SHOW-ME INSTITUTE

POLICY BRIEFING

NUMBER 28 AUGUST 2011


# Real Estate Assessment and Property Taxation

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## INTRODUCTION

This policy study and case study have three goals for our readers: Our first goal is for Missourians to have a better understanding of the benefits and costs of our property tax system. Our second goal is that Missourians will note the relationship between school quality, property tax rates, and housing prices. The final goal is for readers to digest the ways in which competition among governments can benefit residents and taxpayers.

## I. Property Assessment and Taxation in Missouri

**Property Assessments**

Property taxation in Missouri begins with the property assessment. Every two years, the local county government reassesses taxable land and improvements. They set property valuations at the market value as of January 1 of the reassessment year.

There are two categories of taxable property in Missouri: "real" and "personal." Real property comprises land and buildings. Personal property comprises vehicles and equipment. Real property is subdivided into three subclasses: agricultural, residential, and commercial.

The assessment of real property is divided into the value of the land itself, and the value of the improvements (the house or office building) on the land. The values of the land and improvements are added together to form the appraised value. An assessment ratio is then applied to the appraised value to determine the assessed, or taxable, value. For commercial property, the ratio is 32 percent, for residential property it is 19 percent, and for agricultural property it is 12 percent.

The valuation of agricultural property is based on the quality of the soil. There are eight levels of soil quality, with declining tax assessments as the quality declines. The assessor determines the quality of the soil, but state law sets the appraisal for each acre of farmland depending on which level of soil quality it best fits.

The valuation of residential property is based on the sales of comparable homes within the area. Larger counties use sophisticated computer programs to determine the assessments because they have numerous homes and sales.

Commercial property is the most complicated subclass to assess. It can be assessed like residential property by comparable sales, but more common are the use of either the cost approach, by which the assessor determines what the replacement value of the property would be, or the income approach, by which the assessor bases the value on how much income that the property generates for the owner.

Personal property is assessed each year. The standard types of taxable real property are cars, boats, business equipment, farm equipment, livestock, and grain stocks. The appraisals for personal property are based on depreciable valuations every year. Personal vehicles and business equipment have a 33 1/3 percent assessment ratio applied, and farm equipment and livestock have a lower ratio of 12 percent applied. Historic autos and grain stores are assessed at even lower ratios: 5 percent and 0.5 percent

**The Property Tax Levy**

Once the county assessments are finalized, local governments throughout the state are then able to set their tax rates. State statutes authorize maximum and minimum tax rates for various levels of government.

Missouri has a large number of taxing districts. All of the counties, cities, townships, and school districts are authorized to levy property taxes, and many of the 1,809 special taxing districts are also so authorized. Once the property assessments are set, those governments that levy property taxes adjust their rates to the new assessment changes and forward them to the county collector and the state auditor. The county collectors then tally the rates from each of the various districts, apply the rates into each assessment to determine the exact tax amount due, and send property owners the bill every October.

The process of reassessment is not intended to result in a tax increase for Missourians. If reassessment increases the value of property within a tax district — which usually, but not always, happens — taxing districts are required to roll back their tax rates to a revenue-neutral level, after adjusting for inflation.

## II. Use of Property Taxes in Missouri

Property taxes are directed by local governments to various funds. For counties, property taxes primarily go to the general fund, the road and bridge fund, the health fund, the park fund, and the bond retirement (debt) fund. Other funds at the county level that can use property taxes include mental health, senior services, family resources, dispatch/alarm, and disabled services. No county has chosen to enact every one of these options. Some small, rural Missouri counties only operate the general fund and the road and bridge fund.

The cities of Kansas City, Springfield, and Saint Louis levy property taxes for museums and zoos. The city of Saint Louis also has a children's service fund property tax, a dedicated tax for recreation centers, and property taxes to support "county" functions because it is an independent city. Along with the general fund and debt (or bond) retirement, many cities levy a special property tax to fund employee pensions and capital improvements. Kansas City levies a unique tax on the assessed value of land only, disregarding the improvements, to fund parts of its road system.

School districts are authorized to levy taxes for the general fund, debt service, capital improvements, and teacher pensions. School districts in Missouri include many K–12 public school districts, but also community college districts and special school districts that serve children with special needs.

Water, sewer, ambulance, fire, street light, levee, and library districts all routinely levy property taxes in Missouri to fund their operations, capital projects, and debt. Special business, community improvement, neighborhood improvement, and transportation development districts are all authorized by the state to levy property taxes for road improvements, security details, neighborhood beautification, or many other ostensibly public goods.

## III. Review of Economic Literature on Property Taxation

The primary positive aspect of the property tax, when compared to other taxes, is that it can be characterized as a "benefits" tax. Alfred Marshall explained the positive side of local property taxes in his groundbreaking economic textbook from a century ago:

> On the other hand beneficial or remunerative rates are those spent on lighting, draining, and other purposes; so as to supply the people who pay the rates with certain necessaries, comforts and luxuries of life, which can be provided by the local authority more cheaply than in any other way. Such rates, ably and honestly administered, may confer a net benefit on those who pay them; and an increase in them may attract population and industry instead of repelling it.

As a general rule, people — in most cases in Missouri, that would be a single-family homeowner — pay property taxes to fund things that directly benefit them. Typically, homeowners pay taxes to support schools and libraries that educate their children, roads they drive on, and police and fire departments that protect them and their property. Studies have shown that paying property taxes for effective local public services can increase the property

values, increase personal income within an area, and benefit taxpayers in both the short term and the long term. Property taxation functions quite differently than sales and income taxes in this regard. By contrast, when driving even a short distance from their home to purchase goods, people often pay sales taxes that support government jurisdictions they do not live within or benefit from.

Similarly, income taxes do not benefit taxpayers in the same direct way as property taxes. Many taxpayers will never use Medicaid. Most property owners don't receive farm subsidies. Most taxpayers will eventually use Medicare or Social Security, but this does not provide the same immediate benefit as parks or street lights. Even though all Americans benefit from national defense, most of us don't use the military in the same way that we use local roads and schools. Of the three types of taxes imposed at the various levels of government, local property taxes are the one most likely to bring some immediate return on investment for the taxpayers themselves.

**Which Types of Property Should We Tax? Land, Buildings, Cars, or Cows?**

Missouri taxes all types of property. But which types of property should the government tax, and which should it not tax? The belief that unimproved land value should be taxed is probably as close to unanimous among economists as any idea in the field. All taxes have unintended negative consequences, but the land tax has fewer than most. Income taxes reduce the incentive to work. Sales taxes increase prices and reduce consumption. Taxes on property improvements, such as for a building, reduce the incentive to improve property. Each of these three situations is an example of how deadweight loss occurs with these forms of taxation: Economic activity would have occurred, but does not, because of the imposition of a tax.

A tax on land, without the addition of a tax on the improvements on the land, provides a strong incentive for property owners to maximize the use of their land. If the tax on a vacant piece of property is x, and the tax on anything done with that property is also only x, most rational land owners will try to improve and use the property as much as possible. A farmer will farm it. A developer will build on it. A manufacturer will produce on it. A homeowner may expand the size of the house on it.

**The Tiebout Hypothesis**

The diverse issues of property taxation, municipal services, urban sprawl, tax capitalization, and suburban government can be considered together. The economist Charles Tiebout first combined these issues in an innovative article titled, "A Pure Theory of Local Expenditures." Tiebout proposed that people, acting in their capacity as mobile consumers and homeowners, created a market for local government services. Cities responded to various resident demands by creating different menus of taxation and services, with different cities appealing to different potential homeowners. Homebuyers could choose among the various levels of government services and tax levels provided by cities and select the one that best fit their family's level of needs.

In 1969, Wallace Oates of Princeton University was the first to see the possibility in Tiebout's idea and used it in a comparison of New Jersey cities. Oates found that property values had a negative relationship with the tax rate, and a positive relationship with public school expenditures. As Oates summarized:

> These results appear consistent with a model of the Tiebout variety in which rational consumers weigh (to some extent at least) the benefits from local public services against the cost of the tax liability in choosing a community or residence.

Many other economists have confirmed Tiebout's theory and refined the debate since then. A consensus has emerged, as Oates summarizes:

> On one issue, there is a consensus: capitalization of fiscal differentials is consistent with the view that consumers "shop" among local communities.

**Are Property Taxes and Tiebout Competition Efficient?**

A number of scholars have concluded that cities' responses to these various demands lead to an economically efficient outcome. Sonstelie and Portney constructed model communities based on Tiebout's principles of mobility, information, and public service levels. They determined that under such a model, communities seeking to maximize their property values "leads to an efficient allocation of resources in the local public sector." In short, competition for residents produces better public services.

## Case Study About Richmond Heights, Missouri

Richmond Heights, Missouri is the subject of the case study that accompanies this policy study. Richmond Heights is located within Saint Louis County, which has among the most municipalities of any large county in the United States. All public services and property tax rates within the Richmond Heights are exactly the same, except for the separate school districts. The city is divided into four independent school districts — Ladue, Clayton, Brentwood, and Maplewood Richmond Heights — with a wide range in educational quality and tax rates between the four.

**Total Assessment Regression Results**

We used a nonlinear function to model this data. This function is a combination of the model parameters and depends on one or more independent variables. We regressed actual assessment data against various combinations of house size, lot size, school district MAP scores, and tax rate, using the Ordinary Least Squares method. The regression was the following:

Total Assessment = $\beta_1$(Lot Size) + $\beta_2$(Building Size) + $\beta_3$(MAP Score) + $\beta_4$(Average Tax Rate) + constant

We also focus on the coefficient $\beta_1$, which accounts for the size of the lot for a particular parcel, as well as the coefficient $\beta_2$, which accounts for characteristics that affect the assessment of the structure. We ran four versions of this model in Table 1:

**Model 1:** Total assessment on lot size and building size
**Model 2:** Model 1 plus tax rates
**Model 3:** Model 1 plus MAP scores
**Model 4:** Model 1 plus MAP scores plus tax rates

We found that total parcel assessment is highly correlated with lot size and building size and school district map score. Our regression for each model had an adjusted $R^2$ of 0.8611 or greater. This suggests that the equation models the collected assessment data well and strengthens the findings of prior researchers.

We find that all of the included variables in the model positively affect total assessment.

We can use this model to estimate the total assessment for a parcel, holding all other included variables constant. In Table 2, we use the model to predict the total assessment of a 2000 square foot building on a 0.5 acre lot.

Table 2 – Estimated Total Assessment by School District

| | Brentwood | Clayton | Maplewood Richmond Heights | Ladue |
|---|---|---|---|---|
| **Est. Assessment** | $ 361,542.44 | $ 425,200.51 | $ 332,483.70 | $ 386,894.38 |

Table 1 – Total Assessment

| | Model 1 | Model 2 | Model 3 | Model 4 |
|---|---|---|---|---|
| **Adj. R squared** | 0.8611 | 0.8743 | 0.8783 | 0.8800 |
| **Lot Size (Acres)** | 112071.7<br>(9103.27) | 109946.7<br>(8660.20) | 119900.5<br>(8532.03) | 132028.6<br>(8671.13) |
| **Building Size (Sq. Ft)** | 208.8<br>(2.335) | 195.7<br>(2.347) | 193.7<br>(2.312) | 194.2<br>(2.297) |
| **Map Score** | | | 2722.4<br>(135.35) | 5916.3<br>(506.50) |
| **Tax Rate** | | -53118.8<br>(3054.12) | | 73573.2<br>(11249.35) |
| **Constant** | -120903.3<br>(3605.85) | 120976.9<br>(14323.87) | -238199.2<br>(6738.37) | -710833.0<br>(72574.75) |

## IV. Conclusion

Property taxes can be an effective way to fund local government. Property taxes more frequently support entities and services directly used by the taxpayer than sales or income taxes. Missouri's Hancock Amendment has played a valuable role in keeping property tax rates comparatively low in Missouri. Interjurisdictional competition among the large number of local governments in Missouri provides a structure where governments compete against each other to the benefit of citizens.

The results of the analysis in this case study clearly demonstrate that the quality of schools and their related tax rates are heavily capitalized into the value of property in Richmond Heights. Homeowners accept lower housing assessments in exchange for higher property taxes and lower quality schools. Other homeowners choose to locate in areas of higher housing prices and assessments as part of a trade-off for a lower tax rate and a higher quality school district. Homeowners in the Clayton and Ladue school districts within Richmond Heights pay substantially more for comparable homes with better performing public schools and lower tax rates.

***For more details, please see Show-Me Policy Study no. 28 and Show-Me Case Study no. 11, available at www.showmeinstitute.org.***

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