

Competitive Tax Policy

Joel Slemrod
University of Michigan

First draft: January 21, 2011
Conference draft: September 23, 2011

Prepared for the American Enterprise Institute. I am grateful for research assistance from Allison Paciorka and Zachary Rable, and for helpful comments from Alan Auerbach, Michael Devereux, and Kevin Hassett.

Calls for more competitive government policy, and in particular a more competitive tax policy, abound in Washington, DC. For example, maintaining competitiveness is prominent in the recent report of the “deficit commission” (The National Commission on Fiscal Responsibility and Reform), *The Moment of Truth*. It is mentioned early on in the section on guiding principles and values, where it is associated with investment in education, infrastructure, and high-value research and development. The term appears often in the report’s section on tax reform, where the corporate tax system is singled out as hurting America’s ability to compete, and a lower statutory rate and a territorial system are identified as the keys to improving it.

This paper assesses the role of tax policy in competitiveness and the role of competitiveness in tax policy. While I eventually address policy details and the lessons of economic theory, facts, and evidence, I begin by defining what the term competitiveness *means*.

1. What exactly is competitiveness?

The terms compete, competition, and competitiveness have a special resonance—and specific meaning—to economists. Because of the disconnect between the specific meaning to economists and the broad use of the term in popular debates, the term has been the source of much miscommunication.

We’re Number 1! Because competition is an essential element of most athletic endeavors, sports analogies often crop up. But what is the right analogy? A running race, where each nation is an entry? A race where the prizes depend on the order of finish, or one where the prizes depend only on how fast one runs? If the runner is a country, and the runner’s time is income per capita, then surely the latter analogy is more apt. The benefits of prosperity are not diminished by another nation’s greater prosperity. To be sure, some people may obtain psychological benefits from living in a country that is Number 1. More seriously, there may be military reasons for caring about a country’s relative economic prosperity, as it is economic well-being that forms the basis for

potential military might. But note that military might depends on national income, not on national income per capita. Regardless of their prosperity, small nations must seek strategic military alliances. Even the race against time analogy isn't quite right, because countries have complementary attributes, so that by working together and trading with each other the performance of all competitors can be enhanced. This is straight out of Adam Smith—global commerce allows every country to enhance its prosperity by concentrating on doing what it does best, and taking full advantage of what other countries do best.

In the past the notion of competitiveness has been associated with the relative size of a nation's export sector, or its trade surplus. This is dangerous¹ because maximizing either of these quantities is not a defensible policy goal. A declining trade balance may be a symptom of a problem, but it is not a reliable indicator of economic health. One can easily conceive of a declining economy with a thriving export sector—if, for example, the export sector is propelled by a favorable exchange rate caused by the drying up of attractive domestic opportunities. Conversely, the discovery of natural resources, while a boon to prosperity, often causes a decline in the manufacturing trade balance. In general, a nation's trade balance reflects its surplus of national saving over domestic investment. It is reasonable and appropriate that a country with favorable investment opportunities will draw upon the saving of all nations to finance it, causing a deficit in the current account. This is not a cause for alarm, rather for celebration.

Competitiveness of a country is also sometimes associated with the success of its resident multinational companies, sometimes measured by profitability share, sometimes by market share. But high multinational corporation profits could be achieved simply by a transfer from taxpayers to domestic corporations, a policy which most would agree is not appropriate and would not improve the fundamental soundness of the economy. With government subsidies, domestic firms could gain market share even in cases where the

¹ Indeed, Paul Krugman called competitiveness a “dangerous obsession” in an influential 1994 article in *Foreign Affairs*.

revenue gained is less than the additional cost of production, which is not in the national interest. As this argument comes up in a different form in the debate about corporate tax reform, I return to it below.

One striking aspect of the policy debate about competitiveness is that even detailed treatises on the subject often proceed in the complete absence of a definition of the issue at hand. Of course *The Economist* need not define each term of art every time it uses it. But the absence is troubling in, for example, the 116+ page report issued by the U.S. Treasury in 2007 entitled *Approaches to Improve the Competitiveness of the U.S. Business Tax System for the 21st Century*. The text refers to the “competitiveness of U.S. companies and workers,” (page i), the “competitiveness of U.S. businesses” (page iii and many places thereafter), and the “competitiveness of the U.S. economy” (page 2). Nowhere is there a definition of any of these terms.

Maybe it’s just me. Maybe it’s like what Justice Potter Stewart said about pornography, or what is obscene: "I shall not today attempt further to define the kinds of material I understand to be embraced . . . [b]ut I know it when I see it . . . " But I don’t think so. Using the term in so many different contexts begs some important questions: How does the competitiveness of a country depend on the competitiveness of its businesses? How does the competitiveness of a business depend on the competitiveness of its tax system?

In what follows I will address these questions, and will begin immediately by offering a definition of the competitiveness of a country, although admittedly not a concise or elegant one. A competitive economy would maintain (and preferably expand) the real incomes of citizens, fairly shared, in the face of global international markets and the policies of other countries, which vary in trade policy from a free trade orientation to aggressive promotion of exports, and vary in tax policy from domestically oriented and open to international cooperation, to aggressive courting of foreign investment, to the beggar-thy-neighbor behavior of tax havens.

This definition reveals that I believe that competitiveness, properly interpreted, is not a substitute goal for prosperity. The term competitiveness has value to the extent that it reminds us that the conditions under which we strive for prosperity have changed as the integration of national economies into the world economy has progressed. Just as the training regimen for a race at high altitude is different, it may be that how to achieve prosperity is different in a globally integrated economy.

2. How can competitiveness be measured?

If competitiveness is best thought of as the recipe for prosperity in a global economy, what is that recipe? A broad—though certainly not universal—consensus among economists would stress, among others, the following aspects of policy²:

1. Fiscal policy discipline.
2. Direction of public spending toward broad-based provision of key pro-growth, pro-poor services like primary education, primary health care and infrastructure investment and away from sector-based subsidies.
3. Tax reform – broadening the tax base and adopting moderate marginal tax rates.
4. Deregulation – abolition of regulations that impede market entry or restrict competition, and prudent oversight of financial institutions.

I do not have the space here to defend these recommendations or even to qualify them, with or without the lessons to be learned from the 2008-2009 financial crisis and the subsequent world recession. Most of what I have to say does not depend on accepting all of these ingredients to the recipe for prosperity.

If one accepts this broad path to prosperity, how does one measure the competitiveness of a country? Arguably the most prominent country measures of competitiveness in this spirit are published by the Davos-based World Economic Forum

² These are drawn from the recommendations associated with the “Washington consensus” articulated first in the late 1980s by John Williamson.

(WEF). Since 2005 the WEF has based its competitiveness analysis on the Global Competitiveness Index (GCI). To its credit, the WEF provides a succinct definition of competitiveness: “the set of institutions, policies, and factors that determine the level of productivity of a country.” Because in the long run, a country’s prosperity depends largely on its productivity, this definition is certainly compatible with the one offered in this paper.

The GCI is a weighted average of over 100 indicator variables, many of which come from surveys of executives, each measuring a different aspect of competitiveness. The components are grouped into twelve interdependent “pillars.” The tax system comprises two of the GCI indicators. One, called *total tax rate*, is an indicator within the 6th pillar “global market efficiency,” subheading “competition.” The other, called *extent and effect of taxation*, is based on executives’ answers to survey questions, and is placed into two parts of the GCI: half in the competition part of the global market efficiency pillar, and half in the 7th pillar labeled “labor market efficiency,” subheading “flexibility.”

In the 2010-2011 Global Competitiveness Index rankings, the United States ranks fourth best of the 139 countries covered, behind only Switzerland, Sweden, and Singapore, in that order. However, the U.S. ranks just 71st best on the extent and effect of taxation (Bahrain is 1st), and 89th best in the total tax rate indicator (Timor-Leste is 1st).³ The GCI reports do not provide enough information and documentation to perform counterfactual exercises such as what would happen to the U.S. competitiveness score and ranking if, for example, its corporate tax rate went from 35% to 25%, or from 35% to 45%, but one can infer that the effect would be minor: it is one tax of many that affects two out of more than 100 indicators of competitiveness. Moreover, one of the twelve pillars (the 3rd) is Macroeconomic Environment, of which three of the six components

³ Overall, the rank-order correlation between the GCI measure of overall competitiveness and its measure of the extent and effect of taxation (where rank one goes to the lowest-tax country) is 0.28, but falls to 0.21 if seven Middle Eastern oil countries are dropped from the sample. For the total tax rate, the rank-order correlation is 0.10 and 0.02 for all countries and without the oil countries, respectively. For reasons discussed below, these correlations are not informative about the policy questions of interest.

are government budget balance, government debt, and country credit rating.⁴ To the extent that a tax cut reduces revenue and increases the deficit, any positive effect on the tax components of the GCI would be to some extent offset by deterioration in the macroeconomic environment pillar of competitiveness.

One striking aspect of the World Economic Forum measure of competitiveness is that neither their definition of competitiveness, nor the construction of the competitiveness index, is particularly about the global economy. The definition and explanation of the definition do not mention how globalization affects the recipe for prosperity. Most of the 100+ indicators do not refer to the fact. In addition, and notably, although the GCI provides a ranking of countries, it does not accept the notion that a country's rank makes its residents better off, per se. It also suggests that, although tax reform may improve global and labor market efficiency, it will enhance a country's overall competitiveness only if this is not offset by deterioration in its macroeconomic environment.

We can quibble about the irresolvable question of whether tax policy comprises 1/50 of the recipe or 1/100 (or even 1/5 or 1/10) of the recipe for prosperity. Of course, such small fractions wound the egos of people in the tax business. Two responses are in order. First of all, just because the World Economic Forum says so does not make it true. Second, and more to the point, even if the tax system is just one of many aspects of the policy environment, this does not mean that we should not strive to get it right. We should. In that spirit I discuss next what kind of tax system is most conducive to prosperity, fairly shared, in a global economy-- competitiveness.

Before doing so, an elephant in the room must be acknowledged. If competitiveness is prosperity in global clothing, then why not use more direct measures of prosperity, such as real per capita GDP or GNP, to assess it? Indeed, the overall GCI ranking and per capita income are very highly correlated, with a rank-order correlation of 0.85. When assessing the impact of tax policy below, I will indeed use real per capita

⁴ The U.S. ranks 118th, 122nd, and 11th, respectively, on these three indicators.

income, but I readily acknowledge that even real income measures have shortcomings. They do not, for example, account for the value of non-market activities, such as child rearing, the quality of the atmosphere, or just plain leisure. Nor they do not account for the distribution of prosperity, so they are not measures of prosperity, *fairly shared*.⁵

3. Taxation and Competitiveness

3.1. No new criteria

Once we accept that a country's competitiveness is about how to maintain (and preferably expand) the real incomes of citizens, fairly shared, in the face of global international markets and the policies of other countries, we can make use of the economists' traditional criteria for evaluating policy while recognizing the reality of global competition among firms for profits, and among countries for investment, job opportunities, and tax revenues. Thus, recognizing global competition does not add a new criterion by which to judge tax policy, but rather it changes how any given policy meets those criteria. For the most part the policies that best balance these (often competing) objectives are still appropriate in a global economy, and the policies which are misguided in a purely domestic economy still look misguided in a global economy. Thus the required change in policy perspective is not radical, although some important new issues do emerge.

3.2. A low-rate, broad-base tax system

What kind of tax system achieves this objective? Economists who study taxation have a much more nuanced and sophisticated view than the Global Competitiveness Index of what kind of tax system is most conducive to prosperity, fairly shared, in a global economy. I begin with a bird's-eye view, and then discuss business and corporate taxes more specifically.

⁵ Nor would it be possible to develop a consensus measure of fairness, although value-free cross-country measures of the inequality in the distribution of income and wealth are available.

Most economists, and I, believe that the tax system that is most conducive to prosperity is a low-rate, broad-base tax system, one that in most cases minimizes the role of the tax system in private decision-making and consequently allows market forces to determine the allocation of resources. In a narrow-base income tax, resources are attracted to the tax-preferred sectors or forms of income, leading to an inefficient allocation of resources and therefore lower real income.

Before proceeding, I note that base broadening is another term of art that merits some clarification. Although I advocate a broad-base tax system, not *all* apparent additions to the tax base are advisable. Consider, for example, the recent move by several states to adopt some type of gross receipt tax. Compared to either a retail sales tax (RST) or a value-added tax (VAT), a gross receipts tax adds business-to-business sales to the aggregate tax base. Because the base is thereby larger, a gross receipts tax can collect the same amount of revenue with a lower rate than can a RST, VAT or, for that matter, a corporation income tax. But the broader base alone does not make it a better, read more efficient, tax. On the contrary, nearly all tax experts agree that a gross receipts tax is a less efficient way to raise revenue because it provides an inefficient incentive for vertical integration and generates capriciously varying tax penalties across goods—it is a broader base, but a worse base. Nevertheless, advocates of gross receipts taxes often trumpet the lower rate as a sufficient argument for its attractiveness.

Some base broadeners are not ill-advised per se, but are irrelevant. To make my point, consider the following extreme hypothetical example. Imagine that taxable income was replaced by a notion of “really broad taxable income” (RBTI?), which is equal to taxable income multiplied by ten. Then the same revenue could be obtained (putting aside the behavioral response of those who don’t figure this all out) as with a taxable-income-based levy, but with a 90% reduction in tax rates! Lest you think that this is a silly example, the same spirit applies to the Domestic Production Activities Tax Deduction, passed in 2004, which allows a deduction, now 9 percent, for qualified activities; technicalities aside, this is not essentially different from keeping the tax base as

is and applying a tax rate of 31.85 percent rather than the headline statutory rate of 35 percent.

Some policies that shrink the base, such as accelerated depreciation, apply in principle to all sectors, although the magnitude of the impact may vary across sectors depending on the mix of capital goods used in a sector.⁶ Other policies, such as depletion allowances for oil and gas well owners, are targeted to particular sectors.

The cost of following a high-rate, narrow-and-bad-base policy is likely to be even higher in an integrated world economy than in a closed economy. Because the global economy expands the menu of available investments, a sector that is relatively disfavored by the tax system will shrink more than otherwise; a sector that is tax-favored will attract even more resources than otherwise, resources which could have been put to use more productively elsewhere in the economy. Thus, unless there is a compelling reason for government to overrule the market, the imperatives of the global economy make a neutral tax system even more desirable.

Economic globalization also strengthens the argument for a tax system that avoids using the tax system as a means to a hidden industrial policy. On the face of it this may sound backwards. After all, in a closed economy it is more apparent that when tax preferences draw resources into one sector, they are drawn away from another domestic sector. But when the competition is German or Japanese firms, isn't it possible that tax breaks which increase business for domestic firms attract much of that business from foreign corporations? And isn't that in the national interest? Not necessarily. First of all, if the tax preference is offset by a business tax increase elsewhere, some other sector, also probably facing foreign business competitors, will likely be hurt. Not offsetting the tax preference with a tax increase elsewhere masks its true cost, and merely shifts the burden

⁶ Accelerated depreciation is of less value for short-lived assets, such as computers, that do not have long useful lives. On the other hand, bonus depreciation as recently enacted in the U.S. explicitly does not apply to very long-lived assets.

to future generations who will be shackled with some combination of higher taxes and higher deficits.

A streamlined, neutral tax system does not preclude all policies designed to alter market outcomes, nor does it accept that the status quo has achieved such a state of affairs. For example, federal subsidy of research and experimentation can be defended because there are spillover benefits to basic research, and an appropriately designed subsidy will encourage firms to carry out research whose social, but perhaps not private, return justifies its cost. Tax policies to address negative externalities such as pollution may be justified, as well.

Coming out for a streamlined, neutral tax system does not pin down exactly how to tax business. Later I will go through the economic arguments that are relevant to assessing this. But before doing so, I briefly examine, and dismiss, some unhelpful arguments that are common in tax policy discussions.

4. A Short Digression on Unpersuasive Economic Arguments

Unpersuasive Argument #1 (UAI): Lower taxes on base X are always better because they reduce the disincentive for businesses and individuals to do X.

In a narrow sense *UAI* is literally true. But, by *reductio ad absurdum*, it is not a serious argument because it implies that all taxes should be zeroed out to eliminate disincentives. Indeed, it suggests that the government should *subsidize* everything so that we get more of everything, such as labor supply, investment, saving, and so on. The problem with this argument is that fiscal discipline is also a key part of the recipe for prosperity.

Ruling out *UAI* is important because it constrains what are acceptable arguments for tax cuts. In the absence of some kind of a revenue constraint, arguments for lower taxes on anything, any time, in just about any setting are appealing. However, with one exception discussed below, the only insightful way to evaluate tax systems is to compare systems of equal revenue yield. To counter by saying “we’ll instead cut spending” is

evasive and not helpful because governments face a budget constraint and to ensure prosperity, fairly shared, must undertake certain costly activities. The optimal extent of government spending is a central question that all societies must resolve, and in so doing it should be kept in mind that the true cost of government activity must account for the additional disincentives, and therefore inefficiency, that raising the taxes to fund these activities requires. But, as a matter of intellectual discipline, debates over tax policy should proceed in a revenue-neutral framework, because this forces the recognition that, while lowering taxes on base X may increase X, making up the lost revenue by raising taxes on base Y and Z will reduce the incentive to do these things. A good tax system needs to balance these disincentives.

Unpersuasive Argument #2 (UA2): Policy X is better than our current policy because most other countries do X.

Other countries face different economic environments, have a citizenry with different preferences regarding what government should provide and how they should tax themselves, and often flat-out make poor decisions. For these reasons simply mimicking what other countries do is not a compelling way to make policy choices. In addition, it is intellectually disingenuous to advocate policy X (say lower corporate tax rates—see below) because, say, France and Sweden do this, while ignoring the policy implications of the fact that these countries also have policy Y and Z (say national health insurance and much higher tax-to-national-income ratios), policies that the advocates of policy X in the U.S. would dismiss out of hand.

To be sure, in a global economy the U.S. cannot ignore other countries' tax policies, because they may affect our prosperity and, more importantly, may affect what is appropriate U.S. tax policy. In what follows I will take this issue seriously, but not by simply selectively assuming that other countries have figured it all out and we have to get in step.

Unpersuasive Argument #3 (UA3): Policy X is a good thing because it increases corporate profits.

A profitable corporate sector is not an end in itself, although it may be an important instrumental component, or symptom, of a prosperous economy. For example, outright unconditional grants of taxpayer funds to corporations would increase profits and, especially if expected to be permanent, increase stock prices. But this would represent merely a transfer mostly to relatively wealthy shareholders from everyone else, and would be an unattractive policy. Transfers, or tax breaks, that increase the marginal incentive of businesses to invest or hire workers, as an unconditional transfer would not do⁷, may be appropriate in some cases, though.

5. Business Taxation

5.1. What is a business tax?

Carefully defining “business tax” is also a worthwhile exercise. In particular, distinguishing among i) remitting taxes to the government, ii) having a statutory liability to pay tax, and iii) bearing the burden of a tax, is important because of the central role businesses play in the tax remittance and collection process. The impetus behind the central role of business in tax remittance was most elegantly stated by Richard Bird, who wrote: “The key to effective taxation is information, and the key to information in the modern economy is the corporation. The corporation is thus the modern fiscal state’s equivalent of the customs barrier at the border.”⁸ Collecting taxes from businesses makes use of the economies of scale the tax authority obtains from dealing with a smaller number of larger tax-remitting units, many of which for other purposes have already developed sophisticated systems of recordkeeping and accounting.

⁷ Some economists have argued that, due to asymmetric information between firms and potential providers of outside financing, a firm’s internal funds are a determinant of investment. Hubbard (1998) reviewed the evidence for this hypothesis, but Erickson and Whited (2000) and a subsequent literature has rejected the importance of cash flow in investment as an artifact of measurement error.

⁸ Bird (2002).

One measure of the central role of business in the U.S. tax system is provided by Christensen, Cline, and Neubig (2001), who calculated that in 1999 businesses “*paid, collected, and remitted*” to all levels of government 83.8 percent of total taxes in 1999.⁹ Of the 83.8 percent, Christensen, Cline, and Neubig (2001) label 31.3 percent as “tax liability of business,” 8.1 percent as the “business as tax collector,” and 44.4 percent as “business as withholding agent.”

That a business entity writes a check to the IRS does not indicate anything about who bears the burden of a tax or about its effect on, for example, business investment or job creation. Remitting tax is not the same as bearing the burden of a tax, both because the tax burden can be shifted through the adjustment of market prices and because, in the case of businesses, it is not informative to say that businesses bear the burden of taxes when we want to know which people—the firm’s stockholders, bondholders, customers, and/or workers—are worse off because of a tax. Moreover, standard public finance theory holds that who or what entity remits tax or is legally liable for a tax, in the long run, will have no impact on either who bears the burden or the efficiency cost of raising revenue; only what *triggers* tax liability matters. For example, abstracting from administration and compliance issues, whether the retailer remits retail sales tax to the government or the customer remits it will not, in the long run, affect the price received by the retailer or the price paid by the consumer.¹⁰ Thus, focusing on changes in remittance or statutory liability can be seriously misleading about the ultimate impact of a tax reform. For example, replacing corporate income taxes with a value-added tax would not dramatically alter the remittance responsibility of the business sector. But all economists recognize that the impact of a VAT would be very different than a tax on business profits, and understand that the key is what triggers tax liability rather than whether the business must remit the tax in question. Regardless of what triggers tax, to be discussed at length

⁹ Shaw, Slemrod, and Whiting (2010) calculate a similar percentage for taxes in the United Kingdom.

¹⁰ Slemrod (2008) discusses how administration and compliance cost may alter this invariance property.

below, there are very good reasons for retaining a business-based tax remittance and collection system.

5.2. Should (business) income be taxed?

One of the most important and enduring issues in tax policy is whether tax liability should be based on income or consumption. Taxes on consumption, which take many different forms, including retail sales tax, value-added tax, the Hall-Rabushka flat tax, and personal expenditure tax, all share the quality that they levy no tax on the rate of return to saving or investment in excess of the riskless rate of return. I cannot resolve that argument here, so will proceed by first evaluating business taxation in the context of a comprehensive income tax, and then broadening the context to include tax systems that vary from this framework.

5.3. How should business income be taxed?

What kind of business tax base fits the spirit of a low-rate, broad-base income tax? For one thing, the tax base must be cleaned of provisions carved out solely to benefit specific companies or industries. This objective is behind the call of The President's Commission on Deficit Reduction (2010) to eliminate (over 30) general business credits and all (over 75) business tax expenditures, although not all of these fit nicely into this category. Sector-specific tax benefits generally lack a principled economic justification and therefore cause resources to flow to less efficient uses, reducing national income. A principled commitment to a less activist government requires leveling the playing field among businesses and, with only limited exceptions, letting private entrepreneurs and capital owners determine how the economy's resources are directed. The same argument applies to tax provisions that explicitly or implicitly favor certain kinds of capital assets or financing methods.

5.4. The U.S. Corporation Income Tax

Unfortunately the U.S. system of taxing business income fails to meet any of these standards. To see why, first consider how a progressive, comprehensive (i.e., all sources of income are subject to tax) income tax system should work. Business income would be attributed to the owners of the business and taxed at whatever individual tax rate is appropriate, given the total income of the owner. If non-owners have supplied capital to the business, the cost of obtaining the capital would be deducted from business income, and the income paid would be subject to tax at the appropriate tax rate of the supplier of the capital.

This is how it works now for all but the biggest public corporations. Any business with one hundred or fewer owners, which accounts for the vast majority of businesses but a relatively small fraction of business income, can retain the legal advantages of incorporation—principally limited liability and perpetual ownership—while not being subject to corporation income tax. The company's income is allocated to the owners and added to their individual taxable income. However, an incorporated business (and since 1997, an unincorporated business so electing) is subject to the corporation income tax and its graduated rate structure, which subjects annual taxable income up to \$75,000 to first a 15 percent and then a 25 percent rate. Although the graduated rate structure of the corporation income tax mimics the graduation of the personal tax, the total income of the owner of a small business may put him or her well into the top (currently 35 percent) individual bracket, so that the tax relief afforded by the lower corporate rates cannot be justified on progressivity grounds. Thus, for the vast majority of businesses, the corporation tax is not a burdensome double tax, but rather is an option for tax reduction. This feature of business taxation could be eliminated either by restricting the ability of companies to opt into the corporation rate structure or by eliminating the low rates of tax on the first \$75,000 of income.

An entirely different system applies to the big, publicly owned companies that comprise only a few thousand of the several million businesses in the country but account for a large fraction of business activity. Publicly owned corporations cannot elect out of

the corporation income tax. This produces an odd system in many ways. First, it subjects the corporation's income to what is effectively a flat rate of 35 percent (the tax benefits of the lower rates in the bottom brackets are trivial compared to the income of public corporations), regardless of what tax bracket the owners of the corporation are in, and regardless even of whether the shareholders are tax-exempt entities.

The corporate tax system creates a host of well-known distortions. Although interest payments are deductible as a business expense but taxable to the lender, the taxation of equity finance does not follow this pattern. Corporations cannot deduct anything in recognition of the cost of attracting equity financing, but the equity providers (i.e., the shareholders) are taxed to some degree on the income they receive. This system causes inefficient incentives for corporations to raise capital by borrowing and to manage payments from the corporation to the shareholders in tax-efficient, but socially inefficient, ways. Finally, the two levels of tax, corporate and individual, generally cause the tax rate on business income to be higher than it is on other income and the cost of capital for corporate businesses to be higher than it is for other businesses, neither of which is justifiable. Mitigating the double taxation of income flowing through corporations would lower the cost of equity capital to domestic corporations, reduce the tax bias toward debt finance, and at the same time move the tax system in the direction of a comprehensive income tax that taxes all income once and only once.

An important function of the corporate income tax is a "backstop" to the individual income tax because in part it applies to the labor income of corporation's principals. If the corporation tax were to be abolished, taxpayers could shift what is essentially labor income to the corporate sector and receive it free of tax, while financing their consumption via loans from their companies.¹¹

¹¹ Of course this argument applies to companies owned by domestic residents, not to foreign-owned companies; however, levying no corporation income tax on the latter would invite domestic individuals to establish corporations that are nominally foreign-owned but are really controlled by domestic taxpayers.

5.5 Income tax alternatives

One sensible approach to these problems is to allow a personal tax credit to shareholders for some or all of corporation taxes paid. Many countries have a system like this already, although, by *UA2*, that in itself does not make it good policy. In 2003, the United States adopted a different approach when the personal tax rate on dividends and capital gains was capped at 15 percent, compared to a maximum 35 percent rate on other income. There are two problems with this approach. First, it moves the system toward one where the rate of tax on corporate income is 35 percent regardless of the tax situation of the owner, which is inconsistent with progressivity and certainly inconsistent with the oft-heralded idea of making stock ownership attractive to lower-income people. Second, it cuts the personal tax on corporate-source income while doing nothing to ensure that the corporate-level tax was in fact paid. Notably, the original Bush administration proposal in the 2003 legislation linked the two levels of tax by making dividends tax-free (and not just capped at 15 percent) only to the extent that the dividend-paying corporation had actually remitted corporation income tax. Linking the two taxes would ensure that, in the quest for attaining a single level of tax on corporate income, we do not end up collecting no tax at all; this is an important policy issue in light of the apparent but difficult-to-document proliferation of abusive corporate tax avoidance schemes that drain corporate tax collections.

5.6. More radical income tax alternatives

There are, to be sure, other intriguing proposals for rationalizing the taxation of corporate income. For example, under the comprehensive business income tax (CBIT), both corporate dividends and interest payments are tax-free at the individual level but, in parallel, corporate interest payments are no longer a deductible business expense, putting them on a level playing field with dividends and eliminating the distortions to financial behavior the tax system now produces. Under the CBIT, all business income is taxed at 35 percent, as opposed to the current system, under which, for the vast majority of

businesses, the income is taxed at the appropriate tax rate of the owner. As with the Hall-Rabushka flat tax, under a CBIT there is no distinction between corporations and other businesses.

5.7. Taxing business--but not business income

The CBIT eliminates the tax consequences of payments of dividends and interest (to the payer and the recipient) made by businesses, but leaves them in place for other transactions, including mortgage interest payments. One could go farther and eliminate the tax consequences of all financial flows, as occurs under a Hall-Rabushka flat tax. This would not cost as much revenue as one might first guess because it would not only exempt from tax interest receipts, but it would also disallow interest deductions. Because the latter on net are taken by taxpayers in higher tax brackets than those who receive interest payments, attempting to collect revenue on financial flows raises little or no revenue in aggregate. Removing the tax consequences of financial flows would eliminate a highly complex area of the tax law that tries to address the vast array of complicated financial instruments, such as zero-coupon bonds and swaps, but it raises difficult unresolved issues regarding the transition from the current system and how well it would integrate with the tax systems of the rest of the world.

Subjecting all businesses to tax at a single rate on a base with no deductions for interest payments and taking dividend and interest receipts out of a completely cleaned-up personal tax base is, with one important exception, exactly the Hall-Rabushka flat tax (or, with a graduated personal tax structure, the X-tax championed by David Bradford). The one exception is that under an income tax or a CBIT, businesses must depreciate the purchase of capital goods, while under the flat tax they can immediately write off expenses. In this way, income of all types can be taxed at the business source of income. As noted, taxing (only) at the business source affords considerable simplicity but does not easily accommodate a progressive distribution of the tax burden.

Another option is the Allowance for Corporate Equity (ACE) system, under which companies can deduct from their tax base an imputed normal return on their equity, making the tax treatment of equity essentially parallel to the tax treatment of debt at the business level. If the imputed rate of return is set appropriately, the ACE system provides the equivalent of immediate expensing of investment, so it—like the Hall-Rabushka flat tax—does not cause a disincentive to invest.

5.8. Measuring the tax disincentive to investment

As the discussion above suggests, the disincentive to invest provided by taxes depends on both the rate of tax and the definition of the tax base, especially the tax treatment of the cost of doing business.¹² An income tax should levy tax on net income (i.e., gross income or revenues, net of costs), so if the costs are mismeasured so is net income.

For capital investment the key cost of doing business is the depreciation of the asset, due to wear and tear and obsolescence. To correctly measure net income, depreciation for tax purposes of a capital good should equal the decline in the value of the asset over the year. For most assets, this is impossible to measure exactly, so the tax code provides tax depreciation schedules that apply to broad categories of assets. Before 1981, much effort went into trying to approximate true economic depreciation, so as to correctly measure net income, but since 1981 tax depreciation schedules have been used as a tool to affect aggregate investment. The more accelerated are tax depreciation allowances, the greater is their present value to the investing company, so that the disincentive to invest declines. The use of accelerated tax depreciation schedules as a fiscal policy tool that began in 1981 was withdrawn in TRA86, but has recently come back with a vengeance with the enactment of 50% “bonus depreciation” in 2001-2004,

¹² It also depends on the extent of investment tax credits and other factors.

and beginning again in 2008, with 100% bonus depreciation (i.e., immediate tax expensing of the cost of capital goods) for 2011 and 2012.

-Depending on the type of asset, acceleration of depreciation allowances can offset a substantial amount of the effect of rate changes. In the extreme case where the cost of acquiring capital assets can be deducted immediately upon purchase, known as expensing (or more recently as 100% bonus depreciation), it offsets *all* of the disincentive effect of tax on the incentive to invest. In essence, under this system the government contributes a fraction of all investment expenses equal to the tax rate and recovers the same fraction of all gross revenues generated. Any project that was worthwhile in the absence of this “silent partnership” role of the government will still be worthwhile in its presence.

The costs of hiring labor are essentially written off for tax purposes as incurred so that, by the same argument invoked above with regard to capital expensing, the corporate tax does not directly affect the incentive to hire labor. It may do so indirectly, though, if it affects the incentive to invest. More capital raises the productivity of labor, thus increasing the attractiveness of labor to firms.

It is important to distinguish between a business as the owner of a set of assets and as an ongoing operation because many tax reforms have differential effects on the value of existing capital assets and the value of newly purchased capital assets. As an example, consider the impact of moving toward a tax system with more accelerated depreciation (in the extreme, toward immediate expensing) for newly purchased assets. That change would tend to increase the after-tax profitability of newly purchased assets, and therefore make new investment more attractive. However, it would also make existing assets (that must, in the absence of transition rules, still be depreciated under the preexisting law) less valuable in comparison to comparable assets purchased once the new accelerated depreciation rules are in place. Whether any company’s share price will rise or fall in the wake of this tax change depends on the relative importance of existing

(sometimes called “old”) capital and the prospects of profitable future investment (“new” capital) as well as a wide variety of other factors.

For this reason there may be a divergence between the kind of tax reform that is good for business, in terms of its share price, and the kind that is good for prosperity. In terms of the latter, the value of *new* capital matters because a higher value makes new investments more attractive. The shareholders’ interests depend on both the effect on new capital and the effect on the old capital they own, and so this is a case where the interests of the business shareholders and the stewards of the economy are not identical.¹³ The distinction between the share price impacts and the effect on the incentive to invest is especially important when the type of tax change being considered involves changes in depreciation schedules.

Put another way, reducing the corporation tax rate “wastes” some of the revenue cost because it applies to the income of capital already in place; this is essentially a grant of tax relief to businesses that, by *UA3*, is not good tax policy. In contrast, accelerated depreciation applies only to assets purchased after its date of implementation—that is why it erodes the value of existing capital.¹⁴

6. International Considerations

To this point I have for the most part assessed business taxation and the corporation income tax as if the U.S. economy is the only economy in the world. But the idea that the U.S. is part of a global—and globalizing—world economy is central to the concept of competitiveness. How, if at all, does the global perspective change things?

¹³ The impact on old capital depends critically on the transition rules that apply to the existing capital. If rules were adopted so that, looking forward, old capital would not be disadvantaged relative to new capital, no capital losses would ensue. This, though, would be a large drain on the revenues collected, and would require higher tax rates to keep a reform revenue-neutral.

¹⁴ Neubig (2006) argues that, because public corporations consider the impact of tax legislation on their earnings as reported on financial statements over and above the impact on their “true” after-tax income, they tend to favor corporate rate cuts over investment-incentive-equivalent accelerated depreciation. This is because in the short run the former will generate bigger increases in after-tax earnings.

6.1. The economic theory of small open economy taxation

Economic theory shows that, in stylized circumstances, small open economies should levy *no* distorting tax on inputs to production that are perfectly mobile locationally. This proscription relies on the observation that, if there is at least one perfectly immobile input to production (say labor supply), this base can be taxed to raise all necessary revenue and can, indeed, be taxed with no efficiency cost resulting from repelling production. If minimizing such efficiency cost is the sole objective of tax policy, then revenue can be raised with no efficiency cost by raising all revenue from taxing the immobile factor. Even if the government has distributional objectives (in the sense that it cares not only about national income but separately about the after-tax wage rate and the after-tax return to capital of its citizens) and even if labor supply is somewhat elastic, economic theory suggests that it is still optimal to levy no tax on the mobile base. This is because in a small, open economy all taxes will be borne in the long run by owners of immobile factors, so that attempting to tax the mobile factor will be ineffective in shifting the burden from capital to labor. And, because taxing these immobile factors directly avoids the efficiency cost of causing mobile factors to leave, this policy dominates taxing the mobile factor even if one has distributional preferences.¹⁵

6.2. International Income Shifting

The economic theory of taxation in a small, open economy rests on the fact that businesses and investors have options outside of any one country to locate real economic activity. In addition, multinational companies have considerable flexibility with respect to where, i.e. which countries, their worldwide taxable income appears and there is substantial evidence that they use this flexibility to reduce their total tax liability by

¹⁵ To be sure, as Sorensen (2007) discusses, there are caveats and exceptions to this theoretical result. For example, if there are “location-specific rents,” i.e. extra-normal returns to investment due to some unique aspect of a country, such as natural resources or profit-augmenting infrastructure, revenue can be collected from judiciously constructed tax systems without repelling capital investment.

shifting taxable income to low-tax countries. A wide range of income shifting techniques exists, from transfer pricing to inter-corporate borrowing to the use of conduit corporations. In some cases this income shifting is facilitated by the policies of other countries; indeed, some countries, generally referred to as tax havens, are essentially in the business of facilitating tax avoidance of multinational corporations.

From the point of view of the United States, when a multinational corporation chooses to report a dollar of taxable income in another country rather than in the U.S., this is a loss of national income. Indeed the loss exceeds one dollar, because the tax revenue would have to be made up by imposing distorting taxes that reduce the efficiency of the economy.

The incentives to shift taxable income across countries are, for the most part, driven by two things: i) differences in statutory tax rates and ii) the rules that constrain income shifting (and enforcement of those rules) put in place by the high-tax countries, where “high-tax” need not be very high relative to the essentially zero rates of tax havens. Generally speaking, these rules are such that it is easier for a multinational company to move taxable income to low-tax countries when it clearly *does* something there other than putting a plaque on an office building, thus making real activity more attractive in a low-rate country.¹⁶ This has been the business-model motivation behind Ireland’s 12.5 percent corporate tax rate—to attract taxable income and therefore tax revenue, but also to attract real business activity, as well.

Note that this perspective implies that those who argue for lower corporate taxes as a way to stem outward income shifting and revenue loss should also be for effective enforcement of rules that deter such shifting, but they are generally not. This reasoning applies to policy toward tax havens, jurisdictions that levy no or only nominal taxes and offers themselves as a vehicle for non-residents to escape tax—legally or not—in their country of residence. A tax haven can offer this service because it has laws and

¹⁶ Note that this connection between income shifting and real activity also makes the statutory rate relatively more important in attracting real investment than otherwise.

administrative practices that prevent the effective exchange of information on taxpayers benefiting from the low-tax jurisdiction.

There is considerable concern that tax havens are “parasitic” on the tax revenues of the non-haven countries, inducing them to expend real resources in defending their revenue base and in the process reducing the welfare of their residents. A 1998 OECD report concluded that “governments cannot stand back while their tax bases are eroded through the actions of countries which offer taxpayers ways to exploit tax havens [and preferential regimes] to reduce the tax that would otherwise be payable to them.”¹⁷ In sharp contrast to this longstanding concern about their deleterious effects, some economists have focused on a potentially beneficial role for tax havens. They note that, as discussed above, under certain conditions small open economies should levy no distorting tax on internationally mobile capital but that countries persist in so doing. In this context, tax havens are a device to save these countries from themselves, by providing them with a way to move toward the non-distorting tax regime they should, but for some reason cannot, explicitly enact. But tax havens induce wasteful expenditure of resources, both by firms in their participation in havens and by governments in their attempts to enforce their tax codes. In addition, tax havens worsen tax competition problems by causing countries to further reduce their tax rates below levels that are efficient from the viewpoint of all countries combined. The same economic logic that underlies the call for lower statutory rates to address taxable income shifting suggest that there be substantial attention paid—unilaterally and multilaterally—to defending countries’ revenue bases.

6.3. Territorial versus Worldwide Taxation

Many recent proposals for corporation tax reform include moving from our current worldwide system of taxing income to a territorial system. Simply put, under the

¹⁷ OECD (1998).

former system the worldwide income of U.S. individuals and corporations is subject to U.S. taxation, with a limited credit offered for income taxes paid to foreign countries and any residual tax due to the U.S. deferred until repatriation of the income to the U.S. parent company. Under a territorial system, the U.S. taxes only the income earned within its borders. In recent years developed countries have been moving toward territorial systems, but, by *UA2*, this observation should not substitute for a reasoned assessment.

At first blush moving the base of taxation from worldwide income to income earned within the U.S. seems like a narrowing of the tax base rather than a broadening.¹⁸ But we should be seeking the best broad base, not *any* broader base. The principal argument for moving to a territorial system is that it would improve the *business competitiveness*, a concept that is distinct from national competitiveness, of U.S.-headquartered multinational corporations operating in low-tax foreign countries. For example, if a U.S. and German vehicle company are both considering setting up a subsidiary in Ireland, both companies would owe the (low) Irish income tax, but only the U.S. company would owe (upon repatriation) a residual tax to their home country.

From a global perspective, a worldwide tax system may seem capriciously inefficient: why should multinational companies based in countries with worldwide systems face a tax-related relative disadvantage in low-tax countries? This seems as unjustifiable as facing companies with different tax rates depending on the first letter of their company name.¹⁹ Granted that this leads to an inefficient allocation of resources from a global perspective, is it also inadvisable for promoting U.S. prosperity? This is a trickier question. Just lowering taxes for some U.S.-based multinational companies fails

¹⁸ For complex reasons beyond the scope of this paper, many experts believe that moving to a territorial system with the same rate structure would not actually cost the U.S. much, if any, revenue. See CBO (2009, p. 245).

¹⁹ Indeed, this analogy, posed in Slemrod (1990), raises another issue in the debate about worldwide versus territorial systems. Just as in response to a first-letter-based tax system one would expect multinational companies to rename themselves, companies with substantial income in low-tax countries might change the country in which their parent company resides for tax purposes, often where it is headquartered, to a country with a territorial system. Why, holding constant where production and jobs are, one should care about where a company is headquartered, is controversial.

to be compelling by *UAI* and *UA3*. As Desai, Foley, and Hines (2009) have suggested, cross-border synergies might redound to make investment of U.S. multinational companies more profitable elsewhere, including in the U.S., perhaps leading them to expand their operations here. But nowhere have we argued that prosperity in the U.S. is better served when U.S.-based multinational companies invest in the U.S. relative to investment by foreign-based multinationals. U.S. workers employed by Toyota, Royal Dutch Shell, or Nestle USA have learned that a job is a job. Indeed, relatively speaking, for a U.S. multinational company a territorial tax system improves the relative attractiveness of investing in (low-tax) foreign countries investment relative to a U.S. investment, and so the net effect on the incentive to invest and hire workers domestically might be negative. This is not the same criterion as maximizing the prosperity of Americans, but might give some observers pause before supporting moving to a territorial system.

Another problem with a territorial system is that, as long as the U.S. has a high statutory corporate rate relative compared to many other countries (including tax havens), moving to a territorial system will greatly increase the incentive for outward taxable income shifting. While under a worldwide system shifting taxable income from the U.S. to a low-tax country in principle only postpones the residual U.S. tax liability until repatriation, under a territorial system it would be lost forever. Defending our revenue base, which is a component of prosperity, would require vigilant enforcement and more onerous rules than now in place.

7. The Corporate Tax and Prosperity: Facts and Evidence

Careful economic reasoning clarifies the costs and benefits of alternative ways of taxing corporate income. Relevant facts and empirical evidence provide context for U.S. policy choices and ideally can provide a quantitative sense for the stakes involved in tax reform. Next I review some key facts and evidence about corporate taxation.

7.1. Statutory corporate tax rates

The United States has one of the highest statutory corporate tax rates among developed countries, as shown in the first column of Table 1.²⁰ The U.S rate is substantially lower than it was 30 years ago, but corporate tax rates have been falling throughout the world at a faster rate than in the U.S.²¹ Perhaps surprisingly, in most other countries the amount of corporate tax revenue relative to total tax has increased over this period, the main exceptions being Germany, Japan, and the United Kingdom.

Both domestic determinants of corporate taxation and increases in international pressures for tax competition seem to be behind this trend.²² There is clear evidence that the corporate tax rate is insulated from a country's revenue needs: across countries, there is no association of the expenditure–GDP ratio with the corporate statutory rate and only weak evidence of a positive association with the average rate. There is suggestive, but not definitive, evidence that the domestic role of the corporate tax as a backstop to the individual income tax is important: across countries, there is indeed a strong association between the top individual rate and the top statutory corporate rate. Finally, there is intriguing evidence about the role of international competitive pressures on corporate taxation. Measures of openness are negatively associated with statutory corporate rates, although not with revenues collected as a fraction of GDP. Strikingly, larger, more trade-intensive countries do collect more corporate tax revenues, but this may be because these countries are more attractive venues for investment.

7.2. Marginal effective tax rates on new investment

As argued above, the statutory rate is only one component of the tax disincentive to business investment, and may be outweighed by the definition of the business tax base, in particular but not limited to the tax depreciation schedules. Calculating the tax

²⁰ The calculation of the statutory rate on corporate income is not completely straightforward. One has to deal with, for example, sub-national corporate levies and with regional subsidy programs.

²¹ The dispersion of corporate tax rates has also been falling during this period.

²² This evidence is analyzed in Slemrod (2004).

disincentive, called by economists the marginal effective tax rate on investment, or METR, is much more difficult than calculating the statutory rate. It is especially difficult to calculate METRs that are comparable across countries.

A recent careful and comprehensive cross-country calculation of marginal effective tax rates was done by Chen and Mintz (2008) for the Foreign Investment Advisory Service of the World Bank. It generally follows a widely-accepted methodology but, like all such calculations, must make certain assumptions to make the calculations tractable.²³ According to this study, the marginal effective tax rate on capital for the United States in 2008, the latest year the study covers, was 26.5 percent. This is slightly below the 28.7 percent GDP-weighted average METR, and puts the U.S. as the 18th highest of the 80 countries covered, and 7th highest among OECD countries.

Notably, the Chen-Mintz calculation takes account of not only corporate income taxes, but also sales taxes on capital purchases, assets taxes, and fees on financial transactions. Indeed, if only corporate income tax provisions are included, the U.S. METR falls to 16.2 percent, which ranks tied for 46th out of the 80 countries in the survey and 18th out of the 31 OECD countries in the study. Thus, according to Chen and Mintz, it is non-corporate taxes that keep the U.S. from having a lower-than-median METR, overall and among developed countries only. The second column of Table 1 presents the 2008 results, including bonus depreciation, for the corporate tax contribution to METRs.

A brief memo updating the 2008 calculations to 2009 by Chen and Mintz (2010) puts the overall U.S. METR at 35.0 percent, sixth highest in the world. The big increase between 2008 and 2009 is not, however, due to a change in U.S. tax law but rather a change in how the U.S. METR is calculated. The 2009 calculation excludes bonus depreciation, which allows half of the cost of capital goods purchased to be deducted in

²³ Among the most important are: 1) debt ratios and real interest rates are the same across countries, 2) intangible investments are not considered, 3) property taxes are not considered, 4) tax holidays are not considered, 5) international tax provisions are not considered, 6) it is assumed that favorable tax provisions are fully used under the assumption that companies are able to shelter income from tax.

the year of purchase, (which takes the METR for 27 percent to 35 percent), on the grounds that bonus depreciation is temporary. Note, though, that 50 percent bonus depreciation applied to investment made in 2008, 2009, and 2010. The Tax Relief, Unemployment Insurance Reauthorization and Job Creation Act of 2010 allows companies to immediately write off 100 percent of their cost of assets (expensing) placed in service after September 8, 2010 and through December 31, 2011, and has been extended through 2012. Expensing would, I surmise, sharply lower the METR for the U.S., putting it among the lowest of OECD countries.

Chen and Mintz (2008) also report the results of some analysis of whether cross-country variations in the METR and the statutory corporate tax can explain cross-country variation in inbound foreign direct investment (FDI). They report two regression specifications estimated for 69 of the 80 countries for which all the necessary data are available. The first specification estimates FDI as a share of GDP in 2006 against the 2006 value of the METR, the growth rate of real GDP lagged one year, and the concurrent inflation rate; the second regression adds as an explanatory variable the statutory corporate tax rate. In both specifications the METR has a negative effect on the FDI ratio that is statistically different from zero and economically non-trivial. In the second regression the statutory tax rate has a separate negative impact, but its estimated value cannot be distinguished from zero with statistical confidence.

For at least three important reasons these regression analyses cannot be taken as compelling evidence of the effect of taxation on business investment. The first is that such a cross-section analysis omits scores of other possible influences on FDI that vary across countries. To the extent that these omitted determinants are correlated with measures of the corporate tax system, as they often certainly are, the estimated coefficients that purport to measure the effect of the corporation tax in fact measure that plus some portion of the effect of all the correlated omitted determining variables. This serious flaw applies to all such cross-sectional analyses. Another problem is that, in a footnote, the authors note that they estimated several regression specifications, and report

in the paper only “the strongest results.” I infer from this caveat that other reasonable specifications did not produce the same statistically significant negative effect of the METR on FDI, thus weakening the inferred causal impact of this measure of the tax disincentive effects. Finally, the regression analyses address only inward foreign direct investment, while the METR would be expected to affect the incentive for all domestic investment, whether it is domestically-owned investment or inward foreign direct investment.

7.3. The effect of corporate taxation on real GDP and real GDP growth

The Holy Grail of policy analysis is to establish a compelling causal connection between the policy at issue and the ultimate variable of concern—a measure of prosperity such as real GDP per capita or growth in same, fairly shared. For a number of reasons, discussed in Slemrod (1995), establishing such a compelling causal connection is extremely difficult. In part for the reasons discussed in Section 7.2, the most natural kind of analysis, relating cross-country differences in prosperity to differences in policy, is almost never persuasive because it is practically impossible to hold constant, in a statistical sense, all the aspects of a country that affect its real income level. As mentioned earlier, if any of the unobserved influences on real income happen to be correlated with the policy, the estimated relationship will be a biased measure of the causal impact of the policy because it will conflate the true effect of the policy with the effect of the unmeasured but correlated factors. Moreover, countries choose different policies for a reason, and if the corporate tax system is chosen in part to address perceived inadequacies of the level or growth of real income, purely cross-sectional analysis will conflate the effect of tax on income with the effect of income the choice of the corporation tax system.

A more promising, but still problematic, approach is to relate policy variables to subsequent growth performance; in that way, whatever determines a country’s starting level of performance need not be explained. In the past twenty-five years, a large

academic literature has followed this approach to assess what determines countries' income growth, addressing the effect of such factors as education, trade openness, institutions, corruption, and government spending, with aspects of taxation addressed with varying degrees of attention and with more or less sophistication.

Rather than critically evaluate or even catalogue all of these studies, I instead focus on a recent example of this kind of approach by a highly respected team of academic researchers.²⁴ Lee and Gordon (2005) examine cross-country data for 70 countries over the period 1970 to 1997, and focus on the impact of corporate and personal tax rates on subsequent average five-year real growth rates, controlling for other determinants of growth such as openness to trade, inflation rates, the extent of corruption, and educational levels. In one set of regression specifications they use an instrumental-variables technique to address the possibility that the tax rate choices of countries depend on growth performance, which as discussed above would otherwise render a causal interpretation of the results suspect.

Lee and Gordon find that a country's real growth rate is negatively correlated with its statutory corporate tax rate, apparently supporting the notion that high rates are anti-competitive in the sense I have used it here. However, this statistical association obtains only for the subset of non-OECD countries. There is no association between growth rates and statutory corporate tax rates among the developed countries in the OECD. Note, though, that Gordon and Lee investigate only the effect of the statutory corporate tax rate, and make no attempt to calculate the tax disincentive to invest as measured by the marginal effective tax rate which, as they are well aware, is the more appropriate measure of the tax disincentive to invest but is very difficult to measure for many countries over many years using a standardized methodology.

²⁴ Other studies come to a different conclusion. For example, in an unpublished study, Arnold (2008) finds that the share of corporate taxes in total taxes is negatively associated with growth for 21 OECD countries from 1971 to 2004; no effort is made to reconcile these results with those of Lee and Gordon (2005).

The third column of Table 1 shows the 2000-2009 real growth rates of most OECD countries. There is indeed a noticeable correlation between the statutory tax rates and these decadal real growth rates²⁵—on average countries with lower rates had higher growth rates. The analysis of Lee and Gordon suggest that other factors explain this correlation, and a causal link cannot be compellingly established. The final column of Table 1 adds another cautionary note. Many of the low-corporate-tax-rate countries have suffered particularly large downturns during the recent recession, suggesting that the correlation may be eroding.

7.4. The effect of corporate taxation on corporate revenues

Perhaps in part because of the difficulty in ascertaining the direct impact of corporate tax systems on prosperity and growth, several recent studies attempt to estimate the effect of the statutory rate on corporate revenues. This is of interest because, if lowering a tax rate so expands the base that total revenue rises, nothing more need be established to support lowering the tax rate. Ever since Arthur Laffer drew his curve on a napkin in a Washington, DC, the idea that cutting tax rates raises revenue has been suggested by tax-cut advocates. If it were true, it would be a no-brainer: those whose tax rate was cut would be better off (even though their tax liability increases), and everyone else could be, too, by judiciously sprinkling around the extra tax revenue collected from those whose incentives to produce taxable income increase.

There are two problems with using this argument. The first is that most economists think it does not hold in practice, except in very specific circumstances. Second, in the circumstances in which the inverse relationship seems plausible, this is generally because the increased tax revenue is coming at the expense of some other tax base due to income shifting from one base to another, or from one time period to another within the same base. When there is income shifting, the fact that the base of a tax goes

²⁵ The correlation is less strong between the marginal effective tax rate, which measures the tax-related disincentive to investment, and real growth rates.

up when the tax rate falls does not make this tax cut a no-brainer, as the increased revenue is offset by reduced revenue in another base.²⁶

For the most part the Laffer conjecture has been analyzed for the individual income tax, but in recent years there have been some analyses of a corporate tax Laffer curve.²⁷ Several recent studies draw on the experience of OECD countries; as noted earlier, beginning in the early 1980's, statutory corporate tax rates in OECD countries have fallen markedly while over the same period the ratio of corporate tax revenues to GDP increased in many countries, with the exception of Germany, Japan, and the United Kingdom. After a careful examination of the data, Sorensen (2007) concluded that a major explanation of these trends is that the ratio of corporate profits to total profits increased, reflecting the growing importance of the corporate organizational form for reporting taxable profits. Sorensen concludes that countries "have made up for the drop in statutory tax rates by broadening the corporate tax base, e.g., by eliminating special deductions and moving towards less generous rules for asset depreciation, etc..."

Three recent studies directly address the Laffer hypothesis using data from OECD countries.²⁸ Each of these studies begins with a basic regression of corporate tax revenues as a fraction of GDP on the corporate tax rate, the corporate tax rate squared, and year fixed effects to allow for worldwide macroeconomic conditions to affect all countries' corporate tax system outcomes. These studies point to an implied revenue-maximizing tax rate in the mid-20s to mid-30s, suggesting that the U.S. might be close to, or over, the revenue-maximizing corporate tax rate.²⁹

However, these estimates are quite sensitive to the set of included controls in the regressions. Each of these studies attempts to account for various aspects of the

²⁶ This argument is fleshed out in Saez, Slemrod, and Giertz (forthcoming).

²⁷ Gruber and Rauh (2007) investigate this issue using aggregate U.S. time-series data.

²⁸ Devereux (2006) uses data for 20 OECD countries from 1986 to 2004; Clausing (2007) uses data on 29 OECD countries from 1979 to 2002, and Brill and Hassett (2007) use data on 29 OECD countries between 1980 and 2005.

²⁹ Note, however, that in his preferred specification, Devereux's (2006) estimate of the tax effect is no longer statistically significant.

behavioral response to changes in corporate tax rates. Clausing (2007) finds evidence of shifting income between the personal and corporate tax bases, which invalidates the argument that is never optimal to levy a rate above the corporate-tax-revenue-maximizing rate. Brill and Hassett (2007) focus on the timing of tax responses and find that the implied revenue-maximizing tax rate has been declining over time. Critically, all three studies omit country-specific fixed effects, despite using data with a panel structure. This means that these studies exhibit the critical flaw discussed earlier: if there is unobserved heterogeneity across countries (and there surely is) that is related to both the dependent and the explanatory variables, the estimates will suffer from omitted variable bias. Indeed, Gravelle and Hungerford (2007) show that, when country-specific fixed effects are added so that the estimates depend only on within-country variations in tax rates and revenues over time within the countries, corporate tax rates are no longer significant predictors of corporate tax revenues, suggesting that unobserved heterogeneity indeed imparts bias to analyses based on cross-sectional data, generating a Laffer-type relationship when none can in fact be confidently established.

Omitted variable bias will also occur when relevant aspects of the corporate tax system are not included as explanatory variables. Changes to countries' statutory corporate tax rate often are accompanied by changes to the corporate tax base, and both of these changes affect corporate tax revenues.³⁰ Without accounting for tax base changes, the joint effect of changing rates and bases is attributed to tax rates alone, which leads to biased estimates of the effect of corporate tax rates on corporate tax revenues. Clausing (2007) and Devereux (2006) include proxies for the tax base as explanatory variables, although their controls are not sufficient measures of all tax base variations.³¹

³⁰ Robinson and Slemrod (forthcoming) investigate this issue in the context of individual income taxation.

³¹ Clausing (2007) includes the corporate share of GDP, corporate profitability, and the system for taxing worldwide income (i.e., whether a country has a territorial system, a worldwide-with-credit system, or a mixture) to account for the tax base. Devereux (2006) uses the net present value of depreciation deductions on industrial buildings. Brill and Hassett (2007) include no other control variables.

Finally, this literature has also not yet carefully considered the likely timing of how changes would affect revenue by influencing the tax base. If lower rates reduce outward income shifting (and perhaps even induce inward income shifting), this would affect the tax base immediately. In contrast, a lower tax rate, by lowering the effective tax disincentive, increases business investment, would likely *reduce* the tax base in the short run, as for most investments costs exceed revenues at first. This is especially true in a regime of accelerated depreciation, where much of the cost of the investment is a tax deduction soon after the investment is made.

In summary, the large empirical literature trying to link aspects of the corporate tax system to measures of prosperity has not yielded definitive results, and a recent published study finds no impact of the corporate statutory tax rate on growth among developed countries. Recent attempts to establish a more limited conclusion, how tax rates affect corporate tax revenues, suffer from methodological flaws that prevent drawing clear policy conclusions.. For the time being, however, our policy analysis must be mostly based on economic reasoning.

8. Summary

Competitiveness is a buzzword that, reasonably interpreted, characterizes policies that support prosperity and growth, fairly shared, in a global economy. Once understood in this way, we can consider what constitutes a competitive education policy, a competitive energy policy, a competitive regulation policy, a competitive research policy, a competitive infrastructure policy, a competitive fiscal policy, a competitive monetary policy, and so on. We should certainly consider what constitutes a competitive tax policy—and in particular a competitive business tax policy—while keeping in mind how tax policy constrains or facilitates the achievement of other aspects of an overall competitive set of national policies such as the role of budget balance in establishing favorable macroeconomic conditions.

The current U.S. system of taxing corporations distorts economic behavior on a number of margins, and thus reduces national income, a reasonable but not perfect measure of prosperity. Lowering the statutory corporate tax rate without structural reform reduces the magnitude of some of these distortions, but introduces other problems such as the erosion of taxation of labor income. The tax-related disincentive to invest depends not only on the statutory rate but also on the definition of the tax base, most notably the treatment of depreciation allowances. Thus, lowering the tax rate while broadening the base may not encourage investment. Reducing the corporate tax rate also reduces the investment “bang” per “buck” of revenue loss because some of the tax reduction applies to the income from capital already in place, in contrast to accelerated depreciation. On the other hand, altering the definition of the business tax base can convert an income tax to a consumption tax that causes no disincentive to investment at all while levying a tax on pure profits and preserving the crucial role of business taxes in tax collection.

The fact that the U.S. economy operates within a global economy exacerbates the cost of a distorting corporation tax system. It also suggests that attempting to tax the income earned in the U.S. by internationally mobile capital could be counter-productive because it repels capital. This effect can be minimized either by lowering the corporate tax rate or by moving to a consumption or cash-flow, rather than income, base. One advantage of a lower rate is that it reduces the incentive of multinational corporations to shift taxable income away from the U.S. to lower-tax-rate countries, including tax havens. Moving to a territorial system, while addressing some capricious penalties to the foreign operations of U.S. multinational companies, would significantly exacerbate outward income shifting unless the statutory tax rate was much lower, and therefore would have to be accompanied by tax code and enforcement measures that ensure a defense of U.S. revenues.

References

- Arnold, Jens. 2008. "Do Tax Structures Affect Aggregate Economic Growth? Empirical Evidence from a Panel of OECD Countries." OECD Economics Department Working Paper No. 643.
- Auerbach, Alan. 2010. *A Modern Corporate Tax*. Center for American Progress and the Hamilton Project. Available at http://www.brookings.edu/papers/2010/12_corporate_tax_auerbach.aspx
- Bird, Richard. 2002. "Why Tax Corporations?" *Bulletin of International Fiscal Documentation* 56 no. 5 (May): 194-203.
- Brill, Alex and Kevin Hassett. 2007. "Revenue Maximizing Corporate Tax Rates." American Enterprise Working Paper #137, July 31.
- Chen, Duanjie and Jack Mintz. 2008. "Taxing Business Investments: A New Ranking of Effective Tax Rates on Capital." Available at <http://econ.ucalgary.ca/sites/econ.ucalgary.ca/files/seminars/Mintz.pdf>
- Chen, Duanjie and Jack Mintz. 2010. "U.S. Effective Corporate Tax Rate on New Investments: Highest in the OECD." *The Wall Street Journal*, May 14.
- Christensen, Kevin, Robert Cline, and Thomas S. Neubig. 2001. "Total Corporate Taxation: 'Hidden', Above-the-Line, Non-Income taxes." *National Tax Journal*, 54(3): 495-506.

Clausing, Kim. 2007. "Corporate Tax Revenues in OECD Countries." *International Tax and Public Finance*. 14(2): 115-133.

Congressional Budget Office. 2009. *Budget Options, Volume 2*. Washington, DC.

Desai, Mihir, Fritz Foley, and James R. Hines Jr. 2009. "Domestic Effects of the Foreign Activities of U.S. Multinationals." *American Economic Journal: Economic Policy* 1(1): 181-203.

Devereux, Michael M.P. 2006. "Developments in the Taxation of Corporate Profit in the OECD since 1965: Rates, Bases, and Revenues." Mimeo, May.

Erickson, Timothy and Toni Whited. 2000. "Measurement Error and the Relationship between Investment and q ." *The Journal of Political Economy*, October, 108(5): 1027-1057.

Gravelle, Jane G. and Thomas L. Hungerford. 2007. "Corporate Tax Reform: Issues for Congress." CRS Report for Congress. Congressional Research Service. October 31.

Gruber, Jonathan and Joshua Rauh. 2007. "How Elastic is the Corporate Income Tax Base?" in A. Auerbach, J. Hines, and J. Slemrod, eds. *Taxing Corporate Income in the 21st Century*, Cambridge: Cambridge University Press.

Holtz-Eakin, Douglas and Gordon Gray. 2009. "Global Competitiveness and the Corporation Income Tax." Heritage Foundation, April 30.

Hubbard, R. Glenn. 1998. "Capital-Market Imperfections and Investment." *Journal of Economic Literature*, 36, pp. 193-225.

Krugman, Paul. 1994. "Competitiveness: A Dangerous Obsession." *Foreign Affairs*, March/April.

Lee, Young and Roger H. Gordon. 2005. "Tax Structure and Economic Growth." *Journal of Public Economics* 89: 1027-1043.

Neubig, Tom. 2006. "Where's the Applause? Why Most Corporations Prefer a Lower Rate." *Tax Notes*, April 24.

Robinson, Leslie and Joel Slemrod. Forthcoming. "Understanding Multidimensional Tax Systems." *International Tax and Public Finance*.

Saez, Emmanuel, Joel Slemrod, and Seth Giertz. Forthcoming. "The Elasticity of Taxable Income with Respect to Marginal Tax Rates: A Critical Review," *Journal of Economic Literature*.

Shaw, Jonathan, Joel Slemrod, and John Whiting. 2010. "Administration and Compliance," (with Jonathan Shaw, John Whiting) in Stuart Adam, Timothy Besley, Richard Blundell, Stephen Bond, Robert Chote, Malcolm Gammie, Paul Johnson, Gareth Myles, and James Poterba (eds.) for the Institute of Fiscal Studies, *Dimensions of Tax Design: The Mirrlees Review*, Oxford University Press, 2010: 1100-1162.

Slemrod, Joel. 1990. "Tax Havens, Tax Bargains and Tax Addresses: The Effect of Taxation on the Spatial Allocation of Capital;" in H. Siebert (ed.), *Reforming Capital Income Taxation*, Kiel Institute of World Economics Press: 23-42.

Slemrod, Joel. 1995. "What Do Cross-Country Studies Teach about Government Involvement, Prosperity, and Growth?" *Brookings Papers on Economic Activity* 2: 373-431.

Slemrod, Joel. 2004. "Are Corporate Tax Rates, or Countries, Converging?" *Journal of Public Economics* 88: 1169-86.

Slemrod, Joel. 2008. "Does It Matter Who Writes the Check to the Government? The Economics of Tax Remittance," *National Tax Journal*, June, 61(2): 251-275.

Sorensen, Peter Birch. 2007. "Can Capital Income Taxes Survive? And Should They?" *CEifo Economic Studies* 53(2): 172-228.

U.S. Department of Treasury. Office of Tax Policy. 2007. *Approaches to Improve the Competitiveness of the U.S. Business Tax System for the 21st Century*. Washington, DC. December 20.

World Economic Forum. 2010. *The Global Competitiveness Report 2010-2011*. Geneva.

Tax Rates and Growth Rates, Selected OECD Countries

Country	Corporate Statutory Tax Rate	Marginal Effective Tax Rate Due to Corporate Tax	2000-2009 Real Growth Rate	2009 Real Growth Rate
Australia	30.0 (22)	25.9 (24)	0.334 (10)	0.012 (2)
Austria	25.0 (12)	23.6 (21)	0.185 (22)	-0.038 (16)
Belgium	34.0 (27)	-3.2 (1)	0.166 (24)	-0.027 (13)
Canada	29.5 (21)	21.1 (19)	0.232 (16)	-0.025 (9)
Chile	17.0 (3)	13.9 (7)	0.425 (5)	-0.015 (5)
Czech Republic	19.0 (4)	18.3 (15)	0.333 (11)	-0.041 (17)
Denmark	25.0 (12)	18.6 (16)	0.095 (26)	-0.047 (18)
Finland	26.0 (14)	17.1 (13)	0.207 (17)	-0.081 (30)
France	34.4 (28)	26.1 (26)	0.156 (25)	-0.025 (9)
Germany	30.2 (26)	27.3 (27)	0.082 (28)	-0.047 (18)
Greece	24.0 (10)	15.9 (9)	0.393 (8)	-0.020 (8)
Hungary	19.0 (4)	13.1 (4)	0.278 (13)	-0.063 (26)
Iceland	15.0 (2)	13.4 (6)	0.343 (9)	-0.068 (28)
Ireland	12.5 (1)	13.3 (5)	0.430 (4)	-0.076 (29)
Italy	27.5 (17)	28.1 (28)	0.056 (30)	-0.051 (23)
Japan	39.5 (30)	35.0 (30)	0.078 (29)	-0.052 (25)
Korea, South	24.2 (11)	25.9 (24)	0.530 (2)	0.002 (3)
Luxembourg	28.6 (20)	11.7 (3)	0.405 (7)	-0.037 (14)
Mexico	30.0 (22)	16.5 (12)	0.204 (18)	-0.065 (27)
New Zealand	30.0 (22)	20.1 (18)	0.267 (14)	-0.017 (6)
Norway	28.0 (18)	24.5 (22)	0.243 (15)	-0.014 (4)

Poland	19.0 (4)	14.6 (8)	0.470 (3)	0.017 (1)
Portugal	26.5 (16)	19.0 (17)	0.090 (27)	-0.026 (11)
Slovak Republic	19.0 (4)	11.4 (2)	0.564 (1)	-0.047 (18)
Spain	30.0 (22)	25.7 (23)	0.292 (12)	-0.037 (14)
Sweden	26.3 (15)	21.1 (19)	0.168 (23)	-0.051 (23)
Switzerland	21.1 (9)	17.5 (14)	0.190 (20)	-0.019 (7)
Turkey	20.0 (8)	15.9 (9)	0.422 (6)	-0.047 (18)
United Kingdom	28.0 (18)	28.7 (29)	0.186 (21)	-0.050 (22)
United States	39.2 (29)	16.2 (11)	0.204 (19)	-0.026 (11)
Average	25.9	19.2	0.268	-0.036

In parentheses are ranks. For tax rates, a rank of 1 corresponds to the lowest tax rate. For growth rates, a rank of 1 corresponds to the highest growth rate.

Real growth rates for 2000-2008 are from <http://stats.oecd.org>. The 2009 real growth rate is from the *CIA World Fact Book 2010*. The 2000-2009 real growth rate is calculated as $[(1 + g_{2000})(1 + g_{2001}) \dots (1 + g_{2009})] - 1$, where g_i is the real growth rate in year i .

The Corporate Statutory Tax Rate is taken from the OECD Tax Database (www.oecd.org/ctp/taxdatabase). It refers to 2010, and combines central and sub-central tax rates, excludes targeted rates and uses the top tax rate in graduated tax systems.

The Marginal Effective Tax Rate Due to Corporate Tax is taken from Chen and Mintz (2008), Table 3, Column 3, and refers to 2008.

