Do states practice benefit taxation? School finance reform and the distribution of state taxes

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1 Introduction

One of the most influential theories in fiscal federalism is the Tiebout model (Tiebout (1956)). In a Tiebout world, local jurisdictions offer tax-expenditure packages and each resident chooses to live in the jurisdiction that offers the tax-expenditure package that best satisfies his preferences. A key assumption of the Tiebout model is that there are numerous jurisdictions offering a wide array of tax-expenditure packages. These jurisdictions compete with one another for residents with the result that tax prices for the public goods and services are competed down to where the taxes paid equal the benefits of the goods and services provided, i.e., jurisdictions practice benefit taxation.

State governments arguably satisfy some of the assumptions needed for the Tiebout hypothesis. There are 48 of them on the mainland, there is reasonably good information about state taxes and expenditures, people are fairly mobile between states, and the goods

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and services provided by state governments are largely private in nature or geographically contained public goods (benefits do not generally spill over from one state to another).

The first goal of this study is to seek evidence on whether state governments impose benefit taxes. Our approach is to examine the tax response of state governments to an exogenous shock in their expenditures. If the shock to expenditures benefits one set of resident taxpayers over another set, we would expect to see a commensurate change in taxes that keeps benefits in line with taxes, else the state would expect to lose residents to other states.

One of the most important exogenous shocks to state government finances over the last 40 years has been court-ordered school finance reform. A number of studies have examined the effect of these court cases on the distribution of spending (both state spending, i.e., state intergovernmental aid, and total direct spending, which is essentially local spending) across school districts and on non-education spending of state and local governments. Our contribution is to examine the effect of court-ordered school finance reform on the structure and level of state government revenues. This, then, is the second goal of our study: to examine how states restructure their revenue systems to pay for court-ordered school finance reform.

2 Method

Our entities of interest are state governments, as opposed to the combined state and local sector, and state expenditures and revenues, as opposed to combined state and local expenditures and revenues. We have several reasons for this focus. First, by focusing on state-government-only spending and revenues we are able to examine the taxing and spending behavior of a political entity (a taxing jurisdiction). Since a state has only limited influence over the decisions of its local governments, it is difficult for a state to control the

tax liabilities arising from the combined state and local sector. Second, it is the state government – not the combined state and local sector – that is responsible for responding to state supreme court decisions. Third, local taxes vary from one local jurisdiction to the next within the same state. Thus, even if we wanted to examine, say, local property taxes, it is not clear what we would learn from looking at the average property tax in the state, whatever that might be. Fourth, while the exogenous shock to the state fiscal system that is represented by court-ordered school finance reform appears to result in a more equalized distribution of state education spending across communities of varying incomes, the results for total local spending on education – financed by a combination of state aid and local property taxes – are more difficult to discern and appear to vary from study to study.[1]

To address directly the question of whether state governments impose benefit taxes, one would need measures of benefits received and taxes paid by individuals. It is exceedingly difficult to attribute the benefits of state expenditures to different residents of a state. It is still difficult, but significantly easier, to attribute state taxes paid to different residents of a state.

Since we can measure state taxes paid by individual households, but not benefits received by individual households, we take an exogenous shock to state benefits (expenditures) that we can plausibly characterize as resulting in an adjustment to benefits that is progressive (i.e., relatively advantageous to low-income households) in its distribution. Our approach is then to examine the distribution of state taxes before and after the exogenous shock to see if the distribution of the tax burden changes in a manner consistent with benefit taxation. Specifically, in order to maintain a link between benefits and taxes, if the distribution of state benefits becomes more progressive, i.e., more generous to lower-income households and less generous to higher-income households, we would expect the distribu-

[1]See, for example, Card and Payne (2002), who find that total local spending on education became more unequally distributed across school districts after school finance reform, and Murray, Evans, and Schwab (1998), who find that spending inequality across school districts declined in states with court-ordered reform.

tion of state taxes to compensate by becoming more regressive, i.e., more burdensome to lower-income households and less burdensome to higher-income households.

Our proposed method relies heavily on the idea that court ordered school finance reform is an exogenous shock to the distribution of state expenditures, rendering state expenditures more progressive (pro-poor). This statement has several ideas that require documentation. First, when a state is ordered by the court to reform its school finance system, its primary tool is state aid to local school districts. Because state aid to schools comprises a large share of state expenditures (17% on average for the 48 continental states in 2006), state expenditures overall become more pro-poor when state aid to schools becomes more equalizing.

Several authors, including Card and Payne (2002) and Murray, Evans and Schwab (1998), have documented that court-ordered school finance reforms do indeed make state spending on education (state aid) more equalizing. For example, Murray, Evans and Schwab examine four different measures of inequality in spending across school districts in a state and find that, in each case, inequality declines after a state's education financing system is overturned in a court decision. Card and Payne find that state support per student became more equalizing (i.e., became more negatively associated with district family income) over the 1980s and that the shift was most pronounced in those states whose systems were declared unconstitutional.

Finally, we follow Card and Payne (2002) and Baicker and Gordon (2006) in arguing that court ordered school finance reforms can be taken as exogenous to state fiscal decisions. Baicker and Gordon estimate a regression of court-ordered school finance reforms on a set of variables characterizing provisions in states' constitutions and state demographic variables and conclude that their results corroborate "the findings of previous research that SFE's are largely unpredictable." (page 1522)

3 Institutional setting

In Table 1 we list 19 states where, according to our sources, the state supreme court overturned the school finance system at least once between 1980 and 2007. The 19 states represent every region in the country and the timing of the decisions varies over our 27 year period. We use this cross-state and cross-time variation in our empirical strategy.

Table 2 displays figures on state expenditures on K-12 education (essentially, state aid to school districts) in the years 1982, 1992, 2000 and 2006. State aid to school districts comprised around 18 percent of total state general expenditures in each year for the 48 continental states. As a share of local expenditures on education, state aid represented between 57 and 66 percent, depending on the year. And in per-capita terms, state aid to school districts increased steadily over the period.

Table 3 displays information on state individual income tax revenues for the same four years. The largest increase for the average of the 42 states occurred between 1982 and 1992 (an increase of 51 percent for taxes per capita). Real individual income tax revenues per capita increased in each period, but starting in 1992 income tax revenues as a share of total state general revenues was essentially constant at 26 percent. Table 4 presents similar information for state general sales taxes for the 44 states in our sample with the tax. Real general sales tax revenues per capita increased in each period, with the smallest percentage increase (at five percent) between 2000 and 2006, and the share of state general revenues attributable to the general sales tax held constant at around 25 percent.

In each of the three tables, we examine the variable of interest for four subsets of the 48 (or 42 or 44) states: the states that experienced their first (in the period of our study) court-ordered school finance reform (SFR) between 1982 and 1992; the states that experienced their first SFR between 1993 and 2000; the states that experienced their first SFR between 2001 and 2007; and the states that did not experience SFR during the period

of our study. Looking across the three tables one can see that trends in state spending on education and state income and sales taxes vary across the groups of states defined by their SFR status. For example, in Table 2 state education spending per capita increased by 56 percent (from $514 to $804) between 1982 and 1992 for the eight states that experienced SFR in that decade, but increased by 40 percent or less for the three sets of states that did not experience SFR between 1982 and 1992. This finding that state education spending went up by more in states with SFR than in those without is also true for the 1993-2000 period, but it does not hold for the 2001-2007 period.

State individual income tax revenues per capita increased significantly more (more than doubling) from 1982 to 1992 for the six states that experienced SFR in that period than they increased for the three sets of states that did not experience SFR between 1980 and 1992 (see Table 3). This finding of a greater increase in income taxes for states experiencing SFR does not hold up for the other two time periods.

State general sales tax revenues per capita display no systematic differences in trend across the subsets of states defined by the timing of their first SFR. For example, between 1992 and 2000, for each of the four subsets of states (subsets of the 44 states displayed in Table 4), including the six states that experienced SFR in the period, state general sales tax revenues per capita increased by approximately 20 percent.

4 Data and variable construction

We focus on the association between court ordered school finance reform and households' state income tax and sales tax burdens within the 48 mainland states at four points in time, 1980, 1992, 2000, and 2007. This requires us to construct estimates of households' state income tax and sales tax burdens, by household income, for each state year observation.

For each year we create one hypothetical household in each decile of the national dis-

tribution of household income. This procedure yields ten hypothetical households in each of the four years. We use the March Current Population Survey to estimate the household income distribution for the four years and assign characteristics to the hypothetical households.

First, we assign for each year a marital status (married or single) and homeownership status (homeowner or renter) to each hypothetical household. We select either marital status or homeownership status as the primary characteristic of a decile's households. The primary characteristic is the status that describes the largest majority of decile households. For example, in 1980, 48% of the households in the first decile of the income distribution were homeowners and 16% were married. Thus, the primary characteristic for the 1980 first-decile hypothetical household is single. The secondary characteristic is assigned conditional on the primary characteristic. Conditional on being in the first decile and being single, 55% of households are renters. The 1980 first decile hypothetical household is thus a single renter.

A decile's mean household income conditional on assigned marital and homeownership status determines a hypothetical household's total household income. For example, conditional on being single and a renter, mean household income in the first decile of the 1980 household income distribution was $2,575.

Table 5 displays the income levels and assigned characteristics of hypothetical households in 1980, 1990, 2000, and 2007. In a single year, households in the first two deciles are single renters and households in the fourth through tenth deciles are married owners. Most of the variation over time in hypothetical household characteristics is in income levels rather than marital or homeownership status. Only decile 3 experiences changes in marital and homeownership status over time.

We use variation over time in the national distribution of household income rather than the household income distribution within each state. Using the national rather than state

distribution ensures that our measurements of tax structure are comparable across states. The use of the national income distribution ensures that our measures of tax burdens only reflect differences across states in their tax structures. In other words, we give each state the same underlying tax base and estimate the tax burdens produced by that state's tax code.

4.1 Income taxes

We use NBER's State TAXSIM program to simulate, for each state year observation, the state income tax burden for the ten hypothetical households. For each hypothetical household we calculate 192 (= 4 years x 48 states) average income tax rates by dividing the generated TAXSIM state income tax liability by household income. To calculate income tax liability TAXSIM requires information on taxpayer characteristics and the composition of household income.[2]

For each hypothetical household in each year we assign the number of earners, number of dependent children, mortgage interest payments, property tax payments, and rental payments. In all years each household is assigned one dependent child. We use the March CPS to calculate households' mean number of children conditional on marital and homeownership status, by income decile by year. We round the number of children to the nearest integer and in all years and deciles the conditional mean number of children in a household is in the interval (0.5,1.5). We also calculate conditional means of the number of earners for each decile and round this mean to the nearest integer.

Of the hypothetical households only homeowners are assumed to pay property taxes and mortgage interest. The March CPS contains data on households' property tax payments beginning in 1992. We calculate the conditional mean of the share of household income paid in property taxes for 1992, 2000, and 2007. Since data are not available prior to 1992,

[2]For more information on TAXSIM see Feenberg and Coutts (1993).

we set 1980 levels equal to 1992 levels. We use the Statistics of Income table 2.1 from the Internal Revenue Service to calculate the mean percentage of income paid in mortgage interest by adjusted gross income range for 1992, 2000, and 2007. We were unable to find electronic data for 1980 and thus set 1980 levels equal to 1992 levels. For renters, the percentage of total household income paid in rent was set at 30% for all deciles and years.

We use the March CPS to estimate the composition of household income in terms of wages, interest earnings, dividends, welfare transfers, supplemental security income (SSI) and long term capital gains. For all deciles these were among the largest components of total household income. We determine the share of household income received from non-wage sources by calculating each mean share of income derived from interest, dividends, welfare, SSI, and capital gains conditional on marital and homeownership status. We assume that households derive all remaining income from wages. Appendix tables A.1 through A.4 provide detail on all of the above characteristics for each income decile for 1980, 1990, 2000, and 2007.

4.2 Sales taxes

Next, we use the Consumer Expenditure Survey (CEX) and the same CPS income deciles to calculate taxable consumption as a share of income by decile by year. For each income decile and year, we calculate the conditional means of household expenditure shares on an aggregate of core items likely taxable by each state with a sales tax, food for home consumption, and an aggregate of commonly taxed services. We then use state level variation in tax rates and tax base definitions, collected by the authors, to estimate average sales tax burdens by household by state by year. The analysis of sales tax burdens is not included in this version of the paper.

4.3 School finance reform

We create a binary variable to capture the timing of courts overturning a state's school finance system. This variable, called school finance reform (SFR) takes on a value of 0 or 1 during each of the four years 1980, 1992, 2000, 2007. SFR equals 0 if a state does not have its school finance overturned by the courts before 2007. The variable is set to 1 in the first year a state's system is overturned and it remains at 1 through 2007. California first had its system overturned in 1971 and thus for California in all four time periods SFR equals 1. Texas first had its system overturned in 1989 and has its SFR equal to zero in 1980, and 1 in 1992, 2000, and 2007.

Our method of defining the SFR variable is identical to the school finance indictor variables used by Murray, Evans, and Schwab (1998) and Baicker and Gordon (2006). During the period 1980-2007, 13 of the 19 states with overturned systems had their systems over turned more than once. Like these other papers, our SFR variable uses only the first instance of a school finance system being overturned.

A few of our SFR dates differ from the dates used, most recently, by Baicker and Gordon (2006). Our sources for SFR dates are the National Center for Educational Statistics for 1970-1999 and the National Access Network, Teachers College, Columbia University for 2000-2009. Table A.5 in the appendix describes the differences in SFR dates between our paper and Baicker and Gordon (2006). In only four states - NC, KS, NJ, RI - do these differences in dates result in substantive changes in the SFR variable. To be sure that these date differences do not affect our results, we re-estimate our model using the Baicker and Gordon (2006) dates through 1997 (as far as they go) and our dates from 1998-2007. The results are reported in appendix table A.6.

4.4 State revenues and expenditures

Finally, to understand the relationship between school finance reform and state government revenues and expenditures, we use data from the U.S. Census Bureau on state government finances. We examine per-capita levels of total expenditures, general own source revenues, individual income tax revenues, state aid to K-12 education, and several other expenditure and revenue categories. Unfortunately, some of these data, for example state aid for K-12 education, are missing or unreliable in 1980 and 2007. Thus we use data for 1982, 1992, 2000, and 2006 when examining state governments' per-capita revenues and expenditures.[3]

5 Results

We estimate the following regression equation for both the individual income tax and the general sales tax and for the two taxes combined.[4] These regressions are estimated for each state each year using observations on the ten hypothetical households from the deciles of the national household income distribution.

$$ATR_{h,s,t} = \alpha_{s,t} + \beta_{s,t} I_{h,t} + u_{h,s,t} \tag{1}$$

where $h = 1, 2, ..., 10$ indexes households, s indexes states, and t is time period.

The dependent variable (ATR) is the average tax rate (tax liability divided by income) and the regressors are a constant and household income in thousands of dollars. For each tax (or tax combination) for each state, we estimate four βs, one for each of the four years in our data. We measure household income in thousands of dollars so that $\beta_{s,t}$ represents the increase in the average tax rate due to a \$1,000 increase in household income. A negative value for beta indicates that the tax system is regressive; and a positive value

[3] Our acquisition of 2007 was too late to be included in this version of the paper.

[4] In this version of the paper we only estimate the equation for the income tax.

that the tax system is progressive.

Average tax rates and therefore progressivity vary across states at any one time because of differences in the tax structure (i.e., tax rates, exemptions, deductions, credits). Average tax rates differ within a given state over time because of changes in the income distribution and changes in the tax structure. For example, a state's tax system will become less progressive if it does not adjust its standard deduction and income tax rates as the income distribution shifts right as incomes increase. Similarly as those with higher incomes spend more on services, the exclusion of services from the sales tax base cause the sales tax structure to become less progressive as a larger and larger share of household income goes untaxed. The inertia of deductions, tax bases, and tax rates in response to changes in the income distribution is as much a policy choice, if perhaps a more implicit policy choice, as increases or decreases in statutory tax rates.

The regression of average income tax rates on household income suggests that states' income tax systems, although progressive, have become less progressive during the period 1980-2007. Table 6 presents the estimated income tax βs for the 42 mainland states with individual income taxes.[5] In 1980, Minnesota's average income tax rate increased by 0.19 percentage points for every $1,000 of additional household income. By 2007, the β coefficient suggests that the average income tax rate increases by 0.06 percentage points for every $1,000 of additional household income; representing a 69% reduction in Minnesota's β. The changes in β from 1980 to 2007 are caused by both changes in a state's tax structure and changes in the income distribution.

To isolate the contribution of changes in tax structure, we re-estimate the β-regressions holding the income distribution constant over time. This allows us to see how much of the change in progressivity over time is due to changes in the tax structure versus changes in the underlying tax bases. In the final column of Table 6 (and in column 3 of Table 7)

[5]NH has a tax on capital income, but estimated β equals zero in three of the four years, so NH is not displayed in Table 6.

we display results using βs estimated holding constant the income distribution at its 1980 level.

5.1 The Effect of School Finance Reform on State Tax Structure

We explore whether changes in the progressivity of state tax systems are systematically related to a state supreme court finding that the system of funding schools is unconstitutional. If states practice benefit taxation, we expect the tax systems in states with court-ordered school finance reform to become more regressive after the reforms.

In our first set of regressions, the dependent variable is the estimated $\beta_{s,t}$ coefficient from the income tax regressions. The regression equation is

$$\beta_{s,t} = a + bSFR_{s,t} + \gamma X_{s,t} + dYEAR_t + \theta_s + \epsilon_{s,t}. \quad (2)$$

In addition to the school finance reform variable each regression includes year dummies ($dYEAR$), a constant, state fixed effects (θ_s), and several control variables (X). Our control variables are the state unemployment rate in year t, the percentage of a state's population over age 65, and the percentage of a state's households in poverty. The unemployment rate controls for cyclical economic trends that could affect states' income tax structures. The percentage of households over the age of 65 controls for the political power of the retired, who might prefer a more progressive income tax system as their income declines in retirement. The percentage of state households below the poverty line captures the need to have a more progressive tax system as the share in poverty increases.

The results in Table 7 suggest a positive association between state income tax progressively and court-ordered school finance reform. Column 1 presents the baseline results, with the coefficient on school finance reform equal to 0.018. This coefficient implies that school finance reform is associated with a 0.018 increase in a state's β or a 0.018 percent-

age point increase in the average tax rate for $1,000 of additional household income. This represents more than a 50% increase over the mean β in 2006 and an almost 20% increase in the mean β from 1980.

Since the dependent variable, $\beta_{s,t}$, is an estimate, we use the inverse standard errors from the β regression as weights in columns 2 through 5. This is the approach used by Card and Krueger (1992) and Card and Payne (2002). Column 2 demonstrates that the inclusion of weights reduces slightly both the coefficient on SFR and its standard error. The coefficient is of similar magnitude and remains statistically different from zero.

Changes in states' tax structures, not changes in the income distribution, drive these results. Column 3 presents a regression that uses the βs estimated holding the income distribution constant at its 1980 level as the dependent variable. Although an increased standard error does not allow for the rejection of the null hypothesis that the coefficient is zero, the coefficient is very similar, at 0.0142 to the estimates in columns 2 and 3. If the income distribution explained most of the increase in progressivity, the coefficient in column 3 should be zero.

Columns 4 and 5 restrict the sample to fewer years to estimate the regressions on samples similar to those used by Baicker and Gordon (2006) and Card and Payne (2002). Both of those studies found that school finance reforms during their periods of analysis produced a substantial redistribution of state expenditures towards poor communities. Baicker and Gordon (2006) analyze the period from 1982 to 1997, so in column 4 we examine 1980-2000. Card and Payne (2002) analyze the period from 1977 to 1992, so we examine 1980-1992 in column 5. The results echo the results in the previous three columns, although the reduction in sample size for the period 1980-1992 produces imprecise estimates.

Of the control variables, the unemployment rate is consistently positive and significant. The other control variables are largely statistically indistinguishable from zero. Although

the inclusion of year dummies is important for our results, the omission of the unemployment rate, elderly, and poverty variables does not substantively affect our estimated SFR coefficient.

These results are not consistent with states practicing benefit taxation. An increase in β implies an increase in progressivity. State decisions consistent with benefit taxation would produce a negative coefficient on SFR; our results allow us strongly to reject a negative SFR coefficient.

5.2 The Effect of School Finance Reform on State Revenues and Expenditures

Table 8 displays results for regressions of states' per-capita revenues and expenditures on SFR and several control variables. We find, similar to others, that court-induced SFRs are associated with large increases in states' per-capita expenditures on elementary and secondary education. Similar to others, including Murray, Evans, and Schwab (1998) we find that SFR seems to have small and imprecisely estimated associations with other kinds of expenditures. The exception, however, is per-capita expenditures on Medicaid, which have a statistically significant positive association with SFR. The coefficient, however, is about 35% smaller than the coefficient on states' education expenditures.[6] None of the revenue variables have a statistically significant relationship with SFR. The coefficients, however, suggest that SFR was financed largely by income tax increases and increases in miscellaneous revenues.[7]

[6] As a robustness check, we control for Medicaid in a regression reported in column 1 of Table A.6. The estimated coefficient on SFR is very similar to those displayed in Table 7 and the coefficient on medicaid is a precisely estimated zero.

[7] Murray, Evans, and Schwab (1998) found evidence that SFR was financed by tax increases not spending decreases. Baicker and Gordon (2006) found that SFR causes states governments to reduce spending in other areas.

6 Discussion

We set out to investigate (1) whether the tax and spending decisions of state governments are consistent with the notion that they practice benefit taxation, and (2) whether court-ordered school finance reform has had an impact on state government revenues and expenditures. We have uncovered a number of interesting facts. Among states that have individual income taxes, the distribution of the burden across households of differing incomes is progressive in every state in each of the four years we examine. However, with the exception of Connecticut, which is a special case given the imposition of the tax in the middle of our sample period, the degree of progressivity of each state's individual income tax system declined between 1980 and 2007.

Is this decline in progressivity consistent with the notion that states practice benefit taxation? Our exogenous shock to state fiscal systems is court-ordered school finance reform. We argue that others have provided strong evidence that court-ordered school finance reform results in a change in state aid to school districts that disproportionately benefits low-income communities relative to high-income communities. If we assume that low-income (high-income) communities are largely made up of low-income (high-income) households, then SFR results in a more progressive distribution of state spending. To keep the benefits of state expenditures at the household level in line with state tax liabilities imposed on households, in a state with SFR state tax burdens would need to become more regressive (less progressive) in their distribution. We find just the opposite: relative to states without SFR, the distribution of individual income tax burdens became more progressive in states with SFR in the period of our analysis.

Perhaps other state taxes, for example state general sales taxes became more regressive in states with SFR. We have not yet been able to examine this question (the data are still being gathered), but we have examined whether the average level of general sales taxes

(measured as taxes per capita) rises or falls in states with SFR. General sales taxes tend to be a more regressive source of revenues that individual income taxes and thus a greater reliance on this tax source would result in a more regressive mix of taxes. Again, we find no evidence in favor of benefit taxation. Our results indicate that court-ordered school finance reform has no measurable effect on general sales tax revenues per capita.

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Table 1: State Supreme Court rulings overturning school finance systems (1980 - 2007)

State	**Year(s) of ruling**
Alabama	1993, 1997
Arizona	1994, 1997, 1998
Arkansas	1985, 1996, 2002
Connecticut	1985, 1998
Idaho	2005
Kansas	2003
Kentucky	1989
Massachusetts	1993
Montana	1989, 1990, 2005
New Hampshire	1993, 1997, 1998, 2002
New Jersey	1985, 1990, 1994, 1997, 1998, 2000
New York	2003, 2006
North Carolina	2004
Ohio	1997, 2002
Tennessee	1993, 1995, 2002
Texas	1989, 1991, 1995, 2005
Vermont	1997
West Virginia	1984, 1988, 1997
Wyoming	1980, 1995, 2001

Sources: National Center for Educational Statistics for 1970-1999; National Access Network, Teachers College, Columbia University for 2000-2009.

Table 2: State Expenditures on K-12 Education (State Aid to Education)

	Per-Capita Expenditures				% of Total State Expenditures				Share of Local Expenditures			
State Groups	1982	1992	2000	2006	1982	1992	2000	2006	1982	1992	2000	2006
All States												
$n = 48$	$502	$665	$845	$916	18%	17%	19%	17%	57%	60%	66%	65%
SFR 1980-1992												
$n = 8$	**$514**	**$804**	$871	$926	**19%**	**19%**	18%	17%	**57%**	**66%**	66%	63%
SFR 1993-2000												
$n = 7$	$343	**$478**	**$843**	$937	13%	**13%**	**18%**	17%	43%	**48%**	**66%**	64%
SFR 2001-2007												
$n = 4$	$559	$783	**$927**	**$1,018**	21%	20%	**21%**	**20%**	65%	69%	**73%**	**73%**
No SFR 1980-2007												
$n = 29$	$530	$656	$828	$894	19%	17%	18%	17%	60%	59%	65%	65%

Sources: Authors tabulations from U.S. Census Bureau data. Per-capita expenditures are in constant 2006 dollars. State expenditures on elementary and secondary education (i.e., K-12) include direct and intergovernmental expenditures made by the state government. In all years intergovernmental expenditures (i.e., state aid) represents 99% of total state K-12 expenditures. Share of local expenditure is state K-12 expenditure as a percentage of local current K-12 expenditures. SFR XXXX-YYYY includes states where court-ordered school finance reform (SFR) first occurred between the years XXXX and YYYY. *SFR 1980-1992* includes AK, CT, KY, MT, NJ, TX, WV, WY. *SFR 1993-2000* includes AL, AZ, MA, NH, OH, TN, VT. *SFR 2001-2007* includes ID, KS, NY, NC.

Table 3: State Individual Income Tax Revenues

	Per-Capita Revenues				% of State General Revenues			
State Groups	1982	1992	2000	2006	1982	1992	2000	2006
All States								
$n = 42$	$414	$627	$846	$875	22%	25%	27%	26%
SFR 1980-1992								
$n = 6$	**$304**	**$626**	$848	$968	17%	**23%**	**26%**	26%
SFR 1993-2000								
$n = 7$	$309	**$497**	**$645**	$655	17%	**19%**	**21%**	19%
SFR 2001-2007								
$n = 4$	$574	$778	**$1,041**	**$1,093**	32%	31%	**36%**	**34%**
No SFR 1980-2007								
$n = 25$	$445	$640	$870	$880	23%	26%	28%	26%

Sources: Authors tabulations from U.S. Census Bureau data. Table excludes the six states with no income tax (FL, NV, SD, TX, WA, WY). Per-capita revenues are in constant 2006 dollars. The share of state revenues is the share of state general own source revenues. General own source revenue equals the sum of tax revenue, charge revenues, and miscellaneous revenues. It does not include intergovernmental revenues or social insurance revenues. SFR XXXX-YYYY includes states where court-ordered school finance reform (SFR) first occurred between the years XXXX and YYYY. *SFR 1980-1992* includes AK, CT, KY, MT, NJ, WV. *SFR 1993-2000* includes AL, AZ, MA, NH, OH, TN, VT. *SFR 2001-2007* includes ID, KS, NY, NC.

Table 4: State General Sales Tax Revenues

	Per-Capita Revenues				% of State General Revenues			
State Groups	1982	1992	2000	2006	1982	1992	2000	2006
All States								
$n = 44$	\$479	\$609	\$736	\$776	26%	25%	25%	24%
SFR 1980-1992								
$n = 7$	**\$583**	**\$668**	\$796	\$846	**28%**	**26%**	25%	23%
SFR 1993-2000								
$n = 6$	\$383	**\$537**	**\$652**	\$707	24%	**24%**	**25%**	24%
SFR 2001-2007								
$n = 4$	\$343	\$515	**\$613**	**\$665**	20%	22%	**22%**	**22%**
No SFR 1980-2007								
$n = 27$	\$494	\$624	\$758	\$789	27%	26%	26%	25%

Sources: Authors tabulations from U.S. Census Bureau data. Table excludes the four states with no general sales tax (DE, MT, NH, OR). Per-capita revenues are in constant 2006 dollars. The share of state revenues is the share of state general own source revenues. General own source revenues equals the sum of tax revenue, charge revenue, and miscellaneous revenues. It does not include intergovernmental revenues or social insurance revenues. SFR XXXX-YYYY includes states where court-ordered school finance reform (SFR) first occurred between the years XXXX and YYYY. *SFR 1980-1992* includes AK, CT, KY, NJ, TX, WV, WY. *SFR 1993-2000* includes AL, AZ, MA, OH, TN, VT. *SFR 2001-2007* includes ID, KS, NY, NC.

Table 5: Marital Status, Homeownership Status, and Income of Hypothetical Households

	1980	1992	2000	2007
Decile 1	Single Renter $2,575	Single Renter $4,491	Single Renter $6,039	Single Renter $6,604
Decile 2	Single Renter $5,427	Single Renter $9,802	Single Renter $13,599	Single Renter $16,108
Decile 3	Married Owner $8,552	Single Renter $15,160	Single Renter $20,613	Single Owner $24,309
Decile 4	Married Owner $11,521	Married Owner $21,047	Married Owner $28,252	Married Owner $33,231
Decile 5	Married Owner $14,762	Married Owner $26,901	Married Owner $36,511	Married Owner $42,893
Decile 6	Married Owner $18,729	Married Owner $33,481	Married Owner $45,699	Married Owner $54,120
Decile 7	Married Owner $21,973	Married Owner $41,147	Married Owner $56,858	Married Owner $67,774
Decile 8	Married Owner $26,455	Married Owner $50,869	Married Owner $71,208	Married Owner $85,904
Decile 9	Married Owner $32,840	Married Owner $65,222	Married Owner $92,851	Married Owner $113,169
Decile 10	Married Owner $50,758	Married Owner $105,254	Married Owner $168,355	Married Owner $223,990

Source: Authors' tabulations using March CPS 1980, 1992, 2000, 2007. Nominal dollars. Table reports assigned characteristics by household-income-decile by year. Table indicates assigned marital status and homeownership status based on authors' review of underlying data. Table also reports, by income decile and year, mean household income conditional on assigned marital and homeownership status. See text for details.

Table 6: Measures of State Income Tax Progressivity

	Current Year Income Distribution					1980 Income Distribution
	1980	1992	2000	2007	$\%\Delta_{1980-2007}$	$\%\Delta_{1980-2007}$
AL	.0606	.0174	.0053	.0083	-86%	-70%
	(.0176)	(.009)	(.0044)	(.0049)		
AZ	.1432	.0379	.0169	.014	-90%	-81%
	(.0445)	(.0077)	(.0035)	(.0036)		
AR	.0799	.0469	.0314	.0233	-71%	-72%
	(.0044)	(.0079)	(.0059)	(.0053)		
CA	.1116	.0595	.0426	.033	-70%	-63%
	(.0053)	(.0023)	(.0027)	(.0023)		
CO	.0653	.0406	.0486	.0167	-74%	-43%
	(.0132)	(.0117)	(.0171)	(.0052)		
CT	.0075	.0523	.0304	.027	261%[a]	484%[a]
	(.0025)	(.0052)	(.004)	(.0059)		
DE	.1208	.0472	.0267	.0236	-80%	-67%
	(.0129)	(.0093)	(.0059)	(.0056)		
GA	.1069	.0491	.0281	.0219	-80%	-63%
	(.018)	(.015)	(.0091)	(.0068)		
ID	.1525	.0712	.0416	.0317	-79%	-60%
	(.0279)	(.0151)	(.0105)	(.008)		
IL	.0359	.0134	.0119	.0097	-73%	-34%
	(.0154)	(.0073)	(.0057)	(.0055)		
IN	.0293	.0211	.0217	.0129	-56%	0%
	(.0127)	(.0112)	(.0159)	(.0078)		
IA	.0724	.0377	.022	.0206	-72%	-53%
	(.0157)	(.0122)	(.0072)	(.0055)		
KS	.1295	.0707	.0596	.0495	-62%	-20%
	(.045)	(.0268)	(.0263)	(.0236)		
KY	.0419	.0413	.0219	.0196	-53%	-2%
	(.0108)	(.0131)	(.009)	(.007)		
LA	.0344	.0219	.0127	.0145	-58%	-13%
	(.0024)	(.0066)	(.0049)	(.0046)		
ME	.1212	.0711	.0443	.0348	-71%	-50%
	(.0039)	(.0084)	(.0085)	(.0074)		
MD	.0938	.0468	.0364	.031	-67%	-32%
	(.0234)	(.0134)	(.0161)	(.014)		
MA	.0876	.0476	.0341	.0296	-66%	-28%
	(.024)	(.0174)	(.0158)	(.0135)		
MI	.1472	.0531	.0316	.0182	-88%	-73%
	(.0742)	(.0288)	(.0171)	(.0101)		
MN	.1999	.1108	.0852	.0627	-69%	-36%
	(.0454)	(.0351)	(.036)	(.0267)		
MS	.0637	.0379	.0221	.0177	-72%	-47%
	(.0057)	(.006)	(.0047)	(.0041)		
MO	.0486	.0253	.0204	.0171	-65%	-35%
	(.0074)	(.0086)	(.0047)	(.0039)		
MT	.0572	.0427	.0267	.0239	-58%	-32%
	(.0085)	(.008)	(.0056)	(.0042)		

Continued on Next Page...

Table 6 – Continued

	Current Year Income Distribution					1980 Income Distribution
	1980	1992	2000	2007	$\%\Delta_{1980-2007}$	$\%\Delta_{1980-2007}$
NE	.0803	.0461	.0327	.034	-58%	-23%
	(.0045)	(.0065)	(.0052)	(.0088)		
NJ	.041	.026	.0339	.0388	-5%	69%
	(.0134)	(.0045)	(.0094)	(.0144)		
NM	.1532	.0559	.0411	.0317	-79%	-60%
	(.0463)	(.0066)	(.0088)	(.0108)		
NY	.1938	.074	.0586	.0563	-71%	-42%
	(.0228)	(.0163)	(.0203)	(.0218)		
NC	.0882	.052	.0329	.0266	-70%	-44%
	(.0186)	(.0138)	(.0087)	(.007)		
ND	.057	.0248	.0165	.0126	-78%	-64%
	(.0097)	(.0032)	(.0023)	(.0017)		
OH	.0468	.0412	.0269	.0197	-58%	-29%
	(.0047)	(.0072)	(.0053)	(.0043)		
OK	.091	.064	.0341	.0248	-73%	-45%
	(.0039)	(.0161)	(.0106)	(.0091)		
OR	.1351	.0601	.0359	.0308	-77%	-53%
	(.0204)	(.0163)	(.0116)	(.0103)		
PA	.0325	.0163	.0119	.0092	-72%	-18%
	(.0193)	(.0112)	(.0078)	(.0063)		
RI	.098	.052	.0332	.0278	-72%	-55%
	(.0086)	(.0066)	(.0051)	(.0053)		
SC	.1036	.0577	.0346	.0285	-72%	-50%
	(.0184)	(.0115)	(.0086)	(.007)		
TN	.002	0	.0008	.0002	-89%	-99%
	(.0004)	(.01)	(.0003)	(.0001)		
UT	.0866	.0519	.0274	.0218	-75%	-42%
	(.0257)	(.0146)	(.0096)	(.0074)		
VT	.1179	.0827	.0665	.0529	-55%	-13%
	(.0105)	(.0195)	(.0286)	(.0214)		
VA	.0771	.039	.0218	.0224	-71%	-45%
	(.0142)	(.0109)	(.0076)	(.0072)		
WV	.0523	.043	.0283	.022	-58%	-22%
	(.0065)	(.0087)	(.0075)	(.0067)		
WI	.2388	.1005	.0568	.0395	-83%	-64%
	(.0694)	(.0424)	(.0252)	(.0184)		
US	.0904	.0488	.0313	.0259	-61%	-29%
	(.0081)	(.0034)	(.0026)	(.002)	(8.3515)	(13.5334)

Authors tabulations via state Taxsim (NBER). States' progressivity measures are coefficients along with robust standard errors from a state-year regression of average tax rate on income. $\beta_{s,t}$ estimates allow household income and assigned characteristics to vary across income deciles within year and over time but not between states. The last column shows the change in $\beta_{s,t}$ if the income distribution and characteristics are held at 1980 levels. National average is unweighted with standard errors in parentheses and excludes the six states without an individual income tax and New Hampshire.
[a] CT implemented a broad-based income tax in 1991.

Table 7: The Effect of School Finance Reform on Income Tax Progressivity

dependent variable = $\beta_{s,t}$	1	2	3	4	5
SFR	.01795*	.01571**	.01482	.02081*	.0143
	(.00932)	(.00768)	(.01014)	(.01092)	(.0226)
Unemployment Rate	.00078	.00702**	.00721*	.00903**	.01091*
	(.00214)	(.00347)	(.00381)	(.00429)	(.0058)
% age > 65	-.04308	.08126	.18673	.08352	.16597
	(.09927)	(.10778)	(.26673)	(.23439)	(1.23888)
% households in poverty	-.05486	-.06181	.02000	-.00245	.08498
	(.10013)	(.18198)	(.21537)	(.22092)	(.28673)
constant	.10009**	-.02801	-.05627	-.04914	-.08373
	(.01674)	(.0294)	(.04632)	(.04624)	(.16375)
d1992 [= 1 if $year = 1992$]	-.04448**	-.01859*	-.01636	-.02351*	-.0258
	(.00632)	(.01032)	(.01186)	(.01174)	(.01769)
d2000 [= 1 if $year = 2000$]	-.06204**	-.00824	-.00232	-.00379	
	(.01011)	(.01467)	(.02017)	(.01738)	
d2007 [= 1 if $year = 2007$]	-.06969**	-.01091	-.00806		
	(.00965)	(.01182)	(.01768)		
R^2	.80	.86	.88	.88	.91
N	164	164	164	123	82
Exclude Years	No	No	No	2007	2000,2007
Weighted Least Squares	No	Yes	Yes	Yes	Yes
Income Distribution	Varies	Varies	1980	Varies	Varies
State Fixed Effects	Yes	Yes	Yes	Yes	Yes

Statistically significant, **5%, *10% two-sided test. The dependent variable in all regressions is the estimated β. Robust standard errors, clustered at state level, are in parentheses. Weighted regressions use the inverse standard errors from the β regressions as weights. Regressions in columns 1, 2, and 3 contain four years (1980, 1992, 2000, 2007) of state-level observations for 41 states. Excluded states are the six states with no income tax (FL, NV, SD, TX, WA, WY) and New Hampshire. Column 3 estimates β the 1980 income distribution and characteristics for all years. Columns 4 and 5 exclude 2007, and 2000 and 2007 from the sample.

Table 8: The Effect of School Finance Reform on State Per-Capita Expenditures and Revenues

Dependent Variable	SFR Coefficient	R^2
Total Expenditures	233.2*	.92
	(128.4)	
Total K-12 Expenditures	132.4*	.66
	(77.2)	
Medicaid Expenditures	84.6*	.85
	(43.0)	
Health & Hospitals Expenditures	-20.8	.41
	(20.2)	
Highway Expenditures	-3.2	.50
	(15.7)	
Higher Education Expenditures	22.9	.83
	(20.1)	
Own-Source General Revenues	138.5	.87
	(104.5)	
Total Tax Revenues	124.6	.82
	(91.9)	
Individual Income Tax Revenues	51.2	.70
	(58.0)	
General Sales Tax Revenues	-6.7	.66
	(33.2)	
Selective Sales Tax Revenues	-14.4	.42
	(20.3)	
Current Charges Revenues	-20.5	.75
	(22.1)	
Miscellaneous Revenues	34.4	.52
	(24.5)	

*Statistically significant at 10% two-sided test. Table shows results for 13 separate regressions, with 13 separate dependent variables regressed on SFR, with robust standard errors, clustered at state level, in parentheses. All regressions control for year affects, state fixed effects, the state unemployment rate, % of a state's households below poverty line, state median household income, and % of a state's population over 65 years old. All dependent variables are per-capita state government expenditure and are adjusted for inflation. Data are from 1982, 1992, 2000, and 2006. See text for details on SFR variable.

Table A.1: Hypothetical Households: 1980

Assigned Characteristics			Means Conditional on Assigned Characteristics										
					Household income sources by share						*Income shares*		
decile	married	own	HHI	earners	wage	int	capgains	div	welfare	ssi	ptax	mtg int	rent
1	no	no	$2,575	1	.67	.02	0	0	.2	.11	0	0	.3
2	no	no	$5,427	1	.79	.03	0	0	.14	.04	0	0	.3
3	yes	yes	$8,552	1	.94	.03	0	.01	.01	.01	.03	.29	0
4	yes	yes	$11,521	1	.93	.06	0	.01	0	0	.02	.22	0
5	yes	yes	$14,762	1	.95	.04	0	.01	0	0	.02	.18	0
6	yes	yes	$18,729	2	.96	.03	0	.01	0	0	.02	.16	0
7	yes	yes	$21,973	2	.96	.03	0	.01	0	0	.02	.14	0
8	yes	yes	$26,455	2	.97	.02	0	.01	0	0	.02	.12	0
9	yes	yes	$32,840	2	.96	.02	.01	.01	0	0	.02	.1	0
10	yes	yes	$50,758	2	.90	.04	.04	.02	0	0	.01	.07	0

Sources: Authors tabulations using March CPS 1980 and 1992, IRS Statistics of Income Table 2.1 Publication 304 (1993). Earners is the mean number of earners in a household conditional on the decile's marital and homeownership status. Household income: $HHI \equiv$ wages + interest + capital gains + dividends + welfare + supplemental security income. Property tax payments as a % of household income (*ptax*) are from March CPS 1992. Mortgage interest payments as a % of household income (*mtg int*) are from the IRS, 1993. Rental payments as a % of income (*rent*) are set to 30%. See text for more details. HHI is the mean HHI is the income decile, conditional on marital status and homeownership status. Non-wage income shares are also within-decile conditional means. The wage income share equals 1 minus the conditional means of the non-wage shares. All households are assigned one child under 17 years of age. See text for more details.

Table A.2: Hypothetical Households: 1992

Assigned Characteristics			Means Conditional on Assigned Characteristics										
					Household income sources by share						*Income shares*		
decile	married	own	HHI	earners	wage	int	capgains	div	welfare	ssi	ptax	mtg int	rent
1	no	no	$4,491	1	.62	.02	0	0	.25	.11	0	0	.3
2	no	no	$9,802	1	.84	.02	0	0	.09	.05	0	0	.3
3	no	no	$15,160	1	.95	.02	0	.01	.01	.01	0	0	.3
4	yes	yes	$21,047	1	.93	.06	0	.01	0	0	.02	.22	0
5	yes	yes	$26,901	1	.94	.05	0	.01	0	0	.02	.18	0
6	yes	yes	$33,481	1	.94	.05	0	.01	0	0	.02	.16	0
7	yes	yes	$41,147	2	.95	.04	0	.01	0	0	.02	.14	0
8	yes	yes	$50,869	2	.96	.03	0	.01	0	0	.02	.12	0
9	yes	yes	$65,222	2	.95	.03	.01	.01	0	0	.02	.1	0
10	yes	yes	$105,254	2	.89	.05	.04	.02	0	0	.01	.07	0

Sources: Authors tabulations using March CPS 1992, IRS Statistics of Income Table 2.1 Publication 304 (1993). Earners is the mean number of earners in a household conditional on the decile's marital and homeownership status. Household income: $HHI \equiv$ wages + interest + capital gains + dividends + welfare + supplemental security income. Property tax payments as a % of household income (*ptax*) are from March CPS 1992. Mortgage interest payments as a % of household income (*mtg int*) are from the IRS, 1993. Rental payments as a % of income (*rent*) are set to 30%. See text for more details. HHI is the mean HHI is the income decile, conditional on marital status and homeownership status. Non-wage income shares are also within-decile conditional means. The wage income share equals 1 minus the conditional means of the non-wage shares. All households are assigned one child under 17 years of age. See text for more details.

Table A.3: Hypothetical Households: 2000

Assigned Characteristics			Means Conditional on Assigned Characteristics										
					Household income sources by share						*Income shares*		
decile	married	own	HHI	earners	wage	int	capgains	div	welfare	ssi	ptax	mtg int	rent
1	no	no	$6,039	1	.77	.01	0	0	.09	.13	0	0	.3
2	no	no	$13,599	1	.93	.01	0	0	.02	.04	0	0	.3
3	no	no	$20,613	1	.94	.02	.01	.01	.01	.01	0	0	.3
4	yes	yes	$28,252	1	.95	.03	.01	.01	0	0	.02	.22	0
5	yes	yes	$36,511	1	.95	.03	.01	.01	0	0	.02	.17	0
6	yes	yes	$45,699	2	.95	.03	.01	.01	0	0	.02	.14	0
7	yes	yes	$56,858	2	.94	.03	.02	.01	0	0	.02	.13	0
8	yes	yes	$71,208	2	.93	.03	.02	.02	0	0	.02	.11	0
9	yes	yes	$92,851	2	.92	.03	.03	.02	0	0	.02	.1	0
10	yes	yes	$168,355	2	.82	.05	.09	.04	0	0	.01	.07	0

Sources: Authors tabulations using March CPS 2000, IRS Statistics of Income Table 2.1 Publication 304 (2000). Earners is the mean number of earners in a household conditional on the decile's marital and homeownership status. Household income: $HHI \equiv$ wages + interest + capital gains + dividends + welfare + supplemental security income. Property tax payments as a % of household income (*ptax*) are from March CPS 2000. Mortgage interest payments as a % of household income (*mtg int*) are from the IRS, 2000. Rental payments as a % of income (*rent*) are set to 30%. See text for more details. HHI is the mean HHI is the income decile, conditional on marital status and homeownership status. Non-wage income shares are also within-decile conditional means. The wage income share equals 1 minus the conditional means of the non-wage shares. All households are assigned one child under 17 years of age. See text for more details.

Table A.4: Hypothetical Households: 2007

Assigned Characteristics			Means Conditional on Assigned Characteristics										
					Household income sources by share						*Income shares*		
decile	married	own	HHI	earners	wage	int	capgains	div	welfare	ssi	ptax	mtg int	rent
1	no	no	$6,604	1	.78	.01	0	0	.05	.16	0	0	.3
2	no	no	$16,108	1	.93	.01	0	0	.01	.05	0	0	.3
3	no	yes	$24,309	1	.93	.04	.01	.01	0	.01	.04	.33	0
4	yes	yes	$33,231	1	.93	.03	.03	.01	0	0	.03	.28	0
5	yes	yes	$42,893	1	.93	.03	.03	.01	0	0	.03	.22	0
6	yes	yes	$54,120	2	.93	.03	.03	.01	0	0	.02	.19	0
7	yes	yes	$67,774	2	.93	.03	.03	.01	0	0	.02	.15	0
8	yes	yes	$85,904	2	.94	.02	.03	.01	0	0	.02	.13	0
9	yes	yes	$113,169	2	.93	.03	.02	.02	0	0	.02	.09	0
10	yes	yes	$223,990	2	.93	.04	.01	.02	0	0	.02	.06	0

Sources: Authors tabulations using March CPS 2007, IRS Statistics of Income Table 2.1 Publication 304 (2007). Earners is the mean number of earners in a household conditional on the decile's marital and homeownership status. Household income: $HHI \equiv$ wages + interest + capital gains + dividends + welfare + supplemental security income. Property tax payments as a % of household income (*ptax*) are from March CPS 2007. Mortgage interest payments as a % of household income (*mtg int*) are from the IRS, 2007. Rental payments as a % of income (*rent*) are set to 30%. See text for more details. HHI is the mean HHI is the income decile, conditional on marital status and homeownership status. Non-wage income shares are also within-decile conditional means. The wage income share equals 1 minus the conditional means of the non-wage shares. All households are assigned one child under 17 years of age. See text for more details.

Table A.5: School Finance Reform: Comparing NBA-TJM to B-G

State	**Year(s) of ruling**
Alabama*	1993, 1997
Arizona*	1994, 1997, 1998 (1998 is beyond B-G's timeframe)
Arkansas	1985, 1996, 2002 (B-G list 1983 only)
Connecticut	1985, 1998 (B-G list 1977, 1996 only)
Idaho*	2005 (not in B-G because post-1997)
Kansas	2003 (B-G list 1976 only)
Kentucky*	1989
Massachusetts*	1993
Montana	1989, 1990, 2005 (B-G list 1989 only)
New Hampshire*	1993, 1997, 1998, 2002
New Jersey	1985, 1990, 1994, 1997, 1998, 2000 (B-G do not list 1985)
New York*	2003, 2006 (not in B-G because post-1997)
North Carolina	2004 (B-G list 1997)
Ohio*	1997, 2002
Tennessee*	1993, 1995, 2002
Texas	1989, 1991, 1995, 2005 (B-G do not list 1995)
Vermont*	1997
West Virginia	1984, 1988, 1997 (B-G do not list 1984 or 1997)
Wyoming*	1980, 1995, 2001
States listed below are in B-G's table but not in NBA-TJM's table	**Year(s) of ruling (according to B-G)**
California	1971, 1977 (NBA-TJM have CA in a background data set, but do not list it in their table because its rulings are pre-1980)
Missouri	1996
Rhode Island	1994
Washington	1978, 1991 (NBA-TJM have WA but with pre-1980 rulings in 1974 and 1978 and nothing after that)
Wisconsin	1976 (NBA-TJM background data show WI as never having an overturn ruling)

Source: Authors' tabulations comparing Table 2 in Baicker and Gordon, 2006, denoted B-G, which asks: Did the court overturn your school funding system by 1997?, to Table 1 in the present paper which asks: Did the court overturn your school funding system for the first time between 1980 and 2007?
*An asterisk indicates that NBA-TJM's dates are the same as B-G's dates, as far as they go. In other words, for the years of overlap between the two sources (1980 to 1997), the two sources are in agreement.

Table A.6: Robustness Checks: The Effect of School Finance Reform on Income Tax Progressivity

$Y = \beta_{s,t}$	1	2
SFR	.01732**	.01446*
	(.0078)	(.00764)
Unemployment Rate	.00685**	.00677*
	(.00339)	(.00348)
% age > 65	.0863	.07553
	(.10744)	(.11088)
% households in poverty	-.07024	-.06347
	(.18231)	(.18788)
constant	-.02421	-.02564
	(.02864)	(.0287)
d1992 [= 1 if $year = 1992$]	-.01513	-.01602
	(.01073)	(.01059)
d2000 [= 1 if $year = 2000$]	-.00388	-.00793
	(.01688)	(.01569)
d2007 [= 1 if $year = 2007$]	-.00388	-.01029
	(.01671)	(.0126)
per capita Medicaid expenditures	-.00001	
	(.00001)	
R^2	.86	.85
N	164	164
Exclude Years	No	No
Weighted Least Squares	Yes	Yes
Income Distribution	Varies	Varies
State Fixed Effects	Yes	Yes
SFR Dates	NBA-TJM	B-G (2006)

Statistically significant, **5%, *10% two-sided test. The dependent variable in all regressions is the estimated β. Robust standard errors, clustered at state level, are in parentheses. Weighted regressions use the inverse standard errors from the β regressions as weights. Regressions contain four years (1980, 1992, 2000, 2007) of state-level observations for 41 states. Excluded states are the six states with no income tax (FL, NV, SD, TX, WA, WY) and New Hampshire. Column 1 includes per-capita expenditures on MEDICAID reported as vendor payments in the U.S. Census Bureau data. Column 2 uses school finance reform dates from Baicker and Gordon (2006) for dates 1980-1997 and NBA-TJM 1998-2007.