Abstract - This paper examines the outcome of a non–binding full disclosure process to control increases in the property tax. The data used in the study cover a 20–plus–year period in five MSAs in Utah. During the period of our analysis, metro areas in Utah experienced rapid increases in the market value of residential housing. The results of our analysis suggest that local assessors in Utah captured this increased value in their appraisal and reappraisal processes. However, our results also demonstrate that the effective property tax rate did not keep pace with increases in assessed property values, implying that a non–binding full disclosure law did limit growth in the property tax. Furthermore, it limited the property tax while avoiding some of the unintended consequences imposed by binding property tax limitations.

INTRODUCTION

Cycles in the market value of residential real estate are common in the United States (Smith and Tesarek, 1991; Brueggeman, 2005), but home values tend to go up fairly consistently over time. Increases in residential prices create financial benefits for homeowners. Fischel (2001) observes that single family residential homes represent the largest financial investment for the majority of United States families and individuals. Thus, increases in housing prices can contribute significantly to the net wealth of homeowners. At the same time, but much less welcome, are the property tax implications of increased home values. If identified and captured by property tax assessors, higher values result in higher taxable values and often higher taxes—a phenomenon commonly reported by the popular media (Muchnick, 2005; Lyman, 2006).

However, tax increases do not always follow increased values for residential housing. Explicit policies are in place that are intended to limit increases in the property tax rate,

1 Over the past 30 years, price increases have been much more common than price declines, but every state except North Carolina has seen at least short periods of actual decline in housing prices. (Tabulation by the authors using Office of Federal Housing Enterprise Oversight state–level repeat sales housing price index data for 1975 through the end of 2005.)
property valuations, and expenditure levels of governments financed by the property tax (Merriman, 1987). There are also less–explicit policies to protect homeowners, such as benign neglect or slow response to market value increases by public assessors. The requirements to revalue property in a timely and orderly fashion are often honored in the breach.

In this paper we explore an alternative to these explicit and implicit policies to limit increases in the property tax on residential homes. Our research contributes to the evaluation of tax limitation measures and builds on the tradition that the property tax has a number of attributes that make efforts to retain and strengthen it worthwhile. A variety of arguments support such views. McGuire (1999) notes that among public finance economists, the perceived advantages of the property tax for funding local governments approach dogma. It is difficult to evade the fact that the property tax provides state and local governments with fiscal stability and fiscal autonomy (Fischel, 2002). The property tax is also direct and visible and creates political accountability (Oates, 1996). And to the degree that property tax is capitalized into the purchase price of land and improvements, subsequent owners do not pay the tax (Youngman, 1999).

The reality, however, is that although the property tax is viewed positively by legal experts and economists, it has virtually no political traction. Policies to increase the property tax have taken a backseat to the more popular political issue of limiting the property tax. No one gets elected on the promise of using more property tax, but on promising to limit or reduce property tax. However, as we briefly note in a subsequent section of this paper, the property tax limits that have been adopted have had some potentially negative unintended outcomes.

The alternative we explore is a version of full disclosure, a policy intended to inform and protect property owners from increases in property taxes that often follow property reappraisals. Full disclosure offers more flexibility to budget makers and perhaps avoids some of the negative consequences that result from outright tax limits.

The concept of full disclosure has been on the policy agenda for a considerable period of time, but for the most part its consequences have not been carefully examined. Two exceptions are the work by Bland and Laosirirat (1997) and Cornia, Smith and Wheeler (1990), and the results from these analyses are mixed. Bland and Laosirirat conclude that full disclosure had little effect on limiting property tax growth over a 12–year period in Texas. Cornia et al. report a somewhat different result, but their analysis covers a very brief time frame. In spite of the limited amount of empirical analysis on this topic, the literature generally labels full disclosure as nonbinding and essentially as inconsequential in terms of limiting increases in the property tax (Joyce and Mullins, 1991; Poterba and Rueben, 1995; Shadbegian, 1999). That is, with other things being equal, a state with a specific and binding property tax limit is more likely to prevent increases in property taxes than a state with a full disclosure program. But this is a question that has not been fully explored.

The concept that motivates this paper may be phrased as follows. In a property tax system tied to market value, housing price increases should lead to higher assessed values. When housing prices increase, one option is for local officials to leave the tax rate largely unchanged so that the government reaps a windfall. Such action often results in significant taxpayer anger. On the other hand, policies that force officials to reduce rates may adversely affect the ability of the government to meet the demand for local services. Is there an effective approach that minimizes tax increases resulting from price appreciation without adversely affecting the capacity of government to meet changing needs?
Controlling Property Tax Increases During Periods of Increasing Housing Values

This paper proceeds in the following manner: We first briefly review the various limits that have been adopted either explicitly or implicitly to reduce the growth of the property tax. Then we briefly describe some of the unanticipated consequences that have resulted from these limits, and we examine some general patterns in property tax collections by state. We next review the full disclosure approach as a means of informing property owners about property tax policy. This section is followed by a description of the data and the model we used to analyze the consequences of a full disclosure program in Utah’s five Metropolitan Statistical Areas (MSA). Our final section presents the results of the modeling and outlines our policy conclusions.

INTENDED AND UNINTENDED CONSEQUENCES OF PROPERTY TAX LIMITS

In spite of the fears that property tax increases will follow increases in housing values, there are a variety of reasons why increases in the property tax do not necessarily follow increases in housing market values. Most local assessors are elected in general elections, and there is always a question of whether the public assessment function will actually recognize increased housing values and then translate the increased housing values into increased assessment values. Frequent reappraisals to adjust taxable values so that they reflect the market value of residential homes are not as common as either state laws mandate or good tax practices require (IAAO, 2000). Fearing political fallout after a revaluation, the public assessor may often choose not to reappraise residential property (Cornia and Walters, 2005).

Property taxes may also not be increased because of a variety of legislative actions that state and local elected officials take to protect homeowners from property tax increases. An example of this outcome that functions in almost every state is the policy to reduce the ratio between the assessed values of homes (AV) relative to market value (MV) or the assessment ratio of homes (AV/MV). An extension of this practice, frequently labeled classification, is to employ different assessment ratios for different types of property. This policy generally increases the effective property tax rate on commercial and industrial property and reduces the effective property tax rate on residential homes. Like the inattention of the assessor to increases in property values, classification does not get much notice in the tax limitation literature. However, it is a policy tool employed by 16 of the 50 states (Baer, 2003, 45).

Other property tax limitations designed to protect specific types of homeowners include homestead exemptions and circuit breaker programs (Duncombe and Yinger, 2001). These programs are frequently targeted toward those with low incomes, older individuals, and families; in some states such programs have even been extended to renters. The most recognizable limits to the property tax are policies designed to curtail property tax increases for all homeowners via such policies as limits or ceilings on property taxes, limits on the rate of increase in valuation, and even the rollback of existing valuations. These later limitations have been labeled tax and expenditure limits and are so common they have their own acronym (TELS). In most cases they are adopted by the state legislative body and then imposed on local governments. However, a number of the specific actions to limit residential property taxes have also come directly from the electorate through the ballot box. Notable examples of voter initiatives are Proposition 13 in California, Proposition 2½ in Massachusetts, Measure 5 in Oregon, and the Taxpayer’s Bill of Rights (TABOR) amendments in Colorado. Merriman (1987) and ACIR (1995, 68) provide excellent overviews of the tax limitation instruments that have been implemented.
in the United States, and we will not review these policies in this paper.

Limiting the property tax has generated a variety of unintended outcomes. For example, using time series data from 2,955 counties, Shadbegian (1999) reports findings that lower property taxes appear to result in more revenue from narrow excise taxes and user charges and that such sources of funding are potentially less stable, more regressive, and less transparent. There is also evidence that tax limits have reduced the operating expenditures in the affected communities and special districts of Illinois (Dye and McGuire, 1997) and have limited the increase in public employee wages (Poterba and Rueben, 1995). In a survey of 20–plus years of economic literature regarding the effects of tax limits, Downes and Figlio (1999) suggest that there are no “free lunches” associated with property tax limits and that service reductions do occur. Limits to public employee wages or limits to the expenditure levels of local governments may be viewed by those concerned with the Leviathan characteristics of local government as a positive outcome. However, Cutler, Elmendorf and Zeckhauser (1999) report that survey work from Massachusetts following Proposition 2 ½ suggests that the welcomed reduction in property tax was offset by the subsequent concern over the reduction or loss of public services.

Because the property tax is usually used to fund K–12 education, there should be little surprise that a variety of studies have examined the educational outcomes that result from property tax limits. There are empirical results suggesting that limiting property taxes may diminish the quality of K–12 education (Dye and McGuire, 1997; Figlio, 1997). This work is also summarized in Downes and Figlio (1999). In a somewhat different avenue of analysis, Duncombe, Miner and Ruggiero (1997) and Duncombe and Yinger (1997) also suggest that when property taxes are reduced school administrators are less concerned with effectiveness issues. The findings of Duncombe and Yinger (1997) have recently been validated by Eom and Rubenstein (2006), who conclude that property tax limits in New York state have reduced the efficiency of educational outcomes in the state’s school districts.

Finally, property tax limitations may contribute to non–uniform appraisal outcomes. The most important illustration of this is Proposition 13 in California, which made non–uniform property tax administration the norm for the state. This is an important and troubling outcome associated with limits. A non–uniform property tax might play a negative role in capital investment and reinvestment decisions. There is a possibility that improved properties with higher tax burdens could face cash flow problems that might deter needed maintenance or investment in additional capital improvements (Wheaton, 1984). However, McGuire (1999) reminds us that property tax limits are adopted by the voters and, therefore, do reflect voter values.

**NATIONAL TRENDS IN HOUSING PRICES AND PROPERTY TAXES**

Clearly, an important question in this context has to do with the relationship between housing price changes and property tax collections. A careful analysis of this issue would isolate the residential property tax base and the property tax generated by that base. The analysis presented below does precisely this for the five Metropolitan Statistical Areas in Utah. However, it is also useful to consider broader national trends, even if for a somewhat more limited period of time and in a more crude fashion. To do so, we make use of two data sources: the U.S. Census Bureau and the Office of Federal Housing Enterprise Oversight. The Census Bureau conducts a census of governments at five–year intervals and an
Controlling Property Tax Increases During Periods of Increasing Housing Values

We make use of their published data on property tax collections for the period 1991 through 2001.

The Office of Federal Housing Enterprise Oversight (OFHEO) regularly publishes a House Price Index (HPI). This index is a weighted repeat sales index developed from data provided by Fannie Mae and Freddie Mac using methods originally proposed by Case and Shiller (1989). The HPI is a measure designed to capture changes in the value of single–family homes in the United States as a whole, census regions, individual states, and the District of Columbia. For a more detailed description of the methods, source data, and resulting index, see Calhoun (1996, 1–16).

During the decade between 1991 and 2001, the HPI indicates that housing prices increased by 50.1 percent, or an average annual increase of 4.15 percent, for the nation as a whole. During the same period, the number of housing units increased by 13.7 percent, the current–cost value of residential structures increased by 83.5 percent (6.3 percent annual average), and the current–cost value of non–residential structures increased by 66.2 percent (5.2 percent annual average). It seems clear that the property tax revenue generated by this dynamic base should have increased as well—and it did. Property taxes increased by 55.9 percent, for an average annual increase of 4.54 percent. Thus, while there was fairly strong growth in both the number and price of structures, the increases in property tax revenue were only slightly higher than the growth in housing prices.

Of course the general trends mask the different experiences of individual states. Table 1 compares the change in property tax revenue with the change in HPI for all states. In the table, the rows represent four HPI increase ranges. The columns show four ranges of property tax revenue increases. At the intersection of each range, states are identified in the cells according to the U.S. Postal Service’s state abbreviations. The results of the table show that there were four states that had less than a four percent annual growth in both housing prices and property tax revenue: Alaska, California, Hawaii, and New York. It will be noted in the table that most states had revenue growth that matched or exceeded their housing price increases. These states appear either in the main diagonal or above it. Again, it should be stressed that this table does not reflect a match between the tax base

<table>
<thead>
<tr>
<th>Average annual change in HPI</th>
<th>&lt; 4%</th>
<th>4%–5%</th>
<th>5%–6%</th>
<th>&gt; 6%</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 4%</td>
<td>AK, CA, HI, NY</td>
<td>AR, CT, NJ, PA, RI, VA, VT</td>
<td>DE, MD, WV</td>
<td>AL, ME, NV, TX</td>
</tr>
<tr>
<td>4%–5%</td>
<td>DC, IA, KS, NH</td>
<td>FL, IL, ND, NE</td>
<td>AZ, KY, LA, MS, OH, WA</td>
<td>GA, ID, IN, MO, NC, NM, OK, SC, TN</td>
</tr>
<tr>
<td>5%–6%</td>
<td>MT</td>
<td>SD, WI, WY</td>
<td>MA</td>
<td></td>
</tr>
<tr>
<td>&gt; 6%</td>
<td>MI, OR</td>
<td>MN</td>
<td>CO, UT</td>
<td></td>
</tr>
</tbody>
</table>

Source: HPI from Office of Federal Housing Enterprise Oversight; State and local property tax revenue from U.S. Census Bureau, State and Local Government Finance data.

2 Calculated from U.S. Census estimates.
3 Calculated from Bureau of Economic Analysis National Income and Product Account tables.
in each state and the revenue derived from that base. The HPI is a weighted average price index, not a measure of the property tax base. The property tax base includes not only price appreciation but actual growth in the number of housing units and the non–residential real estate base as well. However, the table makes the point that there were relatively few states that saw growth in their property tax revenues that was slower than the rate of housing price appreciation. Nine states saw above–average annual price appreciation for the entire decade, but they had property tax revenue increases that were below average. In particular, five states (see the bottom row of Table 1) had very strong housing markets but more modest increases in property tax. It is beyond the scope of this paper to explore in detail the history of the property tax in each of these states; however, a brief comment on each will serve to make an important point.

In the 1980s, Colorado voters approved a proposal known as the Gallagher Amendment that was intended to maintain a consistent relationship over time between the tax revenue generated from residential and non–residential property. As a result, from 1991 to 2003, the residential assessment rate was adjusted downward from 14.34 percent to 7.96 percent. During this period, the market values of residential property increased statewide by 312.7 percent, while residential assessed values increased by only 129.1 percent. As a consequence, the effective property tax rate applied to Colorado’s residential property fell from 1.21 percent in 1992 to 0.64 percent in 2001.

Beginning in 1991–1992 fiscal year, Oregon’s Measure 5 introduced limits on property taxes paid by individual properties. The limits were set at $15 per $1,000 of a house’s real market value—$5 of this being set aside for schools, and $10 for general government operating expenses (which excludes bonded debt). A subsequent policy called Measure 50 capped assessed values at 90 percent of 1995–96 assessed values and limited annual growth in assessed values to three percent or actual market value, whichever is less. The effect of Measure 50 has been to allow limited growth in property tax revenues in Oregon, whereas under Measure 5 revenues were essentially constant in nominal terms from 1991 through 1998. Between fiscal 1996–97 and 2001–2002, property taxes increased by an average of 4.9 percent per year, whereas the market value of the base increased by an average rate of 8.1 percent per year.

In 1994, Michigan underwent a major restructuring of the property tax as the state moved to a new method for funding education. The result was a major reduction in total property tax revenue. In addition, increases in the assessed valuation for individual properties are capped at five percent or actual inflation, whichever is less, and rates must be reduced so that total property taxes in a taxing jurisdiction do not increase faster than the rate of inflation (unless approved by voters). Local growth and bonded indebtedness are exempted from these limits. This combination of requirements resulted in a 6.4 percent average annual growth in property tax revenue between the 1994 restructuring and 2001, while the base grew at over nine percent per year for the same period.

During the decade being considered here, Minnesota based their property tax on what was termed “Limited Market Value” and limited the annual increase in value to ten percent of the previous assessment or one–third of the actual increase in value (one–fourth in some years), whichever was greater. Under this scheme, effective rates peaked in 1997 and then began to fall. Property tax revenue grew by an average of 4.6 percent during the decade, while the market value of the base increased by an average of 6.1 percent per year.

Thus, these four states had in place hard growth constraints on the taxable value,
Controlling Property Tax Increases During Periods of Increasing Housing Values

the tax rate, or both. Utah was an exception to this pattern. Rather than having a voter-approved, constitutional or statutory limit on property tax growth, Utah implemented a very different approach, which many would consider softer and less likely to succeed. This approach is termed full disclosure and is explained and explored more fully in the next sections.

FULL DISCLOSURE

Under a property tax full disclosure law of the sort considered here, it is generally the case that each local taxing district, city, town, school district, and special district is required to calculate a rate that, when applied to the tax base for the current year, produces property tax revenue equal to the amount of property tax revenue generated during the previous year. The desired rate is referred to as the constant yield rate and is calculated as follows:

\[ CYR_t = \frac{PT_{t-1}}{TV_{t-1}(1 + v)} \]

where

- \( CYR_t \) = the current year’s constant yield rate for the local government in question,
- \( PT_{t-1} \) = the prior year’s revenue from the property tax,
- \( TV_{t-1} \) = the prior year’s taxable property value, often called the tax roll, and
- \( v \) = the percentage change in the value of the prior year’s property value resulting from whole sale adjustments, revaluation, or policy changes.

Increases in property values that are captured by a reappraisal must be offset by a reduction in the tax rate that creates a revenue neutral outcome. Local officials are generally permitted to apply existing tax rates to new growth. If after doing the calculation in equation [1] public officials seek to approve a tax rate that generates more revenue than the previous year \( (PT_t > PT_{t-1}) \), then they have consciously chosen to increase taxes and must formally adopt and vote on a rate that is greater than the constant yield rate. A public notice must be distributed to inform the public that a tax rate increase is anticipated and that the increase will be voted on in a formal public meeting. The notice must be published in a newspaper and the notice must follow specific requirements regarding the size, placement in the paper, and the language used. In Utah, and previously in Florida, a preliminary tax notice identifying each tax rate above the \( CYR \) is also mailed to taxpayers before the actual budget is adopted. The Utah notice identifies when and where the particular budget and rate setting hearing for each government will be held.

Without a full disclosure law, the property tax system operates as shown in equation [2] below, where \( R_{t-1} \) is the tax rate from the previous year, \( PT_t \) is the tax yield for the current year and other variables are defined as in equation [1]:

\[ PT_t = R_{t-1} TV_{t-1} (1 + v). \]

If there are increases in the assessed value of properties (\( v \)) that are not offset by a reduction in the rate (\( R_{t-1} \)), increased assessed values create additional revenue for the taxing authority. In fact, elected officials with rate-setting and budget responsibility could boast that property tax rates had not changed (\( R_t = R_{t-1} \)) and, therefore, avoid taking direct responsibility for any tax increases. Using appraisal

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4 Full disclosure laws differ in several ways, such as the level of government that is required to follow the law and the level of tax increase that triggers their use. Bland and Laosirirat (1997) review the specific requirements of full disclosure laws in the United States.
and tax data from Massachusetts, Bloom and Ladd (1982) found this pattern of behavior—no reduction in $R_t$ over $R_{t-1}$—by elected officials following several cycles of increases in assessed value resulting from revaluations. In a later study, Ladd (1991) found less persuasive evidence of such behavior in North Carolina. Nevertheless, using revaluation to capture a windfall gain in property taxes was still apparent in some of the North Carolina communities she studied. However, the reluctance to lower rates may not necessarily be attributable to revenue opportunism on the part of elected officials. For example, Cornia and Knighton (1986) describe how differential appraisal cycles between classes of property constrain the ability to lower tax rates after a reappraisal.

It comes as no surprise that in situations where there is increased taxable value and no reduction in rates, the assessor’s office is identified by the public as the culprit behind the tax increase. When other elected officials receive complaints about higher taxes, an easy response is that “we have not changed the rates from the previous year.” The ability to avoid responsibility for tax increases under such a process is substantial (Aaron, 1975). And the political consequences that follow reappraisals—not the least of which are losing in the next election cycle or not being reappointed—are powerful incentives for an assessor to not reassess property and thereby avoid the angry backlash of property owners and eventually voters.

While the behavior is understandable, it violates a central tenet that is at the foundation of a tax system where the tax base must be consistently recalibrated or reappraised in order to even approach uniformity. The expectation is that the assessor, acting as an agent of the state and guided by legal and professional requirements, appraises property according to state law and professional practice. The goal of state laws and professional guidelines is to estimate what a willing buyer would pay and a willing seller would accept for a specific property (IAAO, 1995). But because assessors may be concerned about their own reelection or reappointment, they may act in self-interest by not appropriately revaluing properties. The principal–agent relationship that underpins uniformity is eroded.

**Full Disclosure in Utah**

The Utah full disclosure law was adopted in 1985 and took effect in 1986. The act followed a series of property tax events that had transpired over the previous four decades. The most significant incident was the state’s attempt in the 1970s to revalue all residential, commercial, and industrial property in the state after a period of more than 20 years without meaningful reappraisals (Morrill, 1966; Christensen, 2000). The revaluation process arguably saved the state from a school-funding court case and postponed a lawsuit from utility and mineral property owners; but it also had unanticipated, and for the most part unwelcome, policy, political, and appraisal outcomes (Cornia and Asplund, 1987).

As with many revaluations, Utah’s revaluation process resulted in a substantial shift in the tax burden and an increase in the property tax liability on residential property owners. In short order, the state legislature undertook a series of actions to prevent such a shift. As a result, the assessment ratio for residential property was set at 15 percent—one-half the assessment ratio set for all other properties. However this assessment ratio was eventually ruled

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5 The importance of keeping appraisals current has increased due to state funding of K–12 education. In many states the basis of education funding is the property tax with the expectation that school districts will not be unduly rewarded for underassessment of the property tax base.
unconstitutional because it was granted only to homeowners. Increases in property tax revenue were capped at an annual change of no more than six percent. Local governments discovered that it was prudent to adopt the full six percent increase because the amount granted in any subsequent year was based on the level of property taxes levied in the previous year. The six percent limit on revenue growth soon became a floor for growth rather than a ceiling. These difficulties made it surprisingly easy to adopt a full disclosure law (Christensen, 2000).

As noted, two different studies have reported the effect of full disclosure on the rate of growth in property tax. Cornia, Smith and Wheeler (1990) examine the effects of full disclosure on local governments in Utah and report some evidence that full disclosure did reduce the rate of growth in property tax imposed by local governments. In a later and much richer study of 93 cities in Texas, Bland and Laosirirat (1997) considered the role of full disclosure on property tax over a 12–year period. They reported little evidence that full disclosure had any measurable impact on the rate of property tax growth in these cities.

The initial evidence of the apparent success of full disclosure in slowing the rate of increase in property tax compared to the rate of change in personal income is offered in Figure 1. It appears from the change in the direction of the trend in Figure 1 that the adoption of full disclosure is correlated with a change in the trend in the rate of property tax growth. In addition, Cornia and Walters (2005) have argued that the full disclosure law in Utah appears to have contributed to increased uniformity in the administration of the property tax. Their findings suggest that a full disclosure law can be an instrument to improve uniformity in the property tax.

More specifically, the question is whether the Utah system yields two important policy outcomes:

1) Do the assessment processes followed within the state capture increases in housing market values? The system is more transparent and more readily evaluated for uniformity and accuracy if market value is used to define the base, but this requires local assessors to capture changes in market conditions.

Figure 1. Average County Property Taxes As a Percent of Personal Income

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* This 1984 ruling by the Utah Supreme Court created political and administrative problems because it prohibited virtually all the steps taken to prevent a shift in the property tax burden to residential homes. See *Rio Algom Corp v. San Juan County*, 681 P. 2d 184 (Utah 1984).
2) Do effective property tax rates decline as assessed values increase? If the point of the policy is to restrain growth in the property tax in the face of rapidly increasing values, then success must be measured in terms of declining effective rates as values escalate.

It is to these two questions that we turn our attention in the next section.

FIVE UTAH METROPOLITAN STATISTICAL AREAS

In order to answer the two questions as definitively as possible, we make use of data for the five Metropolitan Statistical Areas (MSA) in Utah. The MSA is selected as the unit of analysis because the OFHEO reports an HPI for each of these areas on a quarterly basis over time. The five MSAs are shown in Table 2, along with the counties that comprise the MSAs, the time period covered by the HPI index, and the 2004 estimate of both the population and the total market value of residential real estate. This analysis makes use of data from these ten counties for the 25-year period from 1980 through 2004.

In addition to the HPI index obtained from OFHEO, the analysis uses county-level data from the following sources:

- property tax data obtained from annual reports published by the Property Tax Division of the Utah State Tax Commission,
- population estimates published by the Utah Governor’s Office of Planning and Budget,
- personal income estimates obtained from the U.S. Bureau of Economic Analysis, and
- building permit data from the U.S. Census Bureau.

These county-level data items are aggregated up to the MSA level in order to be compatible with the HPI index, which is not available below the MSA level.

The models we employ are fairly straightforward. We hypothesize that the estimated market value of housing in an MSA will be a function of market conditions for existing housing, growth in new construction, inter-urban price level differences, and administrative practices. Second, we hypothesize that the effective rate in a given MSA will depend upon inter-urban differences in tax rates, growth measured in terms of residential construction, administrative practices, and changes in the estimated market value of the housing stock. If the state’s full disclosure policy is effective, then the relationship between the effec-

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<tbody>
<tr>
<td>Provo–Orem</td>
<td>1983</td>
<td>Juab, Utah</td>
<td>8,826, 437,627</td>
<td>$158,043,221, $10,090,636,746</td>
</tr>
<tr>
<td>Salt Lake City</td>
<td>1977</td>
<td>Salt Lake, Summit, Tooele</td>
<td>955,166, 35,090, 50,075</td>
<td>$26,870,601,388, $2,114,382,112, $881,172,631</td>
</tr>
<tr>
<td>Ogden–Clearfield</td>
<td>1978</td>
<td>Davis, Morgan, Weber</td>
<td>268,916, 8,249, 209,547</td>
<td>$6,371,529,316, $232,005,210, $4,571,962,319</td>
</tr>
<tr>
<td>St. George</td>
<td>1986</td>
<td>Washington</td>
<td>117,316</td>
<td>$2,811,225,540</td>
</tr>
<tr>
<td>Logan, UT-ID&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1987</td>
<td>Cache</td>
<td>100,182</td>
<td>$1,874,162,600</td>
</tr>
</tbody>
</table>

<sup>a</sup>This MSA includes part of Idaho, but only the Utah data are employed in this analysis.
tive tax rate and the change in estimated market value should be significant and negative. To be clear, we define each set of variables below.

Defining the Tax Base

For this analysis our interest is in the market value of residential real estate. Hence, we exclude all non–residential property, and we adjust for any fractional assessment that has occurred in past years. In addition, we use the state’s published sales ratio studies for each county to adjust residential values in each county to full market value. Finally, since there are substantial differences in the size of the five MSAs, we divide the total residential market value by the population.

Defining the Effective Tax Rate

In Utah, as in most other jurisdictions, the final property tax rate is an aggregation of rates set by a variety of local governments: counties, cities and towns, local school districts, and any special districts that may exist. Each of these governments has separate and independent taxing authority. In addition, in Utah the state imposes a statewide levy to fund the minimum school program. Local officials have no control over this state rate, which has varied throughout the time period in question. Since full disclosure is targeted on the decision making of local public officials, it is important to control for these variations in the state mandated minimum school rate. We do this by calculating the aggregate tax bill for each county’s residential property at the state mandated rate (using the actual taxable values) and subtracting this amount from the total taxes charged against residential property in the county. Our effective tax rate is then defined as the total property locally imposed taxes charged to residential property, divided by the (estimated) full market value of that property.

Residential Building Activity

The only complete time series available for residential building at the county level is the number of residential building permits issued. Again, in order to adjust for scale differences, we express this variable as a rate per 1,000 people.

Changes in State Administrative Policy

While full disclosure was implemented in 1986, assessment ratios throughout the 1980s tended to be between 70 and 80 percent of market value. Beginning in 1991, the State Tax Commission began making a very concerted effort to require counties to improve the transparency of their practices by improving the assessment ratio. As a result, assessment ratios after 1990 are much closer to one. In order to capture the effects of this administrative change, we use a dichotomous variable that takes a value of zero for the years before 1991, and a value of one for the years 1991 to 2004.

Results

Our findings are summarized in Tables 3 and 4. Table 3 reports two models that estimate the impact of housing market conditions on the assessed value of residential real estate. Again, if the local county assessors are effective, then increases (and decreases) in the housing market should be reflected in the property tax base. We note that Cornia and Walters (2005) provide preliminary evidence that Utah assessors have improved since the implementation of full disclosure in that the coefficient of dispersion (COD) has generally declined under full disclosure. If assessors were neglecting reassessment, one would expect exactly the opposite to occur. As shown in the table, we find fairly strong evidence of a positive relationship between the HPI and per capita assessed market value. The model shown takes the
The relationship between the number of residential building permits issued in a given year and the market value per capita is slightly negative; this could happen if new construction were more likely to occur in MSAs with lower average home values. Our second model does provide modest evidence that growth in the number of housing units is associated with positive changes in the estimated residential tax base per capita.

On balance, the prior work by Cornia and Walters and the two models presented here suggest that there is fairly good evidence that Utah assessors in these ten counties are in fact capturing changing market conditions in their assessment of residential property.

The second question raised is whether full disclosure is effective in restraining property tax increases in the face of rapidly escalating real estate values. Table 4 presents a model that tests this relationship. The dependent variable is the effective tax rate on residential property. In this case we find a significant negative relationship between changes in the assessed value of residential property and the effective tax rate on that property.

7 Raised to the power of 1.5 based on a maximum likelihood test for optimal specification. We also note that this model has a larger N because the HPI is not available for all MSAs in the early 1980s. By excluding the HPI from this model, the N increases.

natural log of per capita market value as the dependent variable (which is strongly related to the log of the HPI). The second model takes the change in the per capita market value as the dependent variable; and while the overall goodness of fit is not as high, the model again finds a significant positive relationship with changes in the HPI.

It is also expected that new growth should result in increases in the aggregate residential base. The results depicted in Table 3 are not as strong regarding this relationship. The first model indicates
This finding provides important evidence that under full disclosure, local officials in these ten counties have responded to escalating real estate prices by reducing property tax rates, thus restraining growth in the overall tax bills of homeowners at least at the margin.

CONCLUSION

We have argued that in the face of rapidly increasing real estate values, typical policy responses have unreasonably restricted the local officials’ ability to respond to changing demands for public services. However, full disclosure, an option that has received little attention, is an alternate policy that allows local officials flexibility, while at the same time imposing stringent political constraints on their actions. The analysis presented here suggests that in Utah full disclosure has been effective at restraining the growth in the property tax without imposing hard statutory or constitutional limitations on local governments. To be sure, property taxes have grown in Utah since the imposition of full disclosure, but not as fast as home values, and generally in response to growing needs of schools and other public services. It would appear that full disclosure can be an effective method of imposing political accountability on local officials without completely eliminating local discretion.

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