TIEBOUT, TAXES, AND ECONOMIC GROWTH

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Over the past decade or so, professional economists have increasingly questioned the once prevailing conventional wisdom that state and local taxes are unimportant in determining variations in the economic performance of states. While virtually no economist today takes the extreme view that "taxes alone matter" in determining state economic performance, few adhere to the once popular but equally extreme view that "taxes don't matter." A considerable body of research has demonstrated that taxes have an impact on economic performance, measured by growth in real per capita incomes, in the number of jobs created, or by statistics on the migration of human or capital resources (see Vedder 1989).

Given the growing realization that taxes matter, have states altered their tax structures in a way that reflects greater tax competition for jobs, capital, and income? Has interstate competition eroded the monopoly position of governments in providing public goods and services, which has led, perhaps, to some convergence in the tax/expenditure behaviors of states? Or has knowledge of interstate variations in providing and pricing public services led to migration that has accentuated these differences? Finally, have historical trends (whatever they are) worked to erode or enhance the observed impact that taxes have on economic growth at the state and local level? Do taxes matter as much as (or more than) they used to? These are some issues that this paper attempts to address.

Two Models of State and Local Provision of Services

There are different ways to conceptualize the relationship between state and local governments. Two different, but not necessarily

totally inconsistent, perspectives are outlined below and may help us examine the question of variations in state and local taxation and provision of services.

The Theory of the Firm/Public Choice Approach

The first perspective is a variant of the Leviathan model (Brennan and Buchanan 1980).[1] Consider that each state has one "firm," which we call state government, that provides certain goods and services. Local governments are legally subordinate to this single firm and may be viewed as subcontractors of it. While the services that the state government provides are diverse, for many (if not most) activities, the state government has a monopoly or near-monopoly on providing services within the market area. Moreover, unlike private firms, the governmental monopolist is a price-searcher who can compel "purchase" of services by levying taxes.

Taxes may be viewed as the price paid for the bundle of governmental services provided by the state-firm. While the state is a monopolist, the monopoly is not pure in that customers (taxpayers) have the option of moving to another jurisdiction (having public services provided by another governmental firm) if taxes become too onerous. Thus, interstate tax competition might force high-tax states to lower their prices (taxes), promoting tax convergence.

While this perspective on government has been developed as an analogy to the theory of the firm, added insight is possible from public choice economics. Governmental firms use tax revenues to provide two things: goods and services to their tax-paying customers, and income in the form of economic rents to certain individuals. The income may take the form of transfer payments (e.g., welfare benefits, pensions to public employees) or simply compensation to public employees beyond levels required by market forces.

Presumably as taxes rise, the real provision of governmental goods and services grows, but so do economic rents. Indeed, it seems intuitively plausible that when taxes and governmental services are at a "barebone" level, little tax money is available for economic rents. But as taxes rise, rent payments to welfare beneficiaries, governmental employees, etc., grow faster than taxes. Services also increase, but less rapidly than taxes. At a relatively high tax level, taxpayers revolt, because the price of government services is viewed as too high in relation to the volume or quality of services provided. The sheer

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[1]The Leviathan model has been empirically supported by some scholars (Bell 1988). The theoretical and empirical literature on tax competition is substantial. Two quite different but representative samples are Beck (1983) and Wildasin (1988).

quantity of services provided per dollar of incremental taxes falls as economic rents rise in relative, as well as absolute, terms.

While a full empirical testing of this hypothesis is beyond the scope of this study, some limited evidence is supportive. Specifically, from regression analysis using fiscal year 1988 data, we observe that elasticity of public welfare spending with respect to state and local taxes is estimated to be 1.21 for the 48 contiguous states.[2] Similarly, for the same states and year, average teacher salaries are estimated to rise $3.47 for each dollar of increased state and local taxes, even after we control for local labor market conditions. While this latter conclusion does not necessarily prove that the above hypothesis is valid, it is certainly consistent with the assumption.

This hypothesis is also consistent with the notion that there is some natural ceiling to the tax prices that are politically possible in each state jurisdiction. Moreover, given the migration of labor and capital, high-tax jurisdictions will feel economic pressure to lower the price of publicly provided services by offering tax cuts. Thus, the tax competition model suggests that, over time, tax disparities between high- and lower-tax jurisdictions may narrow in magnitude—there will be some tax convergence. Yet there never will be complete convergence. Aside from the fact that competition among the states may not be perfect, as long as there are some differences in tastes with respect to governmental services among states, there will be different quantities of governmental services provided, and thus some differences in tax prices and burdens.

The Tiebout Hypothesis

This last point leads us to the landmark model devised by Charles Tiebout (1956). Individuals have different tastes for governmental services, and thus they can shop around for the state that provides the menu of services most consistent with their tastes. State A may have relatively high taxes and high levels of governmental services, while State B has low taxes and services. Individuals with strong tastes for governmentally provided goods will locate in State A, whereas rugged individualists will move to State B. Thus the populations of A and B will diverge in terms of political philosophy, and those differences will be maintained and probably will even grow over time by migration: Frustrated conservatives will move from

[2]The log of income per capita is introduced as a control variable into the regression. Any elasticity greater than 1.0 is consistent with the hypothesis that the transfer-payment, nonservice component of state and local spending rises faster than the service component of such spending as taxes rise.

State A to more congenial State B, whereas liberals will move from State B to State A.

If this perspective is correct, one might expect differences among states in tax regimes to be maintained and even to grow over time. Rather than serving as a force to bring convergence among states, migration would enhance interstate fiscal differentials. Even if migration does not serve to narrow the price differentials of government services per unit of services provided, it may well change the *quantity* of those services (and thus the overall tax burden) in a manner promoting tax divergence.

Federal Taxes and Their Impact

One other factor could have an impact on the degree of convergence or divergence over time, namely the deductibility of state and local taxes on federal income tax forms. When marginal tax rates are high, most of the individual taxpayer's costs of state and local taxes on income, property, and, until recently, sales are borne by the federal government when individuals itemize deductions. Thus the federal government provides an implicit subsidy for states to levy taxes. One unambiguous impact of this arrangement is that state and local governments have incentives to levy higher taxes than otherwise.

What this arrangement says for tax convergence, however, is not intuitively obvious. My a priori expectation is that tax deductibility promotes tax convergence. The reasoning here is that states with a tradition of high taxes and high levels of services face relatively little taxpayer resistance to increased governmental activity, so tax breaks are relatively unimportant in determining the size of governmental enterprise. States with a low-tax tradition, however, would normally resist expanded taxes. But when the subsidy from the federal government is sufficiently high, the resistance breaks down, leading low-tax states to raise taxes in a manner to reduce interstate tax differentials.

More technically, the elasticity of demand for governmental services with respect to taxes is hypothesized to be higher in conservative states than liberal ones. Tax deductibility lowers the tax price in all jurisdictions, but that lower tax rate increases the quantity of services demanded in conservative states relative to liberal ones, bringing about increased tax convergence.

A Brief History of Interstate Tax Differentials

What is the actual American experience? To answer this question, I compiled state and local tax revenue data for 1902, 1942, 1962,

1970, 1980, and 1988. For the first three years, the data were obtained from special reports of the U.S. Census Bureau, whereas for the last three years, the data were taken from the annual publication *Governmental Finances in (Year)*. There are various aggregate tax measures. The one chosen here was "tax revenues" from "own sources." Thus federal grants are excluded, as well as state and local revenues from nontax sources, including fees, charges, and business operations. Data are reported on a per capita basis and per $1,000 of personal income. The per capita measure is the best indicator of the absolute level of governmental tax activity, whereas the data related to personal income are a better measure of the true tax burden or the aggregate tax rate in each jurisdiction. A very low-income state can have fairly low per capita levels of taxation, yet the average (and marginal) rates of taxation may be relatively high.

Table 1 shows the trend in the mean magnitudes of taxation over time, as well as the coefficient of variation. Note that by any standard, state and local taxes rose intertemporally until 1970. Since 1970, however, the average aggregate state and local tax rate (as measured by taxes per $1,000 of personal income) has reached a plateau and even declined slightly.

Regarding tax convergence/divergence, note that from 1902 to 1942, taxes converged dramatically when measured on a per capita basis, but they actually diverged somewhat when measured in rela-

TABLE 1

STATE AND LOCAL TAX LEVELS AND VARIATIONS IN THE
UNITED STATES, 1902–88

Year	Per Capita Basis		Per $1,000 Personal Income	
	Average[a]	Coefficient of Variation	Average	Coefficient of Variation
1902	$ 110.81	.4851	$ 46.30	.1829
1942	368.29	.2877	69.86	.2018
1953	484.68	.2340	78.30	.1644
1962	695.46	.2062	95.30	.1130
1970	1,011.78	.2126	115.41	.1230
1980	1,116.64	.2046	112.45	.1323
1988	1,386.82	.2151	113.66	.1249

[a]In constant 1982–84 dollars, deflated by the Consumer Price Index. Means are unweighted arithmetic means of observations for the 48 contiguous states.
SOURCE: Author's calculation is from U.S. Bureau of the Census data for various years.

tion to personal income levels. The reason for this dichotomy is that
there was substantial convergence in interstate per capita income
differentials during this era. There is unambiguous convergence in
state and local tax burdens in the 1942 to 1962 period. The cover-
gence is pronounced using either the per capita or personal income
measure. After 1962, however, convergence stops by either measure.
Using either the per capita or personal income measure, we see
that interstate tax differentials *increase* slightly from 1962 to 1988,
although the move to greater diversity is not consistent within that
period. The safest interpretation of the findings is probably that the
move toward convergence observed before 1962 has halted, and
there has been rough stability in the magnitude of interstate tax
differentials since.

While the 1902–42 evidence might be regarded as mixed, the
1942–62 period appears characterized by tax convergence that seems
consistent with the initial model of price (tax) competition among
the various state governments. The post-1962 evidence is consistent
with a view that some equilibrium amount of tax diversity exists.
Some disparity among taxes will always exist in equilibrium, in part
because of the Tiebout hypothesis, in part because of the costs of
resource movement to eliminate tax disparities.

More generally, the changing patterns of tax convergence seem to
be closely tied to changes in federal income taxation. Between 1902
and 1942, there was substantial diversity among states in tax systems,
a diversity that was maintained throughout the period (particularly
if one uses the personal income measure of tax burden). It was also
a period of very limited federal income taxation, with most people
not subject to taxation (indeed, in the early part of the period, there
was *no* income tax.) In the absence of widespread federal income
taxation, states maintained great diversity.

From 1942 to 1962, tax systems converged. At the same time, the
federal income tax became universal (meaning most families were
subject to it) for the first time; marginal tax rates were high and, partly
because of inflation, rising. Federal income tax deductibility became
a significant factor; the marginal cost to taxpayers of increased state
and local taxes was reduced by federal "tax expenditures" in the
form of state and local tax deductions against federal taxable income.

In the quarter century from 1962 to 1987, the observed reduction
in tax diversity was halted, at a time when there were significant
efforts to roll back the debilitating high marginal taxes imposed
during the 1930s and, especially, during World War II. Although
bracket creep from continuing inflation tended to push marginal tax
rates up, major tax cuts in 1964–65, 1981, and 1986 served to reduce

the value of federal income tax deductions by the end of the period. Thus the marginal cost to the taxpayer of a given state or local tax increase began to rise again. This rise increased taxpayer resistance in states, particularly those with relatively conservative political traditions (an elastic demand for government services).

This observation is verified by looking at the changing tax behavior of high- and low-tax states over time (Table 2). I divided the 48 contiguous states into quartiles according to the amount of taxes levied per $1,000 of personal income. In 1962, the quartile of states with the lowest tax burdens had increased that tax burden by more than $24 per $1,000 of income over the previous 20 years. This figure was nearly as much as the average tax increase in the quartile of states with the highest tax burden in 1962. Indeed, in percentage terms, the low-tax states raised their taxes *more* than the high-tax ones during the previous 20 years. In an era of high federal marginal tax rates, historically low-tax states responded to the powerful incentives to raise taxes provided by income tax deductibility.

By contrast, in 1987, the lowest quartile of states in terms of overall tax burden had raised their taxes during 1962–87 by an average of only $4.34 per $1,000 of personal income. This behavior was in marked contrast to the high-tax states, which raised their taxes by an average of $27.72 per $1,000 of personal income.

In short, during the 1940s and 1950s, all states raised their taxes substantially, the low-tax states about as much as the high-tax ones,

TABLE 2

CHANGING TAX BEHAVIOR, HIGH- AND LOW-TAX STATES, 1962 AND 1987

	Change in Taxes over Previous Period[a]		Percent Change in Taxes over Previous Period[a]	
Quartile[b]	1962	1987	1962	1987
Lowest	$24.07	$ 4.34	41.53%	4.71%
Second	21.88	14.87	32.11	16.24
Third	25.75	21.28	34.64	22.84
Highest	28.89	27.72	36.57	26.85

[a]For 1962, the previous period is from 1942 to 1962; for 1987, the previous period is from 1962 to 1987. Taxes are total raised from own sources per $1,000 of personal income; numbers are unweighted means of the 12 observations.
[b]The 48 contiguous states are divided into four groups of 12 states each. Lowest refers to the group that in the year indicated had the lowest tax burden per $1,000 of personal income.
SOURCE: Author's calculations using U.S. Bureau of the Census data.

bringing about a reduction in the *relative* tax differential among
states. After 1962, some low-tax states seemed to reach a political
threshold beyond which they would not raise taxes much further,
while some high-tax states continued to increase taxes as before,
increasing tax divergence. An extreme example is Mississippi, which
moved from the top quartile in terms of tax burden in 1962 to the
bottom quartile by 1987, simply by reducing that burden modestly
in the intervening years (when most states were still raising taxes
somewhat). This post-1962 behavior would seem highly consistent
with the Tiebout hypothesis. People in conservative states (where
the elasticity of demand for governmental services was highly elastic
with respect to price) seemed to engage in tax revolt strategies,
whereas in liberal states tax-financed expansion in governmental
services still seemed to garner political support.

A simple model was developed to provide further insight into
the convergence and competition issue. The model empirically
examined the 48 contiguous states and the District of Columbia (49
observations):

$$(1)\ CHTAX = a + b\ 67TAX + c\ 67INCAP + d\ \%GOP$$
$$+ e\ NEIGHTAX + f\ CHGNEIGHTAX + u,$$

where *CHTAX* is the change in the aggregate state and local tax rate
from 1967 to 1987, as measured by tax revenues per $1,000 of personal
income; *67TAX* is the tax rate in the initial year 1967; *67INCPAP* is
the state's 1967 per capita income level; *%GOP* is an indicator of the
conservativeness of a state, as measured by the average percentage
of people voting for the Republican candidate in the 1976 and 1988
presidential elections; *NEIGHTAX* is the average aggregate tax rate
in 1967 of all states bordering on the state in question; and *CHG-
NEIGHTAX* is the change from 1967 to 1987 in the aggregate tax rate
in the bordering states. The lowercase letters represent the constant,
regression coefficients, and random error term.[3]

If convergence is occurring, one might expect a statistically sig-
nificant negative relationship between *67TAX* and *CHTAX*—high-
tax states would raise taxes less than low-tax ones. If states were
concerned about tax prices of other states, presumably that concern

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[3]The model used 1967 as the initial year for two reasons. First, most of the large national
increase in aggregate state and local tax rates had been completed by that year, so
1967–87 was a period of relative stability in state and local tax average rates (compared
with 1962–87, since taxes were still rising rapidly in the early and mid-1960s). Second,
a major change in federal income tax laws took place in 1964 and 1965, lowering
marginal tax rates. Because of the potential importance of those rates, the analysis
begins after the 1964–65 tax cut was fully implemented.

would be greatest with respect to neighboring states. Arizona, for example, might want to keep taxes low to lure the XYZ Corporation there as opposed to its being lured to some other state in the Southwest, such as neighboring California, Nevada, or Utah. If sensitivity to competitive tax strategies were important, presumably there would be a significant positive relationship between *NEIGHTAX* and *CHTAX*, and also between *CHGNEIGHTAX* and *CHTAX*. If neighbors have initially high and/or rapidly rising tax rates, then one can afford to raise taxes more than if neighbors have initially low and/or falling tax rates.

The previous analysis indicated that in periods of a decline in the federal marginal tax rate, such as occurred during the last part of 1967–87, we might expect politically conservative areas to become more resistant to tax hikes, as the cost of those hikes grow. Thus it is hypothesized that *%GOP* and *CHTAX* are negatively related. *INCP67* is introduced for control purposes with no sign postulated a priori.

The results of estimating equation (1) by ordinary least squares regression procedures are indicated in Table 3. Essentially, the key tax and tax competition variables are all statistically insignificant and one has the wrong sign. There is no evidence supporting the hypothesis of tax convergence on the basis of the response to tax behavior of neighboring states. There is, however, evidence that suggests relatively conservative states received more of an impact from political opposition to tax increases and from a tax revolt phenomenon than did relatively liberal states. The mean change in state and local taxes per $1,000 of income from 1967 to 1987 for the most

TABLE 3

REGRESSION RESULTS: U.S. TAX CONVERGENCE MODEL,
1967–87

Variable or Statistic	Coefficient or Statistic	T-Value
Constant	53.065	1.990
67TAX	−0.161	0.949
67INCP	0.014	2.866[a]
%GOP	−0.664	2.179[b]
NEIGHTAX	−0.312	1.073
CHGNEIGHTAX	0.026	0.092
$\bar{R}^2$	.391	—
F-Statistic	7.151	—

[a]Statistically significant at the 1 percent level.
[b]Statistically significant at the 5 percent level.

conservative quartile of states was a negligible $0.76; for the most
liberal quartile of states, the mean change was $9.16, or 12 times as
much.[4]

It is interesting, other factors held equal, that the aggregate tax rate
was likely to rise more the higher the level of per capita income in
1967. Rich states (in the beginning year) were more willing to tax
themselves more over time to support government. Whether that
behavior contributed to a loss of economic advantage for those pros-
perous states is discussed shortly.[5]

The Role of Nontax Sources of Revenue

The discussion above has focused on tax revenues raised by state
and local governments. Yet those governments have two other
sources of income: federal grants and nontax sources of revenues
such as fees, user charges, and interest income. Since 1967, the
nontax forms of revenue have become relatively more important in
financing state and local governmental activities (see Table 4).

TABLE 4

CHANGES IN STATE AND LOCAL GOVERNMENTAL REVENUES IN THE UNITED STATES, 1967–88, PER $1,000 OF PERSONAL INCOME

| Sources of Funds | Levels | | Absolute | Percent |
	1967	1988	Change	Change
Taxes	$106.13	$113.66	$ 7.53	7.1%
Federal Aid	33.60	35.07	1.47	4.4
Nontax Revenues	30.00	50.88	20.88	69.6
All Revenues	169.73	199.61	29.88	17.6

SOURCE: Author's calculations using data from *Governmental Finances in 1967*, *Governmental Finances in 1988*.

[4]Liberal and conservative states are defined, as before, by the average percentage of
people voting for the Republican candidate in the 1976 and 1988 elections. The District
of Columbia is excluded in the calculations. If we include D.C., the conservative to
liberal comparison is much greater.

[5]Two topics ignored in this discussion of tax convergence are (1) exporting tax burdens
and (2) tax abatement and other development initiatives. States with large oil exporting
capabilities such as Alaska have been able to export much of their tax burden, promoting
tax divergence. Also, there has been a major increase in tax competition for business,
which I call micro-tax competition. Authorities differ in their assessment of the eco-
nomic impact of micro-tax competition. Some seem to believe that on balance it enforces
a discipline of public officials that is healthy (Browning and Browning 1987). Other
studies have suggested that when there are positive rates of capital taxation, tax competi-
tion of this sort can have distortive effects (Oates and Schwab 1988).

Indeed, nearly 70 percent of the growth in the relative size of government receipts is explainable by the explosive growth in nontax revenues.

Taxes and federal grants seem to be largely formulated according to the "ability to pay" principle of public finance, while nontax revenues such as fees and interest income reflect (to a considerable extent) the "benefit principle." Thus it appears there has been some shift toward the benefit principle in financing state and local government.

Why the shift? The following explanation deserves consideration. First, the ability of state and local governments to raise taxes has been severely restricted. As tax rates have risen over time, so has taxpayer resistance. Thus the elasticity of demand for comprehensively financed government services has also risen. This rise is particularly true in relatively conservative states, where the decline in the federal tax break because of falling federal marginal tax rates has increased state and local tax prices of services and has led to taxpayer revolts.

With tax revenues closed off and with a disinclination for the federal government to expand funding for the states, advocates of increased state and local governmental activity have been forced to use nontax means of expenditure, particularly in the more conservative states. This shift is confirmed empirically by regressing the proportion of increased tax revenues financed by nontax means over the 1967–88 period against the conservativeness of a state (as measured by the average percentage of people voting for Republican candidates in the 1976 and 1988 elections) and the average tax rate in 1967. There is a statistically significant positive relationship between a state's conservatism and its increased reliance on nontax revenues; also higher-tax states in 1967 relied more on nontax sources to increase revenues after that date.

Taxes and Economic Growth: Contemporary Studies

If we turn to the economic impact of tax policy until the 1970s (some would say the 1980s, we observe the conventional wisdom that, in general, state and local tax/expenditure policies had only a minor impact on economic conditions. Looking specifically at business location, for example, John Due (1961) concluded that studies "suggest very strongly that the tax effects cannot be of major importance." Even in the late 1970s, some scholars continued to reach a similar conclusion (Oakland 1978).

The 1970s, however, were a turning point; increasingly, scholars questioned the view that taxes do not matter much. That conclusion was questioned in three different ways. First, a spate of new studies at the national level suggested that federal taxes had debilitating effects on various ingredients of economic progress, notably capital formation. These studies suggested, for example, that capital taxation tends to retard savings and investment, and that Social Security taxation similarly retards savings. Also, taxes or expenditures often have unintended consequences: For example, taxes on labor income could also repel capital.[6]

A second group of studies focused specifically on state and local tax policy. The view that taxes are irrelevant to business location decisions was questioned in a major econometric study of that topic (Grieson, Hamovitch, and Morgenstern 1977). Other studies opined that taxes repel in-migration (Cebula 1974, Browne 1979). Finally, simple econometric studies of the tax-growth relationship began to appear and concluded that state and local taxes have an adverse impact on economic growth (Genetski and Chin 1978, Vedder 1981).

A third force behind the view that taxes matter a good deal came from various popularizers of supply-side economics. While Arthur Laffer was much scorned by many, his Laffer curve ingeniously drove home the point that severe tax disincentive effects could lead to unintended revenue consequences. The editorial page of the *Wall Street Journal* articulated a "supply-side" perspective. One journalist, Warren Brookes, stands out as being particularly effective in offering simple empirical evidence of the negative impact of state and local taxes (see Brookes 1982). While Howard Jarvis and Paul Gann are known as the starters of the modern tax revolt in California in 1978 with Proposition 13, a variety of citizens' groups, aided by national organizations like the National Tax Limitation Committee and the National Taxpayers Union, increased agitation for tax reduction in many states. In Washington, economists such as Paul Craig Roberts and Norman Ture, as well as the Joint Economic Committee, worked to sell the view that taxes do matter.

As the 1980s have progressed, further research has refined but essentially confirmed the conclusions of earlier scholars. A few examples are worth noting. Jay Helms (1985) used more sophisticated econometric techniques than earlier scholars, and he related tax changes to the uses made of new tax revenues. He concluded that, in general, there was a negative relationship between taxes and

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[6]On this point, see McLure (1970), Feldstein (1976), and Boskin (1978); on expenditures, see Hall (1980).

economic growth, and that the negative relationship was clearly pervasive when tax increases are used to finance transfer payments. However, Helms implied that the tax-growth relationship might not be negative if new tax revenues went into more growth-inducing activities such as education or highways.

Using a distributed-lag regression model, Bruce Benson and Ronald Johnson (1986) found that taxes impeded economic growth, but that much of the impact comes two or more years after the initial period in which the tax takes effect, suggesting that politicians can often escape the negative consequences of their actions as they reap some political gains from immediate increases in spending. In short, there is a shortsightedness effect associated with state and local tax increases.

Finally, new studies on business location or the birth of new business ventures reconfirm the importance of taxes. Timothy Bartick (1987) found marginal personal income tax rates inversely related to small business start-ups. A recent study by Paul Bauer and Brian Cromwell (1989) examining variations in new firm creation in more than 250 metropolitan areas shows a highly significant negative relationship between the effective corporate tax rate and business creation. The model includes nearly 20 other independent variables (mostly relating to characteristics of local banking institutions).

Intertemporal Changes in the Tax-Growth Relation

As indicated above, the modern view that taxes do matter evolved largely in the late 1970s and early 1980s. The empirical evidence to support this view was largely derived from the growth experience of the 1970s. Yet the 1980s have seen a dramatic change in the relative growth experience of states, as can be seen in Table 5. During the

TABLE 5

CORRELATION BETWEEN GROWTH IN DECADE AND PREVIOUS DECADE

Decade	Correlation of Growth Rate with Previous Decade[a]	Statistically Significant?[b]
1940s[c]	− 0.0749	No
1950s	+ 0.1332	No
1960s	+ 0.4572	Yes
1970s	+ 0.1536	No
1980s	− 0.5913	Yes

[a]For 48 contiguous states.
[b]At the 1 percent level.
[c]Growth for the 1940s is related to growth during 1929–40.

four decades prior to the 1980s, the correlation between economic growth rates and economic growth rates in the preceding decade was either positive or not significantly different from zero. States that grew substantially during the 1950s, for example, tended to grow by relatively large amounts during the 1960s. Yet when one compares the states' growth rates for the 1970s with the rates for the 1980s, one obtains a strongly *negative* correlation: Fast-growing states in the 1970s have typically been relatively slow-growing states in the 1980s, and vice versa. This significant and large negative correlation is not only unusual—it seems to fly in the face of a long-run trend that is highly consistent with economic theory, the trend of factor price equalization. With the help of the migration of human and physical capital, interregional income differences have tended to narrow over time. Yet in the 1980s, high-income states like Massachusetts and New York grew faster than low-income states like West Virginia and Mississippi.

Thus it is possible that observed negative associations between new tax initiatives and growth in the 1970s would not be repeated in the 1980s. Nontax factors may explain growth patterns in the 1980s, just as tax factors were important in explaining them in the 1970s. We are told, for example, that America's unionized Rust Belt has priced itself out of world markets. Also, falling relative energy prices have had an impact on numerous energy-producing states that boomed from rising relative energy prices in the 1970s.

Accordingly, I have developed a simple model attempting to explain the percentage of variations in real per capita personal income in two periods: 1970–80, and 1980–88. As the tax variable, *CHGTAX*, I used the growth in state and local taxes per $1,000 of personal income over the relevant time period. Four other independent variables were introduced for control purposes: (1) the level of real per capita income at the beginning of the relevant time period, designated *INCOME*; (2) the proportion of the labor force belonging to labor unions at the beginning of the period, labeled *UNION*; (3) the age of the state as measured by years since statehood, designated *STATEAGE*; and (4) the proportion of personal income derived from mineral (predominantly fuel) production in 1980, called *ENERGY80*.[7]

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[7]The use of years since statehood is suggested by Olson (1982). The variable measuring intensity of energy production is calculated as of 1980 for both periods. Because of new energy discoveries and rising relative prices, energy production rose dramatically in some states in the 1970s, so the end-of-period data are used in the 1970–80 growth model.

The results are indicated in Table 6. The expected negative relationship between changes in the aggregate tax rate and economic growth is observed in both periods. The relationship is actually stronger in the 1980s than the 1970s. A $10 increase in taxes out of every $1,000 in personal income (a 1 percent share) is estimated to have reduced real growth by 0.72 percent during 1970–80, but by 2.30 percent during 1980–87. Since the mean growth in the latter period was only 11.6 percent, the results suggest tax policy could have a material impact on the observed growth experience. As federal marginal tax rates fell in the 1980s and the implicit subsidy to taxpayers for state and local tax payments fell, the observed relationship between changes in tax policy and economic growth seemed to grow.

Note that the ENERGY80, INCOME, and STATEAGE variables reverse signs between the two decades, and the UNION variable moves from being insignificant to being statistically and significantly negative. Factors working to increase incomes in the 1970s worked to reduce them in the 1980s, or vice versa, except for tax changes. The continued negative correlation of tax changes to economic growth despite dramatic changes in other observed relationships enhances confidence in the enduring nature of the tax-growth relationship.

TABLE 6

DETERMINANTS OF VARIATIONS IN INTERSTATE ECONOMIC GROWTH: REGRESSION RESULTS FOR THE UNITED STATES, 1970–80 AND 1980–88

Statistic or Variable	1970–80[a]	1980–88[a]
Constant	31.076	−11.308
	(5.986)	(1.814)
CHGTAX	−0.072	−0.230
	(2.336)	(4.917)
INCOME	−0.001	0.002
	(2.005)	(3.043)
ENERGY80	0.251	−0.301
	(5.501)	(6.538)
UNION	−0.077	−0.292
	(0.969)	(2.754)
STATEAGE	−0.004	0.113
	(0.236)	(5.978)
$\bar{R}^2$	.625	.737
F-Statistic	17.631	29.012

[a]Numbers in parentheses are t-statistics.

Actually, the negative tax-growth relationship was well established even before economists were almost unaminously agreeing that taxes do not matter much (roughly 1950–75). For example, using economic growth data for 48 states for 1900–42, I regressed the economic growth rate against the initial tax rate (TAX) in 1900 (actually 1902), the change in tax rates from 1902 to 1942 $(CHGTAX)$, and the per capita income levels in 1900 $(INCOME)$:

$$(2)\ GROWTH\ =\ 377.659\ -\ 1.422\ TAX\ -\ 1.967\ CHGTAX$$
$$(11.461)\quad (2.258)\qquad\quad (4.917)$$
$$-1.967\ INCOME,\ \overline{R}^2\ =\ .717,\ F\ =\ 40.702,$$
$$(9.323)$$

where the numbers in parentheses are t-values. In the era before modern computers, economists seemed to be ignorant (or ignored) a strong negative relationship between the levels and changes in taxes and the rate of economic growth.

Conclusion

It has been observed that Americans of different regions or states have become more similar over time: Income differentials have declined just as have regional differences in dialect. Falling communications and transactions costs have narrowed spatial distinctions. With respect to state and local tax behavior, a similar convergence has been observed over part of this century (e.g., 1942–62). Since 1962, however, convergence has stopped, and rough stability in tax differentials has been achieved. Tax competition and rising elasticity of demand for government services with respect to the tax price (partly reflecting falling federal income tax marginal rates) have made it harder for states to raise taxes. Nontax revenues have thus become relatively more important as more governmental activities are being financed by direct beneficiaries rather than by the general taxpayer. The Tiebout notions of differential political tastes probably have also contributed to the persistence of some tax differentials among states. The empirical evidence continues to suggest that the growth-inducing effects of governmental expenditures, on balance, are less than the growth-impeding effects of taxes used to finance those expenditures. Recent reductions in federal marginal tax rates should work to increase the intensity of the tax-growth relationship, and some limited empirical evidence presented here supports that theory. As sensitivity to taxes increases, it appears that state and local taxes are

becoming more, not less, important a determinant of variations in economic growth among the states.[8] Taxes matter more than ever.

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[8]Using the regression results from Table 4, a $10 increase in state and local taxes in the 1970s would have lowered the growth on average by 0.72 percentage points, or 3.4 percent of the mean growth rate of 21.1 percent. In the 1980s, by contrast, a similar tax increase would have, on average, lowered growth by 2 percentage points, or 19.9 percent of the mean growth rate of 11.6 percent. If we use data for the 48 contiguous states, similar results are obtained.

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