Declining House Prices and Property Taxes in Illinois

What is the effect of rapid increases and large drops in house prices on property taxes?

Declining House Prices and Property Taxes in Illinois

By Daniel P. McMillen

The past decade has been an extraordinary time for the housing market in the United States. According to data from the Federal Housing Finance Agency (FHFA), from the first quarter of 2000 to the peak of the housing market in the first quarter of 2007 the average American home increased in value by 67 percent, or an average annual rate of approximately 7.6 percent. The price declines since then have also been dramatic. From the first quarter of 2007 to the second quarter of 2010, the price of an average American home fell by 11.2 percent, which translates into an average annual rate of about 3.6 percent. Although the rate of decline has slowed, it is not yet clear whether the housing market has truly reached bottom, and it may be some time before prices return to the heights reached in 2007.[1]

What is the effect of rapid increases and large drops in house prices on property taxes? To a first approximation, it might be expected that there is a simple proportional relationship between house prices and property taxes—taxes rise when house prices increase and taxes fall when prices decline. This simple relationship would hold if taxes were a constant percentage of property value, assessments were accurate and timely, and all property values increased at the same rate. Because the actual tax system is much more complicated than this, it turns out to be very hard to predict how taxes will react to changes in property values. In fact, a much better first approximation to the effect of house price changes on property taxes is that there simply is no relationship: taxes are determined independently of property values, with the tax rate adjusting to keep revenue constant even in times when prices are changing dramatically.

Even if total tax revenue did, in fact, remain constant as house prices change, there still may be significant changes in *individual* tax bills. Taxes go up in places where house prices increase unusually rapidly, and all residential tax payments may increase if the rate of appreciation of commercial and industrial properties does not keep pace with residential appreciation rates. Moreover, changes in property values directly affect homeowners' wealth, and significant declines in property values may force local jurisdictions to reduce their expenditures. Other changes are even more indirect—if consumers feel less wealthy when property values decline, then revenue from the sales tax may decline when consumers spend less than before, and income tax revenue may be affected if lower property values lead to less building and thus to lower employment in the construction industry. But the sum of all such indirect changes is likely to be far less than the direct change that would result if property taxes were, in fact, proportional to property values.

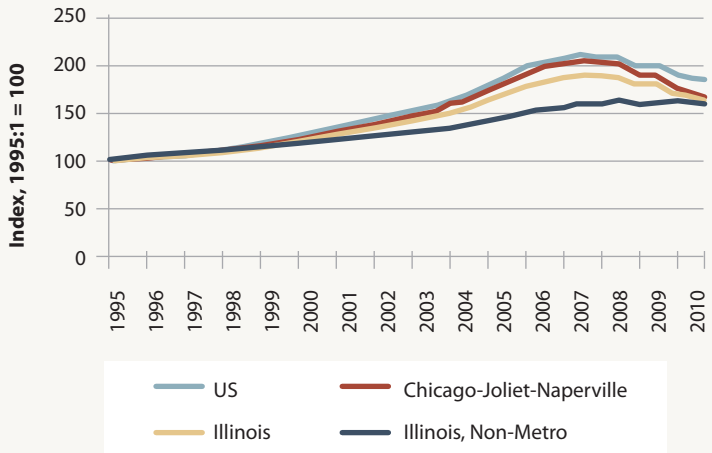
In this chapter, I review some of the evidence about the relationship between property values and taxes with an emphasis on Illinois generally and the Cook County proportion of the Chicago metropolitan area in particular. The main conclusion is simple: falling property values do not necessarily lead to declines in property taxes because tax rates increase when assessments decline. However, the distribution of tax payments across households can vary greatly. Households in places with relatively small declines in house values may see their tax payment increase even if their assessments have been reduced. The main effect of house price declines on property taxes is much less direct: if homeowners feel less wealthy, they are less inclined to support tax increases.

[1] The data on house prices are drawn from the Federal Housing Finance Agency's web site, http://www.fhfa.gov/Default.aspx?Page=87. The price indices are based on a combination of sales and appraisal data. The FHFA data are unique in the breadth of geography and time covered by the price indices.

House Price Volatility

Figure 1 shows the path of house prices for the United States, the Chicago-Joliet-Naperville metropolitan area (not including Lake County), the full state of Illinois, and the parts of Illinois that are not in metropolitan areas. After a period of moderate growth in the late 1990s, prices began to rise rapidly in the U.S. beginning about 2001, and a period of extraordinary appreciation began around 2003. Price began to fall sharply in 2007. The Chicago metro area's experience is nearly identical to the national average through 2007, but the rate of decline since then has been greater. The full state of Illinois has had more moderate price growth and more moderate declines. Non-metro Illinois neither shared in the rapid price appreciation of the early part of the decade nor suffered any significant price declines.

Figure 1
House Price Indices

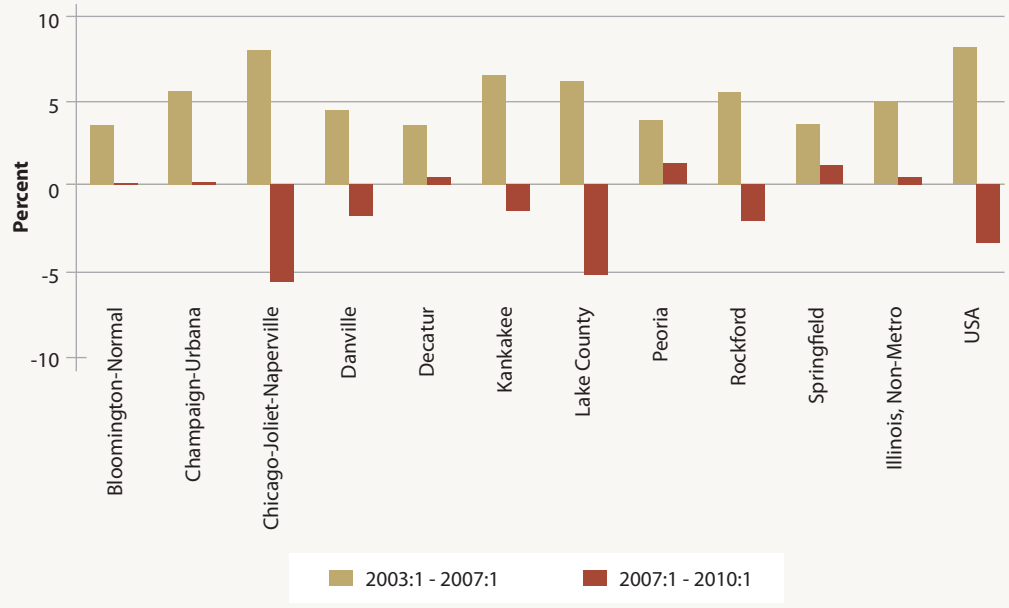


Source: Federal Housing Finance Agency

It is clear from Figure 1 that 2003-2007 was a unique period of extraordinary appreciation in house prices for Chicago, Illinois, and the U.S. How has the rest of metro-

The Chicago metro area's experience is nearly identical to the national average through 2007, but the rate of decline since then has been greater.

Figure 2
Average Annual Changes in House Prices



Source: Federal Housing Finance Agency

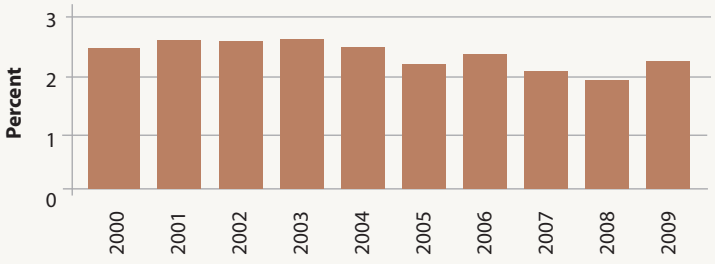
Illinois fared over the last decade? Figure 2 compares annual average house price changes for the first quarter of 2003 to the first quarter of 2007 and from 2007:1 to 2010:2 across all of Illinois' metropolitan areas, along with non-metro Illinois and the nation. Chicago and Lake County had very high growth followed by sharp declines. Danville, Kankakee, and Rockford had more moderate declines after periods of growth. The price indices have not declined since 2007 in Bloomington-Normal, Champaign-Urbana, Decatur, Peoria, and Springfield.

[2] Lutz, Byron F., "The Connection Between House Price Appreciation and Property Tax Revenues," *National Tax Journal* 61 (2008), 555-572.

Figure 3
Property Tax as a Percentage of Total State and Local Tax Revenue

Source: U.S. Census Bureau, Quarterly Summary of State and Local Tax Revenue

Figure 4
Property Tax as a Percentage of State Tax Revenue in Illinois



Source: U.S. Census Bureau, Quarterly Summary of State and Local Tax Revenue

Trends in Property Taxes

The path of house prices over the last decade might lead one to expect that property tax revenue would have increased dramatically up to 2007 and then fallen significantly since then. The relationship between house prices and property tax payments is far from mechanical, however. For example, if property taxes increased in proportion to house prices when terms like "bubble" are used to describe the state of the housing market, it is reasonable to expect that property taxes would account for a larger share of total state and local tax revenue. Figure 3 shows the trend for the entire U.S. for property tax revenue as a percentage of total state and local tax revenue for 1998-2008. The percentage hardly changed between 2003 and 2007, and only began to rise significantly as house prices fell sharply in 2009.

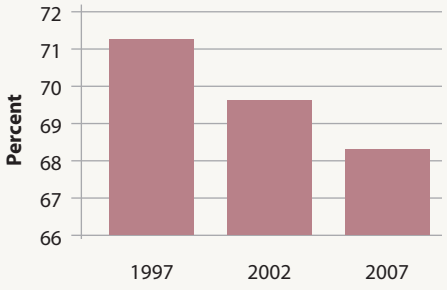
Similar trends were evident in Illinois. Figure 4 shows the trend for the state budget for 2000-2009. Despite the huge growth in house prices, the property tax accounted for a lower share of total tax revenue for the state in 2007 than it had earlier in the decade. However, the property tax accounts for only a trivial percentage of the state government's budget—well under one-half percentage point in each year over the past decade.

In contrast to the state, Illinois' local governments rely heavily on the property tax. As can be seen in Figure 5, the property tax accounted for more than 71 percent of local governments' general own-source revenue in 1997 in Illinois. This figure fell over the course of the last decade to just over 68 percent in 2007—even as property values were increasing significantly.

Empirical Studies

A study by Byron Lutz was the first to use national data to estimate the elasticity of property tax revenue with respect to house

Figure 5
Property Tax as a Percentage of General Own-Source Revenue, Local Governments



Source: U.S. Census Bureau, Census of Governments

prices.[2] Lutz conducts the analysis using two data sets—aggregate national data for 1976-2007 on property tax revenue and house prices, and a comparable data set covering all local governments in the U.S. for 1985-2005. Both of these periods are times when house prices were rising throughout most of the nation. In contrast to the evidence presented in Figures 3-5, he concludes that:

> *"The evidence suggests property tax revenues are quite responsive to changes in house prices. Although it takes several years for house price appreciation to feed through to property tax revenues, the long-run elasticity is on the order of 0.4. On average, policymakers are estimated to respond to increasing home prices by 60 percent of the increase in tax revenue that would have occurred in the absence of a change in the effective tax rate."* (Lutz, 2008, p. 566)

In a subsequent paper, Lutz, Molloy, and Shan analyze the channels by which the housing market affects state and local tax revenue.[3] At its most basic level, a jurisdiction's property tax revenue (T) is simply the product of its effective tax rate (t) and the market value of its taxable property (V): $T = tV$. The first channel by which changes in house prices affect revenue is entirely mechanical: if the tax rate is constant and the market value of taxable property changes from V_1 to V_2, then revenue rises by $t(V_2-V_1)$. However, tax rates may change when property values increase. If both V and t change, then the full change in revenue is $T_2-T_1 = t(V_2-V_1) + (t_2-t_1)V_1$.

Other channels by which changes in house prices affect tax revenue are less direct. Declining house prices may reduce construction, which reduces sales tax revenue from construction materials and perhaps income taxes from construction workers. A growing recent literature suggests that rising house prices increase consumption expenditures by making consumers feel wealthier.[4] Thus, declines in house prices may lead to lower sales tax collections. Similarly, voters will be less inclined to support expenditure bills when their property values fall.

The study by Lutz, Molloy, and Shan suggests that the direct channels are much stronger than the indirect ones. However, both this study and the earlier one by Byron Lutz suggest that there are long lags between house price changes and their effects on tax revenue. Recent declines in house prices may affect revenue sometime in the future, but it could easily take 5-10 years until their effect becomes pronounced. These long lags may help explain why Figures 3-5 show little response of property taxes to rising house prices. The lags may also explain why recent studies show little response in property tax revenue to the recent declines in house prices.[5]

Several factors account for these long lags. Assessments may take quite some time to respond to price changes, in part because assessors may not respond immediately to the price changes and in part because many jurisdictions assess property relatively infrequently. In Illinois, Cook County assesses properties every three years while other counties in the state have a four-year assessment cycle. Thus, it can easily take five years or more for assessments to catch up to market trends. In addition, nearly all states have adopted some form of property tax limitation measure which restricts jurisdictions' ability to

[3] Lutz, Byron, Raven Molloy, and Hui Shan, "The Housing Crisis and Local Government Tax Revenues: Five Channels," working paper, Federal Reserve Board of Governors (2010).

[4] Recent studies include Attanasio, Orazio, Laura Blow, Robert Hamilton, and Andrew Leicester, "Booms and Busts: Consumption, House Prices and Expectations," *Economica* 76 (2009), 20-50; Bostic, Raphael, and Gary Painter, "Housing Wealth, Financial Wealth, and Consumption: New Evidence from Micro Data," *Regional Science and Urban Economics* 39 (2009), 79-89; Campbell, John Y. and João F. Cocco, "How Do House Prices Affect Consumption? Evidence from Micro Data," *Journal of Monetary Economics* 54 (2007), 591-621; and Case, Karl E., John M. Quigley, and Robert J. Shiller, "Comparing Wealth Effects: The Stock Market versus the Housing Market," *Advances in Macroeconomics* 5 (2005).

[5] Alm, James, Robert D. Buschman, and David L. Sjoquist, "Rethinking Local Government Reliance on the Property Tax," working paper, Georgia State University (2010), and Doerner, William M. and Keith R. Ihlanfeldt, "House Prices and City Revenues," working paper, Florida State University (2010).

raise revenue when prices increase.[6] In many cases, these limits on the response of property tax revenue when prices rise also lead to some catch-up when prices fall, which has an ameliorative effect on revenue responses to price declines.

The most important source of lags is often overlooked: in many jurisdictions, tax rates respond more mechanically than tax payments to changes in house prices. If T = tV and V is an accurate and timely measure of house prices, then either T or t can respond to maintain the equality when V changes. In many—perhaps most—jurisdictions, T is determined in local elections, while V is determined by local assessment practices. The tax rate then responds mechanically to ensure that the equality holds. It should hardly be surprising, then, to find that property tax revenue bears little or no relationship to house prices; it is t that responds, not T.

Property Tax Administration in Illinois

Illinois is part of a group of states in which property tax rates bear a more mechanical relationship to property values than is the case for revenue. Consider the following table that the Cook County Assessor's Office website uses to illustrate how to calculate an estimated tax bill (http://cookcountyassessor.com/estimatedtaxbill.aspx).

Table 1
How to Calculate an Estimated Residential Tax Bill in Cook County

$ 100,000	Estimated Market Value
× .10	Assessment Level (10 percent)
$ 10,000	Proposed Assessed Valuation
× 2.8439	2007 State Equalizer
$ 28,439	Equalized Assessed Value (EAV)
– 5,500	Homeowner Exemption
$ 22,939	Adjusted Equalized Value (AEAV)
× .10	Sample Tax Rate (your tax rate could vary)
$ 2,293	**Estimated Tax Bill in Dollars**

Source: http://cookcountyassessor.com/estimatedtaxbill.aspx

The Assessor's Office is in charge of estimating market values every three years in Cook County. By statute, residential assessments are supposed to be set at 16 percent of market value in Cook County, but in 2009 the Assessor's Office recently announced a "recalibration" of the assessment process and now announces a target of 10 percent for the assessment ratio rather than 16 percent. Similarly, commercial and industrial assessment levels have been recalibrated to 25 percent rather than their statutory 38 percent and 36 percent rates. Assessment levels are 1/3 of all property classes in the other counties in state.

Although Cook County is allowed to have different assessment levels for different property classes, the total of all assessments must end up being 1/3 of property value for all counties in the state, including Cook. In Cook County, each property's proposed assessed valuation in 2007 was multiplied by the state equalizer—the "multiplier"—of 2.8439 to ensure that total assessment averaged 1/3 of property value, i.e., the average assessment across all property classes was .33/2.8439 = 11.6 percent of market value in 2007. Multipliers hover near 1 in all other counties in the state, which implies that assessment levels are close to their statutory 1/3 rate.[7]

The final step in the transition from market value to the property tax base is the homeowner exemption.[8] The basic homestead exemption was increased to $6,000 in 2009. Other special exemptions are available for favored groups such as senior citizens, veterans, and people with disabilities. Cook County has some additional exemptions for people who have lived in their home for 10 years and have household incomes of less than $100,000, as well as an alternative general homestead exemption for homes with assessed values that have increased by more than 7 percent.

The Illinois Department of Revenue calculates equalization factors by comparing

[6] Anderson, Nathan B., "Property Tax Limitations: An Interpretive Review," *National Tax Journal* 59 (2006), 685-694.

[7] According to data from the Illinois Department of Revenue, all but 19 of the 101 other counties in the state had multipliers of 1 in 2007 (http://www.revenue.state.il.us/LocalGovernment/2007-table-3-multipliers.pdf), meaning that their assessments were accurate on average. The average multiplier for these 19 states was 1.026, with a range of .960 to 1.131.

[8] A full list of exemptions is available on the Illinois Department of Revenue's web site: http://www.revenue.state.il.us/localgovernment/propertytax/taxrelief.htm.

each county's assessments to actual sales prices. Equalization factors are calculated with some lag because the Department of Revenue compares a year's assessments to sales prices from the previous year, and assessments themselves take place on a rotating three-year cycle within Cook County and on a four-year cycle elsewhere. These lags mean that equalized assessments can easily take four to five years to fully react to changes in market values.

Apart from these lags and the panoply of exemptions, the assessment process is designed to produce assessments that closely track market values. A jurisdiction's property tax base is the sum of the adjusted assessed values, i.e.,

$$B = \sum_{t=1}^{n} AEAV_i$$

where B is the tax base and AEAVi is the adjusted equalized assessed valuation for the *i*th property in the jurisdiction. Once this base is determined, all properties in the jurisdictions are taxed at the same rate, t. The total tax revenue for the jurisdictions is thus T = tB.

Given this reasonably straightforward relationship between assessed values and tax revenue, changes in actual property values would lead in time to proportionate changes in tax revenue if the tax rate were constant. In Illinois, as in most states, it is the tax rate that adjusts when the tax base changes, not revenue. In other words, the simple identity should be re-written as t = B/T to reflect the actual direction of causation: each jurisdiction's tax base and total tax extension interact to determine its tax rate. The tax rate falls when assessed values rise in response to rising property values, and it rises when assessed values fall in response to declining property values. However, the change does not come overnight. Property values began to decline in 2007 and many properties are only now being re-assessed to reflect the changing market conditions. Once the properties are re-assessed, tax rates will rise unless voters agree to reduce expenditure levels.

The Distribution of Taxes

The way tax rates are calculated in Illinois means that an individual's property tax bill will be unchanged if all prices rise or fall by the same percentage and the number of properties does not change over time. This unrealistic scenario does not take into account the fact that new properties are added over time and others are demolished or are converted to alternative uses. It also involves an unrealistic assumption that all properties appreciate or decline in value at the same rate.

These issues are particularly relevant in Cook County. Unlike the other counties in the state, Cook County's classified tax system makes residential properties a favored class with lower effective rates than other property classes. Non-residential properties are not the beneficiaries of exemptions and are subject to higher property assessment levels. Table 2 shows the calculation of the tax bill for a representative commercial or industrial property in Cook County if the recent recalibration for non-residential assessments to 25 percent of property value had been applied in 2007.

Table 2
How to Calculate an Estimated Tax Bill for a Commercial or Industrial Property in Cook County

$ 100,000	Estimated Market Value
× .25	Assessment Level (25 percent)
$ 25,000	Proposed Assessed Valuation
× 2.8439	2007 State Equalizer
$ 71,098	Equalized Assessed Value (EAV)
– 0	(No Exemption)
$ 71,098	Adjusted Equalized Value (AEAV)
× .10	Sample Tax Rate (your tax rate could vary)
$ 7,110	**Estimated Tax Bill in Dollars**

Source: http://cookcountyassessor.com/estimatedtaxbill.aspx

Unlike the other counties in the state, Cook County's classified tax system makes residential properties a favored class with lower effective rates than other property classes.

The total tax bill for a commercial or industrial property with a market value of $100,000 in this example is 7,110; it would be $2,293 for a residential property with the identical market value. The effective tax rate is 7,110/100,000 = 7.11 percent, compared with 2.29 percent for the residential property. The tax bill is more than three times higher for commercial property than for a residential property that has the very same market value.

In any county in the state, a loss of commercial or industrial property will necessarily lead to higher taxes on residential property owners unless the tax extension changes. In other counties, each $100,000 of market value that is lost in commercial or industrial property value only needs to be replaced with $116,667 in residential property to keep taxes the same as before. The additional $16,667 is needed to compensate for the exemption that is provided to residential property owners. These calculations are shown in the first two columns of the tables below, which show that representative $100,000 commercial industrial properties produce the same tax revenue as a $116,667 residential property in 101 of the state's 102 counties.[9] Similar calculations in columns 3 and 4 show that the $100,000 non-residential property has to be replaced with a $269,340 home to keep taxes the same in Cook County. This situation provides a huge disincentive for commercial property owners to locate in Cook County, and also means that any loss of non-residential property is likely to produce increases in residential tax bills even as homes drop in value.

Unfortunately for Cook County, the number of commercial and industrial properties has been falling over time. Data presented in the *Cook County Assessor's Office Final Assessment Abstracts* show that the total number of commercial properties in the county fell from 73,002 to 69,263 in 2008, and the total number of industrial properties declined from 27,879 to 25,110. The average commercial assessment was $262,491 in 2008 and the average industrial assessment was $171,480; these figures translate into market values of $1,049,964 and $685,920 at the re-calibrated 25 percent assessment level. Because each property needs to be replaced by a residential property with a value that is 2.69 times as expensive to keep property value unchanged, the commercial properties would need to be replaced by more than $100 billion in residential homes to keep the property tax bill constant, and another $5 billion would be needed to compensate for the loss of commercial property.[10]

These calculations show that a loss of non-residential property in a jurisdiction can lead to increases in homeowners' property tax bills even if all residential assessments remain constant over time. Tax bills will also change when property values change at different rates in different area within a jurisdiction. For example, suppose a jurisdiction's entire tax base is residential, with 1,000 properties that initially all have adjusted equalized assessed values of $50,000. The tax base is $50 million. If voters in the jurisdiction have authorized property tax extensions of $10 million, then the tax rate is .20, and each homeowner pays $10,000 in property tax. Now

[9] Note that these calculations use the same $5,500 homestead exemption that was used in the table from the Cook County Assessor's Office. When the figure is raised to $6,000 to be consistent with the current exemption, the value of $116,667 rises to $118,000 for counties other than Cook and the value rises from $269,340 to $271,107 in Cook County.

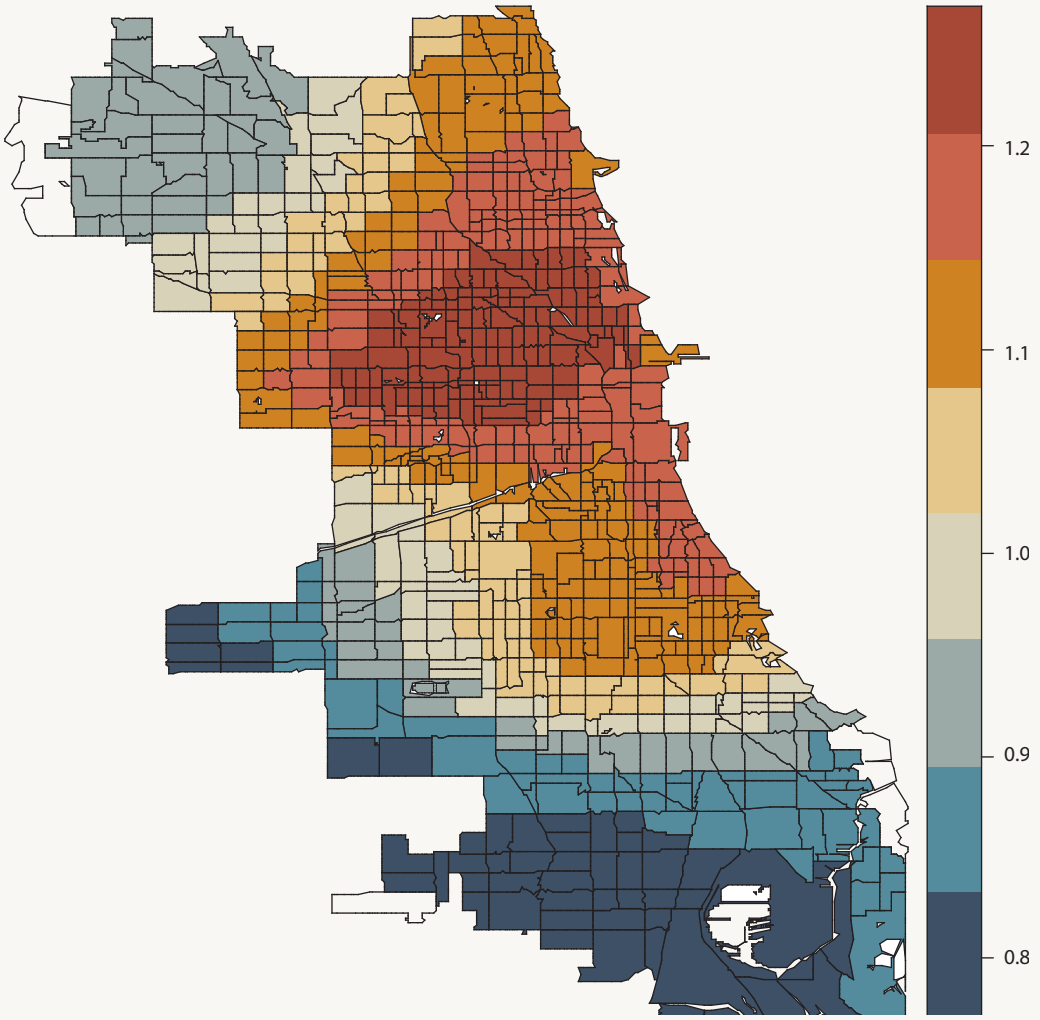
[10] The exact calculations are 2.69 × 1,040,964 × (73,002 – 69,262) = 104,772,722,420 for commercial and 2.69 × 685,920 × (27,879 – 25,100) = 5,127,601,819 for industrial.

Table 3
Comparison of Residential and Commercial Property Tax Rates and Their Influence on Each Other

Other Counties		Cook County		
Res.	**Com. or Ind.**	**Res.**	**Com. or Ind.**	
$116,667	$100,000	$269,340	$100,000	Estimated Market Value
× .33	× .33	× .10	× .25	Assessment Level (33 percent)
$ 38,500	$ 33,000	$ 26,934	$ 25,000	Proposed Assessed Valuation
× 1	× 1	× 2.8439	× 2.8439	2007 State Equalizer
$ 38,500	$ 33,000	$ 76,598	$ 71,098	Equalized Assessed Value (EAV)
– $5,500	– 0	– $5,500	– 0	(Exemption)
$ 33,000	$ 33,000	$ 71,098	$ 71,098	Adjusted Equalized Value (AEAV)
× .10	× .10	× .10	× .10	Sample Tax Rate
$ 3,300	**$ 3,300**	**$ 7,110**	**$ 7,110**	**Estimated Tax Bill in Dollars**

Source: http://cookcountyassessor.com/estimatedtaxbill.aspx

Figure 6
Appreciate Rates for Residential Properties in Chicago, 1995-2005



Source: Author's calculations using data obtained from the Illinois Department of Revenue

These calculations show that a loss of non-residential property in a jurisdiction can lead to increases in homeowners' property tax bills even if all residential assessments remain constant over time.

suppose that the market value of half of these properties falls by 10 percent, while the others are fortunate enough to remain unchanged. For simplicity, ignore the effect of exemptions, and assume that the adjusted EAV declines by 10 percent to $45,000. The tax base is now 500 × $45,000 + 500 × $50,000 = $47.5 million, and the tax rate must rise to .2105 to raise the required revenue. The tax bill for the properties that have declined in value falls to $9,474, but the tax bill for the houses that have not changed in value rises to $10,526. Thus, half the homeowners in the jurisdiction get higher tax bills even though their property value has not increased. The other half gets only a 5.26 percent decline in their tax bills even though their property values fell by 10 percent. Though this result may lead to some complaining, it is a mathematical necessity if tax extensions are not included.

Although we do not yet have sufficient data to observe variations within jurisdictions in the decline in property values since 2007, it is clear that appreciation rates varied markedly during the boom time preceding the decline. Figure 6 shows average appreciation rates for residential properties for census tracts in the City of Chicago for 1995-2005. During this time, sales prices increased markedly throughout Chicago. Appreciation rates were much higher in areas near the city center on the north side of the city. Property values grew at much lower rates on the south

side of the city. If tax extensions remained constant during time and there were no change in the number of properties or the mix of residential and non-residential properties and assessments accurately reflect changes in market value, then tax payments would increase in the areas of the city that are in red relative to the areas shaded in blue. If the red areas also experienced greater declines in property values after prices began to decline in 2007, then these areas will eventually come to be the beneficiaries of lower tax payments while the blue areas may make higher tax payments even as their homes drop in value.

The Illinois Property Tax Extension Limitation Law (PTELL)

PTELL was first adopted in 1991 by the five collar counties of suburban Chicago. It was extended to Cook County in 1994, and has since been adopted by another 33 counties in the state. PTELL limits the growth rate in total property tax to the lesser of the rate of inflation and 5 percent. The limits are implemented by imposing a maximum tax rate for jurisdictions in PTELL areas. Because declining assessments must be accompanied by higher tax rates to keep extensions at their target levels and PTELL imposes maximum tax rates on jurisdictions, do falling house prices necessarily lead to lower property tax extensions in PTELL jurisdictions?

This question is addressed in a recent study by Dye, McMillen, and Merriman.[11] The answer to the question is no; although PTELL imposes limits on increases in property tax extensions, the interaction between falling assessments and the maximum tax rate imposes no additional constraints on tax extensions. The reason for this somewhat counter-intuitive result is that the maximum tax rate is not set by law; instead, it varies to allow extensions to reach the same level that would have been reached if assessments had not changed. An example from the Dye, McMillen, and Merriman study captures the essence of the rate setting process. The maximum tax rate imposed by PTELL can be written as follows:

Maximum tax rate = {(prior extensions) × (1 + inflation factor)} / (new total tax base), or

$$t_{ptell} = \frac{(T_{last\ year}) * (1+p)}{B_{this\ year}}$$

where, as before, T represents total tax extensions, B represents the total assessment base, and t represents the tax rate. The new variable is p, which represents the inflation factor—the less of the rate of inflation or 5 percent.

In times when assessments are rising, PTELL is implemented by imposing a limit on the tax rate. An example based on one presented in the Dye, McMillen, and Merriman study illustrates how PTELL affects total tax extensions for a representative school district in a time when assessments are falling. The representative district starts with total EAV (B) of $100 million and a tax rate (t) of 2.5 percent, a combination that provides $2.5 million in total tax extensions (T). Suppose that assessments fall by 10 percent so that the new tax base is $90 million instead of $100 million. Also, suppose that the overall inflation rate is zero, and the district therefore decides to leave tax extensions unchanged from the previous period. The tax rate then must rise by exactly the amount that assures that the $90 million tax base produces $2.5 million in taxes. Thus, the new tax rate in this non-PTELL district is simply 2.5/90 = 2.78 percent, or an increase of 0.28 percentage points.

Suppose that an identical district that is subject to PTELL also began with a $100 million tax base, a tax rate of 2.5 percent, and total tax extensions of $2.5 million. If the district's maximum rate remained at 2.5 percent, then tax revenue would fall to

[11] Dye, Richard F., Daniel P. McMillen, and David F. Merriman, "The Effect of Declining House Prices on School Property Taxes and School Aid in Illinois," University of Illinois Institute of Government and Public Affairs (2010).

.025 × 90 = $2.25 million. But the maximum tax rate adjusts to allow the district's expenditures to keep up with the less of 5 percent or the inflation rate, which in this case is simply zero. So the new maximum tax rate is 2.5/90 = 2.78 percent, which is exactly the same as in the otherwise identical non-PTELL district.

The general point is quite simple: property tax rates are not constant over time in Illinois. Rather, the tax rate changes to keep ensure that the tax base provides the amount of revenue agreed upon by voters. Though PTELL places limits on total increases in tax extensions, it places no limits on how much tax rates can change in response to changing assessments.

Conclusion

Falling property values do not automatically impose fiscal stress on state and local governments. In the short run, assessments do not change and tax rates stay the same unless tax extensions change. Although assessments eventually will fall to reflect changing market conditions, homeowners' tax payments may stay the same as before. In Illinois, as in most of the country, tax extensions do not adjust passively to changes in assessments: increases in assessments do not automatically produce increases in property taxes, and declines in assessments do not automatically produce decreases in property taxes. Instead, it is tax rates that adjust to changing assessments.

The distribution of assessment changes can have a significant effect on a homeowner's tax bill, however. Areas with smaller declines in assessments may end up having higher tax bills even though their homes have decreased in value. Declines in the non-residential tax base can lead to large increases in residential tax bills irrespective of the direction of change in home prices. But the most fundamental effect of declining house prices on property taxes is much less direct: if voters turn down tax requests when property values fall, then taxes will eventually fall. In the end, it is voters who determine the overall size of property tax extensions, not house prices.

Daniel P. McMillen has a joint appointment in the Department of Economics and the Institute of Government and Public Affairs. He also is a visiting fellow at the Lincoln Institute of Land Policy and a consultant at the Federal Reserve Bank of Chicago. He served as the Director of the Center for Urban Real Estate at the University of Illinois at Chicago from 1999-2005, and has been a member of the economics departments at the University of Oregon, Santa Clara University, Tulane University, and the University of Illinois at Chicago. McMillen received his Ph.D. in Economics from Northwestern University in 1987. His publications have appeared in such academic journals as the *Journal of Urban Economics, Regional Science and Urban Economics*, the *Review of Economics and Statistics, Real Estate Economics*, and the *Journal of Business and Economic Statistics*. He has been co-editor of *Regional Science and Urban Economics* since 2007.

Falling property values do not automatically impose fiscal stress on state and local governments. In the short run, assessments do not change and tax rates stay the same unless tax extensions change.