

**Deductibility of State and Local Taxes:  
Is there a case for continuing this tax expenditure?**

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**Abstract** – This paper explores a number of possible arguments for taking state and local tax payments into account in the federal income tax base. Traditional arguments regarding benefit spillovers and tax exporting are more consistent with targeted intervention at a less centralized level. Applications of commodity tax arguments to this setting suggest that there could be equity gains to taxing rather than subsidizing at least property tax payments. Yet, two key fiscal externalities can justify subsidies to state and local taxes. First, other states gain from more progressive taxation in any given state due to the induced mobility of net payers and net recipients, and this externality can be internalized via a subsidy that grows with the degree of within-state redistribution. Second, taxes on businesses are potentially fully deductible under the income and payroll taxes, so that any less favorable treatment of state and local taxes paid by individuals distorts states' choice of tax structure. We estimate in each case that the optimal Federal subsidy rate is more generous than the current policy.

## INTRODUCTION

Under current Federal tax law in the U.S., deductions for state and local tax payments are one of the largest individual tax expenditures. Political support for continuing this deduction, though, is uncertain. The 1986 Tax Reform Act eliminated the deductibility of state sales tax payments under Schedule A. In addition, those taxpayers subject to the AMT lose the deduction for all remaining state and local tax payments. The lack of deductibility of these tax payments under the AMT is one of the most important substantive differences between the AMT and the regular income tax base. One of the key recommendations in the President's Federal Tax Reform Panel's Report (2005) is the complete elimination of the deductibility of state and local tax payments.

Since this deduction will likely come up for serious rethinking in coming years, it makes sense to assess what if any case can be made for taking these state and local tax payments into account under the Federal income tax. Ostensibly, the case for keeping this deduction is dubious. The subsidy appears to have minimal effects on overall spending (e.g., Metcalf, 2008), and it has perverse distributional effects since mainly richer taxpayers itemize. Should these tax payments then be ignored entirely, as recommended by the Tax Reform Panel? If they should be taken into account, is the appropriate treatment to make these payments a deductible expense? If so, should the tax savings be on the order of what now occurs?

This paper will consider in turn a number of possible arguments that might be made for taking state and local tax payments into account in the Federal income tax base. In the next section, we examine two arguments commonly used in the past: expenditure externalities and tax exporting. Nonresidents certainly can benefit from a jurisdiction's expenditures on public services, and jurisdictions can choose tax structures that shift the burden to nonresidents. What are the implications of such externalities for the Federal income tax base? Our discussion here is brief, since the appropriate Federal response does not plausibly involve the income tax.

The third section then considers another conventional line of argument concerning the appropriate tax treatment of consumption expenditures on particular goods, in this case state and local public services. A plausible case could be made for efficiency gains from subsidizing these expenditures if the goods and services they finance (primarily public schools) are relative substitutes with leisure. There is no evidence supporting this perspective. However, recent work by Gordon and Kopczuk (2008) finds that among those with the same labor income, those making higher property tax payments tend to be more able. This leads to an equity argument for taxing individuals more under the Federal income tax to the extent they make higher property tax payments. Note that this is the opposite of the current tax treatment.

The next sections explore more thoroughly two key fiscal externalities that can justify federal intervention similar in nature to what we currently observe. The fiscal externalities considered in the fourth section arise from mobility across jurisdictions driven by deviations from benefit taxation. Individuals sort across jurisdictions in part based on the relative taxes and public service benefits they receive in each possible jurisdiction. When one jurisdiction changes its policies so that the distribution of net benefits becomes relatively more progressive, the resorting of net contributors and recipients across jurisdictions impacts the budgets of other jurisdictions. As long as these

fiscal externalities are more positive the more progressive is a jurisdiction's tax system, the federal government can internalize these externalities by providing a subsidy that grows with the state and local tax payments made by higher income residents, as implicitly occurs now since only higher income residents tend to itemize their deductions under the Federal income tax. Following this line of reasoning, we formally derive and estimate the components of the optimal subsidy under reasonable simplifying assumptions. Though theoretical attention to these interstate fiscal externalities is long-standing (e.g., Gordon, 1983), there has been no prior attempt to quantify the appropriate subsidy in this setting. Given the available evidence on elasticities of behavior, we find that the current Federal tax subsidy to state and local tax payments is not quite sufficient to internalize this externality.

The fifth section focuses instead on fiscal externalities to Federal tax revenue from changes in state and local tax rates. One form of fiscal externalities arises when overall factor supplies fall in response to increases in state and local tax rates, shrinking the Federal tax base. Since this form of externality has received substantial attention in the past, we focus instead on the implications for Federal tax revenue of the choice by state and local governments to impose taxes on firms vs. individuals.

Here, we argue that the incidence of state and local statutory taxes on firms likely falls mostly on workers, through reduced wage rates. Any resulting fall in labor income then reduces the Federal tax base under both the Federal income and the Federal payroll tax. This implies that state and local business tax payments are fully deductible for all workers, as opposed to being deductible only under the income tax for those who itemize. Unless statutory tax payments by individuals receive the same tax treatment under the Federal income and payroll taxes, then the Federal tax law distorts the form of tax structure chosen by state and local governments. Such a subsidy has its own revenue costs, though, and encourages too much state and local spending, complicating the choice of an optimal policy response. We attempt to estimate the optimal size of the subsidy, taking these effects into account, and find an optimal subsidy rate at least as high as the current subsidy rate.

Finally, the sixth section provides a summary of the main arguments for taking state and local tax payments into account in the Federal income tax base.

## EXPENDITURE SPILLOVERS AND TAX EXPORTING

State and local governments provide a wide variety of public services, including police and fire protection, roads, trash collection, parks, and education. All of these expenditures potentially benefit nonresidents. In addition, state and local residents would certainly support tax policies that shift the tax burden to nonresidents.<sup>1</sup> To what degree are there externalities through these channels that justify Federal intervention?

If a jurisdiction is a price taker in the market for visitors, then competitive pressures induce it in equilibrium to set taxes so that it just breaks even on net from extra visitors.

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<sup>1</sup> The problem is important enough that it was raised in the U.S. Constitution. According to Article 1, Section 8, states cannot tax or otherwise interfere with interstate commerce. While the initial focus may have been on tolls imposed on goods in transit, the range of court cases that have arisen over the years has been highly diverse.

For example hotel and restaurant taxes can be set so that nonresidents pay in taxes an amount on average equal to the costs they impose on the jurisdiction due to use of local public services. With such a benefit tax in each jurisdiction, there are no remaining externalities to nonresidents and no grounds for intervention by any higher levels of government.

Nonresidents may also experience net benefits from the tax and spending policies in jurisdictions that they do not visit. For example, higher local spending on elementary and secondary education could reduce crime risk in nearby communities, and higher state spending on college education may benefit other states since the college-educated are mobile nationally.<sup>2</sup> Similarly, business taxes may also be exported to some degree to nonresident shareholders.

What should be the response when some externalities remain? First, the size of any remaining externalities likely varies greatly by type of expenditure and by location. Second, most of the externalities from expenditure spillovers and tax exporting are likely to occur within a state rather than between states. Thus, any response should be targeted and tailored depending on the specific circumstances and should largely be undertaken by state governments. In the presence of nontrivial cross-state spillovers, such as from college education, direct federal aid to universities or matching grants for educational spending would be the natural response. For spillovers at the local level, state governments already intervene in various ways, whether through matching grants as are used for roads, through direct control as happens to some degree with education, or through the deductibility of local tax payments under the state income tax. How much of a role is left for a general Federal subsidy to state and local expenditures because of remaining externalities is entirely speculative.

## OPTIMAL COMMODITY TAX ARGUMENTS

According to the results in Saez (2002), there are potentially both efficiency and equity grounds for imposing a nonzero tax/subsidy on expenditures on a particular commodity, even if the government is simultaneously imposing a flexible nonlinear tax schedule on reported labor income. Consider imposing a marginal Federal tax on state and local government expenditures, starting from a tax rate of zero, while simultaneously modifying the tax schedule on labor income so as to leave unchanged the average tax payments for individuals with each reported value for labor income. With this tax change, there are no income effects on average within any tax bracket, and no distributional effects between tax brackets.

There are potential efficiency effects, though, arising from any behavioral changes. Behavioral responses have no effect on individual utility, by the envelope theorem, but do impact government revenue. Efficiency rises if the resulting behavioral responses increase government revenue, and conversely. If Federal tax revenue is coming entirely from taxes on labor income, then tax revenue increases only if labor supply increases in response to this compensated increase in the price of state and local public services. We

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<sup>2</sup> See Jacob and Lefgren (2003) for evidence on the potential for higher high school attendance to reduce crime, and Bound, Groen et al. (2004) and Moretti (2004) for evidence on the scope for cross-state spillovers from spending on public colleges.

know of no evidence suggesting that state and local expenditures are a relative complement (or substitute) with leisure, leaving no presumption about whether state and local spending should be encouraged or discouraged under the Federal income tax based on such efficiency arguments.<sup>3</sup>

This compensated tax change can also have equity effects if those spending more on state and local tax payments tend to have different unobserved ability levels, among those with the same observed labor income. Gordon and Kopczuk (2008) report evidence that this is the case, at least for reported property tax payments. In particular, if ability is measured by observed wage rates, then among those with the same reported labor income, they find that those making higher property tax payments tend to have higher ability.<sup>4</sup> Intuitively, higher-skilled parents tend to spend more on the education of their children, for any given labor income, so choose communities with higher school spending and as a result with higher property tax payments. They estimate that the income tax base that comes closest to approximating a tax on the unobserved wage rate imposes a tax rate on property tax payments equal to roughly twice the tax rate on labor income. Recall that the current tax treatment, in contrast, involves tax savings rather than additional taxes for those reporting higher property tax payments.

## INTERSTATE FISCAL EXTERNALITIES

So far, we have ignored any changes in residential location in response to state and local fiscal policies. Yet such mobility is at the heart of any discussion of fiscal federalism. To what degree does such mobility create fiscal externalities?

Within the Tiebout model, taxes are viewed to be user fees, whether by statute or in equilibrium.<sup>5</sup> In this case, there are no fiscal externalities. Any state or local programs that redistribute between individuals, whether ex ante as with a progressive income tax or ex post as with social insurance programs, create potential fiscal externalities, however. Any increase in redistribution induces some net payers to move to other jurisdictions and attracts some net recipients from other jurisdictions. Assuming that those who are net payers/recipients in one state are also net payers/recipients in other states, these movements induced by greater redistribution within a state benefit the remaining residents of these other jurisdictions.

The standard conclusion in the Tiebout literature, given these externalities, is that the Federal government rather than state or local governments should handle any redistributive or social insurance programs.<sup>6</sup> The Federal government has the advantage that it does not have to worry about mobility of residents. Unless mobility is costless, though, states and localities have some opportunity to engage in redistributive activity,

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<sup>3</sup> See Currie and Gahvari (Forthcoming) for a discussion of the potential links between labor supply and the provision of in-kind public benefits in the areas of health, education, housing and child care.

<sup>4</sup> The authors did not attempt any similar test for whether state income and sales tax payments convey information about ability, conditional on observed labor income.

<sup>5</sup> When the property tax is used to finance local public services, for example, Hamilton (1975) argues that it can still become a user fee in equilibrium if jurisdictions use zoning restrictions to ensure a minimum property value in the jurisdiction.

<sup>6</sup> See Oates (1999) for a review and discussion of the literature on this traditional theory of fiscal federalism.

and in fact do to a fair extent.<sup>7</sup> What, then, is the optimal response by the Federal government to the associated fiscal externalities?

We consider this question in a setting where states finance a uniform level of benefits using redistributive tax structures. Assume that the density of individuals at income level  $y$  in state  $s$  is  $f_s(y)$ . State  $s$  provides per capita public services of  $G_s$  and imposes taxes based on the tax schedule  $T_s(y) \equiv \alpha_s + t_s y$ , where the government's budget constraint is  $\int (T_s(y) - G_s) f_s(y) dy = 0$ . The utility of a representative individual with income  $y$  in state  $s$  is  $U(y, G_s, T_s(y))$ .

We assume that individuals have heterogeneous tastes for one jurisdiction or another, so that the number of residents of a given income level in each jurisdiction varies continuously in the fiscal policies in all possible jurisdictions.<sup>8</sup> These taste differences we assume are sufficient that there will be residents of each income level in each state, regardless of fiscal differences across states.

We solve first for the optimal tax parameters from a national perspective, and then consider how the Federal government might intervene so that the state will choose the policies that are optimal from a national perspective. In solving for national welfare, we simplify by assuming no interstate transfers, so that each state must maintain budget balance. National social welfare then equals

$$[1] \quad \text{Max}_{\{\alpha_s, t_s, G_s\}} \sum_s \int U(y, G_s, T_s(y)) f_s(y) dy + \sum_s \lambda_s \int (T_s(y) - G_s) f_s(y) dy$$

This expression is maximized with respect to the policy parameters within each state.

The issue we focus on is the effects of tax policy changes on nonresidents, since these are the terms that a state government would ignore in its own decision-making. If  $t_s = 0$  in all states, then there are no fiscal externalities across states. Each individual pays the costs of any public services he or she receives. Externalities arise only to the degree that states deviate from the use of head taxes and attempt to redistribute by choosing  $t_s > 0$ .

Consider then the impact on nonresidents of an increase in  $t_r$  in some state  $r$ , with a compensating fall in  $\alpha_r$  so as to leave the state's budget in balance.<sup>9</sup> The impact on nonresidents equals

$$[2] \quad \sum_{s \neq r} \lambda_s \int (T_s(y) - G_s) \frac{\partial f_s(y)}{\partial t_r} dy.$$

<sup>7</sup> Actual movements in response to fiscal differences may be limited by personal or other ties to one location or another. With social insurance programs, the potential problems created by mobility can be further limited through eligibility rules. For example, individuals do not qualify for unemployment insurance until they have worked for at least a minimum length of time within the state. The U.S. courts have not allowed states to impose comparable residency requirements on welfare recipients, however.

<sup>8</sup> See, e.g., Burbidge and Myers (1994) or Mansoorian and Myers (1997) for past work making use of such an assumption of imperfect mobility.

<sup>9</sup> It quickly follows that  $\frac{\partial \alpha_r}{\partial t_r} = -\bar{y}_r$ , where  $\bar{y}_r$  is average income in the state.

Since this change makes the tax structure within state  $r$  more progressive, individuals with above average income face a tax increase in state  $r$  and will tend to move to other states, while poorer residents elsewhere will tend to migrate to state  $r$ . Both types of movement result in positive fiscal externalities to other states.

There are various instruments through which the national government could internalize this fiscal externality. Note, though, that a uniform subsidy to state and local spending does not help, since this subsidy simply depends on  $G_r$  while the fiscal externality depends on the degree of progressivity of the tax structure. The current policy of allowing those who itemize their deductions under the Federal personal income tax to deduct state and local tax payments is an example of a policy that provides a larger subsidy the more progressive is the state tax system.

Assume in particular that the Federal government gives all individuals with income above some value  $y_r^*$  a rebate equal to the fraction  $\theta_r$  of their state and local tax payments. In order for this subsidy to leave the income distribution unaffected, assume in addition that state and local taxes equal  $\alpha_r + t_r y$  for those with  $y < y_r^*$  and equal  $(\alpha_r + t_r y)/(1 - \theta_r)$  for those with  $y > y_r^*$ , for any choice by the state for  $t_r$ . Taking into account the Federal subsidy, the net cost of state and local tax payments to state residents remains  $\alpha_r + t_r y$ , regardless of their income.

State tax revenue increases, however, due to the subsidy and now equals

$$\int T_r(y) f_r(y) dy = P_r (\alpha_r + t_r \bar{y}_r) + P_r^* (\alpha_r + t_r \bar{y}_r^*) \frac{\theta_r}{1 - \theta_r}.$$
 Here,  $P_r$  measures the population in state  $r$ ,  $P_r^*$  measures the population in the state with  $y > y_r^*$ , while  $\bar{y}_r^*$  is the average income among those with  $y > y_r^*$ .

With this subsidy, consider the first-order condition from the state's perspective arising from an increase in  $t_r$ , with  $\partial \alpha_r / \partial t_r = -\bar{y}_r$  as before. Assume that states are symmetric in equilibrium, so that the  $\lambda_s$ 's and the tax and expenditure policies are the same in all states. The resulting expression includes the same terms appearing in the first-order condition for the national government except for

$$[3] \quad \frac{\theta_r}{1 - \theta_r} \lambda P_r^* (\bar{y}_r^* - \bar{y}_r) - \sum_{s \neq r} \lambda \int (T_s(y) - G_s) \frac{\partial f_s(y)}{\partial t_r} dy.$$

The optimal subsidy rate would be chosen so that this expression equals zero.

The optimal subsidy rate then satisfies

$$[4] \quad \frac{\theta_r}{1 - \theta_r} = \frac{- \int (T_r(y) - G_r) \frac{\partial f_r(y)}{\partial t_r} dy}{\bar{y}_r P_r} \frac{P_r}{P_r^* \left( \frac{\bar{y}_r^*}{\bar{y}_r} - 1 \right)}.$$

The first term on the right-hand side of [4] measures the drop in revenue in state  $r$  due to

mobility plus any required increase in government expenditures due to population changes as a fraction of the revenue that would be raised through an increase in  $t_r$ , ignoring mobility (and the subsidy). Rather than estimating a specific value for this mobility-induced efficiency cost, we solve for what this ratio must be in order to defend a particular choice for  $\theta_r$ , and then return to interpret this in the context of relevant empirical evidence.

Assume, for example, that  $\theta_r = .26$ , as would characterize the average current Federal tax loss per dollar of state and local tax deductions among itemizers.<sup>10</sup> To solve for the excess burden ratio that would justify this choice of  $\theta_r$ , we need to estimate the remaining expressions on the right-hand side of [4]. We find that 43 percent of individual taxpayers itemize (have  $y > y_r^*$ ), implying that  $P_r / P_r^* = 2.33$ . The ratio  $\bar{y}_r^* / \bar{y}$  depends on the distribution of income. We approximate this as the ratio of average taxable income for itemizing taxpayers relative to the average for all taxpayers, which we estimate to be 1.63.

Putting these estimates together, we infer that  $\theta_r > .26$  if the efficiency cost ratio is greater than .1. This figure would imply that an increase in  $t_r$  collects only 90 percent of what it would, ignoring mobility responses. Relative to marginal efficiency costs in other contexts, this figure is small. Are efficiency costs of at least that magnitude likely here?

We can produce a back-of-the-envelope estimate for the efficiency cost ratio using the general equilibrium estimates from Kennan and Walker (2008).<sup>11</sup> The authors develop and estimate a model of location choice where moves are motivated by potential improvements in the expected present discounted value of income. Simulations of the long term impact of an increase in a given state's wages yield estimates of the elasticity of labor supply (i.e., population) with respect to wages in the neighborhood of .5.

Given a constant elasticity of the fraction of each income group locating in the state with respect to net-of-tax income, we can then re-express the numerator of the excess burden term (dropping the  $r$  subscript for simplicity) as follows:

$$-\int (T(y) - G) \frac{\partial f(y)}{\partial t} dy = -\int (T(y) - G) \left( \frac{\partial f(y)}{\partial y^n} \frac{y^n}{f(y)} \right) \frac{f(y)}{y^n} \frac{\partial y^n}{\partial t} dy .$$

Here,  $y^n = y(1 - t) - \alpha + G$  takes into account the net fiscal gain or loss from living in a state. Given the government budget constraint, we know that

$$\frac{\partial y^n}{\partial t} = \bar{y} - y + \frac{\theta}{1 - \theta} \frac{P^*}{P} (\bar{y}^* - \bar{y}), \text{ and that}$$

<sup>10</sup> This and the following calculations are based on the sample of all non-dependent filers in the 2004 Statistics of Income (SOI) individual income tax public use data file. The marginal tax rate on non-labor income for each return was calculated using internet TAXSIM version 8.0 (see <http://www.nber.org/taxsim/> and Feenberg and Coutts, 1993).

<sup>11</sup> Note, though, that Kennan and Walker (2008) focus on a low income population, as the estimates are derived from a sample of male high school graduates with no higher education.

$$T(y) - G = (\alpha + ty) \left( 1 + \delta \frac{\theta}{1 - \theta} \right) - \alpha \left( 1 + \frac{P_r^*}{P_r} \frac{\theta}{1 - \theta} \right) - t_r \bar{y}_r \left( 1 + \frac{P_r^* \bar{y}_r^*}{P_r \bar{y}_r} \frac{\theta}{1 - \theta} \right).$$

Here,  $\delta = 1$  if the individual itemizes, and is zero otherwise.

To provide a rough estimate of these expressions, assume that  $t \approx .1$ , reflecting the observation that state and local tax revenue is approximately 10 percent of GDP. Assume in addition that  $\alpha \approx -.02\bar{y}$ , which roughly approximates the size of state spending on Medicaid and welfare programs.

We then use the Statistics of Income data to calculate the value of  $\theta$  that solves [4], taking into account the implications of  $\theta$  for the excess-burden expression, and find an optimal value of  $\theta = .43$ . This optimal subsidy rate is considerably higher than the current subsidy rate of  $\theta = .26$ . The resulting marginal excess burden ratio is still just .2, so modest relative to many reported in the tax literature.

## FISCAL EXTERNALITIES TO THE FEDERAL GOVERNMENT

So far, we have focused on state and local taxes on individuals. If individuals respond by migrating from one state to another, this has no direct effect on Federal tax revenue, ignoring the deductibility of state and local taxes. Individuals can also respond to higher state and local tax rates by reducing their labor supply. Reduced labor supply reduces the Federal as well as the state income tax base. State and local tax rates are then too high from a national perspective. The optimal response, in order to correct such an externality, would be to impose some Federal tax penalty on state and local spending, contrary to the subsidies we see. Since this argument has received substantial attention in the past (e.g., Keen and Kotsogiannis, 2002; Dahlby and Wilson, 2003; Boadway and Tremblay, 2006), we do not discuss it further in this paper.

We focus in this section instead on the implications for national tax revenue of state and local taxes imposed by statute on firms. While we have assumed that individuals have locational preferences, we assume instead that firms do not care per se about location and face no costs of moving across states. If each state is small relative to (inter)national markets, then local prices must adjust so that firms remain as profitable there as elsewhere. The question is then which prices adjust to assure that firms choose to locate in each state. Put differently, what is the incidence of state and local business taxes, and what are the implications for the Federal treatment of state and local taxes imposed on individuals?

### *Incidence of Business Taxes*

In general, the range of possible prices that might adjust includes output prices, wage rates, required (after local tax) rates of return to capital, and land prices. For firms selling on (inter)national markets, output prices they receive cannot respond to local taxes. Those providing financing to the firm can also invest instead in other states, so that the required (after local tax) rate of return to capital cannot respond to local taxes.

The incidence of any state and local taxes on businesses must then result in a fall in wage rates and/or land prices. If land is a minor input to a firm's production (or if the firm can costlessly locate on land with no scarcity value), then the incidence of state and local taxes on business must fall entirely on wage rates.<sup>12</sup> Mathur and Hassett (2006) and Arulampalam et al. (2007) provide evidence that cross-country differences in corporate income taxes are passed almost entirely to wages. As workers receive the benefits from any extra spending, workers are still willing to locate in the state even if wage rates are lower.<sup>13</sup>

Labor payments made by firms then fall at the margin by an amount equal to the firms' business tax payments. To see this, assume that firms have constant returns to scale and that their unit cost of production can be expressed by  $c(w_n, r_n)$ , where  $w_n$  is the net unit cost of labor inputs and  $r_n$  is the net unit cost of capital inputs. In equilibrium,  $c(w_n, r_n) = p$ , where  $p$  is the output price set in the national market.

Consider the impact of any taxes on capital income. If  $r$  is the net-of-tax rate of return that investors must receive to be willing to invest in the firm, and any capital invested in the firm is taxable at rate  $\tau$ , then the firm must earn a pre-tax rate of return of  $r_n = r + \tau$  in order to attract investors. If the firm takes both  $r$  and  $p$  as given, then Roy's identity implies that  $\partial w_n / \partial \tau = -K/L$  where  $K/L$  denotes the firm's capital/labor ratio. In response to extra tax payments of  $Kd\tau$ , workers end up losing  $Kd\tau$ .<sup>14</sup> Even though the firm continues to break even, capital costs have increased and labor costs have fallen, inducing a fall in the firm's choice of capital/labor ratio.

These results follow as long as some firms that sell in the national market (say manufacturing firms) locate in the state and make little use of land as an input, even if these assumptions do not hold for other firms. What happens for example to firms selling nontradables, e.g. barber shops? With wage rates set in order to keep some manufacturing in the state and capital costs set in national markets, barber shops enter until they break even. Their output price would be unaffected/fall/rise if the barber shops use the same/lower/higher capital/labor ratio as the manufacturing firms. Taxes that fall only on nontradable goods, however, would solely impact output prices for these goods, since wage rates remain fixed by the zero profit conditions for manufacturing firms in the state. To simplify the following discussion, we assume equal capital/labor ratios in all industries, though in general there could be some consumer price changes in both directions among nontradable goods.

If business taxes result in a fall in wage rates in the state, how do these taxes compare with explicit taxes on labor income? Here the argument closely parallels the argument about the incidence of the corporate tax in a small open economy. Business taxes and labor income taxes are both fully paid by workers in the state, inducing comparable

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<sup>12</sup> See Haughwout and Inman (2000) for a derivation of the incidence of state and local taxes in a setting where firms do use land as an input.

<sup>13</sup> This view of business taxes potentially serving as benefit taxes dates to the discussion in Summers (1989) regarding payroll taxes used to finance mandated benefits for workers. Empirical studies of workers' compensation (e.g., Gruber and Krueger, 1991) and mandated maternity benefits (Gruber, 1994) reveal that the statutory costs to firms of these programs are borne by workers.

<sup>14</sup> Payroll changes as well due to changes in  $L$ . However, by the envelope condition workers and firms are unaffected at the margin by these behavioral changes.

economic effects.<sup>15</sup> However, to the extent that the statutory tax base for business taxes includes capital income, business taxes in addition distort capital/labor ratios. Firms within an industry should as a result shift to more labor-intensive technologies. In addition, the industrial composition of firms in the state should shift towards more labor-intensive industries.

Given these additional economic distortions from the use of business taxes imposed at least to some extent on capital income, business taxes result in higher efficiency costs than labor income taxes. Note, though, that a tax on the payroll of a business has the same economic effects whether the statutory incidence is on the firm or on individuals. Similarly, a business cash-flow tax in which capital investments can be expensed but payroll is not deductible has as its tax base the labor income accruing to the firm's workers, so again is equivalent to a labor income tax.<sup>16</sup>

### *Implications of Business Taxes for Federal Tax Revenue*

State and local business taxes and taxes on individuals differ, though, in one additional key dimension. State and local taxes on individuals reduce Federal income tax liabilities for a state's residents only to the extent that they itemize their deductions and are not subject to the AMT.<sup>17</sup> Business taxes, in contrast, result in a drop in reported wage and salary income for employees in the state. With lower reported wage and salary income, their tax bases under both the Federal income tax and the Federal payroll tax fall. Since we have seen that the fall in their reported wage and salary income at least at the margin equals the extra business taxes paid by firms, this implies that these additional business taxes are fully deductible for all employees in the state under both the Federal income tax and the Federal payroll tax.

The resulting tax savings from the use of business taxes to residents in the state can be substantial. The Federal payroll tax rate is 15.3 percent. To be conservative, following the results in Diamond and Gruber (1999), assume that half of the non-Medicare component of the payroll tax is offset by future additional Social Security benefits, lowering the effective payroll tax rate by 6.2 percent. If labor income falls proportionately in a state, Federal income tax payments fall by some fraction of this fall in labor income reflecting the average marginal tax rate of employees in the state, weighting by the size of their labor income. We estimate that this weighted average personal tax rate is 22.5 percent.<sup>18</sup> Since the employer half of the payroll tax is implicitly deductible under the personal income tax, the overall effective marginal tax rate on labor

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<sup>15</sup> Business taxes finance public services just as do labor income taxes. In both cases, workers face lower after-tax labor income but in exchange receive additional public services. The impact on the local economy is then the same, ignoring any additional distortions to capital/labor ratios.

<sup>16</sup> A business cash-flow tax differs from a business payroll tax, though, to the extent that income accruing to a firm's workers is not paid out as wages and salaries. Workers for example can receive accruing capital gains on shares they own within the firm, or be paid with stock or stock options that are not reported in full as taxable payroll under the payroll tax.

<sup>17</sup> By current law, either state sales taxes or state income taxes are deductible, but not both.

<sup>18</sup> These calculations are based on the same 2004 SOI data and sample described in footnote 10. The marginal income tax rate with respect to taxpayer earnings is calculated using internet TAXSIM and includes the role of the EITC and AMT.

income faced by state residents equals  $.225 + .062 \times (1 - .225) + .0145 \times (2 - .225) = .30$ , where .0145 represents the Medicare tax rate. As a result, 30 percent of a state's tax payments can potentially be offset by Federal tax savings if the state employs additional business taxes.

How much savings would occur, in contrast, if individuals rather than firms paid these taxes in proportion to labor income, with the current law otherwise remaining unchanged? Nationally, the share of reported labor income accruing to itemizers is .66, and the weighted average marginal income tax rate among itemizers is 25.8 percent.<sup>19</sup> The tax savings under current law from a labor income tax imposed directly on individuals then equal  $.66 \times .258 = .17$ , and so only offset 17 percent of tax payments. This create a strong fiscal incentive for states to make use of business taxes instead.

### *Choice of Federal Tax Provisions*

This differential Federal tax treatment of state and local business taxes compared with state and local labor income taxes describes current law. Recall that the deductibility of state and local business taxes is not a matter of Federal statute, as long as labor income is taxable under both the Federal income tax and the Federal payroll tax. The deductibility of business taxes is implicit, due to the implications for reported labor income, and we take it as given. Given the implications of state and local business taxes for Federal tax revenue, what can we say about how state and local taxes on individuals *should* be treated?

To lay out the key tradeoffs, consider the following stylized model: Individuals choose to pay an amount  $P$  in personal taxes to the state and an amount  $B$  in business taxes, funding state spending of  $G = P + B$ . These business taxes result in a fall in labor income to individuals of  $B + e(B)$ , where  $e(B)$  measures the extra resulting efficiency costs of business taxes due to their effects on business capital/labor ratios. Business taxes are implicitly deductible against Federal taxes at a rate equal to  $t$ , while personal taxes are deductible against Federal taxes at a rate we will solve for and denote by  $s$ . Individual utility can then be denoted by  $U(G, -(1-s)P - (1-t)(B + e(B)))$ .

Consider first the individual's behavior in response to the incentives created by Federal tax provisions. For any given value of  $G$ , individuals can vary the form of finance between  $P$  and  $B$ . Optimizing over this choice, we find in equilibrium that  $B$  is chosen so that

$$[5] \quad (1-t)(1 + e'(B)) = (1-s).$$

Individuals in addition choose how much public goods to consume. The first-order condition here is  $U_1 = (1-s)U_2$ .

Consider next the choice of  $s$  by the Federal government. The cost of the various

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<sup>19</sup> Here, the marginal tax rate is defined with respect to nonlabor income, as is appropriate since the federal tax savings come through itemized deductions. This statistic is also weighted by labor income as we have in mind a state tax on individuals that is analogous to the business tax.

subsidies to the Federal government equals  $t(B + e(B)) + sP$ . The assumed objective of the government is to maximize  $U - \lambda[t(B + e(B)) + sP]$ . The resulting first-order condition for  $s$  equals

$$[6] \quad -\lambda \left[ t(1 + e'(B)) \frac{\partial B}{\partial s} + s \left( \frac{\partial G}{\partial s} - \frac{\partial B}{\partial s} \right) \right] = (\lambda - U_2)P, \text{ or}$$

$$-\lambda \left[ e'(B) \frac{\partial B}{\partial s} + s \frac{\partial G}{\partial s} \right] = (\lambda - U_2)P.$$

Here, the second line follows after substituting for  $t(1 + e'(B))$  using [5].

We find three separate considerations entering into this first-order condition. First, any subsidy to  $P$  results in a loss in Federal tax revenue and an offsetting gain to individuals. The net welfare cost depends on  $\lambda - U_2$ , which should be positive given the efficiency costs of raising revenue through other taxes. Second, an increase in  $s$  reduces the existing distortion favoring  $B$  over  $P$ . The resulting fall in  $B$  results in a drop in efficiency costs in proportion to  $e'(B)$ . Third, an increase in  $s$  lowers the price of  $G$ , leading to excess local public spending with efficiency costs in proportion to the size of the existing subsidy,  $s$ .

To proceed further, we can solve for the optimal  $s$ , making use of [5], to find

$$[7] \quad s = \frac{t - (1 - U_2 / \lambda)P / A}{1 + (\partial G / \partial s) / A},$$

where  $A = -(\partial B / \partial s) / (1 - t) > 0$ . Here we find that  $s < t$  to the extent that  $U_2 < \lambda$  and  $\partial G / \partial s > 0$ , capturing the two costs described above from a higher subsidy rate. Both effects are smaller to the extent that business taxes fall due to the higher subsidy rate ( $A > 0$ ).

To provide some sense of the quantitative size of this expression, note that Metcalf (2008) confirms earlier findings in Feldstein and Metcalf (1987) that  $\partial G / \partial s \approx 0$ . Fullerton (1991) provides estimates of the marginal cost of public funds, suggesting that  $U_2 / \lambda \approx .75$ . Finally, Metcalf (2008) provides direct evidence that  $s$  has strong and statistically significant effects on the sources of state finance. In particular, the estimates in column 5 of Table 19 imply that  $\partial P / \partial s \approx 2.7P$ , though here  $P$  equals deductible taxes, and omits sales tax payments. Since  $\partial G / \partial s \approx 0$ , we infer that business taxes plus sales taxes together fall to offset the increase in  $P$ . If all of this fall represents a fall in use of business taxes, then  $\partial B / \partial s \approx -2.7P$ , implying that  $P / A \approx (1 - t) / 2.7$ .<sup>20</sup> We then estimate that  $s \approx .24$  is the implied subsidy rate on all personal state and local tax payments. This figure is remarkably close to the subsidy rate under current law for itemizers, though non-itemizers currently receive no subsidy.

<sup>20</sup> To the extent that this fall includes a drop in use of sales taxes, then the optimal value of  $s$  will be smaller.

One question this leaves is why states have chosen business taxes that distort capital/labor ratios. These distortions are avoided if the business tax by statute is imposed on the labor income earned within firms. Examples are an explicit tax on wages and salaries, as is done with the component of the Federal payroll tax paid by employers. One problem with this explicit tax is that labor income paid in forms other than wages and salaries, avoids the tax. A second approach is to impose a cash-flow tax on businesses, where the tax base equals sales minus expenditures on capital and material inputs.

Perhaps existing tax provisions create little incentive for states to innovate in the design of their business taxes. However, to the extent that the subsidy rate  $s$  is reduced, states face a stronger incentive to explore alternative sources of finance, and could easily end up identifying taxes that impose much higher costs on the Federal budget.

## CONCLUSIONS

In this paper, we have explored a variety of arguments for taking state and local tax payments into account in the Federal income tax base. Of these various arguments, three separate arguments push for some Federal provisions.

One argument deals with a recent finding in a paper by Gordon and Kopczuk (2008) regarding how to design a Federal income tax base that best approximates an ability tax, given that ability is not directly observable. They find that among those reporting the same labor income, those making higher property tax payments tend to have higher wage rates. Presumably, more able individuals are more interested in spending money on public education, so pay more in local property taxes. On equity grounds, then, there could be reasons for taxing people *more* (rather than less) to the extent that they pay more in property taxes.

The second argument deals with fiscal externalities across states, as high income individuals face fiscal incentives to move to low tax states while low income individuals face comparable incentives to move to states with generous benefits. Here, we find using plausible figures that Federal subsidies at least on the order we see now could easily be justified.

The third argument focuses on implications of the use of state and local taxes on businesses for Federal tax revenue. In theory, extra state and local taxes on businesses should lead to virtually a dollar for dollar fall in residents' labor income. This fall in labor income reduces the tax base under both the Federal income tax and the Federal payroll tax. A state's choice between business taxes and taxes on households will be distorted to the degree that the Federal government does not provide comparable tax savings from state taxes imposed on households. Taking into account the revenue costs of this subsidy and the resulting distortions to state choices on the scale of state expenditures, we estimate that the optimal Federal subsidy rate to state taxes imposed on individuals is somewhat higher than under current law.

Based on these results, if anything there is a case to increase rather than reduce the size of the Federal subsidy to state and local tax payments by individuals.

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