

## RESIDENTIAL PROPERTY TAX GROWTH: ARE THE DATA AS NOISY AS THE DEBATE?\*

*Rebecca Boldt and Bradley Caruth, Wisconsin Department of Revenue  
Andrew Reschovsky, University of Wisconsin-Madison*

### INTRODUCTION

ONE OF THE MAJOR ISSUES FACING POLICYMAKERS in many states across the country is how to curtail the growth in property taxes, especially the property taxes paid by homeowners. In response to political opposition to the tax, during the last several years over half of the states have enacted or are considering provisions to place strict limits on the growth of property tax revenue or limit the growth rate of homeowner assessed property values.

Despite the political debates and complaints over the property tax, there is little evidence that goes beyond the anecdotal in support of the claim that a rising proportion of households are facing rapidly increasing property tax bills and rising tax burdens. In most states, data only exist on total property tax revenue from residential property. There is little available data that allows one to trace the annual changes in property taxes paid by individual homeowners and changes in the property tax burdens they face.

In this paper, we report on our efforts, using Wisconsin data, to push aside the veil of ignorance about changes over time in homeowners' property tax liabilities and tax burdens. We exploit the fact that Wisconsin homeowners report information on property taxes paid on their income tax returns in order to receive a nonrefundable school property tax credit (SPTC) that is available to all taxpayers and a refundable homestead credit that is available to low-income taxpayers.<sup>1</sup>

The starting point of our analysis is income tax returns filed by Wisconsin residents for tax year 2005. From a total of about 2.7 million returns, approximately 1.3 million returns were filed by homeowners who claimed the SPTC or homestead credit in 2005.<sup>2</sup> Using tax return data for the years

2000 through 2005, we construct, whenever possible, 6-year histories of each taxpayer who was a Wisconsin homeowner in 2005. In order to build these histories, we had to overcome three major methodological challenges in order to accurately measure the household composition, property tax paid, and exact household location for each year. Household composition is an important determinant of tax burdens; thus, we had to address the situation where a household's composition changed during the 2000 to 2005 period. Our starting point was the household status of the primary taxpayer in 2005. In cases where household composition changed in prior years due to marriage, divorce, or death of a spouse, we captured those changes by constructing a household history comprised of the primary taxpayer's returns. The second challenge related to the timing of property tax payments. Our interest is the property tax levied in each year as opposed to the tax that is paid in a given year. Thus, we had to address situations where, for example, a taxpayer paid both her 2004 and 2005 property taxes in a single calendar year and reported both amounts on her 2005 income tax return for purposes of claiming the SPTC. In such a case, we had to determine how much of the amount claimed for the SPTC was attributable to the 2004 property tax levy and how much to the 2005 levy. Finally, we had to address the challenge of matching household addresses across tax years in order to determine if a taxpayer moved during the period of analysis. While the panel data matches taxpayer information across time using Social Security numbers, the matching across household addresses presented formidable obstacles.<sup>3</sup>

As we are particularly interested in changes in property tax liabilities that are not the result of taxpayer actions such as a change in residence or new construction, the analysis in this paper focuses on the changes in property taxes of those homeowners who did not undertake a residential move during the period. Approximately 701,600 of the 1.3 million who were homeowners in 2005 were identified as being Wisconsin homeowners who resided in the same home in every year since 2000. While these

---

\*The authors wish to acknowledge the financial support provided by the Lincoln Institute of Land Policy that made this research possible. The findings and conclusions of this paper are solely those of the authors. They do not necessarily reflect the views and policies of the Wisconsin Department of Revenue or the Lincoln Institute of Land Policy.

non-mover homeowners paid only 57 percent of the total property taxes levied on owner-occupied residential property, by focusing on the changes in property taxes paid by these homeowners, we can isolate the property tax trends due primarily to public policies, such as local government spending decisions, state aid allocations, and changes in property tax relief measures, rather than on choices made by individual homeowners.

To see why the non-mover distinction is important, consider the growth trends reported in Table 1. Total revenue from the property tax imposed on all types of property grew at an average annual rate of 5.1 percent during the 5-year period, from \$6.1 billion to \$7.9 billion. By comparison, residential property taxes grew at an annual average rate of 6.0 percent, and the share of total property tax revenue that comes from residential property grew from 67.8 percent in 2000 to 71 percent in 2005. The growing residential share of the property tax reflects both the relatively slow growth in the value

of commercial and manufacturing real estate and the quite rapid rise in home prices over this period. Data on aggregate residential taxes, however, provide a very imperfect and limited picture of the changes in property tax burdens over time borne by individual Wisconsin families. Residential property is a broad category that includes, in addition to owner-occupied homes, all residential rental property, whether occupied or vacant, and residential property owned and occupied by families whose permanent residence is outside of Wisconsin.

The second panel of Table 1 reports the property taxes paid by Wisconsin homeowners in 2000 and 2005. The taxes on these properties grew 4.2 percent on average over the period. Removing the influence of relocation decisions, the bottom panel shows that property taxes on non-mover homeowner properties grew at an average annual rate of only 3.3 percent.

The data in Table 2 demonstrate that the average annual rate of change in property taxes provides a

**Table 1**  
**Growth in Total Property Taxes Paid by Wisconsin Homeowners, 2000 to 2005**

	<i>Calendar Year</i>		<i>5-Year Growth Rate</i>	<i>Average Annual Growth Rate</i>
	<i>2000</i>	<i>2005</i>		
<b>Total Property Tax Levy (millions of dollars)</b>	6,135.1	7,585.0	28.1%	5.1%
<b>Residential Property Tax Levy (millions of dollars)</b>	4,161.2	5,580.8	34.1%	6.0%
Residential Share of Total	67.8%	71.0%		
<b>Homeowners (in 2005);</b>				
Property Taxes Paid by Homeowners (millions of dollars)	3,238.0	3,970.6	22.6%	4.2%
Median Property Tax	2,195	2,671	21.7%	4.0%
<b>Non-Mover Homeowners (all years 2000 to 2005)</b>				
Property Taxes Paid by Non-Mover, Stable Homeowners (millions of dollars)	1,846.3	2,168.3	17.4%	3.3%
Median Property Tax	2,348	2,769	17.9%	3.4%

**Table 2**  
**Average Annual Property Tax Growth 2000 to 2005**

	<i>Stable Non-mover Homeowners</i>	<i>Percent of Total</i>
Decrease	84,012	12.0%
Less than 2%	146,936	20.9%
2% to 4%	204,991	29.2%
4% to 6%	136,278	19.4%
More than 6%	129,392	18.4%
<b>Total</b>	<b>701,609</b>	<b>100.0%</b>

very incomplete picture of the change in property taxes experienced by most of Wisconsin's non-mover homeowners. For 12 percent of the non-mover homeowners, property taxes were actually lower in 2005 than they had been in 2000. For another 20.9 percent of this group, property taxes increased, but at an annual rate below the rate of inflation during this period (approximately 2.5 percent per year). At the same time, for almost 38 percent of non-mover homeowners, property taxes grew at an annual average rate of over 4 percent.

To begin exploring which Wisconsin taxpayers benefited from tax reductions and which taxpayers faced particularly large increases, we investigate whether the percentage change in property taxes between 2000 and 2005 was systematically related to the size of taxpayers' property tax liability in the year 2000. As seen in Table 3, the households that experienced the most rapid property tax growth tended to be those that paid the least in property taxes in 2000. Conversely, a relatively large share of households whose taxes fell between 2000 and 2005 paid a high level of property taxes in 2000.

The bottom panel of Table 3 shows the column distribution (i.e., for each property tax level, the share of households that fall into each property tax

growth breakdown). This is also shown in Figure 1. About half of the stable non-mover households paid between \$1,500 and \$3,000 in 2000 property taxes. Over 20 percent paid less than \$1,500 and another 21.4 percent paid between \$3,001 and \$4,500. Around 9 percent paid more than \$4,500 in 2000 taxes.

Since the variation in property values greatly exceeds the variation in property tax mill rates, we see a pattern emerging whereby low-valued properties experienced higher property tax increases than higher-valued properties over the period. The average annual growth for the lowest-valued properties was 5.5 percent, compared to 3.3 percent overall. Well over a third of households whose 2000 property tax was less than \$1,500 saw average annual increases of 6 percent or more. This is more than double the share seeing similar growth in the \$1,501 to \$3,000 property tax range. In contrast, the average growth in property taxes for households paying over \$4,500 in 2000 was 2.5 percent, with 44.4 percent of these households seeing either a small increase (less than 2 percent) or a decrease in property taxes. Similar trends are observed for those paying between \$3,001 and \$4,500.

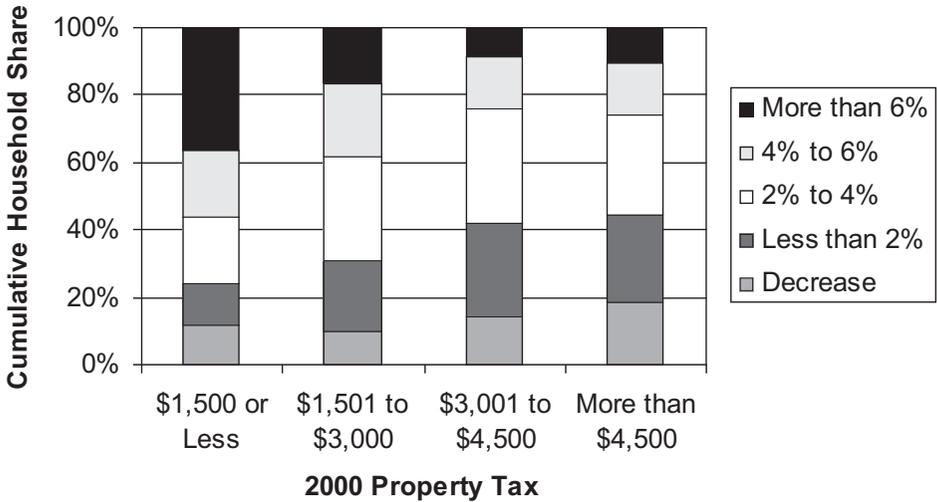
**Table 3**  
**Non-mover, Stable Homeowners**  
**By 2000 Property Tax Amount and Average Annual Percentage Change**

<i>Average Annual Growth</i>	<i>Household Count</i>				<i>Total</i>
	<i>\$1,500 or Less</i>	<i>\$1,501 to \$3,000</i>	<i>\$3,001 to \$4,500</i>	<i>More than \$4,500</i>	
Decrease	16,686	34,665	21,328	11,333	84,012
Less than 2%	18,148	71,365	41,580	15,843	146,936
2% to 4%	27,512	108,332	51,179	17,968	204,991
4% to 6%	28,354	74,608	23,719	9,597	136,278
More than 6%	52,560	57,870	12,557	6,405	129,392
Total	143,260	346,840	150,363	61,146	701,609
Average Annual Growth	5.5%	3.5%	2.6%	2.5%	3.3%

<i>Average Annual Growth</i>	<i>Household Count</i>				<i>Total</i>
	<i>\$1,500 or Less</i>	<i>\$1,501 to \$3,000</i>	<i>\$3,001 to \$4,500</i>	<i>More than \$4,500</i>	
Decrease	11.6%	10.0%	14.2%	18.5%	12.0%
Less than 2%	12.7%	20.6%	27.7%	25.9%	20.9%
2% to 4%	19.2%	31.2%	34.0%	29.4%	29.2%
4% to 6%	19.8%	21.5%	15.8%	15.7%	19.4%
More than 6%	36.7%	16.7%	8.4%	10.5%	18.4%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Figure 1: Average Annual Property Tax Growth by 2000 Property Tax Level



Two things can explain why more low-valued properties saw high property tax growth over the period than higher-valued homes. Either the low-valued properties saw a greater proportionate appreciation in the assessed, and presumably, market value of their homes over the period; or these properties were located in areas experiencing above average levy (and tax rate) increases or possibly both. In future research we will attempt to determine the reasons for the observed pattern of changes in property tax liabilities.

**PROPERTY TAX BY INCOME**

To explore the relationship between property tax payments and household income, income should be defined to reflect taxpayers’ ability to pay, and thus should include income from both taxable and nontaxable sources. In this study, we have defined income as total federal income before adjustments plus nontaxable Social Security, deferred compensation, nontaxable pension income and nontaxable interest.<sup>4</sup>

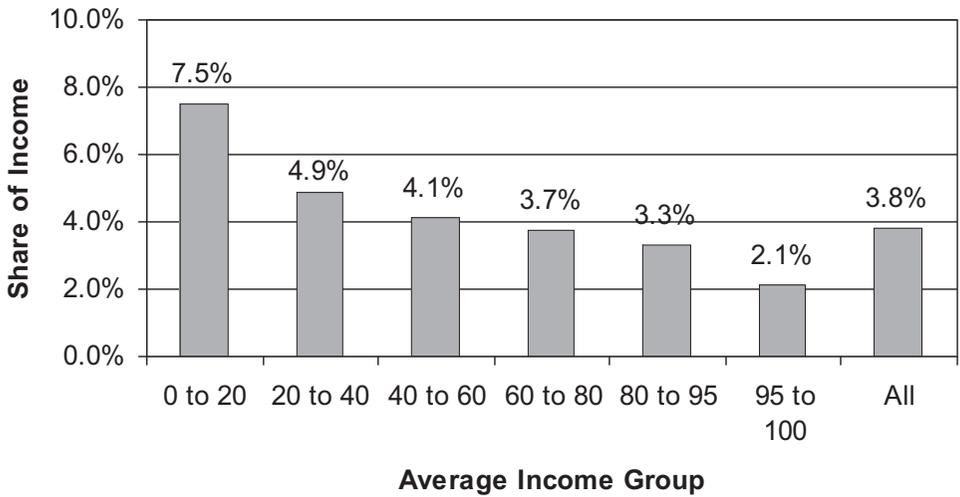
Economists have long argued that when one’s goal is to determine tax incidence, it is inappropriate to measure ability to pay using income data from a single year.<sup>5</sup> The use of annual incomes rather than measures of lifetime income in the calculation of tax burdens will overstate the regressivity of the property tax because many people

with low (high) incomes in any given year are only temporarily at that income level, and base their housing consumption decisions on a higher (lower) level of lifetime income. In our exploration of the incidence of the property tax on Wisconsin homeowners, we calculate the tax burden for each homeowner as the homeowner’s average property tax payment over the 2000 to 2005 period relative to their average income over the same period.<sup>6</sup> However, when we explore **changes** in tax burdens between 2000 and 2005, we calculate and compare annual tax burdens for 2000 and 2005.

Figure 2 displays gross property tax burdens for homeowners ranked by average income quintile, with the highest quintile divided into two groups, one representing the 5 percent of households with the highest incomes.<sup>7</sup> Overall, the property tax comprised 3.8 percent of household income over the period. The lowest income quintile spent on average 7.5 percent of their average income over the period on property taxes compared to only 2.1 percent for the 5 percent of households with the highest incomes.

The use of average rather than annual income to calculate tax burdens does in fact reduce the calculated regressivity of the property tax. For the bottom income quintile, the 2005 property tax burden calculated using 2005 annual income is 0.3 percentage points higher than the average burden presented in Figure 2. The burden calculated using

Figure 2: Gross Property Tax Burden, 2000 to 2005



annual income is 0.2 percentage points higher in the second quintile and 0.1 percentage points higher in the third and fourth quintiles.

The burdens shown in Figure 2 reflect the gross burden (i.e., the burden of the property tax before taking into account other tax policies that effectively lower the amount paid). Three policies in particular effectively lower the property tax paid by individual homeowners. The state school property tax credit (SPTC) serves to reduce the property taxes for households that have an income tax liability. Second, the homestead credit provides a targeted tax credit to low-income households. Third, the ability to deduct from federal taxes the amount of property taxes paid on residential property allows taxpayers who itemize deductions on their federal returns to, in effect, export a share of their property tax burden to the federal government in the form of a lower federal tax liability.<sup>8</sup>

In total, these three policies reduced the non-mover households' property tax by an average \$432 million per year over the 2000 to 2005 period. The largest reduction in property taxes comes from federal deductibility (\$269 million or 62.4 percent of the total), followed by the SPTC (\$139 million or 32.3 percent of the total) and the homestead credit (\$23 million, or 5.3 percent of the total).

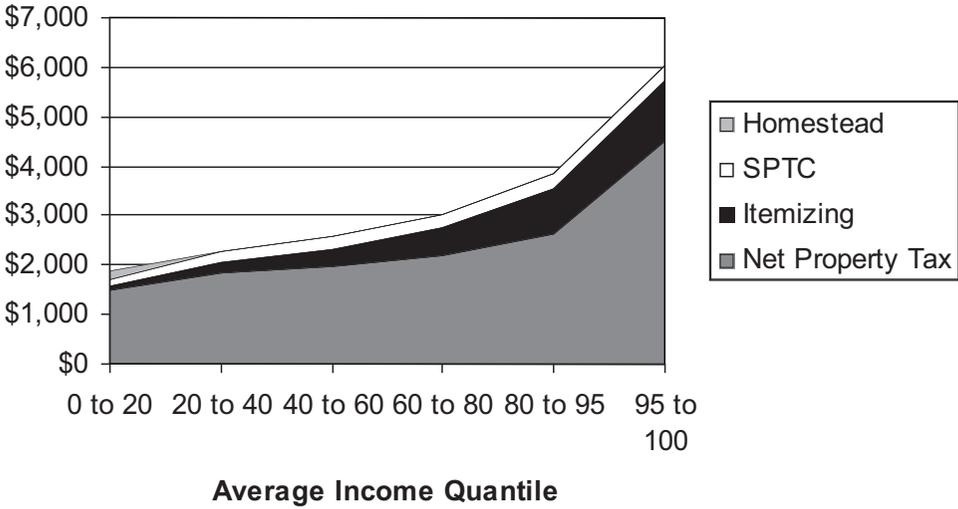
Figure 3 shows the effect of each of these measures on the average property tax by income group. By design, the benefits of the homestead credit are

concentrated to households in the lowest quintile. For these households, the average homestead credit effectively lowered the average property tax by \$187. The benefits of the federal deduction are more concentrated at higher income levels. The average property tax reduction due to the federal tax deduction was \$445; however around 70 percent of the federal deduction benefits were distributed to the top 40 percent of households with incomes over \$70,497. The average deduction benefit for these households was \$783, compared to \$220 for households in the bottom 60 percent of the income distribution. The average SPTC was \$230 over the period and was more evenly distributed than the federal deduction. Combined, the three measures offset around 20 percent of the tax paid by lowest income but over 30 percent of the tax for the households in the top income quintile.

While the three relief measures served to lower the property tax for all income groups, the combined effect of these measures made the property tax more regressive. Only the homestead credit served to reduce the regressivity of the property tax. Because the SPTC was quite evenly distributed across income groups, it has little effect on the regressivity of the tax.

On the other hand, because the tax benefit of itemizing increases with income, the federal itemizing of property taxes actually increases the regressivity of the property tax. The lowest quintile

Figure 3: Average Net Property Tax, Homestead Credit, Federal Deduction and SPTC, by Average Income



paid 5.9 percent of their income in property taxes, more than double the overall average (2.8 percent) and 3.7 times more than the highest income households, who paid 1.6 percent of their income in net property taxes over the period.

**Changes over Time**

We now turn to the question of whether the growth in property tax liabilities between 2000 and 2005 was systematically different for households with different levels of income in 2005. The data indicate that over this period property taxes grew at a somewhat faster than average rate for households in the bottom two income quintiles (3.5 percent compared to an average annual rate of 3.3 percent) and fewer high-income households saw very high property tax growth as compared to lower-income households. In the highest quintile, 14 percent of households saw average annual growth over 6 percent, compared to the 21 percent of households in the bottom two quintiles. This is consistent with the hypothesis that low-valued properties saw higher property tax growth over the period and lower-income households were more likely to own these low-valued properties.

To explore the question of changing burdens, we first compare property tax liabilities in 2000 relative to annual income in that year with tax liabilities in 2005 relative to 2005 annual income. We then

focus on how individual homeowners’ burdens changed over this time period. We are particularly interested in identifying which taxpayers faced rapidly rising burdens.

Figure 4 shows the 2000 and 2005 gross property tax burdens (with burden calculations based on annual income in each year) for non-movers by income group.<sup>9</sup> For all homeowners, the average property tax represented 3.6 percent of household income in 2000 and 3.8 percent of income in 2005. This represents a 6.5 percent growth in burden for all homeowners combined. However, the average growth obscures significant differences across households—41.6 percent of homeowners actually saw a decrease in their gross burden over the period, while 30 percent of households saw their burden increase by 25 percent or more from 2000 to 2005.

Homeowners in the lowest quintile faced the greatest increase in gross burden over the period, increasing 17.4 percent over the period from 6.7 percent of income in 2000 to 7.8 percent in 2005. Almost 40 percent of these homeowners faced a 2005 burden that was at least 25 percent higher than in 2000, and for 22 percent of these households, their 2005 burden was at least 50 percent higher than in 2000.

Changing property tax burdens are influenced by both changes in property taxes and changes in income. Figure 5 shows that much of the explana-

Figure 4: Gross Property Tax Burdens, 2000 and 2005

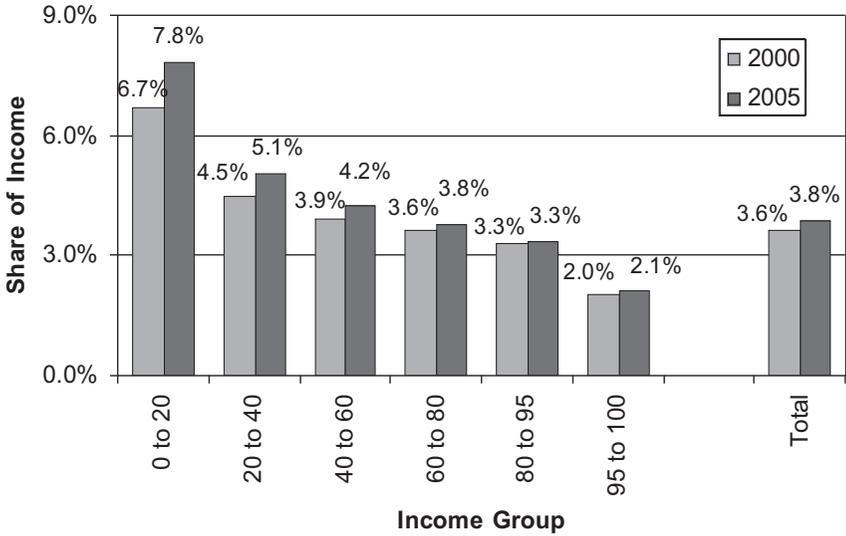
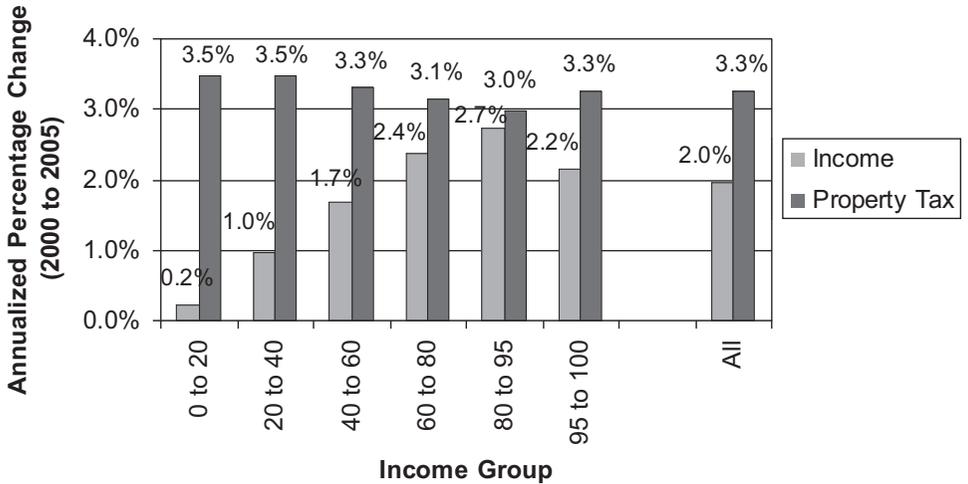


Figure 5: Annualized Change in Income and Property Tax By Income Group, 2000 to 2005



tion for why the property tax burden of the lowest quintile grew more than burdens on higher-income homeowners relates to the slow growth in their incomes. While the annual property tax growth over the period was roughly similar across all income groups, income grew far more slowly for low-income homeowners than for those with higher incomes. The

average income in the lowest-income quintile grew at an annual rate of only 0.2 percent, compared to the 2.0 percent income growth rate for all homeowners. And income growth in the second quintile was only half the average among all homeowners.

We know that individuals complain when their property taxes increase, but it is likely the

complaints grow louder when the tax becomes less affordable in terms of a household's ability to pay. If policymakers in Wisconsin wish to reduce property tax burdens, their policy responses should recognize that both tax and income trends affected changes in the property tax burden over the 2000-2005 period.

### SUMMARY AND CONCLUSIONS

Elected officials in Wisconsin and elsewhere face the brunt of citizen complaints about rising property taxes. Undoubtedly, the current economic downturn will increase the frequency and the intensity of these complaints. The results of this paper can help public officials craft policies to effectively address taxpayer concerns about the property tax. The main conclusion we draw from the data presented in this paper is that the burden of the property tax on homeowners and any economic hardships it creates vary tremendously among homeowners. While some homeowners are facing both high and increasing property tax burdens (at least relative to their current income), for other homeowners, the property tax is relatively low and/or falling over time.

The policy lesson we take from our findings is that in a world with limited resources (certainly the world we live in), it is essential to **target** property tax relief to those residents who are most in need of relief from high or rapidly rising property tax burdens. Unfortunately, to a large extent, Wisconsin has pursued a set of policies that can only be described as highly untargeted. In its fiscal year 2008 budget, the state government is providing local governments (including independent school districts) with \$8.7 billion of state financial assistance. While this money is intended to help local governments finance high-quality education and essential local government services, another quite explicit objective is to allow local governments to reduce their reliance on the property tax. In addition, the state has effectively mandated property tax reductions through the enactment of a revenue limit on school districts and property tax levy limits for municipal and county governments. These policies have reduced property taxes for everyone who pays property taxes. This includes Wisconsin residents and non-residents and owners of all types of property, including residential, commercial, industrial, and agricultural. Among homeowners, a rate reduction provides the largest

dollar amounts of tax reductions to those who own the most expensive homes, not those facing the highest burdens. By pursuing untargeted property tax relief policies, relatively few state resources are available to benefit those taxpayers that either face the highest tax burdens or experience the fastest growth in tax burden.

One reason why the two existing state income tax credits designed to provide property tax relief are not more effective is their relatively small size. The total of SPTC credits received by non-mover homeowners offset only 7.7 percent of the \$1.8 billion in gross property taxes paid by these households. The homestead credit, with its restricted eligibility, was received by just 13.4 percent of all non-mover homeowners in 2005 and offset only 1.3 percent of the gross property tax liability of eligible homeowners. Aside from their modest size, changes in the design of the two credits could improve their effectiveness in providing more property tax relief to those taxpayers facing high property tax burdens. We recommend that the SPTC be redesigned so that its benefits are targeted to lower-income taxpayers by providing them with a higher credit rate and a phasing out of benefits as taxable income rises. We further recommend that the reach of the homestead credit be expanded by increasing the maximum allowable credit and by raising the income eligibility limit. The new income limit should then be indexed for inflation.

Finally, we recommend that the state consider expanding and reforming its existing tax deferral program. The current program is very limited and its existence is probably unknown to most homeowners. An advantage of a property tax deferral program is that homeowners can remain in their home even if their property tax bills are large relative to their current income. Deferral programs could be improved by linking eligibility directly to either high property tax burdens or rapid increases in property tax levies or burdens. Homeowner participation in deferral programs could be improved by simplifying the application procedures and investing in outreach efforts, targeted specifically to elderly homeowners.

The primary purpose of this paper was to investigate changes in property tax liabilities and burdens among Wisconsin homeowners and to identify which taxpayers faced the largest increases in tax liabilities and burdens. In future work, we will attempt to *explain* the findings of this paper. Our next step will be to match our data on the

property tax payments by individual taxpayers with municipal, county, and school district property tax information to explore whether the growth in taxes is attributable to changes in local government spending or whether state policies that change the distribution of state aid may have impacted tax trends faced by homeowners. We will also explore whether differential rates of changes in property values in different parts of the state may help explain the observed variation among homeowners in property tax liabilities and burdens. Finally, we will explore the oft-repeated claim that high tax burdens are forcing elderly homeowners to sell their homes. Although this paper has focused on the subset of homeowners who chose to stay in the same home, the tax panel we have constructed allows us to look in detail at homeowners in 2000 who chose to move at some later date.

#### Notes

- <sup>1</sup> The homestead credit is available to homeowners whose income is below \$24,500 and provides up to \$1,160 of property tax relief.
- <sup>2</sup> This approach underestimates the number of homeowners because it does not include homeowners who do not file income tax or for some reason did not claim the SPTC.
- <sup>3</sup> Contact the authors for details on steps taken to address these methodological challenges.

- <sup>4</sup> One-half of self-employment tax is removed from income in order to make sole proprietor income comparable to wage income. In addition nontaxable pension income excludes rollovers or section 1035 exchanges.
- <sup>5</sup> On this point, see, for example, Poterba (1989).
- <sup>6</sup> See Chernick and Reschovsky (1997) for a discussion of the use of average income as a measure of ability to pay.
- <sup>7</sup> The lowest quintile households had average income of \$25,324 over the period. The average income of the next four quintiles were \$16,000-\$20,000 higher than the preceding quintile. The top 5 percent of households had an average income of \$285,568 over the period.
- <sup>8</sup> The tax reduction is measured by comparing the actual federal tax liability when property taxes are taken as a deduction and what the federal tax liability would have been without the deduction.
- <sup>9</sup> The income groups remain defined by average income over the period. By defining the income groups in this way, each income group retains the same individuals in both years, and burden comparisons within quintiles reflect the same set of homeowners.

#### References

- Chernick, Howard and Andrew Reschovsky. Who Pays the Gasoline Tax? *National Tax Journal* 50 (June 1997): 233-259.
- Poterba, James M. Lifetime Incidence and the Distributional Burden of Excise Taxes. *American Economic Review* 79 (May 1989):325-30.