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[RUSTLING]

[CLICKING]

JON GRUBER: OK. Well, thank you for coming to the last lecture. Once again, I'm sorry again about having to move the time. I have a good excuse, which is my co-author, Simon Johnson, won the Nobel Prize and has invited me to come to the celebration in Stockholm. So I'm flying out tonight to Stockholm to go to the Nobel Prize celebration. So I'm sorry it comes out of your hide, but I couldn't pass that up.

So anyway, that's why we're doing this today. Reminder, the final review will be-- the final review will be in class, normal class time on Monday. So we're talking about chapter 25, and we're talking about wrapping up all our lessons on taxes. And in particular, the motivation for the chapter is why we might want a flatter, simpler tax code. And we talked about three reasons. The first reason is evasion, that a flatter tax code with fewer opportunities for evasion-- with fewer loopholes and things like that will make it harder to evade taxes.

The second was simplicity, which is people like filing simpler tax forms, although that comes with costs. And the third is efficiency. And this was highlighting-- we ended with last time, was highlighting that the more-- that essentially the total effect on tax revenue-- of tax on tax revenues is really the central parameter for thinking about the efficiencies of taxation is essentially the elasticity of the tax base with respect to the tax rate. It is essentially the key parameter for thinking about the efficiency of taxation. There's lots of things that go into that, which is labor supply effects, and savings effects, and things like that.

But the key elasticity is the elasticity of the tax base with respect to the tax rate. So what do we know about that? What do we know about that key parameter? Actually, we've learned some very interesting things. The literature, which grew up in the last 25 years, which is focused on this key parameter. We know some interesting things. First of all, we know that overall, the elasticity of the tax base-- the tax base with respect to the tax rate is about minus 0.4.

That is, for every 10% you raise taxes, your revenues go up by-- for every 10% you raise the tax rate, revenues go up by about 6% as opposed to-- the direct effect would imply zero. So that says there's offsetting indirect effects of raising the tax rate. What do we know about these indirect effects? Well, we know a couple of things. First of all, almost none of this is through what you might call the Laffer effect. Almost none of this is through people working less hard or saving less.

It instead comes from the more-- the other indirect effects of things like people taking more tax breaks, changing how they report their income, and cheating. So that's the first thing we know, is that there is an elastic tax base, but almost all of it is from what we call non-economic responses, or nonfundamental economic supply responses, and more recording and things like that.

The second thing we know is the elasticity of the tax base with respect to the tax rate is basically zero for the nonrich. That basically, for people who aren't rich, there is not much effect of changing the tax rate on their reported taxable income. Once again, not surprising. There's not a lot of opportunities for doing much. If you're a regular working stiff and you just-- all your income is withheld, there's not a lot of games you can play. So that's the second thing we know.

The third thing we know is the tax base is fairly elastic for the wealthiest taxpayers, that the wealth-- when you raise the tax rate for the wealthiest taxpayers, this elasticity is more like around-- best system's around maybe minus 0.7 or 0.8. That basically, the richest taxpayers are very responsive in what they report as income with respect to the tax rate. Once again, it doesn't appear that they're working less harder saving less. It's that they're doing various things to-- they're doing various things to lower their tax burden, like changing how they're compensated, cheating, things like that. So that leaves us with a couple of-- this leaves us with a couple of lessons.

Oh, the other thing the rich do, actually-- the super rich do, and there's a fun literature on this, is they move. So there's a large literature on the mobility of the super rich. There's articles looking at top-paid soccer players and top-paid executives, especially in Europe, that if a European country raises top tax rate, they move to another country. So that's another way. Once again, something that a rich person can do that a regular Joe isn't going to move the country because the tax rate changed. But a rich person is a big enough incentive that they can change their residency.

So basically, there's lots of responses. Where does this leave us? Well, basically what it says is there is a-- once again, it's a strong economic pressure towards a broader, flatter tax system. That basically, steeper tax systems, which have more loopholes and more rates and things like that, tend to leave opportunities for evasion, they make the tax system complicated, and they have efficiency losses. Remember, we talked about in chapter 20 progressive taxation has large efficiency losses because of the-- progressive taxation of large efficiency losses because of the deadweight loss at the top.

Now of course, pushing against all this is progressivity. Yes, it's less efficient to tax the rich, but it also raises-- it's also more vertically equitable. And in fact, as I said, the only time I've ever gotten praised in the *Wall Street Journal* in my life was-- I wrote an article with a very famous economist named Emmanuel Saez, who was a student of mine here at MIT.

And what we did was we highlighted, look, you can have your cake and eat it too if you have a system that has modestly progressive tax rates, but a large rebate. So we proposed something where essentially tax rates were pretty flat, but that there was-- but that there was a large rebate to the poor out of that tax system. So yes, the super rich didn't pay much higher rates than the medium rich, but the poor were very protected. And the *Wall Street Journal,* of course, loved that, because the super rich were paying less taxes.

I think that Emanuel has then gone on to be-- he's changed his tune a little bit. He has gone on to be one of the leading advocates for very aggressive taxation of the rich. He's gone on to have an incredible career documenting how wealth has been concentrated in the hands of the wealthy and arguing that for political, as well as economic reasons, we do want to tax the rich more highly. But this is kind of where that logic comes from.

And I would say there's a broad economic consensus that the tax system we had in 1986, three rates, broad tax base, no different rate for capital gains, you couldn't really take as many tax breaks, was preferred to what we have today. So why don't we have that? Well, there's two reasons, political and economic.

The political is pretty straightforward, which is that basically, it is easier to do policy if you call it a tax break than to call it a spending increase. And this is shown vividly in 1992. When Bill Clinton was elected, he promised that there'd be massive investments. He was putting people first was his campaign that was going to involve massive investments in education, in local infrastructure, et cetera.

And as soon as he tried to put those in, he realized that it was very hard to increase spending at the federal level at that point because people were saying, well, that's what Democrats do. They're big-spending democrats. They're going to do that. But as soon as he said no, instead of spending on education, I'm going to tax cut for education. Well, everyone loved that, because it's free. It's a tax cut.

And basically, the point is that I showed you last time the tax expenditures, the holes in our tax code because of tax breaks. Well, that's not in the official government budget statistics. Government statistics determines what we spend and what we tax. And so people were like, look, that's great. Do it as a tax break. I love that. Don't do spending. That's big government.

So it turns out there's a political asymmetry in how easy it is to get changes done calling it a tax break versus calling it spending. So that's the politics. The economics is much more interesting, and the economics is real. And this comes back to this concept we talked about in chapter 18, which is the concept of horizontal equity, or fairness across similar people. And this is highlighted because, basically, when you change taxes, you create critical horizontal inequities. And to see this, let's focus on the concept of tax shelters. What are tax shelters?

Tax shelters are activities whose only reason for existence is tax minimization. They are not economically productive, or they're economically inefficient. Let's say that, they're economically inefficient. But they exist because of tax breaks. So basically, essentially, to turn an example of that, let's think back to the mid-1980s, the Golden era of-- pre the Tax Reform Act of '86 was the golden era of tax shelters.

And that was because there was very favorable tax treatment of a number of asset classes. For example, if you invested in real estate, you got rapid depreciation deductions. We had very accelerated depreciation. And you could treat your profits as capital gains, 60% of which were tax exempt. So you could rapidly depreciate and take your profits as capital gains. There was an investment tax credit and other features. And this led to a large rise in tax shelter activities.

By the mid-1980s, more than $10 billion a year was being invested in tax shelters. And one investor, one industry insider, estimated that the sector where this was most visible was oil and gas, because there was huge breaks for investing in oil and gas. They estimated that 75% of all investment in independent oil and gas companies came because of tax shelters. So how does this work?

Let's imagine a simple example. Imagine that you hadn't had-- let's say, someone in 1983 had an income of $250,000, which today sounds like chump change, but was actually pretty rich in 1983. That put you in the top bracket, the top 50%. There was a-- 50% tax rate was the top rate in 1983, and you'd be at that rate with income $250,000. Now, imagine that you wanted to invest $100,000 of that income in an oil venture which yielded no income, and you sold one year later for $90,000. Well, that would be pretty dumb, absent taxes. But with taxes, not so dumb. Let's look at the math, and that's on table 25-1.

So you invest your $100,000 in an oil venture. You sell it a year later for $90,000. So you've lost $10,000. But at the same time, there was a special tax break, which was a 60% deduction for all investment in oil and gas. So you get to deduct $60,000. This was a deduction of your spending in that year. You deduct 60% of your spending. So you get a $60,000 deduction. So that's going to save you $30,000 in taxes at your 50% rate.

Moreover, next year, you get to deduct the $10,000 loss you took. That saves you another $5,000. So on net, you make $25,000 by making this investment. So this is an example how tax shelters can promote economically inefficient investments. And that's what was happening. In fact, my father was very mad when the Tax Reform Act of 1986 passed because he had money in some of these tax shelters. They were totally legal. It was a productive investment opportunity.

So what happens? Was my dad mad? Well, in 1986, they wipe out the tax shelters. They say these tax shelters can't be used anymore. Well, here's the problem. Asset prices had adjusted to the existence of these tax shelters. What that means is that if you had invested in a totally legal activity that was money making, suddenly, you could get screwed. Let's think about that.

Let's think about that in a simple example. Imagine that there's two apartment buildings for sale in a city. One is in a low-income neighborhood and one is in a high-income neighborhood. The building in the low-income neighborhood is worth $100,000, and the building in high-income neighborhoods is worth $200,000. This is a much nicer board. I don't know why. It just feels better to write with chalk on this board.

The income in the high-income neighborhood, it's worth $200,000. But the government has a special tax break where, for every dollar you spend on investing in low-income neighborhoods, they'll give you $1 in tax credit. So if you spend $100K on a building in a low-income neighborhood, the government is going to give you another $100k tax credit. What that means is that these buildings are worth the same. They both were $200k.

So you invest. Paul buys one, I buy one. We spend our $200k. We each invested one. Then the next year, the government says, we're getting rid of this. What does that do? That screws me. Paul and I had equally valuable assets. But since my asset was due to an embodied tax break, when they removed that tax break, I'm screwed, through no fault of my own. No one's evading taxes. No one's cheating here. They're just following the rules.

And this is a clearest example of what we call a horizontal inequity. The two people took the same action because something out of their control ended up with very different tax burdens, very different economic implications. So this occurs because-- this leads to what we call a transitional inequity. A transitional inequity, which is basically as you change the tax code, you are screwing people who made investments based on previous rules. And that is very-- that can be very costly for them.

So as a result, you don't-- realistically, you're not always going to immediately do the right thing. You might want to make adjustments that ease the pain of those who suffer from those transitional inequities. Let's be clear. The people who suffer-- Paul and I are rich guys. If we're buying this building in 1983, we're rich guys. So the person who's imposed pain on is a rich guy. But nonetheless, there is-- so this is where vertical and horizontal inequities can conflict.

When they got rid of the tax shelters in the Tax Reform Act of 1986, rich people got screwed because they-- now some poor people got-- "screwed" is the wrong word. They had transitional inequity. Some poor people, mostly rich people. So the question is, you're writing the Tax Reform Act of '86. Here's your conflict. On the one hand, you don't feel so bad for them because they're rich. On the other hand, you do feel bad for them, because it's unfair. They made a legal investment, and they're getting hit very differently. Yeah?

AUDIENCE: And this was a transfer from the person who made this investment to the government in this case, right?

JON GRUBER: Basically, yeah, which, essentially, you can think of it as if the government is a big sponge, that's basically right. So in some sense, what do you do with that? So what the Tax Reform Act of '86 did is they essentially limited tax shelters, but it didn't get rid of them. They eased the pain by limiting what-- by limiting your use of tax shelters, but not getting rid of them. But this is what leads to a common feature that's discussed in political-- a term you might have heard in political economic policy, which is the term "grandfathering."

"Grandfathering" is the notion that when you change policy, you exclude those who were previously affected by the policy as a way of trying to deal with horizontal equity. So for example, in Virginia, every Virginian 65 and older received a tax deduction of $12,000. Virginia was in budget trouble, so they wanted to get rid of it. But people went nuts.

And so he literally put in a grandfather clause. Get it? Because they're over 65, where basically he said, OK, anybody who has already turned 65 as of the date of this law, they still get it. It's future people who don't. Now on the one hand, he costs he costs Virginia $300 million by doing that. $300 million in lost revenues, revenue that could have been used for highly valuable activities rather than giving money away to often very wealthy 65-year-olds. On the other hand, maybe he wouldn't have passed the law if he hadn't done it.

So this is the difficulty we face when we try to actually change government policies to recognize many decisions and things are based on pre-existing policies. And that means that essentially, you want-- you might want to go-- you might want to go slow. Questions about that? So big picture where we are at this point is flatter-- flatter, less loophole-ridden tax codes economists like better. We love where were at with the Tax Reform Act of '86. We wish we would get back there. But there's political and economic challenges facing us and getting there.

Now that is one piece, one way to get to simpler taxation. But there's another way we could get there, which is we could just say, look, why are we taxing income at all? Thomas Hobbes, in his famous treatise *Leviathan,* said, it is fair to tax people on what they extract from the economy as roughly measured by their consumption, than to tax them what they produce for the economy as roughly measured by their income.

Why do we tax people who are making money? Why don't we tax people who are spending money? Why don't we, instead of an income tax, have a consumption tax? And there's a number of reasons why moving from an income tax to a consumption tax-- think of it as an-- we'll come back to details, but think of it as a national sales tax. Well, there's a number of reasons why that might be a positive thing to do.

The first reason-- so what are the pros and cons of a consumption tax? The pros of a consumption tax first is improved capital allocation. Why is that? Well, if you think about an income tax, different kinds of investments are treated differently. Even in the Tax Reform Act of '86, capital gains, even though they were no longer tax favored, were still implicitly favored because you didn't have to-- weren't taxed until realization.

And in general, tax systems generally feel different tax-- there's tax wedges between different kinds of investments that have the same economic return. And that's inefficient. With the consumption tax, that goes away. You invest in whatever the hell you want, and we tax you when you consume it. So there's no reason not to make the most productive investment because they're treated the same by the tax code. We're just taxing what you get out of your investment. You might invest less overall if there's a high consumption tax rate. But there's no reason it would distort your allocation across investment opportunities. So that's one reason we like it.

The second reason we like it is both more-- it both increases savings and improves horizontal equity in an improvement dimension-- in an important dimension, which is the horizontal equity between savers and non-savers. And to see this, let's go to table 25-2.

Well, first of all, figure 25-5, this shows how little we rely on consumption taxation, how much they do around the world. So 25-5 shows you that in the US, 18% of our tax revenues are raised by consumption taxes. The OECD average is almost twice that at 32%. And in fact, as you see to the right are more developing countries. In the developing world, most of the revenue comes from consumption taxes. Income taxation is more of a developed world concept. But even in the developed world, we're a relative outlier. Yeah?

AUDIENCE: Is this because consumption taxes are easier to administer?

JON GRUBER: This is exactly what I'm talking about. I'm going to get there. So basically, why do we like consumption taxes? So one is improved capital allocation. One is because it increased savings, and it's fair to savers. So let's go to table 25-2. Consider Homer and Marge. Imagine Homer and Marge each earn $100 in period one. And imagine there's a 50% income tax rate. 50% income tax rate. So they each pay $50 in taxes. Homer being Homer then eats everything that's left. Marge being Marge saves $25.61-- saves $24.39.

There's a reason I chose that particular weird number. Now in period two, Marge earns $2.44 in interest. Homer earns nothing, because Homer didn't save any money. Well, we have an income tax. So her interest is also taxed. She pays $1.20 in taxes on her interest. So her period two consumption is equal to her period one consumption at $25.61.

So Homer is a full-time period one consumer, Marge is a "split your consumption equally" person. So otherwise identical. Same income, same animator. But one person likes eating all their income in the first period, one person likes splitting it. Well, look what happens. The PDV of taxes of Marge is higher, even though they had the same opportunities going in.

Because Marge chose to save, she pays more in taxes. Why? What's driving that? What's driving the higher amount of taxes Marge pays in PDV? Not even in PDV. What drives the higher tax she pays? Well, they're both taxed on their income. What's the difference with Marge? Yeah.

AUDIENCE: Higher income.

JON GRUBER: She's taxed on her interest. Marge is double taxed. Because she's taxed first on the income, she then saves what she earns and is taxed again on the interest on that savings. So there is double taxation in this system. Marge is taxed twice. Homer is only taxed once because it doesn't save.

So what this means is that Marge pays more taxes. So now let's replace this with a consumption tax system designed to raise-- with a consumption tax system And the way the consumption tax system is going to work, it's going to be 100% tax on consumption. What that means, it's a weird expression. "Consumption tax" sounds crazy. What it means is for every dollar you consume, you pay $1 to the government. It's a government sharing of consumption expenditures. For every dollar you consume, pay a dollar to the government.

Now let's look at these same people. They each earn $100. Homer spends $50 and pays $50 in taxes. Homer is treated the same way he was last time. He doesn't care. Income tax, he pays $50. Consumption tax, he pays $50. Marge, however, saves. She consumes, actually, a little bit more in period one than she did before, $26.19 instead of $25.61 and saves the rest. She earns interest. Therefore, she can consume more in the second period, but she doesn't pay any tax. She then pays a consumption tax on consumption. So in the first period, she consumes $26.19, pays $26.19 in consumption taxation. In the second period, she consumes $26.19, pays $26.19 in taxation. I should have said the interest rate here is 10%.

So in PDV, her tax burden is the same as Homer's, because there's a 10% discount rate. So basically what you see is that under consumption taxation, two things happen. Taxes fall for the saver, relative to the consumer, and you have more horizontal equity between savers and consumers. The first system unfairly penalized-- "unfairly" in the view of horizontal equity, unfairly penalized those who choose to save. The second one does not.

So the argument for a consumption tax system is that it will lead to more savings and fairer fair treatment of savers. And indeed, this is the main reason why I think probably the majority of economists would favor replacing the income tax with a consumption tax. I don't know if there's a majority, but certainly a healthy minority. I'll talk about multiple reasons. This is the main reason that basically would improve savings, and therefore improve the amount of capital in the economy, and improve productivity.

So that's the second main argument for consumption taxation. The third main argument is one that Steven alluded to, which is simplicity. Enough with 250 pages of instructions, and all these forms and stuff. Just whatever you buy, you pay a tax. It's pretty simple. It's pretty simple. Moreover, related to that is-- yeah. So simplicity. So those are the big three pros. So you ask, why do countries have consumption taxes? These are the reasons.

What are the cons? Well, the cons are also pretty strong. The main con, of course, is vertical equity. And that's because you say, well, why is vertical equity changed? They both pay the same consumption tax rate. It's a flat consumption tax of 50%, or 100%. Who cares? Vertical equity changes because the rich save and the poor don't. So the facts are that those in the lowest income quintile in America, the bottom 50% income distribution, saves 3% of their lifetime income. So over their whole lives, everything they earn, their savings amount to 3% of that. Those in the richest quintile save 25% of their lifetime income. And the richer you get, the more you're saving. Elon Musk just can't spend the money fast enough. By definition, your savings can be very high the richer you get.

So basically, in the top 1% of the income distribution, those people save roughly half their lifetime income. Well, changing to this tax system, while from the perspective of that table looks fair, remember we've got to think about the transitional impact. We're going to move to a much more regressive tax system. This, essentially, is a huge tax break for the rich because basically, they're the savers, and the system favors savers relative to the existing system. It's neutral relative to no taxation. But relative to today's system, it favors savers.

Now you might say, look, we could-- you might say, well, look. There's a couple of ways we could deal with this. First of all, the rich save the money. What happens to it? Well, eventually, they just leave it to their kids. So if you had a consumption tax that included estates as a form of consumption, that would solve the problem. So you said in your consumption, I'm including what you leave behind, well, then they wouldn't escape the tax. It wouldn't matter if they saved more. They'd eventually get caught.

The problem is, we already have a huge fight over a tiny estate tax. And indeed, there's an article about this. It came out right before I taught the lecture, a *New York Times* article just yesterday, maybe two days ago, about noting that the share-- the wealth of the richest Americans has gone up four times in the last 30-- gone up fourfold in the last 30 years, but estate tax revenues have stayed flat because we've increased the-- we increased so much the exemptions, and people are taking more advantage of the loopholes. So the notion that we're going to suddenly put in a massive-- we're going to massively tax every dollar in every estate is insane. That's not going to happen. So we could get rid of that. We're not going to. Yeah?

AUDIENCE: Sorry, what was the thing that has gone up?

JON GRUBER: The amount of wealth the richest are holding has gone up, but they're not paying any more in estate taxes.

AUDIENCE: The absolute amount or [INAUDIBLE]?

JON GRUBER: The absolute amount.

AUDIENCE: Oh, wow.

JON GRUBER: So that's one way. Another way you could do is say, well, look. We could have a progressive consumption tax. We could basically say, look. Instead of having a sales tax, we would-- a sales tax, by definition, can't be progressive.

You can't walk in and say, that's a nice suit. I'm going to charge you more for your cookies. It's not going to work. But you could say, what if instead of a sales tax, we had an expenditure tax. The way the expenditure tax would work is literally I'd add up what you spend all year and I would apply a progressive tax schedule to that, just like I do to income. The problem is it's impossible, because if you think tracking income is hard, tracking spending is a nightmare.

There's no way that we can actually-- and countries that have tried, it's absolutely failed. No one's ever been able to successfully implement an expenditure tax. Yeah?

AUDIENCE: Are there any behavioral studies-- or impacts of-- are there any studies or research around the behavioral impacts of having a consumption tax? In terms of how it might affect consumption?

JON GRUBER: Yeah. Oh, yeah. It does what you think it does. It lowers consumption, increases savings, absolutely. So that's one argument against it. There's actually a subtle version of this vertical equity argument, which is a targeting argument. Remember when we talked about welfare, we talked about how a good welfare system might find who really needs help and target them.

Well, there's a similar issue in taxation, which is imagine a world where you can't-- you know who's rich and poor, but you can't tell who's really needy and who's not. And some of the rich guys are actually unskilled guys working incredibly hard. Some are guys who just are living off the fat of the land and happen to make a lot of extra money through their parents or whatever. You'd like to tax the latter and not the former. Well, you can't, because they both have high income.

But it turns out, if being a saver is correlated with being a high underlying ability with someone who underlying is going to be rich, you might want to use the amount you save as a way to tax people. You want to say, gee, you save a lot. That must mean you're a guy who really is rich. Let's come grab you, and let's tax you instead of a targeting. It's a little subtle.

The other major problem is the transition issue. Here's the question. Think about this for a minute. Come on. Last few opportunities to answer questions. Let's go. Here we go. Think about this for a minute. Think about three groups of people, babies, 40-year-olds, and 70-year-olds. And imagine we're going to replace the existing income tax with an equal revenue consumption tax. Who wins and who loses?

Let's start with who loses, because that's the easier one. Who loses when I take-- I'm going to say, look, starting tomorrow, I'm not going to tax income. I'm just going to tax your consumption. But I'm going to have to raise the same amount of revenue. Who's the big loser in that? Yeah?

AUDIENCE: The 70-year-olds.

JON GRUBER: Because?

AUDIENCE: They are probably retired, make no income, but they still--

JON GRUBER: They paid income tax their whole life. And now, as they spend their money, they're going to hit again. They are totally screwed. Who benefits the most? Well, the babies, because this consumption tax is going to increase the capital stock, raising wages in the long run. The 40-year-olds are kind of indifferent. Maybe 35-year-olds. I don't know what age you're indifferent. But the bottom line is this parallels a bit our discussion of Social Security.

There's a bit of a legacy debt issue here when you switch from income to consumption taxes, which is that basically, you have ended up screwing the people who paid income tax their whole life and now are going to have to pay a consumption tax as they draw their savings down. And that's going to be a very hard thing-- that's going to be a very hard thing to deal with, much like-- and indeed, people have estimated models.

Enoch asked about the economic effects of consumption taxes. People have estimated models showing that consumption taxes increase efficiency. But if you have to bribe old people-- imagine you had to say to old people, we're going to put in the consumption tax, and we're going to grandfather you. We're going to make you not pay, and just put that on extra debt. That would undo all the efficiency gains of moving to consumption tax. The consumption tax, a of the efficiency gains come from actually screwing the old people. And if you're not willing to do that, you're not going to get a lot of efficiency gains from switching to consumption tax. So that's the third problem.

A fourth problem is-- so you can't do an expenditure tax. You to do a sales tax. Well, the fourth problem is compliance, which is basically when I earn income, for most people, that's recorded in ways the government tracks. But I can always buy stuff off the back of a van. The government has no idea. So it's actually-- and imagine a world where there's 25% sales tax, which is what we'll be talking about to replace the income tax. There'll be a lot of incentive to buy stuff off the back of vans, and there'd be new apps that wouldn't be tracked by the government. Bitcoin would take off.

Actually, the Bitcoin advocate should love this. Everyone suddenly starts using Bitcoin to buy things, the government couldn't track it, and they'd never pay taxes. So compliance is a nightmare. And then finally, we have a more subtle problem, but a subtle problem that motivates the next step, which is what you can call the cascading problem. The cascading problem is that some consumption goods are intermediate inputs into other consumption goods. So think about the classic example of fruit basket. Well, imagine a fruit basket maker where you buy the fruit, you put it in your basket-- you buy the fruit, you buy the basket, you put them together, and you sell it.

Well, if you pay consumption taxes on the fruit and consumption taxes on the basket, and then you sell this consumption tax on what you sell, that's double taxation. Now if you have three levels of inputs, it's triple taxation. It explodes. So in a world where consumption taxes could be levied on inputs, in theory, you have a problem.

So these are the arguments against that. But these last two in particular have led to a particular form of consumption tax that's used around the world called the value-added tax, which any of you who've traveled to Europe, you've dealt with the value-added tax. The value-added tax. What is the value-added tax? The value-added tax is literally-- it's what it says. It's a cascading consumption tax where each level of production is taxed only on its value added.

So let's look at an example. Imagine you're making a kitchen table, Table 25-3. Not your main kitchen table, end table 25-3. Basically, you've got three stages. First, the logger cuts down the wood and sells it to the manufacturer. The manufacturer makes the table and sells it to retailer. The retailer sells the table to you.

So the logger has no inputs, and maybe buys an ax or whatever. But assume he has no inputs. He sells the wood for $25, says value added is $25. The manufacturer buys the wood for $25, then sells the table to a retailer for $75. So his value added is $50. The retailer sells the table to you for $100. She paid $75 for it, so her value added is $25.

So what we do is at each level, we tax people the value added. How does it actually work? It literally works that the manufacturer has to produce the receipts for what they paid for their wood, and their receipts for what they sold their tables for, and they're taxed on the difference. And what that means is if you want to raise $20, you could either have a 20% tax on $100 table at the end of the day, or you could have a $5 tax on the loggers, $10 on the manufacturers, and $5 on the retailers.

Now either way, you raise $20. But there's two key advantages to the value-added tax. The first is it gets rid of the cascading effect, because everyone's only taxed-- you only tax on your value added. So that fruit basket person would get to deduct from her taxes what she paid to get the fruit in the basket. So they only tax the value added. The second advantage is that it helps with compliance. And why does it help with compliance? Why don't people just cheat like mad in this? Yeah?

AUDIENCE: Because instead of having-- each person is faced with a smaller tax hit along the way.

JON GRUBER: Smaller tax hit, that's one thing. And we know from the last thing that the smaller the tax rate, the less incentive to cheat. But it's better than that. There's another feature. This feature becomes self-enforcing. Why? Yeah.

AUDIENCE: Because if someone cheats before you, then you get screwed.

JON GRUBER: Yeah, exactly. If the logger claims he only sold it for $20, then the government says, wait a second. The logger says $20, but this table manufacturer is saying he bought it for $25. Something's going wrong. So it becomes self-enforcing. So if you're going to do it-- basically, this is a well-functioning consumption tax design. So that is one way you can do the consumption tax.

Now the US-- there's actually another way you can get the consumption tax, which the US is part of the way to getting there, which is, what is consumption? Consumption is income minus savings. The US taxes income. We can move to consumption tax in two ways. We could tax consumption or we could let people deduct savings. If we let people deduct savings from their income, then you're taxing consumption. Well, guess what. We do a whole lot of that.

We have low tax rates on capital income. We have savings, retirement accounts, et cetera. So actually, we are in between income and consumption tax, because we have a lot of tax breaks for savings that we covered in chapter 22 and chapter 23. Basically, the tax break for capital gains is, in some sense, an incentive to save. So we have lots of tax breaks for savings. So we're actually partway to a consumption tax in the US.

And once again, you can now see the argument for why, which is gee, by taxing income instead of consumption, we are reducing incentives to save. So we want to increase incentives to save by moving to a consumption tax. But the same vertical equity argument applies. Essentially, the fundamental trade off here is between efficiency and equity, that basically, it would probably be more efficient to have a value-added tax than an income tax. But it would be less equitable.

And like many other things, for that reason, it's hard to imagine today that if the fairly liberal countries in Europe had an income tax, they'd be very eager to switch to a VAT. But since they had a VAT a long time ago, for a long time, they are able to do that. Yeah?

AUDIENCE: How do you reason about the macroeconomic benefits of spending versus saving on the book, because--

JON GRUBER: So basically, it's confusing for you because you guys just lived through a big recession. As I said, this course runs in a full-employment economy. In the long run, saving is productive, because saving converts to capital. Now we've lived through a period-- in the short run, when there's periods of insufficient demand, you want to spend. You want to encourage spending.

But in the long run, you want to encourage savings, because that builds the capital stock in the economy. So it's really a short run, long run distinction, or a full-employment macro versus cyclical macro. We talked about this in chapter four. So basically that is kind of the fundamental trade-off we face when we think about how do we deal with thinking about consumption versus income taxation. Other questions? Yeah, Enoch.

AUDIENCE: That was less equitable.

JON GRUBER: What's that?

AUDIENCE: [INAUDIBLE] less equitable?

JON GRUBER: Less equitable than an income tax?

AUDIENCE: Than an income tax.

JON GRUBER: Yes, not than other consumption tax. Less equitable than income tax, absolutely. Other questions? Yeah.

AUDIENCE: Would it help if we bundle that [INAUDIBLE]?

JON GRUBER: Well, that's a very interesting thing. So in Europe-- this is actually a really fascinating contrast between the way taxation works in the US and Europe. Europe actually has much higher taxes on labor or consumption. Remember an income tax and consumption tax operate in similar ways. They have much higher taxes on the average Joe. And they actually have fairly low taxes on capital.

So you might think, well, gee, we thought liberals owned Europe. Well, the difference is they raise extra money and do a lot more pro-poor spending. Not a UBI, because they want to target the poor. But the idea is if you-- and in some sense, this is quite interesting. Actually, great question. This is why Andrew Yang was off his rocker.

Sorry for all you Yang fans out here. That's 2020 election going back. But Yang wanted to move to a consumption tax to fund a UBI. Think about that for a second. We have a current income tax, which is progressive. He wants to move to a flat consumption tax and then give money to everybody, including the rich guys.

That doesn't help progressivity at all. That massively hurts progressivity. You're essentially going from a progressive income tax system to a flat system where you're giving everybody the same amount of money. Now a consumption tax that funded a basic demo grant where everybody got $20,000, that could be equitable. So you could-- that's basically what Europe does.

What Europe does is they have a consumption tax that funds very progressive spending. But a consumption tax to fund a UBI is just-- we're just going to move from a progressive to a flat system. Everybody pays the same tax, everybody gets the same money, the richer in the same place as the poor. That doesn't do us any-- that hurts. Does that make sense? Sorry. Sorry for you Yang fans out there. Yeah?

AUDIENCE: You said a basic what grant?

JON GRUBER: What's that?

AUDIENCE: You said a basic--

JON GRUBER: A basic demo grant, which is just a flat amount of money to just-- I'm sorry. I'm sorry. Let me back up. I said it wrong. Amount of money that's targeted to the poor. I didn't mean a demo grant. A base amount of money that's targeted to the poor. So in other words, think about something where you say, well, consumption tax, and basically, we're going to take everyone below this level of consumption and give them an extra $20,000. Or alternatively, what Europe does is not that. They say we're going to have a high taxation, and we're going to have universal health care. That's going to mostly help the poor.

And you might say it's universal. Why isn't universal health care like universal basic income? Well, going back to health care chapters, universal health care in Europe is not the same as universal basic income for a simple reason, which is that the health care is mediocre. So the rich guys have to buy extra. Essentially, it is not truly universal. It's basically better for poor guys, and the rich guys buy extra.

But what Europe does basically is set up a more traditional welfare state funded by higher taxes. And it's not clear which way we feel about that. It's a very interesting contrast in how they do it. Other questions? Yeah.

AUDIENCE: That term, [? "demi ?] grant," what--

JON GRUBER: That's UBI. I used the wrong term. Yeah?

AUDIENCE: So does consumption have a much lower variance than income, meaning do the rich guys--

JON GRUBER: Great question.

AUDIENCE: Sorry, I don't know how to--

JON GRUBER: No, no. Let me. You actually asked a great question. I didn't cover this. I covered this in chapter 19 in the book. So when we talk about progressivity-- I think I'll answer your question. Let's see. When we talk about progressivity, we talk about in terms of current income. But current income is not a good measure, in many cases, of lifetime income.

So for example, you are currently very poor. You will eventually all be well off, I predict. So it's not really-- so if I say right now, you've got the same thing as some guy working at a gas station, well, lifetime, you're going to have way higher income than some guy working at the gas station. But I'm taxing you on your income now. Consumption under the life cycle model is a representation of my lifetime income.

So under a life cycle model with borrowing, you should be borrowing right now and consuming more. Now you're not fully, but you're probably consuming more than you would if you knew this was your permanent income. If you knew forever this was going to be your income, you probably wouldn't consume what you're consuming today. So the point is, that's why people said, when we think about tax fairness, the right measure is not income, it's consumption.

And in fact, if you use consumption, the tax system appears much less progressive than if you use income. And basically-- because a lot of the low-income people are actually going to end up rich. So they're actually-- we're actually taxing rich people to too low. The rich people won't end up being poor, but some of the poor people could end up being rich. And so basically, that's-- is that what you're getting at?

AUDIENCE: That was interesting, but I guess-- wait.

JON GRUBER: Interesting? OK, I'm good. I'm done. Next. No. Go ahead.

AUDIENCE: That was like part of the question. But another part was, so the poorest people versus the richest people, there's a huge gap in what they make. But I'm wondering if the gap in what they spend-- if people kind of--

JON GRUBER: Yeah. And why does that matter?

AUDIENCE: I was wondering because if we do tax consumption in a flat way, then that is less equitable if people kind of-- if people's consumption converges to a mean. Or not a mean, but something kind of--

JON GRUBER: In other words, you're saying, in some sense, equity is about signaling who really needs help and who doesn't. You're saying consumption is a worse signal, in some sense, of who really, truly needs help?

AUDIENCE: Maybe. Because there's certain necessary--

JON GRUBER: Yeah, no. Exactly. You're saying that if we tax consumption, in some sense, we're going to tax-- even if you're really poor, you're going to have some level of consumption. So we're going to-- yes, that's a great point, that basically we're going to end up-- it's, in some sense, a less-- essentially, your point and my point bound the truth. So my point is consumption's a good measure because it represents your lifetime resources.

Your point is consumption is a bad measure because you've got to consume a certain amount. The truth depends on to what extent the life cycle model explains reality. If people really behaved by the life cycle model perfectly, then consumption is the right measure. But if they don't, and they basically have to spend extra just to survive, and it's money they don't-- are never actually going to have, they're going to be in debt for the rest of their lives and never pay it off, then that's a problem with consumption taxation. Does that make sense?

AUDIENCE: Yeah. Thank you.

JON GRUBER: OK. So that's consumption taxation. Now there's another approach, which is just to say, well, look. Let's just keep the income tax system, but go to a flat tax. And this was the very popular proposal, like Herman Cain's and others, was basically a flat tax. And so here's, for example, a way-- the most famous economist flat tax examples, the Hall-Rabushka tax.

Here's how they set it up. It's actually pretty interesting. It's not a flat tax, but it's a simpler tax. Basically, they say all corporations, all businesses pay a VAT, but they deduct the wages they pay. So it's a VAT with an extra deduction. You deduct the wages you pay. Individuals then pay taxes just on their wages and capital income is exempted-- all capital income is exempted from taxes.

So basically, this is like a VAT. So why not just use a VAT? The difference is that a VAT can't be progressive, but this can be progressive. So we take wages out of the VAT. But then we have a progressive tax schedule on wages. And that way is a way of introducing progressivity into a consumption tax system. Then the question is, well, how much progress do you want to introduce and how fast should the tax rate be?

And basically, the answer is you can raise a lot of money-- the other thing they would do is they'd-- beyond this, all loopholes are gone. Health insurance deductions gone. Everything's gone. Charitable deduction, all loopholes, are gone. So you have a huge tax base. It's the broadest possible tax base. And it turns out you can then raise a lot of money with a fairly low rate.

The problem is that low rate leads to a lot of change in progressivity. So for example, here's a flat tax. Here's an example of a Hall-Rabushka tax for certain parameters. You could design it any way you want. This is just to give you an example of a flat tax where basically what you see is tax rates rise for those who are more towards the bottom of the distribution because you have a flatter tax, you're raising the bottom rate, and they fall a lot for those at the top of the distribution.

You raise the same amount of money, but basically, it ends up a flatter tax rate system is going to have less progressivity. And the Tax Reform Act of '86, let's be clear, the richest people only paid twice as high a rate as the poorest people, whereas today the richest people pay a rate that's about four times. So the top rate is almost four times the bottom rate. Tax Reform Act of '86, the top rate was only twice the bottom rate.

Now there are people who don't pay tax at all. They're always exempted. But among taxpayers, if you replaced-- if you followed my advice and got rid of today's system with the Tax Reform Act of '86, people are like, wait a second. You've gone from a bottom rate of 10 and a top rate of 40 to a bottom rate of 15 and a top rate of 33. How is that fair? Yeah?

AUDIENCE: How has the ratio of effective tax rate between the poorest and richest people changed over time, rather than just what's on the schedules?

JON GRUBER: Under this system?

AUDIENCE: Like--

JON GRUBER: Oh, have they?

AUDIENCE: Like, historically--

JON GRUBER: Oh, that's chapter 19. We showed that. We showed that. That was in the tables in chapter 19. Basically, what's happened over time is poor people have paid less tax as a percent of their income, rich people have paid about the same amount, or a somewhat rising share of their income in taxes, not rising as much as inequality has risen. But actually, it's interesting. We say they get tax breaks. Well, the truth is, the share of income the rich pay in taxes actually gone up over time.

But, critically, let me back off on that. That depends on how you treat unrealized capital gains. If, like I talked about the other day, you treat unrealized capital gains as income, then the rich pay much, much lower taxes.

AUDIENCE: That's what [INAUDIBLE].

JON GRUBER: Right. But that's a controversial topic, is should we think about this, because it's not actually income. They didn't realize that. And how should we think about that? So basically, the progressive tax system depends a lot on how you think about unrealized capital gains.

AUDIENCE: Sure. So I guess maybe the same question, but based off of the flow of wealth rather than income per se?

JON GRUBER: Yeah. Then, basically-- I mean, I don't know the full distribution, but the tax rates on the rich are-- I don't know if they're lower than the poor. But for many rich people, they are. For the wealthiest people, they are. So basically, you get this strange inversion, then, because the super wealthy are the ones with huge unrealized capital gains. I don't know how much it would change $25,000 versus $200,000 incomes. But the billionaires get a huge break.

So basically, where does this leave us? Well, this leaves a situation where the tax section ends up a bit where the redistribution section ended up with our fundamental equity efficiency trade-off, that we can design a more efficient tax system if it's flatter. A flatter system will be more efficient. It would help with compliance. It would help with simplicity. But you would have vertical equity concerns.

So it seems to me-- now my editorializing, it seems to me the best of both worlds is have the flat tax base and just have a steeper schedule. Basically, in some sense, there's two steps. There's the base and the rates. The holes we've put in the tax base are a major source of inefficiency. In fact, one of my favorite economic studies re-estimated this taxable income elasticity at different kinds of tax basis. The US, the tax base has changed over time. And they found the more comprehensive was the tax base, the lower was that elasticity. Why? Because there's less loopholes to take advantage of.

So in some sense, this is the tau-squared effect on steroids, that basically, the more that-- not the tau-squared. I mean, it's the whole deadweight loss debate on steroids. We talked about how higher tax rates can cause deadweight loss, and in particular, among high-income payers. But the deadweight loss itself is a function of the base. It's not exogenous. The more comprehensive is the base, the less deadweight loss from taxation, because much of that deadweight loss comes from fucking around with trying to get different holes in the base. That's gone.

So it's actually a fascinating interaction that taxes-- when you broaden the base, you not only raise more money, you make taxes more efficient to collect. So it's an extra boost to the Haig-Simons argument. The Haig-Simons argument was-- yeah, this is the way I want to say it. The Haig-Simons you remember our deadweight loss formula, was a function of elasticities and tau squared.

The Haig-Simons argument was all about tau squared. But there's actually an elasticities part of the Haig-Simons argument, which is when the base becomes more comprehensive, you not only get to lower the rates, lowering the tau squared effect, but you lower the deadweight loss of taxation, lowering the elasticity effect. So a broader base has a double whammy in terms of tax efficiency.

So basically, what we should do is move back to the Tax Reform Act of '86 base. I would advocate somewhat more progressive rates. But that's, then, just a social debate about-- we just have a social debate about the inefficiency of higher rates versus the social redistribution. But once we get the base off the table, there's not much of their much inefficiency from progressive taxes. And that, I think, is the key thing. Does that make sense?

That's the key thing to realize, that the base-- that the inefficiency of taxation depends on how you define the base being taxed. OK? Well, let me then wrap up with a couple of final points I want to cover. The first point, and the most important point, is what I want you to take away from this course. Now if I took anyone in this class and convinced them to get a PhD in economics, that's a bonus.

But the main thing I want you to take away from this course is just how to be intelligent consumers of information about government policy. I don't expect you to remember-- the only thing I expect you remember is between Medicare and Medicaid. Other than that, you can forget the rest. I just want you to remember when you read an article about this wonderful signing tax break to think, wait a second. Is that a good idea or not? That depends on how much money you're going to spend versus how much the behavior is going to encourage.

When you read something about a new social insurance program, to think, well, what's the benefit of that, and what's it going to do, in terms of inducing bad moral hazard? When you hear something about the environment, think about is that the best way to try to accomplish this environmental goal? So just be smart consumers and go out there.

We are in a period of time of the lowest respect for expertise of my lifetime. We have a crisis of expertise, and part of the problem is due to a place like MIT. And why is it due to MIT? Because we don't talk in ways that people can understand. We talked to each other through very erudite articles, and we don't explain to people clearly how to think about these problems in a nonjudgmental, nondismissive, clearly understandable way.

I've given you the tools to do that here. So now go out and do it in the real world. Make sure, when you're encountering people in the real world, and they're thinking about these issues, that you help them understand the right way to think about it. Once again in a non-paternalistic way, but in a way which puts these tools to use. So that's the main thing I want to get out.

The last thing I'd like to end with, and I apologize for-- how many people took 14.01 with me? I know Enoch did. OK. I apologize for the same joke again. But others that didn't hear the joke, it's my favorite joke of all time. So my favorite economic joke of all time, which is about the doctor, priest, and the economist who go golfing. They're on the golf course. They get on the golf course, and there's someone ahead of them, one person playing alone who's going unbelievably slow.

They are taking 25 shots for every hole. And I'm not a golfer, but apparently good etiquette in golf is if you're very slow and there's people behind you, you're supposed to let them play through to get ahead of you, and the golfer wouldn't do it. And so they were like-- there was lines of like 20 people waiting behind this person taking forever. Finally, after nine holes, they quit. They go to the clubhouse. They're pounding their beers. They're really upset. And they're like, God, what an asshole. I can't believe it. Let's play through.

And someone comes up and says, well, excuse me. Are you new at this club? And they said, yes, we are. I said, well, I know you're new, because if you weren't new, you'd understand the person you're playing behind is blind. And actually the reason they take so long is because they're blind. And actually, it's pretty amazing they make it at all. That's pretty incredible. So you might want to think about that. And they walk off, and there's a dead silence.

And the doctor goes, oh my God. I can't believe that I said such a mean thing about a blind person. My whole job is to help sick people, and here I am insulting blind people. I'm going to dedicate a wing of my hospital to the blind. And the priest goes, well, you? I mean, what about me? I'm supposed to be this holy man who takes care of people, and I'm insulting this blind person. I'm going to set up a free soup kitchen for the blind. And they go to the economist, and the economist says, well, if he's blind, why doesn't he golf at night?

[LAUGHTER]

And I love that joke. That could, of course, be told about any engineering field. I love that joke, because it shows our roles to be a pain in the ass. A well-communicated, nonpaternalistic, effective pain in the ass. And that's what I hope I trained you in here, and you'll learn in 14.01, you'll learn economics at MIT, is how to be a pain in the ass, and how to basically live up to our title of "the dismal science" in a way which actually makes the world a better place. So I'll stop there. Good luck on your exam. And I hope to see all of you more. Remember, like I said, my door is-- I'm still around in the spring, so feel free to stop by. Thanks.

[APPLAUSE]