

STATE INVESTMENT TAX INCENTIVES: WHAT ARE THE FACTS?*

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INTRODUCTION

IN THE LATE 1990S, THE AUTOMAKER DAIMLER-Chrysler faced a major decision – expand and upgrade its existing Jeep assembly plant in Toledo, Ohio or replace it with a new plant located elsewhere. In order to keep DaimlerChrysler’s Jeep production in Toledo and in Ohio, city and state officials in 1998 put together a package of tax incentives for the company valued at \$280 million. The package consisted of a newly enacted local property tax exemption exclusively for the Jeep facility and an existing investment tax credit against the state corporate income tax.¹

This tax incentive package led to a legal challenge, *DaimlerChrysler Corporation v. Cuno*, 2006. The case eventually made its way to the U.S. Supreme Court in 2005-2006 after the Sixth Circuit Federal Court of Appeals ruled that Ohio’s investment tax credit ran afoul of the Commerce Clause of the U.S. Constitution, which gives Congress alone the power to regulate interstate commerce. In the *DaimlerChrysler Corporation v. Cuno*, 2006 case, the Sixth Circuit reasoned that since Ohio’s ITC has the effect of taxing an Ohio-sited company differently depending on whether it chooses to invest in-state or out-of-state, the credit interferes with interstate commerce.

In 2006, the Supreme Court agreed to hear the case. However, rather than ruling on the merits of the case, the court decided that the plaintiffs did not have *standing* in federal court (i.e., the plaintiffs should have initiated the case in state court rather than federal court). Thus, the constitutionality of state investment tax credits remains very much an open question. While the *DaimlerChrysler Corporation v. Cuno*, 2006 case itself is headed back

to state court in Ohio, a number of other, similar cases are currently before the courts in other parts of the United States.

Of central importance to the legal debate is whether such tax credits and other statewide tax incentives do, in fact, adversely impact out-of-state economic activity. For instance, in the U.S. Supreme Court case *Bacchus Imports v. Dias*, 1984, the majority wrote that a tax provision violates the Commerce Clause if the provision “will in its *practical* operation work discrimination against interstate commerce....., by providing a direct commercial advantage to local business” (*Bacchus Imports v. Dias*, 1984).²

Of course, the in-state and out-of-state impacts of tax incentives are not only important to the courts, but also of central importance to policy makers. State policy makers are guided by economic studies as to the effectiveness of these incentives in stimulating economic activity within their state and whether their state faces economic harm from tax incentives enacted in other states. National policy makers also are keenly interested in knowing the in-state and out-of-state costs and benefits of these tax incentives. For instance, in the last several years, there have been a number of bills proposed in Congress that would affect the ability of states to enact these incentives. Unfortunately, though, there has been very little economic research into the in-state vs. out-of-state effects of state tax incentives. The primary reason, we believe, is a lack of data, both on economic activity and on state tax policy.

This paper takes a first step toward addressing this shortcoming by investigating the nature of the variation in state investment tax incentives. Compiling information from all 50 states and the District of Columbia over the past 40 years, we are able to paint a picture of the variation in state investment tax incentives across states and over time. Specifically, we document three facts:

1. Over the last forty years, state investment tax incentives have become increasingly large and increasingly common among states.

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2. These incentives, as well as the level of the overall after-tax price of capital, are to a large extent clustered in certain regions of the country.
3. States that enact investment tax credits tend to do so around the same time as their neighboring states.

Before proceeding with our investigation of state tax incentives, it is important that we be clear as to the scope of our investigation. We focus here on general, statewide investment tax incentives such as increases in investment tax credits (ITCs) or reductions in the corporate income tax. We abstract from narrowly targeted incentives such as those applicable to particular localities (e.g., “enterprise zones”) or specific industries because such incentives have little impact on the overall business tax climate for the state as a whole. Given our focus on investment incentives, we also exclude from our analysis tax incentives targeted solely at job creation; approximately 20 states had general, statewide job creation tax credits in 2004. Lastly, we ignore tax incentives targeted at specific companies, such as those aimed at landing high-profile plants of foreign automakers.³ While these plant-specific incentives receive much press attention, the investment they potentially elicit is, quantitatively, at most a very small share of statewide investment. For example, the largest investment in recent years associated solely with targeted tax incentives that we are aware of is the \$550 million plant that Honda began building in 2006 in Greensburg, Indiana. While this investment may seem large, it is actually quite small relative to the \$5.2 billion of investment by manufacturers in Indiana in the most recent year of available data (2004, Annual Survey of Manufacturers) and given that \$550 million will be spread out over several years.

The remainder of this paper is organized as follows. Section 2 describes the data we have constructed on state investment tax incentives from 1964 – 2004. A detailed description of the cross-state and cross-time variation in these incentives is presented in Section 3. Section 4 concludes.

DATA

This section presents a brief description of the data analyzed in this paper; complete details on the data sources and construction of the variables used

are available in the longer, working paper version of this paper (Chirinko and Wilson, 2006a).

The focus of this paper is on state tax policy regarding business investment. Conceptually, we want to capture the elements of state tax policy that affect the after-tax price of capital faced by a business in a given state. The Neoclassical formulation of the after-tax price of capital, often referred to as the user cost of capital, was introduced by Hall and Jorgenson (1967) and has been further developed and expanded upon by, among others, King and Fullerton (1984), Gravelle (1994), and Jorgenson and Yun (2001). The basic formula for the user cost of capital for state s at time t is as follows,

$$(1) \quad UC_{s,t} = PRICE_t * OPPCOST_t * TAX_{s,t}.$$

This series is defined as the product of three terms. The first term ($PRICE_t$) is the purchase price of a capital good relative to the price of output. The second term ($OPPCOST_t$) is the opportunity cost of holding depreciating capital.⁴ The third term ($TAX_{s,t}$), which we will refer to as the “tax wedge,” captures the corporate income tax rate as well as the value of tax credits and deductions. Notice that the tax wedge is the ratio of the after-tax price of capital ($PRICE_t * OPPCOST_t * TAX_{s,t}$) and pre-tax price of capital ($PRICE_t * OPPCOST_t$). The tax wedge essentially serves as a summary statistic of the extent of taxation imposed on capital in a given state and hence is our primary variable of interest. Based on Hall and Jorgenson (1967) and others, we define the state tax wedge as follows,

$$(2) \quad TAX_{s,t} = (1 - ITC_{s,t} - \tau_{s,t}^E TD_t) / (1 - \tau_{s,t}^E),$$

where $ITC_{s,t}$ is the investment tax credit rate, $\tau_{s,t}^E$ is the effective corporate income tax rate, and TD_t is the present value of tax depreciation allowances.

The total tax wedge, of course, also contains the federal corporate income tax rate and the federal investment tax credit (which existed from 1962 to 1986). For the purposes of this paper, however, we purged our state tax wedge variable of federal tax policies since our focus is on the cross-state and cross-time variation in state tax policies. Including federal tax components, while having little effect on between-state comparisons⁵, dominates the time series movements in the state tax wedge and hence obscures the trends in state tax policy over time.

We measure the components of the state tax wedge using a variety of data sources. Each state’s

investment tax credit rate, $ITC_{s,t}$, was obtained directly from the state's online corporate tax forms and instructions or, in some cases, from the state's department of taxation. In some states, the legislated investment tax credit rate varies by the level of capital expenditures; we use the legislated credit rate for the highest tier of capital expenditures.

In most states, the effective corporate income tax rate, $\tau_{s,t}^E$, simply equals the legislated (or statutory) corporate income tax rate, $\tau_{s,t}^L$. However, the effective rate is lower than the legislated rate in a handful of states due to partial or full deductibility in these states of federal taxes. The $\tau_{s,t}^L$ series are obtained from several sources. For recent years, data are obtained primarily from various issues of *Book of the States* (Council of State Governments, various years) and *State Tax Handbook* (Commerce Clearing House, various issues), as well as actual state tax forms. Data for earlier years are obtained from various issues of *Book of the States* and *Significant Features of Fiscal Federalism* (American Council on Intergovernmental Affairs, various issues). Additional information has been provided by the Tax Foundation Web site (see <http://www.taxfoundation.org>). Many states have multiple legislated tax rates that increase stepwise with taxable income; we measure $\tau_{t,s}^L$ with the marginal legislated tax rate for the highest income bracket.

There are two caveats on the data that should be noted. First, local property taxes also affect the true after-tax price of capital and hence the state tax wedge. However, we do not consider these taxes in this paper both for data availability reasons and because states in general do not directly control local tax policy. Excluding property taxes provides a better picture of state-controlled tax policy. Second, we do not account for state differences in the apportionment formulae used to allocate a business's federal taxable income among states. Properly incorporating a state's apportionment formula into the after-tax price of capital requires information that is not available, such as the geographic distribution of property, payroll, and sales for businesses operating in the state.

SOME STYLIZED FACTS ABOUT STATE INVESTMENT TAX POLICY OVER THE PAST 40 YEARS

As described in the previous section, the tax ramifications on business capital investment in a particular state, as summarized by our state

tax wedge measure, $TAX_{s,t}$, are driven primarily by the rates of the corporate income tax and the investment tax credit, if present, in the state. In this section, we analyze how state investment tax policies have changed over the past 40 years, both on average and in terms of the geographic distribution among states.

Growth over Time

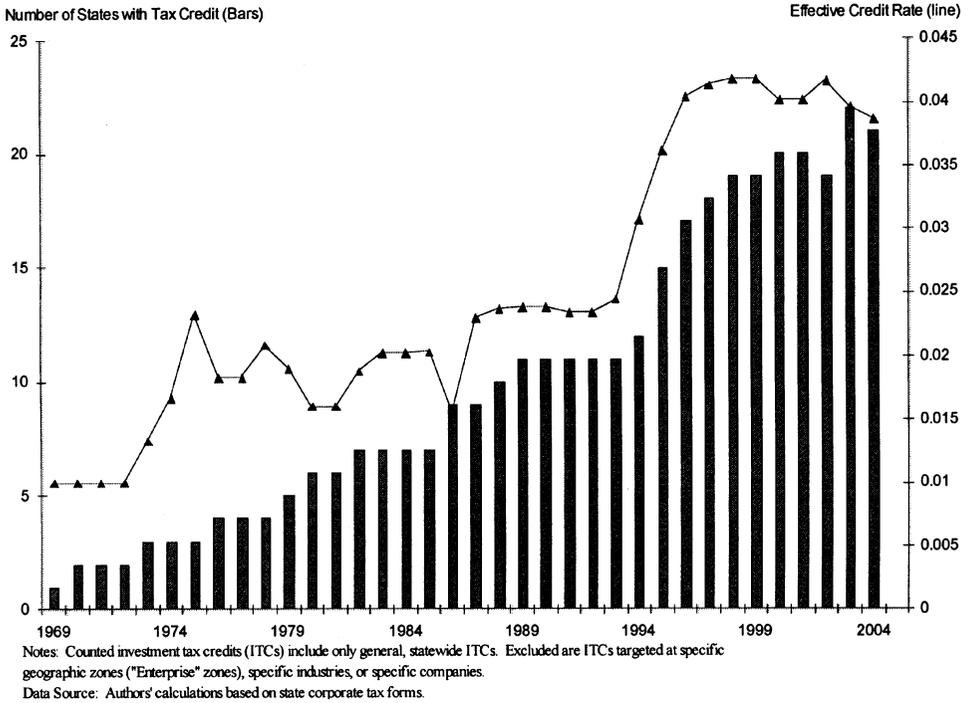
State level tax policy aimed at business investment has been far from stable over the past 40 years. The most obvious evidence of this movement is the rise in the number of states offering investment tax credits. This rise is shown in Figure 1 (see the bars). In 1969, New York became the first state to enact an investment tax credit. Twenty-one other states have since enacted their own, though two states (California and Maine) later repealed their credit.⁶ In addition to the rising number of states offering credits, the average rate of the credits, among those states that offer one, also has increased dramatically (see the line in Figure 1). The average credit rate rose from 1 percent in the early 1970s to about 4 percent in the 2000s.

Figure 2 shows the combined effect of the rising adoption of ITCs and the increasing rate among adopters. Specifically, the light solid line shows the overall average ITC rate (i.e., the average including the zeros of the non-ITC states). The overall average increased steadily but slowly from 1968 to 1993, then increased rapidly in the late 1990s before flattening out in the 2000s.

The other main state tax parameter affecting business investment is the corporate income tax rate. We focus here on the top marginal tax rate (i.e., the rate relevant for the largest businesses) since large businesses tend to account for the bulk of investment in the United States. The average top marginal corporate income tax rate among states, from 1964 to 2004, is shown in Figure 2 (dotted line). The average tax rate rose steeply from 1964 to 1972 – in large part because a number of states first adopted a corporate income tax during this period – then rose relatively slowly until 1991, and has since declined slowly but steadily.

As discussed in the previous section, the combined effect of state corporate income taxes and state ITCs can be assessed by the state tax wedge – the ratio of the after-tax price of capital (excluding federal and property tax components) and the pretax price of capital. A tax wedge of 1.00

Figure 1: The Rise and Spread of State Investment Tax Credits



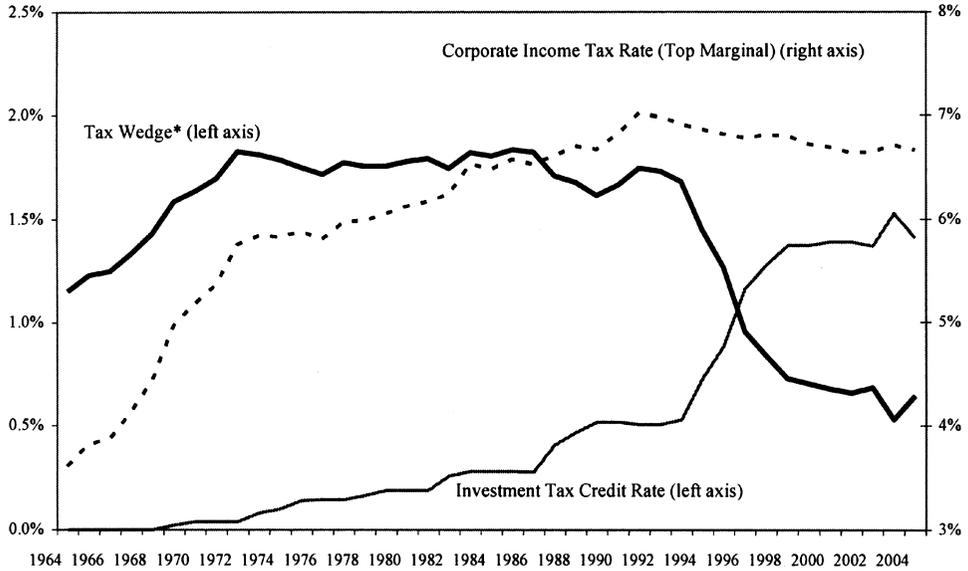
represents neutral tax policy with respect to investment. Values above 1.00 imply tax disincentives to investment, while values below 1.00 imply tax subsidies. The average state tax wedge over our sample period is shown in the heavy solid line in Figure 2. For the purposes of display, we subtract one from the average state tax wedge in order to fit it on the same axis as the ITC rate. For example, a value of 1.0 percent in Figure 2 translates into a state tax wedge value of 1.01.

The time-series movement of the state tax wedge essentially can be characterized by three episodes. From 1964 to 1972, the average state tax wedge increased from 1.011 to 1.018. This increase was almost entirely due to the increase in the average corporate income tax over this period. From 1973 to 1993, the average tax wedge was roughly constant at around 1.017. This constancy was the result of a steadily increasing average corporate income tax rate being offset by a steadily increasing ITC rate. Finally, from 1994 to 2004, the average tax wedge dropped precipitously to just 1.006. As

the figure clearly shows, this drop was largely the result of a substantial increase in the average ITC rate and, to a much lesser extent, the slight decline in corporate tax rates.

The averages shown in Figure 2 are unweighted. We have also repeated these calculations weighting states by their Gross State Products, which may be of greater interest to national policy makers. Weighting has little effect on the time series movements in these series (see Figure 3 in Chirinko and Wilson, 2006a). The weighted series display the same basic patterns as the unweighted series except that the weighted-average ITC rate increases, and the weighted-average tax wedge decreases, much more rapidly after 1993 than indicated by the unweighted series. Also, weighting by GSP yields a large drop in the ITC series and a large spike in the tax wedge series in 2004. Both the post-1993 and the 2004 changes are almost entirely explained by tax policy changes in California, whose GSP hovers between 12 percent and 14 percent of nationwide GSP during the sample period. California enacted

Figure 2: Average State Tax Parameters, Unweighted 1964-2004



* $TAX_{s,t} - 1$, where $TAX_{s,t}$ is defined in equation 2 in the text.

a 6 percent ITC in 1994; this credit was repealed in 2004.

Whether or not one weights states by economic activity, it is clear that state taxation of business investment has declined considerably since 1993 and is now as low as it has been since at least the mid-1960s. It should be noted that this finding is consistent with the well-known fall in state corporate tax revenues relative to business profits since the early 1980s (see Wilson, 2006). Our results suggest that state investment tax credits may play a large role in explaining this fall, though changes in the ability of businesses to shield income from reported taxable income is also likely to have been a major contributor (Cornia, Edmiston, Sjoquist, and Wallace, 2005).

Current Clustering of State Investment Tax Incentives among States

In the preceding section, we discussed how the average or overall taxation of business investment done by states has changed over the last 40 years. We now turn to an investigation of how this taxation varies among states in 2004, our most recent year of data.

We begin by considering the geographic variation in state investment tax credits. Figure 3 displays a map of the United States for 2004, as well as other maps for 1968, 1975, and 1986 to be discussed in the next subsection. In each map, states are shaded according to their ITC rate. States with no ITC are left white, other states are shaded according to where their ITC rate fits within four (mutually exclusive and exhaustive) categories, with darker shading indicating higher credit rates.

Focusing only on the 2004 map in the upper left part of Figure 3, we see a rather stark geographic clustering of ITCs. Aside from those in Idaho and Hawaii, ITCs essentially are clustered into four regions of the country – the Central Midwest, the Southeast, the Northeast, and the region of Michigan, Ohio, and West Virginia.

So state investment tax credits clearly are geographically clustered, but what about the general investment tax policy imposed by states? Given space constraints, we do not show here maps of the state tax wedge analogous to Figure 3 (such maps are available in Chirinko and Wilson, 2006a), but we note that there does appear to be considerable

Figure 3: Investment Tax Credits by State, Various Years

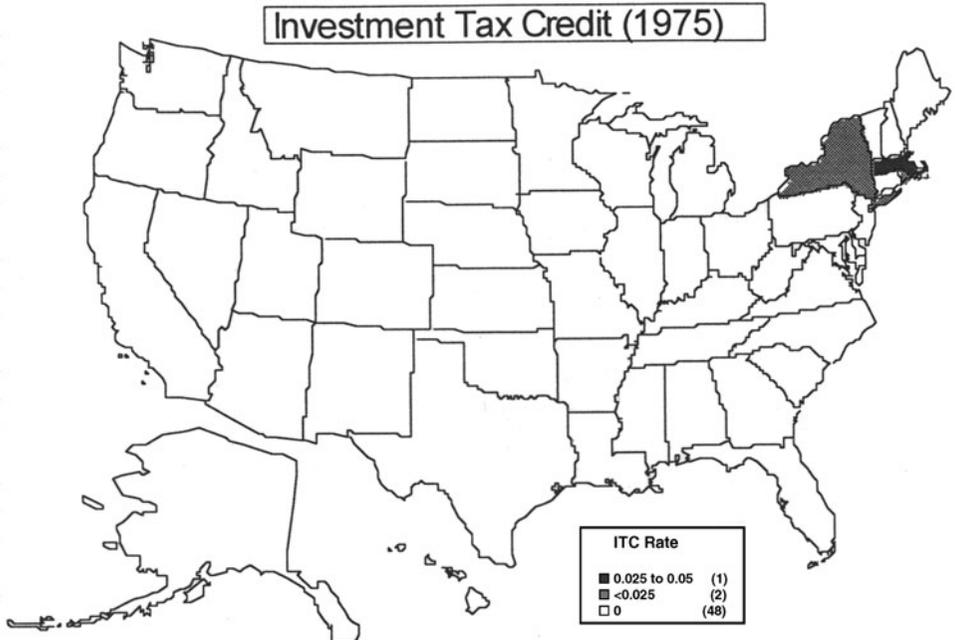
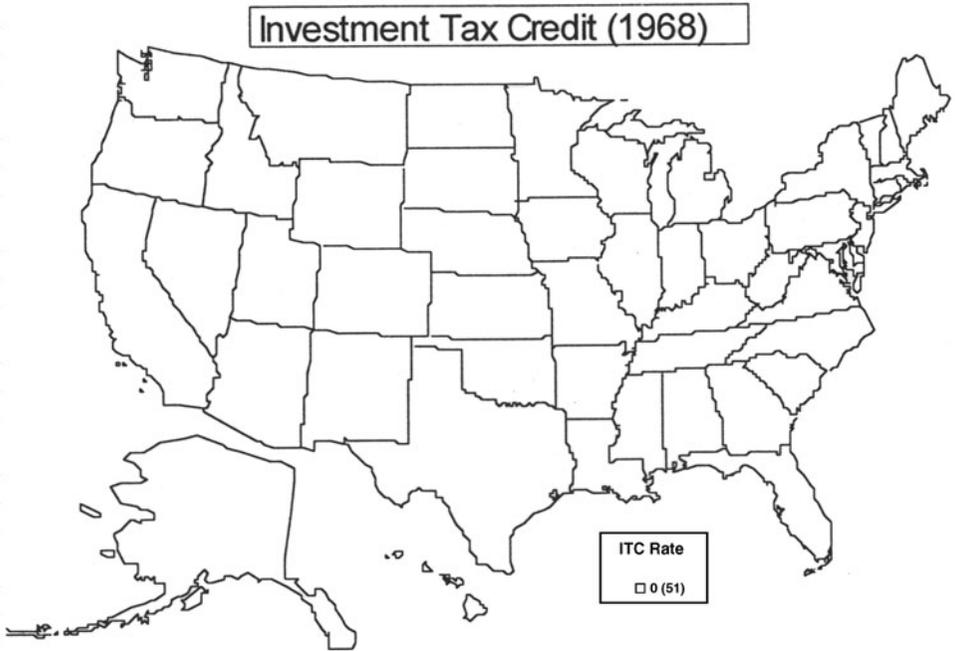
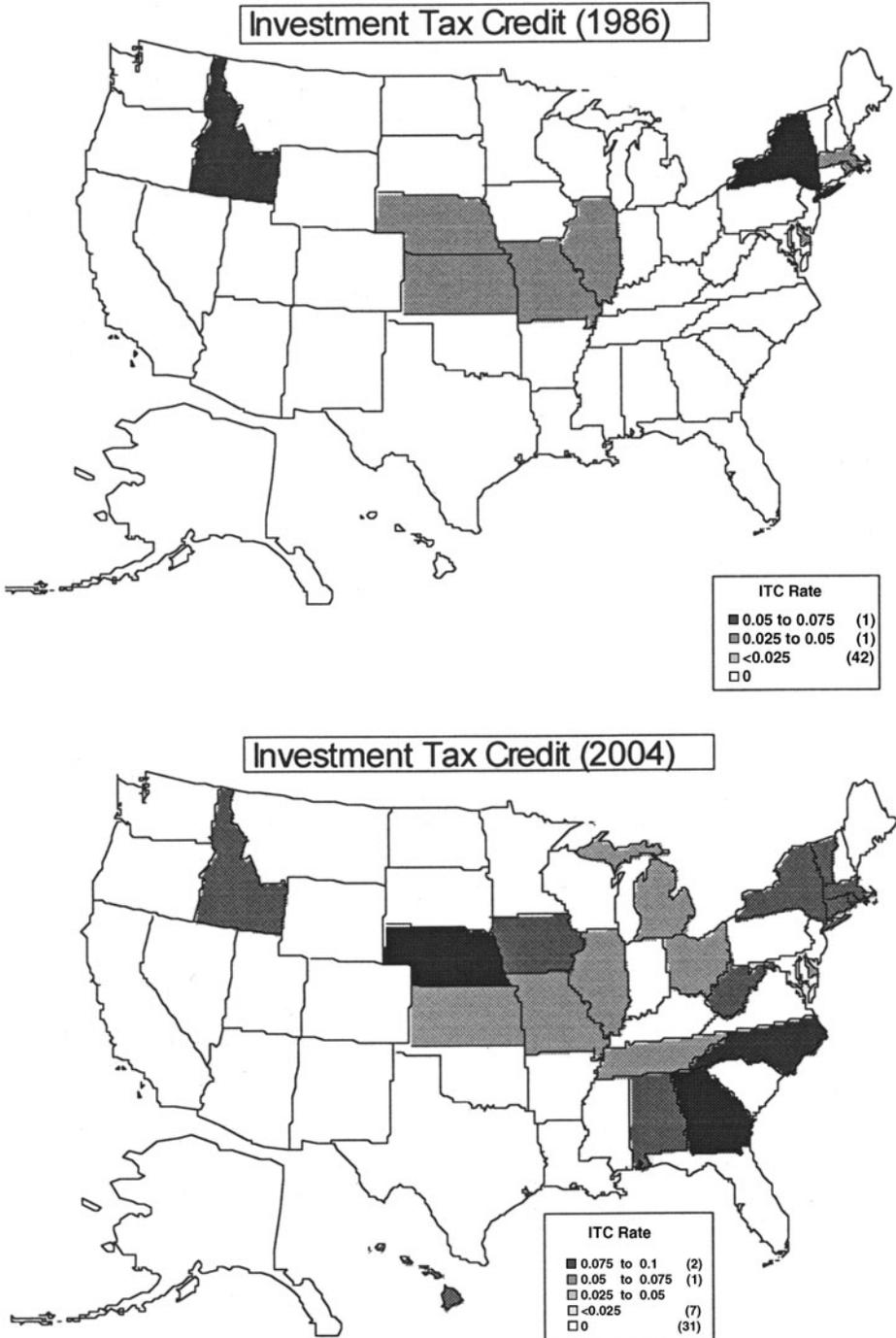


Figure 3: Investment Tax Credits by State, Various Years (continued)



clustering in 2004. Roughly speaking, there are primarily three clusters of comparatively low state tax wedges: The Northern Plains states of Iowa, Nebraska, South Dakota, and Wyoming; the lower Northeast; and the Southeast. More formally, we note that the correlation, in 2004, between a state's tax wedge and the average tax wedge among its bordering states ("neighbors") is 0.24 ($p < 0.1$).

Clustering among States in Changes to State Investment Tax Incentives

In the preceding two subsections, we showed that state investment tax incentives have increased over time and that, as of 2004, state investment tax incentives were clustered in certain regions of the country. Here we ask whether the *timing* of changes in state investment tax incentives tends to be geographically clustered.

We assess the extent of clustering in the enactment of state ITCs at four points in time. Given the relatively small number of ITC enactments to date (22), it is difficult to statistically test whether, in a given year, the probability of a state enacting an ITC is related to whether its neighboring states have recently adopted an ITC. However, such clustering clearly is suggested by comparing the year maps in Figure 3. The enactment of ITCs by states over the last 40 years can be characterized, loosely, by four "episodes": adoption in the Northeast between 1969 and 1975, adoption in the Central Midwest between 1975 and 1986, adoption in the region of Michigan, Ohio, and West Virginia between 1995 and 2003, and adoption in the Southeast in the single 2-year period of 1995-96. This evidence of geographic clustering of state ITCs certainly is suggestive of tax competition among neighboring states, though it is by no means proof. An equally plausible alternative is that state economic shocks are correlated within regions. Under this interpretation, clustering simply reflects that states in a region, each acting without regard to other states' behavior, enact similar economic policies in reaction to similar economic shocks.

CONCLUSIONS

This paper investigated how tax policy at the state level with regard to investment varies across states and over time. We developed a framework for measuring state taxation of investment that is useful for cross-state and cross-time comparisons and compiled the requisite tax data for each state

plus the District of Columbia from 1964 to 2004. These data documented that state investment tax incentives have grown dramatically over the last 40 years. Moreover, there is evidence of strong geographic clustering of these incentives, both in terms of their 2004 distribution and temporal changes.

As mentioned in the Introduction, there has been substantial debate in recent years concerning both the in-state and out-of-state effects of state investment tax incentives on economic activity. State policy makers, national policy makers, and the U.S. judiciary all have shown a need for careful empirical assessment of these effects. The collection, construction, and analysis of data on state investment tax policy discussed in this paper is a necessary prerequisite to such an assessment.

Our ongoing research combines the data described in this paper with state-level data on manufacturing activity and begins to evaluate the effects of state investment tax incentives on activity within and outside of the state (Chirinko and Wilson, 2006b). In subsequent work, we plan to more formally evaluate the extent to which states are engaged in tax competition.

Notes

- 1 Though it is not widely acknowledged, the Ohio investment tax credit was, in fact, had already been on the books since 1995 and was not a tax measure passed specifically for DaimlerChrysler (or any other single company).
- 2 Curiously, the case law on the Commerce Clause's implications for permissible state government policy is limited to considerations of the validity of state taxes, credits, or exemptions on specific, targeted activities, but never has addressed the issue of whether the state corporate income tax itself violates the clause. This point was noted in Stark and Wilson (2006, p. 46): "There has never been any suggestion in *Cuno* or elsewhere that a state choosing to lower its overall business tax burden would face any Commerce Clause restraints in choosing to do so, even if such a policy change would lead businesses to relocate from one state to another."
- 3 Note the Ohio ITC at issue in *DaimlerChrysler Inc. v. Cuno*, 2006 does not fit in this category because, as mentioned above, the ITC is available to all businesses with qualified investment in Ohio.
- 4 The opportunity cost of capital depends on the state income tax rate because of the tax deductibility of interest payments. This state-dependent feature of the tax code has a small effect on the opportunity cost, and hence the *s* subscript has been omitted.

- ⁵ The effect of federal tax policy on cross-state variation in the true after-tax price of capital likely is very small, but it is not literally zero because federal tax parameters interact with state tax parameters in the formula for the after-tax price. For example, the “effective” state corporate tax rate may be a function of the federal tax rate if the state allows for the deductibility of federal taxes from state taxable income.
- ⁶ As noted earlier, we are including only general, state-wide ITCs. ITCs eligible only on investment in limited geographic areas (e.g., “enterprise zones”), in specific industries, or for specific firms, are excluded.

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