

# Income and Wealth in America

*Kevin M. Murphy and Emmanuel Saez*

*In this session, Kevin Murphy and Emmanuel Saez present their research, react to each other's presentations, and take questions from the audience.*

## **Part I: Kevin Murphy**

I'm going to go relatively quickly because I think the discussions are always the best part. We've talked a lot about the top 1 percent. I'm not going to talk about the top 1 percent. I'm going to talk about the other 99 percent almost entirely. Before I start with the facts, I want to make sure that we're all thinking about it the same way. The most important thing, when we talk about wages and talk about inequality, is to realize that we're talking about prices. At least when you talk about wages, it's the price of labor that's being determined in some marketplace out there. I think that we sometimes tend to forget that. Prices matter. For example, what happens when you see the price of something go up? Why did it happen? Maybe demand went up or supply went down. How is the market going to respond?

If there's more demand for something than there was last year, people are going to produce more of it. These are the natural kinds of supply-and-demand responses that we expect to see in the marketplace. That's the perspective that I think is very important when thinking about the labor market. One thing at which I

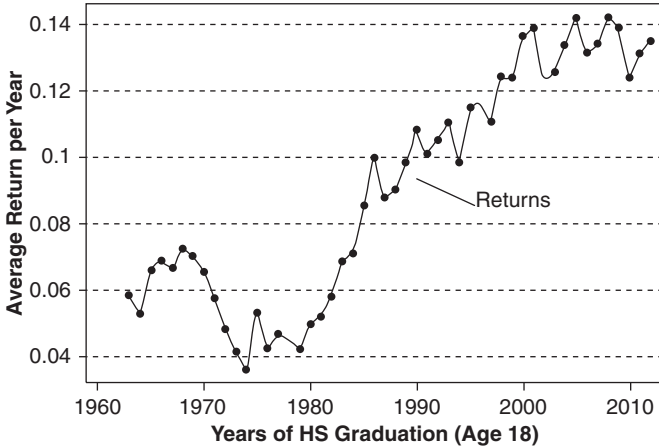


FIGURE 6.1. Returns to college education, 1963–2012

Source: Based on previous work done by Katz and Murphy (1992) updated to 2012

looked was returns to college. We've heard a lot about education and about returns to college. Figure 6.1 is a measure of returns to college in the United States.

The key feature on which you might focus is that there was a decline in the returns to college in the 1970s, which was actually a period where people were talking about Americans being over-educated. That was followed by the dramatic rise that occurred during the 1980s, a continued rise in the 1990s, and a relatively flat premium in the 2000s. What I hadn't really fully appreciated until the discussion over the last few days is that the timing of 1980 to 2000 as the big transition period is true for things beyond the college premium and wage inequality. A lot of the graphs that we saw the other day and a lot of the discussions that we heard yesterday on inequality at the top of the income distribution mirrored that same picture. A lot of what happened at the top of the income distribution happened pre-2000. That's certainly the case here when we look at the returns to college.

The other thing to note is just how dramatic that change is. The early-human-capital literature of the 1960s talked about the 7 percent return. It actually fell to maybe 5 percent in the 1970s. That was the “overeducated America” period. Now, you get returns more like 13 percent. It’s really quite dramatic. Again, think about it in terms of prices. If you think about college as an investment, this would suggest that there’s an enormous return to investment today—roughly triple what it was in 1980. At the same time, think about this as a price from the point of view of driving inequality in terms of the outcomes. It’s like when the price of oil goes up. All of the guys who have oil are much better off than they were before, and all of the people who need to buy gas are worse off than they were before. That’s part of the story. The other side is that there’s a big incentive now to go out and to find more oil and to produce more oil than you did in the past. That’s going to be true in the college market as well.

Figure 6.2 gives the change in the log wage rate over a roughly forty-year period from 1970–72 to 2010–12 for men and women by percentile of the wage distribution. These are different people at the beginning and end, and I’m matching the median in 1970 with the median in 2010. What we are asking is: how did the wages associated with different points in that distribution change over time? There are several interesting things about a figure like this, which will be part of the story when thinking about inequality.

One is to remember the timing. It’s going up. It’s not all the last ten years. It’s been going up over time, but the other is that this is an upward-sloping line throughout the range. There’s a bigger increase at the eightieth percentile than there was at the sixtieth and more at the sixtieth than at the fortieth. There’s been growth in inequality throughout the distribution. This is not unique to the top. In fact, if you ask, how big is the gap between the middle and the top, the middle in the graph is about 0.2, and the top is almost

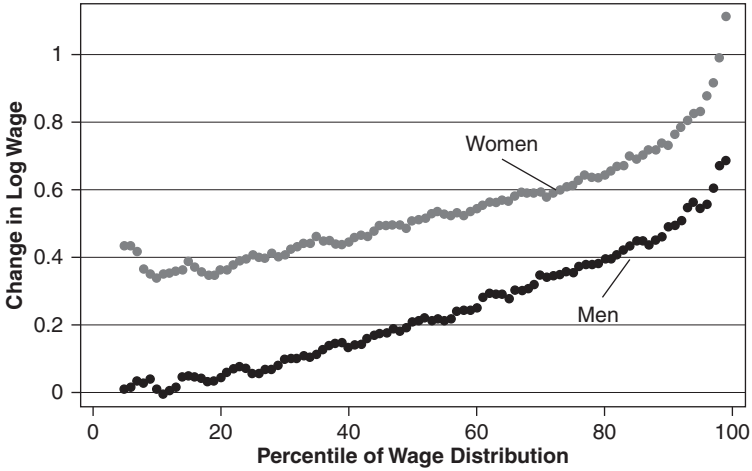


FIGURE 6.2. Growth in men’s and women’s log weekly wages by percentiles of the wage distribution, 1970–72 through 2010–12

Source: Based on previous work done by Katz and Murphy (1992) updated to 2010–2012

0.5. If you asked, how would I extrapolate out to the kinds of numbers you’d get way up there, maybe you get 0.7, which would be roughly a doubling of relative wages.

What’s interesting is that this phenomenon, which is present throughout the distribution, parallels what has happened at the very top of the distribution. One really important question that needs to be answered is: is this the same phenomenon? Is it a related phenomenon? Are these two independent things that have happened? The last one is very unlikely. The question is: to what extent are they cousins, versus siblings? That’s a really interesting question. I’m going to talk about some of the same explanations, although I’m not sure that the mechanisms are exactly the same for explaining what happened in the top. However, I believe they are closely related.

The other thing that you should not lose in this graph, and it was brought up earlier today, is that there’s a major dimension in which inequality has fallen, and that is between women and men.

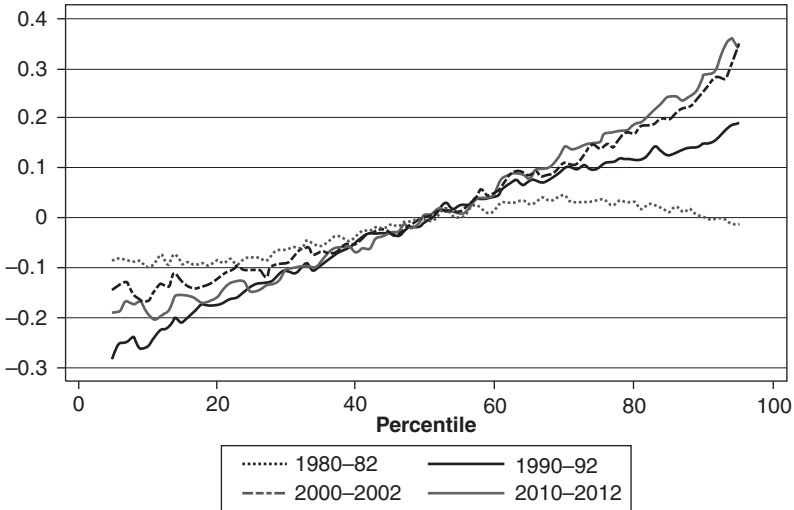


FIGURE 6.3. Change in relative log wage for men from 1970–82

Source: Based on previous work done by Katz and Murphy (1992) updated to 2010–2012

Women’s wages were below men’s. In this *graph* you can see that no matter whether you’re talking with low-wage women or high-wage women, women have done much better than men over this forty-year period to the tune of almost twenty log points. That’s a big change in relative wages.

Now, Figure 6.3 is the picture by time. Growth over the forty years is broken out by decade. For all of the curves, growth is measured from 1970–72 to the indicated period. The dotted line is what happened between 1970 and 1980–1982, those first ten years. The contrast between the people who gained the most and those who gained the least was mostly in the lower half. Inequality grew in the 1970s, but mostly in the lower half of the distribution. The 1990s have a large change. Inequality went up a lot at the top; it continued to fall at the bottom. There was growth in inequality both at the top and at the bottom. When you get to the 1990s, at the top, you continue to see rising inequality. On the bottom, we’re moving slightly the other way. That’s this kind of hollowing in the middle

about which people often talk for that 1990s period. Then, you go to the 2000s. We see a modest increase at the top and a modest fall backward more like the 1980s at the bottom. The recent years are like a muted version of the 1980s with growth at both the top and the bottom.

Why has inequality increased? Here is what I think has been going on: the growth in inequality can be understood in terms of some of the most basic economic forces—supply and demand. I was a student of Gary Becker, so I don't know anything else. The demand for education and for other skills has been growing. I want to emphasize other skills—skills other than education. There's a tendency, when people think about human capital, to think about human capital as synonymous with education. Education explains a small amount of the variation in individual earnings. The *r*-squared in a regression, if you just put education in there, is around 0.1 to 0.2. It's a really low number. It doesn't explain a whole lot. There are lots of other skills out there. We focus on education because we can measure it, not because it is more important than other skills. A lot of other things are going on as well. There are a lot of other skills that are important.

In the basic model of supply and demand, when supply grows faster than demand, prices fall. When demand grows faster than supply, prices rise. The story actually turns out to fit the data very well. Figure 6.4 is a model that Larry Katz and I first estimated. I don't have an updated version of this, unfortunately. Larry Katz and I developed this model back in 1987 with data through 1987, so it's way before the end of the data in the graph. Basically, we were trying to explain why the college premium first fell in the 1970s and rose in the 1980s. The basic idea was that the 1970s were different because supply grew so fast. The big reason that supply grew so fast actually was the Baby Boom. There was a huge influx of educated young workers who flooded the market, pushing down

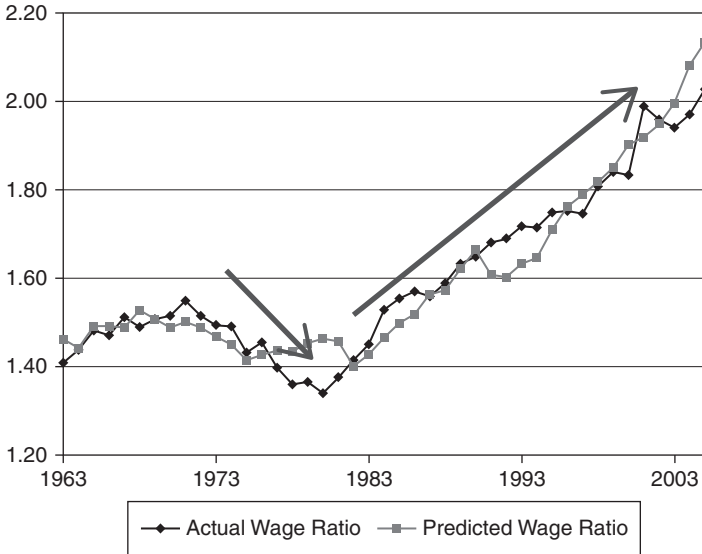


FIGURE 6.4. Supply growth and relative wages

Source: Based on previous work done by Katz and Murphy (1992) updated to 2005

prices. And then when supply growth slowed and demand didn't keep up, prices started going up.

This view of the world is important because the forces that generate growth in the demand for skilled labor are the same basic forces that generate economic progress. Think of it this way: where does progress come from? We have new technologies. We invest in physical capital to support those new technologies. Both technology and capital tend to be complements for skilled labor and substitutes for unskilled labor. We have a perpetual rise in the relative demand for skilled labor relative to unskilled labor. That's not new. That didn't start in 1980. That's been going on decade after decade throughout the twentieth century. Over the twentieth century, we increased the supply of skilled labor. If you look at education, we increased average education levels almost a year per decade

over that period of time. As long as supply growth was keeping pace with the demand growth, returns to skill would not change in spite of growing demand. What's happened is that that relationship has broken down. Supply is no longer keeping pace with the ongoing growth in demand.

Now that's a bit too simplified, because if you look at the pattern of the change in the growth of demand, it has become more concentrated. You get that concave shape in the early years and more convex shape in the later years. There are subtleties to the story. I think that the data fit those nuances very well, but I will leave that aside for now. The key point is that this supply-and-demand view of the world is important.

What are the lessons that come out of this? One is that supply matters. That is, if you have low-skilled individuals earning low wages, if you can educate some of those people, improve their schooling, move them up the ladder, that will benefit them, and it will benefit all of the other low-skilled people by reducing the

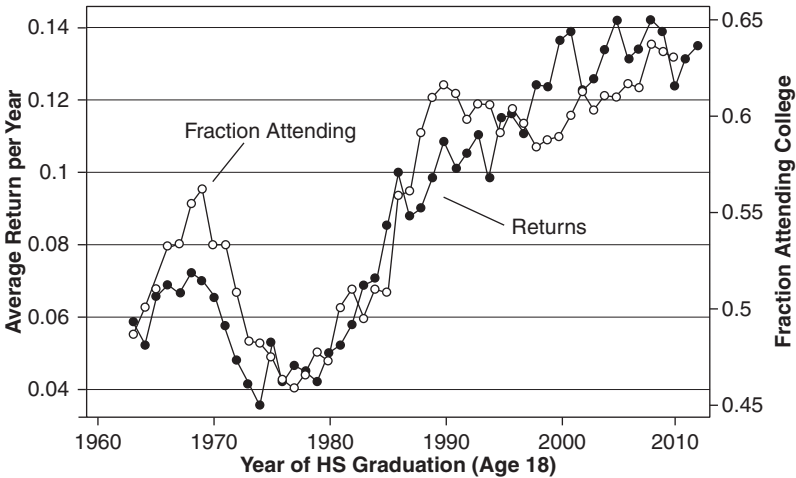


FIGURE 6.5. Returns and college attendance

Source: Based on previous work done by Katz and Murphy (1992) updated to 2012



supply of low-skilled competitors in the labor market, raising wages for the rest of the low-skilled population. Supply matters. You might ask, why has supply not kept pace? Do people not see the rise in demand and respond to it? Has supply responded? Figure 6.5 shows the returns to college and the fraction of high-school graduates who go to college. I'd say they responded. It looks pretty interesting actually. That is the return on one axis and the fraction attending on the other.

What's really interesting to me—and this gets to a point that George Shultz made yesterday—I was one of the early people to write on the college premium. Yet people started responding years before we started writing. I don't know what they were reading, or what data set they were looking at, but they obviously got the data before we did. What's interesting is that if you look at how many people graduate, not at how many people attend, it lags far behind. There are a lot of people who are starting college but, particularly among men, the number actually graduating doesn't respond nearly as much. To me, that suggests something very simple: there are a lot of people who see the need to go to college, who see the need to get more human capital more generally, but who are not well-prepared to do it.

That gets back to an important point about human capital: a key input into producing human capital is human capital itself. Human capital is human-capital-intensive. It takes the human capital of schoolteachers. It takes the human capital of parents. It takes your own human capital to help you succeed in school. You can't go to college if you had a lousy elementary and secondary education. When you have a poor elementary and secondary education, it is very difficult to be successful in college. The fact that more people are trying to go to college but are not being successful suggests that we have a big problem with preparation. A number of people are poorly prepared to go to school. That is not new. We've always had lots of people who are poorly prepared to go to college, poorly prepared to acquire human capital. The difference is that, in the

past, there were lots of things for them to do. Now there are not as many things for low-skilled workers to do, since technology has progressed. Do we want to stop progress? No. The answer is that we've got to respond.

Go back to figure 6.1, which showed the returns to college. There are two ways to look at this. One is that supply has fallen short. The other is that there is an opportunity here. The best way to solve this shortage is to take advantage of the high return that the shortage has generated. That is, we've got an opportunity to get a return on investment that's higher than it's been in the past. That's assuming that we can actually invest in the skills that are reflected in these higher prices. I don't see any reason why we can't.

The second is that because the number of people going on to college (the extensive margin) has not kept pace with demand, prices have risen.

That generates an intensive margin response that exacerbates inequality because what happens is that the high-skilled people are supplying more labor. They're working harder. They're working more hours. They're investing more in themselves. They're moving to places that demand more human capital. This, unlike growth in the number of individuals completing college, actually increases inequality. Bob Topel and I have a paper that shows why that's the case. You've got technology working to increase inequality. The extensive margin is constantly pushing that back. When the extensive margin falls short, the intensive margin pushes inequality up because people are responding positively to their earnings. They're realizing that they can earn more. They're going to work harder, to work more, and to do things that bring more compensation.

## **Part II: Emmanuel Saez**

I am going to talk about income and wealth and equality in America. I'm going to lay out the facts relatively quickly because we've

seen, over these two days, a lot of those numbers already. And then I'll throw in some policy ideas to stimulate the debate. I've worked on top-income shares. Let me first say, this is a conference on inequality. Inequality matters because the public cares about it. That is, people evaluate their own success relative to others. People have a sense of fairness. That's why the study of inequality is interesting, and that's why we need economics to provide measures that are understandable to the public to illuminate the debate. We need to find simple ways to measure inequality, so what we've done is that we've measured shares of total income going to the top 10 percent, top 1 percent, etc. We've used individual income tax statistics because they are the only source that cover long time periods and that capture top incomes well. Thomas Piketty started this literature with the study of France, and I analyzed with him the case of the United States.

I'm going to talk about pre-tax market income. That is what people earn on the market before taxes and before transfers from the government. As a caveat, I want to point out that the numbers you'll see, and that you've seen yesterday, are narrower than national income. They include market income reported on tax returns and, hence, they exclude things like employer-provided health care benefits or imputed rent of homeowners. Our next goal is to broaden the series to reflect total income, so that we will be able to distribute national income on a pre-tax, pre-transfer basis and also do it on a post-tax, post-transfer basis.

Figures 6.6 and 6.7 show the facts for the United States. If you look at the share of income going to the top 10 percent families, it has that big U shape over the last hundred years. There was a very high level of income concentration before World War II, with the top 10 percent getting 45 percent of total income. There was a big fall in income concentration during World War II, and then a period of much lower income concentration in the following three decades. What is striking indeed has been the surge in the

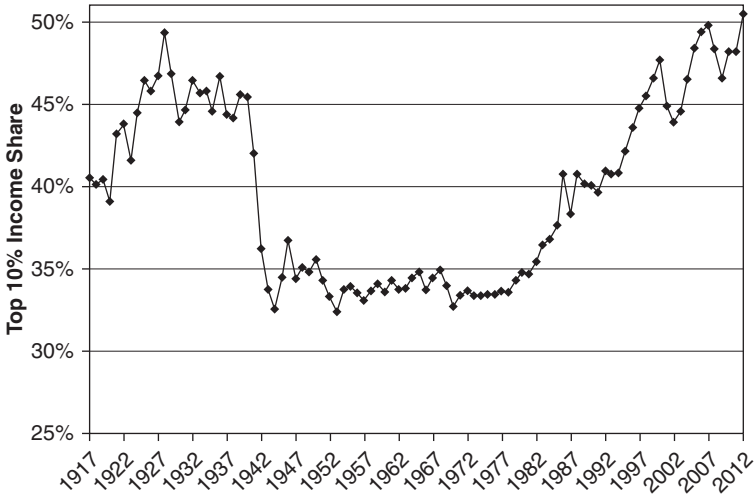


FIGURE 6.6. Top 10 percent pre-tax income share in the US, 1917–2012

Source: Thomas Piketty and Emmanuel Saez, “Income Inequality in the United States, 1913–1998,” *Quarterly Journal of Economics* 118 (1) (2003), updated to 2012

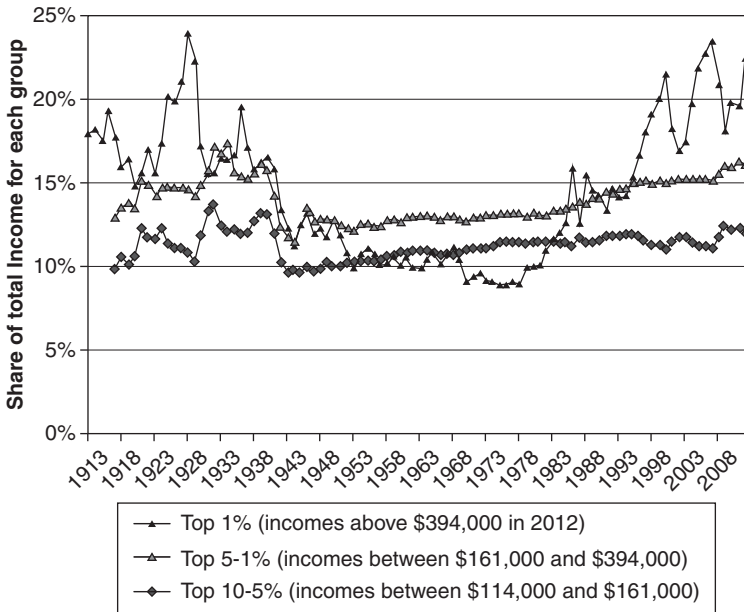


FIGURE 6.7. Decomposing top 10 percent into three groups, 1913–2012

Source: Thomas Piketty and Emmanuel Saez, “Income Inequality in the United States, 1913–1998,” *Quarterly Journal of Economics* 118 (1) (2003), updated to 2012

last three or four decades where the top 10 percent income share goes from 33 percent all the way to 50 percent, so that in recent years we are at a level of income concentration that is as high as it's been over the last hundred years. The second fact that echoes what Kevin Murphy was showing is that this effect has been really very highly concentrated. The higher you go in the distribution, the bigger the gain. Figure 6.7 displays the top 1 percent, next 4 percent (top 5-1%), and next 5 percent (top 10-5%) income shares. You can see that out of the seventeen-point increase in the top 10 percent income share, most of that comes from the top 1 percent, whose income share goes from slightly below 10 percent to above 20 percent in recent years with some gains in the next 4 percent and with only a little bit of gain in the next 5 percent.

What is driving top-income shares? If you look at the worldwide evidence that we've gathered, all currently rich countries had very high levels of income concentration a hundred years ago. That's true for Sweden. Even the most equal countries today had very high levels of income concentration a century ago. Income concentration fell dramatically in all countries in the first half of the twentieth century. Income concentration surged back in some—but not in all—countries since the 1970s. Chad Jones showed numbers. In the US, you've seen that income concentration has increased dramatically. In France, as well as in other continental European countries and in Japan, the increase has been much smaller, which tells you that globalization cannot be the sole explanation (see Atkinson, Piketty, and Saez 2011 for international evidence on top income shares). What matters is how globalization interacts with institutions or with the market structure in each country.

One of the things we've looked at is the role of progressive taxation. What we've found is that the surge in pretax top incomes is highly correlated with measures of tax progressivity measured in a very simple way by the top marginal income tax rate. So, figure 6.8 is the cross-country evidence from the 1960s to the recent period.

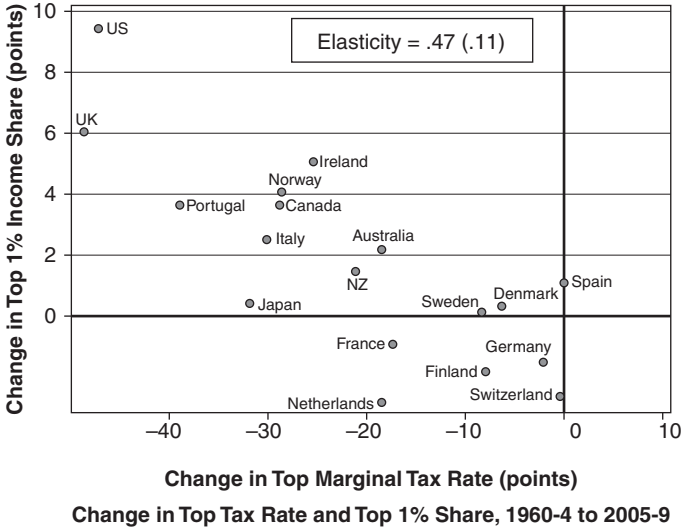


FIGURE 6.8. Change in top tax rate and top 1 percent share, 1960–4 to 2005–9  
Source: Thomas Piketty, Emmanuel Saez, and Stefanie Stantcheva, “Optimal Taxation of Top Labor Incomes: A Tale of Three Elasticities,” *American Economic Journal: Economic Policy* 6 (1) (2014)

On the x-axis, we put the cut in the top marginal tax rate over that period, and so you have two outliers, the United States and the United Kingdom. They were the countries that had the highest top marginal tax rates back in the 1960s, and they are the ones who cut them the most. And then on the y-axis, you have the change in the top 1 percent pretax-income shares. Here it’s pretax, so that there’s no mechanical relationship between tax rates and top incomes. You see that countries are aligned roughly on the diagonal; the countries that cut their top tax rates the most experienced the biggest increase in top income shares. A number of countries in Europe who didn’t change their tax policy, and they didn’t experience a very large change in income concentration.

Figure 6.9 shows the striking inverse relationship in the United States between the top 1 percent pretax income share that we’ve

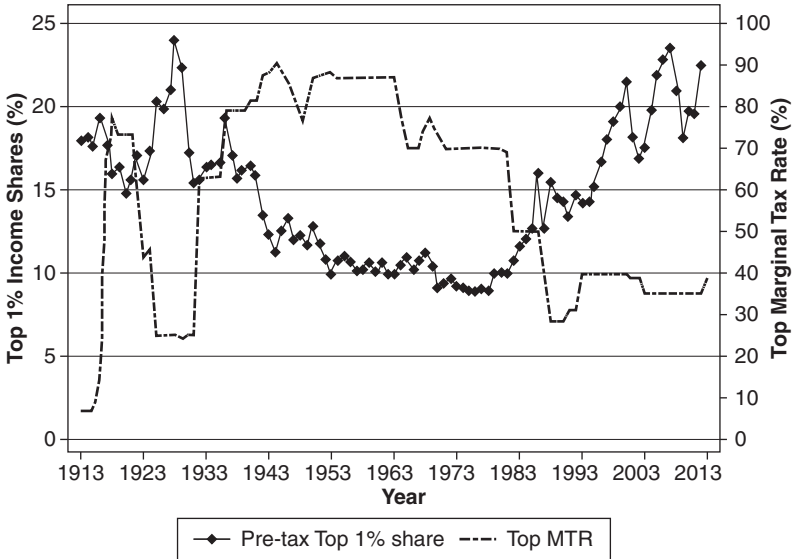


FIGURE 6.9. Top 1 percent income share (pre-tax) and top marginal tax rate

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

seen and, in the dotted line on the right-hand-side y-axis, the top marginal income tax rate that has an inverse U-shape over the century with very high top tax rates in excess of 70 percent from 1933 to 1981. The two curves mirror each other. How do we interpret these strong links between top income shares and top tax rates? One view, natural to economists, is that it reflects a supply-side response. That is, in the recent period, high earners didn't have to pay as much in marginal taxes, so they worked more, they generated more economic activity, and they earned more. Another view that Josh Rauh discussed in his presentation is that they worked more, but not in a productive way, but rather they worked more at extracting more pay. Think about academics like myself. If tax rates are low, I'm going to chase offers from high-paying places to increase my salary but I am not necessarily going to work more on my research. I

have more incentives to get a big pay increase if the tax rates are low because I can keep a larger fraction of my pay increases.

It's very hard to distinguish between those two stories. I'm not going to nail it today, but I think that this is a critical question to understand regarding what we should do about tax policy and top earners. Figure 6.10 shows striking evidence on the pattern of real growth per adult in the United States for the bottom 99 percent and top 1 percent starting from a base of one hundred in 1913 and going all the way to 2012. In the long run, economic growth lifts all boats so that the top 1 percent and the bottom 99 percent average incomes have been multiplied by roughly a factor of four over a century from 1913 to 2012. However, what is striking here is how different the timing of growth is for the top 1 percent vs. the bottom 99 percent.

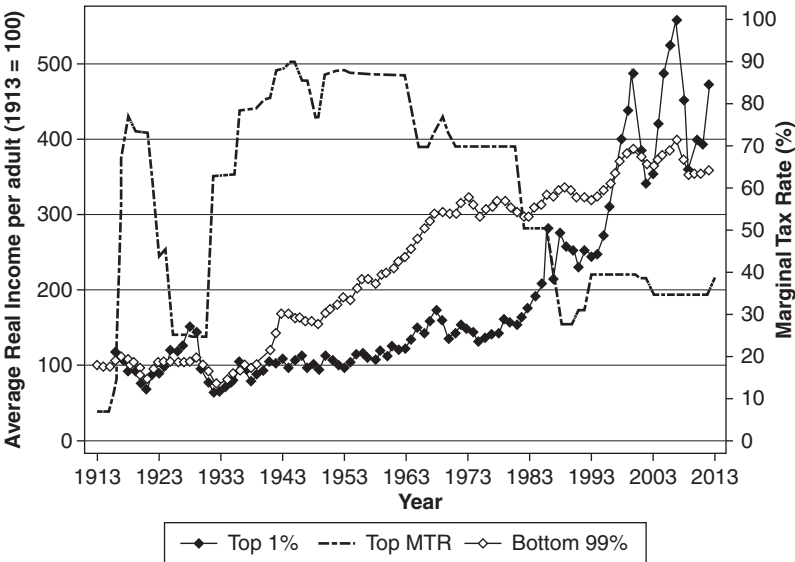


FIGURE 6.10. Top 1 percent and bottom 99 percent income growth

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



That is, if you look at the period when top tax rates were very high, you had strong growth for the bottom 99 percent and low growth for the top 1 percent. The pattern switched starting in the 1970s in the period where top tax rates went down dramatically. You had a very large increase in top 1 percent incomes and a slowing down of the bottom 99 percent income growth. This is a striking graph because it shows you that over a period of a few decades the growth experienced for different groups can be very different. People have talked a lot about the recent period. The Great Recession hit the top 1 percent and the bottom 99 percent. Coming out of the Great Recession, we see very little growth for the bottom 99 percent and a quick recovery for the top 1 percent.

Now, let me talk briefly about what we can say about wealth inequality. Income and savings create wealth. I've done a study recently with Gabriel Zucman using capital income-tax data to capitalize income and to get a long-time series of wealth inequality. If you look at the bottom 90 percent wealth share in the United States, you do see a significant increase with the democratization of wealth ownership of, first, housing, then of pensions. But starting in the mid-1980s, you see an erosion of middle-class wealth, where their share goes from a peak of 36 percent down to the low 20s. And so for the top 1 percent wealth share, you get the inverse, with a big U, and a significant increase again, going from the low 20s percent in the late 1970s to 42 percent in recent years. It looks like wealth inequality evolves similarly to income inequality. Figure 6.12 shows absolute real wealth per family from 1946 to 2012. On the right y-axis, you have in dollars the wealth of the bottom 90 percent, and on the x-axis, multiplied by one hundred, is top 1 percent wealth. Both measures increase; but, again, the Great Recession dramatically hit the bottom 90 percent, with no recovery afterward. Today, the bottom 90 percent finds itself with a wealth level similar to the 1980s. In contrast, the top 1 percent was hit a little bit, but then the upward trend resumed quickly.

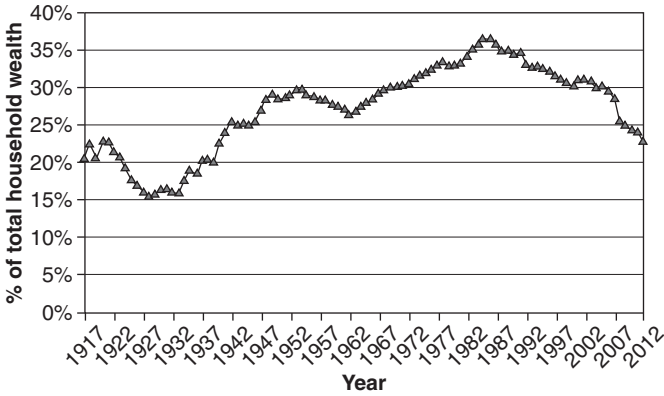


FIGURE 6.11. Bottom 90 percent wealth share in the United States, 1917–2012

Source: Emmanuel Saez and Gabriel Zucman, “Wealth Inequality in the United States since 1913: Evidence from Capitalized Income Tax Data,” National Bureau of Economic Research, Working Paper No. 20625, 2014

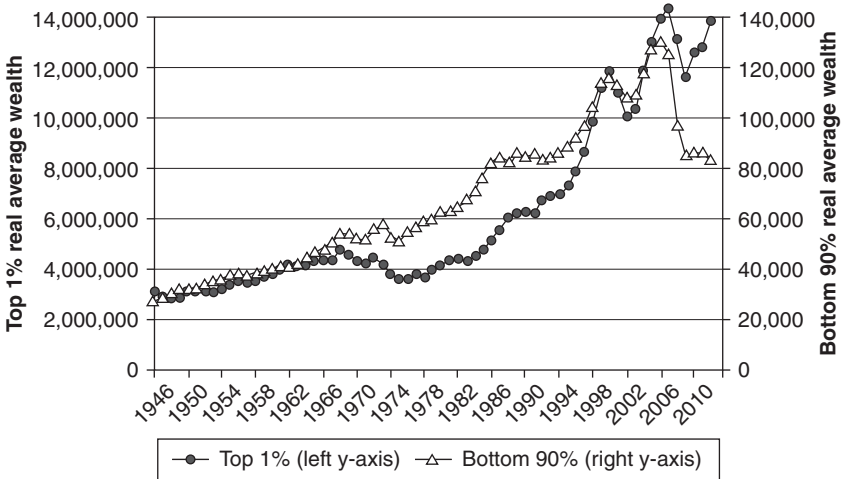


FIGURE 6.12. Real average wealth of bottom 90 percent and top 1 percent families

Source: Emmanuel Saez and Gabriel Zucman, “Wealth Inequality in the United States since 1913: Evidence from Capitalized Income Tax Data,” National Bureau of Economic Research, Working Paper No. 20625, 2014

By combining income and wealth, we can figure out what are the savings rates that are consistent with the patterns that we find. The erosion of wealth of the bottom 90 percent is related to the savings rate. It's true that incomes didn't do too well, but the relative decline in wealth is so large that even if you take into account price effects, it has to be explained by a very low savings rate for the bottom 90 percent. We find ourselves in a world in which income inequality is increasing, the bottom 90 percent families save less, and, therefore, their wealth doesn't make progress. And now, if you look at savings rate by wealth class, the top 1 percent had very high savings rates. At least that's what you need to explain how their wealth has increased so much, even taking into account that their incomes have increased.

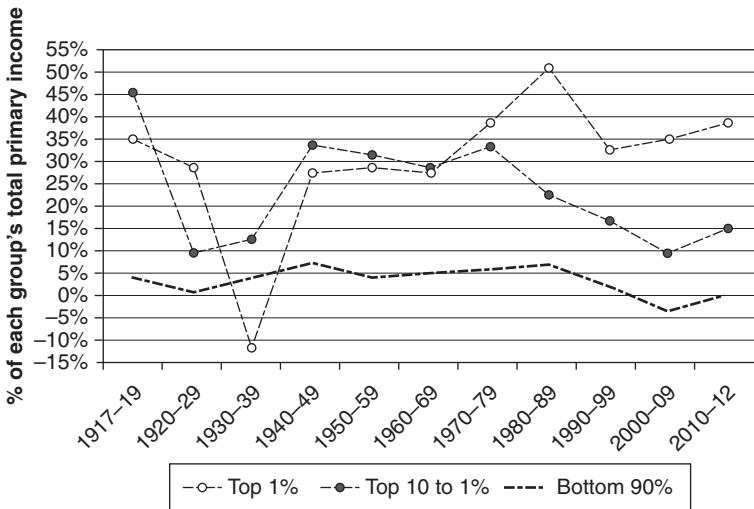


FIGURE 6.13. Savings rates by wealth class (decennial averages)

Source: Emmanuel Saez and Gabriel Zucman, "Wealth Inequality in the United States since 1913: Evidence from Capitalized Income Tax Data," National Bureau of Economic Research, Working Paper No. 20625, 2014

The last fact that I want to point out relates to what Josh Rauh presented yesterday. It looks like the top wealth holders have significantly more income and, in particular, labor income. They are also younger if you look at the data. It looks like the surge in top incomes combined with high savings rates has led to the creation of new fortunes. We find ourselves in a world where there is much more correlation between labor income and wealth. Based on that, what should we think about policy? If you want to prevent ever-growing wealth and income concentration, what should you be doing? The estate tax is the most direct tool to prevent self-made wealth from becoming inherited wealth. That is, if we see this huge increase in wealth concentration, and if we look at charitable-giving data, and we don't see the rich giving away a growing fraction of their income, if that hasn't changed that much over time, it has to be the case that the flow of inheritance at the top is going to increase.

Another element based on Gary Becker's work is the human capital transmission channel. I believe it is becoming very important because richer families can devote more resources to children's education. High-wealth, high-income people are going to put the effort to make sure that they navigate the school system and get the best possible education for their kids. Statistics on parental income of students in top universities are really striking (see Chetty et al. 2015). In top universities, think about the Harvards and the Stanfords, over 50 percent of students come from top 10 percent families. Over 20 percent of students come from top 1 percent families; the human capital channel is going to be very important. We need to find ways to promote access to top schools for low-income talented kids. Caroline Hoxby and Chris Avery have fascinating work showing that a large fraction of talented but low-income kids don't seem to be able to optimize the system. They would be admitted to the Stanfords and to the Harvards with very low tuition because of financial aid, and yet they don't apply to such schools. They just don't know how to navigate the process.

Rebuilding middle-class incomes is possibly the hardest problem to solve. There are limits to increasing direct means-tested transfers. First, there is the issue of marginal tax rates that Casey Mulligan pointed out at the beginning of the conference. More redistribution through means-tested transfers means higher marginal tax rates; and for the low-income families, high tax rates on earnings matter in terms of their work decision. Second, I don't think that the US public is in favor of increased direct support for redistribution from the government. What the public really wants is for the market economy to deliver a more equal distribution of income pretax. Kevin Murphy has talked a lot about schools, and I agree with him. We can discuss that more now. Think about policies that can reshape the distribution of pretax income. I talked about progressive taxes at the top. Minimum wages at the bottom, union policies, also seem quite a bit correlated with pretax income inequality.

In terms of rebuilding middle-class wealth, we have seen that bottom 90 percent wealth is stagnating, mostly due to plummeting savings rates. And now, why have savings rates fallen so much? It could be stagnating incomes coupled with a desire to keep up your consumption. That combined with financial deregulation, offering ways for people to borrow, with the subprime mortgages being the most striking example. All of that of course requires some present-biased consumption behavior from individuals. So, how do we think about encouraging savings of the bottom 90 percent families? I think that here we have very good work coming out of behavioral economics showing that default choices have much more impact than tax incentives for savings. The best examples come from the 401(k) literature. When employers make you pay into the 401(k) with contributions, by default, we do see an enormous impact on overall contributions.

Chetty et al. (2014) have done very good work in Denmark, showing that there were higher pension contributions when that

was made the default decision. Such defaults actually translate into more wealth accumulation because individuals don't offset that with reduced savings in other accounts. In the United States, there is a debate about expanding nudged savings through automatic IRAs, so that this type of default savings tool is available to people who do not have access to 401(k)s (Thaler and Sunstein 2008). The fact that we observe opt-out defaults in private 401(k) plans suggests that there is indeed a need here that the market is trying to fill, but that might not reach the bottom 50 percent individuals who work in jobs that don't offer 401(k)s. That's a place where we can think about light government interventions to rebuild middle-class wealth.

***Moderator:** Let me give you each a chance to comment briefly on what each other has said. Listening to you, it seems to me there are kind of two different views of why this has happened. Kevin has emphasized education quite a bit. And I think that Emmanuel has focused on marginal tax rates more. Certainly there's a difference there that's quite clear. And, of course, there are different solutions, but that does lead you in two different directions.*

**Murphy:** I'll go back to saying just how broad-based the growth and inequality are. It's hard to believe that top marginal tax rates are really the drivers of that. One of the things that suggest a human capital explanation is that if you look at hours by percentiles of the distribution, you see a big steepening of the hours profile, where the higher-wage people are working a lot harder and lower-wage people are working less. Even theory doesn't say that I would see a response mostly in the form of rent-seeking. There is a greater return to getting more income. For lots of people there isn't a great opportunity, I don't think, for rent-seeking, but there is a positive-feedback effect. I think that that is an important feature. The situation has opened up opportunities and rewards for people with high levels of human capital. People earn more on lots of margins.

It's not just hours. When we talk about labor supply, we always think about hours, but a lot of it is effort, and a lot of it is occupational choice. There are lots of other dimensions. I think that a key question is: how closely tied are those things going on at the very top with the things going on in the middle and top? They're very coincidental time-wise.

The second thing that is really important is this question of human capital. I think that we're probably in agreement that human capital is incredibly important. I would encourage people to work on the human-capital area because it's very different than physical capital. You go to work and you work with a sophisticated piece of equipment, you go home at night, and it stays at work, and you go home. But the human capital you take home with you. It affects lots of outcomes, like your children and your health. We've seen a widening of health inequality among people by education level—partly, I think, for that same reason that human capital is a really important ingredient.

One thing that comes up on wealth is that part of the difference is that rich people and lower-income people have different kinds of wealth, so the composition of wealth can explain some of that. The other thing about which we don't talk there is of course human wealth. And for poor people human wealth is most of the wealth that they have by an overwhelming amount. And so you have to leverage the picture of the world when you look at their assets. The asset is a very small part of their overall budget constraint, so it's not surprising that they might go negative even on that one piece of the budget constraint in terms of their behavior.

Many people talk about market failures. I think that if you focused on markets, you'd get more discussion of how market improvements might lead to some things which we might not like. Think about credit constraints. If you have a credit constraint, it doesn't only apply to investing in your kids, it applies to all the things that you would do if you could get resources today. It's not

surprising. If credit markets get better, guess what people who are credit-constrained will want to do? Not save. There was never a saving constraint. It was a borrowing constraint. They're going to borrow more than they would have otherwise. Now, you might not like the consequences of markets getting better. I think that markets have gotten better on so many margins that would generate the kinds of changes that we've seen. It doesn't mean that we want to make markets worse again. It just means that some of the issues that we have are going to show up in different ways.

**Saez:** I want to come back to the issue of human capital about which Kevin talked. If you look historically at what has been driving college attendance rates, the role of the government seems overwhelming here. That is, if you look at college graduation rates, you see a huge increase after World War II because of the GI Bill for men that you don't see for women. Here in California the master plan that was decided by former Governor Brown played a huge role in expanding access to higher education. When we see the retreat of state funding for higher education, the market substitutes that we get are the for-profit colleges that don't seem to be working nearly as well or as effectively as community colleges. That's why it's very hard for me to believe that education is like another good. My question is: could education ever be a good where people see the quality and know what they are shopping for? I'm not an expert, but of all the facts that I've seen, it strikes me that there are very big differences. People are not able to shop optimally for education.

The recent work by Hoxby and Avery (2013) was mind-boggling to me. You have in the United States many talented kids who could get into Stanford and Harvard, paying very little tuition, and yet they don't apply. That's why I'm not as confident as Kevin that a free market for education would improve education.

**Murphy:** I would say that the striking thing to me is not so much at higher education. I agree, to navigate that market requires some



education. I don't think that people from less-educated backgrounds, with parents from less-educated backgrounds, navigate that market as well. But at least they have the opportunity to navigate that market. When it comes to elementary and secondary education, so many people just don't even have the opportunity to shop. They can shop in a variety of stores. They maybe don't want to shop, and it may be hard to get to my neighborhood, and shop in the stores in my neighborhood, but they can go there. In education, other people can't shop in my stores. I've got stores available to me. There's a high school right next to my house to which lots of people from the city of Chicago would love to go. They do not have the opportunity to shop in that store.

Maybe there's 20 percent to 30 percent of those people who wouldn't know that that's the store to go to, but there's 70 percent or 80 percent of them who know quite well that they'd rather go to that school than to the one that they're going to right now. In fact, I would bet that 99 percent of them, if you asked them, do you want to go to the one next to Kevin's house, or do you want to go to your school, would say, "I want to go to the one by Kevin's house." Today, it's not a market. There's a market for property, but then that gets us into all of these other issues of how do you actually get into that school. I think that the lack of a market in elementary and secondary education is incredible.

We can try to tackle inequality on the back end, but that's an inferior solution. Transferring people money, and thinking it is going to make up for the lack of skills and education that those people have, is not a good solution. In a world where you're doing more and more health at home, you're doing less of it in the hospital. More and more, you're supposed to monitor your own health, take your own drugs on time. Health, educating your kids, all of this requires human capital. The tough part of this is that human capital is an incredibly long-lived asset. It lasts a long time. Fixing this problem is going to take a long time because we know that

you can't just go to all of the twelfth graders today and correct all of the mistakes you made in the first twelve years of education. That's a hard thing to do. If we fix it for kindergartners, it's going to be sixteen years before they graduate from college. It's going to be thirty-five years before they're half of the labor force. But, we've got to do it because it's important for their labor market success and their success in other areas like health. It's important for individuals but it is also important for other low-skilled people. To me, it's just got to be the way to go.

**Saez:** I totally agree that improving human capital is fundamental. I agree that in the current US system, public schools are too low-quality in too many places. The question is: how do we improve the schools? That's what we should be debating.

**Murphy:** But how do we do it? By spending more money? We already spend a lot of money. The Chicago schools are not cheap schools. They are not schools that lack for dollars. They've got lots of dollars flowing into them. They probably spend as much on that school to which no one wants to go as they spend on the school next to my house, maybe more. Now, maybe they need to spend even more than that, because we've got deficiencies in the household and things like that. But I'm skeptical as to whether pushing more money into that school is really going to be the answer. Forcing that school to compete for students, to me, is a much better thing to do.

### Question and Answer Session

*QUESTION: The historical thing that I wanted to mention is that if you look at the early nineteenth century, when industrialization began to increase in England, it had a terrible effect on the lower-class peasants who were moving into cities. If you read John Hicks, for instance, you will see that it took a while for the rest of*

*the population to benefit. The early industrialists benefited enormously but, by the middle of the century, things began to improve for a much larger group. Now, we live in a very similar period. Two things have happened in the last ten years or twenty years. One is globalization. The other one is the high-tech revolution.*

*Shouldn't we give it a bit of time? We're only looking at a ten-year period, and you say that these wages have really gone up. Well, that's because the rest of society hasn't caught up with it. To acquire the kind of human capital about which Kevin Murphy is talking, takes a while. It's not a magic wand that you can just move, and then things will begin to catch up. We need to have some time, so that the rest of society can also catch up with it.*

SAEZ: Yes, it took a very long time for the technology progress to translate into higher pretax income, but the second very big transformation that you have is the increase in the size of government. In the nineteenth century, the government was taking in taxes around 10 percent of GDP in all countries. By the mid-twentieth century, you're up to 35 percent for countries like the United States and even higher in Europe. So, by developing the big programs about which we all know—education, health insurance, and retirement—the government changed things dramatically in terms of the distribution of income. In terms of wealth, I agree with you that a lot of the reason that middle-class wealth has eroded is taking on extra debt for college through student loans.

MURPHY: One thing that I would add on the college and savings is that this gets the stuff about which Casey talked yesterday. It's not just spending on college. There's an enormous tax on savings if you save to send your kids to college because of the way that financial aid is calculated. They look at how much you can afford to pay. They factor in about 40 percent of your savings. It's incredible the tax rate that they put on savings and say, that's

how much we're going to reduce your access to either grants or loans, which clearly is going to have an effect above and beyond just actually spending. It doesn't pay to have it. The other one is the long history. One thing I think is important to think about is that we tend to think about steady-state models. I don't think the twentieth century, from the human capitalist perspective, looks like a steady state. We're spending more and more time, a bigger share of income, investing in human capital. The question is: was that going to keep going on forever? And was that going to inevitably lead to the supply side falling short of the demand side? I don't know, but it's something important to think about.

*QUESTION: Thank you both, of course, for interesting papers. I have a small question, though, about the data. And, I may be completely wrong, but I want to take us back to the 1980s when tax rates were very high. It almost became a national game to convert income into capital gains. People were doing all kinds of things to do that. There were then clubs formed. One dentist, one doctor, one lawyer, one carpenter, etc., who provided services. I wonder whether in fact part of what you see is actually not so much an increase in the incomes of the top as an increase in the recorded incomes once tax rates are lower, and therefore the amount of effort it takes to go into all of these activities is less profitable because you're not paying as much tax when you don't do it.*

**SAEZ:** Thank you very much for this question, which is very important, and indeed conservative commentators have looked at our numbers and said: "Look! This doesn't have anything to do with inequality. It might be just an artifact of tax avoidance. When tax rates are high, the rich are going to make sure to find ways to hide their income, so that it's not taxable." It is a very important question to address. Thomas Piketty and myself are also public economists so we are very interested in taxes and in behavioral

response to taxation. We've looked for a lot of that. It is true that following tax episodes, you can see shifting of income from the corporate form to the individual form depending on which form of organization is tax-favored. So in the series that I have presented, indeed, we add back realized capital gains because a lot of the games for tax avoidance were through converting ordinary income into capital gains.

One simple piece of evidence that strongly suggests that the rich have indeed become richer comes from charitable giving, because charitable giving is tax-deductible. When tax rates are high, that's when you want to give to charities. Yet if you look at the pattern of charitable giving of those high-income people, the trend follows almost exactly parallel to their reported incomes. Top 1 percent income earners were giving around 4 percent of their reported income to charities in the 1960s. Today, they are giving about the same fraction of their reported income. Because top reported incomes have grown so fast, the charitable giving of the wealthy has also grown very fast. That shows you that their real incomes must have increased as well. Otherwise, how is it that they would be able to give so much more now when the tax incentive to give is smaller?

*QUESTION: I appreciate the necessity of looking at income and wealth data, but it seems like there's an invisible elephant in the room that should be paid attention to. That is, what is happening to consumption over time? I think a strong case can be made that, in many areas, the equality of consumption has increased. Ordinary people today, maybe in many cases poor Americans, can consume things that only the rich could consume just a generation or two ago. I think that it's an important fact. It's something that's often overlooked when we look at the monetary figures.*

MURPHY: I think that that's really important, and I've seen you present things on that. I've done things like that for my class

where you really can see that a pair of jeans cost about the same at Wal-Mart as it did when I was a kid, to get a pair of jeans in nominal terms. Look at lots of other goods. I used to tell the story of the \$5 iron that I bought. I bought an iron. I couldn't figure out how anybody in the world could make an iron, and put it in a box, and ship it to Target and sell it to me for \$5. Those kinds of things are really amazing in terms of progress! You've got to take all of these price deflators with a grain of salt on the aggregate. The more interesting question is: should we be using differential deflators for different groups? I think there is some indication that that would undo some of the inequality that we see. However, I don't think that anybody's done enough to know exactly how to do that, but I think that it's an important question.

SAEZ: I agree. It is extremely important to look at consumption, but you see, with income, you pay taxes, and then you consume or you save. Savings go into wealth, so all of those things are linked. Our numbers suggest that the high incomes are saving a substantial fraction. In principle you could back out their consumption. Consumption inequality must have increased because I don't think that the surge in top incomes goes all into savings. Probably a significant chunk goes into consumption, but those are numbers we want to produce. I should say that, unfortunately, data on consumption and savings in the United States are really bad in part because we can only measure it through surveys. There's a lot of measurement error, and you cannot measure what happens for the top 1 percent with survey data. That's a problem if you want to evaluate serious proposals to shift to a progressive consumption tax. What we argue is that we should collect more. It wouldn't take that much extra by the US Treasury for tax enforcement purposes to collect a few more numbers about balances that would cast a lot of light on those issues of what is consumption inequality.

*QUESTION: Thank you. I just want to add a response to Kevin's response. If you look at, say, the price of Facebook. We know what it all is. It's zero. And so, when it's introduced, and it's introduced at a zero price, everyone gets that. It doesn't show up in anything. It doesn't show up in any consumption data, and yet it's enormously valuable for many people. The other thing I'm going to point out is if you look at the marginal tax-rate cut, it went from 70 percent down to 50 percent in 1982, went to 28 percent in 1987 or 1988. And so here's one source of income you really can't look at, interest on municipal bonds. You had high marginal tax-rate people in the 1970s buying municipal bonds like crazy because they could get a low rate, but it wasn't taxed at all at the federal level. Rate cuts happened. Through the 1980s, people shifted out of municipal bonds into taxable bonds. It then shows up as income on their tax form, and it didn't even show up as income on their tax form before. I grant your point about charity being one of the pieces of evidence to make me wonder on the margin. I just don't think that that's strong enough evidence to go against these things.*

**SAEZ:** Regarding municipal bonds, that's a good one to ask because for the wealth data, we have to distribute municipal bonds, so you see tax-exempt interest income from municipal bonds after 1986. What you find there is that the top 1 percent in 1987–1988, when we started seeing the data, already had something like 75 percent of all municipal bonds. So, we assume the top 1 percent wealthiest had 75 percent of all municipal bonds before 1986. At the maximum, they are going to have 100 percent of municipal bonds. So even if you make the extreme assumption that the top 1 percent held all of the municipal bonds, it's not going to have a large impact on the series, but that goes with the line of tax avoidance, etc. We, who study taxes and the behavioral responses they create, love that stuff, and we've been doing studies over the years, and we'll continue doing that. Your point is well-taken.

COMMENT: *We know that what is upsetting the public is not the fact that rich people are getting richer, it's the fact that middle-class people have taken a very substantial hit in income over the past six years. There's only one reason for that, and that's the crisis. If you look at wage rates, they have stayed on their trends. You don't see any. There's no evidence whatsoever of the effect of this crisis. It's all on the amount of work being done, and not on the amount that works gets per hour. I've done a lot of work recently on trying to understand why those effects should be so large and so durable. The output currently is about 13 percent below where it would have been without the crisis.*

*That of course reflects directly into incomes. Part of it is the loss of the capital stock that occurred. That's quite big. It's over three percentage points of that. But the other big chunk is that participation in the labor force has declined. That coincides with an expansion of very badly designed benefit programs. This is obviously something on which Casey Mulligan is an expert, especially food stamps. The design of food stamps is a great puzzle to me, but there was a doubling in the food-stamp population, and most of that has remained. In fact, the food-stamp dependency has risen recently, in spite of the fact that the economy has been expanding, even though almost everyone says that the reason for that doubling was the rise in unemployment.*

*The decline in unemployment has not shown up in any significant diminution of food stamps. Food stamps have a 30 percent marginal tax rate, so not surprisingly, almost everyone on food stamps does not even consider participating. We need to take this seriously. The other big one of course is Social Security disability. A lot of very good work has been done about how that program should be changed to become a pro-work program as opposed to an anti-work program, which is what it is now. The same thing applies to food stamps. Food stamps have gotten much less attention even though the program has vastly more dependence.*



**QUESTION:** *I have one comment, one quick technical question, and one broader question. Let me start with the technical question. Emmanuel, did you guys gross up your tax-dividend data to be consistent with the national accounts, because in addition to the changes in the tax laws, precisely over this period, there's been a series of changes in reporting requirements from financial institutions, for example, to report dividend payments. So, the question is, are you capturing that by trying to gross up to some non-tax-generated estimate of dividends by firms, for example?*

*The second point is on price indexes. Our price indexes include the feeding in of consumer prices into the GDP deflator, which is a Fisher index, so that they don't have the substitution-bias issues, but it has a well-documented outlet substitution bias, precisely because the BLS (Bureau of Labor Statistics) keeps going back to the same outlets and assumes that people don't change where they shop or how they shop or even when they shop. They still collect data the second week of the month. So the fact that people buy stuff the week after Christmas or take advantage of sales doesn't get included.*

*My broader question is a generalization of an earlier point, a point that other people have made about what we're examining here. There's been an enormous increase in what some people have called Social Security or Medicare transfer wealth—that is, for the bottom part of the distribution. A large part of their wealth is annuitized real benefits that are going to be provided by the government. And so, I'm just wondering if you're going to look at that when you move to look at post-tax and transfer income. This also, because of those programs, is a period where we've transferred huge amounts of resources, actually and then prospectively even more from the young taxpayers to old consumers. That may be part of what's going on in the saving rate issue.*

**MURPHY:** I agree on most of those issues. One thing that I would say is, when it comes to wealth on the housing side, it seems

to me that you've always got to remember that it's on the other side of the budget constraint as well. So, when your wealth goes down because your house is worth less, particularly if you're a young person, it's not clear you really are worse off in a present-value sense because you needed a place to live for the rest of your life anyway. So, if I'm old and going to sell my house in ten years, that's a different story than if I'm a young guy. We always include the housing value, but we don't consider the cost, which is mirrored on the other side of the budget constraint.

SAEZ: Right now in our income measures we don't gross up to match national accounts, but as I said in my first slide, that's really the next point in our agenda. We have already put in place a lot of the elements to be able to distribute national income where everything will fit with the national accounts, and transfers will be taken into account no longer in the static way, perhaps in a dynamic way, perhaps along the lines you suggest.

QUESTION: *I want to take a step back and ask a more general question that pertains to Emmanuel Saez, and Chad Jones' talk yesterday, and even to Kevin Murphy. By far the biggest change over the past three decades is that a half billion people in the world went from extreme poverty to the middle class. That's a decline in income inequality. We keep talking about how world income inequality has gone up. That's because you do it within country rather than across the whole world. Now, that's important for a couple of reasons. First of all, it's important because it's not clear to me that the country is the relevant unit of analysis when I'm thinking of  $r - g$ .*

*It may be that the world is the appropriate unit because we want to think about productivity for the world population growth and so forth. Emmanuel, I think, probably gave the best reason for why you'd want to do it within country, and that is that you*

*have policies that are country-based. But even if I think about it in those terms, I think, "Well, what are the most important policies that have had to do with this major transformation in raising the incomes of the poor?"*

*We're talking about India and China, and I think there is simply no denying that the market reforms that occurred in the 1980s and 1990s in China and in the early 1990s in India are the single most important factor for raising the incomes of the poor. So I'm a heck of a lot more concerned about what's happened to the lowest 10 percent of the world than I am the upper 0.1 percent, and I'd like for you guys to comment on it. It's one part of the whole inequality debate that's been missed at this conference, and I think to my mind the most important part of it.*

MURPHY: I agree that you want to take a worldwide perspective on these things. That is an important ingredient. It's related to what happens here. There is at least some spillover from those events to the events that we see in these countries. The reason that I think you still need to care about inequality is because I think that it will be a driver of policy. I think that you're going to do something. I think that Emmanuel is saying the same thing. It's going to push us to do something, and we'd better do something smart. If it pushes us to do something that improves the human capital side of things, that's actually a good thing.

SAEZ: I agree from a development perspective, the rise of incomes in low-income countries is the most important factor. Again, we share a lot of our incomes at the country level. Remember, governments in advanced economies take 35 percent to 50 percent of market incomes to fund public goods and the welfare state. Within a country, people are willing to share a substantial fraction of their income. You compare yourself not with people in China, but with people in your country. That's why the issue of inequality within country is for us to stay no matter what happens to economic growth.

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