



Market value assessment and idiosyncratic tax-price risk: Understanding the consequences of alternative definitions of the property tax base

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ABSTRACT

I develop a framework, based on tax price, which measures the distributional consequences of any alternative property tax base definition. Using administrative data, I show that defining tax base as market value produces large amounts of idiosyncratic tax-price risk. I show that an assessment limit can reduce the tax-price risk generated by the market value definition and that the benefits of the assessment limit vary over time and accrue to a majority of taxpayers. In addition, I argue that the tax-price framework is appropriate for estimating behavioral responses to alternative tax base definitions.

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1. Introduction

Around the world, the property tax is an important source of national and subnational government revenues and the scope of the tax is expanding with the recent introduction of new property taxes in China and Greece.¹ In the United States, the property tax remains the largest independent source of local government revenues and as such provides local governments with the discretion over revenues and expenditures that forms the backbone of the U.S. fiscal federal system.²

In each country with property taxes, national and sometimes subnational governments create the core structure of the property tax system by making choices as to the definition of the property tax base. There is substantial variation across countries and within countries in how property tax systems define the tax base. For example, in Israel the tax base of the municipal property tax (the arnona) equals the size (in square meters) of a property while in most U.S. states the tax base is defined as a function of the estimated market value. In the U.S., there is important within-state over time variation in the tax base definition. For example, in 1978 Proposition 13 changed California's definition of property tax base from current market value to a definition based on the most recent sales price. Further, after Proposition 13, California now defines property tax base in

some cases as the most recent sale price of a property and in other cases as the size (in square feet) of a property.³ Other states continue to introduce new exemptions and expand existing exemptions that alter property tax base definitions. Thus, although in the United States the legal basis for the property tax base is market value, in practice the wide array of exemptions means that no U.S. state defines the property tax base as current market value. Why do U.S. states choose to define the tax base of individual properties as something other than current market value?

This question is difficult to answer because research on the implications of the choice of tax base definition is limited. The lack of evidence on alternative choices of tax base definition also leaves countries introducing a new property tax, like China, without a theoretical framework or empirical evidence to guide them in an evaluation of the consequences of the choice of tax base definition. In this paper, I provide theoretical and empirical evidence on the distributional consequences of the choice of the definition of the property tax base.

There are many consequences of alternative tax base definitions; the single direct consequence is that, by redistributing a given level of total tax burden across taxpayers, an alternative tax base definition can, holding taxpayer behavior constant, change the current (static) and future (dynamic) distribution of the total tax burden across taxpayers. If the static and dynamic consequences of a switch to an alternative tax base definition are large enough then taxpayers

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¹ Christian Science Monitor, January 28, 2011 and Financial Times Sept 12, 2011.

² In 2008, U.S. local (county, city, school district, special districts) governments raised \$397 billion in property taxes representing over 45% of general own source revenues. Property taxes have become an important source of revenue stability during the Great Recession. See [Alm et al., \(2011\)](#) and [Lutz et al., \(2011\)](#).

³ Mello-Roos districts in California often base property taxes on the size of the property and are explicitly barred from defining tax base as market value.

change their behavior in an effort to avoid these consequences. The behavioral responses to the direct consequences of alternative tax base definitions affect the size of government (via tax prices and fiscal illusion), property values (via capitalization), mobility (via a “lock-in effect”), housing consumption (via the user cost of capital), and voter support for restrictions on government access to the tax base (via idiosyncratic tax-price risk). These behavioral consequences of alternative tax base definitions are indirect because they are caused by a behavioral response to the direct distributional consequences of an alternative tax base definition.

In this paper, I focus solely on the direct consequences of alternative definitions of property tax base, i.e., changes to the current and future distribution of the property tax burden that occur in the absence of behavioral responses. I develop and apply a new analytical framework for understanding and measuring the direct consequences of alternative tax base definitions for individual utility. My framework is based on a well-defined economic question: how much is an individual willing to pay to remain under the current tax base definition, thereby avoiding a switch to an alternative tax base definition. Importantly, because tax base definition affects future tax burdens it affects the expectations individuals have about their future tax payments. My framework allows me to demonstrate how alternative property tax base definitions affect the level, variance, and covariance of these expectations.

An important innovation in this paper is that I use tax price — defined for each property as its share of total tax base — as the basis of my analysis. In contrast, related prior work uses tax rates as its basis. Because tax prices depend only on the tax base definition (i.e., are revenue neutral) and tax rates depend on the revenue decisions of governments, using tax prices makes transparent the important distinction between decisions regarding the definition of tax base and decisions of governments to access that tax base to raise revenue.

This new framework is general in that it can be used to compare any two alternative tax base definitions. In my empirical work, I focus on comparing two specific alternative tax base definitions that feature prominently in current policy debates in the United States. The first tax base definition I consider is the current estimated market value of property. Defining the tax base in terms of estimated current market value is often considered the ideal definition of tax base because many believe that it is the most equitable and efficient. The second definition I consider is one that departs from current market value by placing a ceiling on the percentage increase in the taxable values of individual properties. This definition is often referred to as an assessment limit and, as of 2006, it existed in 20 U.S. states.⁴ Assessment limits are controversial because by departing from the market value definition they change the distribution of payments in ways thought inequitable, because payments are not based on market value, and inefficient, because they distort household mobility via a “lock-in” effect. In addition, assessment limits are thought to benefit a minority of taxpayers with large increases in property values at the expense of the vast majority of taxpayers with relatively smaller property value increases.

In the empirical work, I use a large, property-level administrative data set that allows me to measure the willingness to pay to remain under an assessment limit rather than switch to tax base defined as current estimated market value. One interesting result is that over the ten-year period the vast majority of properties experience some years in which they benefit (i.e., pay lower taxes) from the assessment limit and some years in which they lose (i.e., pay higher taxes). In fact, over the entire ten-year period the vast majority of properties are better off under the assessment limit than they would be under the definition of estimated market value. I demonstrate that the benefits of an assessment limit are not skewed towards

the wealthy and that, although the average benefits of assessment limits are higher for properties with greater appreciation rates, the benefits are not focused exclusively on such properties.

Again, an important focus of this paper is how the definition of tax base affects the variance and covariance of expectations of future property tax payments. My central empirical result here is that an assessment limit benefits the vast majority of taxpayers by reducing the large amount of idiosyncratic tax-price variation generated under the market value definition. In addition, I show that the assessment limit makes the variance and covariance properties of future tax-price expectations relatively more attractive. To achieve these benefits, however, taxpayers must sacrifice the equity associated with being taxed at current market value. My results demonstrate these two alternative tax base definitions offer a tradeoff between achieving equity by taxing at market value and reducing the uncertainty of tax payments by limiting idiosyncratic tax-price variation.

Previous research estimating behavioral responses to alternative tax base definitions has relied on measures of the direct consequences that have tax rates or exemption amounts as their basis. In this paper I demonstrate that my tax-price measure offers a different and arguably superior measure of direct consequences than tax-rate and exemption measures. Although this argument is not the focus of the current paper, that my tax-price measure is different and possibly superior to these other measures suggests that the tax-price measure of direct consequences has implications for research on behavioral responses to alternative tax base definitions like property tax capitalization, lock-in effects, and voter support for restrictions on local governments' fiscal autonomy.⁵ Thus, I hope that researchers conducting work on these indirect consequences of alternative tax base definitions consider using my tax-price measure as their measure of the direct consequences and, most importantly, I hope they state clearly the logic that underlies their measure of the direct consequence.

2. Analytical framework: static

In this section, I present the static framework for measuring the consequences of alternative definitions of the property tax base under the assumption of no behavioral responses. In this static analysis, I assume that the characteristics of properties that determine tax base under alternative definitions (e.g., market value, size) are fixed and do not change over time. If these characteristics are fixed over time then, under any tax base definition, the current distribution of the tax burden equals the future distribution. I relax this assumption in the dynamic analysis in Section 3.

Consistent with the assumption of no behavioral responses, in both the static and dynamic analysis I assume that switches in the definition of the property tax base do not affect the characteristics of the property (e.g., market value, size). This is a strong assumption and, in my view, necessary for clarity. My goal in this section is to provide a well-defined measure of the change in the distribution and level of property tax payments caused by a switch to an alternative tax base definition. It is this change in the level and distribution of property tax payments that, via behavioral responses, affects attributes of real estate like property values and the size of structures. My argument is that to understand correctly the behavioral responses to alternative definitions we must first define clearly what taxpayers are responding to, i.e., the changes in the level and distribution of property tax payments that occur in the absence of behavioral responses. I call the changes in the level and distribution of property tax payments that occur in the absence of behavioral responses the direct (first-order) consequences of alternative tax base definitions.

⁵ Examples of papers that rely on a measure of the consequences of alternative tax base definitions include Anderson (2006a), (2011), Bradley (2011), Cheung and Cunningham (2011), Dye et al., (2001), Ferreira (2010), Ihlantfeldt (2011), Rockoff (2010), and Skidmore et al., (2010).

⁴ See Anderson (2006b) for a list of states with assessment limits as of 2006.

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