

Property Tax Delinquency and the Number of Payment Installments

Paul Waldhart
Wisconsin Legislative Audit Bureau

and

Andrew Reschovsky
Robert M. La Follette School of Public Affairs
University of Wisconsin-Madison

© 2012 Lincoln Institute of Land Policy

Lincoln Institute of Land Policy Working Paper

The findings and conclusions of this Working Paper reflect the views of the author(s) and have not been subject to a detailed review by the staff of the Lincoln Institute of Land Policy. Contact the Lincoln Institute with questions or requests for permission to reprint this paper. help@lincolninst.edu

Lincoln Institute Product Code: WP12PW1

Abstract

At a time when property tax delinquencies are rising and property tax revenues are falling in many parts of the United States, it is particularly important to consider the potential impact that property tax administration has on reducing delinquency. In particular, reducing the amount of money a taxpayer must pay at any given time may reduce the rate of property tax delinquency. This study investigates the relationship between the number of annual payment installments and the property tax delinquency rate using multivariate regression techniques and five years of data from Wisconsin municipalities. The results of the analysis indicate that increasing the number of installment payments from two to three per year reduces the delinquency rate by nearly half. Allowing more than three installments, however, does not lead to a statistically significant reduction in the property tax delinquency rate.

About the Authors

Paul Waldhart received his Masters in Public Affairs from the University of Wisconsin- Madison's La Follette School of Public Affairs in May 2011. He is currently employed as an analyst for the Wisconsin Legislative Audit Bureau. In addition to research for the Lincoln Institute, Waldhart has co-authored working papers prepared for Wisconsin's Department of Children and Families and Wisconsin's Department of Corrections. The latter of these two reports was part of the *Wisconsin Family Impact Seminars* series and presented to Wisconsin's State Legislature.

Contact information:
paulwaldhart@gmail.com
608-444-8854

Andrew Reschovsky is a visiting fellow at the Lincoln Institute of Land Policy and a professor of public affairs and applied economics at the Robert M. La Follette School of Public Affairs at the University of Wisconsin-Madison. Most of Reschovsky's research is on state and local government public finance with a focus on tax policy and intergovernmental fiscal relations. His most recent articles have appeared in such academic journals as *Public Finance Review*, *Public Budgeting and Finance*, *National Tax Journal*, *Comparative Education Review*, and *Education Finance and Policy*.

Contact information:
reschovsky@lafollette.wisc.edu

Acknowledgements

The authors thank David Gawenda, the Treasurer of the City of Madison, Wisconsin, for suggesting this research topic and for his invaluable advice and assistance. We also gratefully acknowledge the financial support of the Lincoln Institute of Land Policy.

Table of Contents

Introduction.....	1
Background.....	2
Methodology.....	3
<i>Dependent Variable</i>	4
<i>Independent Variable</i>	5
Results.....	6
Conclusion.....	7
Tables.....	9
References.....	11
<i>Appendix A: Tables of Municipalities Providing Data</i>	13

Property Tax Delinquency and the Number of Payment Installments

Introduction

In many parts of the United States, the last five years have witnessed large drops in property values and a rise in foreclosures. One consequence of the upheaval in the housing market is an increase in property tax delinquency rates. Property taxes are considered delinquent if property owners fail to pay the entire amount due in a timely fashion. Rising delinquency rates exacerbate fiscal problems that are plaguing local governments in many parts of the United States. Declining property values and rising foreclosure rates, coupled with cuts in both state and federal inter-governmental transfers, are forcing local governments to search for new sources of revenue and to cut public services. In this fiscal environment, it is particularly important for local governments to maintain the flow of property tax revenues by taking steps to minimize their rate of property tax delinquency.

This article focuses on Wisconsin, where, as elsewhere, property tax delinquency rates have been rising. Based on a sample that includes Wisconsin's largest municipalities, the property tax delinquency rate, measured as a share of each municipality's total property tax levy, steadily increased from 2005 through 2009 (the most recent year of available data). In 2005, the delinquency rate was 2.0 percent, in 2007 it was 2.5 percent, and by 2009 it had risen to 3.0 percent.

On average, in fiscal year 2009 local governments in Wisconsin relied on the property tax for 65.2 percent of their own-raised revenues. In only six states did local governments raise a higher share own revenues from the property tax (U.S. Census Bureau, 2011). After the property tax, the second most important source of local government revenues for most municipal and county governments in Wisconsin is state aid. Not only did the 2011-13 state budget reduce state financial assistance to local governments, but it included a provision that tightened an existing statutory limit on increases in county and municipal government property tax levies (Wisconsin State Legislature, 2011). Under current law, the annual percentage increase in the value of any county or municipal government's property tax levy is limited to the value of net new construction relative to the previous year's equalized property value. For local governments with no positive net new construction, levies are frozen at last year's level. Given the difficulty of raising property tax mill rates in the current political and economic climate, municipal and county governments are under pressure to take whatever steps possible to maximize the collection rate of their allowable tax levy. One way to achieve this goal is to reduce the rate of property tax delinquency.

It is not surprising that weak economic conditions lead to an increase in property tax delinquency rates. For many property owners, annual property tax liabilities must be paid in one or two installments. In a high property tax state such as Wisconsin, avoiding property tax delinquency requires that households accumulate a substantial amount of liquid assets. With unemployment rates remaining high and with credit difficult to obtain, it should be expected that some property owners will be unable to accumulate sufficient resources to pay their property tax bills in a timely fashion. While city and county treasurers and other local government officials have almost no ability to influence the economic and housing market conditions in their communities, they may be able to influence the rate of property tax delinquency by making administrative changes in the

property tax collection process that make it easier for property taxpayers to pay their property tax bills.

In this article, we explore the question of whether increasing the number of annual property tax installments would be an effective way to reduce delinquency rates. The basic argument is that, especially in periods when the economy is weak, allowing property owners to split their annual property tax liability into more installments should make it possible for more taxpayers to accumulate sufficient resources to pay their tax bills in a timely fashion. By reducing delinquency rates, local governments may therefore gain “revenue frequently not available through other means” (Mikesell, 1976, p. 41). The State of Wisconsin provides a good environment to address this question. While some jurisdictions allow (non-escrow) property taxpayers to pay their annual property tax bills in two installments, other municipalities allow more than two installments. Jurisdictions also vary in their utilization of other administrative and collection practices, such as imposing late penalties and issuing reminder notices.

We employ multivariate regression analysis to explain variations across jurisdictions and over time in the property tax delinquency rate. While our regression model includes a number of variables that might explain variations in the delinquency rate, we pay particular attention to the number of allowable installment payments. The study is based on data from a sample of 37 Wisconsin local government jurisdictions for the years 2005 through 2009.

Background

Property tax administration varies greatly both across and within Wisconsin’s 72 counties. Of Wisconsin’s 1,850 municipalities, only about 60 have ordinances allowing multiple (i.e. more than two) installments for real estate taxes (Wisconsin Department of Revenue, 2011).¹ These municipalities are generally larger, with 22 of Wisconsin’s 38 municipalities with populations over 20,000 allowing multiple installments.

The most common procedure followed by Wisconsin counties and municipalities is to allow for two payment installments per year, with at least half of one’s taxes being due on January 31 and the rest due on July 31. However, a municipality or county government may enact an ordinance that allows it to utilize more than two property tax installments per year (Wis. Gen. Law. ch. 74, § 11-12, 2010). If a jurisdiction adopts such a measure, the final installment must still be due on July 31 of the year. Special legislation applies to the City of Milwaukee that allows it to use 10 installments per year, with taxes due at the end of every month from January through October (Olin, 2011).

The literature on the effect of property tax administration and collection procedures on delinquency is limited, and no consensus on the optimal number of payment installments has emerged. Lowell (1976) argued for multiple installments on the grounds that they would be more convenient and would make payment easier for taxpayers. Similarly, Anderson and Dokko’s (2009) study of California, Minnesota, and Maryland concluded that “the payment shock associated with property tax bills accelerates the pace of mortgage delinquency” (p. 55). The results in their 2009 paper and in a 2011 paper indicated that property tax escrow accounts, which break up

¹ Personal property taxes, by contrast, are not allowed to be collected in multiple installments in Wisconsin.

payments into multiple installments, may help reduce delinquency. In a recent examination of the effect of escrow accounts, Cabral and Hoxby (2010) also suggest that breaking property tax payments over multiple installments may make people less opposed to higher tax rates. To the extent that multiple payments administered by local governments mimic the impacts of escrow accounts, these research results indicate that the establishment of multiple payments may help municipalities reduce delinquency rates. A review of the literature on property tax delinquency turned up no empirical studies of the impact of the number of payment installments on the delinquency rate.

Before developing a model of tax delinquency, it is important to understand how jurisdictions in Wisconsin respond to delinquencies. In municipalities with two installments, a property owner who fails to pay at least half of his or her tax bill by February 1st is considered to be delinquent. Delinquent taxpayers immediately forfeit their right to pay in multiple installments. Once being declared delinquent, the taxpayer is liable for the full year's tax. A property owner is also considered to be delinquent if all property taxes are not paid in full within five days of the second installment's due date. If there are more than two installments, a taxpayer becomes delinquent if any installment is not paid in full. Again, the taxpayer must then pay all taxes immediately and the taxpayer remains in delinquent status for the rest of the year. The rules, however, are different in Milwaukee. There, taxpayers who miss one of the 10 installments do not forfeit their right to pay in multiple installments (Klajbor, 2011). Delinquent property taxes are charged an interest rate of 1 percent a month "from the preceding February 1, as opposed to the day on which they become delinquent" (Olin, 2011, p. 14). County governments in Wisconsin are authorized to charge an additional 0.5 percent penalty per month. After two years, the failure to pay a property tax bill can result in forfeiture, with the county authorized to sell the property.

Collection methods for delinquent payments vary across and within Wisconsin counties. Some municipalities collect their own delinquent taxes, while many others give the county this responsibility. If counties are responsible for tax collection, then after the collection period they are required to transfer to municipalities the total amount of the municipal levy (Olin, 2011). Counties, however, can retain the revenue from any penalties charged for late payment. If county governments fail to collect the full amount owed, they are nevertheless still required to pay municipalities in full (Gawenda, 2011).

Methodology

To investigate whether the number of payment installments has an impact on property tax delinquency, we develop an empirical model to explain variations in the delinquency rate in a sample of Wisconsin municipalities over the period from 2005 through 2009. Our regression model has the following form:

(1) $Delinquency\ Rate_{it} = \beta_0 + \beta_1 * Three\ Installments_{it} + \beta_2 * Four\ Installments_{it} + \sum \beta_n X_{it} + u_{it}$
 where *Delinquency Rate* is the share of each year's tax levy that is delinquent, *Three* and *Four Installments* are dummy variables with a value of one for municipalities in year t that collect the property tax using three (or four) installment payments, X is a vector of control variables, and u is a standard, normally distributed error term. In the rest of this section, we describe these variables in more detail.

Dependent Variable

While the Wisconsin Department of Revenue collects data on delinquent taxes after the first installment in two-installment municipalities, they do not collect any data on tax collections from the second installment (July 31st) or any data from multiple installment municipalities. To collect the missing data, we requested property tax data on collections and delinquency rates from local government officials in most of the state's largest municipalities. We were able to obtain the necessary data from 36 municipalities.² In a few cases, one of the five years of data requested was unavailable. Thus, our panel data set contains 180 observations rather than 185 (5 years times 37 jurisdictions).

There is no standard procedure in Wisconsin for the recording and reporting of data on property tax delinquencies.³ As a result, different municipalities calculate delinquency rates at different times. Some municipal governments reported delinquency rates immediately after the July 31 payment deadline, while others calculated delinquency rates after the August settlement process is completed (generally by September 1st), and still other municipalities calculated delinquency rates later in the calendar year. Some treasurers and administrative officials stressed that to make an "apples to apples" comparison between delinquency rates these timing differences needed to be controlled for. Others believed that the difference between delinquency rates calculated after the July 31 payment deadline and the rates calculated after the settlement process in August are negligible. To control for these differences, we include two dummy variables in the regression, one for delinquency rates calculated at the end of August (*September 1st delinquency rates*) and one to reflect delinquency rates calculated later in the year (*After-September 1st delinquency rates*).

In Wisconsin, property tax liabilities are reduced by the application of three separate credits (Runde, 2011). Every property owner's net school mill rate is reduced by the School Levy Credit. The dollar amount by which this credit reduces the tax liability is noted on each tax bill. All owners of "improved" parcels also receive a First Dollar credit, while all homeowners receive a Lottery and Gaming Credit on the property tax due on their primary residence. Both the First Dollar and the Lottery and Gaming credits reduce the amount of the gross tax on each taxpayer's property tax bill. Because the three credits are fully funded by the state, municipalities receive payments from the state government equal to the difference between their gross and net levies (Olin, 2011).

Because the three credits reduce taxpayers' property tax liabilities, it is appropriate to calculate the delinquency rates for each municipality as the total amount of delinquent taxes divided by the **net** general tax levied by the municipality. Unfortunately, some municipalities were only able to provide data on gross levies. As the use of gross levies in calculating delinquency rates would

² Our sample includes the City of Watertown, which is divided between two counties. Because administrative procedures vary across counties, we treat the portions of Watertown in each county as separate jurisdictions. The City of Appleton is also split between two counties, but because less than 2 percent of the city population lives in the portion of the city located in Winnebago County, we exclude that portion from our sample.

³ Some municipalities include special charges as part of their property levy, while other municipalities report these charges separately. Because special charges are included in the total levy as well as in any delinquent amounts, this reporting inconsistency should not bias the calculated delinquency rates.

bias the rate downward, we created a dummy variable to control for municipalities that provided data on gross levies.

Independent Variables

To help control for various factors that might have an impact on delinquency rates, we collected information on a variety of independent variables for Wisconsin's municipalities. Some of these measures (e.g. poverty rates, unemployment rates, and the FHFA Housing Price Index) were not available for smaller municipalities. In these instances county or metropolitan statistical area data were used.

For the purposes of this study, the most important independent variables are related to the number of payment installments. Most Wisconsin municipalities allow only two installment payments. We include a dummy variable for municipalities that allow three installments and another dummy variable for those that allow four installments. We also explored the potential impact of two other administrative actions that might influence delinquency rates. The distribution of reminder notices prior to installment due dates may reduce the delinquency rate, and the imposition of a 0.5 percent penalty rate for delinquent taxes might result in a lower delinquency rate. We include dummy variables to indicate municipalities that send reminder notices or charge penalties. A recent regression-based analysis of the payment pattern of municipal fees in Milwaukee found that sending reminder notices and charging higher penalties for late payment led to lower delinquency rates (Berger, et al., 2011).

In addition to these administrative variables, property tax delinquency may be influenced by various demographic and socio-economic characteristics of local jurisdictions. Population size might influence delinquency rates. Populations in our sample of municipalities range from about 9,000 to 585,000, with the median population equal to 16,200. It is not clear *a priori* whether there exists a systematic relationship between population size and property tax delinquency rates. One hypothesis is that larger size jurisdictions have more resources to devote to property tax administration and collection and as a result may have lower delinquency rates. Population data were taken from the Wisconsin Department of Revenue's Municipal and County Finance Forms (Various years).

Milwaukee is Wisconsin's largest city and it has a population considerably more than double that of the second largest jurisdiction, Madison. Milwaukee differs from other municipalities in Wisconsin in ways other than population size. It is the only municipality that allows payment of annual property tax bills in 10 installments. Compared to most other municipalities, Milwaukee also has a large number of abandoned parcels as well as heavy concentrations of low-income and minority households. To capture this unique set of characteristics of the city, we have included a Milwaukee dummy variable.

One reason why many taxpayers may fail to meet deadlines for paying property tax installments is that they do not have access to the necessary funds. The reasons why these households are liquidity constrained may be due to temporary economic setbacks such as the loss of a job or the onset of illness. The absence of required funds may also be attributable to the combination of low incomes and the existence of other unavoidable expenditures. In our estimation of equation

(1), we include three variables as indicators of economic hardship: the official poverty rate, the rate of unemployment, and the share of homeowners who are making mortgage interest payments. We hypothesize that higher rates of poverty and unemployment may result in higher rates of property tax delinquency. For larger municipalities, data on annual poverty rates are available from the Census Bureau's American Community Survey (U.S. Census Bureau, 2010). For some smaller municipalities, poverty rate data were available only as five-year averages. For very small municipalities that were not included in the Census Bureau survey, data on county-level poverty rates were used instead. Municipal unemployment rates were compiled from the Wisconsin Department of Workforce Development's (2011) WORKnet online database. Finally, we include data for each municipality on the share of homeowners in each municipality who make mortgage interest payments. These data come from an analysis by the Wisconsin Department of Revenue of all federal and state income tax returns filed by Wisconsin residence. Our hypothesis is that homeowners facing both mortgage interest and property tax payments are more likely to be liquidity constrained than homeowners who have complete equity in their homes.

The strength of the housing market in each municipality may also influence property tax delinquency rates. Reduced housing prices make it more difficult for homeowners to obtain credit to meet current financial obligations, including property tax liabilities. As one measure of local housing markets, we calculate the four-quarter percentage changes in housing prices using the repeat-sale Housing Price Index produced by the Federal Housing Finance Agency (2011). We also explore the direct relationship between the rate of housing foreclosures and property tax delinquency. Our assumption is that communities with higher frequency of foreclosures are more likely to have a higher rate of tax delinquencies. Unfortunately, we were only able to obtain foreclosure data for a single month (April 2011). These data, provided by RealtyTrac (2011), capture differences across municipalities in the frequency of foreclosures and provide an indication of communities with especially weak housing markets.

Table 1 provides summary statistics for all the variables used in the analysis. While the average property tax delinquency rate is approximately 2.5 percent, the rates range from about zero to 12.1 percent. Of the 37 municipalities in our sample, 12 allow the payment of property taxes in three installments and 7 provide for four installments. Late payment penalties are utilized in 26 jurisdictions and reminder notices are sent in 25 municipalities.

Results

The results from estimating equation (1) are presented in Table 2. The ordinary least squares regression is estimated with robust standard errors and is based on data from 37 Wisconsin municipalities for the year 2005 through 2009. As described above, the dependent variable is the property tax delinquency rate. Before turning to the results related to the number of installment payments allowed, we review results related to the control variables.

Most of the control variables are statistically significant with the expected signs. Delinquency rates are lower for larger municipalities, which is consistent with our hypothesis that there are scale economies in property tax administration that allow larger municipalities to increase their property tax collection rates. The positive sign on the Milwaukee dummy suggests that characteristics of Wisconsin's largest city, such as a poor quality housing stock, including a substantial

number of abandoned housing units and a large number of absentee landlords, contribute to a higher property tax delinquency rate in the city. These factors apparently outweigh the administrative scale economies that the city benefits from.

Weaker local economic conditions, as measured by both the local poverty and unemployment rates, are associated with higher delinquency rates. Municipalities in which a higher proportion of homeowners must make both regular mortgage interest and property tax payments have significantly higher property tax delinquency rates. As expected, a weaker local housing market, as measured by smaller increases in housing prices (or declining prices) and higher foreclosure rates, is associated with higher rates of property tax delinquency.

The last three independent variables in Table 2 are included to account for variations across municipalities in the procedures used for calculating property tax delinquency rates. We found no statistically significant difference between municipalities that calculated delinquency rates based on property tax levies measured gross or net of property tax credits. For reasons that are not entirely clear, delinquency rates calibrated as part of the September 1st settlement process appear to be significantly higher than rates calculated immediately after the final property tax payment deadline (on July 31st). However, if delinquency rates aren't calculated until later in the fall (after September 1st), we find that the rates are significantly lower.

In Wisconsin, as elsewhere, the procedure followed by most jurisdictions is to require that taxpayers meet their annual property tax liability in one or two installments. The goal of this paper is to determine whether allowing property taxpayers to make more frequent, but smaller, payments, either three or four per year, will result in lower rates of property tax delinquency. Our regression results indicate that a three-installment regime results in statistically significant lower delinquency rates. The point estimate suggests that adding a third installment payment will reduce the delinquency rate by 1.12 percentage points. As the average delinquency rate in our sample of municipalities is about 2.5 percent, the move to three installments would reduce the delinquency rate by nearly half.

Our results also indicate that the addition of a fourth annual installment will have no statistically significant impact on lowering the delinquency rate. Although we tried a number of alternate specifications, the coefficient on a fourth installment payment was never close to being statistically significant.

The regression also allowed us to explore whether alternative administrative procedures have an impact on delinquency rates. Our results show that neither sending reminder notices to taxpayers prior to their due dates nor charging a penalty for late payments has a statistically significant effect on property tax delinquency. If a major reason why taxpayers are delinquent is a liquidity constraint, it is not surprising that a late-payment penalty doesn't reduce delinquencies, especially when the penalty rate is limited to one-half of one percent per month.

Conclusions

The near-collapse of global financial markets, the most severe recession since the Depression, the precipitous drop in housing prices, and the dramatic rise in foreclosures have created im-

mense fiscal challenges for many of the nation's local governments. In response to the economic crisis, most state governments instituted cuts in their grants to local governments. The growing federal debt problem and the battle over raising the debt ceiling have resulted in large cuts in federal transfers to local governments and the prospects of increasingly large grant reductions over the next decade. The property tax, however, has remained the mainstay of local government finance in the United States. Despite the important role it plays in local government finance, since its peak in the fourth quarter of 2009, real per capita local government property tax revenues in the U.S. have fallen by 7.2 percent.⁴ These fiscal realities place renewed pressure on local government officials to aggressively pursue policies to both deliver public services more efficiently and to maximize revenues from existing sources.

In this paper, we have explored the question of whether a small administrative change in the way property taxes are collected, namely increasing the number of payment installments, can reduce the proportion of property taxes that are delinquent. Based on an empirical study of property tax administration in Wisconsin, we conclude that a move from two to three payment installments per year results in a large reduction in the rate of property tax delinquency.

⁴ The reduction in property tax revenues was calculated using data from the U.S. Census Bureau's (2012) *Quarterly Summary of State and Local Government Tax Revenue*.

Table 1
Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Property tax delinquency rate	2.513%	1.90%	0.004%	12.084%
Three installments	0.350	0.478	0	1
Four installments	0.183	0.388	0	1
Late payment penalty	0.650	0.478	0	1
Reminder notices	0.550	0.499	0	1
Population (in thousands)	53.69	98.17	8.57	592.77
Milwaukee	0.028	0.165	0	1
Poverty rate	10.27%	5.41%	2.58%	26.21%
Unemployment rate	5.59%	2.25%	3.20%	17.80%
Percent homeowners with mortgage interest payments	72.9%	4.9%	61.5%	84.1%
Percentage change in Housing Price Index	1.65%	3.73%	-3.75%	9.41%
Foreclosure rate (April 2011)	0.19%	0.07%	0.03%	0.35%
Net property tax levy	0.583	0.494	0	1
September 1st delinquency rates	0.294	0.457	0	1
After September 1st delinquency rates	0.322	0.468	0	1

Note: Number of observations = 180

Table 2

**Regression Results: Property Tax Delinquency Rates
Wisconsin Municipalities, 2005-2009**

Variable	Coefficients	Robust Standard Errors
Three installments	-1.115 **	0.528
Four installments	-0.283	0.425
Late payment penalty	-0.076	0.423
Reminder notices	0.040	0.485
Population (in thousands)	-0.010 ***	0.003
Milwaukee	4.644 **	1.943
Poverty rate	0.125 ***	0.338
Unemployment rate	0.071 *	0.041
Percent homeowners with mortgage interest payments	9.356 ***	2.958
Percentage change in Housing Price Index	-6.447 **	2.694
Foreclosure rate (April 2011)	5.455 ***	1.972
Net property tax levy	0.458	0.452
September 1st delinquency rates	1.326 **	0.642
After September 1st delinquency rates	-0.681 *	0.341
Number of observations = 180		
Adjusted R ² = 0.627		
* p<0.1, ** p<0.05, *** p<0.01		

References

- Anderson, Nathan B. and Dokko, Jane K. 2009. Mortgage Delinquency and Property Taxes. *State Tax Notes* 52(1), 49-57.
- Anderson, Nathan B., and Jane K. Dokko. 2011. "Liquidity Problems and Early Payment Default among Subprime Mortgages," Finance and Economics Discussion Series 2011-09. Board of Governors of the Federal Reserve System (U.S.).
- Berger, Melissa, Stephen Collins, Patrick Fuchs, Emily Ley, and Lara Rosen. 2011. City of Milwaukee: The Collection of Municipal Fees. Madison, WI: La Follette School of Public Affairs, University of Wisconsin-Madison. Retrieved from <http://www.lafollette.wisc.edu/publications/workshops/2011/fees.pdf>
- Cabral, Marika and Caroline Hoxby. 2010. The Hated Property Tax: Salience, Tax Rates, and Tax Revolts. Stanford University Working Paper. Retrieved from http://www.stanford.edu/~mcabral/Tax_Salience.pdf
- Federal Housing Finance Agency. 2011a. City HPI Data. Retrieved from <http://www.fhfa.gov/Default.aspx?Page=14>
- Federal Housing Finance Agency. 2011b. State HPI Data. Retrieved from <http://www.fhfa.gov/Default.aspx?Page=215>
- Gawenda, David. 2011. Personal communication with the City Treasurer of the City of Madison, WI, June 10.
- Klajbor, Jim (2011). Personal communication with the Special Deputy City Treasurer of the City of Milwaukee, WI, July 1.
- Lowell, C. (1974). Property Taxation: What's Good and What's Bad about It. *American Journal of Economics and Sociology* 33(1): 89-102.
- Mikesell, John L. 1976. "Property Market Dynamics, Local Economies, and Tax Delinquency," *State & Local Government Review* 8(2): 41-45.
- Olin, Rick. 2011. *Property Tax Administration*, Wisconsin Legislative Fiscal Bureau Informational Paper, no. 14, January. Retrieved from http://legis.wisconsin.gov/lfb/Informationalpapers/14_Property%20Tax%20Administration.pdf
- RealtyTrac. 2011. "Foreclosure Trends". Retrieved from realtytrac.com
- Runde, Al. 2011. *State Property Tax Credits*, Wisconsin Legislative Fiscal Bureau, Informational Paper, no. 21, January. Retrieved from http://legis.wisconsin.gov/lfb/Informationalpapers/21_State%20Property%20Tax%20Credits.pdf

U.S. Federal Housing Administration. (2011). FHA Loan Closing Costs. Retrieved from http://www.fha-home-loans.com/closing_costs_of_fha_loans.htm

U. S. Census Bureau, American Community Survey. 2010. "2005-2009 American Community Survey 5-Year Estimates," Washington, DC: U.S. Census Bureau. Retrieved from http://factfinder.census.gov/servlet/DatasetMainPageServlet?_program=ACS

U.S. Census Bureau. 2011. "2009 Annual Surveys of State and Local Government Finances," Washington, DC: U.S. Census Bureau. Retrieved from <http://www.census.gov/govs/estimate/index.html>

Wisconsin Department of Revenue. Various years. [year] Municipal and County Finance Forms: Revenues/As audited through end of 15 December [year +1]. Excel file.

Wisconsin Department of Revenue. (2011). Property Taxes: Municipalities Using an Optional Multiple Installment Plan. Excel file.

Wisconsin Department of Workforce Development. 2011. WORKnet Local Area Unemployment Statistics (LAUS) Search. Retrieved from <http://worknet.wisconsin.gov/worknet/dalaus.aspx?menuselection=da>

Wisconsin Legislative Reference Bureau. 2011. 2009-10 Wisconsin Statutes & Annotations Chapter 24: Property Tax Collection. Retrieved from <http://legis.wisconsin.gov/statutes/2009/09Stat0074.pdf>

Wisconsin State Legislature. 2006. 2005 Wisconsin Act 349. Retrieved from <http://legis.wisconsin.gov/2005/data/acts/05Act349.pdf>.

Wisconsin State Legislature. 2011. 2011 Wisconsin Act 32. Enacted June 26. Retrieved from <https://docs.legis.wisconsin.gov/2011/related/acts/32>.

Appendix A: Table of Municipalities Providing Data

The following table lists the municipalities participating in this study, with some simple descriptive statistics for each.

Table A.1: Participating Municipalities

Municipality	County	2009 Population	Number of Installments	Late-Payment Penalty	Reminder Notices
Appleton	Outagamie	60,200	3	No	No
Ashwaubenon	Brown	17,820	2	Yes	Yes
Beloit	Rock	37,000	4	Yes	Yes
Brookfield	Waukesha	39,600	2	Yes	Yes
Cedarburg	Ozaukee	11,440	2	Yes	Yes
De Pere	Brown	22,780	2	Yes	Yes
Fitchburg	Dane	23,520	2	Yes	Yes
Franklin	Milwaukee	21,250	3	Yes	No
Germantown	Washington	19,930	2	Yes	No
Grand Chute	Outagamie	20,550	2	No	Yes
Green Bay	Brown	103,500	2	Yes	Yes
Greenfield	Milwaukee	36,300	3	Yes	No
Janesville	Rock	63,500	2	Yes	Yes
Madison	Dane	227,700	2	Yes	Yes
Manitowoc	Manitowoc	34,700	4	No	Yes
Marshfield	Wood	18,750	2	No	Yes
Menasha	Winnebago	17,437	4	No	Yes
Menomonee Falls	Waukesha	34,600	2	Yes	Yes
Mequon	Ozaukee	23,660	2	Yes	Yes
Milwaukee	Milwaukee	584,000	10	Yes	Yes
Muskego	Waukesha	23,100	3	Yes	Yes
Neenah	Winnebago	25,800	4	No	Yes
New Berlin	Waukesha	39,300	3	Yes	Yes
Oak Creek	Milwaukee	32,600	4	Yes	No
Oshkosh	Winnebago	65,900	4	No	Yes
Port Washington	Ozaukee	11,200	2	Yes	Yes
South Milwaukee	Milwaukee	21,250	3	Yes	No
Stevens Point	Portage	26,200	2	Yes	Yes
Sun Prairie	Dane	26,100	2	Yes	Yes
Superior	Douglas	27,100	2	No	No
		2009	Number of	Late-Payment	Reminder

Municipality	County	Population	Installments	Penalty	Notices
Two Rivers	Manitowoc	12,570	3	No	Yes
Watertown	Jefferson	14,580	3	No	No
Watertown	Dodge	8,585	3	No	No
Waukesha	Waukesha	68,800	3	Yes	Yes
Wauwatosa	Milwaukee	45,800	3	Yes	No
West Allis	Milwaukee	60,600	3	Yes	No
West Bend	Washington	30,400	4	Yes	No