Taxing the 1 Percent

Raising taxes on top earners is often seen as a straightforward way to stem inequality. The trick is preserving efficient revenue generation and work incentives for the economy's most productive contributors.

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BY MAKOTO NAKAJIMA

Income inequality has been widening in the United States since the 1970s and is now greater than in any other industrialized country. While U.S. median household income has barely grown over the past four decades, the income of the top-earning households has almost doubled. In other words, the U.S. economy's overall growth has disproportionately accrued to the very rich. This phenomenon has garnered popular attention—witness, for example, the Occupy Wall Street movement of several years ago and the worldwide popularity of economist Thomas Piketty's book *Capital in the Twenty-First Century*. Besides the social concerns that income inequality raises, it also has tax implications. And considering how much their share of total income has been rising over the past 40 years, how those with the highest incomes should be taxed is becoming an increasingly important question, especially when the governments of the U.S. and most other developed countries have been accumulating debt. One answer that is often proposed is to significantly raise taxes on those in the top 1 percent of the income distribution. Even a small change in the tax rates applied to the top 1 percent could raise tax revenue significantly, as the top 1 percent contribute disproportionately to total U.S. output and total tax revenue. Would high taxes on the economy's most productive members discourage their efforts that contribute to economic growth? As with most economic policies, when we think about how to tax the 1 percent, we need to consider the complex trade-off between equity and efficiency.

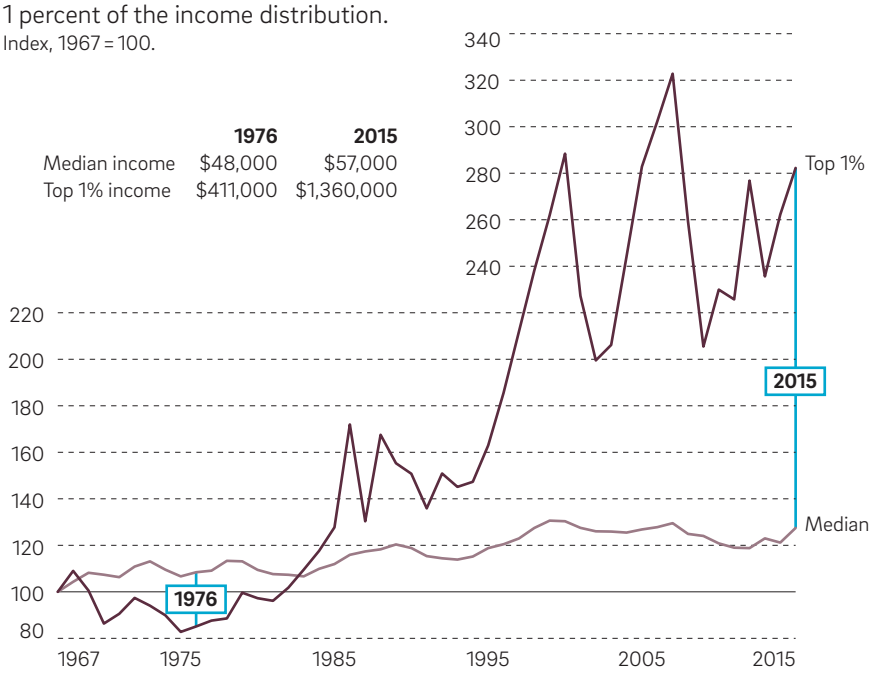
Inequality's Rise

The median U.S. income has grown at a significantly slower pace than the income of the top 1 percent (Figure 1). The median increased from $48,066 in 1976 to $56,516 in 2015, adjusted for inflation, an 18 percent increase over 40 years, or an annual average growth rate of just 0.4 percent. By contrast, the income of the top 1 percent of households increased from $411,236 to $1.36 million over the same four decades. Their income more than doubled—a growth rate of 132 percent—or an average annual rate of 3.0 percent. Put differently, in 1976 the income of the top 1 percent was about 8.6 times the median household

FIGURE 1

Income Has Risen Much Faster at the Top

Median inflation-adjusted U.S. household income vs. household income of the top 1 percent of the income distribution.



Sources: Household median income is from the U.S. Census Bureau's Current Population Survey, Annual Social and Economic Supplements. The top 1 percent income is from Emmanuel Saez's website, which updates the numbers initially used in his 2003 paper with Thomas Piketty.

income but had grown to 24.1 times the median in 2015. Moreover, top incomes rose even faster if you look at the top 0.1 percent of households, whose income increased 460 percent during the same period, to $6.7 million in 2015.

Because of the different growth rates of the median and top household incomes, the degree of income inequality has increased significantly over the past 40 years. One way to measure the change in income inequality is to look at how the proportion of income earned by the richest households has changed over time (Figure 2). Before the Great Depression, the top 1 percent earned close to 20 percent of total income. But between the end of the Second World War and the late 1970s, their proportion gradually declined to 10 percent. Since then, though, their proportion has rebounded, having reached 23.5 percent in 2007 before stabilizing at around 20 percent today, comparable to their share in the early 20th century. In other words, although the U.S. economy advanced in terms of equality of income across households during the first half of the last century, that gain has been wiped out since the 1970s.

For the top 10 percent of households, the trend is similar. They earned about 45 percent of total income in the early 20th century, but their proportion declined to about 35 percent after the Second World War before starting to rise over about the past 40 years. In recent years, the top 10 percent of households have earned more than 50 percent of total income.

What's Behind Rising Income Inequality?

Understanding what is behind the rise in income inequality can help us think about the best way to tax the top 1 percent. First, it is helpful to look at which component of income contributed to the rising income inequality seen in Figure 1. That's because income is more than one's paycheck. Households may earn not only wage income but also entrepreneurial income from ownership in a business or financial income from returns on investments such as stocks, bonds, and real estate. Financial income includes dividends, rents, and interest. Moreover, when values of financial assets change, households' income is affected by capital gains, which I will discuss separately.

First of all, it is easy to see from Figure 3 that the importance of financial income, excluding capital gains, has been declining since the early 20th century. Financial income made up about 50 percent of the income of the top 1 percent of households at the beginning of the 20th century, but in recent years the proportion has been only about 10 percent. Some of the decline reflects a shifting of income from financial income to capital gains, for tax purposes. The share of capital gains increased from less than 10 percent in the first half of the 20th century to 15 percent on average since 2000. One can also see that capital gains are quite volatile, having increased significantly during the dot-com boom of the late 1990s and early 2000s and during the boom leading up to the Great Recession. Even if financial income and capital gains are combined, their share has declined from above 50 percent of total income to about 25 percent in recent years. There is other evidence that financial income's contribution to rising income inequality has been small. As Roc Armenter showed in his 2015 *Business Review* article, until 2001, financial income had remained stable at around 38 percent of total income, yet income inequality continued to increase significantly.

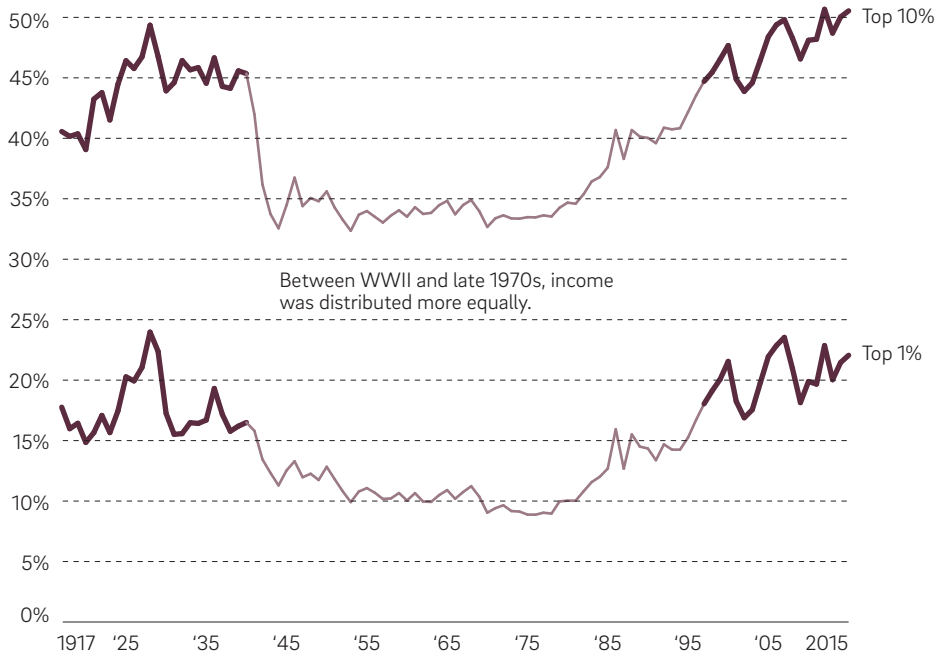
Entrepreneurial income has made up about 30 percent of the income of the top 1 percent, except around the Second World War and in the mid-1980s. The share of entrepreneurial income shrank in the 1970s and 1980s but since then has been rising. Therefore, entrepreneurial income might have become important for the income growth of the 1 percent since the 1990s, but it was not important in the 1970s and 1980s, when income inequality had already started widening.

Now compare the trends in financial and entrepreneurial income with wage income. The 1 percent's proportion of wage income increased from around 30 percent in the 1940s to 40 percent in the 1960s, and then accelerated to about 60 percent in the 1980s before plateauing. Wages are now by far the largest source of income for top-earning households in the U.S.

FIGURE 2

Recent Years Resemble Early 20th Century

Proportion of total income earned by highest-earning 1 percent and 10 percent of U.S. households, 1917–2015.

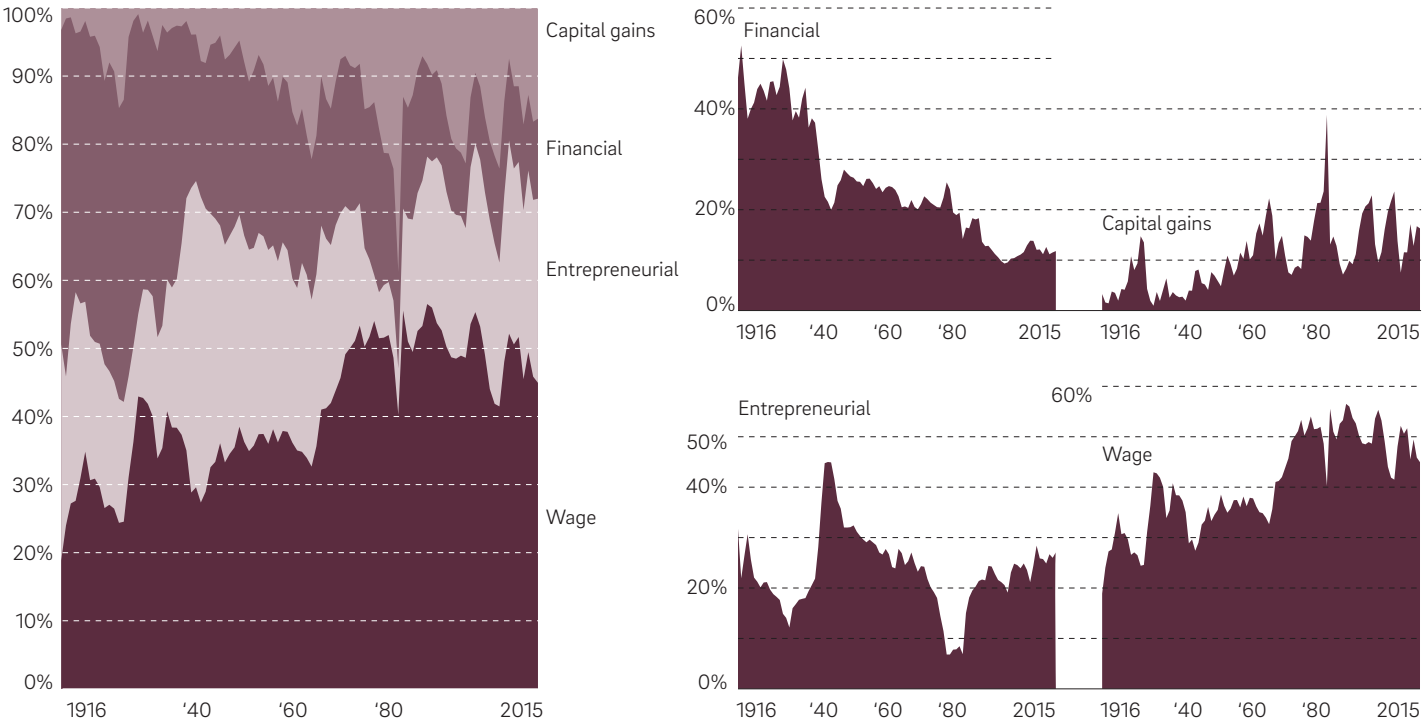


Source: Piketty and Saez (2003) and updates since.

FIGURE 3

Financial or Entrepreneurial Income Not the Key Factors

Composition of total income of households in top 1 percent of U.S. income distribution, 1916–2015.



Source: Author's calculation based on Piketty and Saez (2003) and updates since.

Moreover, the timing of this acceleration in the wage share coincides with the timing of the increase in their share of total income, suggesting that wage income played an important part in the rise of income inequality. Figure 4 confirms this intuition: Its U shape is similar to the U shape in Figure 2.

Clearly, the most important part of the top-earning households' income has been wage income, especially before the 1990s. And their share of total wage income has increased significantly over about the past 40 years. For these households, entrepreneurial and financial income are nonnegligible parts of their overall income, but those shares are smaller than for wage income, and the importance of financial income for these households has been on a declining trend. Based on the fact that inequality in wage income has played an important role in rising income inequality, I will present a simple theory of taxation of the 1 percent that focuses on taxing the wage income of the 1 percent.

Composition of Occupations and Rise of the Finance Industry

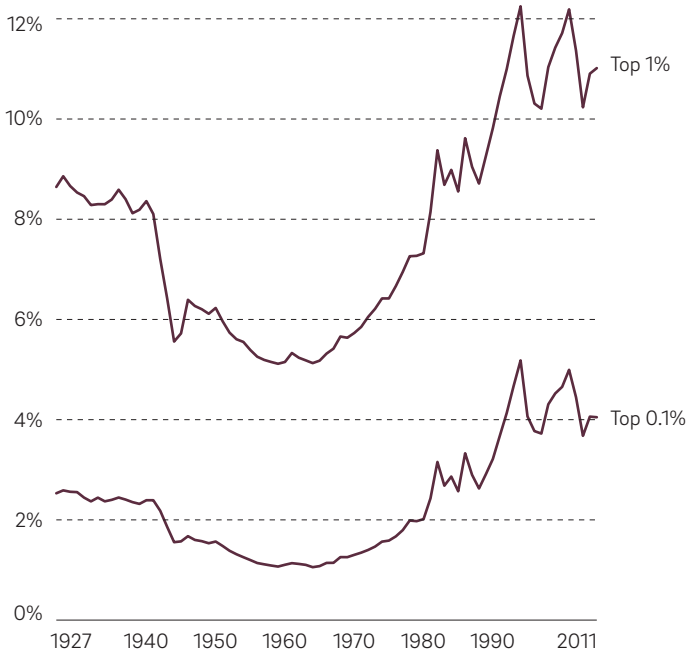
How about sectors and occupations? Which types of workers in what fields tend to be found in the top 1 percent of earners? How have occupations at the top of the income heap changed since income inequality started rising in the 1970s? Answers to these questions could help us understand the driving force behind the rising income inequality since the 1970s.

Between 1979 and 2005, income growth among financial professionals made up a disproportionate part of the overall rise in income inequality, although this trend might have slowed

FIGURE 4

Rise in Wage Share Coincides with Rise in Income Share of 1%

Proportion of wage income earned by top 1 percent and 0.1 percent of households out of total U.S. wage income, 1927–2011.



Source: Piketty and Saez (2003) and updates since.

after the Great Recession.[1] Executives and managers at nonfinancial firms make up the largest group among the top 1 percent of income earners, but their proportion declined slightly, from 35.3 percent in 1979 to 30.0 percent in 2005.[2] Similarly, when the top 1 percent's share of total income rose from 9.7 percent in 1979 to 21.0 percent in 2005, the share of income earned by nonfinancial executives and managers among the top 1 percent remained the largest among different occupation groups, though their share dipped slightly, from 39.5 percent to 37.4 percent. Meanwhile, over that same quarter-century, financial professionals became much more numerous among the 1 percent, rising from 7.7 percent in 1979 to 13.2 percent in 2005. During this same period, their income share rose from 9.4 percent to 16.4 percent.

Although attention is often paid to the income of CEOs and financial professionals, it is also important to point out that the top earners are not only executives, managers, and financial professionals. Medical professionals made up 15.9 percent of the top 1 percent in 1979 and 14.2 percent in 2005. The proportion of lawyers grew from 6.7 percent in 1979 to 7.7 percent in 2005. Other professions represented in the 1 percent include engineers, real estate professionals, professors and scientists, and those in the arts, media, and sports. In other words, the 1 percent is a diverse group.

Taxation and Income Inequality

Among the many possible reasons behind rising income inequality in the U.S., pieces of evidence suggest that tax policy might be at least one of the reasons.

*See **Marginal and Average Tax Rates and Progressivity.***

During the first half of the 20th century,[3] the top income tax rate was raised on net and remained high until the 1960s, when the top rate began to be gradually lowered to the current 39.6 percent (Figure 5). Notice that this is not the rate that the top 1 percent pay on all their taxable income. That would be their average income tax rate. Rather, 39.6 percent is the highest marginal income tax rate, which is applied only to the amount of one's income that exceeds the highest income bracket in the tax code.

Now compare the shape of Figure 5 with Figure 2 (reproduced beneath Figure 5). Observe that the share of total income earned by the highest-income households declined whenever the top income tax rate was raised and rose when the top income tax rate was lowered. In other words, if you were to flip Figure 2 upside-down, you would obtain the approximate shape of Figure 5.[4] Bear in mind that income in Figure 2 is shown before taxes are taken out. If we look at the correlation between lower top tax rates and after-tax income, inequality widens further whenever the top earners can keep a larger fraction of their income.

This suggestive evidence for the role of tax rates in the rise of inequality appears to extend beyond the United States. For example, in Britain, the top marginal income tax rate declined nearly 50 percentage points from the early 1960s to the late 2000s, while the income share for the top 1 percent increased 6 percentage points. For the U.S., the top marginal income tax rate declined from 85 percent in the 1960s to 35 percent in the 2000s (a 50 percentage point decline), while the top 1 percent income share increased from 8.2 percent to 17.6 percent (a 9.4 percentage point increase). The negative relationship between the change in top marginal income tax rates and the change in income shares for the top 1 percent can be seen in Figure 6, with the diagonal line showing the average relationship. It is easy to see that countries that experienced larger declines in their top marginal income tax rates from the 1960s to the 2000s saw larger increases in the share of income earned by the top 1 percent during those same periods. This correlation is by no means definite causal evidence, but it does suggest that changes in the top marginal tax rate might contribute to the degree of concentration of income among the highest-income households.

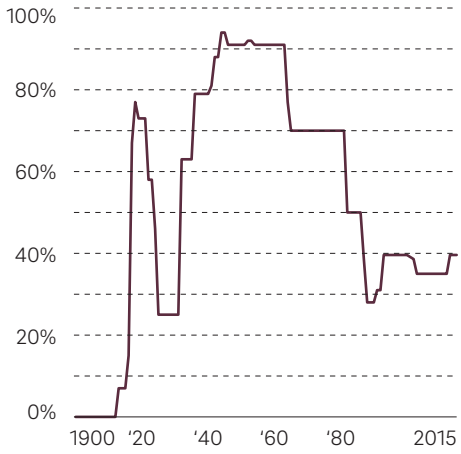
Why might that be? Alvaredo, Atkinson, Piketty, and Saez offer two interpretations of this negative relationship. The first is tax avoidance. When the top marginal tax rates decline, as they have since the 1960s, households with high incomes might have less reason to employ tax avoidance strategies, so they tend to report their incomes without trying hard to make them look smaller. These researchers argue that this hypothesis certainly can explain some of the negative relationship but is hardly the only story. A related possibility, which I will discuss later, is that the rich could move out of the country if the income tax rate applied to them is high.

The alternative interpretation is based on economic incentives. When the top tax rates are lower, it stimulates economic activity among top earners. They might increase their effort or work longer hours to increase their income because they can

FIGURE 5

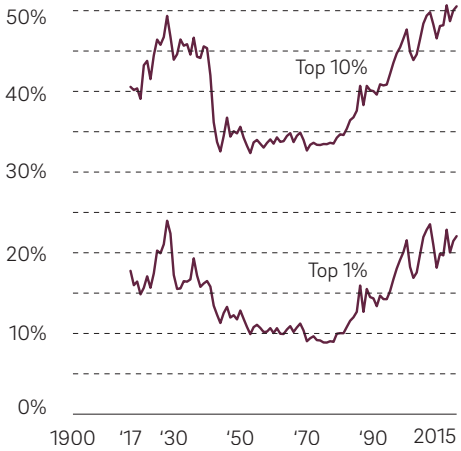
Lower Taxes Coincide with Higher Share of Income

Top marginal U.S. income tax rates.



Source: Tax Foundation.

Proportion of total income earned by highest-earning 1 percent and 10 percent of U.S. households, 1917–2015.

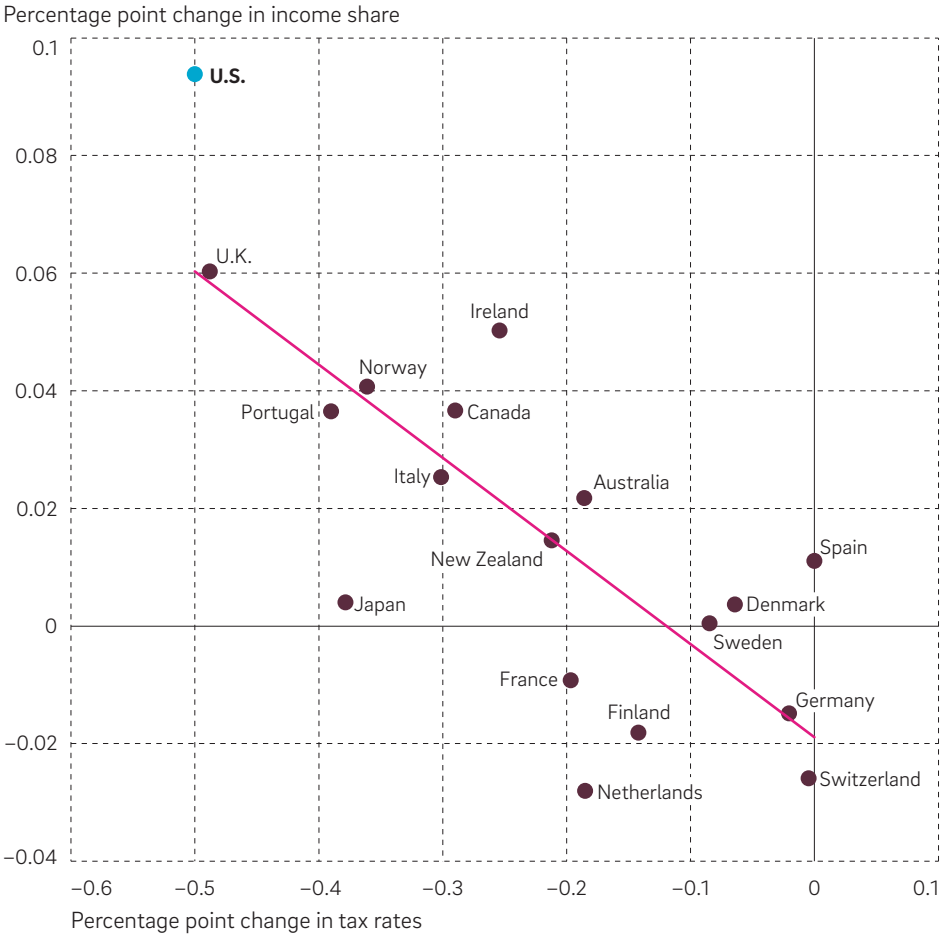


Source: Piketty and Saez (2003) and updates since.

FIGURE 6

Similar Inverse Relationships Globally

Change in top marginal income tax rate and income share for households in top 1 percent of income distribution in 18 industrialized countries, 1960–1964 average to 2005–2009 average.



Source: Replicated from cross-country evidence by Alvaredo, Atkinson, Piketty, and Saez, https://www.aeaweb.org/articles?id=10.1257/jep.27.3.3.

Note: For countries where data are not available for the same five-year ranges, data for the closest five years are used. For example, for Portugal, the top income tax rate and top 1 percent's income share are available only for 1976–2005. Therefore, the averages of 1976–1980 and 2001–2005 are substituted.

keep more after-tax income resulting from those additional hours or efforts. This second interpretation is the foundation of the simple standard theory of how to tax the top 1 percent of households that I will explain next.

A Simple Theory of How to Tax the 1 Percent

The top 1 percent made 23.5 percent of total income in 2007, but because of the progressivity of the federal income tax code, they paid an even higher 40.4 percent of total federal individual income taxes collected. Since the 1 percent pay a disproportionately large fraction of total income taxes, any change in income tax rates applied to them could have significant consequences for the total amount of tax revenue that the federal government can generate. Because the most highly paid households are taxed at a higher rate, a progressive income tax structure helps narrow the gap in after-tax income between higher earners and lower earners. In other words, progressive taxation promotes equality among individuals in terms of their after-tax income. One can argue that this effect is beneficial in promoting a harmonious society. Moreover, we saw that the income earned by the top 1 percent of households has been on the rise over roughly the past 40 years. This makes how to tax them an even more important issue, from the standpoint of government tax revenue and equality. By raising the top income tax rates applied to these households, the government can raise even more tax revenue, and we could improve equality in terms of after-tax income even more.

But is there a catch? As I discussed, a higher marginal tax rate may discourage individuals from working longer or harder in general. Conversely, if people can earn more after-tax income by working longer hours or putting more effort into their work, they will naturally be inclined to do so. This efficiency loss effect needs to be taken into account when the tax rate is determined. This efficiency loss effect could be significant if the top 1 percent work fewer hours or less hard, since they are generally the ones whose skills are highly valuable (and thus highly valued) in the economy or who run the most financially successful businesses. So, the optimal tax rate is the marginal rate that strikes the desired balance between the loss in efficiency and the gain in equality and additional tax revenue resulting from higher taxes on top earners.

So how can we arrive at the "optimal" tax rate? If the government can receive a significant amount of tax revenue from the richest 1 percent, it does not need to tax the rest of the population too much. In this sense, the more tax revenue collected from the 1 percent, the happier the 99 percent will be. Of course, members of the 1 percent are less happy if their tax burden is higher. But since they are a small fraction of the population and vastly richer than the rest of the population anyway, it is arguably worth calculating how to maximize tax revenue from the 1 percent without significantly curbing their productivity.

A study that defined the optimal rate as that which maximizes the tax revenue from the 1 percent, by Peter Diamond and Emmanuel Saez, focuses on two numbers that they say characterize this optimal rate:

The first number is labor supply elasticity, which represents how strongly

workers respond to tax hikes or cuts. Let me give a simple example to illustrate what it is. Imagine a worker works 160 hours per month at $25 per hour. The monthly income of this worker is $4,000, or $48,000 per year. Suppose this worker's hourly wage goes up by $5 per hour, to $30. This is a 20 percent hourly increase. Using the commonly estimated value of U.S. labor supply elasticity of 0.25, a 20 percent increase in wages induces a 5 percent increase (=20×0.25) in hours worked.

Taking into account the wage increase and the induced increase in hours worked, the worker now works 168 hours (=160×(1+0.05)) at $30 per hour, and earns $5,040 per month, or $60,480 a year. If only the person's wage is raised, his or her annual earnings would be $57,600 (20 percent higher than the initial $48,000), but the additional increase of $2,880 happens because the worker decides to work longer to take advantage of the higher wage per hour. Notice that this channel works in the opposite direction as well. If the income tax rate is raised, the wage per hour after paying income taxes is lowered, and the worker works fewer hours and earns even less after-tax income.

From this example, it is easy to see that, if labor supply elasticity is high, workers work significantly less or put in significantly less effort when the tax rate is raised. This means that a tax hike might not generate more tax revenue after all. If labor supply elasticity is low, workers are not too discouraged by a higher tax rate, and the government can easily collect more revenue by raising taxes. Since in Diamond and Saez's study the goal of the government is to receive as much tax revenue as possible from the 1 percent, higher labor supply elasticity implies that the optimal revenue-maximizing tax rate is lower.

The second number is the income concentration measure, which is the ratio of the average income of all households in the top 1 percent group to the lowest income in the top 1 percent group. The larger this ratio, the greater the dispersion of income among the top 1 percent. That is, the higher the ratio, the more that the top incomes of the 1 percent exceed the average income among the 1 percent. According to Diamond and Saez's simple model, a higher income concentration measure in the top 1 percent implies a higher optimal tax rate applied to them. If the income distribution is more concentrated among the highest earners, raising their taxes will still generate the desired revenue, even if the tax hike leads them to work less or expend less effort because of the labor supply elasticity channel. The average income among the

*See **Income Concentration and the Pareto Distribution.***

Marginal and Average Income Tax Rates and Progressivity

When discussing how to tax the 1 percent, it is important to be aware of the difference between average and marginal tax rates.

The average rate is the amount of taxes paid divided by pretax income. For simplicity, let's forget about tax deductions, exemptions, credits, and other details of the tax code. Consider an individual whose pretax income is $50,000 and who pays $6,000 in income taxes. This person's average tax rate is 12 percent ($6,000 divided by $50,000).

The marginal tax rate is applied to the next $1 that the person earns. In 2015, the marginal tax rate for someone filing as single and making $50,000 was 25 percent. This means that if this person makes one more dollar, 25 cents is taxed away, so the person keeps 75 cents out of that one additional dollar earned.

A taxpayer's marginal rate is higher than his or her average rate because the U.S. tax code is structured in such a way that the marginal rate increases as the taxpayer's income increases. This is called the *progressivity* of the federal income tax system.

As Figure 7 shows, in 2016 the marginal tax rate started at 10 percent and topped out at 39.6 percent for annual taxable income above $415,050.

In addition, individuals have to pay so-called payroll taxes to fund Medicare and Social Security, and pay state income taxes and sales taxes, together adding about 7.0 percent.[5] In total, the highest marginal rate was 46.6 percent (39.6 percent plus 7.0 percent) in 2016.

The average rate was lower than that, because the top rate is applied only to income above the highest threshold, but the marginal rate is what matters to someone deciding whether to work slightly more or less. This is why the simple theory I discuss is about the marginal tax rate applied to the top 1 percent of earners.

FIGURE 7

Marginal Federal Income Tax Rates

By single filer brackets, 2016.

Single filer	Rate
$0–$9,275	10%
$9,276–$37,650	15%
$37,651–$91,150	25%
$91,151–$190,150	28%
$190,151–$413,350	33%
$413,351–$415,050	35%
$415,051+	39.6%

Source: Internal Revenue Service, https://www.irs.com/articles/2016-federal-tax-rates-personal-exemptions-and-standard-deductions.

Note: The standard deduction for single filers in 2016 was $6,300, and the personal exemption was $4,050.

top 1 percent of U.S. earners is $1.2 million, while the lowest income among the top 1 percent group is $400,000, which results in an income concentration measure of 3 ($1.2 million / $400,000).

Using the standard value of 0.25 for U.S. labor supply elasticity and the value of 3 for the U.S. income concentration among the 1 percent–both of which are consistent with U.S. data–Diamond and Saez arrive at an optimal tax rate of 73 percent, which is significantly higher than the current 46.6 percent (the sum of the top federal income tax rate of 39.6 percent and various other taxes that amount to 7 percent).[6]

How does their optimal tax rate change if we change those two numbers? For example, if the labor supply elasticity is assumed to be 0.5, which is on the high end of available estimates, the optimal tax rate becomes 57 percent, which is much lower than 73 percent but still 10 percentage points higher than the current rate. When the labor supply elasticity is higher, we need to worry more about efficiency loss, but the optimal tax rate is still higher than the current rate of 46.6 percent. If the income concentration measure is 2.5, which is at the low end of estimates, the optimal tax rate is still a very high 71 percent, according to Diamond and Saez. If income across the economy is less concentrated at the top, there are fewer extremely rich households, and thus a higher tax rate lowers the total amount of tax revenue collected from rich households more. Therefore, the optimal top tax rate must be lower. However, again, the optimal top tax rate is not too much lower compared with the baseline rate of 73 percent. In the end, the message from their analysis is that the 1 percent should be more heavily taxed than they currently are. Taxing the highest earners at a higher marginal rate has also been supported by the work of the late British inequality scholar Anthony B. Atkinson, who recommended a 65 percent top marginal tax rate as one of 15 proposals he prescribed to remedy inequality.[7]

Not So Simple? Factoring in Saving

The simple formula of how to tax the 1 percent that Diamond and Saez propose relies on various assumptions that differ from features of the real world that might be important. First of all, they assume that workers decide how much to work once and for all. In reality, over the course of their working lives, workers may choose to work part time, stay home with their families, work overtime, and so on, based on their personal needs and preferences. Ignoring the dynamic aspect of choice also means that the need for savings is ignored. Workers save for retirement as well as for a rainy day. Savings are not small potatoes, as financial income and

Income Concentration and the Pareto Distribution

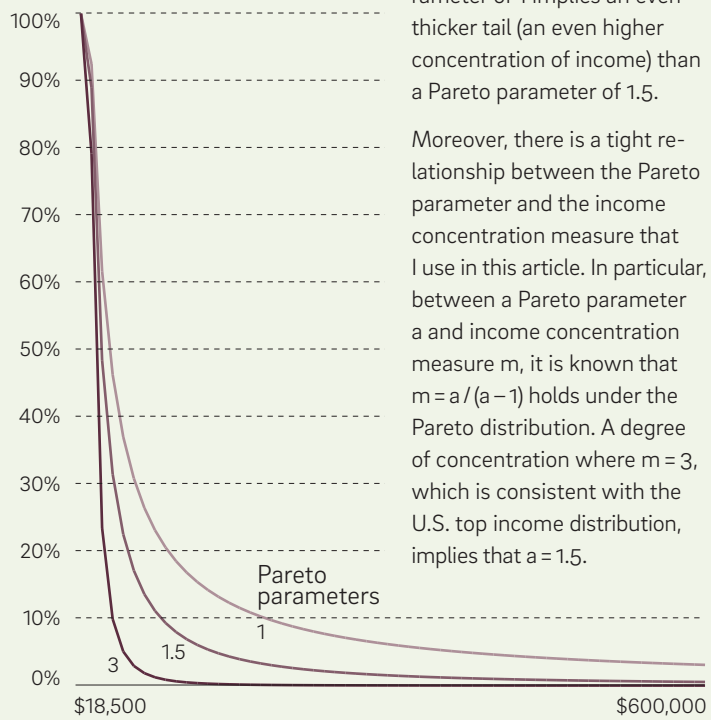
The simple theory of optimal taxation that Diamond and Saez provide relies on the assumption that income among the top 1 percent is distributed according to the Pareto distribution. Named after economist Vilfredo Pareto (1848–1923), it is a distribution that is known to have a thick (sometimes called a "fat") tail. That is, it has a high probability of containing very high values.

For example, the Pareto distribution is known to exhibit the "80–20 rule"—20 percent own 80 percent of the total. Therefore, the Pareto distribution can capture the U.S. income distribution, which exhibits a high concentration among the top earners.

The shape of the distribution is controlled by what is called the Pareto parameter. When the Pareto parameter is lower, the distribution has a thicker tail. In other words, when applied to the distribution of income, a lower Pareto parameter means there are more households with very high incomes. Figure 8 shows Pareto distributions for three different values of the Pareto parameter. The lines plotted show the percentage of households whose incomes are higher than the values given on the horizontal axis. One can see that a Pareto parameter of 3 implies a thinner tail compared with a Pareto parameter of 1.5. A Pareto parameter of 1 implies an even thicker tail (an even higher concentration of income) than a Pareto parameter of 1.5.

FIGURE 8

Pareto Distributions



Moreover, there is a tight relationship between the Pareto parameter and the income concentration measure that I use in this article. In particular, between a Pareto parameter a and income concentration measure m, it is known that $m = a / (a - 1)$ holds under the Pareto distribution. A degree of concentration where $m = 3$, which is consistent with the U.S. top income distribution, implies that $a = 1.5$.

capital gains, which make up a sizable portion of the income of rich households, are generated by savings. How much would the optimal top income tax rate change if the calculations were not as simplified as in Diamond and Saez's model and included the role of savings?

In a model constructed by Fabian Kindermann and Dirk Krueger, individuals work while young and then retire. They decide not only how many hours to work or how much effort to put in, but also how much money to save. Individuals can use their savings as a rainy day fund, to support consumption expenditures should their incomes fall, or to support themselves in retirement. If an individual is lucky, he or she might earn a very high wage and become part of the 1 percent.

What happens in this setup if the top tax rate is raised? And what is the optimal rate when the need to save is taken into consideration? Interestingly, the optimal rate in this study was close to 90 percent, which is even higher than the 73 percent that Diamond and Saez obtained by ignoring savings. Why? The key is that working individuals are trying to save for both retirement and for difficult times. Individuals want to be able to supplement any pension income with savings. They also want to be prepared in case of a future pay cut or job loss. Given the need to save, someone who happens to be extremely highly paid will want to work as much as possible, or put in as much effort as possible, even if the tax rate is very high. When their pay is very high, it is a great time to work hard and save for a rainy day. In other words, the labor supply elasticity is effectively lower if savings motives are taken into account. As I discussed earlier, lower labor supply elasticity implies that the government can tax the 1 percent at a higher rate without discouraging the work effort of those highest-income workers too much.

Nevertheless, a study similar to Kindermann and Krueger's in which individuals save for both retirement and for a rainy day provides a cautionary tale. Authors Nezih Guner, Martin Lopez-Daneri, and Gustavo Ventura argue that even though the optimal top tax rate is higher than the current rate, the amount of additional revenue raised by increasing the top rate would not be very large. According to their benchmark simulation, total tax revenue from high earners increases 6.8 percent (about $135 billion in 2015) when the income tax schedule is tilted more toward high earners, but total tax revenue from all sources goes up only 0.6 percent (about $12 billion in 2015), partly because the higher tax rates discourage saving. In other words, the benefits of enacting the "optimal" tax rate might be limited revenue-wise, although raising the top tax rate would still reduce inequality in after-tax income.

Effect on Aspiration?

Another missing element is the possible effect on skill acquisition and productivity. To make it to the top, individuals typically need to go to school, study hard, and learn on the job. If the reward for such preparation is curbed by higher top tax rates, entrepreneurism might be discouraged, the productivity of the workforce might be diminished, and the economy might suffer as a result. The effort needed to reach the 1 percent is hard to measure, but one measurable aspect is how individuals accumulate skills.

Today's top earners tend to have acquired skills when they were young. For instance, today's members of the Forbes 400, who are the top 0.0001 percent of earners, did not grow up with as many advantages as in the past. Members in the 2000s were less likely to have inherited their wealth or to have grown up wealthy compared with their counterparts in the 1980s.[8] Rather, they grew up in what one might call the upper-middle class and were able to get good educations and apply their skills in finance, technology, or mass retail. But if their income tax rate is raised too much, it could discourage such people not only from working hard today but also from investing time and money in education or training. Diamond and Saez's simple theory captures the effect of tax rates on work effort after one becomes a top-earner but not the effect on skill acquisition. In this way, a much higher tax rate for top earners might have a much larger negative effect on the productivity of top earners in the long run. This effect might be strong enough to justify a lower optimal income tax rate than what Diamond and Saez found.

If higher top tax rates curb the reward for study and hard work, entrepreneurism and economic productivity and growth might be diminished.

So, what might the optimal top income tax rate be when skill acquisition is taken into account? According to one model, the optimal tax rate is 66 percent if there is no need to acquire skills to join the 1 percent.[9] This number is not far removed from Diamond and Saez's optimal rate of 73 percent, the difference owing to various differences in their models. But the optimal tax rate goes down to 52 percent if we take incentives for skill acquisition into account. The skill acquisition channel does not negate Diamond and Saez's main message that the top 1 percent should be taxed at a higher rate than the 46.6 percent they now pay, but their result does imply that it might not be desirable for society to raise the current top income tax rate too high.

Taxing Top CEOs?

Another consideration missing from Diamond and Saez's calculation is the role of very highly paid executives. Laurence Ales and Christopher Sleet argue that talented CEOs help firms grow larger and thus create positive spillover benefits for society. Therefore, taxing them too much creates potentially significant costs for society. The researchers argue that the optimal tax rate applied to CEOs is lower if these spillovers are taken into consideration. However, as I discussed, although CEOs and other highly paid executives are among the highest earners within the top 1 percent, they are only a part of a diverse group of top earners. Therefore, this argument is probably applicable only to a subset of the top 1 percent.

The Elusive 1 Percent

As I mentioned earlier, one potential way for the top earners to avoid paying high taxes when the top income tax rate is raised is to move to a different country or to move their income or income sources to a different country. As it gets easier to communicate, travel, and move assets across countries, this channel might become more and more relevant.

Let me discuss what happened in France as a cautionary tale. In 2013, France introduced a 75 percent "super tax" on those whose income exceeded 1 million euros ($1.4 million). However, after 2014, the super tax was allowed to expire, partly because it did not generate as much additional revenue as expected. The government had forecast that the super tax–along with higher value-added and corporate tax rates–would increase tax revenue by 30 billion euros in 2013. But revenue actually increased by less than half that. Why didn't the French government collect as much in taxes as it had forecast? One channel is that the super rich can simply renounce their citizenship and move to a country with lower tax rates. For example, Bernard Arnault threatened to obtain Belgian citizenship and leave France, and Gerald Depardieu moved to Russia.

In addition to these anecdotes, there is academic research on the international mobility of top earners. When superstar inventors in the top 1 percent decide where to live, their choice has been found to be significantly affected by taxes.[10] If the average major industrialized country were to lower its top tax rate by 10 percentage points, it would be able to retain 1 percent more domestic superstar inventors and attract 38 percent more foreign superstar inventors. The response of inventors who were not in the top 1 percent was found to be weaker, confirming that the superstar inventors are more mobile internationally.

The Danish preferential foreigner tax law of 1991 revealed much the same effect. It allowed new immigrants with high earnings to be taxed at a preferential flat rate of about 30 percent for up to three years. The special tax rate doubled the number of highly paid foreigners who were able to benefit from the tax benefits relative to slightly lower-paid foreigners who were not able to benefit from it.[11] The result implies that high earners are very responsive to tax changes. Likewise, top income tax rates significantly influence where star European football (soccer) players choose to live.[12] Although it might be unlikely that a lot of high-income individuals left France right away to avoid the super tax, these studies indicate that it could have significantly hurt French fiscal revenue in the long run. Thus, we should be cautious given the possibility of such an effect.

Technological progress and globalization have made it easier to move money across borders, too. Offshore personal wealth has been growing fast recently, and the bulk of it seems to have been moved for the purpose of avoiding taxes.[13] Of course, emigrating or moving money around would not work if all countries were to impose high income tax rates on the rich at the same time, which Piketty proposes. But it might be too optimistic to think that such a coordinated global effort, which has never happened, will suddenly materialize in the near future. Other reasons have been suggested for why the super tax was scrapped: Firms may have held off raising compensation for top earners in anticipation of the super tax expiring, and the tax generated bad publicity for France. In any case, the French experience suggests the practical obstacles of implementing high taxes for top earners. Of course, it might be easier for top earners to move across borders in Continental Europe compared with the U.S., but this episode still serves as a cautionary tale that other potentially important elements are missing from the simple theory that I present in this article.

Concluding Remarks

We need to be aware of the potential cost of raising taxes on top earners, as higher taxes could dampen the incentive of the most productive individuals in the economy to work. But such negative efficiency effects might not be large enough to negate the conclusion that tax revenue could be increased by raising the top tax rates. We also need to be aware of the possibility that high earners or their income could leave the country, but it is not easy to say how strong this effect would be.

A higher income tax for the top 1 percent of households might lessen income inequality, both directly–as the after-tax income of the 1 percent shrinks–and indirectly–through a negative incentive effect. The simple theory I presented in this article suggests that the optimal–in the revenue-maximizing sense–top income tax rate is higher than the current rate. EI

References

Akcigit, Ufuk, Salome Baslandze, and Stefanie Stantcheva. "Taxation and the International Mobility of Inventors," *American Economic Review*, 106:10 (2016), pp. 2,930-2,981.

Ales, Laurence, and Christopher Sleet. "Taxing Top CEO Incomes," *American Economic Review*, 106:11 (2016), pp. 3,331-3,366.

Alvaredo, Facundo, Anthony B. Atkinson, Thomas Piketty, and Emmanuel Saez. "The Top 1 Percent in International and Historical Perspective," *Journal of Economic Perspectives*, 27:3, (Summer 2013) , pp. 3-20, https://www.aeaweb.org/articles?id=10.1257/jep.27.3.3.

Armenter, Roc. "A Bit of a Miracle No More: The Decline of the Labor Share," Federal Reserve Bank of Philadelphia *Business Review* (Third Quarter 2015).

Atkinson, Anthony B. *Inequality–What Can Be Done?* Harvard University Press, 2015.

Badel, Alejandro, and Mark Huggett. "Taxing Top Earners: A Human Capital Perspective," Federal Reserve Bank of St. Louis Working Paper 2014-17 (2014).

Bakija, Jon, Adam Cole, and Bradley T. Heim. "Jobs and Income Growth of Top Earners and the Causes of Changing Income Inequality: Evidence from U.S. Tax Return Data," unpublished manuscript (2012).

Diamond, Peter, and Emmanuel Saez. "The Case for a Progressive Tax: From Basic Research to Policy Recommendations," *Journal of Economic Perspectives*, 25:4 (2011), pp. 165-190.

Guner, Nezih, Martin Lopez-Daneri, and Gustavo Ventura. "Heterogeneity and Government Revenues: Higher Taxes at the Top?" *Journal of Monetary Economics*, 80 (2016), pp. 69-85.

Kaplan, Steven N., and Joshua Rauh. "It's the Market: The Broad-Based Rise in the Return to Top Talent," *Journal of Economic Perspectives*, 27:3 (2013), pp. 35-56.

Kindermann, Fabian, and Dirk Krueger. "High Marginal Tax Rates on the Top 1 Percent? Lessons from a Life Cycle Model with Idiosyncratic Income Risk," National Bureau of Economic Research Working Paper 20601 (2014).

Kleven, Henrik Jacobsen, Camille Landais, and Emmanuel Saez. "Taxation and International Migration of Superstars: Evidence from the European Football Market," *American Economic Review,* 103:5 (2013), pp. 1,892-1,924.

Kleven, Henrik Jacobsen, Camille Landais, Emmanuel Saez, and Esben Schultz. "Migration and Wage Effects of Taxing Top Earners: Evidence from the Foreigners' Tax Scheme in Denmark," *Quarterly Journal of Economics*, 129:1 (2014), pp. 333-378.

Piketty, Thomas. *Capital in the Twenty-First Century*, Belknap Press, 2014.

Piketty, Thomas, and Emmanuel Saez. "Income Inequality in the United States, 1913-1998,"*Quarterly Journal of Economics*, 118:1 (2003), pp. 1-39.

Piketty, Thomas, and Emmanuel Saez. "Optimal Labor Income Taxation," in Alan J. Auerbach, Raj Chetty, Martin Feldstein, and Emmanuel Saez, eds., *Handbook of Public Economics*, 5, Chapter 7 (2012), pp. 391-474.

Piketty, Thomas, Emmanuel Saez, and Stefanie Stantcheva. "Optimal Taxation of Top Labor Incomes: A Tale of Three Elasticities," *American Economic Journal: Economic Policy*, 6:1 (2014), pp. 230-271.

Zucman, Gabriel. "Taxing Across Borders: Tracking Personal Wealth and Corporate Profits," *Journal of Economic Perspectives*, 28:4 (2014), pp. 121-148.

Notes

1 Financial professionals include executives and managers in the finance industry.

2 See the work by Jon Bakija, Adam Cole, and Bradley Heim.

3 After the Supreme Court declared income taxes unconstitutional in 1895, there was no federal income tax until 1913.

4 As pointed out by Facundo Alvaredo, Anthony Atkinson, Thomas Piketty, and Emmanuel Saez.

5 I follow the imputation by Peter Diamond and Emmanuel Saez.

6 Using these standard values, this tax rate can easily be calculated as $(m - 1)/(m - 1 + me)$, where m is the income concentration measure and e is the labor supply elasticity.

7 Atkinson's proposal No. 8 in his 2015 book states, "We should return to a more progressive rate structure for the personal income tax, with marginal rates of tax increasing by ranges of taxable income, up to a top rate of 65 per cent, accompanied by a broadening of the tax base." See http://www.tony-atkinson.com/the-15-proposals-from-tony-atkinsons-inequality-what-can-be-done/.

8 See Steven Kaplan and Joshua Rauh's article.

9 Alejandro Badel and Mark Huggett's model incorporates skill acquisition decisions.

10 See the study by Ufuk Akcigit, Salome Baslandze, and Stefanie Stantcheva.

11 See the research by Henrik Jacobsen Kleven, Camille Landais, Emmanuel Saez, and Esben Schultz.

12 See the findings by Kleven, Landais, and Saez.

13 See the research by Gabriel Zucman.