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PILOTs: What Are They and Are They Affected by Institutional and/or Economic Constraints? The Case of Wisconsin Municipalities

Craig S. Maher – University of Nebraska-Omaha

Ji Hyung Park – James Madison University

Bit An – University of Nebraska-Omaha

Following the rise of tax and expenditure limitations in the 1970s, scholars have focused on assessing the effects of these limitations on local government fiscal outcomes. One key takeaway has been local governments' decreasing reliance on property taxes and increased use of nontax revenue sources, in particular fees and charges. This study builds on this work by focusing on a particular type of fee—that is, payments in lieu of taxes (PILOTs). We find that, in Wisconsin, revenues received by municipalities from two PILOTs programs are affected quite differently. The extent to which the economy, municipal fiscal condition, tax and expenditure limits, and community characteristics affect PILOTs' revenues depends on the extent to which the municipality can manipulate the payment structure.

Keywords: Tax and Expenditure Limitations (TEs), Payments in Lieu of Taxes (PILOTs), Local Government Finance

Introduction

When compared with recent economic recessions, local governments in the United States (US) faced unprecedented financial difficulties during the Great Recession. Not only did local financial difficulties occur due to diminished sales and income tax bases from the collapse of US stock market prices, but also the deep housing bubble bust affected tax bases and property tax collections critical to most local governments (Grusky, Western, & Wimer, 2011). Further, the US foreclosure rate more than quadrupled from 2008 to 2009 (MBA, 2010); and, according to the Bureau of Labor Statistics (BLS, 2012) the US unemployment rate jumped from 4.4% to 10.1% in 2009. At the same time, federal and state governments cut intergovernmental revenues and grants for ongoing public service programs during the Great Recession. Citizens' opposition to tax policies to overcome resource scarcity further exacerbated local fiscal challenges (Martin,

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Levey, & Cawley, 2012). Not surprisingly, these unprecedented economic circumstances made it difficult for many localities to maintain public services.

A recent study found that in the nearly 300 local governments examined in Pennsylvania, California, and Michigan between 2007 and 2012, more than 30% experienced some form of fiscal distress (Gorina, Maher, & Joffe, 2017). Consequently, these fiscal difficulties forced local government officials to reduce their reliance on major taxes and intergovernmental aid (Plerhoples & Scorsone, 2012). According to Gorina and colleagues (2017), one of the more frequently identified indicators of fiscal distress was an “unusual tax rate or fee increase.” Consistent with the theme of local governments seeking alternative revenue sources during periods of fiscal distress, we focus on the less studied fee: payments in lieu of taxes (PILOTs). While considered to be an important fiscal strategy for maintaining a stable fiscal structure (Mayhew & Waymire, 2015), the relevance of PILOTs in the public finance literature remains underexplored.

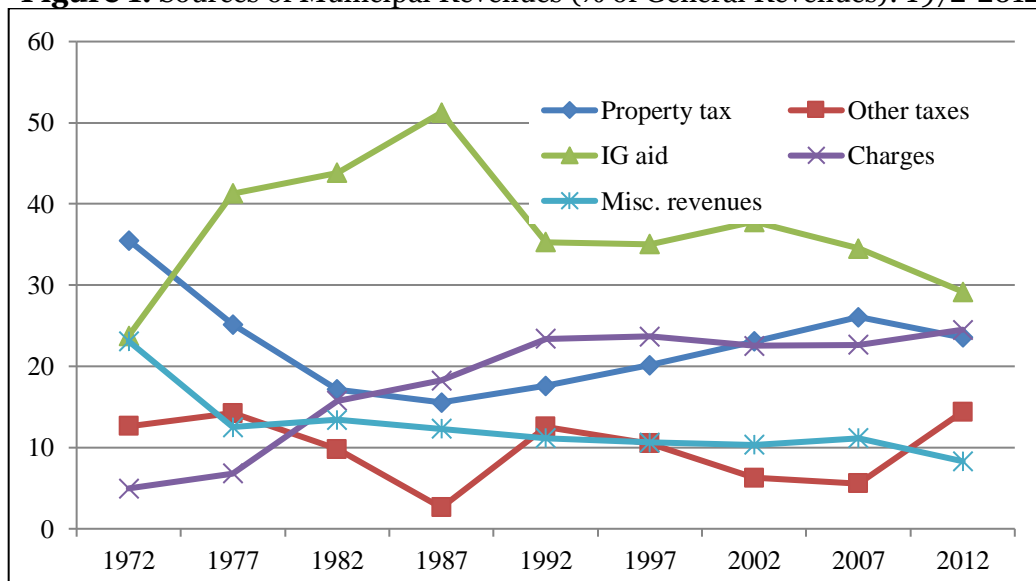
Fiscal environments and institutions are the driving forces behind fiscal choices of decision-makers (Hendrick, 2011). Studies show that budget decision-makers are motivated to diversify revenue structures for a number of reasons, including severe fiscal circumstances caused by economic shocks (Chaney, Copley, & Stone, 2002), community economic conditions (Garcia-Sanchez, Mordan, & Prado-Lorenzo, 2012), and institutional constraints such as tax and expenditure limitations (TEs) (Stallmann, Maher, Deller, & Park, 2017). Drawing on this framework, we develop a theoretical model to examine variation in PILOTs across Wisconsin municipalities. Panel data from 1997 to 2010 were collected to empirically test how fiscal environments and institutions affect PILOTs in Wisconsin municipalities. The period is useful because it captures two recessions (2001–2002 and 2007–2010) and the state’s imposition of two types of fiscal constraints on municipalities. In the following sections, we introduce the topic of PILOTs, both, in general and within Wisconsin specifically. This is followed by our methodology and findings. In the last section we offer a discussion and our concluding remarks.

PILOTs as a Source of Local Revenue

Since the early 1970s, municipalities have become less reliant on property taxes and more reliant on fees/charges for services (see Figure 1). This shift coincides with growing resentment toward property tax and subsequent state efforts to limit their growth (e.g., California’s Proposition 13, Colorado’s Taxpayer Bill of Rights, Michigan’s Headlee Amendment, Massachusetts’ Proposition 2½, and Missouri’s Hancock Amendment). The subsequent increase in nontax revenue sources during this period is consistent with the assertion that citizens tend to perceive fees and charges positively in terms of the fulfillment of tax equity (Bartle, 1996). What is less understood is the particular types of fees and charges upon which local governments are becoming increasingly reliant.

One nontax revenue source that has recently received attention is PILOTs (Mayhew & Waymire, 2015; Fei, Hines, & Horwitz, 2016). PILOTs are intended to compensate communities for lost property taxes due to the tax-exempt status of the land/property (Kenyon & Langely, 2010). The three most common types of PILOTs are federal, utility, and nonprofit. The federal government (more specifically the U.S. Department of the Interior) makes PILOTs to communities to help cover the costs of providing services on tax-exempt federal lands.¹ The second type of PILOTs is from public or privately operated utilities (to be discussed below), and the third is from nonprofits that receive federal 501(c)(3) status. The latter type has recently received attention from scholars who are interested in the unique nature of the payment (see Longoria, 2014;

Figure 1. Sources of Municipal Revenues (% of General Revenues): 1972-2012



Source: US Census Bureau, Annual Survey of State and Local Finance (2016).

Kenyon & Langley, 2010; Lipman, 2006; Swords, 2002). These PILOTs are “voluntary payments made by tax exempt nonprofits as a substitute for property taxes” (Kenyon & Langley, 2011, p. 171). The rationale for the nonprofit tax exemption falls along the lines that a) property taxes are based on private ownership and since nonprofits were established to benefit the public, these organizations should not be part of the tax base (Swords, 2002), and b) applying quid-pro-quo theory, nonprofits provide services that reduce public costs and, as such, are entitled to a subsidy (Kenyon & Langely, 2010). A counterargument to the quid-pro-quo theory is that there is a disconnect between the size of the exemption which is based on land value and the level of services provided to society by the nonprofit (Bowman, Cordes, & Matcalf, 2009). Similarly, Kenyon and Langely (2010) describe a geographical mismatch between the exemption and benefits received. Benefits provided by nonprofits spill out throughout a metropolitan area, state, and even nation(s), yet the exemption is concentrated in the municipality (Kenyon & Langely, 2010, p. 11).

The role of tax exemptions in general and PILOTs in particular has received increased scrutiny, as fiscal pressures on local governments have increased (Kenyon & Langely, 2011). Interestingly, similar pressure has also come from the for-profit sector, which sees the exemptions as a competitive advantage, especially for hospitals (Brody, Hammer, Henkel, Matheny, Morse, & McPerson, 2007). The benefits to nonprofits are substantial. In one of the few studies to measure the size of tax subsidies to nonprofits, Sherlock and Gravelle (2009) put the 2008–2009 amount between \$31 billion and \$48 billion. While the bulk of the subsidy was in the form of property tax exemptions (\$17–\$33 billion), other tax subsidies included exemptions from investment income (\$7–\$9 billion), individual (\$3.2 billion) and corporate (\$0.4 billion) charitable contributions, inheritance tax (\$0.1 billion), and sales exemptions (\$3.3 billion). At the state level, the impact of the tax loss due to nonprofit exemptions ranges from 1.5%–10%; however, given that nonprofits tend to be concentrated in urban areas, the impact on cities can be more substantial (Lipman, 2006; Kenyon & Langley, 2010). According to Lipman’s (2006) analysis of the 20 largest cities, the estimated value of exempt properties owned by nonprofits as a percentage of total property value ranged from a high of 10% in Philadelphia, PA, to a low of 1.9% in both El Paso, TX and Memphis, TN.

The existing research on nonprofit PILOTs focuses on those organizations that are registered with the Internal Revenue Service and file Form 990. This approach seems to downplay the breadth of these programs, at least as they relate to Wisconsin. In 2013, 507 (26.4%) of the state's municipalities reported receiving PILOTs, yet Kenyon and Langley (2010) report no PILOTs in the state. In fact, Wisconsin has two types of PILOTs programs that affect municipalities: utility PILOTs and PILOTs associated with nonprofit tax-exempt entities such as hospitals, government buildings and grounds, Native American-run casinos, places of worship, etc. Consistent with the literature on fees, one of those areas receiving attention is tax-exempt property.

In Wisconsin, a state where municipalities operate under strict levy limits and there are limited revenue options (e.g., no sales tax) and declining intergovernmental aid, the pursuit of alternative revenue options has persisted. According to a 2010 survey conducted by Maher, Deller, and Kovari (2011), 68% of local officials were seeking increasing revenues from user fees and charges. Only the pursuit of grants (91%) received a higher response. In 2014, it was determined that there were 1,115 tax exemption filers in Wisconsin, and the total exempt valuation equaled \$20.7 billion (State of Wisconsin, 2015). The exemptions were highest for religious institutions (\$8.5 billion in estimated property value), followed by housing (\$3.1 billion), education (\$3 billion), and medical facilities (\$2.9 billion).

The magnitude of exempt properties and the associated property tax losses have not been forgotten by Wisconsin municipalities. For example, communities are pushing the boundaries in determining what is/is not tax-exempt property. The City of Wauwatosa, WI recently tried to force an outpatient clinic to pay property taxes despite its affiliation with a tax-exempt hospital.² The case went to the Wisconsin Supreme Court, where the city lost and was forced to repay \$3.5 million on collected property taxes to Wheaton Franciscan Healthcare. The lobbying arm for municipalities—the League of Wisconsin Municipalities—has also conducted workshops on how to collect PILOTs (League of Wisconsin Municipalities, 2005).

Milwaukee, WI generates the most from nonprofit PILOTs (approximately \$1.3 million in FY 2016).³ The city's program, called Fair Share, is modeled after the most successful PILOTs program in the US (located in Boston, MA). The Fair Share program consists of city officials contacting each property owner who requests property tax exemption about making voluntary PILOTs. The city goes through the process of generating the estimated value of the tax-exempt property and determining a payment amount based on the tax rates for the municipality, county, school district, technical college, and sewerage district. Given the amount generated—\$1.3 million out of a \$635 million general fund budget—the program does not come close to Boston's PILOTs program (Kenyon & Langley, 2010).

The most prominent PILOTs program in Wisconsin is municipal utilities. In Wisconsin, municipally owned water and electric utilities are subject to a property tax payment in lieu of taxes. Interestingly, the agency overseeing public utilities, the Public Service Commission (PSC), has been investigating the role of PILOTs for these utilities as they "...have become a substantial portion of the revenue requirements for municipal water utilities" (Public Service Commission, 2013, p. 1). While utility PILOTs were established in 1918, their current form has existed since 1955 (Public Service Commission, 2013). Between 1955 and 1985, a clear division in the taxation was established i.e., all privately owned utilities pay a gross receipts tax, and all municipally owned utilities can be charged a fee at the discretion of the local government (Public Service Commission, 2013). Utility PILOTs are capped "...by applying the local and school tax rates for the calendar year to the gross book value for the calendar year plus materials and supplies multiplied by the assessed ratio for the municipality involved" (Public Service Commission, 2013, p. 3). Based on the PSC analysis, if municipally owned utilities paid a gross-receipts tax as

do privately owned utilities, water utilities would have paid \$19.1 million in 2011, compared with the \$92.9 million actually paid in 2011 (Public Service Commission, 2013).

The PSC analysis identified several additional relevant pieces of information. First, while utility PILOTs were established to reimburse local governments for services rendered, there is no evidence to suggest that these payments went to any other entity than municipalities. School districts and counties have not received any utility PILOTs payments despite the fact that school district tax rates are included in the PILOTs' calculation. Second, when the PSC forwarded its analysis to stakeholders for input, the responses were consistent with the expectations of our research question. That is, local governments are increasingly reliant on these revenues following state-imposed TELs and oppose any change that would cut the revenue source. Local officials and the League of Wisconsin Municipalities (the lobbying arm for WI municipalities) focused their responses on current fiscal pressures faced by local governments under tax limits and the need to retain current revenues from utility PILOTs. According to Racine, WI Mayor John Dickert:

In the 2011–13 budgets, municipalities saw extensive reductions in shared revenue, transportation aids, recycling funds, and road aids. Cities were forced to dramatically reduce everything from parks, libraries, community centers and basic services like Police and Fire protection...reductions to municipal utility PILOTs payments will no doubt force increases to property taxes on homeowners, requiring homeowners to pick up a greater share of the services we provide to utilities. (Public Service Commission, 2013, appendix, p. 6)

This quote is consistent with League of Wisconsin Municipalities response to the PCS:

Municipal utility PILOTs should not be analyzed exclusively from the narrow perspective of their impact on utility rates... Municipalities took a \$100 million hit in the 2011–13 state budget...Most municipalities would be unable to make-up any loss of municipal utility PILOTs by increasing property taxes because of state-imposed limits. In an era of strict property tax levy limits, any further attempt to cut non-property tax revenue sources will have direct service impacts on most communities. (Public Service Commission, 2013, appendix, p. 4)

Using Wisconsin municipalities as a case study, we have an opportunity to explore the relationship between fiscal pressures caused by the Great Recession and state-imposed TELs on PILOTs receipts. The analysis is based on theoretically relevant literature while offering the opportunity to expand our understanding of an understudied revenue source—PILOTs. In this study, we specifically address the following hypotheses:

H₁: Municipalities with severe economic circumstances tend to have a larger scale of utility PILOTs.

H₂: Municipalities with severe economic circumstances tend to have a larger scale of nonprofit PILOTs.

H₃: Municipalities with the restrictiveness of TELs tend to have a larger scale of utility PILOTs.

H₄: Municipalities with the higher level of public demands tend to have a larger scale of nonprofit PILOTs

Methodology

Data and Sample

To test the hypotheses, we use Wisconsin's municipal finance data from 1997 to 2010.⁴ This period covers changes in institutional constraints and two recessions, allowing us to capture variation in institutional and economic events. Information on Tax and Expenditure Limitations (TELS) was obtained from the Wisconsin Legislative Fiscal Bureau.⁵ Demographic and socioeconomic information was collected from the American Community Survey (ACS). The information includes measures of community characteristics, population, aging population, education, income, family poverty, and unemployment rate. We combined the Wisconsin Financial Database with the ACS data in order to build the empirical models. The balanced dataset is used to control for possible biased results from the heterogeneity of cross-sectional units (Baltagi, 2008).

In this study, we develop two types of empirical models: utility PILOTs and nonprofit PILOTs. The dataset in both models covers 14 years of Wisconsin's incorporated municipalities—132 cities and 140 villages that use PILOTs. In the utility model, the sample size is 3,808 including 1,848 cities and 1,960 villages that received PILOTs payments during the study period, while the nonprofit model sample size is 1,232 which includes 756 cities and 476 villages. According to 2010 census figures, the selected sample in the utility model over-represents cities (49% in sample vs. 32% in population) and under-represents villages (51% vs. 68%). In the nonprofit model, cities in selected samples also are over-represented (61% in sample) and villages (39%) are under-represented. However, normally larger nonprofit sectors are more often located in cities than villages. Fei, Hines Jr., and Horwitz (2016) argue that municipalities receiving PILOTs from nonprofits tend to be urban, heavily populated, and have populations that are more diverse.

Model Specification and Variables

For this study, we ran fixed effects regressions to examine the effects of economic circumstances, including community financial environment and fiscal institutions on per capita utility PILOTs. Due to their different structures, we constructed different models for the two types of PILOTs in Wisconsin. The fixed effects regression model is employed to consider unobserved control variables that vary across municipalities and unchangeable control variables over time (Stock & Watson, 2012). The random effects model is used when the variation across entities is assumed to be random and uncorrelated with independent variables included in the nonprofit PILOTs model. The empirical models are expressed as follows:

$$\text{Utility PILOTs}_{it} = \alpha + \beta_1 \text{Economic circumstances}_{it} + \beta_2 \text{Fiscal institutions}_{it} + \beta_3 \text{Utility PILOTs}_{it-1} + X_{it} + a_i + d_t + \mu_{it} \quad (1)$$

$$\text{Nonprofit PILOTs}_{it} = \alpha + \beta_1 \text{Economic circumstances}_{it} + \beta_2 \text{Public demands}_{it} + \beta_3 \text{Nonprofit PILOTs}_{it-1} + X_{it} + a_i + \mu_{it} + \varepsilon_{it} \quad (2)$$

where, in the utility model, *Utility PILOTs*_{it} is per capita utility PILOTs revenues for municipal government *i* during year *t*; *Economic circumstances*_{it} involve economic recession years, assessed value, median household income, family poverty, unemployment rate, and aging population rate in municipal government *i* during year *t*; *Fiscal institutions*_{it} are the restrictiveness of TELs in municipal government *i* during year *t*; *Utility PILOTs*_{it-1} is per capita utility PILOTs revenues in year *t-1*. *X*_{it} are control variables composed of general obligation (GO) debt, a ratio of revenues to expenditures, intergovernmental revenues, population, and education levels in municipal government *i* during year *t*; *a*_i and *d*_t are fixed effects for municipalities and year, respectively; μ_{it} is the error term. In the nonprofit model, *nonprofits PILOTs*_{it} is per capita nonprofit PILOTs revenues for municipal government *i* during year *t*; *Economic circumstances*_{it} involve economic recession years in municipal government *i* during year *t*; *Public demands*_{it} are community characteristics (i.e., population, income level, non-white population, aging population, education, family poverty, and unemployment rate); *Nonprofit PILOTs*_{it-1} is per capita nonprofit PILOTs revenues in year *t-1*. *X*_{it} includes control variables composed of GO debt, property tax rate, and ratio of revenues to expenditures in municipal government *i* during year *t*; *a*_i and μ_t are between-entity error; μ_{it} is within-entity error.

The dependent variables are per capita utility and per capita nonprofit PILOTs receipts.⁶ There are two approaches to measure these data per capita and the proportion of non-tax sources in total revenues (Carroll, 2009; Schunk & Woodward, 2005; Suyderhoud, 1994). The proportion of non-tax policies has been employed when considering cross-sectional municipalities with different taxing authorities that produce variation in revenue diversification (Carroll, 2009). Because we are conducting a within-state analysis where there is no variation in taxing authority, we use the per capita PILOTs measure.

We employ dummies during economic recessions to capture periods of fiscal strain. Declining stock market prices and housing values can lead to fiscal difficulties for citizens and local governments (Grusky et al., 2011). Thus, the first key independent variable is an array of economic recession periods during 2001–2002 and 2007–2010. We expect the economic recessions to be positively associated with PILOTs. Community characteristics consist of assessed valuation, income, family poverty, unemployment, and aging population. Higher assessed values are typically associated with greater tax burdens (Ladd & Yinger, 1989); thus, citizens in high-valued communities should be supportive of non-tax policies including PILOTs. To capture ability to pay, we include median household income, family poverty, and the unemployment rate. Communities with less wealth tend to have less fiscal capacity and, thus, prefer to support the expansion of non-tax policies to achieve tax equity (Lile & Soule, 1969). We should expect, therefore, to find median household income negatively associated with PILOTs, family poverty, and unemployment rate positively associated with PILOTs. It is further argued that the larger the municipality's aged population, the greater the support to expand user charges and fees (Jimenez, 2014).

To measure the effects of fiscal institutions, this study uses dummy variables to capture TELs that can constrain municipal fiscal decisions. It has been argued that these institutions impose limits on fiscal discretion to levy taxes, thereby increasing local government's reliance on non-tax revenues (Carroll & Johnson, 2010; Blom-Hanse, Bækgaard, & Serritzlew, 2014; Stallmann et al., 2017). According to the Wisconsin Legislative Fiscal Bureau (2013), the State of Wisconsin imposed two limits during the study period. In the form of a fiscal "carrot," The Expenditure Restraint Program adopted in 2003 offered a fiscal incentive to municipalities that limited annual growth in general-purpose expenditures (roughly 2%). The state appropriated just over \$58 million to be divided between qualifying municipalities (the amount has not changed since adoption). The second TEL, adopted in 2005–2006, is much more stringent and, essentially,

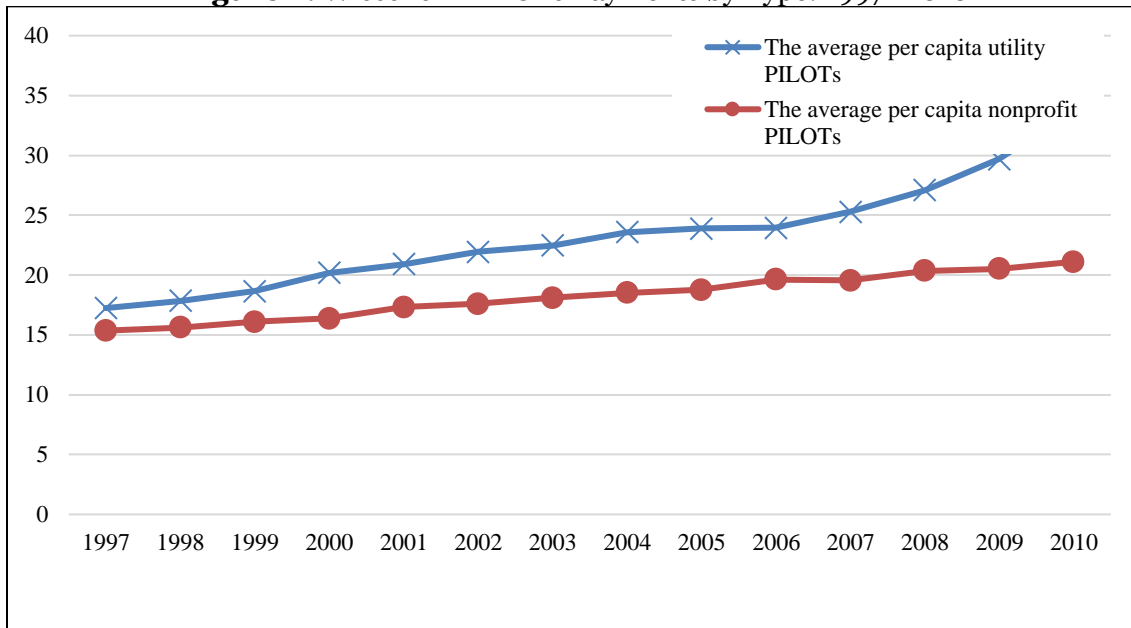
freezes municipal levies unless there is new construction. For both programs, dummy variables are coded “0” for pre-TEL and “1” for post-TEL; the expected signs are positive.

Under severe conditions of resource scarcity, governments have a propensity to raise major tax rates and fees to maximize revenue sources (Levine, 1978). Given this theoretical expectation, we presume that municipalities with lower levels of fiscal health are forced to consider an array of fiscal choices, including whether to institute fees/charges. Government fiscal health measures include long-term liabilities, measured as per capita general obligation debt; budget solvency, measured as the ratio of operating revenues to operating expenditures; and, intergovernmental revenues, measured as a percentage of total general fund revenues (Nollenberger, 2003; Maher & Deller, 2013). The expected signs for the budgetary solvency measures are negative and for long-term liabilities, the expected signs are positive. Socio-demographic variables, specifically population and educational attainment, are also included as controls. Population and education are included to capture overall demand for public services, which can affect revenue choices (Clark, 1968; Coate & Knight, 2011; Fisher, 1996; Wolf & Amirkhanyan, 2010). High levels of population and education may force local governments to provide more services and obtain the means by which to fund those services. Note that we use the natural log of population to correct for the skewed distribution. Educational attainment is measured as the percentage of the population with a baccalaureate degree or higher. We expect population and educational attainment to be positively associated with PILOTs.

Nonprofit PILOTs are generated for municipalities based on negotiations where nonprofits are willing to pay taxes if PILOTs revenues are spent on public services for nonprofits (Fei et al., 2016). Nonprofits expect to mitigate fiscal difficulty from the growth of public demands by paying PILOTs. The magnitude of nonprofit PILOTs levies may depend on the scale of public demands. It is argued that municipalities with high levels of aged population and family poverty spend more on social welfare programs; further, educated residents and diversified communities tend to have greater public demands (Fei et al., 2016). In another argument, higher property tax rates encourage municipalities to focus their tax efforts on nonprofit PILOTs (Fei et al., 2016). Thus, Fei et al. (2016) construct the nonprofit PILOTs model composed of public demand and property tax variables. Based on this theoretical argument and model, the nonprofit PILOTs model entails economic crises as representing economic circumstances, and sociodemographic and economic information as representing public demands to determine the scale of nonprofit PILOTs. The expected sign of fiscal crisis is positive for nonprofit PILOTs.

We also expect that higher levels of population, income, nonwhite population, aging population, education, family poverty, and unemployment rate are associated with nonprofit PILOTs. One of the control variables—property tax rate—is included in the nonprofit PILOTs model with the expectation that property tax rates are positively associated with nonprofit PILOTs. Finally, given the incremental nature of budgeting, where current budget decisions are bounded by previous results of fiscal allocations (Wildavsky, 1984), we include the previous year’s PILOTs payment. Scholars argue that budget changes tend to be characterized by the same proportionate increase/decrease from year to year (Davis, Dempster, & Wildavsky, 1966; Lindblom, 1959; Fenno, 1973; Wildavsky, 1964). In this context, the last year’s PILOTs should predict the current year’s PILOTs. We include a lagged control variable in both models. A concern with using a lagged value as a predictor for the dependent variable is possible bias in the estimate (Allison, 2015; Wooldridge, 2006). Allison (2015) pointed out that some models including a lagged dependent variable can have endogeneity issues. We conducted the Durbin-Wu-Hausman test to assess potential endogeneity issues in the models.⁷

Figure 2. Wisconsin PILOTs Payments by Type: 1997–2010



Source: The University of Wisconsin-Extension, Local Government Center, 2012. GREAT: Graphing Revenues, Expenditures, and Taxes.

Fiscal decisions may vary depending on government types that have different administrative goals and processes. Metropolitan governments may have more PILOTs levies than other cities and villages located in nonmetropolitan areas. Administrative professionals may prefer contracting-out in order to improve government efficiency by transferring public service management to nonprofits. Thus, we include government types, metropolitan governments, and municipalities with administrative professionals to control for the dependent variables in the models. The expected signs of these variables are unclear.

Findings

Tables 1 and 2 present the descriptive statistics for the variables used in the models. From the descriptive analysis, we confirm that 260 municipalities (125 cities and 135 villages) received PILOTs every year from utilities from 1997 to 2010; 95% of cities and 96% of villages in the samples received utility PILOTs. On the other hand, 41% of cities ($n=54$) and 24% of villages ($n=34$) in the samples received PILOTs from nonprofit organizations in Wisconsin.

In those communities that received PILOTs, the average per capita utility PILOTs payment was \$23.80, and the average per capita nonprofit PILOTs payment was \$18.40. This implies that the average municipality is more dependent on utility PILOTs than nonprofit PILOTs. Interesting, only average PILOTs payments from utilities have grown during the study period (see Figure 2). Average utility PILOTs payments nearly doubled during the study period, while nonprofit forms of PILOTs changed little. The descriptives also suggest that the average Wisconsin municipality is in better condition than the national average. In Wisconsin, average municipal per capita total general obligation debt (logged) from 1997 to 2010 was \$2.95 in the utility PILOTs model and \$2.97 in the nonprofit PILOTs model; those were less than the US average (\$4.41). In terms of community characteristics, the average Wisconsin family poverty level (7.4% in utility; 6% in

Table 1. Descriptive Analysis Results for Utility PILOTs Model

Variables		Measurement	Description	Mean	S. D.	Min.	Max.
PILOTs		Utility PILOTs	Per capita utility PILOTs	23.78	14.39	0.00	329.75
Form of Government		City	Number of cities	0.49	0.50	0.00	1.00
		Village	Number of villages	0.51	0.50	0.00	1.00
		MSAs	Number of metropolitan statistical areas	0.22	0.41	0.00	1.00
		Professionalism	Presence of an administrative professional	0.46	0.50	0.00	1.00
Fiscal Environment	Fiscal Crisis	Economic Recessions	2001, 2002, 2007, 2008, 2009, 2010	0.08	0.27	0.00	1.00
	Community Characteristics	Assessed Value	Per capita assessed value	61153.89	70368.52	10074.56	10401.52
		Income Level	Median household income (log)	4.65	0.13	4.10	5.14
		Family Poverty	Family below poverty level as % of total households	0.07	0.05	0.00	0.39
		Unemployment	Unemployed population as % of total population	0.03	0.02	0.00	0.11
		Aging Population	Population 65+ as % of total population	0.17	0.06	0.05	0.35
Fiscal Institutions		TELTs	Municipal expenditure restraint program since 2003	0.62	0.49	0.00	1.00
			Municipal property tax levy limit since 2005	0.46	0.50	0.00	1.00
Control Variables		Debt	Per capita total general obligation debt (log)	2.95	0.35	0.04	4.14
		Ratio of Revenues to Expenditures	Total general revenues as % of total general expenditures	0.87	0.19	0.14	2.12
		Intergovernmental Revenues	Intergovernmental revenues as % of total general fund revenues	0.34	0.16	0.03	0.94
		Population	Population (log)	3.48	0.57	2.38	5.36
		Education	Educational attainment (over bachelor's degree)	0.19	0.12	0.02	0.79

Table 2. Descriptive Analysis Results for Nonprofit PILOTs Model

Variables		Measurement	Description	Mean	S. D.	Min.	Max.
PILOTs		Nonprofit PILOTs	Per capita nonprofit PILOTs	18.42	20.39	0.03	190.19
Form of Governments		City	Number of cities	0.49	0.50	0.00	1.00
		Village	Number of villages	0.51	0.50	0.00	1.00
		MSAs	Number of metropolitan statistical areas	0.22	0.41	0.00	1.00
		Professionalism	Presence of an administrative professional	0.47	0.50	0.00	1.00
Fiscal Crisis		Economic Recessions	2001, 2002, 2007, 2008, 2009, 2010	0.08	0.27	0.00	1.00
Public Demands	Community Characteristics	Population	Population (log)	3.59	0.54	2.51	4.93
		Income Level	Median household income (log)	4.63	0.11	4.40	5.03
		Non-white Populations	Non-white population as % of total population	0.04	0.05	0.00	0.36
		Aging Population	Population 65+ as % of total population	0.17	0.05	0.07	0.34
		Education	Educational attainment (over bachelor's degree)	0.18	0.11	0.04	0.78
		Family Poverty	Family below poverty level as % of total households	0.06	0.03	0.00	0.33
		Unemployment	Unemployed population as % of total population	0.03	0.01	0.00	0.08
Control Variables		Debt	Per capita total general obligation debt (log)	2.98	0.30	1.05	3.86
		Property Tax Rate	General property tax receipts as % of assessed value of properties	0.01	0.00	1.02	0.01
		Ratio of Revenues to Expenditures	Total general revenues as % of total general expenditures	0.87	0.17	0.28	1.60

nonprofit) was lower than the US (15.5%). This trend also extends to the unemployment rate (3% average in Wisconsin municipalities; 8.3% nationally). The average ratio of revenues to expenditures is 87%, thus reflecting the effects of two economic recessions during the study period.

Table 3 provides the fixed and random effects estimation results for the utility and nonprofit model.⁸ The utility PILOTs model is statistically significant and explains 73% of variation in the dependent variable. The results show that while the 2001–2002 recessions had no effect on PILOTs payments, the recession years from 2007–2010 had significant effects on per capita utility PILOTs. The Great Recession was a significant period for municipalities to extend the scale of utility PILOTs. There are unexpected connections between tax base variables and utility PILOTs. Specifically, median household income has a positive association with utility PILOTs. Assessed value has a positive impact on utility PILOTs, but this impact is not statistically significant. Utilities, as government-affiliated entities, can be controlled by municipal officials who can modify public service contracts. This is not the case for nonprofits since these organizations are not required to make these payments, which is shown in the model. The bureaucracy model argues that governments tend to increase public expenditures and revenues in order to maximize their administrative power (Niskanen, 1971). Regardless of financial condition, municipalities can extend their tax efforts for utility PILOTs. This may be one reason why the results show unexpected relationships between tax base variables and utility PILOTs.

The fiscal condition of a municipality, measured in terms of intergovernmental aid and debt, affected PILOTs payments. Municipalities with more debt and less state aid received higher utility payments. Contrary to our expectations, however, the imposition of levy limits is negatively associated with utility PILOTs. The results generally support our expectation that municipalities, when faced with fiscal challenges, seek to increase per capita PILOTs.

Among the community characteristics variables, in the utility PILOTs model there are few significant results. First, median income levels are significantly associated with per capita utility PILOTs, but only marginally and the expected sign is in the opposite direction. The other variables (assessed valuation, family poverty, unemployment, and aging population) were not statistically associated with the dependent variable. The variable that does seem to matter is the prior year's utility payment. It, thus, appears that the incremental budgeting process is also reflected in utility PILOTs.

On the fiscal institution side, the adoption of the property tax levy limit program in 2005 has a negative effect on utility PILOTs payments. This result is inconsistent with our expectation that the restrictiveness of fiscal institutions is positively associated with the scale of utility PILOTs.⁹ Given the highly politicized nature of TELs, one possible explanation is that with the adoption of levy limits in 2005 local governments sought to shift service costs away from the levy, including the utility property tax. It was not until the 2007 recession that these same municipalities were forced to increase levies on utilities.

The nonprofit PILOTs model is statistically significant and explains 40% of the variation in the dependent variable. The findings, however, are quite different from those of the utility model. In fact, the only variables that are associated with nonprofit PILOTs are the lagged dependent variable and debt. Both variables are significant and positive. The sign of the lagged dependent variable suggests that there is an incremental process that occurs with nonprofit PILOTs similar to other budgeting practices. The lack of statistical significance also suggests that nonprofit PILOTs were unaffected by recessions, fiscal conditions, or most community characteristics.

Table 3. Results of the Utility and Nonprofit PILOTs Models

Concept	Variables	Utility PILOTs	Nonprofit PILOTs	
Economic Circumstances	Economic crisis 01	-0.66 (0.67)	0.34 (0.63)	
	Economic crisis 02	-0.31 (0.70)	-0.23 (0.49)	
	Fiscal Crisis Economic crisis 07	1.01*** (0.28)	-0.05 (0.78)	
	Economic crisis 08	1.63*** (0.43)	0.95 (0.61)	
	Economic crisis 09	2.48*** (0.57)	0.13 (1.60)	
	Economic crisis 10	4.21*** (0.57)	0.83 (0.83)	
	Community Characteristics	Assessed value	3.26 (9.44)	-
		Income level	6.98* (3.88)	-7.28 (7.48)
		Family poverty	7.10 (5.67)	-11.37 (7.43)
		Unemployment	-9.46 (11.23)	-1.48 (13.22)
Aging population		-2.41 (5.88)	-6.40 (5.82)	
Non-white population		-	-7.70 (6.53)	
Fiscal Institutions (TEL Restrictions)	Municipal expenditure restraint program (2003)	-0.56 (0.85)	-	
	Municipal property tax levy limit program (2005)	-0.77*** (0.23)	-	
Form of Government	City	-	0.41 (0.50)	
	MSAs	-	-0.03 (0.52)	
	Professionalism	-	0.18 (0.36)	
Government Financial Environment	Debt	2.05*** (0.48)	1.59*** (0.52)	
	Ratio of revenues to expenditures	0.25 (0.77)	0.08 (1.56)	
	Intergovernmental revenues	-8.97** (3.67)	-	
	Property tax rate	-	161.75 (121.49)	

Socio-Demographic Information	Population	-9.37** (3.95)	-0.32 (0.77)
	Education	-1.86 (3.09)	1.57 (5.89)
Previous Year Per Capita PILOTs		0.91*** (0.12)	0.94*** (0.01)
Constant		0.51	31.84
N		3535	1134
F/Wald Chi2		185.66	21184.37
R ² (within)		0.73	0.39

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; two-tailed test

Note(s): Based on Hausman test results, we conducted a fixed effects analysis for the utility PILOTs model and a random effects analysis for the nonprofit PILOTs model. The government type, metropolitan government, and professionalism variables are automatically dropped in the utility PILOTs model results because the fixed effects estimation does not consider unchangeable control variables.

Discussion and Conclusions

This study expanded the exploration of payments in lieu of taxes (PILOTs) both in terms of model specification and PILOTs types. Using Wisconsin municipalities as the units of analysis, we studied municipal PILOTs' receipts in light of economic and demographic circumstances, institutional constraints, and public demands. To test our hypotheses, we constructed fixed effects and random effects regression models for two types of PILOTs, one for utilities and another for tax-exempt properties (e.g., nonprofit hospitals and care facilities, government buildings and properties, and places of worship). When comparing the two models, the findings are quite distinct. The model of utility PILOTs payments is more consistent with our hypotheses than those for nonprofit PILOTs. In fact, we found few variables associated with nonprofit PILOTs payments.

Our findings suggest that 1) all PILOTs are not alike and their different characteristics warrant further examination, and 2) political backlash from seeking payments from tax-exempt entities e.g., places of worship and hospitals, may be much greater than simply changing the reimbursement rate from tax-exempt public utilities. Regarding the former, municipalities have some discretion in their collection of utility PILOTs given that factors such as estimated facility valuation, the inclusion/exclusion of other forms of government such as counties and school, can be adjusted by municipalities. Furthermore, the quotes included in the study demonstrate a clear understanding by local leaders that this fiscal instrument is a tool for helping to cope with fiscal pressures. Conversely, nonprofit PILOTs require the agreement by nonprofit leaders to voluntarily make these payments. Municipal leaders have limited leverage and there is little incentive for nonprofits to make these payments regardless of the fiscal, economic or demographic pressures facing the community. What seems to matter is an historical commitment to creating nonprofit PILOTs. The lagged dependent variable strongly suggests that past commitments by nonprofits to municipalities are the basis for continued commitments.

The first point above cannot be overstated. One of the greatest challenges in conducting this work is creating conceptual definitions. The current body of literature suggests that PILOTs are specific to nonprofits. This is simply not the case, as we have shown here. This matters because the determining factors associated with PILOTs vary by type. Similarly, the operational definition of nonprofits needs refinement, at least when studied within the context of PILOTs. Nonprofit PILOTs tend to be associated with specific types of organizations, e.g., hospitals and

universities (Kenyon & Langley, 2010). The ability to separate out these types of organizations in future PILOTs studies will be important.

Our findings and those by others raise some important operational questions—especially since every identified study to date, including ours, is from the perspective of local government. Nonprofit PILOTs are entirely voluntary, and identifying the rationale for nonprofit leaders to make such payments (e.g., Is it coercive? Truly voluntary? Or somewhere in between?) may go a long way toward our understanding of just how important a role these revenues can play in local budgeting.

Data limitations for this study are noted. We were unable to capture the political environment at the local level, other than TELs adoption. Second, given the nature of the research design, the generalizability of the findings is limited to Wisconsin municipalities. These limitations can be addressed in future research. Given the limited research on PILOTs, we view this study as exploratory in hopes that it draws interest to a topic that has the potential for far-reaching consequences both practically and theoretically.

Notes

1. The major purpose of PILOTs is to financially offset the loss of property taxes from federal tax exemptions (see, US Department of the Interior, Payments in Lieu of Taxes. Retrieved from <https://www.doi.gov/pilt>)
2. It has been suggested that there is an issue where local governments are concerned with the fiscal loss of tax exempt lands and facilities such as hospitals. (See for instance, Foley and Lardner LLP. “Wisconsin Supreme County Concludes Offsite Hospital Operated Outpatient Clinic Is Exempt from Property Tax.” Retrieved from <https://www.foley.com/intelligence/detail.aspx?int=7901>)
3. We obtain this information from the following website <http://city.milwaukee.gov/ImageLibrary/User/pmensa/2016CAFRFinalforPrint.pdf>. City of Milwaukee, WI, Comprehensive Annual Financial Report for Year Ended December 31, 2016.
4. The data were made available from the University of Wisconsin-Extension’s Local Government Center and are available at the following site <http://lgc.uwex.edu/topics/great-graphing-revenues-expenditures-and-taxes-software/>
5. The following website offers information on tax and expenditure limitations (TELs) in the State of Wisconsin https://docs.legis.wisconsin.gov/misc/lfb/informational_papers/january_2017/0012_1ocal_government_expenditure_and_revenue_limits_informational_paper_12.pdf. Wisconsin Legislative Fiscal Bureau, Informational Papers # 12, 2017.
6. Wisconsin utilities are municipally-owned and are regulated by the Public Service Commission (PSC). Thus, the utilities are treated as enterprise funds and the ability to transfer funds to governmental funds is restricted by the state and PSC.
7. The utility and nonprofit models include lagged per capita PILOTs variables. The Durbin-Wu-Hausman values are 0.04 ($p=0.84$) in the utility PILOTs model, and 1.21 ($p=0.27$) in the nonprofit PILOTs model. Based on these results, neither model is concerned with endogeneity issues.
8. Our models and data do not violate regression assumptions. First, both models do not have any serious multicollinearity issues (VIF=1.04–4.38 and 1.06–7.17). Second, the results of a Hausman test, controlling for municipality fixed effects, is appropriate for the utility model and panel data ($X^2=150.29$; $p<0.00$). However, the result of Hausman in

the nonprofit PILOTs data shows that the random effects model is more suitable ($X^2=18.85$; $p=0.28$).

9. To test the robustness of these results, we used a different approach to separate TEL effects from economic recessions and ran the following models: a) with binary TEL and economic recession variables, b) with no economic recession dummies, and c) TELs counters. The results consistently showed negative associations between the property tax limit program and utility PILOTs.

Disclosure Statement

The authors declare that there are no conflicts of interest related to this research, authorship, or publication of this article.

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Author Biographies

Craig S. Maher is a professor in the School of Public Administration and director of the Nebraska State and Local Finance Lab. His research currently focuses on government fiscal conditions and fiscal distress, and the effects of institutional restrictions such as tax and expenditure limitations on fiscal outcomes.

Ji Hyung Park is an assistant professor in the Department of Political Science at James Madison University. His research interests are in public budgeting and finance and urban management, focusing on citizen participation, form of government, fiscal health, performance budgeting, revenue diversification, and city–county consolidation.

Bit An is a doctoral student in the School of Public Administration at the University of Nebraska at Omaha. His research interests include public finance and budgeting, community district organization, fiscal institutions, and the fiscal relationship between nonprofits and governments.