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# How Do Foreclosures Affect Property Values and Property Taxes?

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In the wake of the housing market collapse and the Great Recession—which caused a substantial increase in residential foreclosures and often precipitous declines in home prices that likely led to additional foreclosures—many observers speculated that local governments would consequently suffer significant property tax revenue losses. While anecdotal evidence suggests that foreclosures, especially when spatially concentrated, lowered housing prices and property tax revenue, the existing body of research provides no empirical evidence to support this conclusion (box 1). Drawing on proprietary foreclosure data from Realty-

Trac—which provides annual foreclosures by zip code for the period 2006 through 2011 (a period that both precedes and follows the Great Recession)—this report is the first to examine the impacts of foreclosures on local government property tax values and revenues. After presenting information on the correlation between foreclosures and housing prices nationwide, we shift focus to Georgia in order to explore how foreclosures affected property values and property tax revenue across school districts throughout the state. Our empirical analysis indicates that, indeed, foreclosures likely diminished property values and property tax revenues. While still preliminary, these findings suggest that foreclosures had a range of effects on the fiscal systems of local governments.

## Potential Links between Housing Prices, Foreclosures, and Property Values

Local governments in the United States rely on various own-source revenues, including local income, property, and general sales taxes and specific excise taxes, fees, and user charges. Of these, the dominant source is by far the property tax. In 2011, local property taxes accounted for roughly three-fourths of total local government tax revenues and for nearly one-half of total local own-source revenues (including fees and charges).

Some local taxes, such as income and sales taxes, have bases that vary closely with the levels of economic activity, and the Great Recession seriously depressed revenues from such taxes. The basis of the property tax is assessed value, which does not automatically change in response to economic conditions; in the absence of a formal and deliberate change in assessment, a decrease in the market value does not necessarily translate into a decrease in assessed value. Assessment caps, lags in reassessments, and the ability to make deliberate changes in millage or property tax rates combine so that economic fluctuations that influence housing values may not affect the property tax base or property tax revenues in any immediate or obvious way. Over time, however, assessed values tend to reflect market values, and property tax revenues also come under pressure.

A weakened housing market—with lower housing values and more foreclosures—may reduce local government tax revenues from several sources (Anderson, 2010; Boyd, 2010; Lutz, Molloy, and Shan, 2010), including real estate transfer taxes, sales taxes on home construction materials, and income taxes from workers in the housing construction and home furnishings industries. Because property tax revenues are such a large share of local tax revenue, however, changes in property tax revenues are often larger than the changes from these other housing-related taxes.

## Foreclosure Activities Nationwide During and After the Great Recession

Figure 1 (p. 24) presents the total nationwide numbers of foreclosures at the 5-digit zip code level as a share of the number of owner-occupied homes in 2010. This figure demonstrates the clear geographic concentration of foreclosures. Arizona, California, and Florida were especially hard hit by the collapse of the housing bubble. However,

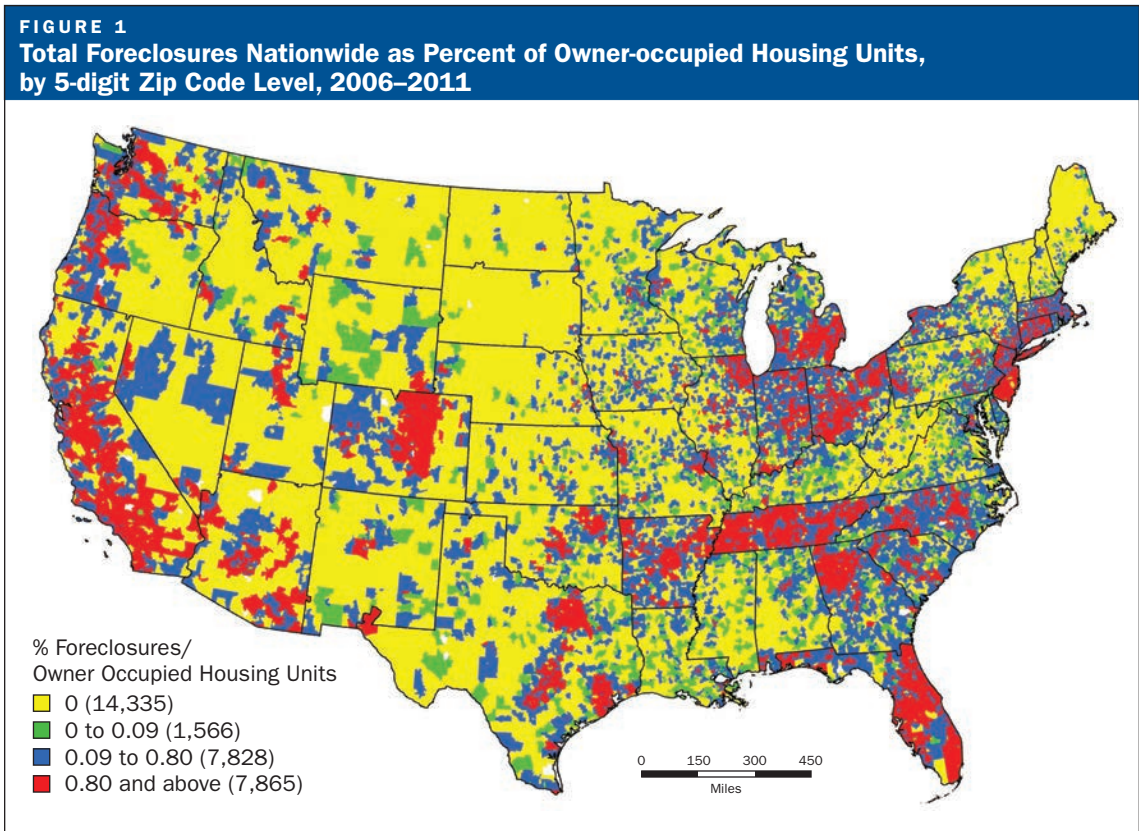
other areas also experienced significant foreclosure activity.

The Federal Housing Finance Agency (FHFA) produces a housing price index for each metropolitan statistical area (MSA). We matched the RealtyTrac foreclosure data to the FHFA housing price index for 352 metropolitan statistical areas. Figure 2 (p. 24) presents a simple scatterplot that relates total foreclosures over the years 2006 to 2011 as a share of the number of owner-occupied housing units in 2010, to the change in the housing price index over the period 2007 to 2012 for all 352 metropolitan areas. The simple correlation coefficient between foreclosures per owner-occupied

### BOX 1

#### Existing Research into the Impacts of Economic Factors on Property Tax Revenues

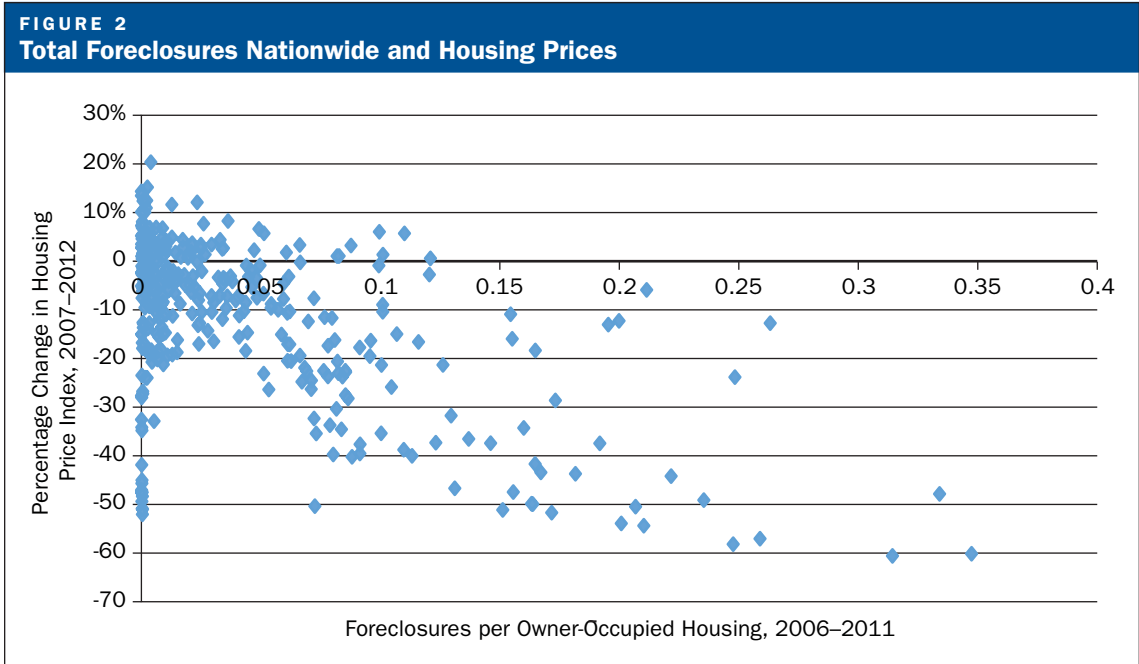
While there is existing research examining the various impacts of economic factors on property tax revenues, these studies use data that reflect only a previous recession (e.g., the 2001 recession) or that cover only the very start of the housing crisis in the Great Recession. Doerner and Ihlanfeldt (2010), for example, focus directly on the effects of house prices on local government revenues, using detailed panel data on Florida home prices during the 2000s. They conclude that changes in the real price of Florida single-family housing had an asymmetric effect on government revenues. Price increases do not raise real per capita revenues, but price decreases tend to dampen them. Doerner and Ihlanfeldt also find that asymmetric responses are due largely to caps on assessment increases, positive or negative lags between changes in market prices and assessed values, and decreased millage rates in response to increased home prices. Alm, Buschman, and Sjoquist (2011) document the overall trends in property tax revenues in the United States from 1998 through 2009—when local governments, on average, were largely able to avoid the significant and negative budgetary impacts sustained by state and federal governments, at least through 2009, although there was substantial regional variation in these effects. Alm, Buschman, and Sjoquist (2009) also examine the relation between education expenditures and property tax revenues for the 1990 to 2006 period. In related work, Alm and Sjoquist (2009) examine the impact of other economic factors on Georgia school district finances such as state responses to local school district conditions. Finally, Jaconetty (2011) examined the legal issues surrounding foreclosures, and the MacArthur Foundation has funded a project on foreclosures in Cook County, Illinois.



Source: Authors' calculations from RealtyTrac data.

housing units and the change in housing price index is -0.556; if we consider only those MSAs with non-zero foreclosures over the period, the correlation coefficient is -0.739. This simple analysis suggests that foreclosures have a significant

negative relation with housing values. The next step is to explore the effect of foreclosures on the property tax base and on property tax revenues. In the next section, we examine this issue for the state of Georgia.



Source: Authors' calculations from RealtyTrac data.

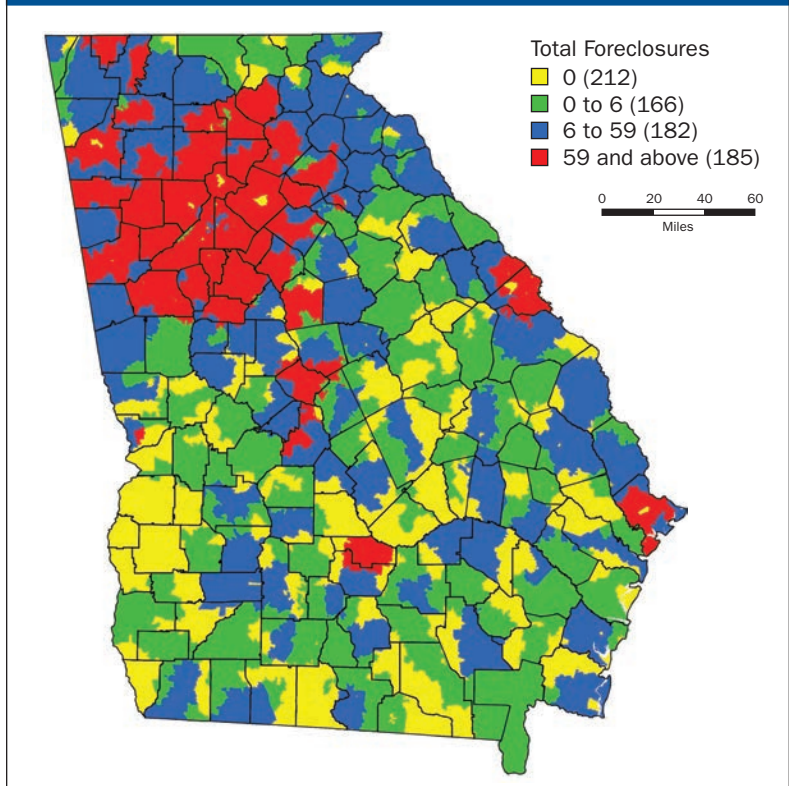
**More Detailed Analysis: Foreclosures, Property Values, and Property Tax Revenues in Georgia**

By examining the effect of foreclosures on property values and property tax revenues in a single state, we eliminated the need to control for the many ways in which institutional factors may differ across states. Georgia is a suitable focal point because in many ways it is roughly an “average” state. For example, local governments in Georgia rely on property taxes only slightly less than the national average; in 2008, property tax revenue as a share of total taxes for local governments was 65.1 percent in Georgia compared to 72.3 percent of the U.S. (Bourdeaux and Jun 2011).

We measure foreclosure activity with the RealtyTrac data, aggregating zip code observations into the corresponding counties. The Georgia Department of Revenue supplied the annual property tax base (referred to as “net digest” in Georgia) and property tax rates. Property tax and total local source revenues for school districts came from the Georgia Department of Education. The tax base is as of January 1 of the respective year. The property tax rate is set in the spring with tax bills being paid in the fall, the revenue from which would be reported in the following fiscal year. School districts are on a July 1 to June 30 fiscal year, so the 2009 tax base and millage rates, for example, would be reflected in revenues for fiscal year 2010. We also use various demographic and economic data (income, employment, and population) measured at the county level to help explain changes in the base. Because these variables are at a county level, for the analysis that follows, we added the property tax base and revenue variables for city school districts to those for the county school systems in each city’s county to obtain countywide totals for 159 counties. For counties that include all or part of a city school system, the tax rate is the average of the county and city school tax rates, weighted by the respective property tax base.

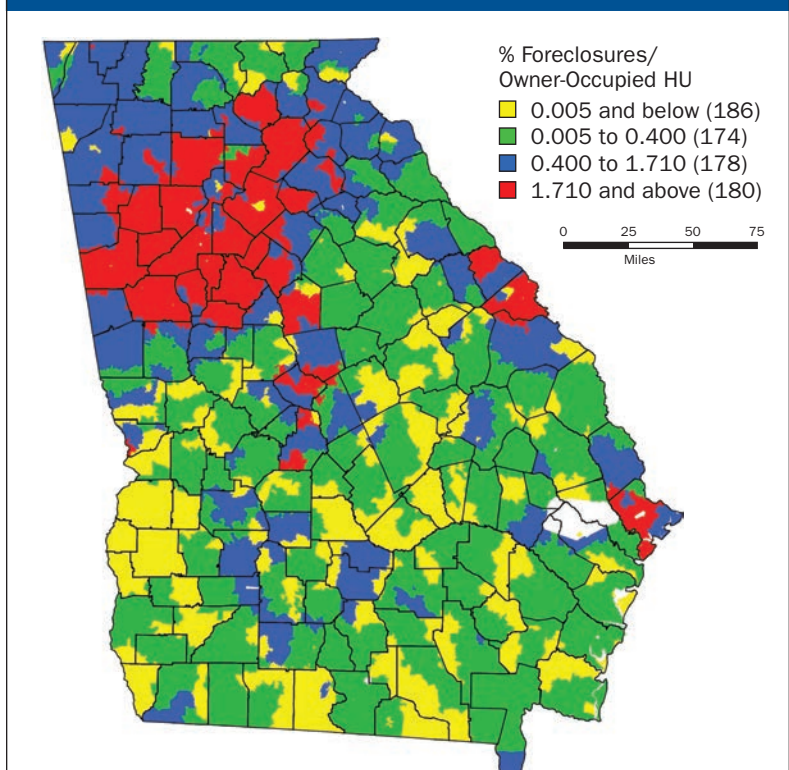
Only county governments conduct property tax assessment in Georgia, but the state evaluates all property tax bases annually, comparing actual sales of improved parcels during the year to assessed values, and determining if the assessment level is appropriate relative to fair market value, which is legally set at 40 percent. The resulting “sales ratio studies” report an adjusted 100 percent property tax base figure for each school district in the

**FIGURE 3**  
Total Georgia Foreclosures by Zip Code, 2006–2011



Source: Authors’ calculations from RealtyTrac data.

**FIGURE 4**  
Georgia Foreclosures as a Percent of Owner-occupied Housing by Zip Code, 2006–2011



Source: Authors’ calculations from RealtyTrac data.

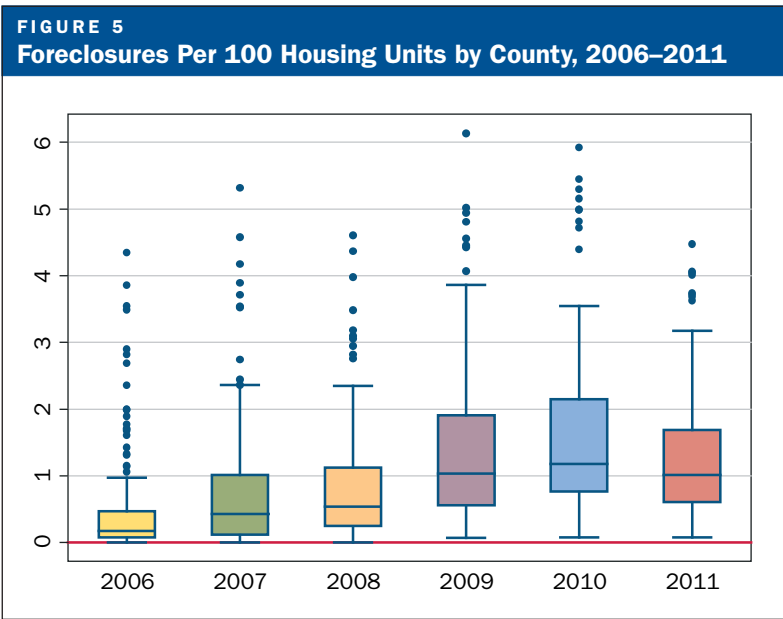
state, along with the calculated ratio. We use these adjusted property tax bases, covering the periods 2000 through 2011, to measure the market value of residential property.

Georgia has very few institutional property tax limitations. School district boards can generally set their property tax rates without voter approval, which is required only if the property tax rate for a county school district exceeds 20 mills. Currently, the cap is binding on only five school systems. Also, there is no general assessment limitation, although

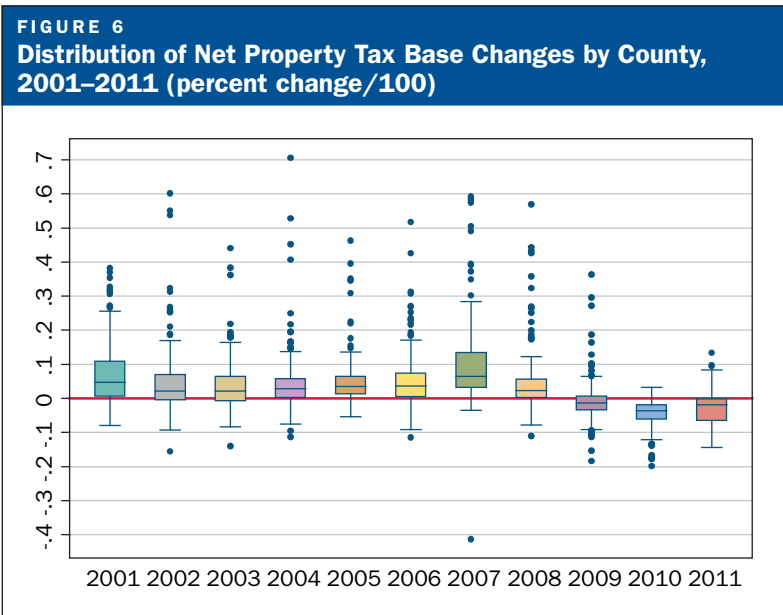
one county has an assessment freeze on homesteaded property. In 2009, the State of Georgia imposed a temporary freeze on assessments across the state, potentially affecting property tax revenue only in school year/fiscal year 2010; however, with net and adjusted property tax bases declining on a per capita basis for most counties in 2009 through 2011, it is unlikely that the freeze has constrained assessments.

**Foreclosures**

Table 1 provides the statewide mean and median number of foreclosures by zip code for 2006 through 2011. Total foreclosures almost doubled between 2006 and 2010, before declining in 2011. The mean number of foreclosures is much larger than the median, implying that the distribution is highly skewed.



Source: Authors' calculations from RealtyTrac data.



Source: Authors' calculations from Georgia Department of Revenue data.

**TABLE 1**  
**Foreclosures in Georgia by Zip Code, 2006-2011**

Year	Total Foreclosures	Mean Number	Median Number
2006	55,615	75.87	4
2007	75,191	102.58	11
2008	75,307	102.74	16
2009	97,195	132.60	30
2010	110,963	151.38	38
2011	85,865	117.14	31
<b>Total, 2006-2011</b>	<b>500,136</b>	<b>682.31</b>	<b>136</b>

Source: Authors' calculations from RealtyTrac data.

**TABLE 2**  
**Number of Georgia Zip Codes with Positive Foreclosures by Year**

Years with Positive Foreclosures	Number of Zip Codes	Percent
6	478	65.21
5	85	11.6
4	49	6.68
3	31	4.23
2	16	2.18
1	23	3.14
0	51	6.96
<b>Total</b>	<b>733</b>	<b>100</b>

Source: Authors' calculations from RealtyTrac data.

Table 2 shows the distribution of Georgia zip codes by the number of years that the zip code had non-zero foreclosures. Over 65 percent of the zip codes had foreclosures in each of the six years, while only 7 percent had no foreclosures in all six years. This distribution suggests that very little of the state was immune to the foreclosure crisis.

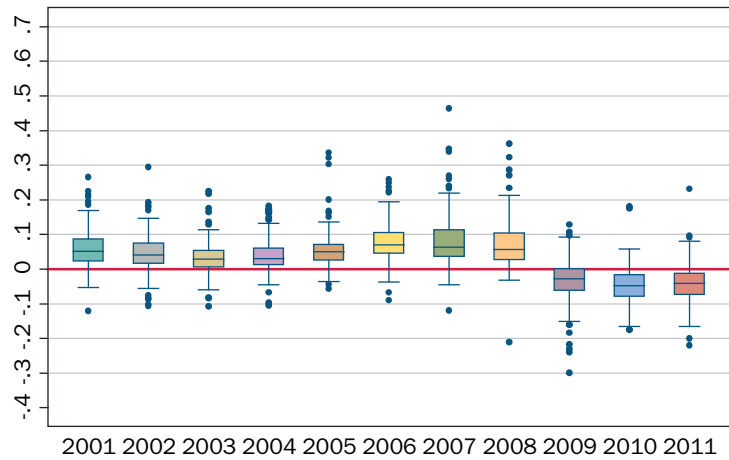
Figure 3 (p. 25) shows the distribution of foreclosures across the state over the period 2006 through 2011. Because zip codes differ in size and housing density, we also map the number of foreclosures per owner-occupied housing units for 2010 in figure 4 (p. 25). Note that zip codes marked in white either have no foreclosures or are missing foreclosure data. As one would expect, urban and suburban counties (particularly in the Atlanta metropolitan area) have the most foreclosures. However, there are large numbers of foreclosures in many of the less urban zip codes as well.

Figure 5 shows the annual distribution of foreclosures per hundred housing units in each of Georgia’s 159 counties. Note that the bar in the box represents the median value, the box captures the observations in the second and third quartile, the “whiskers” equal 1.5 times the difference between the twenty-fifth and seventy-fifth percentiles, and the dots are extreme values. The median number of foreclosures by county increased from 0.17 per 100 housing units in 2006 to 1.18 per 100 units in 2010—more than a sixfold increase in the median. There is a high positive correlation between foreclosure activity in 2006 and 2011 across the counties. This correlation is 0.78 when measured relative to housing units and 0.74 when measured on a per capita basis, indicating that counties with above (below) average foreclosure activity before the housing crisis remained above (below) average at its peak.

### Property Values

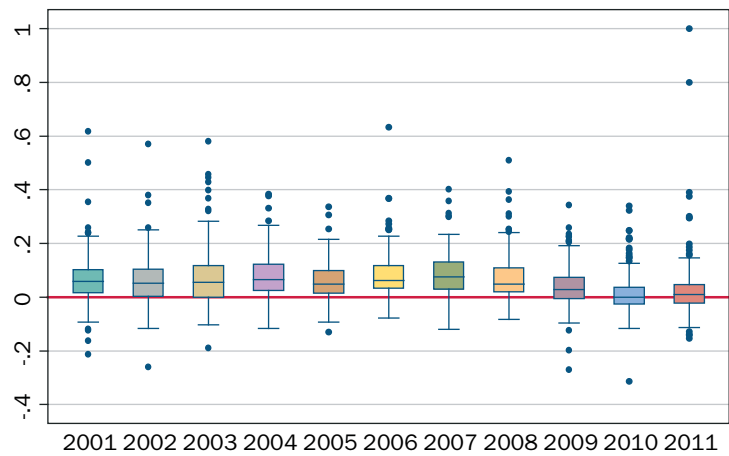
As for changes in property values, figures 6 and 7 show the distributions of annual changes, respectively, in the per capita net property tax base and in the per capita adjusted 100 percent property tax base across the 159 counties from 2001 through 2011. Studies suggest that foreclosures may have spillover effects on the market values of other properties in the jurisdiction (Frame, 2010). We attempt to estimate the effect of foreclosures on market values as measured by the adjusted 100 percent property tax base.

**FIGURE 7**  
Distribution of Adjusted 100% Property Tax Base Changes by County, 2001–2011 (percent change/100)



Source: Authors’ calculations from Georgia Department of Revenue data.

**FIGURE 8**  
Distribution of Property Tax Revenue Changes by County, 1998–2011 (percent change/100)



Source: Authors’ calculations from Georgia Department of Education data.

Our results are preliminary, in that the analysis included only Georgia data. Even so, they suggest significant negative effects of foreclosures on property values, controlling for year-to-year percent changes in income, employment, and population. The coefficient estimates on the foreclosures variable suggest that a marginal increase of one foreclosure per 100 homes (or approximately the increase in median foreclosures from 2006 to 2011) is associated with a roughly 3 percent decline in the adjusted 100 percent property tax base over each of the two following years. Similarly, an

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increase of one foreclosure per 1,000 population is associated with nearly a 1 percent decline in the adjusted 100 percent property tax base after one year, and a slightly lower percent decline in the following year.

**Property Tax Revenues**

We also explore the effect of foreclosures on property tax revenues. Figure 8 (p. 27) depicts the distribution of nominal changes by county in total maintenance and operations property tax revenues since 2001, showing considerable variation across the school systems in the annual changes in property tax revenues. Even in the latest three years of declining property values, at least half the counties annually realized positive nominal growth in property tax revenue. To understand the effect of foreclosure activity on local government property revenues, we estimate regressions that relate foreclosures to property tax levies and to actual property tax revenues.

We find that a rise in foreclosures is associated with a reduction in the levy, after controlling for changes in the property tax base as well as fluctuations in income, employment, and population. An increase of one foreclosure per 100 housing units is associated with about a 1.5 percent subsequent decline in the levy, all else held constant. We also find that foreclosures have a negative impact on revenues, all else constant. Like our earlier estimates, these results are for Georgia only, but they indicate a significant negative relationship between foreclosures and local government property tax levies and revenues. It may be that higher foreclosure activity makes local officials hesitant to raise property tax rates to offset the effect of foreclosures on the tax base.

**Conclusions**

How have foreclosures driven by the Great Recession affected property values and property tax revenues of local governments? Our results suggest that foreclosures have had a significant negative impact on property values, and, through this channel, a similar effect on property tax revenues, at least in the state of Georgia. Our results also suggest additional effects on levies and revenues after controlling for changes in the tax base. Further work is required to see whether these results extend to other states. □