[SQUEAKING]

[RUSTLING]

[CLICKING]

PROFESSOR: OK, so we're going to continue our discussion today of redistribution and fairness. Remember, we talked about how most of this class was just about efficiency and we had that simple measure of welfare, which is just adding consumer and producer surplus. We talked last time about why that might not be the right measure and how we can actually do interpersonal comparisons in economics, how it can move beyond the simple addition of consumer producer surplus to richer interpersonal comparisons, using a social welfare function.

And then we talked about the inherent equity efficiency trade-off. We went through a model that illustrated the inefficiencies that come from the leaky bucket. And we started, and finished in section, an example how you can put that all together. How you can take the concept of leaky bucket, together with the concept of social welfare, and use it to decide if a given redistribution raises social welfare or lowers it. In other words, is the benefit of redistributing the pie worth shrinking the pie? That's what it comes down to.

OK, we know how to maximize the size of the pie. We learned that. We were done with that, and we're with perfect competition. We know how to maximize the size of the pie. The question is, is it worth shrinking the pie to redistribute the resources?

Now, what I want to talk about today is how we do it in practice. What do we do in practice to actually redistribute money in the US? And, like I said, we have two forms, two potential leaks in the bucket, two steps to redistributing money. One is to tax the people who have the resources, and the other is to transfer money to those who don't. So I want to talk today about both sides of that equation. Once again, doing what I do in about 12 lectures in 1441, in one lecture here, at a very broad level, to understand how taxation and transfers work in our country, and how, in practice, we implement the idea of redistributing social wealth.

Let's start with figure 23-1. The figure say, all be from my textbook. Figure 23-1 shows how we raise money in America. This is a simple pie chart. So about 37% of the money we raise in America is from individual income taxes. That's the taxes you file every April 15. You probably haven't much yet, but you will when you're grown-ups.

The next biggest is Social Security contributions. These are what we call payroll taxes. These differ from income taxes in that you don't pay it on your income at the end of the year. You pay it on your earnings as the year goes on. If you've ever earned money, you'll see there's a line on your stub called FICA or another one called Medicare. These are our federal payroll contributions, and that is the second biggest source of revenue.

The third biggest source of revenue is consumption taxes, mostly state sales taxes, but also excise taxes, on things like alcohol and cigarettes, that specific taxes on alcohol, cigarettes, and gas. The fourth biggest is the property tax, which is basically the tax you pay on the value of your house. And the fifth biggest, besides the other, actually the sixth biggest after other, is a corporate income tax.

We only raise one in every $20 in America from taxing corporations. Think about that. Look at this graph. We raise 37% for income taxes, 25% for Social Security contributions, 17% for consumption taxes, all taxes that fall on the average Joe, and 5% from the taxes raised on corporations.

How should we feel about that? Should that make us irate, that we're favoring corporations, or not? It turns out the answer is not obvious, because to understand the answer we need to, when we talk about taxation, we need to think about the fairness of the whole tax system, or what we call in economics, the incidence of taxes. Who actually bears the tax?

And it turns out, this chart is very misleading. Because it turns out the party that sends the money to the government is not necessarily the party that actually bears the burden of the tax, which is sort of weird, right? You say, well, how can that be? They're sending the money to the government. And the answer is it ignores the fact that the market reacts to taxation. And that incidence is about who ultimately bears the burden after the market has responded.

So we're going to define economic incidence of a tax as the difference in an individual's resources before and after a tax is imposed. The economic incidence is not the amount they send to the government. It's the difference in their resources from before to after the tax is imposed. And we'll see that can end up being very different, the amount, than the check they actually write.

To understand why, let's look at figure 23-2. Figure 23-2 is an example of a market, the market for gas. Gas is the market. We have a specific excise tax on gas, a certain amount per gallon. There's a federal excise tax. Then states layer excise tax on top of that.

So let's start by thinking about the market for gas, standard supply and demand model. You've got the quantity of gas on the x-axis, the price of gas and the y-axis. In this highly out of date graph, that clearly needs to be updated, I've got us selling 100 billion gallons of gas at $1.50 a gallon. My fantasies of past life. OK.

So imagine we're initially in that equilibrium. And remember, that is the equilibrium, remember the definition of equilibrium, that makes both producers and consumers happy. Producers are willing to sell 100 billion gallons at $1.50 a gallon. Consumers are willing to buy 100 billion gallons at $1.50 a gallon. The market is in equilibrium.

Now, imagine that we levy a tax of $0.50 per gallon. Let's say we levy it on the producers of gas. Let's say we go to the gas companies and say, look, for every-- you rich gas companies. Gas companies are making record profits. So we go to them and say you know what, you rich oil and gas companies? For every gallon of gas you sell, we're going to make you send a check for $0.50 to the government because you're making too much money, and we want to tax you, but not consumers. We want to tax the greedy corporations.

So we say $0.50 per gallon, you have to write a check $0.50 per gallon you sell. What does that do to our graph? Well, think of it from the producer's perspective. What you've done is simply raise their marginal cost. Whatever the marginal cost was before, it's now $0.50 per gallon higher because for every gallon they produce, they have to spend $0.50 more paying the government. So that acts as a shift inward in their supply curve.

In other words, the point is, before, they were happy to provide 100 billion gallons at $1.50. But now, if you want to supply 150, 100 billion gallons, you're going to pay them $2. Why? Well, because in this perfectly competitive market, there were 0 profit before at $1.50. If they're spending $0.50 a gallon in the government, they have to make $2 to be 0 profit now.

So this is, that's what they'd have to get. So we get a shift in supply. And, therefore, through the adjustment equilibrium we get a new outcome, which is we get a new equilibrium point D, which is since supplies shifted inward, we get a new equilibrium with only $90 billion gallons of gas being sold at a price of $1.80. Why do we get there? Well, it's a standard market adjustment we've been through already.

And it could be $1.80, it could be-- I'm not saying this is the definite answer, but it's just an example of how a market would adjust. OK? Questions about that? Just an example of how a market would adjust.

Now let's ask what is the burden on producers. What is the producer burden from this tax? Well, let's just do some simple math. The producer used to get $1.50. So they used to get $1.50. Now they have to send $0.50 to the government. But they now get $1.80 per gallon.

So on net, their burden is $0.20. That is, they are bearing a burden of $0.20. And you can see that, if you look at the graph, the producer used to get $1.50. Now they get $1.80. So they get $0.30 more a gallon. But they have to send $0.50 to the government. So on net, they're out 20. On net, they're out $0.20.

What's the consumer burden? Well, the consumer used to pay-- the consumer used to-- now pays $1.80. It used to pay, consumer used to pay $1.50. So their burden is $0.30.

You can see that once again in the graph. Consumers used to pay $1.50, now they pay $1.80. They're not paying $0.30 more. So look at what happened. Who lost more from this tax, consumers or producers? Consumers.

We were trying to tax the greedy oil companies, but what did we end up doing? We ended up making consumers $0.30 worse per gallon and producers only $0.20 worse per gallon. That is, the incidence was not the same as the amount of the check sent in. Even though the producers sent in a check for $0.50 a gallon, that was offset by the fact they're getting $0.30 more a gallon. So in net, they only were out $0.20 a gallon.

Even though consumers weren't touched, in theory, the government said, I'm not hurting you consumers, in practice, the consumers were hurt because consumers had to pay $0.30 more a gallon. And this is why a graph like figure 23-1 can be misleading. Because think about corporations. When you tax corporations, some what's going to happen is the rich corporation owners will take it, but some of it is they'll pass it on to higher prices to consumers.

So it's not like taxing corporations is purely getting at the rich guys. It's also getting consumers. It's not as easy as that graph makes it look. OK?

Now, here's something to note. Let's note the following interesting phenomenon. Look at figure 23-3. Imagine that we had, instead of taxing producers, we tax consumers, the way the gas tax usually works, right. The way the Well, let's say-- No.

Let's say the way the gas tax worked is literally, it's sort of weird, but the government said to you, for every gallon you buy, I'm going to make you send me $0.50. It'd be a weird tax to think about. Let's imagine the way the tax worked, OK, is the government said, I'm going to track your gas purchases, and for every gallon you buy, I'm going to make you send me $0.50. Well, now the supply curve doesn't change. Marginal cost hasn't changed, but demand changes.

Consumers used to be willing to buy 100 billion gallons at $1.50, but now their margin [INAUDIBLE] to pay falls if they were indifferent between paying $1.50 for the 100,000,000,000th gallon, now they have to send $0.50 to the government. They're paying $1 for the 100,000,000,000th gallon. They're not willing to pay $1.50 anymore. They'll only willing to pay $1.

Why? Because that last marginal consumer was indifferent. His marginal willingness to pay for the 100,000,000,000th gallon was $1.50. That's his total willingness to pay. He's got to send $0.50 to the government, he's only willing to pay $1 to the gas company to get that gallon. So that's a shift downward in the demand curve. The demand curve shifts down. We get to a new equilibrium with a price of $1.30.

By the way, this shift, this is natural. This is because these curves are the same. What is the new producer burden? Can someone tell me? What's the new producer burden? What's the incidence of this? Even though producers aren't sending a check to the government, what is the incidence of this tax on producers in this case?

How much worse off our producers? Yeah. $0.20. Why?

AUDIENCE: [INAUDIBLE]

PROFESSOR: Exactly. And same person, what about consumers? How much worse off are they? Because?

AUDIENCE: [INAUDIBLE]

PROFESSOR: They saved $0.20 a gallon, but they send a $0.50 check to the government. Could producers, consumers get a lower price, but then they have to send that check to the government. So they're worse off $0.30. Producers, who weren't involved in this, it was just a tax on those greedy consumers, they're getting $0.20 less a gallon too.

Economic incidence is not-- So two points here. First, it hammers home the point that economic difference is different than who sends the check. But second of all, it hammers home the point that for a given tax, in a given market, it does not matter who pays the tax. This is a profound insight. For a given supply and demand curve and a given total tax, it doesn't matter who sends the check in. The incidence is the same.

That's very profound. That says it is totally irrelevant. That says politicians are free to label attacks any way they want. But for a given market and a given size tax, consumers and producers end up in the same position. Or what we say in public finance is the side of the market's irrelevant.

It doesn't matter who actually sends the check to the government. What matters is how big the tax is and what elasticity of supply and demand. That's incredibly powerful. OK. My guess is most of you, without spending a long time pondering it, if I'd said, walking into this class, doesn't matter if consumers pay the gas tax or oil companies pay the gas tax, you would have said it does matter, but it doesn't.

It doesn't matter, as long as the tax is the same and the market's the same. Questions about that? I've just blown your mind. Yeah.

So does that mean that depending on how the market is set up and also how elastic?

You're getting ahead of me. Hold on. Other questions about this? Yeah.

Is there a certain value or at what point is it that the consumer doesn't bear the entire burden?

Excellent, excellent question. Both great questions that lead to the next point. The next point is who bears the taxes? Who actually bears them? Well, that, it turns out, is going to be determined by the elasticities of these curves. Let's look at figure 23-4.

In the first case, we have a case of inelastic demand for gas. This is probably right in the very, very short run. Probably, day to day, if the price of gas goes up a lot, people don't adjust their consumption the next day. So gas is probably pretty inelastic demand in the short run.

Well, in that case, what happens? Let's say we tax producers, the first example. The supply curve shifts up. But what happens to price? It goes up by the amount of the tax.

Why? Because consumers are going to buy the same amount of gas no matter what, so you can just charge them whatever the hell you want. So who bears the burden of this tax? How much is on producers and how much is on consumers when demand is inelastic?

Yeah.

AUDIENCE: [INAUDIBLE]

PROFESSOR: Exactly. It's all on consumers. Flip that around. That's good. Good answer. Flip that around. OK. Now imagine we're in the very long run, where people can shift to bicycles and walk and demand for gas is super elastic. In fact, let's imagine it's perfectly elastic. Not true, but let's imagine it. Now what happens? Well, we tax the producers, but they can't raise the price because demand is perfectly elastic.

So now who bears the burden of the taxes? The producer. The consumer doesn't bear it because if the producer tries to pass $0.01 on to them, they'll just stop buying gas. So the producer has to bear it all. So what determines who bears the taxes is elasticities.

And, basically, the bottom line is those who are the most elastic will be the best at avoiding taxes. This is not the right intuition, but here's how I think about it. I think of it like negotiating power. Think about there's this tax and consumers are producing negotiating, who's going to bear it? Well, if consumers are perfectly elastic, they're like, fuck you. I'm not to bear it. You try to give me any of it, I'm gone.

But an inelastic producer is like, I'm sticking you with it, and I know you're going to take it because you have no choice. Your demand is perfectly inelastic.

AUDIENCE: Why are you measuring [INAUDIBLE]

AUDIENCE: Excellent question. We're going to come back to that. The way we think of incidence is the reason we think about it as the change in price. The reason we use price and we don't pay attention to the x-axis at all, is another way I ask your question, is we're thinking about an incremental, infinitesimally small change. So x wouldn't change

OK. I mean x would change. Basically, x does change. Let me go back. Let me say this differently.

We're focusing on incidence because, basically, the fairness aspect-- Yeah, scratch my first answer. Here's a better answer.

In both equilibriums, before and after the tax, everyone is perfectly happy with where they are. So it's not about efficiency. You're an efficient outcome before or after, OK. It's about fairness and fairness about who's paying more before or after. So not a great answer, but that's the way to think about it.

But it leads to the next section I'm going teach. OK, other questions about that? OK, so elasticity determines who Bears the burden. OK?

So here's a great example of that. Let me ask a hard questions, see if you guys get this. City's levy taxes on hotels, on hotel rooms. When you go to a hotel room in a big city, there's a city tax on that hotel room. That tax on hotels rooms is borne, as you can now know, partially by the hotels and partially by the consumers of hotel rooms.

After Airbnb came along, how did that shift the burden of that tax? So there's taxes on hotels. Whoa, OK. How did it shift the burden of the tax?

AUDIENCE: [INAUDIBLE]

PROFESSOR: Because?

AUDIENCE: [INAUDIBLE]

PROFESSOR: Exactly. What Airbnb did was make consumer demand for hotels more elastic. With consumer demands for hotels more elastic, producers couldn't pass the tax on to them as much, so producers had to bear more of it. That's an example of how this matters in the real world, and there's evidence of that. OK.

So this isn't just saying-- a different question I could ask is, well, what happens when Airbnb comes in? Hotel prices will have to fall. That's a different question. OK. This question is, what happens to the effect of a tax on hotels? And the answer is, it's borne more by hotels and less by consumers, because consumers look more like the second panel, figure 23-4, and less like the first panel. So, basically, the more elastic consumers become, the more they can avoid taxes, the less elastic, the more they'll be stuck with them. OK.

Now, that's fairness. Let me come to this great question over here, which is OK, that's just about prices. What about profits? What about quantities? Well, that comes to the second, back to our original concept, which is efficiency. Which is now let's talk about the efficient aspect of tax.

And I misspoke when I said to you isn't that they're efficient both outcomes. They're in equilibrium and both outcomes. Let's come to the efficiency of taxation. Now let's look at a tax-- Now let's go back to figure 2. Our original figure 23.5 goes back to our original tax on producers of $0.50 a gallon.

Same thing, initially in equilibrium at P1, Q1. Now you get new equilibrium at P1 and P2 Q2, $1.80 and $90 billion gallons. What about efficiency?

Well, efficiency is what has happened to the social surplus. Fairness is about division of social surplus, and that's why I just focused on prices. Efficiency is about the size of the social surplus. And now we focus on quantities. Well, what's happened to the size of the social surplus?

Well, it used to be, if you look at it, consumers used to have the consumer surplus of the area above the $1.50 price line and below the blue demand line. Producers used to have producer surplus the area below the $1.50 price line and above the blue supply line. Now, the quantity is shrunk. We've reduced consumer surplus. And as a result-- and we've reduced-- we've reduced consumer surplus and producer surplus. Now, consumer surplus is just the amount above the dollar 80 line and below the demand curve.

Producer surplus is just the amount above-- below the dollar 80 line and above the red supply curve. Both consumer and producer surplus have shrunk, and we've created a deadweight loss. So there's an efficiency cost to taxation. This is the source of the leak in the bucket.

I talked about it last time more casually. I talked about why or I talked a couple lecture about why we care about moral hazard, why we care that there's people or, for example, not working. Here, It's why do we care about the lost gallons of gas? We care about the lost gallons of gas because that's a cost to society. There are 10 billion gallons of gas that were being sold before, in trades that make both parties happen. Those trades have disappeared.

We have created an inefficiency by taxing the gas market. That is the deadweight loss of taxation. And that's the leak in the bucket. The leak in the bucket from taxing things is equal to the deadweight loss of taxation. That's the first leak. That's the tax leak.

The tax leak is the deadweight loss of taxation. The inefficiency we've created by taxing goods. Now, here's the mind blowing part. Look at figure 23-6. Now I ask Now I take a gas market with more and less-- I don't do perfectly-- imperfectly elastic and inelastic. I do more or less, more realistically, more or less elastic.

Look what happens to the deadweight loss. When demand for gas is very inelastic, the deadweight loss is much smaller than when the demand for gas is very elastic. Indeed, if the demand for gas were perfectly inelastic, there'd be 0 inefficiency from tax. Why? Why would taxes not be inefficient at all if demand is inelastic? yeah.

AUDIENCE: [INAUDIBLE]

PROFESSOR: Because there's no change. Consumers are going to buy it. There's no trades that aren't being made. You're screwing consumers. That's the fairness part. But there's no efficiency loss. There's no trade that's not being made. As a result, the more elastic demand gets, the bigger the efficiency cost gets because more and more trades are being blocked from happening.

So, basically, we get this interesting contrast, which is that as elasticities go up, as elasticities of demand go up, one the one hand, consumers escape taxation, right? On the other hand, they're escaping the taxation is what creates inefficiency in deadweight loss. Once again, an equity efficiency trade-off.

The most, the fairest taxes, the taxes, which, if we consider ourselves as consumers, we care about ourselves as consumers, the fairest taxes are the taxes on goods which are most elastically demanded because we don't have to bear them. But they're also the most distortionary tax, the tax that create the biggest leak in the bucket. Another way of thinking about this equity efficiency trade-off, the more elastic is demand, the more consumers avoid taxes, but the more inefficiencies you'll cause.

OK. Questions about that? Yeah.

AUDIENCE: [INAUDIBLE]

PROFESSOR: Well, let me ask the question differently. Look at figure 23-4 A, first panel. Here's another way to ask your question. Why aren't they charging infinity? It's inelastic demand. Why aren't they charging infinity is another version of your question. The answer is that there's always external pressure on producers. Why don't monopolists charge infinity? Because, ultimately, there's external pressure.

Now, in this case, the reason they're not charging infinity is because, at some point, people will start to drop out. So your answer is why don't they just shift it more? Well, sure. But then why aren't they charging more today? They could always charge. The answer is there's other market forces constraining them.

Why isn't Apple charging us more for the iPhone? Well, because the Android exists. People prefer the iPhone, but Apple's clearly decided that if it was two grand an iPhone, people would just switch too much to Androids. They're already making a ungodly profit. Why not more? Because they've reached some point where they've decided it's the optimal point. OK.

So, basically, the key point is market power doesn't necessarily mean you can do what you want. But this does raise the interesting issue, which is beyond this class, but if you just take 1420, industrial organization, which is a lot of people claim that during this inflationary period, part of what is driven inflation is firms increasing their profit margins.

Now, you might say, well, look, why would firms-- if firms can increase their profit margins before, they would have. Why are they doing it now? And the answer is in this question, which is a little bit hidden now. Prices are going up anyway. So they can blame the war or the president or whoever they want to blame. So it's a good time to raise their profit margin because prices are going up.

It, five years ago, when inflation was 0, if they raised their profit margins, everyone would notice is hey, why is Coke more expensive? But now Coke is getting way more expensive. If you make it even $1 more expensive, people think, well, that's just inflation. So, actually, it becomes-- sort of an answer to your question, in the real world, opportunities like taxation or inflation are often opportunities companies use to raise their profit margins. But not in our more simple models.

OK. Any other questions?

That's the tax side of it. Now let's talk about the transfer side of it. So that's the first leak. The first leak is the deadweight loss caused by taxation. The second leak in the bucket is the inefficiencies, the deadweight loss caused by transfers. So now let's go to figure 23-7.

23-7 is the figure we had last time, that showed the leaks in the bucket. The tarp part of the-- Remember, the red the black line is your old budget constraint before the government came in. Remember the program. We're transferring money to people who were poor, paid for by a tax on those who were richer.

The tax led to the inward shifted red budget line to the left of the diagram, and we now understand why that caused inefficiency. People work less. Less is produced in society. That's a deadweight loss.

What about the part that we transfer? Well, here, we see the inefficiency right away, which is all those people who at least were working some, now don't work at all. Basically, if we set up a welfare program like this, there is, if you are anyone who wanted to work less than 250 hours, then literally there's 100% tax rate on your work. Why work? You're going to get the same amount of money whether you work or not, because every dollar you earn, there's going to take $1 away.

Remember, the transfer formula was the transfer we gave you was the max of 0 or your income negative 5,000. What that means is every dollar of income you earn, we take $1 away of the transfer. No, I'm sorry, 5,000 minus your income. I had that backwards. 5,000 minus your income.

So it's like 100% tax on income. Every dollar you earn, we take $1 away. So why work? That is the transfer side of the leaky bucket, that people quit working.

So now the question is, what can we do about it? And governments recognize this problem. So here, you're a government, and you want to redistribute from the rich to the poor. And let's even solve the tax problem by finding inelastic sources of inelastic markets to tax. So you've even, you've reduced

So, for example, a very inelastic market to tax is property. People's houses are there. So let's say you're taxing property. That's pretty inelastic. You don't create a deadweight loss tax side.

But now you want to say, I'm creating all this deadweight loss on the transfer side because I'm causing all these low income people to just quit work. Because why work? How can I deal with that?

Well, there's two ways governments deal with that problem, in reality. The first way they deal with it is through what we call categorical welfare. Categorical welfare. We give cash not to everyone, but to people who meet certain criteria.

So, for example, we have, in the US, the TANF program, Temporary Aid to Needy Families. That is money for poor single moms. So it's not just being poor, but you have to also be a single mom.

Our biggest cash transfer program to the US to the poor people, it's called SSI, Supplemental Security Income. That's for poor, disabled people. You have to be poor and disabled.

Why do we do categoric transfers? Because we're trying to take advantage of targeting. We're trying to take advantage of targeting.

Obviously, we want to give money to low income people, those people who need it. We talked about how any sensible social welfare function would deliver a redistribution to low income people. The problem is in giving to them, we make this huge leak in the bucket. What if, however, we could give it to them without creating a leak in the bucket?

Think about a simple example. Imagine that there's two reasons people are low income. They're unskilled and they're lazy. OK. Now, we would like to protect the unskilled. From behind the veil of ignorance, behind you're born, you don't know if you're going to be skilled or unskilled.

So we'd like to all have a system that protects the unskilled. We're not sure we want to protect the lazy. They should probably work. OK.

Let's say we're all born with an irremovable tattoo on our head, immovable and in-addable, you can't add it, that says unskilled or skilled. Well, then we simply say, I'm going to look at your tattoo. If your tattoo says unskilled, I'm going to give you money. If your tattoo says skilled, I'm not going to. I don't care what your income is, because I know you can make a good living. If you're not doing so, it just means you're lazy.

Then we'd have no deadweight loss. Because why? Because you couldn't change deadweight losses created by what? People changing their behavior to avoid taxation.

Well, if it's based on a tattoo that's on your head when you're born, you can't change your behavior, unless parents can do in vitro tattooing or something. OK. You can't change your behavior. So there's no deadweight loss. It's inelastic. The supply of unskilled tattoos is inelastic. There's no deadweight loss.

So if we could simply know who was truly in need and who wasn't really in need, they were just quitting their job, we could redistribute without deadweight loss. The problem is we don't. Probably a good thing that we don't. We don't have to get into a debate between my daughter and myself on tattoos. That's for another day. OK.

But what we do know is things which are correlated with your underlying skill, regardless of your work effort. OK. So let's take something like blindness, especially genetic blindness. You're born blind. Well, that's pretty much like being born with unskilled stamped on your head.

Now, to be fair, many blind people succeed enormously. Blind students at MIT who go on to incredibly fruitful careers. But it's true, that if you're blind, you're most likely very needy of help.

Then we'd say we give to blind people. By making it categorical, we're able to try to target the benefits without creating deadweight loss. OK. That's why we have disability.

Single mom, well, basically, as long as single moms didn't choose to be single moms, they just got stuck with a kid because their partner left them or something like that, then it's going to be really hard to work. We know they're needy. Someone's got to keep an eye on the kid. They can't work without childcare. So that's another indicator of needing help.

Now that one is-- But that's a little tricky because is it something people can change with their behavior? Well, of course, people can choose to become single moms. So it's not like genetic blindness, which isn't changed by your behavior. Single motherhood is potentially changed by your behavior.

So now we start to get into a murky realm of is it a good idea to target benefits to single moms? Or, in fact, as many conservatives claimed, back in the 1980s when of became a major topic of discussion, are we actually making society worse by creating single moms? Are we actually making things worse by targeting benefits to single moms and actually creating single motherhood in America?

And, indeed, there was a very famous book that was written in 1984 that looked at a simple graph of the generosity of welfare and single motherhood. So this is time and this is like 1960, and this is like 1980, which is when their data ended. And if this was the generosity of welfare benefits, welfare was getting more generous, and this is single motherhood. Single motherhood was going up.

So it was like, look, by making welfare generous, we're encouraging single mothers. We're not rewarding those who need it. We're encouraging them.

The problem is, this is what's happened since. It turns out, through decades of careful study, single motherhood has almost nothing to do with welfare benefits. Basically, people don't decide to become single mothers based on cash concerns. It's based on other concerns in their life.

So it turns out, the inefficiency of targeting money to single moms is low. Because what drives that inefficiency? What drives it, is the elasticity of single motherhood with respect to welfare. That's the key parameter. That's the key elasticity that drives the deadweight loss. The more elastic single motherhood is with respect to welfare, the more inefficiency we get by targeting single motherhood.

But it turns out, this is approximately zero. So it turns out this is a pretty good way to target people.

Here's what's ironic. You might say, well, look, it's uncontroversial. Single moms is controversial. Targeting the disabled is uncontroversial. Turns out, you'd have that backwards.

Turns out, the elasticity of claiming SSI with respect to welfare benefits is greater than 0. Because, as I mentioned when we were talking about workers' comp, it is hard to monitor whether people are truly disabled. And it turns out the more generous you make disability benefits, the more people claim SSI, the more people claim that they're disabled.

So now-- So here's the way to think about it. Let's go back to our equity efficiency trade-off. With single mothers, there's no equity efficiency trade-off. They are a poor group, and by giving them money, you don't create deadweight loss. With disabled people, there is an equity efficiency trade off, which is there are poor people, but you create deadweight loss by giving them money.

So for this one, you don't even need a social welfare function. You're done. For this one, you need a social welfare function to decide if it's worth it. To decide if the deadweight loss you're creating, how it compares to the benefits you're getting from giving money to poor and needy people. OK. Questions about that?

So that's one way we deal with this inefficiency, this deadweight loss. The other way is by changing the way we pay benefits and making them in-kind. OK, the problem with cash transfer systems is everyone likes cash. So it creates a maximum incentive to distort your behavior to qualify.

Well, what if instead of cash, I gave you a shitty public apartment with a leaking roof, and it's just a bad neighborhood, and stuff like that? Well, then maybe people wouldn't who didn't really need it wouldn't change their behavior to get it. Maybe the only people who would take that would be the people who really need it.

So maybe we don't need to have you tattooed on your forehead. Maybe we can get you to reveal whether you truly need help or not, by giving you something that's not so great. It's a perverse logic, but the logic is the way we get people to reveal whether they're truly needy is by giving them something only truly needy people would want, which is a crappy apartment.

And this is a major reason why we deliver most of the benefits to the poor on an in-kind basis. There's about a 10 to 1 ratio in the US of the benefits we give to the poor, through things like medical care and housing and food, to what we give them in cash, about a 10 to 1 ratio. We give much more in goods.

Now, part of the reason is the theory I just gave you. Part of the reason is because we're paternalistic in society. You remember way back, in the third lecture, I talked about food stamps and how it'd be more efficient and give people cash, but we don't because they think they'll spend it on cocaine. That's the main reason we do in-kind benefits realistically, is because we don't trust people to spend their money.

But there's an economic logic for it, which is that it's a way to get people to reveal their types, when you can't really know who should be targeted and who shouldn't. OK. Once again, the trade-off. We'd love to give everyone nice apartments, but in doing so, we create a huge deadweight loss of people quitting their jobs to get the nice apartments. So it's a trade-off.

Now, once again, this is the dismal science, and all I do is talk about trade-offs all day. So let me actually end the lecture on a positive note, which is there's actually one program that's not a trade-off. There's actually one program we've discovered which actually redistributes money and increases efficiency. And that's what we call conditional cash transfers, which is money we give to people, conditional on them doing efficient activities.

The classic example in the US is called the earned income tax credit. The earned income tax credit is a wage subsidy program. It's a wage subsidy.

What does that mean? It's the opposite of a tax. The earned income tax credit is such that for the month, whenever you earn money, the government said, taking some away, we'll match it, as long as you're poor. So if we look at figure 23-8, this shows how the income tax credit works. On the x-axis is earned income. On the y-axis is the amount of the EITC you get.

What you see is if you earn no money, you get nothing from the government of this program. But as you earn money, until you make 14,800, for every dollar you earn, the government gives you another $0.40. So the first $15,000 you earn, you get another $0.40 from the government. It's a negative tax. At that point, it caps out. The biggest checking out is $5,920. And then they start to take it away.

Why? Because they want this money to go to everyone. They don't want to go to low income. So by the time your income is 47,000, you're done. So the idea is targeted to low income groups. So you give these low income people money, but then as their income goes up, you take it back away.

Now, the important point to know about this program is it's not at all obvious what this program will do. Think about someone who, if you think about someone who's below 14,800, the effect of the program is obvious. Take someone who's earning zero. What is the income effect on them of this program? Well, it's 0. They were earning zero.

What's the substitution effect? It's massively positive. Their wage has gone from x to x times 1.4. So for someone earning 0, the effect is unambiguously positive.

But now let's imagine someone earning $19,350, and they're thinking about should I earn $100 more? So they're at 19,350. They're getting their check from the government of 5,920, and now they're saying, should I earn $100 more? What happens is they earn $100 more?

Well, they get the $100 check, but they lose $21 of their $5,920. Their $5,920 goes down by $21. So they end up only at 5,899. Why? because we're taking it back away as they earn money.

So, effectively, we are taxing them. So now we've created a new tax. We're trying to help poor people, but in doing so, we've created a new tax. Why? Because we want to keep it to poor people. The only way to do that is to take it away as people's income goes up.

So the effective program is ambiguous. On the one hand, you take the guys who weren't working at all and give them the big money to go to work. But in order to phase that out, you tax the people already working and make them less likely to work. It's assuming substitution effects dominate income effects. OK.

People understand that? Questions about that? Yeah.

AUDIENCE: Why does it only cost people who are earning less than [INAUDIBLE]

PROFESSOR: Oh, well, we have separate taxes for the richer people. This is just the Don't think of this as a tax. Think of it as a targeting mechanism. We're trying to target to low income people.

The way we target low income people is by taking away as their income goes up. We don't think we don't think anyone over 47,440 deserves this low income transfer. So we're taking [INAUDIBLE] by the time you get there, you don't get any more. We have separate tax on rich guys. This is just this program, per se.

Good question. Other questions? Yeah.

AUDIENCE: [INAUDIBLE]

PROFESSOR: What's that?

AUDIENCE: [INAUDIBLE]

PROFESSOR: Oh, because for every $100 you earn, you lose $0.21. You lose $0.21 per dollar on that slope. OK. Other questions? Yeah.

AUDIENCE: [INAUDIBLE]

PROFESSOR: You could flatten it. OK. What would happen then? Well, one good thing and one bad thing. The good thing is there'd be a lower tax rate. The bad thing is if we don't think people above 47,440 need this money, we're giving money away to people who don't need it because it would go out to 60,000 now.

So the trade-off is you could also get rid of the slope. You could keep it there. But then Bill Gates gets to check 5,920. OK. The point is if you want this [INAUDIBLE] low income people, you have to phase it out.

Now, we can argue what the right phase out is. You can always argue about these numbers. And one awesome thing about working in government is, literally, people in government get to just come up with these numbers. I mean, how cool is that? You get to come up with how much money people are going to get in their lives. OK. And there's lots of fights with these numbers should be.

But the bottom line is this structure, you need, if you want a program that's targeted. You need this structure. So here's the trade off. We encourage people at the bottom of the income distribution to go to work. But we discourage people in that middle part of the income distribution from working.

Well, guess what? We can go to the evidence and evaluate that, and guess what we learn? The first thing we learn is the first effect is huge. The earned income tax credit has a huge effect in encouraging people to work. OK. Best estimates are that, basically, if you take especially single moms, there's something like a 15% increase in the odds they work. I mean, huge, the odds that they work.

And there is no evidence that it causes people on that other part to work less. So there's good evidence it takes the zero people and brings them in the labor market. There's no evidence that takes the 19,000 people and cause them to work less.

Why is that? Well, there's two possible reasons. One is, remember, for the zero people, the effect is unambiguous, zero income effect, positive substitution effect. For these people, the effect is ambiguous. We talked about that with labor supply. Income substitution effects. Here, you have a substitution effect saying to work less, but the income effect might go the other way.

Actually, no. Let me go back. That's wrong. Because, remember, they do have more income. They do more income. So the income saying work less, substitution effects working less. So that can't explain it. They're richer.

No, I had it right. Let me go back. I had it right.

On the margin for that next $100, there's a substitution effect. They're getting $21 poorer, which should make them take less leisure and work more. But they're only taking home $0.79 on the dollar, which has substitution effect makes them work less. So it's ambiguous.

So on the one hand, you have an unambiguous effect. Take people from 0 to working, an ambiguous effect here. That could be why we don't see a difference.

But here's why we don't see a difference, really. People don't understand. It's super complicated.

If I say to you, hey, guess what? You used to get x going to work. Now you get x plus a big check. I'll go to work. If you say, well, on the margin, if you work one more hour, your income goes down by $0.21. I mean, you're MIT students and you didn't quite understand it.

So the answer is, I think, my theory, there's not good evidence of this, is that basically, this effect, this effect is so subtle and complicated that people don't pay attention, whereas you get a big new check if you go to work effect, people pay attention to. I'm not saying that's been proven. That's my theory.

The bottom line is, it doesn't matter what the theory is. This is a win-win. This is a program which is redistributing people money to the neediest people in society. It's about something like oh God, I forget. It's something like an $80 billion a year program. It's $80 billion going to the poorest members of society.

And it's increasing work. It's increasing work. It's increasing efficiency. So that's a win-win program. OK.

This is not just in America. Mexico, is a great example, a wonderful example. The president of Mexico had a good buddy, who was a sociologist, who knew a lot of economics, who convinced him to set up a program where they give money to mothers only if their kids got their immunizations Sorry, sorry. RFK, got their immunizations, and were enrolled in school.

And guess what? It had a huge effect on improving kids' outcomes, even their incomes, later in life. Sadly, the current president of Mexico got rid of it. But this was an incredibly successful program. These conditional cash transfer programs have been successful all over the world. And that's the way we can solve the leaky bucket. It's a positive story for how government policy can do better.

Anyway, I'll stop there. I'll see you all on Wednesday.