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Policy Brief

Tax Reform: An Optimal Equation

By Stefanie Stantcheva

Tax reform is poised for passage in Washington, D.C., at a time of high and increasing inequality between the country's wealthiest citizens and middle- and lower-income Americans. Still, the debate that brought lawmakers to this point continues to rage — not only on Capitol Hill but across the country.

The political rhetoric could certainly use some scientific reasoning developed and used by many economists. In this policy brief, I will discuss a simpler and more straightforward way to think about capital and labor tax reform.

Rather than provide concrete answers to the question of what the levels of various taxes should be, I will provide a framework to help consider this question removed from party-line talking points.

Why do we tax at all?

It may first help to take a step back and think about why taxes exist and what it means to design — and reform — a tax system.

Taxes are often viewed negatively. And while some may say taxes are an evil, those people must at least understand they are to a large extent a necessary one.

First, governments at all levels — local, state, and federal — need revenue to pay for basic needs and services. National security and defense, roads and highways, schools and clean water are just a few things paid for — at least in part — with tax dollars. And of course, entitlement programs such as Social Security, Medicare and Medicaid, unemployment insurance, and Veteran's Administration programs are funded by taxpayers.

Altogether, entitlement programs in the United States are funded with around $2.7 trillion from taxpayers. This number has been rising over time.[1]

If governments cannot raise enough money to pay for the services society has agreed to deliver, they must borrow from the domestic private sector or from foreign countries. Either way, borrowing means future generations have to repay this debt.

Designing the tax system means deciding how much each person or corporation should pay to help run the country at all levels and perhaps make people's lives better and less unequal.

The tax geek's corner: optimal tax formula

Here is where the economist comes in to resolve the issue of tax design.

I will focus most of this discussion on capital income, such as corporate earnings, capital gains, dividends, bequests, and wealth income. But the principles I lay out apply to labor income or to income from any particular capital asset, such as

1 Source: Office of Budget and Management (2015); Table 3.2 for 2015. This includes the categories i) 500 Education, Training, Employment, and Social Services, ii) Health, iii) Medicare, iv) Total Income Security, v) Social Security (on- and off-budget), vi) Total veterans benefits and services.

About the Author

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housing, bonds, or equity (if the tax system is differentiated by different capital assets as is often the case).

On a chalkboard, the optimal tax formula looks like this:[2]

$$t = \frac{1 - g - kt'e'}{1 - g + e}$$

Don't let the equation intimidate you. This formula says that the optimal tax rate depends on four factors: elasticity, fiscal externality, distribution, and social preferences.

I will describe each of those factors and explain what we know about each of them based on research and data.

The tax elasticity

The first important factor is represented in the equation by "e." That's the so-called elasticity of capital income to the tax rate. This measures how strongly capital income reacts to taxation.

Any tax entails a cost, because it changes people's behaviors in what economists call a "distortionary" manner. The elasticity gives us a measure of how costly it is to tax a given income type or asset. The higher the elasticity, the less a type of income or asset should be taxed.

What does research show us about tax elasticities?

Measuring the responses to taxes is difficult — especially in the long run.

Let's think of labor income tax elasticities first. There are many possible responses to labor income taxes and they are all added up to determine the elasticity.

One response is that people may work less — or not at all — although data seems to indicate that is not a common reaction.[3] Others may move abroad if taxes are too high, which has the added negative "brain drain" effect where highly talented people leave the country.[4]

What about capital tax elasticities?

Well, this depends on the type of asset being taxed. For instance, housing may be less elastic because a house is not an easy thing to buy and sell, or build from scratch, in response to taxes. On the other hand, liquid financial assets that can easily be converted into cash may very easily respond to taxes.

Because capital can be easily moved from country to country, the elasticity will also depend on the extent of international tax coordination. If one country increases its own capital tax rate unilaterally, while other countries maintain a lower capital tax rate, the elasticity will appear large because a lot of the capital will react by moving abroad.

Currently, a challenge to the U.S. is that there are attractive tax havens in other countries that lure money overseas. This inflates the elasticity for capital assets and makes it less feasible to tax capital.

One thing is certain though. One of the widely celebrated, but often-misinterpreted, results in the economics literature is that the capital tax should be zero in the long run. This result has had undue policy influence. It is, in fact, a close to irrelevant knife-edge case in which the elasticity — "e" in our equation — is infinite. That is a far cry from what the data tells us.[5]

2 This formula was derived for labor income taxes by Saez, E., 2001. "Using Elasticities to Derive Optimal Income Tax Rates." *The Review of Economic Studies*, 68(1), pp. 205-229 and for capital income taxes by Saez and Stantcheva, 2017. "A Simpler Theory of Optimal Capital Taxation," National Bureau of Economic Research working paper 22664, forthcoming in the *Journal of Public Economics*.

3 Saez, E., Slemrod, J., & Giertz, S. H. (2012). "The Elasticity of Taxable Income with Respect to Marginal Tax Rates: A Critical Review." *Journal of Economic Literature*, 50(1), 3-50.

4 Ufuk Akcigit, Salome Baslandze, and Stefanie Stantcheva: "Taxation and the International Mobility of Inventors." 2016. *American Economic Review*. Vol 106 (10), 2930-2981.

5 See Saez and Stantcheva (2017). To be more precise, we cannot test whether the elasticity in the infinite long run is infinite, but we can argue based on data that the model that generates this infinite elasticity is not reasonable and that models that fit the data better will imply a finite long-run elasticity.

The fiscal externality or shifting component

The second factor is the fiscal externality, represented in the equation as "kt'e'." This measures how much tax revenue is lost or gained indirectly because people adjust their earnings in another tax base, which is taxed at rate t'.

Let's unpack this. Say capital income is taxed at "t" and labor income is taxed at "t'." When you change your capital tax, by how much does the revenue from the labor tax base increase? The answer depends on "e'," which shows how much labor income changes when the capital tax changes. It also depends on "k," which is the relative size of the labor and capital income tax bases.

In general, this factor is again a measure of how costly the tax is, but through a more indirect channel. The more positive the fiscal externality, then the higher the tax rate "t" will be.

In the data, one key shifting margin is between the corporate and personal income tax bases (through C-corporations and S-corporations). Slemrod (1995) has found that dropping the top individual tax rate to below the corporate tax rate in the tax Reform Act of 1986 led to a significant increase in business income taxed at the personal income tax rate.[6]

Another thing to consider is that fiscal externalities may occur over time, as people retime their incomes as much as possible to reduce tax liabilities. For instance, adjustments that allowed people to avoid certain tax changes using capital gains realizations (Auerbach 1988)[7] and stock option realizations were very widespread around the TRA 86 (Goolsbee 2000[8]). Short-run responses may be very different from long-run responses and it may take a long time before policymakers can see and measure all the effects a given tax change truly had.

The redistributive factor

The third and fourth effects are bundled together in "g," which is the redistributive factor of the income under consideration. This measures the impact of the tax on our social objective and how much the tax contributes to our objectives as a society. It comprises two elements: the income distribution and social preferences.

The income distribution

The first thing we need to know is who receives the income we are thinking of taxing. In other words, who are these taxpayers affected by the tax change?

The data can provide us with concrete answers here. We know that capital income is much more concentrated than labor income and thus than total income (labor plus capital). The wealthiest 1 percent of capital income earners earn a whopping 63 percent of total capital income, while the bottom 80 percent have essentially zero capital income.

By contrast, the top 1 percent of all income earners earn about 20 percent of total national income. So among the wealthiest Americans, most of their money is coming from capital earnings, not labor.

When we think of taxing a particular asset, such as corporate stock, we similarly need to ask: Who owns this asset?[9]

6 Slemrod, Joel. 1995. "Income Creation or Income Shifting? Behavioral Responses to the Tax Reform Act of 1986." *American Economic Review*, 85(2): 175-180. For a detailed review of the effects of the TRA 1986, see Auerbach, Alan, and Joel Slemrod. 1997. "The Economic Effects of the Tax Reform Act of 1986." *Journal of Economic Literature*, 35(2): 589-632.

7 Auerbach, Alan. 1988. "Capital Gains Taxation in the United States." Brookings Papers on Economic Activity, 2: 595-631.

8 Goolsbee, Austan. 2000. "What Happens When You Tax the Rich? Evidence from Executive Compensation." *Journal of Political Economy*, 108(2): 352-378.

9 There is a complicated question here, which is that of incidence. We know that the statutory incidence (who sends a check to the IRS) is different from the economic incidence (who ends up suffering because of the tax) because prices such as wages and returns to capital can change because of the tax change. The important Diamond Mirrlees result (Diamond,

Social preferences

The second thing we need to know is how much we, as a society, value the people receiving this income.

Think of each person in the U.S. as having a "welfare weight" that measures how much we as a society value $1 given to that individual. For instance, if you are very rich, we may value $1 to you less than $1 given to a single parent working full time at minimum wage. In other words, we may think that $1 will have more of an impact on a minimum wage earner than on a CEO.

The "g" in our equation is the average income-weighted welfare weight, i.e., in the case of capital income, the average welfare weight of capital income earners where each person is weighted by his or her capital income.

And we know from research using large-scale surveys that, in general, people value more the "deserving poor" who search for a job and work hard — or are disabled and unable to work — than those who might choose to stop working and rely heavily on public assistance programs.[10]

It is through "g" that politics and fairness judgments come into play and it is where many thorny issues are concentrated.

It might be helpful to think about taxation through the prism of the fable of the ant and the grasshopper.

The grasshopper sang all summer, while the ant worked and saved grain for the winter. When the winter came, the grasshopper found itself begging the ant for some grain.

Should we tax the ant's saved grain for the benefit of the grasshopper, treating it like capital income from savings? One view is no, we should not. The ant and the grasshopper had the same opportunity to save. The ant chose to save, and it's the grasshopper's own fault for idling away the summer. In this view, the ant owes nothing to the grasshopper.

Another view is yes, we should tax the ant's saved grains. Why? Perhaps the ant inherited a lot of grain from its parents. Or maybe the ant used its grain to speculate on the stock market and got extra "lucky" returns on its grains, like financial speculators.

This means that even if the ant and grasshopper worked equally hard, the ant would end up with much more grain because it had a privileged advantage to begin with.

And this leads us to an important part of the House and Senate tax bills.

The House tax bill proposes to entirely eliminate the estate tax — the tax paid on wealth passed on to one's heirs at death. The Senate version wants to drastically increase the amount of wealth one can pass on tax-free.

If Republican policymakers are proposing such tax cuts, the cuts can only be justified in one of two ways. First, they may think that a slightly higher estate tax will cause all rich parents to completely stop saving their money. This would translate into a very high elasticity (back to "e" in our equation) and push the tax down. This is unlikely given research on the topic and given the past experience with the estate tax in the U.S. and inheritance or estate taxes in other countries.

That leaves only one possibility. Proponents of these tax breaks must be putting a very high social value and weight ("g" in the equation) on heirs expected to receive hefty inheritances and a very low social value or weight on beneficiaries who stand to inherit far less.

P.A., and Mirrlees, J.A., 1971. "Optimal Taxation and Public Production II: Tax Rules," *American Economic Review*, 61(3), pp. 261-278) reassures us that the same tax formula will hold because — with a sufficiently rich tool set — the government can undo the price effects at zero fiscal cost.

10 See Saez, E., and Stantcheva, S., 2016. "Generalized Social Marginal Welfare Weights for Optimal Tax Theory." *American Economic Review,* 106(1), pp. 24-45.

Separate efficiency from social judgments and be honest about it

As you can see, the first three effects described (the elasticity, the fiscal externality, and the income distribution shape) are efficiency effects. They tell us who will be hit by taxes and how costly the taxes will be in terms of distorted behavior.

They can be measured in the data, even if this is often very hard.

But they are not a matter of opinion — with better and better data, we can learn more and more about them. Data can tell us about efficiency, and researchers have been pushing for more measurement so we can agree on the efficiency effects.

The fourth factor, namely social preferences, is not measurable as such, but is a value judgment each society makes based on its fairness and social justice principles.

The debate over tax reform could be clarified if policymakers and politicians were more transparent about "g" and why they are proposing one tax increase or another.

When they tell us that the capital tax should be low, are they saying that a high tax will cause an outflow of capital from the country and drastically reduce savings? Those are the efficiency arguments. Or are they instead showing you a personal value judgment, namely that they think high capital earners are job creators who "deserve" their income and should not be penalized with a tax?

It is also important to note that the elasticities are themselves significantly affected by policy. An argument often given is that it is unwise to tax financial assets or corporations because then they will all be moved abroad. But this does not mean the tax on these assets or corporations should be zero.

The first step is to push this elasticity as low as possible by closing loopholes and increasing international tax cooperation. The goal is to be as lightly constrained as possible.

We will have to keep debating about the social judgments through a sound political process. In the end, a lot of the response to "should we increase this particular tax or not" will boil down to "g": Who is hurt by that tax and how much do we, as a society, care about those people?

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