
PAYING FOR PUBLIC GOODS: A NOTE ON EFFICIENT REVENUE COLLECTION AND EXPENDITURE

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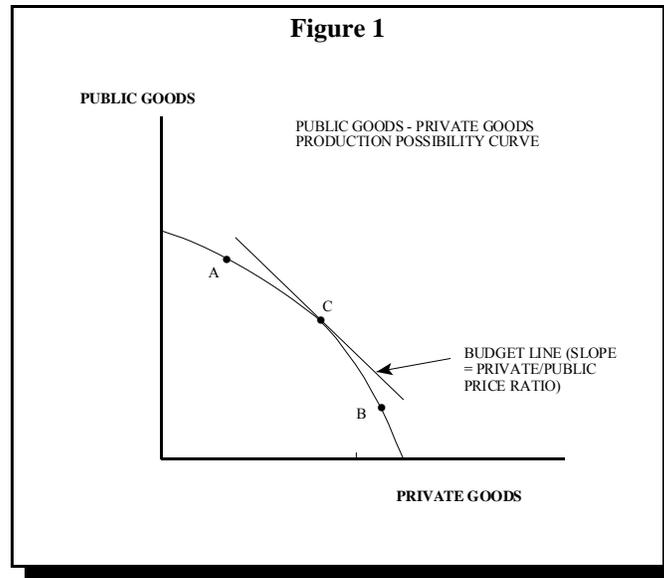
ABSTRACT

Introductory level diagrams are employed to demonstrate a very important economic principle: public-sector efficiency may require that expenditure decisions and tax revenue collection be separated and performed by different levels of government. Applying the production-possibility curve to illustrate the trade-off between public and private goods, the optimum point is shown where the per-dollar marginal returns are equal. We argue that different levels of government have different efficiencies in taxation, requiring that local expenditures be buttressed by revenue sharing from higher levels of government. Acting without revenue-sharing, local governments will face a marginal cost of public goods that is artificially high and, hence, will under-invest in public goods. This demonstration should not only heighten the student's awareness of public-sector economics, but also the general relevance of their hard-won learning of the principles.

INTRODUCTION

Public goods and services, such as homeland security, freeways, air quality control, disease prevention, and crime abatement must be shared and must be paid for. Such goods are not efficiently allocated by markets but instead are allocated by political means at various levels of government.

To explain a society's choice of public versus private goods, economists rely on a production possibility curve, such as Figure 1, which shows the output combinations that an economy can choose with a given current technology under conditions of full employment. As drawn, Point C (the point of tangency of a hypothetical national budget line with the production possibility curve) represents the best mix of public and private goods and services because at this point the marginal return per dollar of investment is the same for public and private goods and services. Points A and B show, respectively, over and under investment in public goods and services.



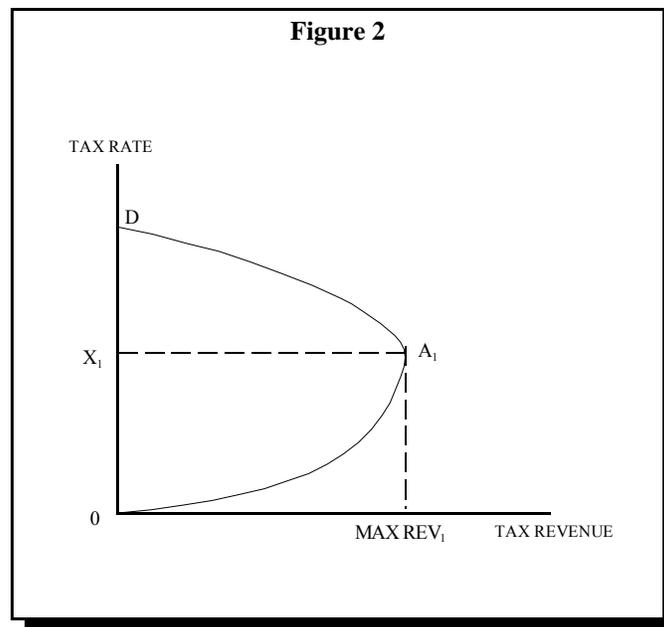
In the “real world”, there is continuous debate about this tangency point. In general, a liberal politician’s bias would favor increasing the size of the public sector. Their critics refer to them as the “tax-and-spend” group. By contrast, conservative politicians are said to belong to the “no-new-taxes” crowd as their bias would favor decreasing the size of the public sector. In other words, liberals are thought of as trying to move towards Point A and conservatives as trying to move towards Point B.

However, the public sector must be paid for. Since the revenue needed to purchase public goods and services must be financed through some sort of taxation, decisions must also be made as to the provider - - local, state, or federal government - - and as to the form of taxation to be utilized- - income, property, sales, or user fees.

This note shows some elementary relationships between levels of government. Each level of government has a different level of efficiency in collecting taxes. Lower levels of government cannot collect taxes as efficiently as higher levels of government. The distribution of tax-collection authority across the different levels of government will have great impact on the amount of revenue collected and on the mix of public goods and services that can be provided. Since efficient provision of public goods and services requires both efficient allocation *and* efficient collection of taxes, some form of revenue sharing is required for overall efficiency.

DECISION ANALYSIS

Policy makers, whatever their political persuasion, wrestle with the issue of public expenditures, taxation, and the proper role for the different levels of government. The relationship between tax rates and tax receipts is often in question. “Supply-side” economists maintain that reducing federal tax rates would stimulate economic growth sufficiently to actually increase tax revenue. The geometry of their prescription is illustrated in Figure 2, which shows the hypothetical amount of revenues the government collects at various income tax rates.



The vertical axis measures federal income tax rates and the horizontal axis measures federal revenues generated by these rates. The curve is anchored at two zero-revenue points: the origin and at point D. At the origin, both the tax rate and tax revenue are zero: the government will receive no tax revenues regardless of how much income people are earning. At point D the tax rate is 100% and once again, the government will receive no revenues since people will refuse to work for money when all their income is taxed away. Between these extremes, the curve is backward bending. It slopes upward between the origin and point A₁: as the tax rate rises towards X₁ percent, tax revenues rise too. Tax revenues are at their maximum at MAX REV₁ when the tax rate is X₁ percent. The curve slopes downward

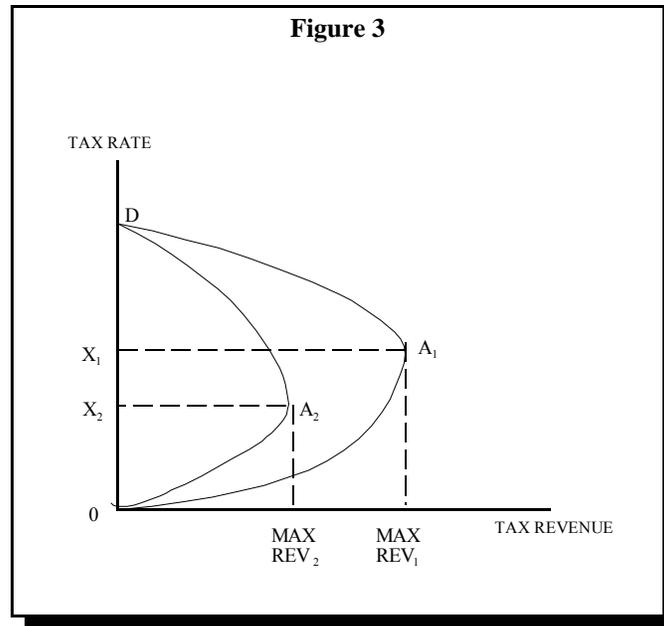
between point D and point A: at tax rates higher than X_1 percent, tax revenues fall as tax rates rise. In economics, this relationship is known as the “Laffer Curve”, after Professor Laffer, who used it to build support for tax cuts (see www.polyeconomics.com).

This curve can be drawn for any level of government; but the shapes will differ in essential ways: *the lower the level of government, the lower will be the maximum potential tax revenue and the lower will be the tax rate that maximizes tax revenue.* The shape of the curve and the level at which the revenue-maximizing tax rate occurs depend on how easy it is for people to find ways to avoid paying the taxes imposed by the level of government that levies the taxes. For example, people can avoid paying taxes by moving away from the area in which the taxes are imposed. But, it is far easier to avoid taxation by moving from community to community than it is from state to state or in turn from country to country. More generally, *it is easier to avoid taxes the lower the levels of government imposing the taxes, hence lower levels of government have lower revenue-maximizing tax rates and lower maximum potential tax revenue.*

Figure 3 presents two curves. The curve from Figure 2 is repeated in Figure 3 to provide a benchmark curve for a higher level of government, in this example, “state government”. The second curve shows relatively smaller tax rate/tax revenue possibilities for the lower level of government, in this example, “local government”. As shown in Figure 3, the tax rate that maximizes tax revenue for the local government is shown as X_2 and the maximum tax revenue is shown as $MAX REV_2$. Note that $X_2 < X_1$ and $MAX REV_2 < MAX REV_1$.

Because states compete for high-income wage earners and high-profit businesses, they must keep their tax rates in line with those of other states or risk losing revenue. For example, if the State of Wisconsin were to raise its income tax rates, some people might decide to move to a state where tax rates were lower. In other words, the U.S. federal government finds it easier to collect tax revenue within the state of Wisconsin than does the state government of Wisconsin. That is, unlike state taxes, federal taxes are not escapable by interstate movement.

This relative inability to collect taxes for social programs makes it harder to finance these programs at the local level, even when that is the most efficient place to make such decisions. If the responsibility for health care, schools, welfare, mass transit, and other social services is shifted from the federal government to state and local governments, and this shift is accompanied by reductions in or elimination of revenue sharing, Figure 3 shows the resulting inefficiency. Such a policy transfers the burden of financing those services to governments with lesser ability to levy and collect taxes; hence the quality and quantity of local public services must fall.



This is a variant of the classic “free-rider” problem. Because some beneficiaries of the public good can merely move across the tax boundary, the ability of local decision-makers to achieve efficiency by equating marginal benefits and marginal costs is diminished. This “free-rider” problem, combined with the impulse of communities to compete for residents and firms through lower tax rates, will squeeze public services to an inefficiently low level: a “Race to the Bottom”.

A public policy that combines (A) local decision-making on the provision of public services by local and state governments with (B) revenue sharing from higher levels of government will mitigate such a race. A higher level of government can more efficiently generate tax revenue at the local level than the local taxing authority can by itself. That is, the tax imposed by the higher level of government cannot be avoided by moving from the locality, so the tax does not harm the locality by inducing free-rider behaviors.

Moreover, a revenue sharing policy does not necessarily redistribute income. If the tax revenues generated within the local tax base is simply collected more efficiently by the state than the local government could collect it, *and then returned to the local government*, there is no inherent income transfer between levels of government. The state can be thought of as providing a tax-collecting service - - *i.e.*, the higher level of government providing efficient tax collection within the city’s tax base - - and the city can be thought of as receiving its own tax revenue from that service-provider to cover its costs of local public goods. However, revenue sharing can run the risk of reducing the perceived marginal cost

of public projects; prudent management requires that cost-benefit analysis be brought to bear to achieve expenditure efficiency.

TAX HARMONIZATION

The problem of the "Race to the Bottom" was foreseen by the framers of the Constitution of the United States and of the Constitution of the European Union. In the "commerce clause" of the U.S. Constitution – the clause that assigns to Congress the power to regulate interstate commerce - the framers made an effort to recognize the United States as "one nation" and not a collection of competing territories, by preventing individual states from providing incentives that harmed the other states in the union. The clause disallows a business firm engaged in interstate commerce from gaining an artificial advantage in one state through a tax break or financing gimmickry. Its enforcement is an effort to prevent a race to the bottom generated by the iterative competitive responses of other states. This is clearly seen in the recent U.S. 6th Circuit Court of Appeals ruling in the case of *Cuno v. DaimlerChrysler* (Mazerov, 2005). In that case, the Court ruled that the investment tax credit granted against Ohio's corporate income tax violates the commerce clause. It was the latest in a long line of decisions holding that state laws that provide tax advantages to in-state business activity sometimes illegally harm interstate commerce.

Similarly, the EU Constitution calls for "tax harmonization" among member countries, and as a requirement for new members prior to joining. The economic principle is the same as in the U.S. commerce clause: migration of businesses and labor should result from natural comparative advantages and not from artificial inducements that individual countries provide. Absent enforcement of the tax harmonization principle, the temptation to compete on tax incentives will result in member countries being engaged in a race to the bottom with the inevitable result of being unable to raise taxes sufficient to fund their public sector, perhaps even to the detriment of the businesses they are attempting to attract.

CONCLUSIONS

The relationship between tax rates and tax receipts shown in Figures 2 and 3 is an application of a well-known relationship between price, revenue, and quantity along a demand curve: in the inelastic range, price and revenue are directly related; in the elastic range, price and revenue are inversely related; and only when elasticity is unity is revenue maximized. Since tax rates are simply a special type of price, there must be a revenue-maximizing tax rate. The greater the elasticity of the response to taxes, the lower is the revenue-maximizing tax rate. In turn, the smaller the region, the easier is tax avoidance and hence the greater the elasticity with respect to tax rates and the lower the revenue-

maximizing tax rate. While smaller government may be better at matching the government services to local needs, the larger government is better able to collect taxes.

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