

the state constitution to limit the annual increase in the taxable value of a homestead property to 3% or the rate of inflation, whichever is less, regardless of actual annual increases in the property's market value during the owner's tenure.^{1,2} The SOHA protects owners of homestead properties with rapidly increasing market values from large increases in their property tax liabilities from one year to the next as long as they continue to own the property. Upon a transfer of ownership of the property, however, the taxable value is "reset" to the current market value for the new owner. As a result, homestead properties may have very different effective tax rates (property tax levied divided by market value) if the owners have occupied the properties for different time periods with different appreciation rates.

The provisions of the SOHA were implemented in 1995 and the amount of property value protected from taxation since that time has increased steadily to just over \$246 billion, or 13.9% of the total real property value within the state as of 2005. There is little doubt that the SOHA has shifted a significant portion of the property tax burden in the state onto the shoulders of non-homestead property owners. The purpose of this study, however, is to consider whether the SOHA has impacted the vertical equity or "fairness" in Florida's property tax system *within the* class of properties it was intended to protect (homestead properties).

A property tax system can be defined as vertically equitable if the taxable values of all properties in the jurisdiction are assessed at the same percentage of market value across all market value ranges.³ In other words, a vertically equitable ad valorem tax system levies taxes on the same proportion of market value for all properties, regardless of actual market value. A vertically inequitable tax system can be further classified as "regressive" if higher value properties are taxed more favorably than lower value properties and "progressive" if higher value properties are taxed less favorably than lower value properties. [See Paglin and Fogarty (1972) and Clapp (1990) for more discussion of this definition of tax system equity.] The Florida property tax system is inherently progressive due to a standard \$25,000 exemption to which all homestead properties, regardless of value, are entitled. All homestead properties in Florida within a given taxing jurisdiction face the same stated tax rate, but the fixed exemption amount for all homestead properties means that lower value homesteads face a lower assessment ratio and, therefore, a lower effective tax rate, than higher value homesteads, other things held constant.

The issue of whether the SOHA has affected the equity of Florida's property tax system arises when one considers that appreciation amounts and length of owner tenures may vary for properties in different market value ranges.⁴ Over time, the amount of value protected from taxation by the SOHA may vary across properties with different market values, thus leading to changes in the degree of vertical equity in the property tax system. This study detects changes in the progressivity of Florida's property tax system over a period of rising property values throughout the state.⁵

This paper is presented as follows. We first review the history of the SOHA in Florida and then provide summary evidence of the magnitude of its overall impact on taxable property values. We then describe the data sample and the method used in this study to analyze changes in the equity of the property tax system using a sample of over 17 million homestead properties throughout the state. The final section summarizes the results.

A Brief History of the SOHA

The SOHA appeared on Florida's 1992 general referendum ballot as a result of a four-year-long, grass roots petition drive aimed at limiting property tax increases for Florida homeowners. As mentioned earlier, the SOHA limits the annual

increase in the taxable value of a homestead property to 3% or the rate of inflation, regardless of the actual annual increase in the property's market value. Upon a transfer of ownership of the property, however, the taxable value is "reset" to the current market value for the new owner. The sponsoring organization for the petition drive (Save Our Homes, Inc., led by the elected property appraiser from a rapidly growing county in southwest Florida) sought voter support by, among other strategies, citing situations in which fixed-income, elderly, and/or lower-income homeowners who owned homes in areas with rapidly increasing values were being forced out of their homes because they could not afford to pay their property tax bills.

Critics responded by noting that this argument ignores the fact that even though the homeowners may not have experienced increases in income, they have experienced increases in their wealth as a result of increasing property values. Referring to the amendment as the "Property Appraisers' Re-election Act" and the "Wealthy Homeowners' Relief Act," some opponents logically concluded that the benefits from the amendment would be much greater for owners of properties with greater appreciation rates and for residents who occupy their homes for longer time periods. Critics also suggested that the amendment would unfairly shift a larger portion of the tax burden onto non-homestead properties and that the amendment would discourage people from moving from one home to another. Despite these objections, the petition drive was successful and the amendment was ultimately approved with 54% of the voter-turnout in November, 1992.

Even after its approval by voters, the SOHA has faced several efforts to alter its provisions over the years. The Florida Department of Revenue challenged the amendment in state court soon after its approval by voters because it did not include an effective date of implementation. In 1994, the Florida Supreme Court ruled that the amendment would take effect on January 1, 1995. Another potential change to the amendment was proposed in 1998 by some members of the state's Constitution Revision Commission. This commission is a panel of citizens that is created every 20 years to review the state constitution and suggest changes to voters. The panel voted 19–7 against supporting another constitution amendment referendum that would limit the original provisions to apply only to homes worth less than \$200,000.

More recently, the 2006 and 2007 sessions of the state legislature included debate on several potential changes to the SOHA, with most of the discussion centered on removal or modification of the "reset" provision. The rapid rise in property values around the state in recent years has generated a large amount of property tax protection for many homestead property owners, especially those who have owned their properties for longer time periods. If those owners decided to sell their current homestead and move to a different homestead (even one of equal value), their tax burden would increase by a significant amount. In addition, many taxing jurisdictions in the state have kept their stated tax rates at or near the same levels during this time period and total tax revenues have increased dramatically. Total property tax revenue in Florida has more than doubled from 1997 to 2006, with 42% growth since 2003. As of 2006, Florida's total property tax revenue was just over \$25.7 billion.

Several different bills intended to overhaul the property tax system in Florida were considered in the 2007 legislative session and a referendum is scheduled for early 2008 that will, if approved, make dramatic changes in the property tax structure in the state by, among other changes, doubling the homestead exemption amount to \$50,000 per homestead and permitting up to \$500,000 of the SOHA savings from one homestead to be transferred to another homestead should the property owner decide to relocate to a different homestead within the state within two years.

Overall Impact of the SOHA

Since implementation in 1995, the amount of property value protected by the SOHA has increased rather dramatically to over \$246 billion as of 2005. Each dollar of homestead property value that is protected by the SOHA means that more of the overall tax burden in the state falls on the shoulders of non-homestead property owners. Exhibit 1 shows the total growth in Florida's real property value, growth rates, and the total and percentages of total real property value protected by the SOHA in the state in each year since its implementation. Notice that the

	Total Real Property Value	Percentage Growth in Property Value	SOHA Protected Value	% of Total
1995	\$683,123,766,217	_	\$3,506,404,838	0.5%
1996	\$723,296,852,199	5.88%	\$5,938,987,246	0.8%
1997	\$769,223,110,139	6.35%	\$9,057,852,107	1.2%
1998	\$825,142,971,677	7.27%	\$14,131,913,869	1.7%
1999	\$824,300,534,955	-0.10%	\$20,753,804,777	2.5%
2000	\$889,160,096,936	7.87%	\$27,815,434,639	3.1%
2001	\$991,457,251,414	11.50%	\$47,678,672,028	4.8%
2002	\$1,112,860,700,518	12.24%	\$80,364,008,731	7.2%
2003	\$1,262,626,628,511	13.46%	\$117,830,891,821	9.3%
2004	\$1,452,501,131,102	15.04%	\$165,144,250,184	11.4%
2005	\$1,772,224,212,718	22.01%	\$246,253,858,022	13.9%

Exhibit 1 | Growth in Florida's Total Real Property Value and the Overall Impact of Florida's Save Our Homes Amendment (1995–2005)

Note: The source is Florida Property Valuation and Tax Data Book, Florida Department of Revenue (1996–2006).

percentage of the SOHA protected value is increasing steadily, even in 1999 when total property value was relatively unchanged. The rapid rise in total real property value (including both appreciation and new investment) between 2000 and 2005 is indicative of the impressive growth of the state's economy in recent years.

Data Sample Description

Beyond the overall impact of the SOHA in the state, variation in the rates of market value appreciation and ownership transfers for qualifying properties implies that the SOHA may have differential impacts on the vertical equity of the property tax system within the class of properties (homestead properties) it was intended to protect. If, for example, higher value homestead properties are appreciating more (less) rapidly than lower value homestead properties, the protection afforded by the SOHA will lead to a lower (higher) effective assessment ratio (taxable value divided by market value) over time for higher value homestead properties in comparison to the effective assessment ratio on lower value homestead properties. Similarly, if the rate of ownership transfer is greater (less) for homestead properties in certain market value ranges during periods of rising property values, the effective assessment ratio on such properties will be less (more) impacted by the amendment due to the provision that the taxable value be "reset" to current market value upon a transfer of ownership of a homestead property.

Data available to empirically detect changes in vertical inequity among homestead properties since the implementation of the SOHA are maintained by the Florida Department of Revenue, Property Tax Division. Each county in the state is required by law to report certain information about each parcel of real property in the county to the Department of Revenue each year, including, but not limited to, its market value as estimated annually by the county appraiser as of January 1 and all exemption amounts.⁶ The data are all tax roll records of the state of Florida as provided by the Department of Revenue for the tax years 1999–2004.

To provide a consistent measure of property value protected by the SOHA across the study period, the sample for this analysis includes only properties that were homesteaded at the start of the study period and maintained that status throughout the period. The final sample used in this analysis consists of over 17 million records. Descriptive statistics of the sample data are provided in Exhibits 2 and 3.

Exhibit 2 shows that the mean market value of homestead properties in the sample grew from \$92,760 in 1999 to \$155,890 in 2004, an overall growth of 68%. Simultaneously, the mean amount of homestead property value protected by the SOHA in the sample grew from 5.96% to 29.10%, an overall growth of over 388%. The SOHA has clearly and dramatically impacted the property tax system for homestead properties in the state.

Exhibit 3 shows similar statistics for the data sample divided into thirds for comparison across property value ranges. Growth in property values is evident in

Roll Year	N	Market Value		Percentage Market Value Protected			
		Mean	Median	Std. Dev.	Mean	Median	Std. Dev
1999	3,581,936	\$92,760	\$72,280	\$105,969	0.0596	0.0315	0.0836
2000	3,352,219	\$98,247	\$75,812	\$119,480	0.0748	0.0468	0.0928
2001	3,026,075	\$107,855	\$81 <i>,</i> 577	\$145,137	0.1131	0.0908	0.1060
2002	2,746,024	\$121,085	\$89,889	\$175,729	0.1715	0.1566	0.1191
2003	2,503,564	\$137,075	\$100,770	\$200,431	0.2278	0.2181	0.1333
2004	2,270,370	\$1 <i>55,</i> 890	\$114,000	\$224,022	0.2910	0.2913	0.1447
Total	17,480,188	\$115,422	\$85,400	\$162,065	0.1435	0.1082	0.1378

Exhibit 2 | Descriptive Statistics for Market Values and Percentage of Market Values of Homestead Properties Protected by the SOHA

Year	Low	Mid	High
Panel A: Mean	Market Value		
1999	\$39,104	\$73,346	\$166,915
2000	\$40,858	\$76,839	\$177,554
2001	\$43,800	\$82,784	\$197,911
2002	\$47 <i>,</i> 501	\$91,253	\$226,634
2003	\$52,211	\$102,393	\$260,062
Panel B: Mean	Percentage Amounts Protected	by the SOHA	
1999	5.49%	5.83%	6.17%
2000	6.54%	7.19%	7.82%
2001	9.69%	10.85%	12.61%
2002	14.21%	16.94%	19.96%
2003	18.33%	23.11%	26.95%
	tage Change in Market Value		
Panel C: Percer			
Panel C: Percer 2000	4.48%	4.76%	6.37%
Panel C: Percer 2000 2001	4.48% 7.20%	4.76% 7.74%	6.37% 11.47%
Panel C: Percer 2000 2001 2002	4.48% 7.20% 8.45%	4.76% 7.74% 10.23%	6.37% 11.47% 14.51%

Exhibit 3 | Mean Market Values of Homestead Properties, Mean Percentage Amounts Protected by the SOHA, and Percentage Changes in Market Value by the Low, Middle, and High Thirds of the Sample Data

all value ranges, but the higher value properties in the sample have grown more rapidly than lower value properties. Similarly, the percentage of property value in the data sample that is protected by the SOHA has grown most dramatically for higher value properties. The last section of the table shows that the percentage change in property value has been greatest for higher value properties.

Model for Detecting Vertical Equity in the Sample Data

As discussed above, the SOHA may have altered the degree of vertical equity within the property tax system. The property tax equity research literature contains numerous methods for detecting and measuring vertical equity within a property tax system using regression analysis (e.g., Paglin and Fogarty, 1972; Cheng, 1974;

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International Association of Assessing Officers, 1978; Kochin and Parks, 1982; Bell, 1984; Clapp, 1990; and Sunderman, Birch, Cannaday, and Hamilton, 1990). Several of these methods are compared and demonstrated by Sirmans, Diskin, and Friday (1995), Benson and Schwartz (1997, 2000), Smith (2000), and Allen (2003). Each of the methods considered in the above studies suffers from its own strengths and shortcomings and there is, therefore, no uniformly accepted "best" method among property tax researchers for evaluating property tax system vertical equity.

Most of the disagreement over the proper method for analyzing vertical equity in property tax systems focuses on the problematic use of sale price as a proxy for market value and endogeneity between market value and assessed value. [See Clapp (1990) and Sirmans, Diskin, and Friday (1995) for more detailed discussions of this issue.] We avoid the first of these issues because we are not concerned with the appropriateness of sale price as an indicator of market value. (Sale price does not appear in our model.) Our focus is on the impact of the SOHA as a result of differential appreciation and relocation rates, not on appraisal inaccuracy. We accept appraisers' estimates of market value at face value. We avoid the endogeneity problem by using the percentage of the appraiser's estimate of market value (MV) protected by the SOHA as the dependent variable, and the natural log of MV as the primary independent variable of interest.

Because the objective of this paper is to document the degree, if any, to which the SOHA has resulted in different accumulated property tax protection across homestead properties of different values over time, we propose the following statistical model:

$$(MV_i - AV_i)/MV/_i = \beta_0 + \beta_1 \ln MV_i + \sum_{j=2}^6 \beta_j D_j \ln MV_i + e_i,$$
 (1)

where MV_i and AV_i are the just and assessed values for property *i*, respectively, and $(MV_i - AV_i)/MV_i$, is the percentage of the market value shielded from taxation by SOHA for each property. Interaction variables are created by multiplying the tax roll year dummy variables, D_j , by the natural log of MV_i . The estimates of the coefficients for these interaction variables reflect the marginal changes in the variable $\ln MV_i$ for each succeeding year. If the effects of SOHA are accumulating in a regressive (progressive) fashion, the coefficient estimates of the slope (β_1) and marginal slope terms (β_2 through β_6) will be positive (negative). Persistently increasing or decreasing marginal slope coefficients over time would indicate that the changes in the equity of overall tax structure are ongoing.⁷ Our analysis method captures differences in the percentage of homestead property value protected by the SOHA between higher and lower value properties over time.

Variable	Coeff.	t-Stat.
Intercept	-0.223	-426.69
lnMV	0.025	537.28
InMV2000	0.001	207.77
InMV2001	0.004	670.43
InMV2002	0.009	1,274.86
InMV2003	0.014	1,710.71
InMV2004	0.019	2,113.71
F-Statistic	$\rightarrow \infty$	
R ²	0.37	

Exhibit 4 | Regression Estimates of Percentage of Market Value Shielded from Taxation Created by the SOHA on Log of Market Value and Interaction Variables

Results

Estimating the parameters of the model in Equation (1) using the sample data generates the results shown in Exhibit 4. The coefficient on $\ln MV$ is significant and positive, indicating increasing protected value from taxation as market value increases. In other words, higher value properties receive a greater benefit of the SOHA tax shield relative to lower value properties.⁸

The coefficients for the interaction variables are significant and positive and thus indicate increasing tax shields over time for higher value properties. *F*-tests of equality between the slope coefficients of each subsequent year (not shown) indicate that the coefficients are not equal: the SOHA tax savings persistently increases with time for higher value properties relative to lower value properties. For example, the interaction coefficient for 2004 is 19 times as great as the coefficient for 2000. These results provide strong evidence that the property tax system for homestead properties is becoming increasingly less progressive, that is, more neutral.

Conclusion

There is little doubt that the SOHA has shifted a significant portion of the property tax burden away from homestead properties and onto the shoulders of non-homestead properties. As of 2005, 13.9% of the total real property value in the state of Florida was protected from taxation by the SOHA. In addition, there is

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little doubt that the standard \$25,000 exemption available to all homestead properties imposes progressivity in the state's property tax system for homestead properties. The purpose of this study was to investigate any potential shift in the progressivity of the state's property tax system *within the class of properties the SOHA was intended to protect*, an argument that early opponents of the SOHA unsuccessfully attempted to use to derail its adoption on the grounds that the amounts of value appreciation and/or rates of ownership transfers may differ across property value ranges.

The results of analyzing of over 17 million observations over a six-year period strongly suggest that the degree of progressivity in Florida's property tax system for homestead properties has persistently declined in recent years. The state has experienced widespread and rapid increases in property values in most areas but, as the anecdotal evidence presented in Exhibit 3 suggests, the percentages increases tend to have been greater for higher value homesteads than for lower value homesteads. Combining the effects of differential appreciation and ownership transfers across market value ranges, the overall impact of the SOHA has been a reduction in the degree of progressivity in the state's property tax system during the study period. These results are consistent with the notion that owners of higher value homestead properties enjoy greater benefits from the SOHA than owners of lower value homestead properties in Florida.

This study provides potentially valuable information for policymakers and real estate market analysts. The results show that political manipulations of the property tax system to provide special treatment to homestead property owners may not uniformly benefit all of those property owners. The SOHA limits increases in taxable value from year to year, but requires the "resetting" of taxable value to market value upon a transfer of ownership. Longer tenure property owners may have lower effective tax rates than shorter tenure owners in markets with rising property values. The different effective tax rates may affect property owners' decisions to relocate as their housing preferences change. Different rates of appreciation across property value ranges can exacerbate the impact of the SOHA on property owners' relocation decisions.

Endnotes

- ¹ Homestead properties are those that serve as the primary personal residence of the owner(s) as of January 1 of each year.
- ² The market value of each taxable property in Florida is estimated annually by elected county property appraisers. We readily acknowledge that market value is a theoretical concept that cannot be directly observed. We assume that estimates of market value can be considered a random variable centered on true market value. Taxable (or assessed) value is determined by legal exemptions afforded to homestead property owners and the reduction in taxable value as a result of the SOHA.
- ³ Horizontal equity in property tax systems refers to different effective tax rates across properties with the same market values. The present study focuses on vertical equity.

- ⁴ Benson and Schwartz (1997) have suggested additional factors that might explain regressivity in property tax systems. They note that wealthy homeowners may be more likely to challenge their property tax assessments, that higher value properties pose additional difficulties for appraisers given their unique features and amenities relative to lower value homes, that upper-end homes trade in thinner markets, and that county appraisers may lack ample staff and resources to accurately estimate market value for high value homes.
- ⁵ The SOHA in Florida is similar to Proposition 13 that was implemented in California in 1978. Annual property taxes under Proposition 13 are limited to 1% of assessed value, and assessed value may only be increased by a maximum of 2% per year. When ownership of a property is transferred, the assessed value resets to market value for the new owner.
- ⁶ Exemptions include the SOHA protected amounts as described earlier, plus a standard \$25,000 exemption for all homestead properties, a \$2,500 senior citizens exemption (select counties only), and a variety of lesser exemptions such as \$500 for disabled persons, \$5,000 for disabled veterans, and \$500 for widows/widowers. Subtracting all available exemptions from a property's market value yields its assessed value.
- ⁷ The use of interaction effects is well accepted and is explored in detail in Neter, Kutner, Nachtsheim, and Wasserman (1996).
- ⁸ We use a consistent level of 0.1% level of significance throughout our discussion of the results.

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