



**Piketty's Problems**  
**Guest: Robert Murphy**  
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**WOODS:** Bob, there's nobody else who's going to be able to help us out on this. There just ain't nobody else who can help us out. So the way I've decided to structure this is as follows. We're going to take the first half of our discussion together to talk about problems with Piketty that are easily digestible to the average person who doesn't spend all his time studying interest and arcane questions in economics. I'm sorry to call them arcane questions; I know you've devoted your life to this. Half the stuff I do is pretty arcane. So we're going to do that, and then in the second half, for extra credit, as a bonus, people can stay tuned in and hear why the whole theoretical framework that the guy is using is so wrong that it blows up every conclusion that he bases on it. In other words, if the listeners can stick with us through this whole program, maybe listen to it more than once, they will know exactly how to demolish the whole book. Is that really what you're prepared to claim?

**MURPHY:** Yes, that is what I am prepared to claim, and as an added bonus, too, it will show why studying the Austrian School of economics is so important because when we get into that bonus, extra credit section, you'll see these are things that Chicago School guys wouldn't know.

**WOODS:** All right, so this is all great and important. First of all, tell us about the book that he's written, why we're spending our time talking about it, and what the basic thesis is for the man on the street.

**MURPHY:** Okay, sure, so as the title suggests, *Capital in the 21st Century*—this is a book devoted to the study of capital, and that's a bit of a throwback, of course, to Marx's famous work. The basic thesis—and your listeners may have seen people throwing this around—is  $r$  is greater than  $g$ . It seems kind of odd to summarize a book in terms of two letters and an inequality sign. What he means by that is,  $r$  is the real return to capital and  $g$  is the general growth rate in the economy, and so  $r > g$  means that the wealth of the capitalists—and by the

way, I should probably say before we forget: when he says capital, he doesn't just mean machinery and tools and equipment, he means any non-labor form of production that can be owned, so that would include farmland, for example, or if you owned coal mines that's what included in what Piketty means by the term capital. So if  $r > g$ , he is saying that means over time the stock of capital, of wealth, is growing at a faster rate than the stock of total output or the flow of total output, GDP. And so if the workers every period are just getting paid some fraction of total output, the idea is that over time the stockpile of capital is growing faster than overall output, and so the relative wealth of the capitalists is increasing, and so he measures it in terms of years of income. So right now the capitalists might have 20 years of wealth, but then by the year 2100, they are going to have maybe 30. I'm just making those numbers up. Because  $r > g$ . So okay, so far, so good.

But then why he is going to scare everyone is to say that he has now looked at certain measures, and he is just challenging and going to the extremes of the published literature, and he thinks that as capital accumulates, the total share of output each year that goes to the capitalists also increases. So that's a bit controversial, and that's the contribution of his book in the eyes of his fans: he tries to make compelling arguments as to why we should actually think that's going to be the trend. So what does that all mean? It is saying that over time not only are the capitalists going to be growing wealthier in terms of their total property, but that every year, when you look at the share of total income, a larger and larger fraction of it goes to the capitalists, meaning a smaller and smaller amount goes to the workers. That's what the book is. That's his diagnosis.

**WOODS:** Okay, so this feeds into the already existing preoccupation with inequality.

**MURPHY:** Right, yeah, so why this has been seized upon is that it seems very scholarly. It's a thick book. It's 600-plus pages. And it has a very historical introductory section where it just goes through charts and all sorts of data, and he and some of his co-authors in the peer-reviewed literature have gotten into new data sets and have performed new analyses, and so he very credibly can say, this is my area. I know historically the statistics on this stuff. And then, like I say, there's this little theoretical move that he makes where he says, the conventional wisdom among economists is that as the stockpile of capital accumulates, the share of output going to capital probably shrinks. Because the more capital there is, the lower the return per unit because of diminishing returns. But Piketty argues that well, actually, because the uses of capital are increasing so much in our technological world, with capital being able to move across borders and things like that, the whole world is becoming interconnected, there are lots of potential uses of additional units of capital, and that's why I think in the 21st century we're going to see, the capitalists are going to be able to deploy in all sorts of places, and so their total returns, or their returns per unit aren't going to shrink fast enough, so that as the stockpile grows, they actually consume a greater and greater fraction of income.

So you're right: this preoccupation with inequality keeps bringing the scientific veneer to it. He is trying to show these are laws. He even has what he calls fundamental laws of capitalism in

there. So rhetorically it's very similar to the success of Marxism. He just makes it look like this is an inexorable thing, and this is very scientific, but it just so happens to line up with a lot of the reader's emotional prejudices.

**WOODS:** Just to make sure everybody is following: when you use the term "capitalist" are you simply referring to people who own capital?

**MURPHY:** Yes, that's what I am using it for for our purposes in this discussion, because for him capital is any sort of piece of property that can generate an income that's not human labor.

**WOODS:** Now, to give the average person an even fuller understanding of the ultimate significance of this: what is his best-known policy prescription to deal with this perceived ongoing problem of inequality?

**MURPHY:** Here's where it really gets scary: in the last section of it—he spends the beginning and middle parts laying out the historical framework and giving his theoretical arguments and then making projections about hey, this is just going to keep getting worse as we go forward. Then, to arrest that alarming trend, he proposes, and he acknowledges that this wouldn't actually be practical in practice, but he is saying theoretically the ideal solution would be if all the governments of the world coordinated with each other and had a global tax on wealth each period that would be very steeply progressive, and he's as high as perhaps 10 percent a year for the richest people. Okay, so again, that's not an income tax. That's a wealth tax. We're taking 10 percent of your property per year if you had property that was in excess of a certain amount, like \$5 million or whatever the number would be. The reason he needed it to be globally coordinated is he doesn't want somebody in the United States being able to shift their property to some tax haven somewhere else, and so not merely is it large tax rates, but he also wants all the financial institutions of the world to share information. He explicitly says so: if you deposit money into a bank, I want that information transmitted to governments around the world so that every government knows exactly how much stuff you have, because we don't want you able to shield your wealth from this global tax.

**WOODS:** Now unlike you I have not read the book, but I have heard that in terms of marginal tax rates he is advocating something like an 80 percent top marginal rate, and you could say well, we've had 80 percent, 90 percent top marginal rates in the past, which we have. That doesn't make it good or sensible, but the amount of income that you'd have to earn to be subject to that rate seems lower than you might want it to be.

**MURPHY:** Yeah, he is all over the place in terms of him talking—when he discusses historically those top marginal—and now we're talking about income tax rates if we talk about 80 percent or above—so yeah, he certainly has no problem with those, and he does say it's not—people might think, oh, he wants to put in this wealth tax, and then get rid of all these other distortionary taxes, right? No, he doesn't. He wants there to be in force a progressive income tax, an annual wealth tax, an estate tax that could be really high, like 50, 60 percent, so he thinks they all serve a different purpose. But the really horrifying thing, Tom: up until this point

of the book, I just thought the guy was a bad economist, but I thought maybe his heart was in the right place—he just wants to help poor people, okay. No. He explicitly says in several places that the function of these confiscatory tax rates—and that’s his term; I am not putting that word in his mouth—is not to raise revenue for the government, because he acknowledges that once you start talking about income rates in excess of 80 percent a year, no one is going to bother earning an income that high. He says the function is to eliminate such incomes or estates. In other words, the point of having those tax rates that high is not even to get money for the government to spend on useful things. It’s just because we don’t like the fact that there are people out there making that much money, and so let’s get rid of that by putting incentives in place such that they have no reason to generate that kind of income year after year.

**WOODS:** Bob, I think the typical critic [of Piketty] here is making the obvious claim that if you introduce tax rates like this you are going to slow down growth. You’re going to hurt the general standard of living. Innovators are going to have less reason to innovate. I think anybody other than a completely hopeless ideologue can see that. So I don’t think we need to dwell on that particular point. That point has probably been made over and over again. Let’s look at some of the criticisms that you specifically have made, and then once we do that, and before we get into the extra credit section of our time together, I want you also to tell me about some economists, non-Austrian economists, who have said that the whole book is utterly wrongheaded from the get-go. So we’ll get to that in a second. First of all, give me what we might call a non-fundamental critique of the book. For example, you have a blog post saying that his history of taxation, particularly in the 1920s and beyond, in the U.S. is just all wrong.

**MURPHY:** Right, so you were reading this thing, and okay, yeah, he doesn’t understand some of the subtleties of capital theory, and this arcane stuff that even a lot of professional economists don’t understand. You can give him a pass on that. It’s not good that his whole book is based on capital and income distribution. You’d think he’d know that stuff, but okay, fair enough. But there’s a lot of economists that say his historical treatment is masterful, and Larry Summers even said he should get a Nobel Prize for that stuff, so you think he would have his basic tax policy and other historical facts correct, but he doesn’t. I stumbled upon one passage, and I will read to you a couple of sentences here. He says, “The Great Depression of the 1930s struck the U.S. with extreme force. Many people blamed economic and financial elites for having enriched themselves while leaving the country to ruin. Roosevelt came to power in ’33.... He immediately decided on a sharp increase in the top income tax rate which had been decreased to 25 percent under Hoover’s presidency. The top rate rose to 63 percent in 1933....” Reading that, you would certainly think that Herbert Hoover was the one to cut income tax rates down to 25 percent, and then Roosevelt came in and jacked them up to 63 percent.

**WOODS:** Yeah, sure, you would, of course.

**MURPHY:** Yeah, because he explicitly says that. But no, that’s wrong. The tax rate in the U.S. was cut to 25 percent in 1925 under Coolidge, not under Hoover, and then it was Herbert Hoover who raised the top federal marginal tax rate to the 63 percent, and it happened in

1932, not in '33. It's not just that he gets his dates wrong, it's that his mistake very conveniently serves his narrative of making it look like it's the right-wing, business-friendly, conservative Republican who cut taxes to try to shovel money into the pockets of rich people, and that caused the Great Depression, and then it was the same FDR coming in who jacked up the income tax rate. If it had just been that I would have said, well, who knows? It was translated from the French. Maybe they misread the—but then someone else found a similar mistake when he was talking about minimum-wage laws. I won't bother reading you the passage, but again, it's a mixture of things that are very misleading but technically accurate and then flat-out falsehoods about how the minimum wage was not raised under Republican administrations, but then under Clinton and under Obama it was raised.

Just to give you an example, George W. Bush in 2007 signed into law a schedule, a step-wise increase in the minimum wage, and the way Piketty describes that is to say the minimum wage was constant under the George W. Bush Administration until Barack Obama raised it. First of all, it's just flat-out wrong, that no, it did go up under Bush, but also to the extent that it did go up when Barack Obama happened to be in office, it wasn't because of anything Obama did. It was because it was already legislated in. So again, the same pattern where he says things that are misleading and just flat-out false, like, he just puts the wrong dates and numbers in place, and yet it's not a random error. It just so happens to make the Republicans look like they are bad guys who hate poor people and the Democrats as great guys who love poor people. So there's this kind of scholarship involved where he's literally just getting his basic facts wrong. All of his defenders are not saying things like, well, yeah, he's screwing up the basic facts, but his general story is right. No, they are all praising this guy and literally saying he should get a Nobel Prize for all the great historical work.

**WOODS:** Paul Krugman says that critics of this book can find nothing to do other than hurl names at the author. Is that true?

**MURPHY:** (laughs) Well, the thing is, this book came out and it was a bestseller out of Amazon, and what was stunning is I don't mean bestseller in books talking about confiscatory tax rates—that category. I mean, the overall, number-one bestseller on Amazon for a period there in April. I don't think very many people read this thing cover to cover, so it is conceivable when it first came out, and when Krugman looked around he didn't see anything except name calling because people hadn't had a chance to read it but certainly by this point there had been plenty of people, including paradox economists from the left who had pointed out numerous mistakes in this thing. So no, it's not simply saying, oh, this guy wants to raise tax rates, and we don't like that.

**WOODS:** Larry Summers, for instance, formerly of Harvard—and formerly of the U.S. government—had a critique, and you were just saying that he thought that Piketty should win the Nobel Prize, but then you blogged about specifically what Summers' own criticism was, and basically Summers inadvertently blows up the whole book. Is it possible to talk about that without getting into the extra-credit session of the discussion?

**MURPHY:** Yeah, we can talk about that without burdening the listener too much. The issue is, intuitively the deal is that the capitalists are earning this good rate of return on their investments, and they save a lot of it, okay, and oh, my gosh, you should be nervous: there are people out there saving some of their wealth. The problem is that okay, their rate of return is high and so the question is wait a minute: as the stockpile of capital accumulates, what about the returns per period to the owners of that? And so there's two forces. On the one hand, the more capital that there is, you would expect the earnings per unit to go down just like if the supply of laborers go up, you'd expect the wage rate to drop—other things equal. So it's the same thing with capital. We were thinking in terms of like a bunch of machines. If you save and invest and expand your supply of machines by 10 percent, you don't think you're going to be able to rent out each machine at the same dollar amount per hour. But on the other hand, you have now more machines out there earning rents, and so it's not clear: is your income going up or down overall? Those two forces—how do they balance? In the technical literature, that is called the elasticity of substitution. The idea is, as capital increases, holding everything else constant, is the amount of income each year going to capital as opposed to labor, is that going to go up or down? And so if the elasticity of substitution is one, well, then it's a wash.

So that's the issue. Piketty is arguing in his book he thinks it's above one, and he thinks if he can demonstrate to the reader that this technical number empirically is above one, then his thesis goes through and that means over time as the stockpile of capital grows, the earned, and the relative share of output going to capital is also going to increase and crowd out what the laborers get. But Summers says, well, actually no, Piketty is making a basic mistake here. You need to account for depreciation. So it's not just a question of as the stockpile of machinery grows for my total earnings, gross earnings is going to go up at the expense of labor because the more machines I have every year, the more machines that wear out, and I have to replace them to not get poorer, and so you have to take that into account. And Piketty just doesn't do that. So the estimates in the literature that Piketty is looking at for this magical number to be higher than one do not take into account depreciation, and so it's kind of a technical point, but it's also a basic one. Summers is saying, I know of no estimates out there in the published literature that has what Piketty needs for this point to go through, and I know plenty of estimates that say it's much less than what he needs. And other people have raised this point, too. So Summers makes it sound like he's just being honest and just wants to mention this little quirk, and then he moves on to praising the book, but my point is, that blows up the entire foundation. Because what Summers is saying is, if the published literature is correct, then as the capitalists increase their stockpile of wealth over time, the annual proportion of income going to labor is going to keep getting higher and higher. So it's the exact opposite of what Piketty says. So the point is over time the workers are going to get more and more powerful because of what Summers thinks is just a kind of a minor, little technical point.

**WOODS:** But as you say, this goes to whole thesis of the book. This is the reason people are interested in the book. I wonder what's going on here. Is he making a mental reservation in his

head that, in other words, I am making it seem that this is a minor thing, but I am smart enough to know it's a major thing? I can't understand what could be going on there.

**MURPHY:** You're right. I wonder that, too. That with some of these guys—do they realize there's something really wrong here? But obviously Larry Summers can't come out swinging and beat this guy down. He has to do it diplomatically so he doesn't get his head bitten off by guys like Krugman. So yeah, I wonder if he is saying, antagonizing, and maybe even go over the top in the beginning by saying oh, this guy deserves a Nobel, so that he could then deliver the death blow to the thesis of the book. I really don't know. That wouldn't shock me if he is operating with those constraints in terms of the people he likes to associate with.

**WOODS:** That's an interesting strategy. Maybe the next time I am about to really, really sink the dagger into somebody I will start off by saying, "I think this person deserves a Nobel Prize. However, he's a complete idiot." (laughs) Right? And that wouldn't be the first time that it happened. All right, is there anything else you want to say before we get into the stuff that it will be sort of exclusive to our listeners because unless people are following your blog or some rather specific economic sources are probably not going to be exposed to?

**MURPHY:** Well, the basic point here is I just want to mention: look at how disgusting and disturbing the envy is here. What it comes down to is, nobody disputes that as capitalists save and invest more and increase their collection of machinery or irrigation techniques and other techniques and make farmland more productive, nobody disputes that the absolute earnings of laborers are going to go up over time because the workers now have more tools to augment their hands. Everybody agrees that the trend if left unchecked would mean the standard of living of everybody is going to go up over time. This thing that they're quibbling over is, oh, but the percentage of income each year, which is going to keep getting bigger and bigger, the workers earn might go down if this technical, little point is bigger than one or not. And that's what the argument's over. So everybody who's supporting Piketty is saying I want to go and tax the heck out of rich people even though I know that will make poor people have a lower standard of living, because I don't like the fact that such people have so much more than other people. That's really disgusting, and that's just a horrible value system to have, in my opinion, especially when Piketty himself admits the point of this is not to take a bunch of money from rich people and then spend it on schools and bridges and vaccinations. No, the point is to make those people not go become so rich in the first place.

**WOODS:** Yeah, that is pretty bad, and that's a point that almost anybody can see, but we're just consumed by this hatred for people of wealth without making any kind of discrimination between people who came upon that wealth honestly and honorably, and people who had some sort of political connection. This distinction seems lost on most people even though it is the key moral distinction.

Let's now move into the extra-credit portion of our time together, and I am not going to tell you how to explain it or how to handle it. I am just going to turn it over to you, and you tell us why

fundamentally there is a theoretical problem here, but actually let me preface it: does Piketty believe in the naïve productivity theory of interest? Or does he believe in something that's like a distant cousin to that?

**MURPHY:** I think he does believe in what Böhm-Bawerk calls the naïve productivity theory of interest, or at as a first approximation.

**WOODS:** All right, let's go ahead—if that's going to be part of what you're telling us about, then certainly explain what the naïve productivity theory of interest is, but otherwise, as I say, I just said I am not going to tell you how to do this. You just go ahead and do it, and I am going to sit here as a spectator.

**MURPHY:** Okay, so the basic problem with Piketty's whole thesis—the whole theoretical structure on which he's hanging all of his results—is that he's trying to explain the real interest rate, which is how much capital grows per period, and he is using a framework where he's analogizing it to the wage rate the workers receive. So economists all agree, in a competitive market economy where there are various employers bidding on workers and equilibrium—what's the wage rate going to be? Well, it's going to be equal to the marginal productivity of labor. How much more output does the firm produce if they hire one more worker? And then if things are competitive, that's what the worker's going to get paid. He's going to get paid what he ends up producing for the firm. Okay, everyone's agreed on that.

Then when they are trying to explain capital and the return to capital, a lot of mainstream economists, including Piketty, say, oh, well, by analogy, then, when the firm hires one more unit of capital, you look at how much this output increased, that's the real return to capital, so that's what the interest rate has to be in equilibrium, and that's what the capitalists earn. And so Piketty does endorse that basic framework and then make some concessions about, well, if there's market power or whatever, maybe it's a little bit higher or lower than that. But he certainly is thinking that the real interest rate has to do with the productivity of capital, where he's thinking of capital as a bunch of machines.

Okay, that is totally, utterly wrong, and even the dimensions aren't correct. This goes back to something that the Austrian economist Eugen von Böhm-Bawerk proved back in the late 1800s, what he called the naïve productivity theory is the physical productivity of machinery or of farmland or whatever, it's the ability of capital goods to create more output than just labor alone, or natural resources alone, that explains the rental price of those capital goods. That explains their earnings per unit of time. But the interest rate, when people say what's the rate of return to an investment, they mean how much do you get paid as a percentage of the original amount you invested. So to say I earned 10 percent on that, that's not a dollar figure, that means the dollars I earned divided by how much I spend up front, that's the 10 percent figure. Böhm-Bawerk pointed out that if you tell me a tractor is productive, that I can get more crops with a tractor than without, that by itself doesn't tell me whether I am going to earn a high or a low rate of return on buying the tractor, because I need to know what's the

relationship between the earnings divided by the market price, and the fact that the tractor is productive, well, shouldn't that make its market price be higher? So that's the fundamental problem there. Again, it's so elementary. It's a problem of dimensions, right? That you're looking at percentages and trying to explain them in terms of what should just be dollars per period of time.

**WOODS:** So Böhm-Bawerk is saying that what the capital good brings in terms of additional production is already factored into the price of the capital good. There's nothing left over to be accounted for by interest.

**MURPHY:** Right, and so ultimately Böhm-Bawerk says that to understand interest, you have to realize the time element is involved, and that you can only make sense of it if you realize that present goods are more valuable than future goods, and then if you start from that starting point, then everything flows from it, and then you can understand why someone could spend a certain amount today on capital goods, knowing that they're going to produce something in the future, and then when those future goods ripen into present goods, that's why you have more market value at that point than you started out with in the past. He's saying it's not because of the physical, technological ability of capital goods today to create consumer goods a year from now. That because if present goods and future goods had the same value, if people didn't have a preference for earlier versus later, then the capital good today, its price would fully reflect what it was going to produce a year from now, and so by buying it you would just be trading water. You'd spend \$1,000 on machinery today, it would produce \$1,000 of goods next year, and so your interest rate would be zero. That's where he's coming from, and why you need to have present goods being more valuable than future goods to generate a positive interest rate. That elementary insight got lost in mainstream economics when they mathematized it, because they used formal models that assumed that there was just one good, and so those insights—if it's the same good that's either capital or consumption, it breaks down because capital goods and consumption goods are always trading at par because they're the same thing, and so you can't see that logical distinction that Böhm-Bawerk made.

So just to give you a quick example of how this mistake can totally screw up Piketty's analysis: he says, for example, that income inequality, as it increases it makes the economy more vulnerable, and for example, you've seen in the United States there was huge income inequality right before the stock market crashed in '29, and a lot of people who are really concerned about income inequality will point to that and say, oh, geez, now we're getting to periods where income inequality once again is rising, where it was really high going into 2006, 2007. And so they think they've seen this causal mechanism: as the capitalists accumulate a lot of physical machinery and so on, that drives down the real interest rate, and then that sets the economy up for a crash. But no, because the causality can be the other way around, too. The way they measure how much capital the capitalists own is, they add up the market prices of everything. But if you had the same stockpile of machinery, you had the same acreage of farmland and the interest rate drops, then all of a sudden the market value of that farmland

goes up because you're discounting its future crops at a lower discount rate, and so the present value of that increases. So the way Piketty is looking at it, if the interest rate for some reason dropped because people became more patient, for example, well, then all of a sudden my farm goes way up in market price, and he's going to think that I just invested a lot more in my accumulation of capital, but that doesn't follow at all. It's just that the preferences changed. He thinks the causality is going from physical saving and accumulation that drives down interest rates, but actually the causality could be the other way around. When it comes to the Great Depression, for example, you and I subscribe to Murray Rothbard's explanation that it was loose monetary policy in the '20s that drove up the stock market. So when people look at the inequality data and say, holy cow, look at the skewed results of how much the top 1 percent were earning in the late 1920s, well, that was because the top 1 percent happened to own more stocks and real estate and other assets than the average factory worker, and so if there's a stock bubble fueled by the Fed, of course, those capital gains that get booked as income in the year 1928, for example, are going to accrue to the top 1 percent. So the Austrian story could be totally correct, and yet, they would generate results that would look like, oh, man, when income inequality really zooms up, then the economy is in store for a crash. Of course, the solution would be, if we happen to be right, well, don't engage in loose monetary policy, but guys like Piketty would walk away saying, yep, see this is why the rich, if they are allowed to just save and invest and accumulate their fortunes, it makes the economy vulnerable to a crash.

**WOODS:** Bob, I want to make sure that people see the connection between his difficulties, let's say, with capital and interest and his  $r > g$  thesis and conclusion.

**MURPHY:** So remember, he needs that  $r > g$  to hold indefinitely to get the results he wants, to say that the stockpile of capital is going to keep accumulating. And the problem is, though, if he is wrong about what determines  $r$  because he is thinking of it in terms of, the more machinery we accumulate, then  $r$  tends to go down, but it's offset by these other factors and substitutability. But if he's just totally wrong about that theoretical mechanism, then he really has no basis for saying whether  $r$  is going to go up, down, or stay the same over the next few decades. And what's ironic is, even his fans admit that. So like Brad DeLong, who's conversant with the history of economic thought and knows some of these technical disputes, admits in his fairly glowing review of Piketty that, well, yeah, it's true that he doesn't really have a causal mechanism to explain what determines  $r$ .

So if your whole book hangs on this idea of  $r > g$ , and then someone says, yeah, yeah, it's true, he doesn't really know what derives  $r$ , that's kind of important. That's half of your thesis right there. So my point, again, is he thinks that  $r$  is like wage rates when no, it's not.

Maybe another analogy to help people see it: it would be as if you thought that population growth or something determines wages when really that's—you can come up with various mechanisms to talk about that, but really, no, wages are determined by the productivity of labor. It's the same thing with capital. They are using the marginal productivity of capital, which is how much a piece of machinery earns per hour, and they are trying to extrapolate from that

to saying how much does the capital stock grow over time, and those are just different things. Yeah, they're somewhat related, but that's clearly not the thing that determines it. So if his whole thesis rest on his notion of  $r > g$  and all the implications that follow, it is kind of important if he is completely clueless about what actually causally determines  $r$  in a market economy.

**WOODS:** Is it possible for a good economist to make any sort of statement about the relationship between  $r$  and  $g$ , or is the whole attempt wrongheaded?

**MURPHY:** Well, you can certainly make some statements, but the thing is there's feedback mechanisms and other people are pointing this out, too: over time if  $r > g$ , meaning that there's a lot of earnings on capital and people are reinvesting it and so on, then wouldn't you expect the growth rate to increase? Wouldn't you expect the growth in real output to accelerate, which is what  $g$  is. There's lots of statements one could make about these things, but it depends on a lot of assumptions. So it's, no, if you're asking me, Tom, you know, can we say for sure that these two numbers that are related to social phenomena are definitely going to be in a certain relationship for the next hundred years, well no, we have no idea what's going to happen. Preferences could change. Things could change. Technology could change. So you can't make statements like that. But certainly people have made more nuanced statements than Piketty has about the relationship of these things, questioning his thesis and saying this really couldn't last the way he is portraying it.

**WOODS:** One more question, Bob. I have seen Peter Klein talk about this and say that one of the problems with the thesis is that the book treats capital as a homogenous blob, and that it could benefit from the Austrian insight of capital as heterogeneous. First of all, explain what is heterogeneity of capital, and then secondly, what does that have to do with this book—have we brought that up?

**MURPHY:** It's a very good point. The issue is, in the real world the capital structure is made up of different types of machines, and equipment, and farmland, and so on, the way Piketty wants to think of when he says capital, and so, yeah, theoretically just to try to lump all that stuff together, the only way you can do it—how can you say that a tractor and an acre of farmland and a factory, and a computer software program, how can you lump all those things together and just call them units of capital, because they're physically distinct things is to add them up in terms of their market prices. And that's the technique that Piketty uses when he looks at well, gee, did capital increase from 1850 to 1910—obviously he's not counting up physical things and acres of farmland; he's adding them all up each period and looking at the market value adjusted for price inflation. Right? And so that problem, part of what Klein is driving at there is, in order for him to do that, he's flipping back and forth between two concepts. He's treating capital as physical things, on the one hand, that's driving his theoretical understanding of it, but then in order to empirically grapple with it, he's forced to add up market prices. The problem there is, if you're flipping back and forth between the monetary measure versus the physical goods idea or conception, that you're opening yourself up to this fallacy where the price of a capital good is not just due to the physical things it will create and their market value. It also has to do with the

interest rate. Again, the same tractor that we know technologically is going to yield the same flow of extra crops over the next ten years during its lifetime, the market price of that tractor will go up or down depending on what the market rate of interest is, and so if you're adding up things, thinking you're adding up different amounts of tractors and hammers and drill presses, but really just to do that, you're using  $r$ , well then if you try to turn around and explain what  $r$  is based on how much capital there is, you're moving in a circle, and that's what Piketty is doing. I think that's partly what Klein is getting at there, is he doesn't even realize that there is these huge, theoretical problems when you're lumping capital together like that.

**WOODS:** Bob, any parting words?

**MURPHY:** Well, let me just say it like this, just to summarize. I know we got in a lot of the weeds and discussed a lot of things, but Piketty has this best-selling book that all the leftists are just swooning over. It is a historical treatment of income and capital accumulation and the income distribution that flows from it. He makes some projections about the future, and then he follows up with tax policies that flow from it, and we've shown the theoretical structure, his understanding of capital interest theory is totally wrong. His basic historical facts are totally wrong. And his policies would end up making workers poorer. And even his friends admit that actually because he made a mistake in reading the literature; the natural progression would be that workers will not only gain in absolute terms but even in relative terms over time. That would be the guess from the available literature, which Piketty misunderstood. But other than that, it's a wonderful book.