

WHICH IS WORSE? TAX FLUCTUATIONS OR SPENDING FLUCTUATIONS?

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IT IS OFTEN ARGUED THAT UNSTABLE TAX POLICIES—such as fluctuating tax rates—are economically harmful. This accepted wisdom dates back to Adam Smith, who wrote that the “certainty of what each individual ought to pay is, in taxation, a matter of so great importance, that a very considerable degree of inequality . . . is not near so great an evil as a very small degree of uncertainty.” (Smith, 1976, p. 351) Policy advocacy organizations and the popular press and have adopted this notion to some degree, and often chide politicians for altering tax laws too frequently, even when these adjustments are made to cope with economic cycles. Yet when governments face balanced-budget constraints – such as the U.S. States – changing economic conditions typically require fluctuating either tax or spending policies. Despite the importance of this question to state policy-makers, there is little existing literature comparing instability in tax policies to instability in spending policies.¹

This Essay remedies this deficiency in the literature by comparing the relative harm of managing fiscal volatility either through tax-rate adjustments or through spending fluctuations. Employing a risk-allocation framework, this Essay is a modified excerpt from a more-comprehensive Article on the fiscal volatility problem (Gamage, 2010).

The central normative finding of risk-allocation theory is the principle of risk spreading: all else being equal, dispersed risks are less harmful than concentrated risks. This Essay will argue that – as a general rule – adjusting the rates of broad-based taxes accomplishes greater risk spreading than does adjusting government spending levels. However, it is important to note that not all tax rate adjustments spread risk efficiently. For example, fluctuating the rates of a narrow tax, borne by only a small portion of a state’s population, would not accomplish risk spreading. Moreover, when it comes to implementation, not all state taxes can be adjusted without creating excess economic harm. For instance, fluctuating taxes on capital gains is likely a poor method for coping with fiscal volatility; because taxpayers control the timing of when their gains are realized, they are likely to delay their gain realizations until periods with lower tax rates. In contrast,

timing effects of this sort are a minor problem with respect to adjusting the rates of state property taxes.

The remainder of this Essay further elaborates the risk-spreading argument for coping with the majority of fiscal volatility by adjusting the rates of broad-based taxes. Part A sets the stage for conducting an applied risk analysis by discussing a couple background assumptions and then explaining how risk spreading minimizes the harm from both risk aversion and planning costs. Part B then demonstrates why more risk spreading is accomplished by adjusting the rates of broad-based taxes than by fluctuating state government spending.

SETTING THE STAGE FOR AN APPLIED RISK ANALYSIS

A couple background assumptions must be noted before turning to risk-analysis theory. First, this paper assumes that the steady-state levels for taxes and spending are approximately optimal. Whatever choices a political coalition makes about steady-state fiscal policy, it must also decide how to allocate volatility around that steady state. If steady-state policy is not optimal, that problem should be addressed directly. Second, this paper assumes that state spending as a whole is neither a luxury good nor an essential, as compared to aggregate private sector spending.² If this second assumption does not hold, then fiscal volatility should be allocated more toward the necessary components of state fiscal policy and less toward the essential components.

The Harm from Risk Aversion

The first major harm caused by fiscal volatility flows from risk aversion on the part of individuals and economic actors. The standard explanation for risk aversion comes from the diminishing marginal utility of money. (Kaplow, 1989; Rabin & Thaler, 2001). The reason money produces diminishing marginal utility is that all of the goods that can be purchased with money generate diminishing marginal utility. The more monetary goods one owns, the less valuable additional monetary goods become, as compared to the benefits of public

spending. Even billionaires may be frustrated by crime, traffic, and the like. Just as the diminishing marginal utility from monetary goods creates risk aversion with respect to volatile tax payments, the diminishing marginal utility from publicly provided goods creates risk aversion with respect to volatile government spending. No matter how much one values goods like public transportation or education, at some point adding more roads and schools becomes less valuable than the private consumption that must be forgone in order to pay for the n^{th} highway or school building.

Due to the diminishing marginal utility of money, concentrated risks are more harmful than dispersed risks. Risk spreading reduces the harm from risk and uncertainty because each marginal unit of risk affecting an individual or economic actor is more harmful than the previous units. As such, if two individuals are identical, except that one bears a high level of risk and the other a low level, then transferring a unit of risk from the high risk-bearing individual to the low risk-bearing individual will reduce the total harm caused by the risk. The very feature that causes risk aversion—the diminishing marginal utility of money—directly justifies the principle of risk spreading.

The Harm from Planning Costs

In addition to the harm created by risk aversion, fiscal volatility also creates harm due to planning costs. Individuals, firms, and public agencies often need to make investment decisions in the present in order to maximize production in the future. These decisions sometimes entail sunk costs. For instance, schools are built based on projected future education spending. Uncertainty about how much funding will be available for hiring teachers can lead administrators to build schools that are either too small or too large. While education suffers when too many students are crammed into an overcrowded space, there is little point in having built more classrooms if funds do not permit hiring enough teachers to utilize them.

Allocating fiscal volatility to spending can force administrators to fire staff after putting them through costly training programs, to abandon construction projects that have already been partially built, or to otherwise misallocate resources over time and across types of expenses. In addition to these primary costs, volatility in public spending creates secondary costs that affect the beneficiaries of government programs and any private sector

individuals or contractors who are paid to work on the programs. If uncertain funding creates the possibility that administrators will have to fire staff or to stop paying for contractors, the administrators will have to pay more to hire the staff and contractors in order to offset their risk premiums.

Moreover, the beneficiaries of public spending programs also make decisions in reliance on those programs. These decisions may involve sunk costs. For instance, firms decide where to build plants based partially on the state of local roads and other infrastructure. If the state later cuts spending so that the infrastructure quality is no longer sufficient for the firm's purposes, the firm may need to abandon the plant or pay for expensive alternatives to the infrastructure. Individuals face similar dilemmas to the extent they buy housing based on the quality of neighborhood schools. And if firms structure their severance policies—or if individuals make saving decisions—based even partially on state-funded job retraining programs or unemployment benefits, any changes to these benefits can leave individuals worse off than they would have been if they had been able to make decisions in anticipation of the changes.

Of course, taxpayers also make planning decisions based on expected future returns and volatility in taxes creates uncertainty in those returns. If a tax hike makes an economic activity unprofitable after taxes, the activity may need to be abandoned even if nonrefundable resources have already been expended on it.

Risk spreading can reduce the harm from planning costs because planning costs increase on the margin. All else being equal, a \$2,000 loss of public funding or tax increase should create more than twice as much harm from planning costs as a \$1,000 loss of funding or tax increase. Whether they operate in the public or private sectors, individuals and organizations generally maintain some level of reserves—or slack—that can be used to meet unexpected challenges (Cheng & Kesner, 1997; Singh, 1986). For individuals, this slack can include previously saved funds, temporarily increased work effort, favors called in from friends and family, and anything else the individual can do to cope with a negative shock without abandoning sunk resources. Similarly, organizations can ask their employees to work harder for short periods, temporarily reduce employee benefits or overhead, or engage in a variety of similar coping mechanisms. But because individuals and organizations

have only finite levels of slack, the planning costs associated with fiscal volatility should generate increasing marginal harm. While small amounts of volatility can often be dealt with through reserves, increasing levels of volatility will eventually exhaust available reserves, forcing the abandonment of sunk resources and thereby creating far larger marginal costs. Furthermore, even after reserves have been expended, we might reasonably expect organizations and individuals to first abandon projects with few sunk costs and to only later abandon projects with greater sunk costs. To the extent that economic actors can allocate the costs of volatility across subprojects, volatility should thus generate increasing marginal planning costs.

Just as the diminishing marginal utility of money justifies the risk spreading principle with respect to risk aversion, the presence of increasing marginal planning costs justifies the risk spreading principle with respect to planning costs. In both cases, transferring a unit of risk from an actor facing greater additional risks to an actor facing lesser additional risks will reduce the harm caused by that unit of risk, because additional units of risk are more harmful on the margin.

CONDUCTING AN APPLIED RISK ANALYSIS FOR FISCAL VOLATILITY

Risk spreading can mitigate the harms caused by both risk aversion and planning costs—the two major harms from fiscal volatility. Hence, as a general rule, the optimal method for coping with fiscal volatility is likely the method that best accomplishes risk spreading. This section argues that maximal risk spreading is accomplished when fiscal volatility is dealt with primarily by adjusting the rates of broad-based taxes. This argument is demonstrated first by comparing the risk-bearing characteristics of taxpayers to those of the beneficiaries of public spending, and second by comparing the risk-bearing characteristics of public spending activities to those of private-sector economic activities.

Comparing Taxpayers to the Beneficiaries of Public Spending

When fiscal volatility is resolved by fluctuating tax rates, the harmful effects of the volatility fall on taxpayers. Conversely, when fiscal volatility is resolved by fluctuating spending, the harmful effects of the volatility fall on the beneficiaries of

public spending programs. To a large degree, these categories overlap, as every citizen of a state both pays taxes and benefits from public spending.³ Yet these groups do not overlap perfectly. Some state citizens will receive more net benefit (from spending minus taxes) than will others.

Taken as a whole, state fiscal policy is redistributive on the margin. Even though, many states' tax systems are considered regressive in that they take a higher percentage of poor taxpayers' incomes than they do of rich taxpayers' incomes, marginal spending is sufficiently progressive so as to more than make up for these regressive taxes. (Landry, 2006).

Three-quarters of state general account spending falls into four major categories: elementary and secondary education (36 percent), Medicaid and other public assistance (19 percent), higher education (12 percent), and corrections (7 percent) (National Association of State Budget Officers [NASBO], 2004). Of these, Medicaid and public assistance are clearly progressive in that they primarily benefit poor taxpayers. Tax-funded education spending is also highly progressive. Even though the wealthy arguably benefit more from education spending than the poor, education dollars are not distributed as unequally as is income.⁴ Even if a rich taxpayer with an annual income of \$200,000 derives twice as much value from education spending as a poor taxpayer with an annual income of \$20,000, as a percent of income, the poor taxpayer still receives five times as much benefit as the rich taxpayer.

The key to the above example is that progressivity in taxes is usually measured as a percent of income, while the redistributive quality of spending is usually measured in dollar amounts. Even "regressive" sales taxes take far more in dollars from rich taxpayers than from poor taxpayers. Although education spending might provide more absolute benefit to the rich than to the poor, this disparity is unlikely to be so large as to surmount the greater dollar amounts the rich are paying in taxes. For almost all forms of state spending, raising taxes by a dollar in order to fund an additional dollar of spending should redistribute resources from rich taxpayers to poor taxpayers.

Of the four major categories of state general account spending, only corrections might be an exception to this rule. Spending on prisons and law enforcement arguably benefits the rich far more than the poor, perhaps enough to overwhelm the differences in tax dollars paid. Following similar

logic, it is often argued that the wealthy derive far more benefit from government spending, as a whole, than do the poor, as there would be little or no wealth without government -- in the state of nature (Murphy & Nagel, 2002).⁵ While this argument might be valid for state expenditures as a whole, its logic fails when considering state expenditures on the margin. When examining the types of spending that are actually cut during downturns and increased during upturns, it seems clear that marginal spending hikes benefit the poor more than the wealthy. Hence, allocating volatility to taxes has a greater impact on wealthy taxpayers, and allocating volatility to spending has a greater impact on poorer taxpayers. In order to make this observation into a normative argument, we need only conclude that volatility causes less overall harm when allocated to wealthy taxpayers than when allocated to poorer taxpayers.

The first argument supporting this conclusion examines the direct risk-spreading effects of redistributing volatility. Looking first to risk aversion, the diminishing marginal utility of money means that any given amount of risk will be more harmful when allocated to an individual with less money and less harmful when allocated to an individual with more money. To illustrate, for a taxpayer with an annual income of \$10,000, the possibility of that income increasing or decreasing by \$2,000 constitutes a very large risk. Yet if that same risk is instead allocated to another taxpayer with an annual income of \$200,000, the \$2,000 risk becomes much smaller as a percentage of income. The first taxpayer would need to make significant changes to her consumption portfolio in response to losing 20 percent of her income. In contrast, the second taxpayer would be far less affected by the need to decrease her consumption by only 1 percent. If the two taxpayers are otherwise identical—except for their differing monetary resources—the first taxpayer stands to lose far more expected utility from the volatility than does the second taxpayer.

A similar result follows for planning costs, as long as there is a connection between an individual's monetary resources and her level of slack or reserves. Although this connection is obviously not perfect, when abstracting across an entire state population, it seems reasonable to conclude that those with higher income levels will also have more slack built into their budgets. After all, the more income one has, the more one spends, and the more opportunity there is to reallocate one's

resources across spending categories when faced with a downturn. Hence, the planning costs caused by fiscal volatility are also likely to be more harmful when allocated to poorer taxpayers than when allocated to wealthier taxpayers.

The indirect risk-spreading effects of redistributing fiscal volatility function much like the direct planning-cost effects. Indirect risk spreading occurs when volatility is allocated to individuals who are better able to save, borrow, or use third-party insurance. Empirically, wealthier taxpayers are both more able and more likely than poorer taxpayers to save during upturns, borrow during downturns, and purchase third-party insurance. It is well known that the wealthy tend to save more than the poor and thus have greater savings available to smooth consumption during downturns. (Blundell et al., 2002). The wealthy do not necessarily borrow more than the poor, but they have a greater ability to access capital markets if they wish to do so. (Mann & Hawkins, 2007; Barr, 2004). Finally, although directly purchasing insurance against downturns is not common, the wealthy can effectively purchase insurance through the use of options, derivatives, annuities, and other financial instruments.⁶

Consequently, redistributing volatility from the poor to the wealthy accomplishes both direct and indirect risk spreading. Since state tax and spending programs are redistributive on the margin, fluctuating tax rates as the primary response to fiscal volatility accomplishes more risk spreading than does fluctuating spending levels.

2. Comparing Public Spending Activities to Private-Sector Economic Activities

When comparing taxpayers to the beneficiaries of public spending programs, the focus is on differences among individual state citizens. Yet it is also possible to examine the risk-spreading effects of responses to fiscal volatility from the perspective of a representative taxpayer.

It is important to understand that a 1 percent reduction in private-sector economic activity typically results in considerably more than a 1 percent reduction in tax revenues. According to one estimate for the combined 50 states, excluding legislative changes, each 1 percent deviation in GDP growth below its trend reduces total state revenues by 2.5 percent (Brinner et al., 2008).

The reason that tax revenues are several times more volatile than state economic activity is that

the underlying tax base is not overall state economic activity. Instead, the tax bases for most of the major state-level taxes are considerably more volatile than is state economic activity. (Brinner et al., 2008). Business-level income taxes are only incurred when businesses earn profits.⁷ During an economic downturn, many businesses will show losses or only minimal profits, and thus will not pay significant business-level income taxes. The same phenomenon holds true to a lesser extent for individual income taxes. For states that tax capital gains, taxpayers will tend to realize more losses in their capital gains income during downturns and greater returns during booms. State sales taxes tend to exempt services that are more heavily consumed during downturns, as well as often exempting other necessary items like food and medical expenses, while the manufactured consumer goods that are most heavily taxed under most state sales tax systems tend to be purchased more during upturns than in downturns (Stark, 2003). Hence, with the notable exception of property taxes, the major state tax systems are all considerably more volatile than overall state economic activity (Sobel & Wagner, 2003).

Consequently, reallocating fiscal volatility more evenly across the public and private sectors should further both direct and indirect risk spreading. Direct risk spreading is achieved when volatility is spread as widely as possible across individuals or sectors of the economy. All else being equal, the direct risk-spreading principle would thus call for fiscal volatility to be allocated across the public and private sectors in proportion to the size of both sectors as a percent of gross state product. Yet without tax rate adjustments, the public sector in a typical state will be forced to absorb more than twice as much volatility as the private sector. In order to correct this imbalance, the state must adjust tax rates as the economy cycles, raising rates during downturns and lowering them during upturns.

The principle of indirect risk spreading calls for an even further reallocation of volatility away from the public sector and toward the private sector. Indirect risk spreading is furthered by allocating volatility to actors who are better able to save, borrow, insure, or efficiently reallocate volatility across subprograms. Due to the legal and political constraints on public-sector activities, private-sector economic actors are better able to engage in all of these methods for mitigating the harmful effects of volatility than are public sector spending programs.

Legal constraints limit the ability of public sector administrators to engage in borrowing (Super, 2005; Briffault, 2003). These constraints do not always preclude borrowing, but they often impose burdensome limitations—such as the need to seek voter approval—that are not similarly placed on private sector managers (Briffault, 2003). And, while public sector administrators are less legally constrained when it comes to saving or insuring, the political dynamics of the budgeting process create strong disincentives to taking these steps. The budgets for public-sector programs are set politically, whereas private-sector budgets are often determined (directly or indirectly) by the market. Consequently, public-sector managers are trained to demonstrate the need for more funding in order to protect their budgets, as such saving and insuring are not usually possible within the dynamics of this budgeting game (Fligio & O’Sullivan, 2001).

The political budgeting process also interferes with the ability of public sector managers to allocate the effects of volatility efficiently across subprograms. When budgets are cut during downturns, public-sector managers face incentives to allocate the cuts to politically salient portions of their budgets in an attempt to protect their budgets during subsequent rounds of cuts. (Fligio & O’Sullivan, 2001). Often, this dynamic means that public managers allocate cuts to the budget areas in which the cuts result in more costs on the whole, rather than to the budget lines that can absorb the cuts most efficiently.

Of course, large businesses are not completely immune to politics or to the sort of budgeting games that pervasively affect public-sector spending. But there is usually better oversight within private-sector organizations, and the motivating force of market competition tempers the harmful effects of these political dynamics. Even most liberal economists generally agree that the private sector is more efficient at producing goods and services, except for public goods that would not be produced without government (Whaples, 2006). The same market forces that make private sector production more efficient than government production, also lead the private sector to mitigate the harmful effects of economic volatility more efficiently.

Comparing public-sector spending activities to private-sector economic activities thus further reveals that tax-rate adjustments accomplish greater risk spreading than do spending fluctua-

tions. Increasing the use of tax-rate adjustments as state economies cycle would mitigate some of the harm caused by fiscal volatility.

CONCLUSIONS AND CAVEATS

Drawing on principles from risk-allocation theory, this paper argues that states should primarily deal with fiscal volatility by adjusting the rates of broad-based taxes (such as sales taxes, income taxes, and property taxes).⁸ As compared to fluctuating state-government spending, adjusting tax rates can accomplish greater risk spreading and thereby better mitigate the harmful effects of fiscal volatility. Nevertheless, the optimal response to fiscal volatility is likely to include some amount of spending fluctuation. The harm from allocating risk to any individual actor increases on the margin. The arguments here support allocating the *majority* of volatility to tax-rate adjustments. That said, at some point, continually increasing the magnitude of tax-rate adjustments will cause more harm than would maintaining some degree of spending fluctuations. The question of whether “majority” means 60 percent of coping responses or 90 percent is left for future research.

In deciding which taxes to adjust, states will often face a dilemma in which the taxes that most affect upper-income taxpayers (such as progressive income taxes or capital gains taxes) are also the most likely to be avoided through relocation or timing games. Yet many of the advantages of selecting tax-rate adjustments over spending fluctuations derive from progressivity. This paper has argued that – as compared to fluctuating government spending – even adjusting the rates of a regressive tax like the sales tax is beneficial to lower-income taxpayers. But adjusting the rates of more progressive tax instruments achieves even greater risk-spreading advantages. One approach to balancing these competing considerations would be to create a new statewide property tax that could be adjusted to have positive tax rates during downturns (so as to offset the reduced revenues being generated by other state tax instruments) while providing a tax refund during upturns. The new property tax could include circuit breakers in order to increase its progressivity (Bowman et al., 2009). The desirability of creating a new statewide property tax, as compared to other methods for enacting tax-rate adjustments, is a question largely left for future research. For now, it suffices to

reiterate that not all tax-rate adjustments accomplish risk spreading. This paper has only examined the tradeoffs between allocating volatility to broad-based tax-rate adjustments, as compared to across-the-board spending adjustments. The questions of how best to allocate tax rate adjustments amongst the various state tax instruments, and how best to allocate spending adjustments amongst state spending programs, are likewise left for future research.

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Notes

- ¹ A notable exception can be found in Edgerton, Haughwout, and Rosen (March, 2004). However, Edgerton and co-authors only discuss the macroeconomic stimulatory consequences of fluctuating spending as compared to fluctuating tax rates; they do not discuss the microeconomic risk-allocation consequences that are the focus of this paper.
- ² For a discussion of the concept of luxury goods, see Krugman, Wells, and Olney (2007).
- ³ While not every citizen receives direct payments from a state, every citizen benefits to at least some extent from spending programs such as transportation infrastructure, education, and the criminal justice system.
- ⁴ There is no straightforward way to calculate the extent to which different income groups benefit from education spending. But it seems implausible to think that the benefits of education spending are distributed as unequally in dollar values as are incomes.

- ⁵ Compare with Dodge (2005) acknowledging and disputing this argument.
- ⁶ The number of individuals insuring through these methods is probably small, but there is no doubt that these techniques are more available to the wealthy than to the poor.
- ⁷ In contrast, a gross receipts tax or a VAT would be due regardless of profitability.
- ⁸ The term “broad-based taxes” refers to tax instruments that reach the majority of state economic activity. In contrast, “narrow-based taxes” reach a much smaller portion of state economic activity.

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