SURPRISE!
An Unintended Consequence

Renovation and infill construction are often present in areas with rapidly rising property values, as in this Chicago neighborhood.

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Public policy changes often have unintended consequences—side effects, feedback effects, benefits to individuals not in the target group, unexpected costs, perverse incentives, new opportunities to game the system, and the like. Early experiences with assessment limitation measures reveal an unanticipated result: some property owners seemingly targeted to benefit from lower assessments may be harmed instead.

The Appeal of Assessment Limitations

What has been the impetus for assessment growth limitations? Rapidly rising housing prices have produced property tax revolts in many areas where assessments respond to market values. Forty-three of the 48 continental United States have some form of explicit limits on property taxes, and 20 states use assessment limits or caps (Anderson 2006). Youngman and Malme (2005) summarize various types of policy responses to property tax volatility, including direct limits on tax rates as well as limits on revenue and expenditure increases.

Many local jurisdictions have adopted or proposed specific limits on assessment increases, which typically take the form of a restriction on the annual percentage increase in a property's assessed value. The extreme form is a freeze—that is, no increase for the duration of a property owner's residence in that home. Such assessment limits are popular because they do not directly restrict

# of Assessment Limitations

a jurisdiction's ability to raise revenue for desired government services, but they do provide some insurance that long-term homeowners' property taxes will not grow to exceed their ability to pay. Of course, there can be unanticipated effects from these freezes. Reassessment upon sale can make it expensive for homeowners to move, and may depress real estate markets. This is a subject of intense current debate in Florida.

Assessment limitations that do not affect total property tax collections are attractive because they can be presented as a free lunch: the limits hold down property taxes without restricting expenditures. The cost for this seemingly free lunch is hidden in the distributional effects of assessment limits. If expenditures remain constant, the limits should lower taxes for favored groups such as homestead properties by raising taxes for groups whose assessments are not restricted—an expected result that comes as no surprise. The surprise is that taxes also go up for many property owners in the favored groups.

The Element of Surprise

Even informed policy analysts may be surprised that assessment limits can lead to higher taxes for some property owners whose assessments had been lowered. Researchers from Colorado, Idaho, Illinois, and Minnesota presented the results of their studies showing the effects of proposed or existing limitation measures in their states at a workshop sponsored by the Lincoln Institute in November 2006. They experienced initial surprise that the assessment limitations produced higher taxes for many property owners whom they would have expected to receive tax relief. Puzzled by this counterintuitive result, they went back and reviewed their analyses for mathematical errors. But the math was correct: assessment limits produced higher taxes for many property owners whose assessments had been reduced.

All states with assessment limitation measures explicitly exempt some classes of properties from those limits. Single-family homes are typically favored by the caps, while assessment increases are usually left unrestricted for commercial and manufacturing properties. Not surprisingly, these measures have transferred the tax burden from favored property classes to properties that are excluded from the limits.

The more surprising result—that taxes may actually increase for homeowners who appear to be benefiting from assessment limits—is documented for Cook County, Illinois (Dye, McMillen, and Merriman 2006) and for the state of Minnesota (Minnesota Department of Revenue 2007). Dornfest (2005) estimates the effects of the shift from a proposed assessment limitation in Idaho. The common result: a portion of the tax relief for property owners in some favored groups is paid for by higher taxes among other seemingly favored owners.

The Minnesota results are representative. The rates of increase for assessments there were limited

Commercial property owners pay higher tax rates to compensate for limits on the assessment of residential properties. These building are located along the Chicago River.

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for four favored property groups—residential, agricultural, seasonal recreational residential (cabins), and timberland. In their presentation at the Lincoln Institute workshop Mark Haveman and Paul Wilson reported that Minnesota's assessment limits produced higher taxes for more than one-third of the properties in these favored groups. Indeed, 78 percent of all residential homesteads (owner-occupied homes) had to pay *higher* taxes after the limitation measure than they would have paid if assessments had remained unrestricted. This group paid higher taxes because their property values rose less dramatically than those of other taxpayers.

When the assessment limits led to significantly lower taxes for some taxpayers, this decrease had to be made up somewhere; in the Minnesota case many residential homesteads paid higher taxes. The Minnesota Department of Revenue (2007) explains this finding of a significant shift to supposedly favored properties as follows: "This seemingly counterintuitive result occurs because the limitation on these residential homestead properties was overwhelmed by proportionately larger limitations on other properties."

This apparently surprising increase in taxes for favored groups is not really unexpected; it is a mathematical necessity. Given a lower total tax base and the same level of expenditure as before, the tax *rate* has to increase. The higher tax rate offsets some of the tax relief even for properties with lower assessments, and it leads to higher taxes for any property owner whose assessment is not limited. Within the class of favored properties, taxes will increase for properties with relatively low appreciation rates.

Examples of Tax Shifts

We use simple numerical examples to show how an assessment limitation measure produces these results. Basic algebra shows that tax payments rise for properties not eligible for the cap and for eligible properties with appreciation rates *below* the cap. The examples demonstrate that taxes can increase significantly even for properties with appreciation rates *above* the limits. The extent of the tax increase is higher as the share of favored properties with higher appreciation rates increases in the overall tax base. Naturally, actual policies are more complicated than the stylized model developed here. But the model accounts for the important features of existing policies and shows that these

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TABLE 1
Tax Burden Differences with a 5-percent Assessment Growth Cap and a Fixed Tax Levy

Example A. Two Properties: Cap-eligible and Ineligible (both grow at 20 percent with 50/50 initial shares)				
	Before	**After with cap**	**After without cap**	**Difference**
Tax Base:				
Ineligible	500,000	600,000	600,000	0.00%
Cap-eligible	500,000	525,000	600,000	−12.50%
Sum (B)	1,000,000	1,125,000	1,200,000	−6.25%
Tax Levy (T):		20,000	20,000	0.00%
Tax Rate (t):		1.78%	1.67%	6.67%
Tax Bill:				
Ineligible		10,667	10,000	6.67%
Cap-eligible		9,333	10,000	−6.67%

Example B. Two Properties: Cap-eligible and Ineligible (both grow at 20 percent with 80/20 initial shares)				
	Before	**After with cap**	**After without cap**	**Difference**
Tax Base:				
Ineligible	800,000	960,000	960,000	0.00%
Cap-eligible	200,000	210,000	240,000	−12.50%
Sum (B)	1,000,000	1,170,000	1,200,000	−2.50%
Tax Levy (T):		20,000	20,000	0.00%
Tax Rate (t):		1.71%	1.67%	2.56%
Tax Bill:				
Ineligible		16,410	16,000	2.56%
Cap-eligible		3,590	4,000	−10.26%

Example C. Two Properties: Low-growth Cap-eligible (10 percent) and High-growth Cap-eligible (20 percent) (with 50/50 initial shares)				
	Before	**After with cap**	**After without cap**	**Difference**
Tax Base:				
Low cap-eligible	500,000	525,000	550,000	−4.55%
High cap-eligible	500,000	525,000	600,000	−12.50%
Sum (B)	1,000,000	1,050,000	1,150,000	−8.70%
Tax Levy (T):		20,000	20,000	0.00%
Tax Rate (t):		1.90%	1.74%	9.52%
Tax Bill:				
Low cap-eligible		10,000	9,565	4.55%
High cap-eligible		10,000	10,435	−4.17%

Example D. Three Properties: Ineligible (20 percent), Low-growth Cap-eligible (10 percent), and High-growth Cap-eligible (20 percent) (with 30/30/40 initial shares)				
	Before	**After with cap**	**After without cap**	**Difference**
Tax Base:				
Ineligible	300,000	360,000	360,000	0.00%
Low cap-eligible	300,000	315,000	330,000	−4.55%
High cap-eligible	400,000	420,000	480,000	−12.50%
Sum (B)	1,000,000	1,095,000	1,170,000	−6.41%
Tax Levy (T):		20,000	20,000	0.00%
Tax Rate (t):		1.83%	1.71%	6.85%
Tax Bill:				
Ineligible		6,575	6,154	6.85%
Low cap-eligible		5,753	5,641	1.99%
High cap-eligible		7,671	8,205	−6.51%

apparently surprising results are actually an inherent feature of any tax limitation measure that attempts to provide tax relief without curbing expenditures.

The total tax levy (T) in a jurisdiction is the product of the tax rate (t) times the total tax base (B): $T = t\,B$. Assume, as is usually the case, that the total tax levy is determined by the local taxing jurisdiction, the total tax base is determined by market values of property as measured by the local tax assessor, and the tax rate is set by their ratio: $t = T / B$.

There are requirements, restrictions, and practices that could constrain or complicate this simple relationship, but the basic case allows us to make some summary points about the tax burden shift associated with assessment limits using simple numerical examples. Such factors as homestead exemptions, other assessment preferences, time lags in assessing changes in market value, assessment at a fraction of market value, or different assessment fractions for different types of property would complicate the presentation, but not change the basic result. Binding limitations on tax rates could, but need not, alter our conclusions.

Point I: *When the total tax levy is fixed, any tax rate adjustments that favor some property owners by lowering assessments must raise tax burdens for others.*

All that is needed for the basic result of a tax burden shift due to assessment limitations is two classes of property, one capped and the other not. Increases in the value of capped property above the assessment limit are not included in the new tax base, but increases in the value of capped property below the limit and all of the increase in the value of uncapped property are included. Since the total tax levy (T) is the same in either case, the tax rate with the cap-restricted tax base is necessarily higher than the tax rate in the unrestricted case.

Example A illustrates this simple result. There are two properties with a value of $500,000 in the prior period and both appreciate 20 percent. If appreciation in assessed value for eligible property is capped at 5 percent, the tax rate has to be 6.67 percent higher than it would be without the cap in order to support the local government levy of $20,000 (see table 1-A). By assuming equal initial shares of the tax base, Example A has equal and opposite benefits and burdens. The *dollar* amounts of benefits and burdens will always be equal, but the shift as a *percentage* of tax bills depends on the

For some modest homes with low appreciation, an assessment cap will not reduce taxes, and might even increase them.

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relative size of the tax base of the cap-eligible and ineligible properties.

Point II: *The magnitude of the benefits and burdens depends on the relative shares of total property owned by the benefited and burdened groups. The smaller is the share of the beneficiary group, the larger will be the savings per beneficiary and the smaller will be the percentage increase on those burdened.*

Example B changes the initial shares of the cap-eligible and ineligible property groups in the total tax base from 50/50 to 80/20 (see table 1-B). With a larger ineligible group on which to shift the burden, the favored group sees their tax savings increase from 6.67 to 10.26 percent while the ineligible group pays only 2.56 (instead of 6.67) percent more in taxes.

Point III. *A tax shift will even occur with an assessment cap that seemingly covers all property in the jurisdiction, if there are variations in property appreciation rates.*

For Example C, we assume all property is subject to the cap, but distinguish capped properties with low and high growth rates (see table 1-C). We go back to a 50/50 tax base share as a starting point. Any increase in property values over 5 percent is exempt from the base, but some property grows at 10 percent while other property grows at 20 percent. The low-growth owners may seem to benefit from the decrease in their taxable value, but—surprise!—the revenue-neutral increase in

tax rates of 9.52 percent will more than offset their 5 percent lower tax base. On balance, low-growth owners pay 4.55 percent higher tax bills to pay for the more generous exemption that nets high-growth property owners a 4.17 percent savings.

Point IV. *A tax shift can occur to seemingly eligible properties with low appreciation even if there is an ineligible group to bear some of the burden.*

Example D illustrates three different groups of properties (see table 1-D): ineligible (perhaps representing commercial and industrial property); low-growth (eligible residences with modest appreciation); and high-growth (residential properties in the area of town with a "hot" real estate market). The initial shares in this example are 30 percent ineligible, 30 percent low-growth eligible, and 40 percent high-growth eligible. The assessment growth cap is still 5 percent and the growth rates are 20 percent ineligible, 10 percent low-growth eligible, and 20 percent high-growth eligible.

As before, and as will always be the case, the ineligible properties pay higher tax bills because rates go up. As before, and as will always be the case, the highest appreciation eligibles are net beneficiaries because of the large fraction of their would-be taxable property value that is exempt. Given the assumptions of this particular example, the low-growth eligibles come out behind (with 1.99 percent higher taxes) since the tax rates

increase more than the exemption reduces their tax base.

Point V. If there is a range of appreciation rates for individual properties that starts at or below the rate at which assessments are capped, there will always be a subset of seemingly eligible property owners who are worse off with an assessment cap.

The middle group in examples like the previous one (the low-growth, cap-eligible properties) could be net beneficiaries if the ineligible properties were sufficiently large in number or if the low-growth appreciation rates were sufficiently close to the high-growth properties. If, for example, the low-growth properties experienced a *15* percent growth rate and all the other assumptions of Example D were the same, the low-growth group would see a tax *cut* of 1.19 percent compared to the situation with no assessment limitation. This appears to contradict our assertion that it is a "mathematical necessity" that some seemingly eligible property owners are paying higher taxes when assessments are capped, but it results from our simplification to just two or three property groups.

In a more realistic setting there are thousands of individual properties and a wide range of different appreciation rates. If the range of appreciation rates for cap-eligible property starts at or below the assessment cap, there will always be some properties above but sufficiently close to the cap for which the increase in tax rates more than offsets the small reduction in their tax base. It is obvious, but important to note, that properties in the cap-eligible group but with appreciation rates *below* the assessment cap will always come out behind.

The relative magnitudes of the benefits and burdens from an assessment growth limitation depend on the interaction of several factors: differences in initial tax base shares and growth rates among the groups, and how close the growth rates are to the assessment cap rate. We have shown only four specific numerical examples here, but readers interested in a more general algebraic treatment of the relationships can see Dye and McMillen (2007) or Dornfest (2005) for detailed examples and a different perspective on many of these points.

Conclusion

Assessment limitations appear to be an attractive policy option because they prevent a homeowner's property tax from rising rapidly, but do not place restrictions on expenditure growth. Caps restrict property tax increases in rapidly appreciating areas by transferring tax burdens to exempt sectors and to homes in areas with low appreciation rates. However, to keep revenues from falling, simple algebra shows that taxes *must* rise for some properties in order to provide tax relief to others.

Many observers are surprised to find that taxes may actually rise for property groups that appear to be enjoying tax relief under an assessment cap. If a large proportion of revenue in a jurisdiction comes from properties with high appreciation rates, taxes will be higher for properties with appreciation rates that are above but close to the cap. Homeowners with appreciation rates of 7 percent in a jurisdiction with a cap of 5 percent can pay more than they would if many properties are appreciating at much higher rates. The primary effect of an assessment cap is to shift tax burdens from favored to unfavored groups and—the policy surprise— from eligible properties with high appreciation rates to those that are appreciating at a lesser rate. **L**

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