[SQUEAKING]

[RUSTLING]

[CLICKING]

JONATHAN GRUBER: Today we're going to move on to another topic I've kept hinting at all semester, but it's finally here. Which is to think more explicitly about equity, or fairness. So our discussions this semester have been almost solely couched in language of efficiency. We talk about maximizing social welfare, we talk about the total size of the triangle and the squares.

But we don't actually talk about who gets what. We very much stayed away from equity concerns and focused just on efficiency concerns. The problem is, that doesn't lead us very far in life, because you can have many outcomes that are equally efficient, but have different equity consequences.

The best example, of course, is perfect competition versus a perfectly priced discriminating monopolist. Remember, under perfect competition, you maximize welfare. But a perfectly priced discriminating monopolist also maximizes welfare. The difference is, in the latter case, the monopolist gets all the surplus, when the former case, it's shared between producers and consumers.

So it's sort of weird to say we're indifferent between those two outcomes-- to one where Apple gets all our money, and one where Apple gets some of our money and we get some of our money. Seems strange to say we're indifferent between those outcomes.

So now, in subsets, that's the easy case. So we're talking about equity efficiency. In some sense, the easy case is the case where there's two equally efficient outcomes, and they have different equity consequences. That's a rare case.

The more common case is what we call the equity efficiency trade-off. Which is that by making distributions more equal, we are going to induce inefficiencies. That the act of making distribution more equal is going to introduce inefficiencies in the

system. And that's where things get really interesting. OK?

So in other words-- so the best way to think about this, I find most helpful, is due to a famous economist named Arthur Okun, and his thought example of the leaky bucket. Okun's thought example was the following-- imagine that the way the government distributed money from the rich the poor was literally they went to the rich, had the rich put money in a bucket, and they carried it and dumped out in front of the poor. Imagine that's the way distribution happened.

Well, in that world, if I told you that every dollar a rich person put in the bucket got carried along and got handed to a poor person-- so Bill Gates' dollar became a homeless guy's dollar-- probably most of us would think that was OK. I think the vast majority of Americans would say, yeah, probably the homeless guy could use $1 more than Bill Gates could.

But now, imagine that there was a leak in the bucket. Imagine Bill Gates put 100 pennies in, but along the way to the poor person it leaked out, and so we dumped it in front of the poor person, it was less than 100. Now, then the question is, how much leakage?

Well, if the leakage was one penny out of 100, you probably wouldn't change your mind. Would it change your mind if it was 20 pennies out of 100? 50 pennies out of 100? What if it was 100 pennies out of 100?

What if taking $1 from Bill Gates, by the time it got to the poor person, it was all gone? At what point would you say, you know what? I don't think that's a good idea anymore.

And really, that's a great way of thinking about the equity efficiency trade-off-- how much efficiency are you willing to give up to redistribute from rich to poor? And the efficiency you give up is represented by the leakage in the bucket.

Now, what we're going to do with this in this lecture and next Monday's lecture, is we're going to discuss this equity efficiency trade-off in four steps. The first step is going to be talking about valuation-- that is taking the difficult step we've already taken so far and asking, how does society feel about some people versus other people?

So far, we've just thought of one generic person, and they're represented by total surplus. But in fact, we have a distribution of people, and how do economists think about taking money away from person A and giving to person B. That's a new topic for us.

The second thing we're going to talk about is what do we know about the facts on inequality? What do we know about what's actually happened to the distribution of resources in the US at a point in time, and over time?

The third thing is, we're going to talk about the sources of leakage. That is, why does the bucket leak in practice? Why do we typically think there is an equity efficiency trade-off? Why can't we just take the dollar from the rich guy and give it to the poor guy? What caused the leakage?

And then finally, we're going to talk about some examples of transfer mechanisms. We're going to talk about what society does in practice to transfer from rich to poor and how it works, and what the ultimate leakage looks like.

So that's going to be our goal in the next two lectures. It's going to be think about this equity efficiency trade-off.

So to start that goal, we have to start with this first issue of choosing the social optimum. That is, how do we evaluate transfers from one party to another party? And so to rank outcomes, what we're going to do is use the same thing we always do when we want to think about trade-offs-- which is, we're going to do a constrained maximization exercise.

When I want to think about your trade-off between cookies and pizza, I did a constrained optimization of your utility functions, subject to your budget constraint. When, now I want to think about your trade-off between me and Patricia, now instead, we're going to a different utility function. In fact, we're going to use what we call a social welfare function.

A social welfare function basically society's utility function. How does society value different individuals? So loosely speaking, social welfare function is some function of utility of person 1, common utility of person 2, common, dot, dot, dot, comma utility of person 350 million, if it's the US.

So it's some aggregation function. Just like we mathematically aggregate your taste for pizza and cookies. Now we're going to mathematically aggregate all society's utility to get a social welfare function.

So for example, consider figure 21-1. Let's think of society as only two people, Homer and Ned-- let's imagine that's all of society, because once again, it's always these two by two examples are easy. What we've drawn here are what's called isowelfare curves. What these are, are basically society's indifference curves.

Just like if these x and y-axis are pizza and cookies, I would draw a difference curve between pizza and cookies. Now drawing society as a difference curve between Homer and Ned. So in other words, what this says is that society's indifferent between Homer having U1 super H, and Ned having U1 super N, versus the Homer having U2 two super H and Ned having U2 super N.

Those are combinations of resources across which society is indifferent. And much like any other indifference curve, further out is better. We'd all prefer both Homer and Ned to have more-- more is better. So that's easy-- the further out the isowelfare curve goes, the happier you are. And a long isowelfare curve are allocations of resource across individuals among which we're indifferent.

Now, the question is, that's all well and easy to graph as a theoretical proposition. But in practice, what does a social welfare function look like? Utility functions, I just wrote down a usually function, and you took it as-- I wrote down square root, we worked with that. But there were some properties we wrote down that gave us a sense of what utility functions look like.

Social welfare functions are much more open, because they don't come from introspection about your preferences. They come from introspection about society's preferences, which are much harder. So what we do here is we talk about some typical forms of social welfare functions that we use in economics.

The most common form is what's called utilitarian social welfare function-- utilitarian social welfare function. This is due to the philosopher Jeremy Bentham-- if you ever visit University College London-- actually, if you did until about 15 years ago, you could see Jeremy Bentham's head, it was on display. He was a famous

philosopher there. But apparently, students would take it out, use it for soccer. So they took it off display, you can't see it anymore.

But he's a famous philosopher, and he came up with the idea of utilitarianism. And basically utilitarianism is, it simply says, the social welfare function is simply the linear aggregation of every individual's utility. So social welfare function is simply, U1 plus U2 plus U3 plus-- plus U 350 million.

So the US social welfare function is literally, we just measure everyone's utility, add it up, and that's the social welfare function. And in subsets, it's a natural starting point. Right, you just say, look, it's just a linear-- it's like having a linear utility function. It's a linear utility function.

Now, let's be clear-- what this says is that I don't care any more about anybody in society. So I don't care any more or less about Bill Gates and the homeless guy. I treat them-- I'm indifferent between them. But does this mean I wouldn't want to transfer money from Bill Gates the homeless guy?

In fact, I still would want to transfer-- and why-- depending on the leakage. Why?

AUDIENCE: Because of the condition of [INAUDIBLE].

JONATHAN GRUBER: Yeah, exactly. I care about the utility the same, but the next dollar's not worth anything to Bill Gates. It's worth a lot to the homeless guy. So a utilitarian social welfare function, which is a natural starting point-- I don't think it's particularly liberal, it's a natural starting point, you're just adding them up-- ends up with a very, in substance, redistributive conclusion, which is that you want to attribute from rich to poor.

Indeed, what the optimum with utilitarian social welfare function is that you want to redistribute until marginal utilities are equal. So this social function calls for fairly radical redistribution. This says, you want to redistribute until utilities are equal. Marginal utilities are equal, I'm sorry. Yeah?

AUDIENCE: So [INAUDIBLE] is constant [INAUDIBLE].

JONATHAN GRUBER: Well, once again, you're right, I mean, you just add people and subtract people. Wouldn't be a problem. But for now, let's just assume the copulation is because

you've got one given society. OK, so if two people, it's just Ned and Homer, just add them up. All it says is, as Ned is more resources than Homer, we're going redistribute.

Indeed, with this function, if we make the assumption that total social resources are fixed, that society has a fixed budget constraint that can't change, then what does this function imply would be the optimal distribution of income? So ignoring the fact that people might work less or more hard-- ignore that, imagine it's just the total amount of money a society has. If that's your social welfare function, what's the optimal distribution of income? Yeah?

AUDIENCE: Are we assuming that makes everyone equally happy?

JONATHAN GRUBER: Yes, everyone-- good point, fixed resources are identical utility functions. Great point. Yeah, exactly, great catch.

If it's a fixed bundle of income, and everyone has identical utility functions, then we simply want everyone to have the same amount of money. Why? Because giving someone $1 would make them less happy than taking away from someone else would make them sad. It's all about diminishing margin of utility-- just like we talked about last time.

So now, that might not be true, for example-- does anybody know who Scrooge McDuck is? Scrooge McDuck? Raise your hand if you know Scrooge McDuck.

OK, not bad. Scrooge McDuck is this comic character from when I was a kid who used to like to dive and swim in his money. Now, he clearly had a higher margin of utility of the next dollar than I do. OK, so if Scrooge McDuck really likes money, we might want to let Scrooge McDuck have some extra money.

But if utility functions are identical, and social resources are fixed, this is one equal distribution income. That's really radical. That's beyond what any country in the world does-- a perfect equal distribution of income.

But it comes naturally out of this fairly plain vanilla social welfare function. Quite a striking finding, right?

Now, but in fact, if we think of this as sort of our starting point-- Bentham was

actually conservative, this is typically viewed as a conservative starting point, even though it has a very liberal conclusion. The more liberal extreme is what we call a Rawlsian social welfare function, due to philosopher James, I think, Rawls, who was at Harvard-- Philip John Rawls, I'm sorry.

He said the goal of society is to maximize the well-being of its worst-off member. So Rawlsian social welfare function is the minimum of U1 comma U2 comma dot, dot, dot. In other words, all you care about is the worst-off person in society.

OK, so Rawlsian social welfare function would say, all we care about is the worst-off person in society. Now, unless you think this is crazy, let's think about where Rawls came at this from. Rawls came at this from the concept that he called the veil of ignorance.

Which he said, look, before you were born, you know nothing about what you're going to be. You could be born to rich or poor, healthy, sick, you have no idea. You're just a little embryo.

From that perspective, he said, what you would want is to make sure that you're going to be OK. And so from that perspective, society should want to minimize the well-being of the worst-off member. That was his rationalization.

But this has really radical implications. Not only does this say, we want an equal distribution of income, this says, we would destroy any amount of money of the rich to give some money to the poor.

So imagine what this says, if I could take-- if everyone's distribution of income was equal in this class, let's say our society, except Patricia has $40,000 more than everyone else, then what that would say is, we would happily take $40,000 away from Patricia and give $1 to me. Because I'm, like everyone else, the worst-off member.

But let's say I'm $1 less than the rest of you, make it easy. So you all the same amount of money, I have $1 less, she has $40,000 more. Rawlsian would say, we'd happily take away her $40,000 to give me $1. It doesn't make a whole lot of sense.

But it's one sort of extreme, and it's basically this notion of-- it's in some sense, Rawlsian. Think of an extremely risk-averse embryo, gives you the Rawlsian. The

idea that, I don't know what my income is going to be, but I want to make sure I'm not poor. Then I would want sort of a Rawlsian social welfare function.

So that's sort of a liberal extreme.

Now, there's two other views, which are harder to write down mathematically-- at least in the context of 1401, but are important. Let's take the most conservative extreme. So if Rawlsian is the most liberal extreme, the most conservative extreme would be the Nozick-- Nozickian argument-- it's not really social welfare function.

His argument is that we should never redistribute income. We should only redistribute opportunities. In other words, once everyone has equal opportunities, then we just roll the dice and let things lay in where they may. So here's an example. Let's say all of us are born with the same opportunities in life, and we end up where we are today.

And let's say that you guys are willing to pay me $10 every lecture to hear me lecture. Well, if that's true, at the end of the semester. I have a lot more money than you. Nozick would say, well, why should I be taxed and given to you? That makes no sense. You voluntarily payed me.

Why should LeBron James, we're voluntarily paying to see him play, why should he then be taxed on the money we voluntarily gave him? So Nozick's views, as long as we all start with the equality of opportunity, let the dice roll. If someone has more talents and skills, and people want to pay them, then let them keep it.

So basically, Nozick's idea is to essentially equalize opportunity, and letting the dice land where they may. Yeah?

AUDIENCE: Is this just like opportunity that can be regulated? Or is it-- I was thinking that [INAUDIBLE] might mean like [INAUDIBLE] doesn't have equal opportunity.

JONATHAN GRUBER: Right. So there's two problems with the Nozickian view. One is, what is opportunity? What is equal opportunity mean? And the answer is, it's not clear-- there's genetic equal opportunity. There's the fact that if I'm born in poverty, I go to lower quality schools, so I don't really have an equal opportunity.

I went to a ritzy public high school in New Jersey, because my parents were well-off.

Like someone who went to high school in some poor town of New Jersey didn't have the same opportunities I did. So the first problem with this argument is that, in some sense it's impossible to equalize opportunity. And so it starts with a false premise.

The second problem with this argument is it ignores luck. It ignores luck. Which is that in fact, if you look at why some people are rich and some people are poor, even with equal opportunities, a lot of it's not skill or talent, it's luck.

They were in the right place at the right time, had the right parents who gave them the right inheritance. They met the right person in business school and that person brought them into their company. It's luck.

Indeed, if you try to explain differences in income by any measure of skill we have, you can never explain even half of the difference in income across people. A lot of it appears to be luck.

Well, in that case, we would then not want to let lucky people be richer than unlucky people. That doesn't really seem to make sense. So I want skilled people richer than unskilled people, but it seems like we might redistribute against from the lucky to the unlucky. So that's the other problem with the Nozickian notion.

And then finally, the fourth approach, the fourth approach is a totally alternative view, which we call commodity egalitarianism. Commodity egalitarianism. This view is simply saying, look, who cares how much money I have relative to you? All that matters, that you can live a decent life.

So this says is what matters is not relative income but absolute resources. What matters is making sure everyone in society has food and shelter, and I would argue health care, et cetera. A set of base things everyone should have.

And then above that, who cares? So in substance, commodity egalitarianism is a mix of Rawls and Nozick. It cares about the minimum, saying we've got to make sure everyone has a decent standard of living. But above that, let's roll the dice. As long as we're providing a decent standard of living for everyone, that if someone can make a lot of money, let's let them.

So this is a very interesting view. And it basically talks about the view of should we

give people money or stuff? In the sense of commodity egalitarianism view, says, look, let's worry less about money and more about stuff. Let's make sure everybody has enough stuff to live a decent life. And then we'll roll the dice from there.

So let me start-- if I was not clear enough at all, none of these are right. These are all alternative views. It is harder to write down to make an assumption about social welfare function than it is about a utility function. We have less parameters to draw on.

But the point is, these are all different ways of thinking about the trade-off. We can't avoid thinking about the trade-off. That's why, once again, we're the dismal science-- because nothing's free. We can't avoid thinking about the trade-off. We have to think about redistribution. And these give us different frameworks for thinking about that.

Questions about that? Yeah?

AUDIENCE: What-- for the Nozickian and the other one, what happens if there are individuals that just don't-- they always make the wrong decision. They'll spend all their money irresponsibly, and therefore, they can't have a producing [INAUDIBLE]

JONATHAN GRUBER: Well, I mean, that's a very interesting question. So I think Nozick-- I mean, I don't know, I don't know how hard-hearted a guy Nozick is-- but if you took the Nozickian view to the extreme, as long as that person had an equal opportunity, then they should just die.

You know, they had an equal opportunity, if they made a series of bad decisions, why should we care? Now, that's obviously an extreme view, but I think that would be the view there.

Whereas, commodity egalitarianism would say, look, let's at least make sure that, despite their bad decisions, they don't starve. But we don't want to make them rich if they're making bad decisions. So let's just set a minimum and get them to that, and then let things go from there. Yeah?

AUDIENCE: Is that where the idea of basic income comes from?

JONATHAN GRUBER: That's a great segue to what I want to talk about next. Which is, let's actually talk about-- turn these into practice, and measuring inequality. And I'm going to back to your basic income point in a couple of minutes.

So let's talk about actually measuring inequality. And the reason we're going to talk about this, because it highlights how important this issue is. So let's go to some facts-- these are from my textbook from 1441. So go to Figure 21-2. Ignore the last row for second, focus on the first five rows.

What the first five rows show is the percent of income received by each quintile, or each fifth, of the income distribution. In other words, each row is 20% of people. So the first row is the poorest 20% of people, the next row is the second poorest 20% of people, and so on.

The numbers in each cell are the share of income held by that quintile. In other words, if the distribution of income was totally equal, every one of these numbers would be 20. If distribution of income was totally equal, every quintile would have 20. But in fact, that's never been true in any society ever in history-- the richest always have more than the poorest. We have no perfect distribution of income.

And you see that if you look at in 1967, when these data first are reliably collected, you see that the highest 20% of individuals had about 10 times as much as the lowest 20%. That there was a lot of inequality.

Now, if you roll forward till about 1980, that gap was shrinking. So you saw that the highest 20% share was about fixed, but the lowest 20% was rising. But then, if you look since 1980, that gap has widened enormously.

To the point now where the 2013 is the latest here, but the facts haven't really changed-- the richest 20% of Americans earn more than half the income in America. And the poorest 20% earn only about 3% of the income in America. So inequality has widened massively in the US.

How does that put us in international terms? And I'm sorry, and the last row was the share of the top 5%-- this is particular striking. In fact, go to the next page-- this is a graph of the share of the top 1% of income holders in America. So this is the share of income held by the 1% richest Americans.

You can see that in the early 20th century, that was pretty high, almost 20%. It then fell down about 10% by the early 1970s. It's now up-- and by the latest date, up to about 25%. It's higher than it was at the beginning of 20th century. So the 1% of richest Americans have about 25% of the income earned in society.

So it's extremely unequal income distribution. Once again, not saying bad or good-- I'm making a positive statement. Unequal is irrefutable. Bad or good, we'll get to. But it's irrefutable a very unequal income distribution.

It's also irrefutable, we have a much more unequal distribution of income than the rest of the world. So Figure 21-4, we compare the facts for the US to the rest of the OECD, which is a set of developed economies. Yeah?

AUDIENCE: Is this before or after income tax?

JONATHAN GRUBER: That's a great point. This all before tax, before tax. But if anything, if you add taxes, it makes us look even worse relative to other countries, because our tax are less progressive than other countries. This is before tax and before transfers.

So if you look at other-- so this list is a lot of numbers. Look at the bottom line. The bottom line is the average across all non-US countries of the share of income held by each part of the income distribution. And the next to bottom line, and the bottom line is the US.

So we say the bottom 10% of income distribution, on average across these countries, has 3% of income. Indeed, nowhere except for Mexico is the number lower than the 1.6% in the US.

Likewise, you look at the top 10% of income earners, on average across these countries, they earn 25% of the income. In the US, it's 30%. And indeed, nowhere is the number higher than in-- except in Mexico and Turkey. So we are the most unequal country, except for Mexico, on this list.

Once again, not saying good or bad, just saying the facts. We're going to come to how we think about good or bad. So those are the facts about inequality.

But as the question here pointed out, it's not clear we care about inequality. Indeed,

in a standard economic framework, I don't care about inequality. My utility is a function of my consumption, not your consumption. Sustainable economic framework, I don't care about inequality, I just care about what I have.

And that speaks more to the commodity egalitarianism view. Which is, how are we doing in making sure people have enough to live? And to do that, we say, we move from-- so when we talk about inequality, inequality is a measure of relative distribution.

Want to move to something which is the measure of absolute-- absolute income, and that's what we call the poverty line. The poverty line in the US is a measure of absolute deprivation-- what share of Americans are earning less than some minimum standard they need to live?

Now, you can immediately see the problem. With inequality, it's unit free, right? I simply compare dollars to dollars. Once I start going here, I have to make a judgment, which is, what is deprivation? What do you need to live?

So in substance, this makes more sense-- absolutely makes more sense, in substance it makes more sense to think about, do people have enough to live on? But it is more difficult, because you have to draw a judgment about what it is. So the judgment we've drawn is what's called the poverty line.

The poverty line was invented by a civil servant in the 1960s, Molly Orshansky. She said, well, what does it take to live in America? She said, well, the typical person spends about a third of their budget on food in the 1960s. So let's cost out the cost of a nutritionally adequate bundle of food, multiplied by it three, and call that the poverty line.

She did that, and that's still the poverty line. All we've done is taken that and updated it by inflation. Remember, we talked about the CPI, the inflation rate? All we've done is taken Molly Orshansky's poverty line and updated it by inflation ever since.

And what do we get? Well, if you look at table 21-5, this shows you the poverty line in the US today. It varies by family size, because you need more resources with a bigger family. But not one to one, because of economies of scale in the household.

You don't need twice as much money to have a household with two people, because you still only need one living unit, you can share cookware, you only have to heat-- heating for two people isn't much more expensive than heating for one person, et cetera.

So there's economies of scale within the household. So the poverty line does not go up-- does not double with every person, does not double you go from one to two-- it less than doubles.

And you could see this scale-- essentially we say that-- this is 2015, so it's higher now-- but basically says that one person with income below $11,170 is living in poverty. And a family of four, it's about $24,250.

So it basically says, a family below $25,000-- a family of four below $25,000, is living in poverty.

Now is that the right number? Well-- yeah?

AUDIENCE: Is it different based on where in the country you live?

JONATHAN GRUBER: There's a number of reasons it might not be the right number. First of all, it does not differ based on where in the country you live. So if you are-- you guys don't know because you're sheltered-- but if you right now tried to take $25,000 and go live in Boston, there's no way. I mean, it's just, like, impossible. Whereas, in rural Mississippi, you can probably do OK on $25,000.

But it doesn't vary by area. It doesn't vary-- also the poverty line calculation is all messed up now, because when she did it, food was a third of people's budgets. It's now more like 20% of people's budgets. It's fallen enormously.

And the other elements that poor people have to pay, notably housing and medical care, have gone up much faster. The poverty line hasn't accounted for that. So in fact, there's lots of reasons that this line is problematic.

Nonetheless, it's very hard to change it. Indeed, I was in the US government for 14 months, and I only went to one super duper secret meeting. I went to a lot of meetings with the president, stuff like that.

But one time, my secretary said, there's a meeting, and I can't tell you what it's about, and I can't even tell you where it is. When the time comes, they will come get you and bring you there. I was like, Jesus, it's nuclear war. Like, what the hell?

So they brought me to this room, we're all in this room. I'm like, what's going on? They're like, we need to discuss revising the poverty line.

I'm like, what? Well, why is it super secret? Because the US today distributes more than a $1 trillion a year based on the poverty line. So any changes you make is going to create winners and losers. And the losers are going to be really mad.

And as a result, it's been incredibly hard to change the poverty line. Because for example, let's say we change it to recognize the fact that it should be higher in New York than Mississippi. Well, that means New Yorkers would win and Mississippians would lose. Bad news, politically. New Yorkers would be happy, Mississippians would be sad, but because of diminishing marginal utility, and the laws of politics, the guys who are sad make more noise than the guys who are happy. So it's very, very hard to change this, despite its problematic features.

Nonetheless, it's still a useful benchmark. It is useful that it's fixed over time, because it allows us to essentially see how things have evolved over time. And we can see that in Figure 21-6.

This shows the poverty rate over time. And it shows it for everybody, that's the red. It shows it for the elderly, that's the blue. For kids, that's the green. And for non-elderly adults, that's the yellow.

So what do we see? We see a couple of things. First of all, for every group, poverty fell enormously during the 1960s. That's the so-called war on poverty, which used a number of social programs that lowered poverty enormously during the 1960s.

For the elderly, it kept going down. And the elderly went from the most impoverished group in society to the least. For kids, it bounced back up. And now kid poverty rates are nearly as high as they were back in the early 1960s. For the rest of folks, it sort of went down then flattened. Yeah?

AUDIENCE: How do you determined how much wealth a kid has?

JONATHAN GRUBER: It's based on their family's income. This is not wealth, it's income. It's based on their-- so basically, when asked does a kid live in poverty, it's like, do they live in a household that's below the poverty line?

So the bottom line is-- think of it as families with kids, is another way to think about this. The bottom line is, essentially, poverty hasn't done a whole lot. We haven't done a whole lot on poverty in the last 50 years. We sort of lowered a lot in the '60s, and then it's been bounced up and down, but it's been pretty flat-- is the result there.

Now, the bottom line is-- now my take, now I'm going to draw a judgment-- my take is, along either of these dimensions, we don't look so hot. We're the most unequal nation the world. And we have-- still, if you look at all people, we have 15% of our people living below some standard of absolute deprivation. Literally saying, we are accepting that 15% of people America cannot afford to live. We are accepting that, including more than 20% of kids.

So I don't think we're doing that well. But in some sense, this is even the most-- yeah, go ahead.

AUDIENCE: 18 to 64 people, are those single people? Because I imagine kids would fall into--

JONATHAN GRUBER: I mean, that's like the average of all 18 to 64, including those that have kids and don't. So like a child at the age of 64, that would come down more. It's just the average.

Now, this is a striking set of facts, but not to my mind the most striking. Probably the most striking fact that probably-- probably the fact that has seen the most influence on me in the last 10 years is shown in Figure 21-7. This is a figure put together in the wake of the Freddie Gray riots in Baltimore.

You may have heard about those, that's when a prisoner was beat to death in the back of a police van. And he was from the area of Sandtown-- Sandtown, Winchester, which is a super bad area. Think *The Wire*-- if you've seen *The Wire,* super bad area of Baltimore.

About 3 miles away is an area called Roland Park, which is a very rich area. The average life expectancy in Roland Park is 84 years. That's above the US average.

That's pretty good.

The average life expectancy 3 miles away is 67 years, which is below North Korea. And what it was around World War II in the US. 3 miles, and we got a 17-year difference in the average life expectancy.

What's going on? Well, what you'd expect. People are way poor. In Sandtown, the average income is $107,000-- I'm sorry, Roland Park is $107,000, and Sandtown is $24,000-- the average income is below the poverty line.

In Roland Park, 2.5% of kids live in poverty. In Sandtown, it's 55% of kids. So basically, you have incredible inequality in short distances.

To me, this is striking, because it really brings home inequality by putting it in such sort of close geographic terms. So we have a lot of inequality. There's no question.

And it certainly motivates-- I think it's hard to look at facts like this, regardless of your political stripe, and not worry, not at least worry, and consider the fact that there may be some role for government redistribution. But that's not the end of the discussion.

This in some sense-- think of this part of the lecture as the benefits of government redistribution. The benefits of government redistribution is we have incredible inequality, incredible poverty, all around the country. Now, we have to come-- but of course, in economics, nothing free. Now we have to come to the costs of redistribution.

The benefits are clear. What about the costs? And so now we have to talk about the efficiency costs, or the leakage. Efficiency costs-- costs of redistribution. Or in other words, how big is the leakage?

So going back to Okun, I hope that these figures inspire you to think we out to be putting some money into buckets and giving it to poor people. But now the question is, should we? What if it all leaks out? How leaky is the bucket?

And that's what we need to talk about now. And basically, leakages in the bucket come from three sources. The first and least important source is administrative costs. Literally got to pay someone to carry the bucket.

So if you put a dollar in and carry the bucket, he's going to take some money out for the right of carrying the bucket. That's small, but non-trivial. Maybe low single digits.

The second source of leakage is the efficiency costs of taxation. If you tax people and take their money away, they may work less hard. Think about the extreme case, where I'm at to say-- I'm going to go back to the utilitarian world, I'm going to tell everyone, we're going to equalize income.

That means that everyone, no matter what they make, example, the same amount of money. Why would you work? I mean, you guys would, because you're tools.

But why would regular people work? They wouldn't. Because no matter what you do, you end up with the same income. It's 100% tax.

So why would you work? And that's extreme, but the point is, the extreme example makes the point that when you tax people, there's potential efficiency costs, in terms of them earning less income.

The third issue is the efficiency costs of transfers. Which is when you give people money, and when you give people money, they may also work less. So not only might I work less when you tax me, I might work less if you give me money.

Why should I go to work if you're sending me a check? So not only would equal distribution of income lead me to work less because I'm being taxed, leading me to work less because I'm getting money. So why should I bother working?

As long as leisure is a normal good, remember? I don't want to work. So if you're just sending me money, why would I go to work?

So to see this, we can sort of summarize this with one example. So let's go to Figure 21-8, and I want to walk through-- it's a fairly complicated example-- let's walk through-- this a simple illustration of a tax and transfer scheme of the type we have in America.

We start in this example with an individual earning $20 an hour. So the slope of this line is negative $20 an hour. This person can work-- and remember, we don't model work, we model leisure. I almost made the mistake. Remember, we don't model the

bad, we model the good. We don't model labor, we model leisure.

Let's say that the max leisure you can take is 2,000 hours. So you can either take 2,000 hours of leisure and consume nothing, or you could take no leisure and consume 40,000. Let's say consumption is income, no savings in this model.

So you earn $20 an hour, you consume your whole income, and you can take up to 2,000 hours of leisure. So your budget constraint is the dark line running from 40,000 on the y-axis, 2,000 on the x-axis.

Now, let's say that we're going to put in, into this budget constraint, we're going to add two things. The first is a transfer program to the poor. We're worried about poverty. So we're going to have a new program, that says that every American gets at least $10,000. Everybody gets $10,000.

But as their income goes up, we're going to take that away. So we're going to say, since we have a transfer program, the transfer program is going to be of the form-- the transfer you get is the max of 0 comma 10,000 minus your income. That's our transfer program.

So if your income is 0, you get 10,000. If your income is 10,000, you get zero. We're just making sure everybody gets $10,000.

We don't care about people having more and that, so we're going take it away. We're going to say, look, want to make sure you have $10,000, but above that, we don't care about you. So if you're someone earning $100,000, this program's irrelevant.

If you're someone earning $5,000, we'll give you another $5,000 to get you up to $10,000. So that's based on a transfer program.

This is typically the way welfare programs work around the world. Essentially, they give you money, but then they take it away as you get richer, to make sure the money is targeted to the poorest people.

So that's our transfer program. That's the first thing it's going to do.

The second thing-- we've got a transfer program, but we've got to pay for this. To

pay for this, we have to have a tax. Now, let's say we only want to tax the rich-- you don't want to tax the poor, you want to give money to the poor.

So let's say our tax program is of the following form-- anyone making more than $20,000 per year pays a 20% tax rate on the income above $20,000. So no one's taxed on the first $20,000. But on every dollar above $20,000, you pay $0.20 to the government. It's what's called a marginal tax.

You have a marginal tax rate of 20%. What does marginal mean? It means you only pay on the next dollar. So it's a marginal tax rate of 20% above $20k. OK, so once you earn $20k, of $20k, you pay nothing. Once you've earned $20k, on every dollar above $20k, you face a marginal tax rate of 20%. You pay $0.20 of every dollar of the government.

So that is our tax program. Now, look at the diagram. Do people understand how these programs work? Forgetting the diagram. Yeah, Manny?

AUDIENCE: In other countries, is there any other data to show how this affects the number of hours people work?

JONATHAN GRUBER: That's exactly what we're getting to. That's our concern, right? Is that that's my point here, is that this might lower how many hours people work. And let's talk about why.

But the question about the logistics of these programs, first. Let's talk about how it affect the hours worked. Let's go to the diagram.

Let's go to the diagram. Let's consider several different people. Start with person A. Person A earned-- before this program was in place, they would have chosen to be a high leisure, low consumption person.

When this program's in place we tell them, look, person A, you can get more of both, more leisure and more consumption, all you have to do is quit. Stop working. You move from point A to point D. You get more leisure and more consumption. So that naturally happens.

So everyone earning less than $10,000, immediately quits. Once again, assuming

leisure is the normal good. Immediately quits because look, once you're below $10,000, it's 100% tax rate.

Why work? So anyone who would have earned less than $10,000 doesn't work. Because you're just going to give back to the government anyway, why do you care?

That's person A. What about person B? Person B earns more than $10,000. But note, their indifference curve crosses below the new budget constraint. Let me step back, the new budget constraint is the red segments plus the black segment in the middle. New budget constraint runs from $32,000 on the y-axis, it intersects the black line, the old budget constraint at $20,000.

It's the old budget constraint from $20,000 down to $10,000, and it becomes the new red segment. I should mentioned that. So the budget constraint is the two red segments and the black segment in between. That's the new budget constraint.

So let's look at person B. What happens to person B and why? What does person B do? Yeah?

AUDIENCE: [INAUDIBLE]

JONATHAN GRUBER: Why?

AUDIENCE: Because it's a higher [INAUDIBLE].

JONATHAN GRUBER: Right, crucially, since person B never crosses the red line, we know they must be better off at point D than at point B. Because we know that since point D is above that line, that's a higher indifference curve than they're on at point B. So not only do you cause every person below $10,000 to quit, you also cause some people above $10,000 to quit.

Why? Well, they give up a little consumption, but they get a ton of leisure. So let's say someone is at $11,000, $12,000, like, wait a second, all my work is only getting me $1,000 or $2,000 over quitting. I might as well quit.

So this welfare program causes a ton of people to quit. All the people who were

going to earn very little quit, and some people who are going to earn somewhat little quit.

But that's not all. Let's look at person C. Person C used to work a certain amount-- you know, used to work more than 1,000 hours. Take less than 1,000 hours of leisure. Now what happens, well what happens-- forget the diagram, step back.

If I take someone and choose a marginal tax rate, what happens to their labor supply and why? What happens to their leisure and why?

So I take you. You're working-- let's say you're taking 800 hours of leisure, doesn't matter what the exact number was. I then come and save you have a 20% tax rate on every earnings above $20,000. How does that affect your leisure?

Yeah?

AUDIENCE: Might as well increase it.

JONATHAN GRUBER: You would increase it, why?

AUDIENCE: Because then above $10,000, I guess you would get less money, but I guess maybe less utility above $10k, because you're going to give it to the government?

JONATHAN GRUBER: You might increase it. But what might else you do? Yeah?

AUDIENCE: The wage effectively decreases, so the price of leisure decreases. So you take more of it?

JONATHAN GRUBER: Right, I think that you increase leisure, that's what he said. OK, increased leisure, but what else? Yeah?

AUDIENCE: Might increase it just to cover taxes, so you might work--

JONATHAN GRUBER: Yeah, what do we call the two effects?

AUDIENCE: Oh, your income and substitution.

JONATHAN GRUBER: Exactly, we have substitution income effects. The substitution effect, let's say your net wage is lower, your net wage just went from $20 an hour to $16 an hour, right? So a lower net wage, you work less, but the income effect says, you work more. Because you're now effectively poorer. When you're poorer, you consume less of everything, including leisure.

So when you tax my wage, I might take less leisure, i.e. work more, through the substitution effect-- I'm sorry, we tax my wage, I might take more leisure, i.e. work less, through the substitution effect, because the returns to work are lower. But I might take less leisure, i.e. work more, because I'm now poorer. So we don't know what's going to happen.

But we typically assume substitution effects dominate. You can't go wrong in this class without making that assumption. We want you remember the trade-off-- but typically, some substitute effects dominate. So we typically think people will work less. We think taxing people will cause them to work less.

But be clear, it's not obvious it will. But we typically think that's the result. And typically, once again, when you average men and women, as we discussed in our labor supply lecture, overall, you get an upward slope in labor supply curve. That is overall if you tax people that work less.

So what that does, it lowers the hours of work for person C. This is our leaks in the bucket. We've suddenly massively reduced the amount, potentially massively, reduced the amount people who want to work. Why do we care? We care because a Figure 21-9.

What have we done? We've gone from an initial point where people initially had initial supply curve of S1, and demand curve of D. And therefore, we're supplying L1 hours of labor at a wage, W1.

Now they're producing less-- their supply curve shifts in. That's created a deadweight loss. There is less stuff being produced, because people are staying home rather than working.

And the key point is, that's not a problem. Staying home rather than [INAUDIBLE] is not the problem. The problem is, they're staying home only because we've reduced

the price of labor. We've increased the price-- we've reduced the price of leisure, I'm sorry. We've reduced the return to labor, reduced the price of leisure.

As a result, people are staying home. We've distorted their behavior. We've caused them to stay home and not work.

We cause them to stay home and not work, there's less stuff for the rest of us. So it's a deadweight loss. Efficiency falls.

And that is the efficiency equity trade-off. This deadweight loss is Okun's leak. That's the leak it Okun's bucket.

So now we have the trade-off. On the one hand, we have an incredibly unequal society, where a program like this can really make people better off. Take money from rich people who don't need it, give it to poor people who do.

On the other hand, in doing so, we're going to have less stuff as a society. We're going to shrink the size of the pie in order to redistribute the slices of the pie. Is it worth it?

That's where the social welfare function comes in. The social welfare function allows you to evaluate whether something like this is worth it. Without a social welfare function, you can never answer that question. You just can't, because there's one hand and the other hand.

What the social welfare function does is give you a mathematical representation that allows you to answer that question. So in section on Friday, you'll work through an example of using a social welfare function to evaluate a welfare transfer program like this.

And they'll come back on Monday and talk more about taxation.