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**JONATHAN
GRUBER:**

So today, we're going to continue our discussion of equity and efficiency. We started last time talking about the equity-efficiency trade-off. Well, first we talked about why we think redistribution might be necessary, and the striking facts on inequality and poverty in the US.

Then we talked about the trade-off, the equity-efficiency trade-off, and the fact that when you try to deal with a problem like redistribution through taxation or transfers, you're going to have a leaky bucket. That there's going to be inefficiencies associated with both taxing individuals to raise the money, and transferring to individuals to spend the money, are both going to cause deadweight loss.

So what I want to do today is take that abstract framework from last time, put it in some real terms. By talking first about how taxation works in the US, and the kind of issues we face in taxing people, and then turning to redistribution programs. And concluding with a very positive story of what I call a patch to the leaky bucket, and how we can redistribute in a very efficient way.

So let's start by talking about taxation in the US. And when I talk about taxation, I want to talk about two topics primarily. The first topic is, who bears taxes? Who bears taxes?

Now, this is a topic that we call-- in public finance, the field I specialize in-- the topic of tax incidence. Now, you might think this is a silly question. If you pay tax, you bear the tax. Why is this an interesting question?

And the answer is, it's an interesting question because it's not true that the person that bears the tax pays the tax. That in fact, when you impose taxes, they have complicated effects on multiple parties because of the operation of the market. So as a result, the party that actually sends the check to the government may not actually bear all that tax.

And so that's the interesting insight we'll start with today. So to think about that, let's go to figure 22-1, and let's think about the market for gasoline. You've got demand

and supply. You've got an initial 100 billion gallons of gas being sold at a price of \$1.50. Those were the days, back when gas was \$1.50.

Now, imagine the government comes in and says, we're going to levy a \$0.50 tax per gallon on the suppliers of gasoline. So the gas stations, or the gas companies, or whatever. For every gallon they sell, they will send us \$0.50. You literally cut a check to the government, \$0.50 for every gallon you sell.

What does that do-- and you might stop there and say, OK, well, then the incidence of that tax is-- that tax is borne by producers. That's great. I don't have to worry about it. I'm buying gas. It's those guys selling gas who have to bear it.

But you'd be wrong. And the reason you'd be wrong is shown in the right-hand-side diagram, which is to think through the market effect of such intervention. What does intervention do? Well, it has no effect on the demand for gas. The fundamental demand curve. The underlying utility of the marginal gallon of gas hasn't changed.

But it has changed the supply curve, because essentially, we've introduced a new marginal cost. The marginal cost of gas has gone up by \$0.50 a gallon. Every gallon of gas you produce and sell now bears an extra \$0.50 cost. So that's a shift upward of the supply curve. Remember, the supply curve is the marginal cost curve. So if I increase the marginal cost of every gallon by \$0.50, that's literally just a parallel shift upwards in the supply curve. Supply curve shifts from S_1 to S_2 . That's the new supply curve.

Well, at that new supply curve, you cannot continue to charge the old price. If you can charge the old price of \$1.50, people would still want to buy 100 billion gallons of gas, but companies would only want to sell 80 billion gallons. Why? Because the marginal cost has gone up. And we have an upward-sloping supply curve, so at a higher marginal cost, they're going to want to sell fewer gallons. So you have a disequilibrium.

What happens is that the gas company adjusts by sliding up the supply curve to the new equilibrium point D, where they sell 90 billion gallons at a new price of \$1.80. This is all just standard supply and demand stuff, we've seen that before.

What's interesting here is to note that what this means is that part of the tax is

borne by consumers. Part of the tax is borne by consumers. What I mean by that? What I mean is consumers used to pay \$1.50 a gallon, and now they pay \$1.80 a gallon. So the tax has increased what they pay by \$0.30 a gallon.

Now, they're not sending that check to the government, but it's the same thing. It's the same effect. The point is this tax has increased the amount that consumers pay for gas by \$0.30 a gallon.

So the incidence on consumers is \$0.30. The incidents on producers is a little more complicated. They now get \$1.80 per gallon. That's great. But for every gallon they sell, they have to send a \$0.50 check to the government. So their net price per gallon is \$1.30.

So we can see that by taking the new price at point D and subtracting off the \$0.50 tax they have to pay, which says that instead of \$1.80, they get \$1.30. We call that the tax wedge.

The tax wedge is the difference between the tax including the price and the tax after paying the price. So it's just a wedge between what people get before they pay the tax and what they get after paying the tax. That's the tax wedge. We have a \$0.50 tax wedge here.

And so what is the burden of the tax on producers? Well, they used to get \$1.50 a gallon. Now they get \$1.80 but pay \$0.50 to the government. So the burden on the producers is \$0.20.

So even though the producers are sending the check to the government-- the gas stations, the gas companies sending the check to the government, they actually pay less than half the tax.

Now, nominally, they pay the \$0.50, but we don't care about that. We just care about where they end up after the market is adjusted. After the market is adjusted, they are \$0.20 per gallon worse off than they were before. And consumers are \$0.30 per gallon worse off than they were before.

This is the fundamental insight of tax incidence, that you can't just look at the paper version of who pays the tax. You have to consider who really bears the

consequences of the tax.

And that's why it gets interesting. Because the party that bears the consequences is not necessarily the party that actually sends the check to the government. That's the fundamental insight of tax incidence. Questions about how that all works.

OK. So bottom line is all you do is you say, look, think about how the tax affects the market. In this case, it's an upward shift in supply curve. Shift the supply curve up. Find the new equilibrium. That gives you the new equilibrium price. And then the burden on the party not paying the tax is the difference between the new price and the old price. The burden on the party paying the tax is the new price minus the tax they have to pay. OK?

Now, what's interesting about this is that within this framework-- so the first bold claim I'm going to make is, actually, it doesn't matter who sends the check to the government. The first bold claim-- let me tell you about it. The first bold claim I'm going to make is that the amount set on the check to the government is not the amount you actually bear of the tax. The amount you bear of the tax comes out of this analysis.

Here's the second bold claim I'm going to make. It doesn't matter who sends the check to the government. If you impose the same \$0.50 tax on consumers of gas in the same market, you get the same outcome.

How's that possible? Well, let's look at figure 22-2. Now we have a different tax. This tax is now every time you buy a gallon of gas, you pay \$0.50. Imagine the outcry. Imagine if the government had a tax which made gas companies pay \$0.50 of a gallon they sold, and they said, you know what, we're just going to switch that and make people pay the \$0.50. Could you imagine the headlines? The outcry? Government screwing the little guy to favor the oil companies.

But in fact, those headlines would all be wrong. Because in fact, it doesn't matter. To see why, let's look at the diagram 22-2. Now imagine we have a \$0.50 tax on consumers. Now the supply curve doesn't shift because marginal cost hasn't changed.

But the demand curve shifts down. Because for every gallon you buy, you have to

send \$0.50 to the government. Well, the demand curve represents your willingness to pay. You are now willing to pay \$0.50 less per gallon. If you're willing to pay before at point A, the 100 billionth gallon sold, they're willing to pay exactly \$1.50. Well, if they only pay \$1.50 and now you send \$0.50 to the government, well, now they're only willing to pay \$1 for that gas.

So what that means is consumers now, with the shifting demand curve, if the price stayed at \$1.50, they would only want 80 billion gallons at point C. They would only want 80 billion gallons at a price of \$1.50. Why? Because the price to them isn't \$1.50 anymore. They pay the \$1.50, plus they pay the \$0.20. They'd have to pay another \$0.50 check to the government.

So they only want-- so to them, they don't want 80 billion gallons. So you have to move to a new equilibrium. Once again, we know about these adjustments. We talked about that. You're going to slide down the supply curve, and you're going to end up at a new point D.

D is the new equilibrium where the new demand curve, reflecting the much lower willingness to pay, intersects the supply curve. That point, interestingly, is at 90 billion gallons. Flip the page back to 22-1. That's the same quantity we had before. So we get the same effect on the amount of gas sold.

What's the difference is the market price. In 22-1, the market price rose to \$1.80. Now, the market price falls to \$1.30. But the burdens are the same. Think about the burden on the consumer. The consumer used to pay \$1.50. Now they pay \$1.30. So they saved \$0.20. But they have to send a \$0.50 check to the government. So the burden on the consumer is \$0.30. They save \$0.20 on the price and send a \$0.50 check to the government.

What's the burden on producers? Well, the producers used to get \$1.50. Now they get \$1.30. So what's the burden on producers? \$0.20. Same as before.

The point is for any given total tax wedge, for any given total amount of tax, who bears it does not depend on who sends the check into the government. That's irrelevant. The side of the market's irrelevant. All that matters is the underlying demand and supply curves and the size of the tax wedge.

As long as you have an underlying set of supply and demand curves and a given size tax wedge, you don't care who actually pays. Because the market will adjust to offset that.

And so this is an incredible insight of tax incidence, which is that something-- I'd imagine most of you walk in this room today, and I quickly said to you, does it matter if the gas company pays \$0.50, you pay \$0.50, you'd say, yeah, it matters. But it turns out it doesn't. Turns out it doesn't. As long-- given a given tax wedge and given a set of supply and demand curves, it doesn't matter who actually pays. And that's the fundamental-- it's another fundamental side of tax incidence.

And that's why, when you read articles in the paper about this tax is bad because it's on people, this tax is good because it's on corporations, that's not the way to think about it. The way to think about it is what's the total tax wedge, and what does the market look like? Yeah?

AUDIENCE: [INAUDIBLE]

JONATHAN GRUBER: Excellent point. All of this, of course, is within our standard 14.01 framework. Once you depart from that-- by the way, it's also true even if there's monopoly and stuff. That's still true. So this does not depend on perfectly competitive markets. This is also true in non-perfectly competitive markets. So monopoly, oligopoly will still feature these two rules.

However, once you depart from perfectly rational consumers, then things can change. So for example, there's a lot of interesting research on what's called tax salience. And as I said, since I won't have time for a lecture on behavioral economics this semester, I'm going to throw some behavioral economics nuggets at you. But if you find this interesting, take 14.13. It's really exciting.

And here's a kind of insight, which is, what if people pay attention to taxes when it's in the price, but not when it's rung up at the register? So they ran a cool experiment in supermarkets in California. They randomly, in some cases, increased the price on the shelf by the sales tax. In other case, they kept the price fixed, and the sales taxes rang up at the counter, like we normally do.

And they found that affected demand. That affected how much people wanted the

good, even though the net price was the same, because it was more salient when it was built into the price than when it's like at the end, when you just ring it up, you don't pay attention to it. Yeah.

AUDIENCE: [INAUDIBLE] research as to whether when the consumer knows that they're being taxed rather than the producer, if that changes how the demand function works [INAUDIBLE].

JONATHAN GRUBER: Well, that's exactly what I said. That's exactly what-- there's two questions. One is how this affects the demand curve. That's what I was saying. That basically, the demand curve-- it's not quite your question. Your question's about sort of a moral, like, do I feel differently if one's being taxed another-- or you're talking about the salience point?

AUDIENCE: Maybe like a little bit of both, just how people react when they know for a fact that they're paying the tax--

JONATHAN GRUBER: Yeah. I think we don't know for sure the moral aspect. But the salience aspect, we do know for sure, which is, how the tax is presented affect people's demand, even though it shouldn't.

Now, there's another question which I thought you were going to ask, which is, how does the fact that you can see a tax affect how people feel about taxes? So here's a super cool study my colleague Amy Finkelstein did. You guys know E-ZPass, the thing on the highway where you--

OK. So when states moved-- when I was a kid, you just wait in line and pay cash to get through the tolls. Now you just drive through with your E-ZPass. So what's happened is it made the tax less salient. It used to be you'd feel pain every time you go through the toll. Now it's just some bill you get at the end of month.

What she found is when states switched to E-ZPass, they rapidly raised their taxes on roads. They raised their tolls, because people in mind as much, so they could raise them more. So there's an interesting politics aspect to this as well.

So this matters. Having said that, I'm going to ignore it. But this stuff does matter, and that's why behavioral economics is fascinating. OK?

Now, there's a third point I want to make about taxes. So I talked about who bears taxes. I talked about the side of the market. Side of the market is irrelevant.

And then the third point I want to make about taxes is it's all about the elasticities. Which is, who bears a tax? For a given tax wedge, who bears the tax is all determined by the elasticities of supply and demand curve. And in particular, inelastic parties get stuck with taxes, while elastic parties avoid taxes. So inelastic agent, inelastic firms, inelastic consumers, they get stuck with taxes, while elastically supplied firms, or elastically demanded goods, they avoid taxes.

So to see that, let's look at figure 22-3. Let's go back to our tax on the suppliers of gasoline. Once again, I hope you know by now it wouldn't matter if demanders of gasoline. But it's a little easier to see with suppliers of gas, so let's go back to our tax suppliers of gasoline.

So we have a supply curve that's been shifted up by \$0.50. Let's consider two markets, one with perfectly inelastic demand, one with perfectly elastic demand. In the market, it was perfectly inelastic demand. We used to sell 100 billion gallons at a price of \$1.50. Now we levy a \$0.50 tax on suppliers.

Where do we end up? We end up still selling 100 billion gallons of gas. You have to, because inelastic. Well, if you're going to still sell 100 billion gallons of gas, then the suppliers can't bear any of the tax. They have to be able to fully pass the tax onto price. That is, they have to be able to charge \$2.

Think of the logic. Suppliers have to be on their supply curve. The supply curve has just shifted up by \$0.50. Therefore, if you're going to sell the same quantity, the price must go up by \$0.50.

So in that case, who bears the tax? Who bears this tax on gas? Someone raise their hand and tell me. Yeah.

AUDIENCE: Consumers.

JONATHAN GRUBER: Consumers bear all of it. Consumers bear all the tax, suppliers bear none. The supplier, you sent-- you just sent a \$0.50 check to the government, but you're getting \$0.50 higher price, so you don't care. Insert 50 Cent joke here. In the gas? I

don't know you do a 50 Cent joke. Whatever.

OK. So you don't care. Now let's flip the case. Let's imagine demand for gas is perfectly elastic. Now, the supply curve has shifted up by \$0.50. Supply curve was shifted up by \$0.50. Now what happens is consumers say, look, I don't care how you feel, Mr. Supplier, I'm not paying more than \$1.50 for gas. I have perfectly elastic demand.

Supplier has no choice, then, but to eat the whole tax. Because if they try to pass any of it onto the consumer, the consumer will bolt. So the new equilibrium is that-- where the price stays the same of \$1.50, and the quantity falls. In this case, the producer bears the whole tax. The consumer pays no more than it did before. The gas company gets the same price it did before, but has to send a \$0.50 check to the government. So the entire burden is borne by the producer.

What is going on? Why would inelastic demand-- what's the intuition here? So with inelastic demand, consumers end up getting stuck with the tax. And with elastic demand, consumers avoid it. Yeah.

AUDIENCE:

With elastic demand, consumers are willing to pay any price, so if the producers want to put all of the tax on them, they can, and consumers can't do anything about it. But if you [INAUDIBLE] elastic demand, then they can go anywhere else to get gas at \$1.50. So if you raise your price, then they're just not going to buy it.

JONATHAN

GRUBER:

Right. Exactly. I like to think of this-- that's a very good explanation. I like to think in terms of almost like negotiating power. It's not the right way to think about it, but I think it's useful intuition.

That when you've got inelastic demand, you've got no negotiating power. You just want insulin. You're going to pay anything for insulin. So the supplier knows that, so it's going to make you pay the whole tax. It doesn't matter if you send the check to the government or he sends the check to the government, he's going to pass the whole cost to you.

But if you think about fast food, if you think about a tax on hamburgers, if you're going to charge a penny more for hamburgers, I'm going to buy a hot dog or a slice of pizza. Then the supplier knows they're screwed. They have no leverage. You have

all the leverage. You've all the negotiating power. So they can't raise the price on you.

So the bottom line is, inelastic factors get stuck with taxes and elastic factors avoid taxes. And that's sort of the other lesson we get here as we think about taxation.

So at the end of the day, all that matters-- if you think about any tax being imposed in the US, it's never as simple as just a gas tax, often a complicated giant set of taxes. You think about simple-- a single tax, all you need to know is the elasticities, supply and demand, and the size of the tax, and you're done. You can figure out who bears the tax. And the Congressional Budget Office, for example, does these exercises all the time, and has estimates of how given tax changes will affect the income distribution as a result.

Now-- and actually, there's a pretty cool study of this. Let me ask the question. We have hospital taxes. We have-- hospital. We have hotel taxes. I've got too much health care on the brain. We've got hotel taxes in many major cities. There's some instance of a hotel tax. You can imagine a diagram, we've got supply demand. How does the incidence of the hotel tax change when Airbnb comes in? Yeah.

AUDIENCE: The consumer is suddenly much more able to switch around, and so a lot more of the tax, or maybe all of it, is borne by the hotel.

JONATHAN GRUBER: Exactly. What you see-- and how would you test that? How would you test that? Yeah.

AUDIENCE: Comparing prices in areas with different taxation rates?

JONATHAN GRUBER: Exactly. What you find is when Airbnb comes in, hotel taxes are passed less onto price. Hotel owners are more bearing the taxes compared to consumers, because consumers are more elastic. So that's an example of how this can matter.

OK. So now, let me say one other thing about taxes. The last thing I want to say about taxes is what to tax. And this is a fundamental debate that goes back to the 17th century, which is essentially, should we tax people based on what they produce? That is, their income. Or should we tax people based on what they consume? Their consumption.

The philosopher Thomas Hobbs in, like, 17-whatever, talked about, why should we tax people based on the fruits of their labor? Let's tax them based on what they take out of society-- that is, what they consume. And this is a debate economists have had for centuries. Should we tax consumption or income?

This debate, which shows in the real world, because in Europe, they rely much more on consumption taxes than we do. Yeah.

AUDIENCE: Wait, would it matter?

JONATHAN GRUBER: I'm going to tell you why it matters. So in Europe, they rely much more on consumption taxes than we do. So in the US, most of our taxes come from income tax, and in Europe, a lot of their tax revenue comes from what's called the value added tax. And if you've traveled in Europe, you'll know about the value added tax, which is a form of consumption taxation. So this is a debate that plays at international-- in the US, we have sales taxes, but they're quite small as a share of revenues compared to European nations.

Now, why do we care? Well, we care because the following equation. y , your income, can either be spent on stuff or saved. Your income can either be spent on stuff or saved. And as I talked about a few lectures ago, savings is a major engine of growth in the economy. More savings means a broader pool of capital. Means a broader pool of capital, which means a lower interest rate, which means firms can invest more.

So we like promoting savings in the long run. In the short run, in a recession, we may feel differently. But in the long run, we like having more savings. So in the long run, we like having more savings.

If you tax income, you tax both my consumption and my savings. If you tax my consumption, then you don't tax my savings. That is, you relatively favor savings over consumption. You promote people to save rather than consuming.

So that's why many economists-- I think probably if you did a poll of economists and said, should be tax income or consumption, the majority would say consumption. And the reason they would give is because we need more savings in society, and we need to promote that. Yeah.

AUDIENCE: Wouldn't it be equivalent to taxing income and they're giving a tax break for saving?

JONATHAN GRUBER: That would be identically equivalent. If you give a 100% tax credit for all of your savings, that would be identical. Now, in the US, we have some partial credits like that, but far from 100%.

So the question is, what's the counterargument? Well, the counterargument is all about fairness. Which is that it turns out that the rich save and nobody else does. Basically almost all the savings in society is done by the top probably 10% of individuals in society. And the bottom 50% of individuals in society have basically no savings.

So essentially, what this means is for most Americans, for the typical American, this debate is irrelevant, because they have no savings. You tax their income, you tax their consumption, it's the same thing. For rich Americans, it'd be a much better deal to tax consumption, because they have savings that then wouldn't be taxed.

So the problem with the consumption tax base, it'll mean a massive redistribution from the poor to the rich, because the rich folks do the savings. Now, there would be a simple answer to-- there would be an answer to this. We could answer this, because ultimately, the rich folks die. It doesn't matter how rich they are, they die eventually. And if at that point, we taxed all their savings, we could then equalize things.

So in other words, if we took all the money that was left-- let's say we had this consumption tax, but we counted its consumption the money you left behind when you died. Then it would solve the problem, because the rich would-- during their life, they'd pay less tax, but they'd pay it all at the end.

So that's why we have a critical debate in this country over the estate tax, or the so-called death tax. This notion of whether you should be taxed on their estates becomes very important for thinking about this. If we had an estate tax which was literally at the same rate as all other taxes, then we could move to taxing consumption. It would be the same. In fact, we'd essentially have a consumption tax at that point.

But in fact, we have an estate tax that is paid only by the top 0.04% of people who die each year. And it's paid on only a fraction of their assets. So we don't have that. So that's why the fairness debate comes in.

So I just want to point out, just another-- these are all just topics I'm hitting to whet your appetite. These are interesting things we need to think about when we think about how to set up our tax systems, is basically things like, do we tax income or consumption? OK? Questions about that?

OK. That's taxes. Now I want to turn to-- so that's one side of the equation, which is taxes. We know they cause inefficiencies. We know they cause deadweight losses. And we know that there's some question about who bears them. But the bottom line is taxes are putting some leak in the bucket, and that's a problem.

The other side of the leak in the bucket is transfers. Which is, as we saw in the diagram last time, if you essentially condition my getting money on my working, I'll work less. If you say to me, hey, John, you're currently making \$5,000 a year. I'm going to give you \$10,000 no matter what you do, but any money you earn will come off that \$10,000, I'll say great, I'll just quit.

So the problem with transfers is they act like taxes. If you take the transfers and phase them out, take them away from people, they have a similar effect. In fact, we call transfers an implicit tax.

[INAUDIBLE] transfer system from last time, which is the amount you got was the max of 0, was the max of 0, or 10,000 minus your income. This is essentially 100% tax rate on everybody's incomes below \$10,000. Because for every dollar you earn, we take it away, because you get \$10,000 no matter what.

So this is a tax, basically. But in fact, this tax is unavoidable if we want to target money to poor people. If we just gave everyone \$10,000, it wouldn't be a tax. We just gave everyone \$10,000.

Now, it would impact how hard people work. Why? Why would it impact how people work? Yeah.

AUDIENCE: [INAUDIBLE] logarithmic [INAUDIBLE].

**JONATHAN
GRUBER:**

No, no, I'm going to labor supply theory. What's the name of the effect for why that would affect [INAUDIBLE] if we gave everyone \$10,000? The income effect. So it wouldn't affect how our people work. But it wouldn't really distort people's labors. We think of distortions that arise in the substitution effect. People making different decisions because of tax rates.

The reason we get a problem, the reason we get deadweight loss is because I'm ta-- not that I'm giving you \$10,000, it's that I'm taking away as you get richer. That's the problem.

So then the question is, what can we do about this? What can we do about the fact that we're essentially imposing implicit taxes on poor people by giving them money?

So there are a couple answers. The first is categorical transfers. That is, instead of giving the money to everybody, just give it to deserving populations. So for example, one of them-- the largest single cash transfer program, pure cash transfer program in the US, is to-- that's literally giving cash is what's called the SSI program, the Supplemental Security Income program. It's about \$80 billion a year.

And what this does is give cash grants to low income families that have disabled children. So it's not just that you're low income, but that you have a disabled child in your house.

Likewise, we have something called the TANF program, which is what is traditionally called-- I've used the term "welfare" in this course to mean well-being. Traditionally in America, when you say welfare with a sneer on your face, you're referring to TANF. TANF is cash grants to low-income single-parent households. Essentially, if you're low income and you're a single mom, typically, you get a grant from the government.

Now, the question people have always asked is, why do we impose these conditions? Why do we make people disabled? Why do we make them be single moms? Why don't just give them the money? Why not have this? Why have these other conditions?

And the answer is because-- that basically, we think this is a way of reducing the

distortion that arises from transfers. Think of it this way. Imagine all of us were born with, on our forehead, an unremovable tattoo that said "hardworking and lazy." No, let's not do that. Different thing. Let's do "low skill and high skill." So I know your underlying ability.

Then I would simply say, look, if you're high skill, you don't get any money. I don't care if you're poor. If you're poor, it just means you're lazy, because I know you're high skill. If you're low skill, I'm going to give you money. And that would not distort behavior at all, because people couldn't change what's on their head, so they would just continue to work as hard as they always worked.

This is the idea of trying to find signals like that. You're trying to find ways of identifying the people who need the help. And by doing so-- who need the help, but need the help in a way that's not changed by their behavior. We think that a kid being disabled, they didn't choose to be disabled. Or mom being single mom, she didn't choose to be a single mom. That starts to get a little more interesting.

So essentially, the idea of categorical welfare is to basically say, can we find things about people that they didn't choose on which we can base giving them money? So blindness is a good example, et cetera.

Now, the question that then raises, well, can people choose these things? Well, you might say, well, of course, a kid can't choose to be disabled, but people can choose to be single moms. In fact, the evidence is the opposite. Let me explain what I mean.

If you give people money tied to being a single mom, it doesn't cause them to be a single mom. The evidence is very clear on that. So there have been hundreds of studies showing that paying women money conditional on being a single mom doesn't cause them to get divorced or have kids out of wedlock. That's been clear.

But if you give family money based on kids being disabled, more disabled kids show up. Why? Because disability is a tough thing to assess. Most disabilities are musculoskeletal or mental, and those are hard things-- you can tell if a kid's missing a limb, but it's hard to evaluate truly musculoskeletal or mental disabilities.

And interestingly, despite your intuition what it might've been a few minutes ago,

the place where in subsets we see the most people changing their behavior to qualify-- at least changing behavior meaning not becoming disabled, but claiming they're disabled-- is here and not in single motherhood. So categorical transfers help, but not as much as you might think, because the categories are hard to measure.

And that's why another tool we've used to try to get at this is in-kind transfers. In-kind transfers. OK. Part of the problem-- yeah, Manny.

AUDIENCE: For the TANF, does it account-- when it says for single parents, does it account for people that live in the household? So like--

JONATHAN GRUBER: It's a great question. That's a tricky thing to have to deal with, which is how do you deal with co-residing people? And that's something they have a complicated set of rules about.

AUDIENCE: [INAUDIBLE] the stuff you didn't choose thing, because they seem to try to simplify the cons [INAUDIBLE] choose, whereas I think in real life, it's probably related to the circumstances of your birth--

JONATHAN GRUBER: Absolutely.

AUDIENCE: --and other stuff like that. And so is it possible that these indicators are making it worse for people who are in situations where they couldn't have avoided being in poverty, but they happen to not be a single mom or not be disabled?

JONATHAN GRUBER: Awesome question. And so basically, here's the trade-off. Okay, give me a better way to teach it. Here's the trade-off. The trade-off is, the more you target-- let's say I said I'm going to replace our entire welfare system in America with just transfers to the blind. And let's assume people don't blind themselves to get money. You laugh, but there is a city in Florida where they found that over a certain period of time, the vast majority of US claim for lost limbs came from one city in Florida. And it turned out that people were actually cutting off their limbs to qualify for government money. They actually called it Nub City.

So you laugh. This stuff does happen. But by and large, we assume it doesn't. OK, so let's say I want to replace the entire US welfare system with one just for people who

are blind.

On the one hand, that'd be great, because you wouldn't cause any distortion. People shouldn't work any less hard because you can't change whether you're blind. On the other hand, you'd leave all of these people out in the cold who need help.

So that's the trade-off, which is the broader you spread it-- the more you move toward a universal system, the more potential distortion you cause in terms of people changing their work behavior, but the broader set of people you can help. And that's why there's a big move now for what's called universal basic income, UBI. It's a big movement now around the world to say, look, forget these things, SSI, TANF. They're all messy to measure. They're stigmatizing. People can change them anyway. Let's just give people money. And that's sort of one motivation for that.

Now, but the other way to get at this that people come at is, look, the problem all here is a simple one, which is everyone loves money. Rich or poor, we all love money. But what if what we gave people was not money, but things that poor people need and rich people don't?

Like for example, mediocre public housing. Not a mansion, but an apartment. A rich person isn't going to pretend they're poor to get a crappy apartment or a mediocre apartment. But a poor person who'd be homeless otherwise will happily take it.

What about medical care? Rich people have private health insurance. They don't need government medical care. Poor people need government medical care. What about food stamps? Rich people can afford food. Poor people can't.

So the idea is basically, by giving in-kind transfers, like medical care, or housing, or food, we get people to what we call self-reveal that they're poor. Here the problem is people might pretend they're poor to get the money. They might quit. Even if they can afford to work, they might quit.

Here we say, well, look, you're not going to quit your job to get a mediocre-- you guys with your-- make it 100 grand a year at MIT, I'm going to quit your jobs to get some mediocre public sector apartment. But if I said I'll give you 100 grand whether you work or not, you might quit your job. But say you live in a mediocre apartment, you won't. So the idea, by giving people in-kind benefits, is to get them to self-reveal

whether they're actually poor or not.

Now, that's not the main reason why giving in-kind transfers. This is the economist reason. The main reason is because politicians are what we call paternalistic. And this comes all the way back. You guys remember when we discussed food stamps, and we did budget constraints, and I said, well, we never want to give people food stamps. We want to give them money. And they say, but what if the [INAUDIBLE] labeled cocaine? Then we would want to give them food stamps, because we don't want them to spend the money on cocaine.

Well, that's how politicians feel about poor people. They feel that poor people, if you give them money, will just waste it. And that's why the vast majority of transfers we do in America are in-kind. If you add up all the money we give people in cash versus the money we give in-kind, particularly medical care, the in-kind dollars vastly outweigh the cash dollars.

And that's because politicians are paternalistic. They're afraid-- no. The economic reason is because there's all this model of self-revelation, but that's not why politicians do it. They do it because they're worried people will waste the money if you give them cash. And I think we showed with the food stamps and the evidence, that's not really the right way to think about it. OK? Questions about that.

OK. Now, this is all kind of negative and nebulous, so let me conclude with a great example, which is an example of a public policy which actually doesn't stop the leak in the bucket, it actually puts a patch in the bucket. And that policy is called the earned income tax credit. The EITC.

This is what's known as a conditional transfer. What that means is it's a program where you get money, but the money you get is a function of how much you make up to a point. So it's actually-- the other thing it's been called is a wage subsidy.

So here's how the EITC works. Let's go to figure 22-4. I'll show you how the EITC works. Here's how the EITC works. For every dollar-- on the x-axis is how much earned income you have. On the y-axis is the check you're going to get from the government.

What this says is on every dollar you earn, until you earn \$13,870-- these numbers

are a bit out of date. It's a little more now, but roughly gives you the idea. Until you hit \$13,870-- that is roughly the poverty line. It's a little bit more than the poverty line. For every dollar you earn, the government gives you \$0.40 more. So if you're someone who starts with \$0 and you earn \$1, you take home \$1.40. It's a negative tax. It's a subsidy.

So every dollar, you take home \$1.40. Until you reach earnings of \$13,870. At that point, you've achieved a check of \$5,548. That's 40% of 13,870. At that point, the government says this is the biggest check we're sending you, and we're to keep that flat until you're at an 18,110. And then we'll start to take it away.

We're going to start to take it away so that by the time-- and what we're going to do is we're going to take that 5,548 check down by \$0.21 cents for every dollar you earn. It's going to flip from a negative tax to a positive tax at a 21% rate.

So instead of a negative tax at a 40% rate, we switch to a positive tax at a 21% rate, so that by the time you've earned \$44,454, you've zeroed out your EITC. So for most of you, the EITC will be relevant. For most of your families, the EITC is irrelevant.

So it's a targeted transfer program. Conditional transfer. It's conditional because basically, it's conditional on working. But it's targeted in the sense that it phases out such that middle class and upper class people don't get it. It's targeted to lower-income people through this phase-out.

The problem is this makes the EITC effect complicated. So let's consider. Let's consider the three segments of this graph. Let's start with the first segment. Let's say you were earning zero, and I said, for every dollar you earn, I will give you \$0.40 more. What effect does that have on your labor supply, starting from zero? Yeah.

AUDIENCE: [INAUDIBLE] more because having a lot of leisure can cost a lot more.

JONATHAN GRUBER: The substitution effect will make you work more, because essentially, we've raised the price of leisure by 40%. What about the income effect?

AUDIENCE: [INAUDIBLE]

JONATHAN GRUBER: There is no income effect. So the point is, for someone at \$0, this unambiguously increased their labor supply. So if you take guys who aren't working, this definitely

will-- I mean, it might be a zero effect, but it's non-negative effect on labor supply.

Likewise, with low-income, working low hours, the income effect will be small. Remember, the income effect's proportional of how much you're actually earning. So for these people on the left-hand segment, upward-sloping, it should cause them to work more, because the substitution effect will be big and the income effect will be small.

So if you mark the people on this left-hand segment, you should mark they'll work more. Now what about people in the flat segment? Someone else raise their hand and tell me. What's this going to do to the labor supply of people on the flat segment? They're going to work more or less? Yeah.

AUDIENCE: I think they'll work the same, because it's not like any change in their earning.

JONATHAN GRUBER: Well, their wage hasn't changed, but something has changed.

GRUBER:

AUDIENCE: If they're on the flat part, they'll work less because they only have to work until they make \$13,870 to get [INAUDIBLE].

JONATHAN GRUBER: Well, that's not quite-- that's an extreme model. More generally, it's because of income effects. More generally, the point is I've taken someone and made them \$5,000 richer. So compared to a world without the EITC-- that's why I show-- compared to a world without the EITC, I will now work less. There's no substitution effect, only an income effect. So now I'll work less.

So the first part [INAUDIBLE] substitution effects. The second part is just an income effect. Now what about the third segment? We're assuming leisure is normal. Do I work more or less? Do I work more or less, assuming leisure is normal? Yeah.

AUDIENCE: Less?

JONATHAN GRUBER: Less because?

GRUBER:

AUDIENCE: Substitution effect.

JONATHAN GRUBER: Substitution effect and income effect, because your income is falling as-- because

GRUBER:

the point is, as you work more, your income is falling. So here, both the subsection and income effect combine to make you want to work less.

So if you look at this graph, this doesn't look very promising. On the left, we've got a bunch of guys working more. In the middle, we got guys working less. And on the other side, we got guys working way less, because you have a substitution and income effect.

So the question then is, what effect does the EITC have? And the answer is it turns out it has an enormously positive effect on labor supply. That it gets a lot of guys who were working zero to stop working zero. But it doesn't seem to lower the hours among those who are working more than zero hours.

Now, why is that? Unclear. It could be because there's different elasticities along the income distribution. Probably, it's because of tax salience, wherever I wrote that. Wherever the hell I wrote that. Tax salience, which is that people understand, gee, if I go to work, I get a big check. They don't understand, by the way, the marginal hour I work is being taxed at \$0.21 more.

So probably, it's tax salience, I don't know. But the bottom line is the studies show convincingly that interest in the EITC massively increased labor supply and distribute to the poorest people in society. This is a reverse leaky bucket. Literally, we managed to take money, give it to poor people, and make the pie bigger.

So this is an enormous victory for thinking about how we can-- for getting around this problem of how we can transfer to people. Now, it didn't solve all our problems because, [INAUDIBLE] up here, it doesn't help people who don't work. So there's still-- this isn't the only solution we need, because some people literally can't work, so they can't benefit from a program like this.

But for workers, this is an enormously successful program that is really one of the great government success stories in terms of both transfer to poor people and increasing the size of the pie. All right? I'm going to stop there, and so we'll come back-- I'll see you guys on Wednesday.