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Property Tax Lids and the Effect on Kansas

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Abstract

Cross sectional time series data in a partial adjustment model examine local government behavior under an aggregate property tax levy limit and under Truth in Taxation in Kansas. Results indicate that the aggregate levy limit would have continued to restrict property tax revenue and spending had it not been replaced.

Introduction

This paper examines the state-level tax limitations placed on property tax revenue in Kansas. Over the past 35 years, the Kansas legislature has had some form property tax limitation in place. From 1989, the Kansas property tax limitation tied the amount of property tax revenue that could be generated to the 1989 assessed property value and value of new improvements to property. This control essentially limited the revenue collected to the same amount as the base year. However, local officials complained that this did not allow enough financial flexibility to meet the needs that occur at the county level. In 1999, Truth in Taxation replaced the aggregate tax levy limit. Truth in Taxation allowed local officials to increase the levy by any amount they deemed necessary, but officials first had to publicly announce their intentions through a resolution or an ordinance. This stipulation was supposed to act as a control mechanism for local government, in that it would allow taxpayers a chance to express their opposition.

The objective of this study is to examine patterns of county government public finances under the alternative "hard" tax lid, wherein a specific formula dictated the amounts of property tax that could be raised, versus the "soft" tax lid that provided local officials with greater discretion regarding raising tax revenues. A unique aspect of this research was the use of a tax levy factor to represent cumulative effects of the aggregate levy limit. The factor indexed property tax revenue generation to 1989, the first year under the law. County officials used this factor during the earlier law to calculate the

allowable growth of county government property tax revenue. This study projects this factor through 2004 to estimate tax lid effects had the law remained in place and then compares these estimates to actual revenues and effects under the Truth in Taxation law.

Literature Review

During World War II, state and local taxes generally held constant or decreased. After the war ended, many local governments expanded programs, which required more tax money. While local governments increased property tax rates to provide for expanded government programs, they also benefited from increased revenue due to increasing property values. During this time, increasing numbers of citizens started to feel over-taxed. Newspapers began to carry stories about the topic, including stories of some homeowners forced to sell their homes because of the tax burden (Fisher).

By the 1970s, property tax protests were sweeping the country, personified for many by California's 1978 Proposition 13. Local government tax limitation measures began as early as the 1800s, but most were implemented in the early 1970s. Nearly all local governments, and more than half of the states in the United States, were constrained in their budgeting by a statutory or constitutional limit on taxes, spending, or both. The statutory or constitutional limits came in several different forms. The limits at the local level were directed at tax rates, tax revenue, amount of expenditures, or the growth rate of revenue or expenditures.

As of 1992, 27 states had some sort of state government tax or expenditure limit. Seventeen states restricted the annual growth in own-source revenue or expenditures to the percentage growth rate of state personal income (Fisher). Six states restricted the annual growth in own-source revenue or expenditure to a fixed percentage limit. Four

states restricted the annual growth in own-source revenue or expenditure to the percentage growth in population and the general price level. The limitations of the 27 states were either instigated by taxpayers using the initiative and referendum process or, in most cases, proposed by the state's legislature. In the end, approximately half of the limitations were passed by a public vote and the other half passed by vote of the legislature (Fisher).

Early studies of state level tax limitation policies had a limited number of years under a tax limitation to analyze. Often the early research produced results that showed tax limitations had very little or no effect on the growth of taxes or government spending. As of 2004, 43 states had passed some form of tax and expenditure limit either at the state or local level (Glickman and Painter). Now that more time has passed, studies using fifteen to twenty years of data in which a tax limitation was in effect indicate that taxation limits have different effects on such things as growth of taxes and government spending.

Local government tax expenditure limitations come in many different forms: overall property tax rates, specific property tax rates, property tax levies, general revenue or expenditure increases, assessment increases, and full disclosure. Previous studies have not established the effectiveness of tax limitations (Skidmore). Table 1 lists selected studies by type of limitation and by the target of the limitation, while Table 2 shows selected studies, the estimation technique and the types of variables used in each study.

Tax and expenditures limitations affect nearly all United States voters and policy makers at either the state or local level or both. Government revenue and expenditures may have been affected by the tax and expenditure limitations that were put in place. By

knowing the effects, voters and policymakers can be informed and determine whether the policy achieved the desired outcome.

Conceptual Model

This research focuses on two types of limitations. First, the 1989 Kansas property tax levy limitation, which limited the annual growth of revenues, in effect until 1998. Secondly, Truth in Taxation, which took effect in Kansas in 1999. This research compares the two types of limitations to determine how each affected county government revenues and expenditures during the period 1989 to 2004.

It was hypothesized that as time passed under the levy limit, real property tax revenue per capita, real discretionary own-source revenue per capita, and real discretionary own-source expenditure per capita would have decreased. In addition, as time passed, real assessed property value per capita would increase because aggressively reassessing real property might give local officials a way to minimize the effects of the aggregate tax levy limitation by pushing up valuations with a fixed mill rate.

Data

Four dependent variables were chosen to observe the different ways the two limitation laws may have restricted the local governments in Kansas[1]: real property tax revenue per capita, real tangible assessed valuation, real discretionary own-source expenditure per capita, and real discretionary own-source revenue per capita. Real discretionary own-source expenditure per capita refers to the expenditures that are within local discretionary control and not dictated by state law or formula; such expenditures might decrease under tax restrictions. Finally, changes in real discretionary own-source revenue per capita, the revenues subject to local discretionary control, may indicate

[1] Brown also used different dependent variables with the same independent variables.

whether tax limitations are offset by greater use of alternative revenue sources not restricted by the tax limitation, such as sales taxes.

The effects of the alternative tax limitation restrictions are observed in the actual and projected trends of the dependent variables for the full term of the study (1991-2004). The dependent variables are conceived as a function of county characteristics reflected by the performance of the economy, demographic attributes, county structure, time effects, and aggregate levy limit. Data for dependent variables come from the Kansas Fiscal Database, while explanatory data come from Woods and Poole, Inc. Rural-urban continuum codes come from the USDA Economic Research Service. Table 3 lists the specific explanatory variables by category. The aggregate levy limit reflects the amount that each individual county could levy annually in accordance with the tax law. A two-year lagged dependent variable was chosen to control for autocorrelation. Finally, a year trend variable was constructed to measure the effects across time. As in previous studies, the trend implemented was linear; however, unlike previous studies, the actual number of the year was used rather than a counter (1, 2, 3, 4, etc.).

The Aggregate Levy Limit

Each year, count governments calculated a tax levy factor each year to determine the amount that the property tax levy could increase under the tax lid (equation 1). The factor plus one was multiplied by the 1989 real base year tax levy in 2000 dollars to determine the new tax levy for the next year. The factor was the most that a county could raise their property tax levy above the base year, according to the aggregate levy limitation.

(1) $F = \left[\left[NI + (PP_{\mathrm{B}} - PP_{\mathrm{A}})\right] / AV_{A}\right]$

Where

F tax levy factor for a Kansas county
NI new improvements to property for a Kansas county
PP_{B} value of personal property in current year for a Kansas county
PP_{A} value of personal property in 1989 base year for a Kansas county
AV_{A} assessed value of personal property in 1989 base year for a Kansas county

Empirical Model

This research used an out of sample partial adjusted model with ordinary least squares to estimate each of the four dependent variables in two separate regressions (equation 2). The first regression period was from 1991 to 1998 to explain the effects of an aggregate levy limit, and the second period from 1999 to 2004 explained the truth in taxation effects.

(2) $y_i = \beta_0 + \beta_1 X_i + u_i$

where

y_i described level of
β_0 intercept
β_1 short-run multiplier of x_i
u_i was the error term

Whereas studies such as Skidmore and Skidmore and Blankenau used fixed or random effects models, Greene states that a random effects model would fit if only a sample of the population was used in the analysis. This study included 97 of Kansas' 105 counties – the exclusions either because of missing data or consolidated county-city government structure. The advantage of having an out of sample partial adjusted model was that the parameters were intrinsically linear and the disturbance was non-autocorrelated. In addition, the out of sample part of the model created the opportunity to

determine what the patterns of property tax revenue, own source expenditure, own source revenue, and the assessed value of property would have been if either tax limitation policy had been in effect for the full study.

(3) $y_t = \alpha' + \beta' x_t + \lambda y_{t-1} + \varepsilon'_t$

where

y_t described level of

α' intercept

β' short-run multiplier of x_t

δ' short-run multiplier of w_t

λ parameter estimate of the lagged dependent variable (y_{t-1})

ε'_t was the error term

In this study, the out of sample part of the model (equation 3) was carried out by multiplying the mean values of the first period, 1991 to 1998, times the second period, 1999 to 2004, coefficients to determine what the pattern of revenue, expenditure, and assessed value would have been if the Truth in Taxation limitation had been in effect from 1989-1999 (backcasting). The reverse was done by multiplying the mean values of the second period by the coefficients from the first period to determine what the pattern of revenue, expenditure, and assessed value would have been if the aggregate levy limitation not been repealed. The predicted values were estimated using equation 4.

(4) $P = M * \beta$

Where

P out of sample prediction

M mean values

β coefficients

Results and Conclusions

Results of the partial adjustment regressions can be seen in Figures 1-4. Coefficients and t-statistics are available from the authors upon request. Figure 1 compares the predicted values of property tax revenues if the aggregate tax limit had continued beyond 1998 to the actual property tax revenues generated under Truth in Taxation. The figure shows that property tax revenues would have been lower under the aggregate levy limit. It seems that the aggregate tax limit did have some restrictive effect on property tax revenues. Figure 2 compares predicted and actual own-source discretionary revenues during the study period. Predicted values under the levy limit also forecast at below the actual revenues taken during Truth in Taxation. Figure 3 indicates that own-source expenditures also would have declined had the aggregate levy limit continued. Finally, Figure 4 shows the effects of each property tax regime on real tangible assessed valuation. Real tangible assessed valuation trended downward through 1998, indicating that county officials did not use assessed valuation as a means to circumvent the limitations on property tax rates.

It appears that the property tax levy limit in Kansas did have some effect on revenue generation and expenditures. Once the levy limit was replaced, local officials did have more flexibility regarding revenue generation and used that flexibility.

Future Research

This research provides a foundation upon which future research can build. It would be advantageous in future efforts to try to account for some of the external influences specified above. That is, include variables that capture the effects of changes in demand transfers, the recessionary period in 2001, and several more years' data. In

addition, it would be informative to apply the model to other states with similar local government levy limitation policies to compare patterns of local government finances. Comparing such results would provide additional information about the effectiveness of local government tax and expenditure limitation initiatives. Of particular interest might be the use of an out of sample partial adjustment model in a state before and after a limitation was enacted to identify the differences in the patterns of local government revenues and expenditures.

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Table 1. Area of Focus for Selected Studies' Tax and Expenditure Limits

Author	Type	Target
Brown	Revenue and Expenditure Limitation (TABOR)	Municipal Governments
Cooke and Meyer	Specific Property Tax Rate	Municipal Governments
Elder	Revenue and Expenditure Limitation	State Government
King-Meadows and Lowery	Overall Property Tax Rates	State Government
Mullins and Joyce	Tax Expenditure Limitation	Municipalities and States
Skidmore	Tax Expenditure Limitation	Municipalities and States
Blankenau and Skidmore	Tax Expenditure Limitation	School Districts
Bradbury, Mayer, and Case	Overall Property Tax Rates (Proposition 2 1/2)	School Districts
Dye et al.	Overall Property Tax Rates	Municipalities and School Districts
James and Wallis	Revenue and Expenditure Limitation (TABOR)	School Districts
Glickman and Painter	Tax Expenditure Limitation	State Lotteries
Mullins	Revenue and Expenditure Limitation	Municipalities
Lang and Jian	Overall Property Tax Rates (Proposition 2 1/2)	Municipalities
Vigdor	Overall Property Tax Rates (Proposition 2 1/2)	Municipalities
Wasi and White	Assessment (Proposition 13)	Municipalities

Table 2. Tax and Expenditure Limitation (TEL) Initiatives-Selected Studies

Study	Scope	Model Type	Dependent Variables	Independent/Control Variables
Blankenau and Skidmore (2004)	48 contiguous states, 1971-1993	Panel with two way fixed-effects model a simple static model	Real own-source education spending per school age population by school districts within a state; real state aid to school districts per school age population; real total state education spending per school age population	Per capita income; per capita own-source school district spending; per student federal aid to state government; population density; proportion of population over age 65; proportion of population that is nonwhite; deductibility of state and local taxes on federal returns; state tax and expenditure limit (TEL); state tax and expenditure limit coupled with local limit
Bradbury, Mayer, Case (2000)	208 Massachusetts jurisdictions, 1990-1994	OLS with first differences	Percent change in house prices; percent change in school/ non-school spending; percent change in number of students; percent change in population; single family permits per housing unit	Property tax rate; dummies for years of levy reductions and overrides; education law reform spending change; property value per capita; nonresidential share of property value; increase in state aid; school test scores; fraction of workforce in manufacturing; fraction of population between 35 and 60 years; fraction of population less than 5 years; dummies indicating urban or suburban; developable land per housing unit; single family permits per housing unit in 1989; enrollment-to-population ratio; median family income; dummy variables for members of regional district/regional high school; percent of adult residents with college education
Brown (2000)	272 Colorado cities, 1975-1996	Pooled time series with fixed effects	Each individual revenue and expenditure category	Overall trend variable; an intervention variable for each TEL; dichotomous variable for each group municipalities; annual average unemployment rate; construction earnings; manufacturing earnings; real per capita retail sales; farm income; personal income (all on per capita basis and transformed to natural logs)
Cooke and Meyer (1995)	44 Idaho counties, 1989-1993	Continuous growth model	NA	NA
Dye, McGuire, McMillen (2005)	All Illinois municipalities and school districts, 1989-1999	Fixed effect model; probit model	Municipal property tax growth rates; school district property tax growth rates; school district operating expenditure growth rates; school district instructional expenditure growth rates	Residential share of equalized assessed value; home-rule municipalities; growth in number of pupils; yearly dummy variables for 1989 to 1999; window year (the year following the vote to impose tax caps); capped years 1-9; capped years 1-3; capped years 4-9; dummy school years from 1988-89 to 2000-01; residential share of equalized assessed value; home-rule municipalities; dummy variables for 1998 and 1999; dummy school years for 1999-2000 and 2000-2001; 1990 population; per capita income 1989; average daily attendance; change in natural log of average daily attendance; low-income pupils (% of average daily attendance); number of observations; cases correct; average likelihood
Elder (1992)	19 states with TELs, 1950-1985	Pooled cross-section time series	Total tax revenues	Dummy for states with expenditure limits; dummy for states with revenue limits; state personal income; federal transfers to state governments; state population; indexed annualized average interest rate on state and local bonds; average unemployment rate for non-agricultural workers; average of the producer price index for fuel; interaction variable for the limit dummies and income; interaction variable for limits and federal transfers
Glickman, and Painter, (2004)	State level data 1970-1992	Panel with Strategic median voter model	Dummy variable equal to one in years when a state operates a lottery	State level; specific property tax rate; overall property tax; property tax rate; assessment increase; general revenue/expenditure; full disclosure; unemployment rate; income per capita; distribution of income; long-term debt per capita; deficit dummy; lagged deficit dummy; revenue centralization; tax capacity; line-item veto dummy; split-party government dummy; referendum process dummy; election year dummy; balanced-budget rule dummy; democratic governor dummy; percent of lower house democrat; percent of population bureaucrats; percent of population prisoners; neighboring state has lottery dummy; percent black; percent greater than or equal to 65 years of age; percent five to seventeen years of age; percent catholic; population; population density

Table 2. Tax and Expenditure Limitation (TEL) Initiatives-Selected Studies

Study	Scope	Model Type	Dependent Variables	Independent/Control Variables
James and Wallis (2004)	State and Local Colorado government	NA	NA	NA
King-Meadows and Lowry (1996)	Three states with TELS three companion states without TELs, 1965-1991	Comparative interrupted time series	Ratio of total state revenue to state personal income; ratio of total state and local revenue to state personal income; ratio of state revenue to total state/local revenue; ratio of state tax revenue to total state revenue; ratio of state debt to total state income	Trend variable counting each year the study; a counter for each year after adoption of a TEL; annual state/local per capita federal aid; annual unemployment rate; proportion of the workforce in manufacturing; annual change in income; the proportion of workforce in manufacturing
Lang, Kevin and Jian, Tianlun (2004)	178 and 351 communities in Massachusetts 1984-1988	Two stage least squares	Percent change in equalized value per capita of property	Six community type dummies; six dummies for the timing of the assessments; constrained in 1982 exogenous; constrained in 1983 exogenous; true tax rate in 1981 exogenous; true tax rate in 1981 squared exogenous; open space ratio in 1984 exogenous; constrained in 1982 endogenous; constrained in 1983 endogenous; median year housing built; percent high school graduates; percent college graduates; percent executive and professionals; percent white collar; median family income; per capita income; aid; levy; receipts; true tax rate in 1981; true tax rate in 1981 squared; open space in 1984 endogenous
Mullins (2004)	787 Metropolitan counties in the 48 contiguous states, 1972-1997, Data is used in five year intervals	Pooled cross sectional time series data using a fixed effect time series model	Local government fiscal structure within individual county areas	Local tax limit; expenditure limits; both local tax and expenditure limits; urban core; relative stress; overall property tax rate limits or limitations on assessments; specific property tax rate limits directed at general purpose governments; specific property tax rate limits directed at school districts; specific property tax rate limits directed at constraining revenue yield or aggregate expenditure levels; levy limits; revenue limit; or expenditure limit applied to general purpose governments; levy limits; revenue limit; or expenditure limit applied to school districts
Mullins and Joyce (1996)	48 contiguous states, 1970-1990	Eighteen separate CSTS models with fixed effects	Measure of public sector size; six measures of revenue source reliance; five measures of state revenue shares; five measures of state expenditure share	Binary variable for each TEL type; dichotomous variable to indicate the presence of a TEL in each state; binary variable for states with combination of state/local TELs; binary variable for two types of local TELs; a counter variable of years since enactment for state TELs and local TELs; per capita personal income; lagged change in gross state product; ratio of expenditure to GSP; population 25 years or younger; population 65 years or older; change in population 25 years or less; manufacturing employment ratio; percent change in unemployment; proportion of population which is urban
Rangel A. (2005)	Endowment economy with two periods and two selfish generations	Stark two-period model	Land-tax-only institution; head-tax-only institution; head-or-land-tax institution; mixed institution	Generation one; generation two; size of generation; period one; period 2; private numeraire good; land; intergeneration public good

Table 2. Tax and Expenditure Limitation (TEL) Initiatives-Selected Studies

Study	Scope	Model Type	Dependent Variables	Independent/Control Variables
Skidmore (1999)	Panel of 49 states 1976-1990	Panel with two-way fixed effects	Total state government own source revenues; total state revenue; total state revenue; charges and miscellaneous revenues; local government own source revenues; state aid to local governments; property tax; local other taxes; local charges and miscellaneous revenues	Federal government transfers to state and local governments; state personal income; state population; dummy variable to indicate a TEL; dummy variables to indicate type of limit (overall limit; property tax; new limit introduced); population per square mile; proportion of population 65 and older; proportion of population between five and 17 years old
Vigdor (2004)	All cities and towns in Massachusetts1980 (351 observations)	Tiebout model	share of voters who favored proposition 2 ½,; household movement; property value	A measure of jurisdictions forced reduction in tax rates mandated by proposition 2 ½, average "measure" reduction in tax rates mandated by proposition 2 ½ in 20-mile radius; percent of households in 1980 that were renters; 1980 employment to population ratio; county fixed effects to control for regional variation; 1980's share of Presidential votes for Ronald Regan; share with grater than high school education; nonwhite share; median income; share in poverty; share of households with children ages 6-17 only; share of households with children under age 6; share of households with head over age 65; initial tax rate; a measure of jurisdictions forced reduction in tax rates mandated by proposition 2 ½; predicted change in share (aging of population by 10 years); 1980 population; land area; Connecticut towns as a control; share of population favoring Proposition 2 ½; share favoring Proposition 2 1/2 multiplied by tax rate mandate by Proposition 2 1/2
Wasi, and White (2005)	California, Texas, and Florida Metropolitan communities, 1970 to 2000	Treatment effects model and OLS	Tenure length	Family total income; income from welfare; African-American dummy; Hispanic dummy; Asian dummy; other races dummy; white dummy (dropped); high school dummy; some college dummy; bachelor dummy; post graduate dummy; high school dropout dummy (dropped); married; separated; divorced; widowed; children under equal to age six; number of children; age 26-35 dummy (dropped); age 36-45 dummy; age 46-55 dummy; age 56-65 dummy; age 66 and up dummy; native born dummy (dropped); migrant from out-of-state dummy; migrant dummy; multi-family housing unit dummy (dropped); single family detached dummy; single family attached dummy; not in labor force dummy (dropped); at work and self-employed dummy; at work and not self-employed dummy; unemployed dummy; retired dummy; 1970 dummy (dropped); 1980 dummy; 1990 dummy; 2000 dummy; 1980*CA; 1990*CA; 2000*CA; metro pop growth rate previous 10 years; metro unemployment rate; metro housing value growth rate previous 10 years

Table 3. Explanatory Variables

Economic Performance	Demographic Attributes
unemployment rate	proportion of population age 0-17
real total retail sales per capita	proportion of population age 65+
real total personal income per capita	
real manufacturing earnings per capita	
real service earnings per capita	
real farm earnings per capita	
County Structure	
2003 rural-urban continuum code	
farm employment as a share of total employment	
manufacturing employment as a share of total employment	
services employment as a share of total employment	

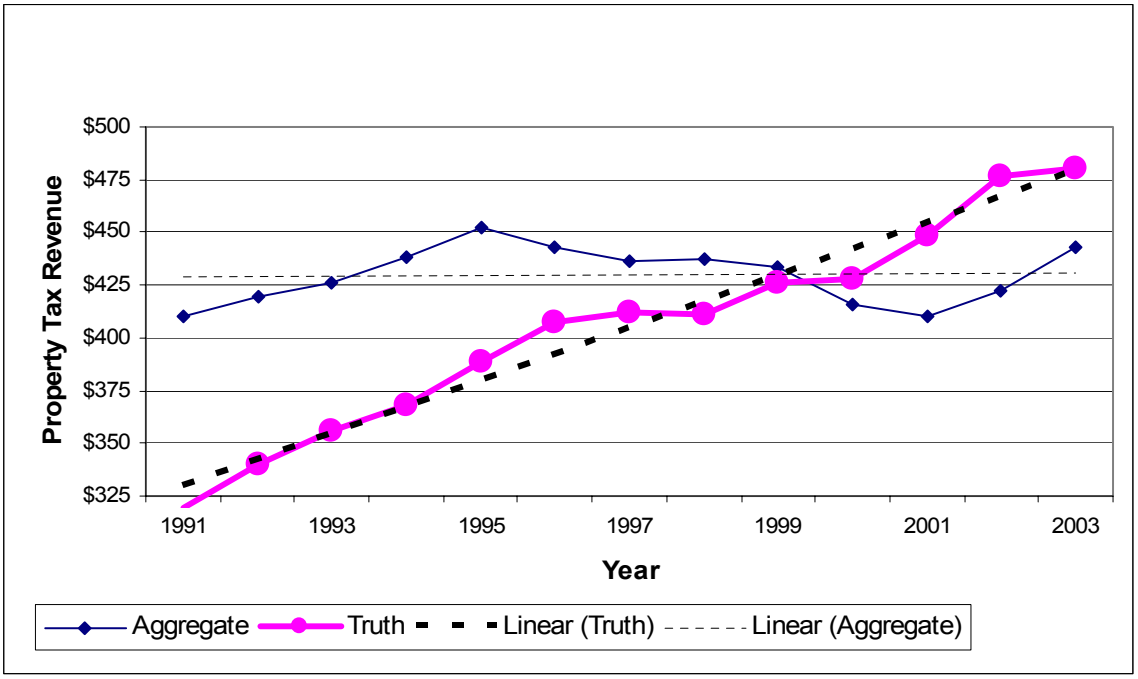

Figure 1. Property Tax Revenue Under Different Kansas Tax Policies from 1991-2003

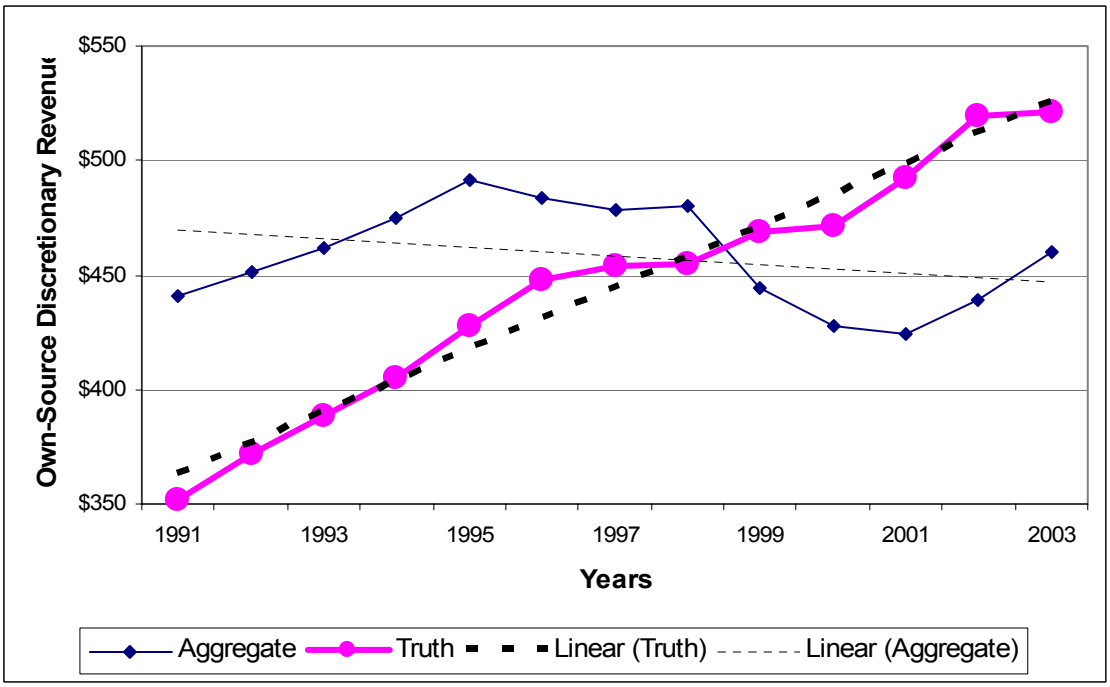

Figure 2. Own-Source Discretionary Revenue Under Different Kansas Tax Policies From 1991-2003

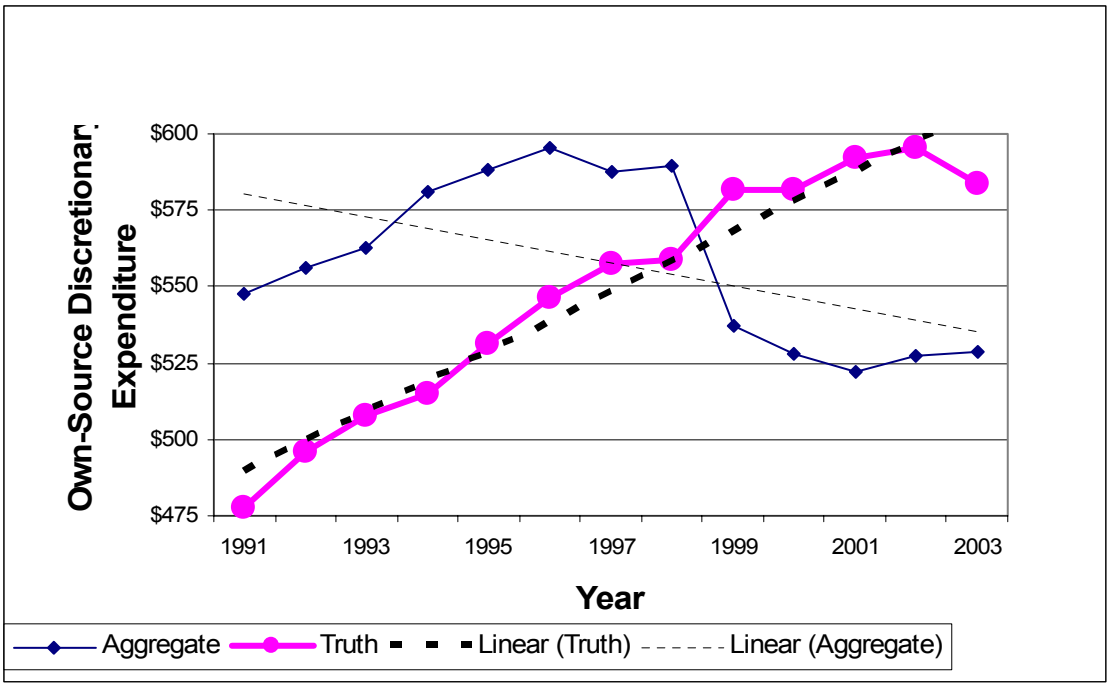

Figure 3. Own-Source Discretionary Expenditure Under Different Kansas Tax Policies From 1991-2003

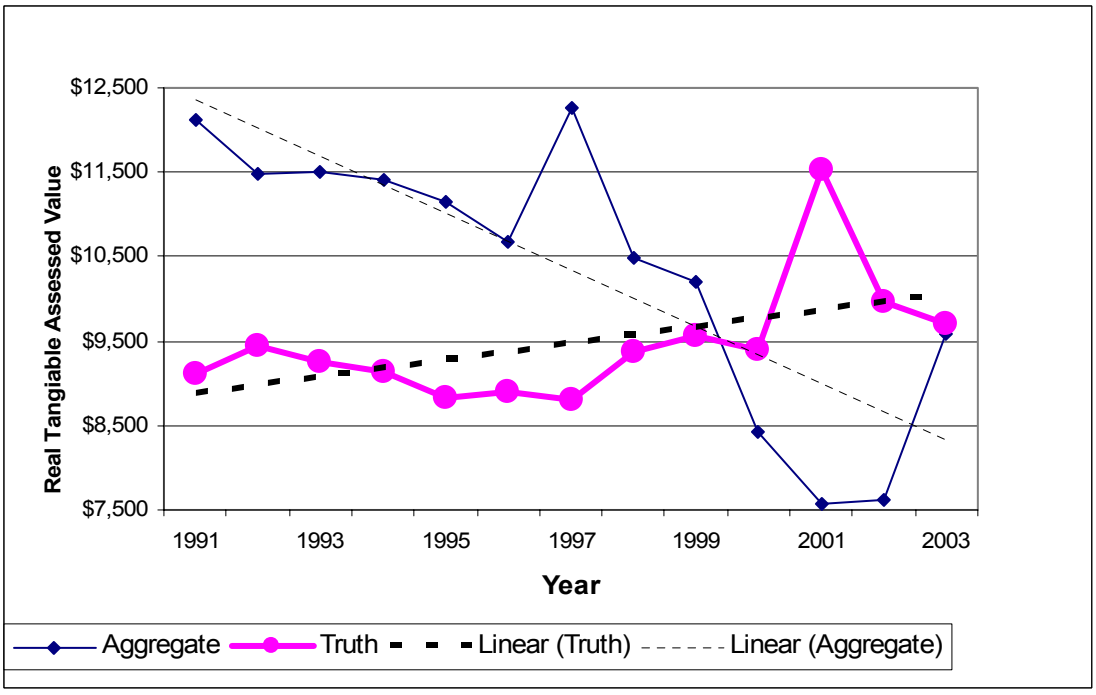

Figure 4. Real Tangible Assessed Value Under Different Kansas Tax Policies From 1991-2003