

Options for Census to Reinstate Measuring Taxable Property Values

Robert P. Strauss¹

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1. Introduction

Property taxes and the underlying assessment of real estate have never been popular in the US², despite always being important to the financing of US local government. For the past twenty years, property taxes have been about 30% of general state and local tax collections, and much higher proportions of just local finance. As of the close of June, 2008, annual property tax collections were \$404.5 billion --- more than state and local sales and use tax collections and more than state and local individual income tax collections.³

While the property tax has remained sizeable and unpopular, we know far less today on a systematic basis through publicly funded statistical agencies about the details of it than we used to.⁴ Since 1987, the Governments Division of the U.S. Bureau of the Census has not collected and published state by state descriptions of the legal and institutional environment surrounding the collection of the property tax, and since 1982 not collected and published statistics on local taxable property values or sales price ratios. The latter were begun initially as a series of special studies in the 1940's, and later as an integral part of its quinquennial Census of Governments⁵ over the period 1957-82.⁶

The elimination of the taxable property value studies was noted by myself and eighteen members of the Committee on Property Taxation of the National Tax Association in 1999 through a group letter to the Census Bureau⁷ requesting reinstatement. However, then Census Bureau Director Ken Prewitt and subsequent directors have declined to reinstate the taxable property values measurement and report. During its deliberations in 2007, the National Research Council Panel on state and local statistics was told that reinstating the taxable property values

report would cost \$26 million, or more than the Governments Division's overall budget. While the Panel was acutely aware of the tight budgetary environment facing the Census Bureau generally, and the Governments Division which resides within the Economic Directorate⁸, the Panel recommended that the Division investigate "...a program of research and testing to explore conceptually sound and cost-effective means of collecting these data."⁹

It should be noted that the Census Bureau's budget has become even tighter since the release of our panel report in the fall of 2007, largely because the cost of the decennial census has risen dramatically.¹⁰ While it is beyond the scope of this paper to do a cost-effectiveness analysis of spending \$11.3 billion in 2010 to measure about 305 million Americans compared to spending \$26 million to measure the taxable values of perhaps 100 million taxable properties owned in the U.S.¹¹, the difference between investing scarce statistical budgets at rates of \$37/person and \$.26/taxable parcel or 142:1 is striking.¹²

2.0 Activities of the Governments Division Related to Real Estate Taxation

The Governments Division collects a wide variety of data on the federal government, the states and their general, single function local governments and authorities. Revenues including property tax collections, expenditures and state and local employment are measured on a quarterly basis as are the finances of major public employee retirement systems. Every five years, enumeration of spending and revenues of all state and local governments occurs through the Census of Governments. For its quarterly and annual collection efforts, the Division relies on sampling of major general governments and special districts, and the enumeration of the finances of all independent and dependent school districts for the National Center for Educational Statistics. Data for its quarterly survey of property tax collections, Form F71, is obtained electronically through a controlled web site and through postal mailings.¹³ Table 1 displays the range of weighting used by type of sampled governmental entity in 2005-6, and compares them

to a somewhat earlier universe to indicate changes over time. Note that the number of enumerated independent school districts has grown, and that about 11,400 local units are sampled each non-Census year.

Beginning in 1987, the sample design of the annual finance and employment surveys has been focused on achieving reliable estimates of key indicators at the state level, but not for every country area in the U.S.¹⁴ Note that national and state and local quarterly estimates of property tax *collections* have been continuously collected and reported by the Governments Division, and are used by the Bureau of Economic Analysis in the GNP accounts.

2.1 The Framework of the Governments Division 1982 Taxable Property Values Study

The *1982 Taxable Property Values and Assessment Sales Price Ratios (TPV)* presented a wide variety of state, metropolitan and local information that can be roughly divided into three categories, and are summarized as follows:

- *Legal Framework:* A detailed state by state review of state assessment statutes and assessment administration dealing with realty and tangible personal property, and a detailed state by state review of mechanisms to provide preferential treatment through classification, exemption, exclusion, and preferential rates;¹⁵
- *Property Stock Measurements:* Measurement of the gross and net assessed value of realty at the state, regions and metropolitan areas, and local level; measurement of realty by type of use and tax status; measurement of property tax collections;¹⁶
- *Property Flow and Assessment Uniformity:* Measurement of real property sales activity during a 6 month period in 1981; state, regional and selected local area measurement of median assessment to sales price ratios (A/V); development of estimated fair market values across states, state, regional and selected local area measurement of the variability of A/V through the reporting of coefficients of dispersion of single-family non-farm properties and price-related differentials; and tallying of various financing schemes (fixed, variable rate mortgages, points to buyer etc.) associated with each transaction.¹⁷

Much of the resulting 28 tables could be compared to prior taxable property value studies. We learned, for example, that total gross assessed value of real and personal property grew from \$280.2 billion in 1956 to \$2,958.2 billion in 1981 for the continental US, while total net assessed value grew from \$272.2 billion in 1956 to \$2,837.5 billion in 1981.¹⁸ The number of parcels grew from 61 million in 1956 to 98.4 million in 1981. Across this period, acreage and farms

declined from 23.2% of total parcels to 15% of total parcels.¹⁹ Equally valuable to those interested in the evolution of assessment standards and practices was the historical commentary that informed on such topics as the growth of classification, assessment organization and administration.

Unlike state and local individual income taxation, which largely relies on the Internal Revenue Code and extensive information sharing between state revenue agencies and the Internal Revenue Service, state real and personal property assessment and taxation laws and practices are heterogeneous and do not benefit from a comparable federal tax. Thus, the development of meaningful inter-state and inter-area comparisons of assessed values on a comparable, fair market value basis requires significant care to ensure that apples to apples comparisons are actually accomplished. *TPV* admirably documented its definitions and classifications, methodology, and the statistical reliability of its sample estimates.

Perhaps the most difficult, controversial and important task performed by *TPV* has been the comparison of assessed value to recent arms length sales price of representative samples of all types²⁰ of locally assessed properties. Utilizing a two-stage sampling procedure that ensured that sales price was compared to a *prior* assessment, the Governments Division measured A/V for states, SMSA's, counties, and relatively populous minor civil divisions. In areas with no electronic records, Census field enumerators went into local county assessment and title offices and used sampling schemes to obtain samples of transactions that reliably reflected the *size distribution* of values. However, in no event were data on residential properties with sales prices over \$3 million collected.

The measured variation in assessment uniformity was remarkable and perhaps discomfoting. For example, here in Pennsylvania, one finds that in 1981 the City of Philadelphia, PA had 537,400 parcels with a gross assessed value of \$5.855 billion, a median A/V of 26.2 and a

coefficient of dispersion of 59.1²¹ Allegheny County, PA with 483,467 parcels and a gross assessed value of \$5.634 billion, had a median assessment ratio of 21.4, and a coefficient of dispersion of 38.2.²² Both dispersion coefficients were well beyond the best practice recommendation of 20.0 by the International Association of Assessing Officers and both independently measured assessment ratios were rather different than those adopted statutorily.

This measurement of assessed value and sales price remains difficult because not all states and localities conform to the simple idea of a county or township assessor who assesses for county, municipal and school real estate tax purposes. In 1982, the District of Columbia and 30 states fit into this simplified category; however the others were more complex because either more than one assessor performed assessments for a particular area, and/or the assessed values reflected material adjustments due to classification, exemption, differential assessment and/or tax rates. *TPV* accomplished comparable measurement by using the officially determined assessed value before deductions of any exemptions used for official tax determination purposes.

While consistent measurement of sales ratios and their uniformity within and across the states is difficult and time consuming, their independent measurement by Census, which has the statutory authority to request cooperation both from governmental units and parties transacting real property,²³ has had a number of uses. It has permitted the independent check on the efficacy of state efforts to equalize the burden of property taxation, has determined the extent to which state by state assessment standards are being met, and independently checked on the accuracy of mass appraisal reassessments. Such ratios can also be material in the practical application of taxpayer appeals, and have standing in legal proceedings. Historically, the presentation of reliable data on sales ratios across states and metropolitan areas conveyed important inter-jurisdictional information to tax administrators and elected officials on the underlying fairness of real estate taxes to fund local services.

The practical application of the *TPV* measurement methodology entailed utilization of local electronic records on assessments from local assessing offices, and utilization of electronic records on arms length transactions from deed transfer and transfer tax records. In some states, the transfer of ownership triggers application of an excise tax on the value of the transaction, and typically is subject to disclosure and often an affidavit from the buyer as to what was paid.²⁴

3.0 Strategies for Improving our Knowledge of Assessed Values, Sales Ratios, and their Variability: Governmental and Third Party Electronic Sources and Issues

Estimating the value of real and personal property is of interest beyond those curious about federal statistics. Indeed, one can argue that the current financial crisis in world capital markets is due to unrealistic appraisals of real estate that were created to underpin or justify the lending of mortgages and the development of fees for mortgage placements. Private, for profit lending institutions, institutions such as Fannie Mae and Freddie MAC which were supposed to assist low income home owners and increase the liquidity of the mortgage market, and federal institutions such as the Federal Housing Authority which were also supposed to assist low income home owners, have all been involved in devising and using various models that predict on the basis of sales prices and physical characteristics the underlying value of real estate. Such appraisal models have much in common with those used for Computer Assisted Mass Appraisal (CAMA) typically utilized in reassessment. Of course, appraisal to support a loan application is different in character than appraisal for the creation of an assessed value for tax administration purposes in that the former serves the interest of the buyer/owner and the latter is a disadvantage to the buyer/owner because it directly affects the buyer/owner's tax bill.

Independent ratio studies can analyze assessment performance, evaluate CAMA models and identify shortcomings and weaknesses in current assessment practices. As is generally

understood, ratio studies that are not based on representative areas, values and types of properties can yield misleading information and lead to misdirected policy changes.

3.1 Utilizing Existing State Sales Ratio Studies

Dornfest and Johnson (2004) report that in 2003, fully 41 of 50 states and the District of Columbia reported performing annual sales ratio studies; this was the same number as in 1997. A central ingredient in any sales ratio study is the comparison of a disclosed arms length sales price to historical assessed value. Three forms of disclosure are reliable: full mandatory sales price disclosure, transfer fees which are based on the sales price, and mandatory recordation of any transfer instrument. As of 2003, only Idaho, Missouri and Texas contained *none* of these three elements of disclosure. New Mexico enacted disclosure legislation in 2003.²⁵ Also, Louisiana, Mississippi, and Utah continue not to require full disclosure of transfer fees. Fully 43 states use ratio studies to ‘advise and assist’ in the assessment process, as compared to 35 states in 1994 and 1997.²⁶ Poor uniformity in assessment, as evidenced by high coefficients of dispersion, can trigger state action of some sort in 34 states, and in 23 this can result in a state order of reappraisal.²⁷ With respect to ascertaining the *level* of assessment, 39 states used the weighted mean A/V in 2003, while 38 states used the median A/V. With respect to trimming the distribution of A/V prior to measuring the representative A/V, 35 states indicate testing for outliers and 10 states indicate explicit limitations on the number of outliers that may be tossed out.²⁸

Given this abundance of state sales ratio studies, perhaps the easiest and most inexpensive way to begin to reinstate *TPV* would be to collect, classify, and report the results of these ratio studies for a given year, and attempt to put them on a comparable basis. Historically, this characterization and tabulation of state ratio study efforts had been done by the Governments Division in conjunction with preparing its *TPV*.²⁹

3.2 Expanding the Partnership with the National Center for Educational Statistics

If Census prefers reviewing actual administrative records of assessments, tax collections and transactions to simply reinterpreting state sales ratio studies, there are a number approaches that it could take in connecting to existing flows of administrative information. Virtually all but a handful of independent school districts in the U.S. utilize the real property tax to finance themselves, and all are involved in providing annual property tax collection information/data to the Governments Division which collects it on behalf of the National Center for Education Statistics of the U.S. Department of Education. In particular, Form F-33, Part 1, Section A Line 1 elicits “Property taxes.” This collection effort is historical, ongoing, and NCES is a large, well funded statistical agency that routinely studies school finance. Since property tax collection is inherently based on the measurement of assessments and the application of exemption or tax forgiveness schemes to move from assessed to taxable values to tax collections, it follows that every school district in the US, which covers the entire geography of the US, knows its property tax base and, either through its own, contracted, or delegated agent, has a set of tax roll records that must include underlying assessment records.³⁰

What I thus have in mind here is adding to Form F-33, the annual survey of school systems, two additional lines: “Gross Assessed Value” and another for “Gross Assessed Value of Taxable Properties.” The instructions portion of the form would require a few sentences to define these terms.

From a data collection perspective, this means that with some relatively minor adjustment to current survey forms, data on the assessed and taxable values of real property in the US could be readily collected on an annual basis at little added expense. It is likely that for most school districts, such data could also indicate the totals by use of the property.

As those who study governmental accounting rules know, NCES is the standard setter for school district accounting. Heterogeneity in definitions of property use, classification, and nomenclature surrounding types of property exemption schemes could be the subject of NCES consideration and pronouncements over time so that local assessed base measurement could be more systematic and comparable across states. Whether or not NCES could accomplish such changes in data collection and survey forms by adding to its measurement of school finances characteristics of the school finance property tax base without statutory or regulatory changes is an open question. It is likely that the change in survey form and associated instructions would require OMB approval. Under this approach, most of the collection cost would be borne by respondent school districts rather than by Census field data collectors.

Utilizing school districts as data collection sources does not directly address how sales and arms length price information could be obtained and transmitted. Since school districts do not maintain deed records and may not share in transfer tax proceeds, they may not have readily available sales and price information on an individual, parcel by parcel basis. It may be feasible, however, for each school district to report the aggregate value of new construction as reflected in the sales prices of land and improvements in a calendar year, and it may be feasible for each school district to report the aggregate value of all sales and the aggregate value of their gross assessments of taxable properties. From such aggregate information, one could construct the ratio of total assessed value to total sales value and measure an overall average sales ratio.

3.3 Federal Administrative Records to Measure Sales and Market Values

The federal government is involved in real estate transactions in several different ways: through federal taxation of income derived from the sale or exchange of real estate, and through various kinds of regulatory roles in the settlement and mortgage financing process. Unfortunately, none of these mechanisms currently provides information which the Census

Bureau could readily utilize to estate gross or net assessed values, taxable values, or the variation in the ratio of assessed value to sales price.

Since the early 1970's, the Internal Revenue Service has been statutorily obligated to provide to the US Bureau of the Census each year the Individual Master File or IMF. Census uses this tax return information for the construction of population and income estimates for small areas and also to measure migration. County to county migration data are available to researchers through the Statistics of Income Division of the IRS and have been used for years by demographers and those who want to follow population and income movements.

Historically, sellers of real property have been required for federal tax purposes to report gross proceeds from the sale or exchange of land, permanent structures, condominium unit including permanent improvements or stock in a cooperative housing corporation. Currently, Census does not receive the full 1099-S, and the 1099-S does not require the reporting of the location of property, its use, assessed or taxable value. Recently, transactions involving sale or exchange of principal residence for \$250,000 or less ((\$500,000 or less for married filing jointly) need not be reported. Thus, even if the 1099-S were revised to collect location and parcel id information, because it does not reflect the assessed value, a statistical agency would not be able to readily derive A/V for properties sold state by state.

The HUD-1 settlement statement that accompanies all residential real estate transactions would appear to be another administrative form of interest, because it contains the date, property description, and details of what the buyer and seller transact in terms of cash and other considerations. It has, however, several limitations. First, HUD-1 is not put into machine readable form in its entirety. Second, information about annual real estate gross and net assessment, and taxes due for county, municipal, and school purposes are not recorded. Accordingly, for these forms to become useful electronic information, HUD would have to

commit to first alter their form to contain the information that would then feed into *TPV*, and then HUD would have to invest in putting all the information on the settlement form into a database. Even if these two steps were taken, there would still not be any information about the non-residential sectors of the real estate markets.

3.4 Third Party Data Sources on Tax Rolls and Deed Transfers

As noted earlier, banks and other financial institutions have an interest in not only the price at which a property they are financing transacts, but also the taxes currently being levied on the property and its assessed value. Carrying costs of residential property involves the sum of the mortgage, insurance and taxes, and these are considered when reviewing the loan application in conjunction with the financial position of the buyer/borrower. Assessed values are of interest not only for tax determination purposes but also as checks on the appraisals that typically accompany the determination of loan amount.

The need for such information in reliable form has led to the long standing development of real estate data brokers who buy, process, and sell such information and related real estate services to lending institutions. Many of these data brokers are subsidiaries of regional and national title companies that historically have performed title searches in conjunction with the due diligence required in settling a real estate transaction. Related to such original data collection services is a group of organizations which process and model the resulting data.

One of the largest real estate data brokers is First American Corporation of California which provides title and settlement services, mortgage services, appraisal and valuation services, screening and risk mitigation, property and ownership information, analytics and modeling, insurance and home warrant information, and investment management. Once a county abstract company, First American is now a Fortune 500, and has a subsidiary, CoreLogic, which is devoted entirely to the collection and sale of real estate information.³¹ Real estate data brokers

routinely collect electronically and also capture paper records and put in electronic form information maintained on tax rolls, and information maintained in deed offices through out the U.S.³² First American is one of several vendors that Fannie Mae utilizes in the construction of their residential valuation models which are resold to many commercial lending institutions.

The basic idea here is to either directly purchase the US real estate data base of tax, assessment and sales information and construct a *TPV* analysis state by state, or purchase the use of such data from a third part processor of databases. Unlike the earlier suggestions of relying on state by state sales ratio studies or obtaining simple information via school districts, the research project here would be to forego the historical Census field investigation of tax roll offices and deed offices, and simply use what electronic information is available.

The immediate question that arises, given that some states and parts of states are ‘non-disclosure’ states, is how much of the US property inventory could be covered from such sources. The shading in a series of state outline maps below indicates the extent of county area coverage of property tax and deed transfer offices by First American and Core Logic.³³

Overall, 58.% (about 1,800) of the county areas in the US are covered by First American in terms of tax rolls, and 34% (about 1,100) of the county areas are covered in terms of deed transfer offices. However, when we weight this county coverage by county population, we find that 88% of the US population in terms of tax offices are covered, and 80% of the deed transfer offices are covered. If we instead weight by 2002 county area taxes (county government + all municipal + all school and all other property taxes) available from Census, we find that 91% of the tax roll offices are covered, and 87% of the deed transfer offices are covered. Figures 1 through 4 indicate that relying on First American coverage will be incomplete in the rural parts of a number of states but still cover more than 75% of the county area property taxes in most

states. Coverage of certain kinds of uses, primarily agricultural, would, however, be weak. Coverage of urban areas, and commercial and industrial uses would be quite strong.

Radar Logic, Inc. covers the transactions and tax rolls of only 202 county areas. However, because these are major metropolitan areas, they manage to cover 37% of areas comprising 37% of the US population in 2005-6 and 46% of the total local property tax in 2002. (See Figures 5-6). While it was beyond the scope of this paper to elicit database prices from these two commercial real estate data sources, it seems likely that each would be well below the \$26 million that Census believes it would cost to recreate *TPV*. How much analysis and what sort of statistically reliable data would result from either approach are important follow up issues; however, what these coverage calculations suggest to me is that one could make substantial progress in recreating a *TPV* in an inexpensive manner, and would wind up using far more universe information than was available in 1982 or 1987.

4.0 Concluding Remarks

With the demise of the Governments Division long time commitment at the state and local level to measure gross assessed, net, and taxable property values, and related evidence on the uniformity of the assessment process, much has been lost of what we know about realty in the US. Whether or not an ongoing process of independent sales ratio studies could have better informed policy makers over the last decade about the build up in property values and then its dramatic reversal is difficult to judge. What I hope this review of different ways to think about using modern sources of information about realty has accomplished is to rekindle interest, not only in the research and statistical communities, but also in the Census Bureau to work through in more detail the implications of using both existing data collection mechanisms and electronic third parties.

Certainly as the federal government grapples with the problems associated with the rapid decline in housing values, it will itself subscribe to the various commercial data services to keep track of regional housing prices, and to determine if particular mortgage arrangements can be altered to prevent foreclosure. It would seem relatively simple for the new federal oversight authority to partner with experts in the Governments Division to enable them to measure and report gross and net assessed values, taxable values, and to perform and report sales ratio studies.

Table 1

Governments Division 2005-6 Data Collection Structure

Type	2005-6 Sample Count	2005-6 %	2005-6 Sample Weight Range	1997 Census of Governments Universe	Count / Universe
0-State	50	0.2%	1	50	1
1-County	1,736	6.6%	1 to 50	3,043	57.0%
2-Municipal	2,895	11.1%	1 to 50	19,372	14.9%
3-Township	2,125	8.1%	1 to 50	16,629	12.8%
4-Special District	4,589	17.6%	1 to 50	34,683	13.2%
5-Independent School Districts	14,718	56.4%	Universe for NCES	13,726	107.2%
Total 2005-6	26,113	100.0%		87,503	29.8%
Sampled Units	11,395				

Figure 1

Fraction of Counties by State with
Data Collected from Property Tax Roll Offices by Core Logic in 2004

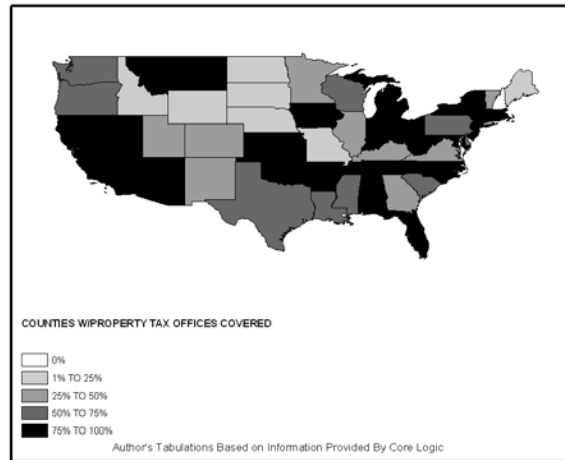


Figure 2

Fraction of Counties by State with
Data Collected from Property Tax Roll Offices by Core Logic in 2004
(Weighted by 2002 County Area Property Tax Collections)

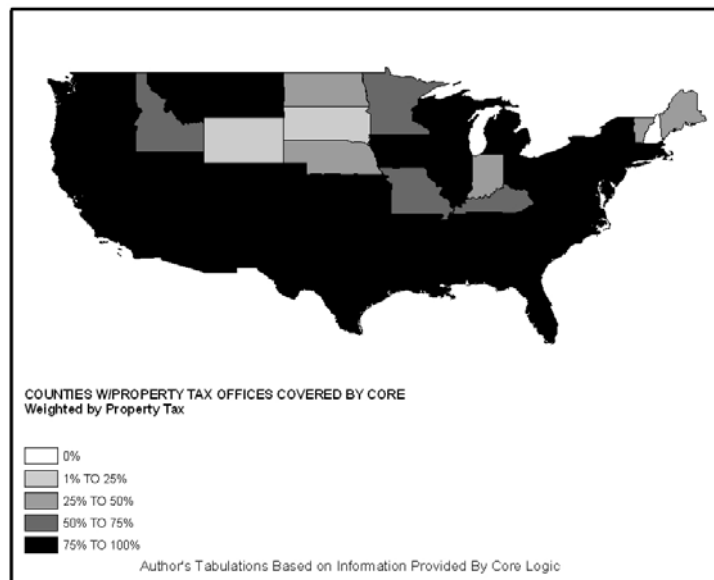


Figure 3

Fraction of Counties by State with
Data Collected from Deed Transfer Offices by Core Logic in 2004

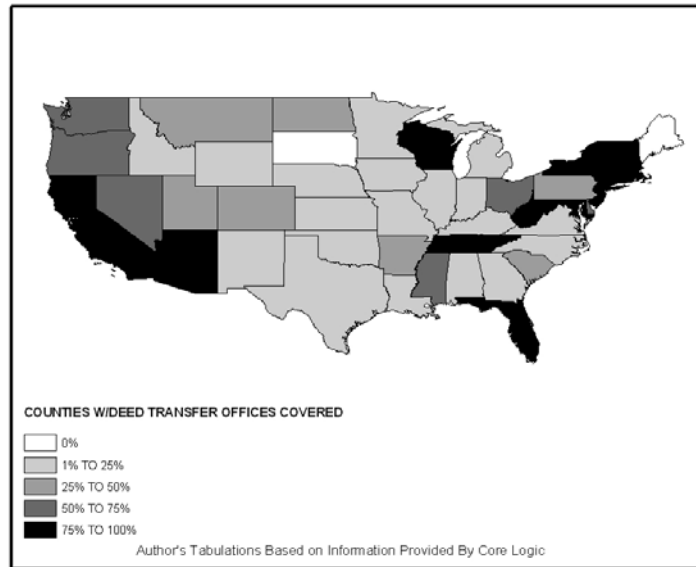


Figure 4

Fraction of Counties by State with
Data Collected from Deed Transfer Offices by Core Logic in 2004
(Weighted by 2002 County Area Property Tax Collections)

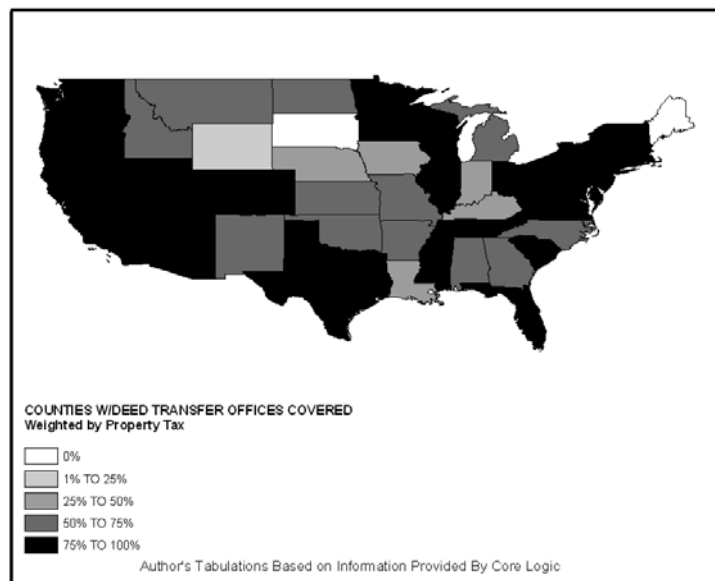


Figure 5

Fraction of Counties by State with Data Collected from Deed Transfer by Radar Logic, Inc. in 2008

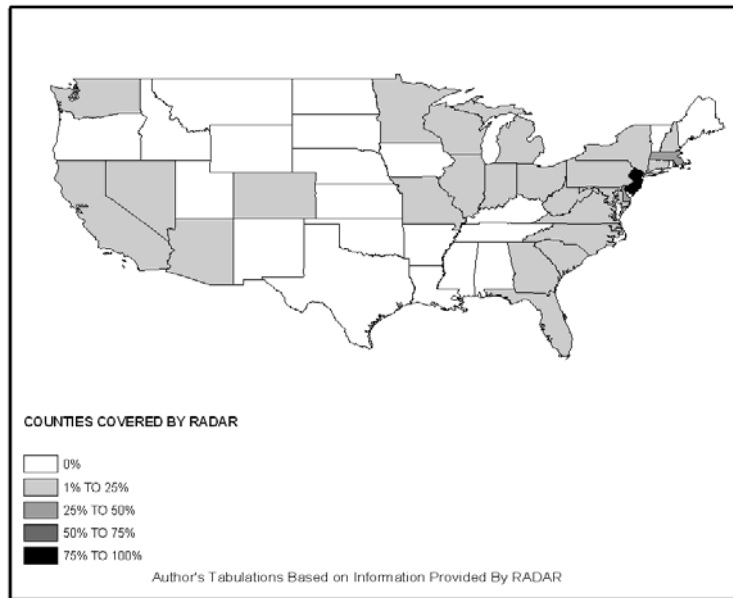
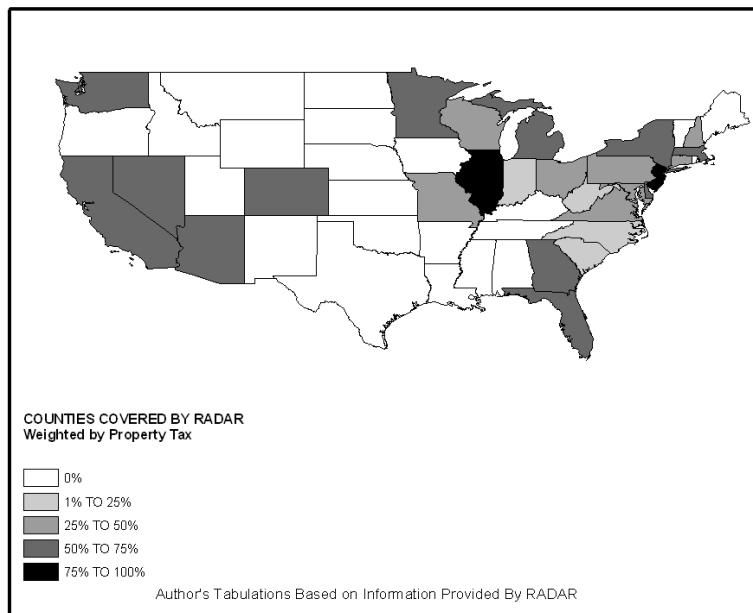


Figure 6

Fraction of Counties by State with Data Collected from Deed Transfer by Radar Logic, Inc. in 2008 (Weighted by 2002 County Area Property Taxes)



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Endnotes

¹ Professor of Economics and Public Policy, Carnegie Mellon. Email: RPStrauss@gmail.com; webpage: www.andrew.cmu.edu/user/rs9f. The author benefited from conversations on this subject with Henry Wulf, Rockefeller Institute of Government, Alan Dornfest of the Idaho State Tax Commission, Kurt Usowski of the U.S. Department of Housing and Urban Development, Lisa Blumberman of the US Bureau of Census. The author also wishes to thank Radar Logic of NYC and First American Real Estate for providing their coverage information in electronic form, and Celeste Strauss for preparation of the maps depicting these data. This paper is the sole responsibility of the author.

² See, for example, Fisher (1996).

³ See US Bureau of the Census, Quarterly Summary of State and Local Government Tax Revenue, Table 1. <http://www.census.gov/govs/www/qtax.html>

⁴ The void created by the Census Bureau has been widely noted and efforts been made to keep track of aspects of property tax administration and property tax statutes. See Dornfest and Johnson (2004), and the ambitious work of the George Washington Institute of Public Policy (2007) funded by the Lincoln Land Institute. Also, the Nelson A. Rockefeller Institute of Government has long published Governments Division data in readily accessible formats, and also collected and published timely state revenue reports. See http://www.rockinst.org/government_finance/

⁵ See US Department of Commerce, Bureau of the Census(1941), “A Decade of Assessed Valuations: 1929-1938,” State and Local Government Special Study No. 14.

⁶ See Title 13, Section 161 of the US Code which directed the Census Bureau to collect “...data on taxes and tax valuations...of states, counties, cities and other governmental units.” Note well known is the fact that a 1987 taxable property values and sales ratio volume was prepared in conjunction with the 1987 Census of Government, but never publicly released.

⁷ See National Research Council (2007), Appendix C.

⁸ Over the past several years, the Governments Division’s share of the Census Bureau’s Economic Directorate, which is charged with measuring the US economy, has been about 6.8%, although it is responsible for measuring 11% of public and private employment, and about 11% of GDP.

⁹ See Recommendation 3-4 in NRC(2007) at p.7.

¹⁰ GAO(2008) reports that the accrued cost of the 2010 Census will now be \$11.3 billion or about \$37/person.

¹¹ See Table 7 of US Department of Commerce, Bureau of the Census(1982), Table 7, p.13, which reports 98.4 million taxable properties in 1982.

¹² Of course, performing the decennial census responds to a constitutional obligation, while measuring taxable properties responds to only a statutory obligation.

¹³ See <http://harvester.census.gov/sgf/f71/>.

¹⁴ See US Bureau of the Census(2003), “The History of Sample Design for the Annual Finance and Employment Surveys 1987-2003.

¹⁵ See *TPV* appendices A through D as well as E and F which contain standard definitions and survey forms and Table E at page xvi.

¹⁶ See *TPV* tables

¹⁷ Reported sales prices were not adjusted by reported financing mechanisms.

¹⁸ See Table A, *TPV*.

¹⁹ See Table D, *TPV*.

²⁰ Nonfarm residential property, single family houses, acreage, vacant plotted lots, commercial and industrial property, and other and allocable. See Table 21 of *TPV*.

²¹ See Table 21, p. 178-9.

²² See Table 21, p. 182-3

²³ Upon creating a sample of transactions, the *TPV* measurement process then elicited from either the buyer or seller, through Form GP-31, confirmation of the description of the property transferred, the size of the parcel, the use of the land and improvements, the nature of the financing associated with the transaction, and the nature of the sale (ordinary sale, foreclosure, sale between relatives etc.).

²⁴ See Dornfest and Johnson(2004) for a state by state tabulation of state ratio study practices in 2003.

²⁵ *Ibid*, p. 34.

²⁶ *Ibid*, p. 35.

²⁷ *Ibid*, p. 37..

²⁸ *Ibid*, p. 37. Given the importance of officially measured sales ratios in the property tax appeals process and the tax minimizing appellant's interest in there being a low representative sales ratio to compare his over assessed property to, the technical details of how representative sales ratio is accomplished is of financial and therefore political importance to both parties. If outlier sales ratios on both sides of the distribution can be thrown out by the assessing agency, uniformity will be more likely, and the necessity of an uncomfortable reassessment forestalled.

²⁹ See, for example, US Department of Commerce, Bureau of the Census (1975, 1980).

³⁰ It is also reasonable to presume that each local school district knows its property tax collection rate which could be collected as additional information for publication; however, the first priority I suggest would be collecting data on gross assessed value and gross assessed value of taxable properties.

³¹ See www.firstam.com

³² First American was the commercial real estate data source for Strauss and Straus(2003) study of the fairness of assessments in four urban counties.

³³ Table 2 and subsequent tables compare county by county coverage reported by First American in 2004 to the author. When population weighting is used, population is from the Census Bureau's estimates for 1005-6 as contained on the Government Division's web site. When property tax weight is used, property taxes refer to Census of Governments (2002) property tax collections (Item Code is "T01") as maintained on the Governments Division web site.