0.84
Some college	1.26	1.08	0.45	0.33	0.86	0.81	2.41	2.36	2.21	2.17	1.76	1.71	0.97	0.92
Bachelor's degree or more	1.27	1.10	0.45	0.38	0.82	0.78	2.21	2.14	2.00	1.91	1.85	1.85	0.97	0.93
Vehicles available														
None	1.38	1.09	0.60	0.37	0.90	0.73	2.65	2.49	1.65	1.09	1.70	1.44	1.02	0.88
One	1.32	1.10	0.53	0.35	0.87	0.77	2.51	2.41	1.98	1.76	1.70	1.55	1.01	0.95
Two	1.27	1.09	0.45	0.33	0.86	0.81	2.32	2.27	2.22	2.20	1.77	1.71	0.96	0.91
Three or more	1.19	1.00	0.41	0.32	0.84	0.77	2.28	2.23	2.26	2.27	1.75	1.67	0.91	0.84
Jurisdiction Total	1.27	1.08	0.47	0.33	0.86	0.78	2.38	2.33	2.09	2.05	1.74	1.67	0.96	0.91

Source: U.S. Bureau of the Census 2000.

AMI = area median income; MF = multifamily; NA = not available; SFA = single-family attached unit; SFD = single-family detached unit.

in California and New Jersey are 0.59 percent and 2.09 percent, respectively, versus a PUMS-indicated median EPTR for single-family owner-occupied homes of 0.77 percent for California and 2.29 percent for New Jersey. Yet the overall relative relationships remain the same: In both the RFS and the PUMS, California has the lowest median rate of the 12 states and New Jersey has the highest (complete results are available from the authors) (U.S. Bureau of the Census 2000, 2005).

The PUMS indicates that the EPTR of multifamily housing (1.43 percent mean/1.14 percent median), as well as the EPTR of single-family attached housing (1.41 percent mean/1.20 percent median), are higher relative to the EPTR of single-family detached housing (1.25 percent mean/1.07 percent median). Lower-value multifamily housing has a higher EPTR (1.69 percent mean/1.35 percent median) relative to the EPTR of its higher-value counterparts (1.24 percent mean/1.05 percent median). Lower-value single-family detached housing also bears a higher EPTR relative to its higher-value counterparts (U.S. Bureau of the Census 2000). These multifamily PUMS findings echo Goodman but recall that his multifamily tax rates include both owner and rental units, while the PUMS is restricted to the much smaller group of owner-occupied multifamily units.

Broader spatial, equity, and affordability implications

At the conclusion of his article, Goodman relates his RFS-based findings to implications for spatial development, equity, and housing affordability. The tax data derived from the PUMS echo similar facets of these themes.

Property taxes and development patterns

We will begin by considering how tax rates (among other factors) may affect smart growth instead of sprawl—a much desired spatial change. In brief, smart growth redirects growth from the exurbs to the older suburbs and cities. Unlike sprawl, which focuses on single-family detached housing, smart growth encourages a variety of housing types, detached and attached. Also unlike sprawl, which emphasizes new construction over renovating the existing stock, smart growth incorporates both new construction and rehabilitation. Reflecting some of the other characteristics listed, such as building higher-density housing in older centers, smart growth enables households to reduce their dependence on the automobile.

What is the relationship between these smart growth characteristics and the EPTR? On the basis of an analysis of the national 2000 PUMS, table 2 cross-tabulates the EPTR and the smart growth versus sprawl locational and

housing characteristics for the United States and six selected states.[3] A higher EPTR is evident in many of the smart growth characteristics (U.S. Bureau of the Census 2000).

1. Nonmetropolitan locations in the United States have the lowest EPTR (1.10 percent mean/0.86 percent median), and the tax burden increases in the suburbs (1.31 percent mean/1.11 percent median) and in the cities (1.33 percent mean/1.11 percent median).

2. As noted earlier, single-family attached housing and multifamily housing in the United States have higher EPTRs than single-family detached homes.

3. Older housing, often suitable for rehabilitation, and units with fewer automobiles in the United States tend to have relatively higher EPTRs. The EPTR for units built in the United States in 1939 or earlier is 1.41 percent mean/1.17 percent median, as opposed to an EPTR of 1.10 percent mean/0.94 percent median for the most recently constructed homes (built between 1996 and 2000).

4. U.S. households with no vehicles face an EPTR of 1.38 percent mean/1.09 percent median, as opposed to the lesser EPTR of 1.19 percent mean/1.00 percent median for their counterparts with three or more vehicles.

Specific results differ by state (e.g., older housing in California has the lowest EPTRs, perhaps due to Proposition 13, and multifamily properties in New York have a relatively lower EPTR—similar to what Goodman found for this state), as does the degree of variation in EPTR by housing/household subcategory. However, most of the national observations hold at the state level as well.

These clearly reflect a complex interplay of location, housing type, and other factors. Owning fewer cars obviously does not directly increase the real property tax bill, but the interplay of less auto-dependent households that may very well disproportionately live in central cities and suburbs with higher EPTRs and reside in attached housing with generally higher EPTRs results in households that own fewer cars paying higher property taxes.

Equity and the property tax

Goodman spoke of the household equity challenge of his RFS-based findings. The PUMS-derived EPTRs point to the inequitable character of the prop-

[3] We are currently examining these data for the 50 states and are analyzing EPTR, location, and housing/household relationships.

erty tax, in that the most vulnerable households face the highest rates. For instance, New Jersey is one of the nation's most property tax–dependent states. According to the 2000 PUMS reported in table 2, very low income households in New Jersey have an EPTR of 2.56 percent mean/2.43 percent median versus 2.26 percent mean/2.18 percent median for their high-income counterparts. Hispanic households in New Jersey have an EPTR of 2.62 percent mean/2.54 percent median versus a 2.32 percent mean/2.27 percent median EPTR for non-Hispanic whites (U.S. Bureau of the Census 2000). Again, income and ethnicity do not cause a high tax burden but may nonetheless be associated with places and types of residences that are more heavily taxed.

Housing affordability and the property tax

Housing affordability is also affected by the property tax burden because taxes are an important component of housing expenses for both owned and rented units. Since the EPTR varies by area, type of property, and so on, affordability will too: for instance, the varying state EPTRs and the implications for purchasing a home. States with the highest mean EPTRs as indicated by the PUMS are New Jersey (2.38 percent), New Hampshire (2.26 percent), and New York (2.09 percent), while the states with the lowest mean EPTRs are Hawaii (0.37 percent), Louisiana (0.43 percent), and Alabama (0.47 percent), (U.S. Bureau of the Census 2000). (See table 3, which lists the mean EPTRs for every state.)

These varying EPTRs imply very different property tax obligations. The average new single-family detached home built in Alabama between 1990 and 2000 was valued at $160,050 and had an average annual property tax of $746. At the national average EPTR, that new home would instead have had a property tax bill of $1,961—or $1,215 more. The opposite is true in a state like New Jersey, where the average new single-family detached home built during the 1990s cost $311,047 and paid $7,406 annually in property taxes—or $3,595 more than if it had been taxed at the national average.

These property tax variations have implications for affordability. One way of determining what they are is to calculate the principal and interest, property taxes, and insurance payments for a single-family detached (purchased) home under two scenarios: the property tax as it is today versus a different rate, say the national average. A preliminary version of such an analysis is shown in table 3. For example, the minimum income to afford a single-family detached home built between 1990 and 2000 in Alabama is $31,825—or $3,645 less than the minimum income needed ($35,469) if that single-family detached home had been taxed at the national average property tax rate. Colorado,

Table 3. Single-Family Detached Unit (SFD): Principal, Interest, Taxes, Insurance, and Affordability Calculations

State	Mean EPTR	SFD Value[a] ($)	Principal and Interest[a] ($)	Taxes		Insurance[b] ($)	Principal, Interest, Taxes, and Insurance		Minimum Income to Afford the Difference[c]			
				State ($)	National ($)		State ($)	National ($)	State ($)	National ($)	Amount ($)	%
Alabama	0.47	160,050	9,302	746	1,961	560	10,608	11,823	31,825	35,469	–3,645	–0.10
Alaska	1.37	181,574	10,553	2,483	2,225	636	13,672	13,413	41,015	40,239	776	0.02
Arizona	0.88	194,999	11,333	1,719	2,389	682	13,735	14,405	41,204	43,215	–2,010	–0.05
Arkansas	0.89	131,918	7,667	1,170	1,616	462	9,298	9,745	27,895	29,235	–1,340	–0.05
California	0.86	296,141	17,212	2,546	3,628	1,036	20,794	21,876	62,383	65,629	–3,246	–0.05
Colorado	0.73	274,150	15,934	2,011	3,359	960	18,904	20,252	56,712	60,755	–4,043	–0.07
Connecticut	1.79	313,101	18,197	5,590	3,836	1,096	24,883	23,129	74,648	69,387	5,261	0.08
Delaware	0.76	197,147	11,458	1,504	2,415	690	13,652	14,564	40,957	43,691	–2,734	–0.06
Florida	1.17	183,689	10,676	2,147	2,250	643	13,466	13,569	40,399	40,708	–309	–0.01
Georgia	0.93	180,195	10,473	1,673	2,208	631	12,776	13,311	38,329	39,934	–1,604	–0.04
Hawaii	0.37	275,692	16,023	1,020	3,378	965	18,008	20,366	54,024	61,097	–7,074	–0.12
Idaho	1.05	170,709	9,922	1,785	2,091	597	12,304	12,610	36,913	37,831	–919	–0.02
Illinois	1.70	243,239	14,137	4,123	2,980	851	19,112	17,968	57,335	53,905	3,430	0.06
Indiana	1.06	174,837	10,162	1,845	2,142	612	12,618	12,915	37,855	38,746	–892	–0.02
Iowa	1.40	186,245	10,825	2,615	2,282	652	14,091	13,758	42,274	41,274	1,000	0.02
Kansas	1.34	179,395	10,426	2,398	2,198	628	13,453	13,252	40,358	39,756	602	0.02
Kentucky	0.82	148,032	8,604	1,221	1,814	518	10,342	10,935	31,027	32,806	–1,778	–0.05
Louisiana	0.43	159,159	9,250	680	1,950	557	10,487	11,757	31,461	35,272	–3,811	–0.11
Maine	1.48	161,257	9,372	2,388	1,976	564	12,324	11,912	36,973	35,737	1,236	0.03

Table 3. Single-Family Detached Unit (SFD): Principal, Interest, Taxes, Insurance, and Affordability Calculations *Continued*

State	Mean EPTR	SFD Value[a] ($)	Principal and Interest[a] ($)	Taxes		Insurance[b] ($)	Principal, Interest, Taxes, and Insurance		Minimum Income to Afford the Difference[c]			
				State ($)	National ($)		State ($)	National ($)	State ($)	National ($)	Amount ($)	%
Maryland	1.32	256,035	14,881	3,375	3,137	896	19,152	18,914	57,456	56,741	715	0.01
Massachusetts	1.25	303,166	17,620	3,787	3,714	1,061	22,468	22,395	67,403	67,186	218	0.00
Michigan	1.44	224,748	13,062	3,233	2,753	787	17,082	16,602	51,247	49,807	1,439	0.03
Minnesota	1.18	211,366	12,285	2,498	2,590	740	15,523	15,614	46,568	46,842	–274	–0.01
Mississippi	0.81	131,018	7,615	1,062	1,605	459	9,135	9,678	27,406	29,035	–1,630	–0.06
Missouri	1.04	172,014	9,997	1,789	2,107	602	12,388	12,707	37,165	38,121	–956	–0.03
Montana	1.31	193,972	11,274	2,547	2,376	679	14,500	14,329	43,500	42,987	513	0.01
Nebraska	1.82	178,475	10,373	3,254	2,187	625	14,252	13,184	42,755	39,552	3,203	0.08
Nevada	0.88	190,625	11,079	1,680	2,335	667	13,427	14,082	40,280	42,245	–1,965	–0.05
New Hampshire	2.26	213,152	12,388	4,818	2,611	746	17,952	15,746	53,856	47,237	6,619	0.14
New Jersey	2.38	311,047	18,078	7,406	3,811	1,089	26,573	22,977	79,718	68,932	10,785	0.16
New Mexico	0.77	182,555	10,610	1,407	2,237	639	12,656	13,486	37,967	40,457	–2,490	–0.06
New York	2.09	225,802	13,124	4,730	2,766	790	18,643	16,680	55,930	50,041	5,890	0.12
North Carolina	0.91	181,696	10,560	1,645	2,226	636	12,841	13,422	38,523	40,266	–1,744	–0.04
North Dakota	1.87	156,176	9,077	2,919	1,913	547	12,542	11,537	37,626	34,611	3,016	0.09
Ohio	1.30	203,648	11,836	2,643	2,495	713	15,191	15,044	45,574	45,131	443	0.01
Oklahoma	0.85	143,011	8,312	1,215	1,752	501	10,028	10,564	30,083	31,693	–1,610	–0.05
Oregon	1.14	225,519	13,107	2,561	2,763	789	16,457	16,659	49,372	49,978	–606	–0.01
Pennsylvania	1.76	207,590	12,065	3,648	2,543	727	16,439	15,335	49,318	46,005	3,313	0.07

Table 3. Single-Family Detached Unit (SFD): Principal, Interest, Taxes, Insurance, and Affordability Calculations *Continued*

State	Mean EPTR	SFD Value[a] ($)	Principal and Interest[a] ($)	Taxes		Insurance[b] ($)	Principal, Interest, Taxes, and Insurance		Minimum Income to Afford the Difference[c]			
				State ($)	National ($)		State ($)	National ($)	State ($)	National ($)	Amount ($)	%
Rhode Island	1.85	218,259	12,685	4,029	2,674	764	17,478	16,123	52,435	48,369	4,066	0.08
South Carolina	0.72	178,450	10,372	1,288	2,186	625	12,284	13,182	36,851	39,547	–2,696	–0.07
South Dakota	1.97	157,819	9,172	3,112	1,933	552	12,837	11,658	38,511	34,975	3,536	0.10
Tennessee	0.86	165,065	9,594	1,412	2,022	578	11,583	12,194	34,749	36,581	–1,831	–0.05
Texas	1.74	166,003	9,648	2,891	2,034	581	13,120	12,263	39,361	36,789	2,573	0.07
Utah	0.71	225,674	13,116	1,599	2,765	790	15,505	16,671	46,515	50,013	–3,498	–0.07
Vermont	1.98	184,101	10,700	3,646	2,255	644	14,990	13,600	44,971	40,799	4,172	0.10
Virginia	0.96	209,079	12,152	2,006	2,561	732	14,890	15,445	44,669	46,335	–1,666	–0.04
Washington	1.14	239,829	13,939	2,741	2,938	839	17,520	17,716	52,559	53,149	–590	–0.01
West Virginia	0.75	132,685	7,712	990	1,626	464	9,166	9,802	27,499	29,405	–1,906	–0.06
Wisconsin	1.98	196,794	11,438	3,905	2,411	689	16,031	14,537	48,094	43,612	4,482	0.10
Wyoming	0.74	232,468	13,511	1,723	2,848	814	16,048	17,173	48,144	51,518	–3,374	–0.07

Source: U.S. Bureau of the Census 2000 and authors' calculations.

[a] Assumes 20 percent down (80 percent loan-to-value ratio) and a 6 percent, 30-year mortgage ($72.65 per $1,000 outstanding).

[b] Equals 1/2 of 1 percent of 70 percent of the property value.

[c] Equals principal, interest, taxes, and insurance times 3 (assumes a 33 percent front-end ratio).

SFD = single-family detached unit.

Nevada, and North Carolina, among other states (see table 3), are similarly advantaged. The situation is different elsewhere. In Connecticut and New Jersey, two high-property-tax states, home buyers need $5,261 and $10,785 more income, respectively, to afford the average detached home. Among many other influences, these tax variations may contribute to the movement of people from one state to another (Connecticut or New York retirees moving to North Carolina or Nevada) and effects on housing prices (the price of a house may be lower than it would be in higher-tax areas).

Affordability can be enhanced through policies that moderate the property tax burden and make it more equitable. Government spending affects this as does public finance policy with respect to paying for local services. For instance, in 1994, Michigan approved Proposal A, which significantly reduced local property taxes, with the shortfall made up by an increase in the sales tax. That change, which halved the percentage of local revenues raised from the property tax, not only reduced average local property taxes but also enhanced the affordability of housing in Michigan. Thus, public finance reform to shift reliance away from the property tax has an important, but not fully appreciated, housing affordability dimension.

Other policies may address the link between property tax problems and spatial development, equity, and housing affordability. Regional tax base sharing has been touted by smart growth advocates to advance their land use vision. To date, however, only a few jurisdictions, such as the Hackensack Meadowlands in New Jersey and the Twin Cities in Minnesota, have implemented this practice. In actuality, housing is made more affordable and the tax burden on the poor more bearable by extending tax abatements and other adjustments (allowing a lesser payment in lieu of taxes or PILOT) for socially beneficial dwellings such as affordable multifamily units,[4] but that is only a temporary solution since abatements and PILOTs phase out. Further, reducing the taxes on one segment of housing inevitably raises the burden on other residential (and nonresidential) sectors, and that kind of shift presents its own equity conundrum. Realistically, there is no easy answer to these property tax challenges, as indicated by the decades-long, arduous experience of states trying to wean educational funding away from local ad valorem sources.

[4] Generous property tax reductions for multifamily housing in New York may help explain the previously described relatively lower EPTR for multifamily units in this state.

Extending the Goodman analyses to the PUMS and broader issues

The PUMS data could be applied to address some of Goodman's important queries about the relationship between property value and property taxes and how the type of unit (house or apartment) influences this relationship for the dwellings (owned units) for which PUMS data are available.

To recap, while simple national correlations indicate a negative relationship between property value and tax rates, this does not necessarily indicate causality (that tax rates decrease as values go up). Most notably, tax rates vary by jurisdiction. If low-value units are disproportionately located in areas with high tax rates, we would see a negative correlation, but it would not indicate that property tax rates fall with value. A fixed-effects ordinary least squares analysis could be run with property tax rate regressed on property value, controls, and public use microdata area (PUMA) dummies. Each PUMA has a minimum population of 100,000; so with the 5 percent sample, this should have sufficient power to test the relationship. To determine whether unit type affects the tax rate, we would add a unit-type dummy. Thus, by controlling for value and not confounding value and unit type, we are testing from the PUMS whether property tax rates differ by type.

This baseline regression would enable us to take our understanding of property taxes further, although it would introduce its own limitations. First, the PUMS data set is significantly larger, with household-level data on 5 percent of the total U.S. population for state files (see table 1). Thus, we can control for geographic location (jurisdiction) with little loss of power. In addition, each of the observations includes a PUMA (geographic indicator), while the RFS has only 12 state identifications. Further, since the PUMS data are available for other census years, we could run more precise tests (using panel methods) if the need arises. Inevitably, a PUMS study has limitations: Data on EPTR are not available for rental housing—a critical omission. Further, since certain PUMAs are determined by population size and not by jurisdictional borders, the PUMA might cover a number of tax jurisdictions, so the results could be diluted. Despite these shortcomings, using the PUMS to better understand the important subjects Goodman has raised is worth the effort.

In addition to clarifying the relationships Goodman examines in his study, the PUMS data set presents the opportunity to delve deeper into the incidence of the property tax. As a household-level survey, the PUMS includes a number of interesting observations about homeowners. Some of the variables, such as automobile ownership and race, are included in the descriptive statistics in table 2. Goodman's study suggests that the property tax rate varies unexpectedly with unit type; performing a similar analysis with variables uniquely iden-

tified in the PUMS data could broaden this inquiry to variations in the property tax rate in relation to the ages, education, employment tenure, income, language, automobile ownership, and/or race of household members.

Regressing the tax rate on demographic characteristics would allow us to separate individual effects and provide insightful information, particularly about the vertical and horizontal equity of property taxes. For example, variables such as education, race, and income are often highly collinear; descriptive statistics such as those in table 2 could be exaggerating (or hiding) the individual impact of each characteristic. Linear regression analysis could help us determine whether after controlling for household income, for instance, Hispanics pay a higher tax rate than non-Hispanics. Similar tests could be run for a host of other interesting household characteristics. Stay tuned: We are working on these analyses and look forward to sharing the results soon.

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References

Oates, Wallace E. 1969. The Effects of Property Taxes and Local Public Spending on Property Values: An Empirical Study of Tax Capitalization and the Tiebout Hypothesis. *Journal of Political Economy* 77(6):957–71.

U.S. Bureau of the Census. 2000. *Census of Population and Housing: Public Use Microdata Sample, 5 Percent File*. Washington, DC.

U.S. Bureau of the Census. 2004. *State and Local Government Finances*. World Wide Web page <http://www.census.gov/govs/www/estimate.html>.

U.S. Bureau of the Census. 2005. *Residential Finance Survey: 2001*. Census 2000 Special Reports, CENSR–27. Washington, DC.