https://doi.org/10.1017/S0265052506060171 Published online by Cambridge University Press

THE CONSEQUENCES OF TAXATION

By Joel Slemrod

I. Introduction and Motivation

Tax system design has consequences for prosperity and economic growth. These consequences matter for policy evaluation even if one is not a consequentialist—that is, even if one does not accept the view that the normative properties of alternative policies depend *only* on their consequences. Although these consequences are central to the mainstream economics notion of an "optimal" tax system, in many noneconomic treatments of what is appropriate taxation these consequences are nonexistent or appear as an afterthought.

The consequences of taxation depend crucially on the behavioral response of individuals and businesses to the tax system. Loosely speaking, the more the tax system induces individuals and businesses to alter their behavior, the greater is the social cost of raising revenue. While, traditionally, economists have focused on the behavioral response of labor supply, saving, and investment—sometimes called "real" responses—in recent years the public finance community has recognized that *all* the behavioral responses to taxation, including avoidance and evasion, are symptoms of inefficiency. According to this view, it is the responsiveness, or elasticity, of taxable income that determines the social cost of collecting revenue. The social cost, in turn, sets the trade-off between the fairness of the tax distribution and the efficiency consequences of taxation—the trade-off that frames the modern economics discussion of the appropriate level of tax progressivity. In this essay, I address how the new view of the efficiency consequences of taxes, and the view's emphasis on the technology of tax collection, affects how one thinks about the appropriate level and distribution of the tax burden.

II. Taxation, Prosperity, and Progressivity

Economists' attempts to address the appropriate distribution of the tax burden can be divided into two eras. Until the early 1970s, the discussion was dominated by the search for the proper principles to guide progressivity, with the leading contenders being the benefit principle and the ability-to-pay principle, the latter often leading to arguments over what tax system equalizes individuals' levels of "sacrifice." Under benefit principles, taxes were conceived as a quid pro quo for what government

© 2006 Social Philosophy & Policy Foundation. Printed in the USA.

provided, and this approach explicitly ruled out purposeful redistribution by the government as a whole. Ability-to-pay theories argued from the premise that the tax system should extract the minimum amount of sacrifice from the population and the plausible but unprovable assertion that a dollar of tax payment causes less sacrifice for higher-income families. These theories could certainly justify a substantial amount of progressivity, but the difficulty of comparing sacrifice across individuals and the lack of a compelling argument about exactly how, if at all, sacrifice should vary across individuals made quantitative policy pronouncements—pronouncements about exactly how much progressivity is appropriate—impossible.

The modern era began in 1971 with the publication of James Mirrlees's seminal article on optimal tax progressivity.[1] In this article, he posed the problem as maximizing a social welfare function that depends on individual utilities, weighted so that marginal social utility declines with income in a way to be specified by the analyst. The approach is thus consequentialist, in that policies are evaluated based only on their effect on individuals' well-being (utility). It is more general than simple utilitarianism, in that social welfare may depend not only on the sum of utilities, but may give more weight to some utilities (the lower ones) than to others; the more concave is the social welfare function, the more favorably evaluated are policies that sacrifice the simple sum of utilities for a more equal distribution of utilities. In this framework, high marginal tax rates effect more redistribution, but provide higher disincentive to work and earn income, so that individuals work less than the amount at which the marginal social product just equals the opportunity cost of the leisure forgone. For example, someone who believes policies should maximize a very concave social welfare function may be inclined to institute a new, high tax bracket for millionaires, but in this framework he must consider that the revenue thereby raised (which could be used to reduce taxes or provide transfers to low-income people) will also induce the millionaires to withdraw from the labor force, hire accountants to reduce taxable income, and pursue a host of other behaviors that would, in the absence of the new tax rate, be unattractive to the millionaires and are, from a social point of view, wasteful.

Thus, according to the modern view, the optimal extent of progressivity reflects a trade-off between equity and efficiency. What limits progressivity is the economic cost of progressive taxation, which arises from the disincentive it provides to all the activities that people would otherwise engage in to increase their income, and the incentive it provides to all the activities that people would otherwise not engage in to reduce their tax liability. This is sometimes called a moral hazard.

[1] James Mirrlees, "An Exploration in the Theory of Optimum Income Taxation," *Review of Economic Studies* 38, no. 2 (1971): 175–208.

https://doi.org/10.1017/S0265052506060171 Published online by Cambridge University Press

https://doi.org/10.1017/S0265052506060171 Published online by Cambridge University Press

Noneconomist commentators have recognized, but not stressed, the efficiency costs of progressive taxation. The philosopher Thomas Nagel worries that redistribution will undermine the incentives for the talented to produce wealth.[2] The legal scholar Richard Epstein, who is otherwise dismissive of the optimal progressivity approach,[3] allows that a progressive tax system, by causing economic damage, makes us weaker in dealing with foreign affairs, "since it could lead to reductions in defense spending in settings where God favors big battalions."[4] Epstein's argument for a flat, nongraduated tax-rate schedule seems to rest on the idea that administrative difficulties and arbitrariness win the day: "[T]he simplicity of a pro rata rule seems evident in its relative immunity from political machinations" and therefore "in general the added complexity does not seem to be worth the candle."[5] Determining whether the additional redistribution made possible by a graduated tax system is "worth the candle" is indeed the objective of the empirical public finance program, which seeks to come up with quantitative estimates of the efficiency cost of increasing progressivity. In this context, one may note that Shlomo Yitzhaki, Joram Mayshar, Michael Lundholm, and I have calculated that the increase in social welfare (the presumed objective of policy) from having two tax brackets rather than one is small, absolutely and relative to the gain in social welfare from having a flat-rate tax compared to a lump-sum tax.[6] Note, though, that this finding does not apply directly to Epstein's analysis, since Epstein favors a flat tax with *no* demogrant.[7]

The moral hazard that gives rise to inefficiency is not an inevitable cost of progressive taxation. Rather, it arises because of a *technical difficulty* of tax administration—the difficulty of measuring the unalterable aspects of individuals that lead to differential income-earning potential—call it their "abilities." If abilities could be measured, then tax liability could be based on this measured ability. Because, by assumption, ability is not alterable, this tax causes no moral hazard and no efficiency cost. Of course, certain parental decisions do affect children's ability, and over generations an ability tax will distort these decisions, so an ability tax would not be

[2] Thomas Nagel, *Equality and Partiality* (Oxford: Oxford University Press, 1991).

[3] "These models assume that interpersonal comparisons of utility can be made between strangers, that charitable activities do not matter much in the overall picture, that variations in administrative costs are small under all relevant systems, that the aggregation of wealth for investment purposes does not depend on the choice of taxation regimes, and that public-choice problems do not create serious impediments to sound government policy." Richard A. Epstein, "Can Anyone Beat the Flat Tax?" in Ellen Frankel Paul, Fred D. Miller, Jr., and Jeffrey Paul, eds., *Should Differences in Income and Wealth Matter?* (Cambridge: Cambridge University Press, 2002), 163.

[4] Ibid., 165.

[5] Ibid., 157.

[6] Joel Slemrod, Shlomo Yitzhaki, Joram Mayshar, and Michael Lundholm, "The Optimal Two-Bracket Linear Income Tax," *Journal of Public Economics* 53, no. 2 (February 1994): 269–90.

[7] A "demogrant" is a fixed payment to all households, a payment that is invariant to income but might depend on marital status.

completely nondistortionary, but it would be less distortionary than an income tax that also distorts decisions made during one's own life.

If ability cannot be measured, then implementing a progressive tax requires basing tax liability on something that is correlated with ability. One such correlate is income. By basing tax liability on income, the tax burden is positively correlated with ability or potential income but, as an unavoidable by-product, inefficiency arises because income can be affected by individual decisions.[8]

Thus, the cost of taxation—and therefore optimal progressivity—depends on the technical feasibility of tax systems that can minimize the distorting effects of taxation.

Given that we are limited to distorting (i.e., inefficiency-causing) taxes, what is the source of the efficiency cost of taxation? In the Mirrlees framework, it is how substitutable people consider goods and leisure to be. If goods and leisure are viewed to be good substitutes, then any income or consumption tax that reduces the real wage—the terms at which an hour of leisure can be converted into goods—will cause a relatively large reduction in labor supply, and a relatively high efficiency cost per dollar of tax revenue raised. The attempt to tax income—or its fruits, consumption—will cause people to forgo market (taxable) work for leisure. If, alternatively, people do not view leisure and goods to be good substitutes, a tax that reduces the real wage will not induce people to work much less, and the efficiency cost per dollar of revenue raised will be relatively low.

Optimal progressivity thus depends on a particular characteristic of people's tastes. At first blush, it may seem odd that something so profound—how redistributional the tax-and-transfer system should be—should depend on something so prosaic. Moreover, this prosaic aspect is usually considered by economists to be immutable. Outside of economics and even within some corners of economics, whether tastes are immutable is of course controversial. Very recently, however, the emphasis on

[8] Some ingenuity has gone into thinking about how to design a tax system in which tax liability is correlated with potential income but in which the cost from moral hazard is minimized or eliminated. One suggestion is to base tax liability on wage *rates* rather than wage *income*. At first blush, this seems promising, because unlike income one's wage rate does not depend on how much labor one supplies to the market. A key problem, however, is that a person's wage rate certainly depends not only on his or her ability but also on the amount of effort the employer expects the employee to provide. When the effort per hour of work varies across jobs, the choice of job itself becomes a decision that will be influenced (i.e., distorted) by a wage rate tax. Another idea is tagging, in which the tax liability depends not only on income but also on relatively (and preferably completely) unalterable characteristics of the individual that are correlated with income. For example, imagine that income was highly correlated with one's caste, and that one's caste was unalterable. By granting lump-sum subsidies to the lower castes and levying lump-sum taxes on the higher castes, a given amount of redistribution can be achieved with lower marginal tax rates on income. This system of differential lump-sum taxes was apparently in use in the Middle Ages, when there were differential levies on serfs, vassals, and lords, and the chance of moving from one class to another was negligible.

https://doi.org/10.1017/S0265052506060171 Published online by Cambridge University Press

tastes as the source of inefficiency has given way to a broader view that I will discuss next.

III. The Postmodern Approach: The Elasticity of Taxable Income

The notion of a behavioral elasticity occupies a central place in the economic analysis of taxation.[9] Undergraduate textbooks teach that the incidence of a tax depends on the relative elasticity of supply and demand, and that the excess burden of a tax per dollar raised is proportional to the sum of the compensated elasticities of demand and supply. Graduate textbooks teach that the optimal pattern of commodity taxes depends on the matrix of compensated cross-elasticities of demand, and that the optimal progressivity of the income tax depends (inversely) on the compensated elasticity of labor supply. Revenue estimators doing "dynamic" analysis need to take into account how the tax base contracts or expands as the tax rate changes. Because of their central importance, an enormous amount of effort has gone into coming up with quantitative estimates of behavioral elasticities. As a result, the economics literature is chock-full of estimates of the elasticity of behavior X with respect to its tax rate, with one or the other elasticity being important for the question at hand.

Until recently, the central behavioral response parameter was the labor supply elasticity. In a static model where people value only two commodities—leisure and a composite consumption good—the real wage in terms of the consumption good is the only relative price at issue. This real wage is equal to the amount of goods that can be consumed per hour of leisure forgone (or, equivalently, per hour of labor supplied). At the margin, substitution possibilities, and therefore the excess burden of taxation, can be captured by a compensated labor supply elasticity, the percentage change in desired hours for a 1 percent change in the after-tax real wage rate, holding income or utility constant.

With some exceptions, the profession has settled on a value for this elasticity close to zero (i.e., no response at all of aggregate labor supply to the after-tax wage rate) for prime-age males, although for married women the responsiveness of labor force participation appears to be significant. Overall, though, the compensated elasticity of labor appears to be fairly small. In models with only a labor-leisure choice, this implies that the efficiency cost of income taxation is bound to be low, as well.

Although evidence of a substantial labor supply elasticity has been hard to find, evidence that taxpayers respond to tax system changes more generally has decidedly not been hard to find. Because, income effects aside, *all* responses to taxation are symptoms of inefficiency (because they

[9] This section draws on Joel Slemrod, "Methodological Issues in Measuring and Interpreting Taxable Income Elasticities," *National Tax Journal* 51, no. 4 (1998): 773–88.

https://doi.org/10.1017/S0265052506060171 Published online by Cambridge University Press

would not have been undertaken absent taxation), these findings raise the possibility that the efficiency cost of taxation is, after all, high and researchers have just been looking for evidence in the wrong place. Because all of these responses are reflected in changes in the tax base, or "taxable income" in the parlance of the U.S. income tax system, the key parameter becomes the *elasticity of taxable income*. It is usually expressed as the percentage change in taxable income in response to a percentage change in the net-of-tax rate, or one minus the marginal tax rate (the fraction of income one keeps after taxes, at the margin).

If the modern era of the economics of taxation began with Mirrlees, the beginning of the postmodern era may be marked in the early 1990s, when both the theory and the empirical analysis of taxation began to focus on the elasticity of taxable income. Lawrence Lindsey was one of the first to point out that the 1981 top rate cut in the Economic Recovery Tax Act of 1981 from 70 percent to 50 percent coincided with a very large increase in the share of income reported to the IRS by the top 1 percent of the income distribution.[10] He argued that the tax cut was a principal cause of this increase, as it reduced the penalty for receiving (or, to be precise, reporting) taxable income, and he estimated the elasticity of taxable income with respect to the net-of-tax share to be between 1.6 and 1.8.[11]

Economists Daniel Feenberg and James Poterba used tax return data to calculate a time series of inequality measures that focuses on high-income households. Using interpolations of aggregated tax return data, they calculated the share of adjusted gross income (AGI) and several components of AGI that were received by the top 0.5 percent of households arranged by income. After being approximately flat at about 6 percent from 1970 to 1981, in 1982 the value began to increase continuously, reaching 7.7 percent in 1985. It then jumped sharply in 1986 to 9.2 percent. Feenberg and Poterba argued that this pattern is consistent with a behavioral response to the reductions beginning in 1981 in the tax rate on high-income families.[12]

Probably the most influential contribution to this literature was provided by Martin Feldstein, who investigated the high-income response to

[10] Lawrence B. Lindsey, "Individual Taxpayer Response to Tax Cuts: 1982–1984," *Journal of Public Economics* 33, no. 2 (1987): 173–206.

[11] An elasticity of taxable income of 1.6 means that an increase in (one minus) the marginal tax rate of 1 percent would cause taxable income to go up by 1.6 percent. For example, consider a taxpayer who reports a taxable income of $100,000 and who has a marginal tax rate of 0.3 (30 percent). A cut in the marginal tax rate to 0.25 would increase one minus the marginal tax rate from 0.7 (1 – 0.3) to 0.75 (1 – 0.25), or by 7.1 percent. If the elasticity of taxable income is 1.6, reported taxable income will rise by 1.6 times 7.1 percent, or 11.4 percent, increasing it from $100,000 to $111,400. If the average tax rate is equal to the marginal tax rate, then tax revenue falls from $30,000 (0.3 times $100,000) to $27,850 (0.25 times $111,400), or 7.2 percent; with no behavorial response, tax revenue would have fallen by 16.7 percent (from $30,000 to $25,000).

[12] Daniel Feenberg and James M. Poterba, "Income Inequality and the Incomes of Very High-Income Taxpayers: Evidence from Tax Returns," in James M. Poterba, ed., *Tax Policy and the Economy*, vol. 7 (Cambridge, MA: MIT Press, 1993), 145–77.

https://doi.org/10.1017/S0265052506060171 Published online by Cambridge University Press

https://doi.org/10.1017/S0265052506060171 Published online by Cambridge University Press

the Tax Reform Act of 1986 using tax return panel data that follows the same set of taxpayers from 1979 to 1988. He concluded that the 1985–1988 percentage increase in various measures of income (particularly taxable income excluding capital gains) was much higher, compared with the rest of the population, for those high-income groups whose marginal tax rate was reduced the most. Based on this finding, he estimated that the elasticity of taxable income with respect to the net-of-tax rate is very high, between 1 and 3 in alternative specifications. To put this into perspective, if the elasticity is greater than $(1 - t)/t$, where t is the tax rate, then increasing the tax rate will shrink the tax base so much that revenue will actually decline.[13] Given a top tax rate of 0.35, the upper-end range of Feldstein's estimate thus suggests the possibility that tax rate increases would actually *decrease* revenue collected. If this is true, tax increases may benefit no one—certainly not the people who are subject to the higher tax rates, and perhaps not other people who might otherwise gain from the revenue collected from those to whom the higher tax rate was applied.[14]

Unfortunately, Feldstein's data set contained only a very small number of high-income observations; for example, the top income class on which Feldstein focuses most of his attention (non-elderly couples in the 49 to 50 percent tax brackets in 1985) contains only fifty-seven observations. Because of the wide variation among this group in their financial situation and in income changes over time, generalizing from such a small sample is problematic.

Gerald Auten and Robert Carroll made use of a much larger longitudinal data set, consisting of 14,102 tax returns for the same set of taxpayers for 1985 and 1989. Rather than rely on group means, as Feldstein did, they employed a multivariate regression approach, regressing the change in adjusted gross income between 1985 and 1989 against the change in marginal tax rate and a set of demographic variables. The regression approach allowed them to control for occupation as a proxy for demand-side, non-tax factors that affected the change in compensation over this period. They concluded that changes in tax rates appear to be an important determinant of the income growth of the late 1980s, but their central estimate of the net-of-tax price elasticity of 0.6 was much lower than Feldstein found, and far short of the Laffer-curve tipping point.[15]

[13] The idea that increasing tax rates could reduce revenue is usually associated with the economist Arthur B. Laffer, who in the mid-1970s raised the possibility of an inverse relationship between tax rates and government revenue. His arguments apparently were very influential in the thinking of soon-to-be President Ronald Reagan and his economic advisers. Laffer defends his argument in Arthur B. Laffer, "Government Extractions and Revenue Deficiencies," *Cato Journal* 1, no. 1 (1981): 1–21.

[14] Martin Feldstein, "The Effect of Marginal Tax Rates on Taxable Income," *Journal of Political Economy* 103, no. 3 (1995): 551–72.

[15] Gerald Auten and Robert Carroll, "The Effect of Income Taxes on Household Behavior," *Review of Economics and Statistics* 81, no. 4 (1999): 681–93. On Laffer, see note 13 above.

https://doi.org/10.1017/S0265052506060171 Published online by Cambridge University Press

All of the studies discussed so far focused entirely on the effect of tax reforms that lowered marginal tax rates. This is a problem if there are non-tax-related trends occurring simultaneously, a problem that could be ameliorated by the study of tax increases. Policymakers provided such an opportunity in 1990 and 1993. Carroll used a panel of taxpayers spanning the tax increases of the 1990 and 1993 tax reform acts to consider to what extent taxpayers change their reported incomes in response to changes in tax rates. The tax rate response was identified by comparing the changes in reported income of higher-income taxpayers to those of moderate-income taxpayers in the face of the change in the relative taxation of these two groups, controlling for many non-tax factors such as the taxpayer's age, occupation, and industry. Carroll concluded that the taxable income price elasticity is approximately 0.4, smaller than the earlier studies of the tax reductions in the 1980s, but nevertheless a response that is positive and significantly different from zero.[16]

Finally, Jonathan Gruber and Emmanuel Saez examined a long longitudinal data base of tax returns that spans a series of tax reforms in the 1980s. They found that the overall average elasticity of taxable income is approximately 0.4, that the elasticity of real income is much lower, and that the elasticity of tax-deductible preferences is the source of most of the overall elasticity. Strikingly, they found that the overall elasticity is primarily due to a more elastic response of taxable income for taxpayers who have incomes above $100,000 per year, who have an elasticity of 0.57, while for those with incomes below $100,000 per year the elasticity is less than one-third as large. The differential elasticity result suggests two things about optimal progressivity. One is that the optimal rate structure should feature a large demogrant that is rapidly taken away as income rises for low-income taxpayers (because the high implicit marginal tax rates this implies do not engender large efficiency costs), and lower marginal tax rates at higher income levels (because this group does respond significantly). Second, it highlights the importance of choosing enforcement and base-broadening measures that set the *optimal* elasticity for high-income individuals.[17]

There are staggering policy implications to whether the taxable income elasticity is 0.4, 3, something in between, or even something outside this range. Using an elasticity of 1.04, the lowest from his paper, Feldstein calculated the deadweight loss to be 30 percent of the revenue raised by the U.S. personal income tax; he estimated that a marginal increase in revenue achieved by a proportional raise in all personal tax rates would generate a deadweight loss of two dollars per incremental dollar of rev-

[16] Robert Carroll, "Do Taxpayers Really Respond to Changes in Tax Rates? Evidence from the 1993 Act," Working Paper No. 79 (Washington, DC: Office of Tax Analysis, U.S. Department of the Treasury, 1998).

[17] Jonathan Gruber and Emmanuel Saez, "The Elasticity of Taxable Income: Evidence and Implications," *Journal of Public Economics* 84, no. 1 (2002): 1–32.

enue raised; and he argued that repealing the 1993 increase in the top rate would reduce deadweight loss by $23 billion while *raising* more than $2 billion.[18]

If, however, the taxable income elasticity is 0.4, as Carroll as well as Gruber and Saez argue, rather than 1.04, then the deadweight loss is about 40 percent of what Feldstein calculated, the ratio of incremental deadweight loss to revenue raised is only about 20 percent as high, and repealing the 1993 top tax rate increase would certainly have reduced rather than raised revenue.[19]

IV. Policy Implications

In the standard model, where the focus is on the extent to which taxes cause people to substitute toward untaxed leisure, the behavioral elasticity depends entirely on people's preferences, in particular the degree of substitutability between the leisure and the goods that market work can provide. It is well understood that the elasticity of substitution need not be the same for all people, or even for the same person at different levels of income or at different consumption baskets; however, for analytical convenience it is often assumed that there is a single, indeed constant, elasticity for everyone.

As I have already discussed, the efficiency cost resulting from a tax increase also arises from such things as increases in tax evasion, in the use of tax shelters, in business reorganizations, and so on. What characterizes all of these responses is that the extent of response is itself subject to government control. For example, the evasion elasticity will depend on the enforcement system in place, the tax shelter response will depend on the extent of passive loss limitations and accelerated depreciation, and the extent of business reorganization will depend on how tightly drawn are the rules that govern under what conditions a corporation qualifies as a Subchapter S corporation.[20] The response of taxable capital gains realizations to the capital gains tax rate depends on the tax treatment of gains that remain unrealized at death.[21]

What this means is that the characterization of an optimal tax system must include not only the tax rate structure but myriad other policy instruments that subsume, but are not limited by, the definition of taxable

[18] See Feldstein, "The Effect of Marginal Tax Rates on Taxable Income."

[19] See Carroll, "Do Taxpayers Really Respond to Changes in Tax Rates?"; and Gruber and Saez, "The Elasticity of Taxable Income."

[20] Income of a Subchapter S corporation is directly attributed to the owners of the buskins, and is subject to individual income tax, in a manner similar to the way partnership income is taxed.

[21] If, as under current law, unrealized gains at death escape tax, and heirs owe tax as if they bought the assets at the price at the time of inheritance, there is an especially large incentive to bequeath assets with appreciated gains.

https://doi.org/10.1017/S0265052506060171 Published online by Cambridge University Press

https://doi.org/10.1017/S0265052506060171 Published online by Cambridge University Press

income. *The elasticity of taxable income will depend on the setting of these other instruments*. It is not an immutable function of preferences.

The notion that the taxable income elasticity is itself a policy choice has an important implication. If the taxable income elasticity is not set optimally, there is no presumption that the extent of tax progressivity that is optimal, given the current value of the other instruments, is also the global optimum. To be concrete, if the taxable income elasticity is "set" too high, so that the marginal cost of raising revenue is higher than it need be, then the optimal progressivity will appear lower than if the other instruments are set optimally; in general, optimal progressivity can be properly assessed only simultaneously with the instruments the government uses to control avoidance and evasion. Elsewhere I have constructed an example in which, taking as given the existing (but higher-than-optimal) taxable income elasticity, it is appropriate to reduce progressivity, but an even better outcome is to make the tax rate schedule *more* progressive while simultaneously undertaking tax system reforms (such as cracking down on tax shelters) that lower the taxable income elasticity.[22] Using the metaphor of Arthur Okun, the "leakage" in the revenue system that limits redistribution can (and should) be "fixed," albeit at some cost.[23]

Wojciech Kopczuk and I take this line of reasoning to its logical conclusion by arguing that choice of those policy instruments that affect the elasticity of taxable income should be made *optimally*. We investigate an example in which the taxable income elasticity is controlled via the broadness of the tax base: in choosing the broadness of the tax base, one is choosing the elasticity of taxable income (i.e., the broader the base, the lower the elasticity) and thus choosing the marginal efficiency cost of increasing progressivity. The optimal base broadness, and therefore the optimal progressivity of the tax system, depends on the administrative cost of expanding the tax base.[24]

The Slemrod-Kopczuk argument suggests that, looking across countries, countries with less administrative capacity would have higher elasticities of taxable income and thus would optimally keep the level and progressivity of taxes below that of other countries. Once one realizes that low-income countries generally have less administrative capacity, this can explain one of the most striking empirical regularities related to taxation: across countries, the higher the level of taxation, the more affluent the country. This is an embarrassing fact for those who maintain that high, and highly progressive, taxes are seriously detrimental to a country's

[22] Joel Slemrod, "Fixing the Leak in Okun's Bucket: Optimal Tax Progressivity When Avoidance Can Be Controlled," *Journal of Public Economics* 55, no. 1 (1994): 41–51.

[23] Arthur M. Okun, *Equality and Efficiency: The Big Tradeoff* (Washington, DC: The Brookings Institution Press, 1975), 91–95.

[24] Joel Slemrod and Wojciech Kopczuk, "The Optimal Elasticity of Taxable Income," *Journal of Public Economics* 84, no. 1 (2002): 91–112.

https://doi.org/10.1017/S0265052506060171 Published online by Cambridge University Press

prosperity. But the positive association between real income per capita and tax level does not necessarily establish a positive causal relationship running from taxes to prosperity. Indeed, it could also mean that citizens of high-income countries prefer more government, more even as a fraction of their income. Separating out the effect that taxes have on GDP per capita from the effect that GDP per capita has on the demand for what government does is extremely difficult. The Slemrod-Kopczuk argument adds yet another possible causal explanation for the empirical correlation. Low-income countries generally do not have the administrative ability to dampen the elasticity of taxable income, and therefore find it in their interest to restrain both the size of government and the progressivity of the tax system with which that size is financed. This provides another explanation for a positive association between tax levels and progressivity on the one hand, and a country's level of prosperity on the other. Neither causes the other, but variations in the administrative capacity to raise taxes affect both.

V. The Consequences of Taxation in an Open Economy

Another class of consequences of taxation arises in a world of multiple taxing jurisdictions that have economies that are open to cross-border movements of people and capital, both financial and physical. In this setting, one consequence of certain kinds of taxation is that it causes people and capital to flee the country.

To keep the problem manageable, first imagine a stylized setting in which only physical capital, but not people, is mobile across countries. Further assume that capital is perfectly mobile in the long run, meaning that it will always end up where the return it can earn (after taxes) is the highest. In this setting, Roger Gordon has shown that it is never optimal for a small, open economy to levy source-based capital income taxes (i.e., taxes on income deriving from capital located within its borders).[25] The reason is straightforward. Because capital is mobile, the small country can do nothing to reduce the after-tax return earned by its resident (or any) capital owners—because they can move elsewhere, they need not accept a lower after-tax return than is available in the rest of the world. The burden of the tax will ultimately be borne by immobile workers. Given that inescapable fact, it is better to directly tax workers by levying taxes on labor income. Why? In either case, workers bear the burden, but if the small, open economy tries to tax the income from domestically located capital, it drives some capital offshore, which, by lowering the productivity of the domestic labor force, lowers the equilibrium real wage rate. Thus, either levying a labor income tax or levying a tax on the income of

[25] Roger H. Gordon, "Taxation of Investment and Savings in a World Economy," *American Economic Review* 76, no. 5 (1986): 1086–1102.

domestically located capital will ultimately make workers worse off (this is inevitable in a small economy open to capital movements); but the negative economic consequence of capital flight will be avoided by taxing workers directly.

This result is critically dependent on the technology of tax administration, because it applies to a source-based tax only. If a country is restricted to taxing only income earned within its borders, doing so creates a disincentive to earn income domestically. If a country can tax on a residence basis (where the base is the worldwide income of its residents), then the tax does not cause capital flight. (It might cause individuals to change residence, but that is a different question.) Taxing on a residence basis is administratively difficult, however, especially without extensive information sharing and even tax system harmonization among countries.

The importance of smallness and openness for optimal tax policy raises some intriguing questions. Consider the following experiment. Take a country and determine the optimal progressivity of its tax system. Now split the country into two, for noneconomic (say, ethnic) reasons, and allow a high degree of capital, but not labor, mobility between the two countries. Is it right that now the optimal tax system changes, and in particular lowers, the appropriate degree of progressivity and renders any attempt to tax capital income a dominated strategy? It is interesting to note that this result depends on an implicit assumption that taxpayers act as free-riders and that their indifference about the uses to which their tax payments are applied extends to being indifferent about which country receives their tax payments. If, instead, there is "home bias" in tax payments, the stark implications of the stylized model may not apply. It is reasonable to suspect that home bias is less relevant to "stateless" multinational corporations, unless governments do not have anonymous tax policies, but instead relate government expenditure policies (such as good roads leading to the company's factories) to taxes received. By so doing, governments can provide an incentive for multinational companies to remit taxes to them when the companies would otherwise be indifferent.

Some argue, often based on an analogy to the benefits of competition among firms, that competition among governments leads to optimal outcomes. Certainly the ability of individuals to choose among jurisdictions as they choose among products can be beneficial when people have diverse tastes about the value of public goods, and it can provide pressure to reduce bureaucratic inefficiency, inter alia. There is, though, a problem with this kind of reasoning by analogy to private markets that has been pointed out by, among others, Hans-Werner Sinn. Sinn argues in his "selection principle" that governments undertake precisely those activities that people value but private markets fail to provide. He emphasizes that competition between governments undermines the ability of governments to overcome the failure of markets to provide insurance for certain

https://doi.org/10.1017/S0265052506060171 Published online by Cambridge University Press

life and career risks and to provide infrastructure that is productive but, because of the free-rider problem, will not be adequately provided in the absence of government.[26] The ability of people to move across jurisdictions after the life and career risks have been resolved, so that the fortunate can avoid paying the "premium" due in the social insurance scheme, undermines its viability.

VI. Endowment versus Tastes

A large body of work, mostly written by noneconomists, stresses that the normative implications of inequality depend on whether the inequality arises from differences in endowments or from differences in tastes. For example, the philosopher Ronald Dworkin has argued that distributive justice requires compensating individuals for aspects of their situations for which they are not responsible, but only for those aspects.[27] Inequality that arises from choices individuals make—which presumably arise because of differences in tastes—is not a concern. Dworkin wants to treat differently *ambitions* and *endowments*.

Another line of argument emphasizes the role of luck. The philosopher Daniel Shapiro, citing Dworkin, characterizes egalitarianism as follows: "Inequalities or advantages resulting from choice are just. On the other hand, when luck rather than choice rules, fairness dictates that the unlucky be compensated for their disadvantages."[28] The connection between the two lines of argument is that from an individual's point of view, one's endowment is a matter of luck. As Shapiro puts it: "Egalitarians believe that genetic or native endowments are unchosen, and thus that inequalities in income and wealth resulting from such differences are unchosen."[29] Of course, to the extent that people's productivity and opportunities depend on the educational decisions made for them by their parents (for example, were they read to as toddlers, were they allowed to go to the best college they were admitted to?), the ability that a person brings to his or her adulthood depends on a set of choices that might be influenced by the tax system.

The distinction among endowment, tastes, and luck does not arise in the Mirrlees framework, in which differences in endowment are the *only* source of inequality, there is no uncertainty, and everyone shares the same

[26] Hans-Werner Sinn, *The New Systems Competition* (Malden, MA: Blackwell Publishing, 2003), 5.

[27] Ronald Dworkin, "What Is Equality? Part 1: Equality of Welfare," *Philosophy and Public Affairs* 10, no. 3 (1981): 185–246; Ronald Dworkin, "What Is Equality? Part 2: Equality of Resources," *Philosophy and Public Affairs* 10, no. 4 (1981): 283–345.

[28] Daniel Shapiro, "Egalitarianism and Welfare-State Redistribution," in Paul, Miller, and Paul, eds., *Should Differences in Income and Wealth Matter?*, 7.

[29] Ibid., 11.

https://doi.org/10.1017/S0265052506060171 Published online by Cambridge University Press

preferences. Nonetheless, both uncertainty and taste heterogeneity can be introduced into the standard model to yield insights.

Variations in tastes for goods versus leisure at given levels of well-being could increase or decrease the inequality of income (as opposed to utility), depending on the correlation between ability and tastes. If high-ability people were more likely to be goods-lovers rather than leisure-lovers, that would tend to exacerbate income inequality. Whether it would also exacerbate utility inequality is impossible to say, because, with non-uniform preferences, interpersonal utility comparisons are difficult, if not impossible. The economist Agnar Sandmo has investigated optimal linear income taxation (also known as a negative income tax, when there is a grant made to everyone and a single rate levied on income received) when diversity of tastes (with respect to leisure versus goods) is the *only* source of inequality, as opposed to the situation in the standard optimal progressivity approach, where tastes are homogenous and ability is the only source of inequality. Sandmo first investigates the characteristics of an optimal regime of differential lump-sum taxes, in which tax liabilities could be tailored to individuals (i.e., differential) and also not dependent on any action of the individual (i.e., lump-sum). He concludes that, in the absence of further information about preferences, we cannot say whether such a tax system should be progressive or regressive. It depends on whether those with a high taste for work have a higher capacity for enjoyment, which Sandmo considers to be a value judgment. In the optimal linear (i.e., single-rate) income tax (where the tax is not lump-sum but instead based on income, and therefore is distortionary, and is tailored to individuals only because income varies), the same intuition applies, although in this case the amount of redistribution is limited by the distortionary effect of the marginal tax rate. In conclusion, there may exist a utilitarian case for redistribution even when individuals face exactly the same budget constraints so that there is perfect equality of opportunity. The case is a tenuous one, though, that depends on the unknowable correlation across individuals between their tastes for goods and leisure (on the one hand) and their ability to "produce" well-being from a given endowment (on the other). Without knowing this correlation, the amount and even the direction of optimal redistribution is ambiguous.[30]

Wojciech Kopczuk updates the Sandmo analysis by stressing heterogeneity in the propensity to undertake avoidance opportunities. He stresses that the standard optimal progressivity results need to be modified in the presence of tax avoidance because it affects the relationship between the taxable income and the social marginal utility of income. With avoidance, a low income may indicate a low skill level, as in the standard Mirrlees problem, or a high degree of avoidance (or some combination of the two).

[30] Agnar Sandmo, "Optimal Redistribution When Tastes Differ," *FinanzArchiv* 50, no. 2 (1993): 149–63.

https://doi.org/10.1017/S0265052506060171 Published online by Cambridge University Press

https://doi.org/10.1017/S0265052506060171 Published online by Cambridge University Press

Thus, a person with low taxable income may either be truly poor or else be able and willing to avoid a lot; only the former is a reason to transfer income. These differences reduce the correlation between income and ability, and therefore render a redistributive income tax less effective. The ultimate effect on optimal progressivity depends, however, on the relative welfare of avoiders. If, for example, tax avoidance reflects economic hardship, then avoiders are the ones who are worse off and tax progressivity should be higher than otherwise.[31]

Some theorists—for example, Hal Varian as well as Jonathan Eaton and Harvey Rosen—introduce luck into the standard optimal progressivity problem. They recognize that taxes provide valuable insurance for undiversifiable risks, and this provides a justification for more progressivity than otherwise. Moreover, mitigating the income inequality due to luck has less deleterious efficiency costs because the inequalities do not arise from a choice. In sum, while there may be a moral reason to differentiate inequalities due to hard work from inequalities due to luck, there is also a practical reason to do so, because the efficiency cost of offsetting the former is larger than for the latter. This is no coincidence. Effort is a choice, and a consequence of taxing away some of the fruits of that choice is that people will tend to choose less of it than otherwise.[32]

VII. Conclusion

The consequences of taxation matter for the optimal design of the tax system. Those consequences depend on behavioral responses to taxation, as summarized by the elasticity of taxable income. Although this elasticity depends on characteristics of utility functions—the elasticity of substitution between goods and leisure—it also depends on the avoidance technology, and on the response of government to avoidance behavior. It depends on the size of states, and the amount of tax coordination and harmonization. To some degree, the elasticity of response can be affected by government policies, and the government need not accept it passively, but rather should put in place policies that optimally determine it.

Business Economics and Public Policy, Stephen M. Ross School of Business, University of Michigan

[31] Wojciech Kopczuk, "Redistribution When Avoidance Behavior is Heterogeneous," *Journal of Public Economics* 81, no. 1 (2001): 51–71.

[32] Hal Varian, "Redistributive Taxation as Social Insurance," *Journal of Public Economics* 14, no. 1 (1980): 49–68; and Jonathan Eaton and Harvey Rosen, "Optimal Redistributive Taxation and Uncertainty," *Quarterly Journal of Economics* 95, no. 2 (1980): 357–64.