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I am submitting herewith a thesis written by Jonathan McKernan entitled "Tax Structure and Political Support: Equity-Related Goods Taxation." I have examined the final electronic copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the Master of Arts, with a major in Economics.

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TAX STRUCTURE AND POLITICAL SUPPORT:
EQUITY-RELATED GOODS TAXATION

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Abstract

We focus this paper on a political economic question, What determines the U.S. states' sales tax treatment of equity-related goods? We consider a good to be "equity related" when its consumption is essential to survival. States sometimes choose to tax these goods uniquely, often exempting them from the sales tax base. The equity-related goods for this paper are food, clothing, water, electricity, household fuel, and natural gas. All these goods are for home consumption.

This question is relevant to the larger issue of how tax structure evolves or is determined. We test the theoretical explanation of tax structure determination that Hettich and Winer developed in a series of papers. Hettich and Winer hypothesize that politicians' efforts to win election shape the tax structure.

We test the Hettich-Winer hypothesis with two regressions. First, we adapt the Hettich-Winer model of income-tax share determination to the sales tax and test that model with random-effects regression on panel data for 1990-1999. Next we generalize the sales-tax share model to a theoretical explanation of what determines the probability a state taxes an equity-related good. We test this second model with a Poisson regression on the count of equity-related elements taxed.

The regression on sales tax shares implies that the Hettich and Winer hypothesis is a tenable explanation of tax structure determination. However, the Poisson regression does not support the Hettich-Winer hypothesis. In other words, the Hettich-Winer model works well at the macro level of sales tax share, but poorly at the micro level of element-by-element analysis.

We offer two explanations for this apparent contradiction. First, the micro model of equity-related goods taxation might be poorly specified. The factors influencing political cost included in the model are poor proxies and not inclusive of all relevant forces. Second, the Hettich-Winer hypothesis might be a poor description of tax structure determination. Perhaps the Hettich-Winer premise imparts excessive rationality to political agents, or perhaps tax structure equilibriums are path dependent, which would require Hettich and Winer to include the influence of history in their model. The good fit of the macro models of sales tax and income tax shares would not necessarily contradict the assertion that the Hettich-Winer hypothesis is flawed. For example, the Keynesian consumption function is a statistically good fit at the macro model but is generally recognized as a poor explanation of micro-level consumption decisions.

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I. Introduction

What are the determinants of a government's tax structure? What compels and constrains the government's choice of tax bases, rate schedules, exemptions, and deductions? In this paper, we analyze a specific aspect of this question. We attempt to explain the various sales tax treatments by the U.S. states of equity-related goods. By "equity-related goods" we mean those items considered essential to survival—a need, not a want—which voters frequently regard as deserving of special tax treatment, for example exemption from the sales tax base. The equity-related goods in this analysis are the consumer goods food, clothing, and drugs and the household utilities¹ electricity, water, natural gas, and fuel. We selected these from the CBER survey of U.S. states' sales tax bases 1990-1999.

There is substantial variation in how states treat these equity-related elements of the sales tax base (See Table 1: *States' Sales Taxation of Equity-Related Goods, 1999* in the Appendix). Alabama applies the sales tax to food but exempts natural gas, electricity, water. Arizona taxes natural gas, electricity, and water but exempts food. Massachusetts taxes drugs, but not food. Oklahoma taxes food, but not drugs. Pennsylvania, Ohio, and Minnesota tax none of these equity-related goods. Indiana taxes all of them except drugs. What explains this range of approaches? *What determines a state's sales tax treatment of equity-related goods?*

In this paper we test the Hettich-Winer model of tax structure determination. Hettich and Winer hypothesize that tax structure is a product of the political agents' political support maximization calculus. In other words, the politicians' efforts to win election determine tax structure. We start with a brief review of how political economy addresses questions of tax structure and with the rationale for using the Hettich-Winer hypothesis. We then briefly describe the Hettich-Winer model and adapt it to sales taxation. After testing this model of sales-tax share with a random-effects panel regression, we adapt the model to equity-related goods taxation. We then test this second model using a Poisson regression on the count of equity-related elements taxed.²

The regressions on these two models of tax structure determination, both based on the Hettich-Winer premise, imply contradictory views. The first model of sales-tax share, which is a "macro-level" model of tax mix, seems to fit the Hettich-Winer premise. The second model of equity-related goods sales taxation, which is a "micro-level" model of political agents' element-by-element analysis, seems to contradict the Hettich-Winer hypothesis. We offer two possible explanations for the apparent contradictions of the two models. Either the micro model of equity-related goods taxation is poorly specified, or the Hettich-Winer explanation of tax structure determination is a poor description of Reality.

¹ State governments often treat household utilities differently from utilities used by firms. Since this paper is concerned with equity issues, we focus only on the electricity, natural gas, water, and fuel intended for household use.

² We had originally intended seven Probit panel regressions, one on each equity-related element. These regressions did not yield meaningful results, so we use a Poisson regression on the count of elements taxed.

II. Questions of Tax Structure in Political Economy

Models of public choice start with an assumption about who has the power. Power is either vested in a single agent or in the hands of a committee, for example a congress. The single agent, or dictator, models divide into two polar extremes. The dictator's government is either benevolent, maximizing a social utility function, or a Leviathan, maximizing its own utility function. Dictator models are attractive because the government's objective is clear—either maximize social utility or the government's utility. Public choice theories assuming rule by committee are more realistic in premise but tend toward less precise, less tractable objective functions. Arrow's Impossibility Theorem and other complications like double-peaked preferences limit our deductive ability about the equilibrium outcome of public choice by committee.³

Hettich and Winer's model adopts the premise of a single agent preoccupied with its own welfare. However, the self-interested dictator depends on the voters to win power. The dictator's welfare is thus tied to the voters. Essentially Hettich and Winer have preserved the more realistic starting point that power originates in a committee, in this case the voters, but have reduced the associated theoretical complications of public choice by committee by assuming a single political agent wields power after winning election.

There are few models of public choice that directly address tax structure. In those models that do exist, political support is not a relevant dynamic, at least directly. For example, on questions of tax structure, the optimal taxation model is probably the most popular single agent model. In this model, the single agent is a benevolent dictator that strives to maximize social welfare. The dictator achieves tax efficiency by equating the change in social welfare per dollar of additional revenue across all revenue sources. Political support is not relevant to this optimization since factors determining how changes in the voters' welfare influence dictator's political support have no role in optimal taxation.⁴

Political support is also not relevant in the opposite extreme. In Leviathan, the government's objective is to maximize its revenue so that it maximizes its fiscal surplus—the difference between tax revenues and expenditures. Leviathan is not

³ Arrow's Impossibility Theorem states that is impossible to translate individual preferences into collective preferences without violating at least one of the specified list of ethically reasonable conditions. In other words, there is no voting regime or set of political institutions that can always and completely convey the "will of the people" to the policymakers. Double-peaked preferences describe a voter's preferences if, as a voter moves away from his most preferred outcome, utility goes down but then goes back up again. If one or more voters have double-peaked preferences, majority voting can lead to inconsistent outcomes, a phenomenon called a voting paradox, in which the ultimate outcome is a function of the order in which the votes are taken. The big picture is that decision making by committee, e.g. majority voting, has serious complications. Majority voting cannot be said always to convey the "will of the people." Definitions are from the Glossary of Harvey S. Rosen's *Public Finance*.

⁴ Hettich and Winer: 710.

constrained by any significant political dynamic like political support.⁵ Instead, Leviathan is concerned with the taxpayers' ability to escape taxation.

Besides differences in premise, the Hettich-Winer model diverges from the single agent models in the questions it poses. Conceivably the optimal taxation model could explain the determination of tax structure, the central concern of the Hettich-Winer model. However, tax base issues like exemptions and deductions are not a central concern in optimal taxation literature. Perhaps this is because optimal taxation is a normative theory of what tax structure *should* be. The Hettich-Winer model is a positive theory of why tax structure is the way it is. Optimal taxation literature does not pose the question, What determines a government's tax structure? Instead it asks, What should the tax structure be?

Interestingly, the tax structure ordained as efficient by an optimal taxation model might approach the Hettich and Winer predicted tax structure if the definition of "efficiency" that centers the optimal taxation criteria is sufficiently broad. For example, the Hettich-Winer political agent might consider equity issues when proposing a tax structure. Since we can define efficiency to include equity, the tax structure prescribed by the optimal taxation model can converge upon the tax structure predicted by the Hettich and Winer model. These two models further converge when the optimal taxation model's definition of efficiency includes political efficiency. Politics is messy and discerning the voters' will is difficult and costly. The process of public choice is perhaps less costly when interest groups are included in the decision making process. Although interest groups introduce inefficiencies from the perspective of economic efficiency, for example the infamous Florida sugar farmers, interest groups can be a net efficiency gain if they make the decision making process sufficiently less costly. If the optimal taxation model includes public-choice efficiency as a criteria, the prescriptions of the optimal taxation model could more closely approximate the predictions of the Hettich and Winer model.

Tax structure determination is also not a central focus in the Leviathan literature. Issues like exemptions, deductions, and tax credits are not a central focus. These concerns are the heart and soul of the Hettich-Winer model. In general, Hettich and Winer's model share with the single agents models of public choice an easily specified objective function, but diverge from those models in the specification of that objective function and also the questions that the model intends to address.

⁵ Conceivably Leviathan indirectly might face constraints related to political support if the voters institutionalize limits on expenditures or revenues, perhaps through a constitutional amendment. In this sense, political support might be a relevant dynamic even in the Leviathan world. However, the voters' will when embodied in limits on government revenues or expenditures is fundamentally different from the constraints of political support that the Hettich-Winer political agent faces. In the Hettich-Winer model, the politician is accountable to the voters. Constitutional limits on revenues and expenditures might imply Leviathan must consider the preferences of the voters, but it would be a stretch to say the Leviathan is accountable to the people.

Besides the single agent models, it is also interesting to compare the Hettich-Winer model to public-choice-by-committee models, for example the median voter model. The median voter theorem states that the outcome of majority voting reflects the preferences of the median voter (assuming all preferences are single peaked). The median voter model is applicable to most tax structure questions: exemptions, deductions, and tax rates simply reflect the preferences of the median voter.

Still, the predictions of the median voter theorem diverge from those of the Hettich-Winer model. Political support is a dynamic in the median voter theorem. However, Hettich and Winer allow for the possibility that each individual's vote is weighted by his political influence. Interest groups are one way in which a voter can have a disproportionate influence on the political agent. The Hettich-Winer model predicts a political equilibrium when the marginal political cost of an additional unit of revenue is equal across all revenue sources. The median voter theorem states that the voting outcome reflects the preferences of the median voter. These two outcomes are not necessarily identical.⁶ In so far that the median voter models can be adjusted to include the influence of interest groups, the median voter model predictions might converge on the Hettich and Winer predictions.

⁶ The Hettich-Winer model also need not address issues like double-peaked preferences. The political agent is not concerned with which voting outcome is "right" or reflects the will of the people. The political agent would not be concerned with the institutional setup that governs the voting order and thus the voting outcome. The agent simply takes the institutional setup as given, accepts the associated voting outcome as given, and seeks to optimize the chances of winning election by proposing a tax structure compatible with the predicted voting outcome. The proposal that maximizes the probability a political agent wins election is the proposal that results.

III. Hettich-Winer Model of Income Tax Shares

Hettich and Winer set out “to develop and test a model in which the structure of the tax system arises endogenously as the result of constrained maximizing behavior by political agents.”⁷ The two features of tax structure are the division of revenues among the possible taxes and the structural features of each tax (the definition of the base, tax rates, deductions, and exemptions).⁸

The authors start from the premise that “governments attempt to minimize the political costs of raising a given amount of revenues.” The political cost of a government’s policy is equivalent to the expected net loss in votes resulting from the implementation of the policy.⁹ To simplify, Hettich and Winer focus only on one aspect of the tax structure, the composition of revenues, and assume a given budget. By assuming a constant budget, Hettich and Winer, for the time being, dodge the role played by the political benefits of taxation.¹⁰ The political agents’¹¹ objective function is to minimize the political costs of raising the budget by choosing the appropriate mix of revenues.¹² The authors do not include a determination of the structure of each specific tax.¹³

Notice that Hettich and Winer focus on the political agents’ objective function and avoid explicitly modeling issues of political environment. The model side steps questions like, for whom and for what is government intended? Of course political ideology and political institutions affect the political economic equilibrium. Hettich and Winer avoid these complications by allowing the contemporary political reality to influence the political agents’ political cost function. Different political realities would be manifested

⁷ Walter Hettich and Stanley Winer, “A Positive Model of Tax Structure.” *Journal of Public Economics* 24 (1984): 67.

⁸ In a later paper, Hettich and Winer generalize their premise to a general equilibrium framework in which the choice of taxes, tax rates, and definition of the tax bases are simultaneous. Hettich, Winer and Stanley L. Winer, “Economic and Political Foundations of Tax Structure.” *The American Economic Review* 78 (1988): 701-712.

⁹ The influence of lobbies can be included in the model by attaching weights to the votes of the members of that lobby. If we allow for the influence of lobbies and weight the votes of the members of the relevant lobbies, then the political cost of a government’s policy is equivalent to the expected net loss in weighted votes resulting from the implementation of the policy.

¹⁰ Including the political benefit of taxation is straightforward. The political benefit of taxation is the political benefit of government expenditures (on education, police, healthcare, etc.). In the general equilibrium setup, the political agent would strive to equate the marginal political cost of an additional dollar of tax across all revenue sources and equate that common marginal political cost with the marginal political benefit of an additional dollar of government expenditure.

¹¹ A political agent is an entity, political party or individual, which competes within a political institutional setting for a political office. In this case, that political office is responsible for the tax structure, among potential other concerns.

¹² In principle, the analysis could be general equilibrium in nature, including a political agent’s maximization of political support over both expenditures and revenues. Hettich and Winer leave the dual determination of expenditures and revenues to later analysis and focus only on how political agents raise a given level of revenues to meet an exogenous expenditure level.

¹³ Hettich and Winer generalize the model in a later paper to include the determination of the structural features of each particular tax.

in different weights attached to each individual's vote. For example in the 1960s and 1970s, American government was in an "expansive" phase oriented toward addressing the needs of the underprivileged. In the 1980s and 1990s, the orientation reversed, focusing on matters of economic efficiency. Hettich and Winer could embody this shift in the government's orientation through a decrease in the weight attached to votes of the underprivileged, implying that there was a change in the political institutions over time. They could also model the paradigm shift as a change in how voters understood the relationship between government and their self interest. In general, Hettich and Winer sidestep the complexities of political environment but do not ignore them.

In the Hettich-Winer setup, competing political agents minimize political costs, which is also to maximize political support, by adjusting the division of revenues among possible revenue sources until the marginal political cost of raising an additional dollar of revenue is equal across all sources.¹⁴ Equilibrium obtains when the competing political agents have exhausted the potential tax structure modifications that would increase their political support. The model's strength is its emphasis on the self-interest of the political agent. Each of the competing political agents maximizes its political support to maximize its chances of winning election. In other words, the model's foundation is the political agents' self-interest and the resulting calculus of political-support maximization.

However the model's weakness is its testability. Political costs are not directly measurable. To test the model, Hettich and Winer must skip the definition of a political cost function and instead identify "factors that influence political costs associated with taxation."¹⁵ If the authors empirically establish that shocks to these factors precipitate the expected shifts in revenue composition, they confirm that the political agents' political-support calculus is a determinant of tax structure.

Hettich and Winer state five hypotheses about the political costs of a tax:

1. Opposition to the use of a tax depends on effective (rather than nominal) tax-prices. The government will lower the effective tax prices of voters most likely to offer political opposition.¹⁶
2. The more revenue that is raised per dollar of potential tax base with a particular tax, the more political opposition (in total and at the margin) there will be to that tax.
3. Opposition to the government grow at an increasing rate as revenue collection per dollar of potential base is raised.

¹⁴ Hettich and Winer: 70.

¹⁵ Hettich and Winer: 71.

¹⁶ Tax incidence is a highly theoretical concept, and it is reasonable to doubt the extent to which the voters are aware of tax incidence and attempts to decrease the effective tax price of a tax. The voters' awareness of decreases in effective tax price is likely dependent on the political agent's approach. For example, an income-tax deduction for property taxes paid should be an obvious deduction in the effective tax price of the income tax to at least some voters. The deduction for property taxes paid should thus lower the voter opposition to the income tax.

4. The tax pattern in competing political units, e.g. state governments, serves as a constraint on fiscal structure.
5. Other things being equal, tax sources more subject to fluctuations generate greater political opposition (in total and at the margin).¹⁷

Using these hypotheses, the authors identify exogenous factors influencing the political costs of personal income taxation. They group these factors into four classes: those influencing effective tax price; those influencing the costs of organizing opposition; those affecting the intensity of tax competition between states; those reflecting the variability of the tax base (see Table 2: *Factors Influencing the Political Costs of Income Taxation*). These factors are the independent variables for their regression on 1976 and 1977 state income tax shares (see Table 3: *Hettich and Winer's Explanatory Variables*).

Hettich and Winer estimate the TOBIT regression on income tax shares for the continental United States for years 1976 and 1977. They find that the following variables have statistically significant coefficients with the expected sign: VANM, CYT, RBY, SBY, AYTR, V ($R^2 = 0.402$). The greater the potential for reducing the effective tax price, the more a state relies on the income tax. The larger the other potential tax bases, the less a state relies on the income tax. Tax competition and tax-base variation negatively affect income tax share.

¹⁷ Hettich and Winer: 71-74.

IV. Extension of Hettich-Winer Model to Sales Taxation

Hettich and Winer's work contributes to the theoretical understanding of what shapes and determines a state's tax structure. In their model, political support is the operative dynamic. Political agents strive to minimize political costs by equating marginal political costs across all the sources of tax revenues. In a later paper, Winer and Hettich further formalize their insights, showing that all aspects of the tax structure—rate schedule, tax base, exemptions, and deductions—are rooted in this political-support calculus. By introducing administration costs, Winer and Hettich demonstrate that the complexity of the tax structure is an optimal equilibrium in the sense that it maximizes the net political support to the government.¹⁸

We adopt the perspective of political-support maximization in this paper. We hypothesize that governments, in this case states, tax equity-related goods differently because of the varying influence of certain key groups of voters in each state.

Hettich and Winer's work is also valuable for its list of factors that influence the political cost of a tax. Starting from their premise, we develop a list of factors influencing the political cost of sales taxation. The resulting model serves as the core model of sales taxation. In the next section, we add specific factors of political costs relevant to equity-related goods taxation.

We identify the following core sales-tax model that explains the sales tax share, PSTR (sales tax revenue / total revenue):

$$\text{PSTR} = \alpha_1 + \alpha_2 \text{TGP} + \alpha_3 \text{MGP} + \alpha_4 \text{IGP} + \alpha_5 \text{EN} + \alpha_6 \text{LMT} + \alpha_7 \text{ASTRB} + \alpha_8 \text{MLS} + \alpha_9 \text{V} + \alpha_{10} \text{SGP} + \alpha_{11} \text{BSGP} + \varepsilon$$

This mathematical expression can be narrated as the state's sales tax share (PSTR) is a function of the state's potential for exporting the sales tax to tourists (TGP), the size of the state's mineral resources tax base (MGP), the size of the state's income tax base (IGP), government expenditures per capita (EN), the presence of a constitutional expenditure or revenue limit (LMT), the average sales tax share of bordering states (ASTRB), the square mileage of the state (MLS), the variability of the state's sales tax base (V), the size of the service sector (SGP), and the size of the state's business service sector (BSGP), and a random error component. (See Table 4: *Factors Influencing the Political Costs of Sales Taxation*)

Hettich and Winer identified four groups of factors influencing the political costs of income taxation: factors influencing the effective tax price; factors influencing the costs of organizing opposition to the tax; factors influencing tax competition with other states; factors influencing the tax base variability. We have adopted Hettich and Winer's four

¹⁸ Hettich and Winer's understanding of administration costs is encompassing. The taxpayers' compliance costs are part of administration costs.

groups of factors influencing political costs of a given tax and adapted them to the sales tax.

Factors influencing the effective tax price

We identify only one factor, tourism, influencing the effective tax-price of the sales tax. It is likely difficult to export the sales tax incidence outside the state since the sales tax is a tax on consumption at the point of consumption. In other words, the state can pass the sales tax incidence to out-of-state consumers only when those out-of-state consumers are consuming inside the borders of the state. Tourists are a significant group of out-of-state consumers. We use the proportion of Hotel and Lodging spending to Gross State Product (TGP) as a proxy for tourism. The more a state's economy relies on tourism, the more easily the state can export the sales tax incidence to out-of-state consumers. The expected sign is positive.

Factors influencing the costs of organizing opposition to the tax

Hettich and Winer hypothesized that the greater the potential of other tax bases, the lesser will be the reliance on a given tax. This is because marginal political costs are equalized across all tax sources, and political opposition is lower, in total and at the margin, the less revenue that is raised per dollar of potential tax base with a particular tax. We identify two relevant tax bases: wage income, which is taxable by a state income tax, and mineral resources, which are often taxable by a special mining tax. MGP is the five-year average mineral product as a fraction of Gross State Product. IGP is employee compensation as a fraction of Gross State Product. The expected sign on all tax-base proxy measures is negative.

Like Hettich and Winer, we include government expenditures per capita as a scale effect that might influence the costs of organizing opposition to the sales tax. As in Hettich and Winer, the sign is ambiguous. Simultaneity is not a problem because the dependent variable is a tax ratio (sales tax revenues / total revenues) and the independent variable, EN, is a scale variable (government expenditures / population).

We also include a dummy variable (LMT) for the presence of a revenue / expenditure growth limit or advisory revenue / expenditure growth limit. There are many different types of such limits, some restricting expenditure growth to population and inflation growth, others limiting expenditures to a percentage of state income. The dummy variable is therefore a crude measure of the type of limit. However, the dummy variable could serve as a suitable proxy for the voters' general attitude toward revenue / expenditure growth. In other words, the dummy variable reflects whether or not the voters are worried about "big government." The sign here is also ambiguous. It might be expected that the presence of a constitutional limitation would affect the total level of sales tax revenues. However, the effect of a constitutional restriction on sales tax share (sales taxes / total revenues) is ambiguous.

Factors influencing the tax competition with other states

According to Hettich and Winer's hypotheses, political agents should consider the tax behavior of surrounding political entities, in this case bordering states, when choosing the state tax structure. ASTRB is the average sales tax share of the bordering states. Following Hettich and Winer, the expected sign on ASTRB is positive.¹⁹

MLS is the area of the state in hundreds of thousands of square miles. The larger a state, the longer the travel time of the average consumer to take advantage of a lower sales tax rate across the border. Thus, the larger a state, the less sensitive a political agent might be to the tax structure of surrounding states. The expected sign is positive.

Together these measures reflect the incentive in-state consumers have to travel to low-tax states to shop. There is anecdotal evidence that states that rely heavily on the sales tax but are bordered by states with low sales tax shares experience tax leakage across the border. For example, Tennessee residents close to the border seem inclined to purchase groceries in Georgia, which does not apply the sales tax to food. ASTRB might also proxy the general economic competitiveness of the state.

Factors influencing the tax base variability

We approximated the sales tax base by dividing sales tax revenues by the sales tax rate. Each year has an associated V, which is the standard deviation of the percent changes of the sales tax base of the ten years prior to that year.²⁰

Additions: Efficiency concerns

Essentially we follow Hettich and Winer in identifying factors that influence the political cost of sales taxation. Unique to the model are those factors entitled "Efficiency concerns." Hettich and Winer emphasize that their model departs from the traditional premise of an altruistic policymaker who maximizes a social utility function. Instead, competing political agents are concerned only with the net political support gained through a change in the tax structure. However, Hettich and Winer recognize that the calculus of political support does not imply that political agents are indifferent to tax efficiency concerns. In fact, the more efficient the tax structure, the better off the voters, and potentially the greater the political support for the political agent.

¹⁹ In the place of ASTRB, the average sales tax share of the bordering states, we also experimented with the border states' average sales tax revenue / personal income and average sales tax rates. Sales tax rates are more visible to voters and business and thus might seem to have more influence than the border states' average sales tax share. Sales tax revenue / personal income, on the other hand, is a better reflection of the sales tax burden on the voters and might also seem more relevant than ASTRB. Interestingly, neither of these measures seemed to yield superior statistical results (more significant coefficients or a higher R²) than ASTRB. To conform with Hettich and Winer, we use ASTRB.

²⁰ For example, the V for Tennessee in 1999 is calculated from the percent changes in the sales tax base over prior year for each year from 1989 to 1998. There are 10 separate percent changes. V is the standard deviation of these 10 measures.

Efficiency concerns are especially relevant for sales taxation. States typically include all goods in the sales tax base, except for those specifically exempted, and exclude all services, except for those specifically included. This creates problems of horizontal equity, biasing consumers toward consuming services and away from goods. Policymakers might recognize this dynamic. The more a state's economy centers on service consumption, and hence the more susceptible the economy to sales-tax-induced efficiency distortions, the less inclined policymakers might be to rely on the sales tax.

Empirical results

We test this model of sales tax shares with panel data. The dependent variable is the state sales tax shares from 1990 to 1999.

In panel regressions, we must choose between a fixed-effects or random-effects panel regression. The difference is the specification of the model.

A fixed-effects regression assumes that the differences across units (in this case states) can be included in the model as differences in the constant term. In other words, the constant term is an unknown parameter to be estimated for each unit. The fixed-effects specification is

$$\mathbf{y}_i = \mathbf{i}\alpha_i + \mathbf{X}_i\boldsymbol{\beta} + \boldsymbol{\varepsilon}_i$$

where $\mathbf{y}_i$ and $\mathbf{X}_i$ are the T observations for the i th unit and $\boldsymbol{\varepsilon}_i$ is the $T \times 1$ vector of disturbances.

A random-effects regression assumes that the constant terms unique to each unit i are randomly distributed across cross-section units. The random-effects specification is

$$y_{it} = \alpha + \boldsymbol{\beta}\mathbf{x}_{it} + u_i + \varepsilon_{it}$$

where the component u_i is the random disturbance for the i th observation and is constant through time. The random-effects specification might have greater validity than the fixed-effects specification when the units are drawn as a sample from a larger population. Our data is for 30 states drawn from the larger population of 50 states. Therefore, it might be reasonable to assume the random-effects specification. The random-effects model does assume that the individual effects, u_i , are uncorrelated with the other regressors, meaning the model may lead to inconsistency due to omitted variables.

Unfortunately, the random-effects panel regression on 1990-1999 sales tax shares yields only a few statistically significant coefficients (see Table 3: *Factors Influencing the Political Costs of Sales Taxation*). The regression estimates the expected statistically significant signs on the proxy for tourism, TGP, and the proxy for services, SGP. States tend to rely more heavily on the sales tax when there is a greater potential to export the

tax incidence to out-of-state consumers, specifically tourists. Policymakers seem aware of the tax efficiency problems associated with services and sales taxation. The only other statistically significant sign is IGP, employee compensation as a fraction of Gross State Product. The estimate's sign is positive, while we expected negative. Interpretation is difficult. Perhaps IGP is a poor proxy for the income tax base.

Although most of the coefficients are not statistically significant, there is still some cause to believe our model is a good specification of the underlying reality. First, the $R^2 = 0.214$ is decent for a panel regression over 10 years. Second, the majority of coefficients, while not statistically significant, tend toward the expected signs. V and ASTRB are exceptions and have signs opposite from the expected. The z-statistics on V and ASTRB are also almost among the most insignificant.

The theoretically ambiguous sign on LMT, the dummy variable for the presence of a revenue / expenditure constitutional limit, is positive, meaning that the presence of a revenue / expenditure limit tends to increase reliance on the sales tax. Perhaps the presence of a constitutional limit reflects the voters' disdain for taxes or "big government." Political agents might then find it politically optimal to rely on less visible tax sources that escape the voters' antipathy. The sales tax is less visible to the taxpayer than some other taxes. For example, the income tax and property tax are paid less often and in larger sums than the sales tax. Under these assumptions, the LMT variable is positively correlated with the pressure on political agents to create tax illusion and thus positively correlated with sales tax reliance. One could then interpret LMT as a proxy for the voters' attitude toward "big government."

In summary, the R^2 of the model is decent for a panel regression over 10 years, and most the signs are as expected. The model should serve as an acceptable core model for sales tax share reliance. It remains to extend the model to equity-related goods sales taxation.

V. Extension to the Tax Base and Equity-Related Elements

In the interests of simplicity, Hettich and Winer ignored how political agents define the tax base. In a later paper, Hettich and Winer generalized the model to show that the political agent's efforts to maximize political support interact with administrative costs to determine the tax base.²¹ Each competing political agent maximizes political support by equalizing the marginal political cost of raising an additional dollar of revenue across all tax base elements. In other words, the political agent's focus is on each tax base element.

The political agent's micro approach—element by element analysis—implies that questions of tax mix (e.g. the sales tax share) are perhaps premature, even illogical. Modeling tax mix is macro modeling without micro foundations. Instead it is necessary to examine the political agents' approach to each element of each tax base. The sum of the political agent's optimal decisions across all tax base elements aggregates to the tax mix.

In other words, tax mix is not something a political agent considers. The political agent's focus is on equating the marginal political benefit of an additional dollar of revenue and the marginal political cost of taking an additional dollar of tax from a given tax base element.²² The aggregate of the political agents' micro decisions—how to tax each tax base element—yields the tax mix. The tax mix is not an immediate focus of the calculus of political support maximization. Tax mix is, however, a *result* of that maximization process.²³

Since the tax mix is a result of the political agent's political-support maximization calculus, Hettich and Winer's work, and the core model, do serve the useful purpose of identifying factors that generally influence the political cost of taxing an element. Having identified factors influencing most or all sales tax base elements, we turn our attention to factors influencing political cost that are unique to each element.

²¹ Walter Hettich and Stanley L. Winer, "Economic and Political Foundations of Tax Structure." *The American Economic Review* Vol. 78 Issue 4 (September 1988): 701-712.

²² Hettich and Winer formalize how the political agent groups objects of taxation into elements and brackets on the basis of political-support optimization.

²³ Some might point out that questions of tax mix are still relevant to the political agent. For example, political agents (more precisely the voters) desire a stable revenue stream. In general, revenue streams tend to be more stable with a diverse tax mix. However, from the perspective of the model, this perspective is flawed. Political agents prefer stable revenues. However the political agent incorporates that preference for stability at the micro level when considering the variability of the revenue each tax base element could provide. A stable revenue flow might correlate with a diverse tax mix. However that diversity is accomplished at the micro level, element by element. An example of this micro approach is one of the arguments against a blanket exemption of food from the sales tax base. The tax revenues on food are relatively stable. Exempting food might tend to increase the variability of the sales tax base. Whether or not this hypothesis is true is irrelevant. The essential point is that political agents consider the consequences for revenue variability at the micro level, not at the macro level of tax mix.

Political agents often treat equity-related goods differently from more typical goods, sometimes exempting equity-related goods from the sales tax base. Earlier we posed the question, what determines a state's sales tax treatment of equity-related goods? Having incorporated Hettich and Winer's work, we restate the research question as, what factors influence the political cost of taxing equity-related goods?

We suggest the addition of the following factors to the core model: the poverty rate of each state by year (PVT); the percentage of population urban in 1990 (URB); the average of the percent of total population registered to vote in 1988, 1992, and 1996 (VTR); the average portion of population over 65 in 1990 and 2000 (OLD).²⁴

We intend PVT, URB, and OLD as proxies for the voters' sensitivity to issues of sales tax regressivity. The larger the proportion of low income people, the more politically significant the regressivity of consumption taxation. The extent to which a state is urban, URB, could be significant as a reflection of the ease with which voters mobilize against regressive sales tax provisions. Older voters tend to be poorer and perhaps spend a larger percentage of their income on equity-related goods like food and utilities. VTR is a proxy for the political involvement of the population, where high levels of voter registration reflect active voters inclined to express their preferences through the political process. Together, these proxies would imply that states with larger portions of low income, urban, older, and active voters would tend to be less likely to tax equity-related goods like food, utilities, or drugs. The expected signs on PVT, URB, OLD, and VTR are negative.

In addition to adding these factors unique to the political costs of taxing equity-related goods, the core model must be adjusted slightly before the Probit panel regression on the equity-related tax base elements (the dependent variable is a dummy variable, 1 if the element is taxed by the state in that year, 0 if not taxed).²⁵ The core model explains sales tax share. In other words, the core model explains variations in sales tax reliance across states.

The Probit regression will describe the probability a state will tax a given equity-related tax base element. The probability a state taxes a given tax base element is a function of both the state's sales tax reliance and the state's revenue need, which is the political agent's budget constraint. Holding revenues constant, the more heavily a state relies on the sales tax, the more likely the state will tax a given sales tax base element. Holding sales tax reliance constant, the greater a state's revenue need, the more likely a state will tax a given sales tax base element.

²⁴ Ideally, we would include a more complete specification of poor-friendly tax provisions. We have neglected poor-friendly income budget provisions like the earned income tax credits (EITC). Data availability complicates including these factors in the model.

²⁵ The Probit panel regressions do not yield meaningful results. Later we will adjust the model to allow the Poisson regression on the count of equity-related elements taxed.

We add to the model government expenditures as a proportion of Gross State Product (GGP) to incorporate the states' tax need. Indirectly, the GGP variable reflects variation across the states and over time in the marginal political benefit of an additional dollar of tax revenue. The larger GGP, the more a state's voters value the public goods provided by the political agent's government, and the more likely a given sales tax base element will be taxed.

In other words, there are two general dynamics determining the probability a state taxes a given sales tax base element, both of which are reflections of the political agents' efforts to maximize political support. There is the state's reliance on the sales tax, and there is the state's tax need. For example, two states might have identical tax needs (revenue constraints), but one state might have a lower sales-tax share (sales tax revenues / total revenues) than the other. Perhaps the state might be endowed with greater mineral resources implying that it can meet its tax need with less reliance on the sales tax. The state with the mineral resources would then have a lower probability of taxing a given sales tax base element.

On the other hand, two states might be identical in all factors of political cost, potentially implying identical sales tax shares (depending on the sign on EN). However one state's voters might value public goods more than the other state's voters. The state with a greater demand for public goods would have a higher tax need and thus be more likely to tax a given sales tax base element. The inclusion of the GGP variable includes the influence of tax need in the political agent's maximization calculus. Notice that GGP is not a factor influencing the political cost of taxing an element. Rather it is a proxy for the marginal political *benefit* of taxing the element. GGP therefore influences the probability a sales tax base element is taxed, but it does not influence the state's sales tax share.

Finally, a potential objection to this approach is that the model treats all equity-related goods identically. True, each equity-related good is unique. The political agent, when considering whether or not to include a given equity-related good in the tax base, evaluates the factors of political costs unique to that equity-related good. There are for example some factors of political cost unique to food taxation that do not apply to clothing taxation. However, we assume that general equity concerns overwhelm these other factor of political costs. In other words, we assume that the factors unique to food taxation (or clothing, electricity, or water taxation) pale in influence to the significance of the voters' interests in equity. We therefore ignore these minor factors of political influence in the specification of the model of equity-related goods sales taxation.

The model we test has three components. The probability a state taxes an equity-related sales tax component is a function of the factors of political costs determining sales tax share, the value voters attach to public services, and a set of factors of political costs unique to equity related goods. $P(t) = F(\text{factors of PSTR, GGP, } X)$.

We regress the following model on the binary variables FOOD, GAS, ELEC, WTR, DRG, CLT, HHF.

$$P(\text{taxed}) = \alpha_1 + \alpha_2 \text{TGP} + \alpha_3 \text{MGP} + \alpha_4 \text{IGP} + \alpha_5 \text{EN} + \alpha_6 \text{LMT} + \alpha_7 \text{ASTRB} + \alpha_8 \text{MLS} + \alpha_9 \text{V} + \alpha_{10} \text{SGP} + \alpha_{11} \text{BSGP} + \alpha_{12} \text{GGP} + \alpha_{13} \text{PVT} + \alpha_{14} \text{URB} + \alpha_{15} \text{VTR} + \alpha_{16} \text{OLD} + \varepsilon$$

The independent variables group as:

Factors influencing the political cost of taxing any sales tax element (not just equity-related goods): TGP, MGP, IGP, EN, LMT, V, ASTRB, MLS, SGP, BSGP.

The value voters attach to public services: GGP.

Factors influencing the political cost of taxing an equity-related sales tax element: PVT, URB, VTR, OLD.

This mathematical expression can be summarized as the probability that a state includes an equity-related good in the sales tax base is a function of the significance of tourism to the state economy, the size of the mineral resources tax base, the size of the income tax base, government expenditures per capita, the presence of a constitutional limit on revenues or expenditures, the variability of the sales tax base, the average sales tax share of border states, the size of the state in square miles, the fraction of the state economy centered on services consumption, the fraction of the state economy devoted to business services consumption, the fraction of the state economy devoted to government expenditures, the state poverty rate, the percentage of state population urban, the fraction of total citizens registered to vote, and the fraction of the state population older than 65.

Unfortunately, the random-effects Probit regressions do not yield meaningful results. There seems to be insufficient variation over time in the dummy variables for each panel (where a panel represents a state over 10 years). In other words, states rarely change the tax status of a tax base element, and thus each panel tends to be entirely 1's or entirely 0's. In this setting, the random-effects individual terms capture most the variation (in the regressions, typically more than 98% of the error term variation), leaving insufficient variation to estimate coefficients. Therefore, the random-effects panel Probit regressions do not tell us anything about the political agent's micro-level, element-by-element analysis of tax structure issues.

Although an imperfect solution, we propose summing the dummy variables for the seven dependent variables to allow for a Poisson regression on the count of equity-related elements in the sales tax base. Because the data is panel in nature, we employ the STATA function "cluster" to allow for unique variances for each panel.²⁶ The model specification remains the same, the logic being that states with a higher probability of taxing most the equity-related goods would have a higher count of equity-related

²⁶ We had originally tried cross-section Poisson regressions. However, the sample size is small (n=30), and the coefficients have large standard errors.

elements taxed. Although this regression does not enable us to examine whether or not political agents are consistent in their approach across tax base elements, the regression still might allow some insight into the nature of the political agents' micro-level analysis.

The Poisson regression yields disappointing estimates (See Table 5: *Poisson Regression on Count of Equity-Related Elements Taxed*). Only two of the coefficients have statistically significant expected signs (MGP, SGP). One coefficient has a statistically significant sign opposite from expected (MLS). Two of the signs on the factors unique to equity-related goods tend toward opposite of the expected, although they are not statistically significant. In general, the Poisson regression is a poor fit, implying that the Hettich-Winer hypothesis perhaps is invalid at the micro level of element-by-element analysis.

VI. Conclusion

Why does the model for the micro-level analysis fail while the macro-level model of sales tax shares might be considered a reasonable model? We offer two explanations:

The model is poorly specified.

We apply the same model to all equity-related goods and implicitly assume that factors of political cost unique to each element pale in significance to the more general factors related to sales tax share and equity-related goods. In reality, there are a plethora of forces at play in the decision to tax an element. Some of these forces are relevant to only one element. For example, health management organizations might be interested in whether or not drugs are taxed but probably are not concerned with the tax treatment of electricity or water. To more correctly specify the model, we must identify factors unique to each element, meaning unique models for each of the seven sales tax elements. However, data availability complicates that effort.

The Hettich-Winer premise is flawed.

Perhaps the premise of political support maximization is false. Hettich and Winer's model assumes reasonably aware political agents capable of rational thought. Perhaps that is an unrealistic assumption. Potentially the sales tax base could be a product of a meandering walk through history in which random events and circumstances determine tax structure over time. In this case, the political equilibrium could be path dependent. If so, the demographic factors of the 1990s are not enough to explain the present-day tax structures, which were shaped by the demographic factors of prior decades.

Which of the two explanations is more likely? Of course a final answer is impossible on the basis of the data, but we might tend toward some conclusions. The second explanation might seem problematic in the context of the rather decent fit of the sales tax share model. One might ask, Why would the model work at the macro level but fail at the micro level? Macro and micro analysis can tend toward contradictory understandings of economic phenomenon. For example, the Keynesian consumption function works well at the macro level but poorly explains individuals' consumption decisions. Perhaps the Hettich-Winer model is sensitive to similar concerns.

Also, referring back to Table 1, especially noticeable is the somewhat confused nature of equity-related goods taxation among the states. Why would there be so much variation across states in the approach to equity-related elements? Within the vein of the first explanation, it is possible that forces unique to each element exercise varying degrees of influence across states. This varying influence might be a function of differing political institutions among the states or the diversity of the state economies. Certainly there is significant variety among the states' economic and political characteristics. Or perhaps political agents simultaneously consider how much resources to devote to poor-friendly tax *and expenditure* provisions. In this case, the decision to tax an equity-related good is

also a function of existing poor-friendly expenditure provisions like public healthcare. The Hettich-Winer model, which assumes a constant budget and pays no attention to the government expenditure decisions, would be too narrow in its perspective to address tax structure determination at the micro level of equity-related goods taxation.

In conclusion, the original research question, What are the determinates of a government's tax structure?, is unanswered. The Hettich-Winer model works well at the macro level, reasonably describing sales tax shares in terms of the calculus of political support maximization. The model fails at the micro level, poorly explaining the determinants of an equity-related good's tax status. Future research might consider evaluating these models over a longer time span and finding data and proxies for other factors of political cost left out of the model specification. Future research might also address the Hettich-Winer premise itself, especially the how expenditure decisions affect tax structure determination.

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Appendix

Table 1: States' Sales Taxation of Equity-Related Goods, 1999

State	Food	Gas	Electricity	Household Fuel	Water	Drugs	Clothing
Alabama	Taxed			Taxed			Taxed
Arizona		Taxed	Taxed	Taxed	Taxed		Taxed
Colorado		Taxed					Taxed
Connecticut		Taxed					Taxed
Georgia		Taxed	Taxed	Taxed	Taxed		Taxed
Hawaii	Taxed	Taxed		Taxed		Taxed	Taxed
Illinois	Taxed			Taxed		Taxed	Taxed
Indiana	Taxed	Taxed	Taxed	Taxed	Taxed		Taxed
Iowa					Taxed		Taxed
Kansas	Taxed						Taxed
Kentucky		Taxed			Taxed		Taxed
Louisiana	Taxed	Taxed	Taxed	Taxed	Taxed		Taxed
Maine		Taxed					Taxed
Maryland							Taxed
Massachusetts		Taxed				Taxed	Taxed
Michigan		Taxed	Taxed	Taxed			Taxed
Minnesota							
Nebraska		Taxed	Taxed	Taxed	Taxed		Taxed
New Mexico	Taxed		Taxed		Taxed		Taxed
New York							Taxed
North Carolina		Taxed	Taxed	Taxed			Taxed
North Dakota		Taxed					Taxed
Ohio							
Oklahoma	Taxed			Taxed			Taxed
Pennsylvania							
Rhode Island		Taxed			Taxed		
Tennessee	Taxed	Taxed			Taxed		Taxed
Texas							Taxed
Vermont		Taxed					Taxed
Virginia	Taxed						Taxed

Source: Survey data compiled by the Center for Business and Economic Research, UTK

Table 2: Factors Influencing the Political Costs of Income Taxation

Factors	Variable	Expected Sign
<i>Effective tax price</i>		
Tax-shifting to federal government	FTB20	+
Tax-shifting to other states through other taxes	VANM	-
Tax credit	CYT	+
<i>Costs of organizing opposition</i>		
Relative size of other tax bases:		
Natural resources	RBY	-
Retail sales	SBY	-
Scale effect	EN	?
<i>Tax competition with other states</i>		
Income tax share in adjacent states	AYTR	+
<i>Tax base variability</i>		
Variability in income tax base	V	-

Source: Hettich, Walter and Stanley Winer, "A Positive Model of Tax Structure," *Journal of Public Economics* 24 (1987): 67-87.

Table 3: Hettich and Winer's Explanatory Variables

FTB20	Represents the proportion of state taxpayers with federal taxable income of \$20,000 or more. Since state income tax payments are a deduction from federal income tax liabilities, state income taxes are partially shifted to the federal government, reducing the effective tax price of the state income tax. Hettich and Winer reason that the greater the proportion of high income taxpayers in the state, as measured by FTB20, the lower the political costs of the income tax since there will be a greater reduction in political costs per dollar of tax shifted via the offset. ²⁷
VANM	The state's value added in manufacturing for national markets expressed as a percentage of the state's total value added in manufacturing, represents the potential for tax exporting to other states through exported goods. Some portion of the income-tax incidence is passed on to consumers through higher prices for goods and services. When manufacturing firms export goods and services outside the state, out-of-state consumers pay part of the income-tax incidence through higher product prices. In other words, manufacturing for national markets represents an opportunity to pass some of the income-tax incidence to out-of-state consumers. The greater the proportion of manufacturing for national markets, the greater the potential for tax exporting, and the less the effective tax price of the income tax for in-state consumers.
CYT	A dummy variable for the presence of a state tax credit against state income tax liabilities for sales and/or property tax paid. States with such credits reduce the effective tax price of the income tax for certain key political groups and thus should rely more heavily on the income tax.
RBV	The value of mineral production relative to state income.
SBY	The value of total retail sales relative to state income. These are proxies for the size of other potential tax bases. The larger these potential sources of revenue, the less the authors expect the state to rely on the income tax. ²⁸
EN	Government expenditures per capita. This variable allows for the possibility that opposition to the use of particular taxes may grow at different rates as the size of a state's public sector increases. The sign of EN can not be predicted a priori.
AYTR	The average income tax share (income tax revenues / total revenues) of bordering states. The authors expect that states compete with neighboring states on a tax-by-tax basis. Since states with lower income tax reliance likely attract labor and capital, the authors expect AYTR to have a positive sign.
V	The standard deviation of the percentage change in the state's real personal income for the period 1950 to 1975. States prefer stable tax bases. The more variable the income tax base, the less a state will rely on the income tax.

²⁷ Hettich and Winer: 75.

²⁸ Proxies like RBV and SBY perhaps overly simplify the issues of other tax bases like mineral resources or sales. For example, there is variation across states in the political influence exercised by the various interest groups associated with each tax base (coal miners, oil companies, etc.). Perhaps the model, which we test with panel data, is less sensitive to such complications than the Hettich-Winer analysis. Panel regressions allow for the individual effects unique to each panel (in this case state) to be extracted from the regression.

Table 4: Factors Influencing the Political Costs of Sales Taxation

Factors Influencing Political Costs	Variable	Expected Sign	Coefficient	Standard Error	t-stat
<i>Effective tax price (tax exporting)</i>					
Tourism: hotel and lodging product / GSP	TGP	+	1.616	0.708	2.28
<i>Cost of organizing opposition</i>					
Relative sizes of other tax bases					
Mineral resources: 5-year average mining product / GSP	MGP	-	-0.093	0.141	-0.66
Wage income: Employee compensation / GSP	IGP	-	0.182	0.071	2.56
Scale effect: Government expenditures per capita	EN	?	-0.004	0.003	-1.08
Constitutional revenue or expenditure restrictions	LMT	?	0.024	0.016	1.49
<i>Tax competition with other states</i>					
Average sales tax share of neighboring states	ASTRB	+	0.064	0.096	0.67
Size of state (hundreds of thousands square miles)	MLS	+	0.016	0.155	1.05
<i>Tax base variability</i>					
Standard deviation of the percent change of the sales tax base over the prior 10 years	V	-	0.012	0.036	0.33
<i>Efficiency concerns</i>					
Services (excluding Business Services) / GSP	SGP	-	-0.873	0.212	-4.12
Business Services / GSP	BSGP	-	-0.085	0.140	-0.60

R² = 0.214

Table 5: Poisson Regression on Count of Equity-Related Elements Taxed

Factors Influencing Political Costs	Variable	Expected Sign	Coefficient	Standard Error	z-stat
<i>Effective tax price (tax exporting)</i>					
Tourism: hotel and lodging product / GSP	TGP	+	16.87	14.95	1.13
<i>Cost of organizing opposition</i>					
Relative sizes of other tax bases					
Mineral resources: 5-year average mining product / GSP	MGP	-	-8.91	3.56	-2.51
Wage income: Employee compensation / GSP	IGP	-	-4.48	2.64	-1.70
Scale effect: Government expenditures per capita	EN	?	0.72	1.44	0.50
Constitutional revenue or expenditure restrictions	LMT	?	0.66	0.20	3.23
<i>Tax competition with other states</i>					
Average sales tax share of neighboring states	ASTRB	+	0.66	2.07	0.32
Size of state (hundreds of thousands square miles)	MLS	+	-4.73	1.63	-2.89
<i>Tax base variability</i>					
Standard deviation of the percent change of the sales tax base over the prior 10 years	V	-	1.41	1.44	0.98
<i>Efficiency concerns</i>					
Services (excluding Business Services) / GSP	SGP	-	-18.69	5.10	-3.66
Business Services / GSP	BSGP	-	-7.46	8.96	-0.83
<i>Political Benefit of Taxation</i>					
Government expenditures / GSP	GGP	+	-6.37	4.13	-1.54
<i>Unique to Equity-Related Goods Sales Taxation</i>					
Poverty rate	PVT	-	3.62	2.05	1.77
Fraction of state population urban	URB	-	-0.13	0.77	-0.16
Ave. fraction of total pop registered to vote in '88, '92, '96	VTR	-	0.36	1.56	0.23
Average fraction of population over 65 in 1990 and 2000	OLD	-	-6.93	9.93	-0.70

Vita

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