[SQUEAKING]

[RUSTLING]

[CLICKING]

JONATHAN GRUBER: So today, we're going to talk about social insurance. So why do we have this thing called "social insurance?" Let's first talk about what social insurance is, and then ask why we have it.

So basically, social insurance is government-provided insurance programs. This is the largest single category of government expenditure in the US today, is government-provided insurance programs. Now, why do we have these?

You might say, well, we know why we have these. We learned about uncertainty. We already talked about how people dislike uncertainty, and about how as a result, insurance is big business in America. Private insurance for health, for auto, for life, for property and casualty adds up to about $1.5 trillion every year.

So we already have big business of private insurance. So why does the government need to get involved? I mean, after all, people want insurance if they're risk averse. We talked about insurance markets can work.

And as always in economics, the question is, what's wrong with the private market? What is the market failure that might generate interest in government being involved? And the market failure in the context of insurance is a different kind of market failure than we've talked about.

We've talked about market failures like imperfect competition as a market failure. We talked about externalities as a market failure. The new kind of market failure we want to talk about today is what we call "information asymmetry."

Information asymmetry, basically which is the difference in the information available to sellers and to buyers in a given market. So far in this course, we sort of assumed full information. We've assumed everybody knows everything.

We weaken that assumption a little bit with uncertainty, and say that people don't

know whether they're going to be sick or healthy, but they still knew the probabilities. Now we weaken it further by saying not only is the information imperfect, but different parties in a transaction might have different levels of information. And that's going to turn out to cause market failure. That information asymmetry will cause market failure.

Now, the math here is quite hard, harder than we do in this class. So we'll just sort of do this by an example or two. And the best example to start with is the so-called "lemons problem" that was laid out by the Nobel Prize-winning economist George Akerlof in 1970, Nobel Prize-winning economist and husband of former Fed Chairman Janet Yellen-- quite a power couple.

And here's what Akerlof laid out-- he said, let's look at the market for used cars. This is the market for used cars as of 1970. There's no CarFax. There was none of this information.

In 1970, when you went to buy a used car, you sort of went, and kicked the tires, and decided if you're going to buy it. So this is a classic case of an information asymmetry, in that someone selling a car knows what's wrong with it, whereas the person buying the car doesn't. I'll go sort of kick the tires and hope for the best.

So basically, in particular, sellers of cars might be selling them because they're not good. After all, why sell a car? Maybe because it's what's called a "lemon." A lemon is something which is a poorly performing product, in this case a car that's got something wrong with it.

So when you go to buy a car, you're worried. You want to buy a car in the used car market, but you're worried. Why is someone selling this car?

You should be. Why is someone selling this car? If it's really in good shape, why would they be selling it?

Therefore, as a result, Akerlof argued, there might be a collapse of the entire used car market. There might not be transactions that happen that can make both parties better off. Remember, a market failure is whenever the private market fails to maximize welfare. What that means is a market failure arises whatever the private market does not deliver all transactions that make buyer and seller better

off.

And so let's look at an example of this. Suppose that I have a 10-year-old car, and I keep it in pristine shape. Hint-- that's not true for me. I'm terrible at cars, but imagine I was someone who wasn't.

I kept my 10-year-old car in pristine shape. And let's say that a 10-year-old car in pristine shape is-- and let's say I'm trying to sell this car. And let's say that I would happily take $5,000 for this 10-year-old car that's in pristine shape.

So I would be willing to sell at $5 K. And let's say that you-- let's say Patricia-- needs that used car, and she is willing to buy a car that's in good shape for $6 K. So my willingness to provide, willingness to supply, is $5 K. Her willingness to pay is $6 K.

So that is a transaction that should happen. Given the quality of my car, given that's in good shape, she is willing to pay $1,000 more than I'm willing to sell it for. So that transaction should happen, and it would be welfare maximizing.

But let's say that most 10-year-old cars are not in good shape. Most 10-year-old cars, in fact, are in kind of crappy shape. And in fact, for the typical 10-year-old car, to get it up and running well, you'd have to throw $2,000 in once you bought it.

And Patricia knows this. She knows that for the typical 10-year-old car, she would have to put $2,000 in. So her willingness to pay is not $6 K, it's $4 K for an average 10-year-old car.

Now I say to Patricia, well, that's an average 10-year-old car, but I have a perfect 10-year-old car. You don't need to put $2 K into it. It's good to go. So why don't we split the difference and pay $5.5 K.

She says, no way. You're a damn liar. I have no way of knowing your car is better than average. All I know is the average 10-year-old car needs $2,000 of work. So I'm not going to pay more than $4,000 for your car.

As a result, Patricia doesn't buy my car. And a transaction that would have made both parties better off does not happen. A transaction where there was full information, like we have much more of today-- we can get the entire record of the car, all the crashes its been in, how much care it's taken care of-- that problem

would go away, should go away, because now, Patricia could look at my CarFax and note this, in fact, is a pristine car. And she's more willing to pay the $6,000 for it.

But the bottom line is, in this world of 1970, this was a market failure, because a transaction that made both parties better off did not happen because of imperfect information. The buyer was perfectly happy to buy. Patricia is perfectly happy to buy my car, but because I had information that she didn't and she was just suspicious that I was lying, as a result, that transaction didn't happen. Now, questions about that? People understand it's a market failure.

Now we come to insurance. The story is flipped. Now it's not the seller that has the information. It's the buyer that has the information.

In particular, when you buy insurance, you know how healthy you are. You know your genetic history. You know whether you're a risk taker. You know whether you're around a lot of snotty kids who might get you sick. You know a lot of stuff about yourself that the insurer doesn't know.

As a result, the information asymmetry is flipped. With insurance, the insurer is worried that when you come looking for insurance, they're worried you're looking for insurance because you're sick. You might be looking for insurance because you're risk averse and that's great for insurers.

We talked about insurance, how there's essentially a game. I'm willing to pay a risk premium so insurers can make money by selling to me. But what if I'm not coming to you because I'm risk averse?

What if I'm coming to you because I'm a huge skydiving fan? And you don't know that. You might be afraid to sell me insurance, because you might lose money on me.

So let's work out another example to show this. Imagine you graduate, and you decide a great business model is to offer health insurance to recent MIT grads. You say, look, we're a bunch of kind of careful nerds.

We're likely not going to go skydiving. We're just going to sit at our desks and work. Maybe there'll be carpal tunnel risk, but other than that, we're a pretty safe bunch. So I'm going to offer health insurance to recent MIT grads, because they're a

healthy group.

And let's say suppose that of every 100 MIT grads, 90 are healthy, and 10 are sickly. Let's just suppose you know those facts. You know those facts. You've collected the data to know that on average, of every 100 MIT grads, 90 are healthy, 10 are sickly. You don't know which are which, but you know the proportions.

And let's say that with a healthy person over the next year, there's a 10% chance that they will need-- that they will incur a $10,000 charge, and a 90% chance that they'll have zero costs. So there's a 10% chance of a $10,000 cost, 90% chance they'll have a zero cost. So your expected cost for insuring this person is $1,000. You expect someone like that will cost you $1,000.

Now suppose for the sickly guy, there's a 50% chance that they'll cost you $10 K, and a 50% chance that they'll cost you 0. So your expected costs for them, the expected costs for this person, is $5,000. Do people understand the setup?

There's two types. I know these facts, but I don't know who's who. I just know these facts, because I'm good at math. I've done all the actuarial calculations.

Now, if everyone buys in, now I'm going to set my price. What am I doing to do to the price? I'm going to say, look, if everyone buys health insurance, then I've got my expected cost is 0.9 times 1,000 plus 0.1 times 5,000. My expected cost is 1,400, so I expect to have to spend $1,400 a year.

In fact, on average, I'll spend $1,400 a year. With large enough samples, I can predict that with certainty-- that if everyone buys insurance, I'll spend $1,400 a year.

So let's say you're risk neutral, because you're rich, and so forth. This is sort of risk neutral for you. So you say, look, I'll just charge-- I'll set a premium of $1,500, and I'll make $100 per person. If 100 will buy, that's $10,000 profit. That's pretty good.

There are 1,000 kids in the graduating class. If 1,000 kids buy, and I make $100 profit, then that's $100,000. That's pretty good money for a year.

Now, what is wrong with this calculation? What, in fact, will happen if you sell insurance for $1,500? Yeah.

AUDIENCE: We'll buy insurance.

JONATHAN GRUBER: Well let's go step by step. What about sick people? If you sell $1,500, what will they do?

AUDIENCE: They'll buy.

JONATHAN GRUBER: Yes, so if you set up for $1,500, you are certainly going to sell to all the sick. So if you sell for $1,500, you'll certainly sell to all the sick. What about the healthy? What will determine whether or not they buy? Yeah.

AUDIENCE: When the price is smaller than the expected amount they'd have to pay on their own [INAUDIBLE].

JONATHAN GRUBER: Not quite, not quite. There's another piece, too. Don't forget. What else? What else? It's not just the expected cost. What else?

AUDIENCE: The risk aversion.

JONATHAN GRUBER: The risk aversion-- remember, there's a risk premium that they'll pay. So whether that healthy person will buy or not, if it's just expected cost, then they wouldn't buy-- the $1,000 expected cost, buy the $1,500. But some might be risk averse and buy.

So let's just say half the guys are risk averse, and they're willing to pay $1,500 for $1,000 expected costs in half are. So let's say you end up selling to all the sick and half the healthy. So how much money do you make?

Well, you sell the 60 people at $1,500 each, so your revenues are $75,000. You sell to 50 healthy and 10 sick, $75,000 revenues. What are your costs?

Your costs are-- you have 10 people that are cost you $5,000, so it's $50,000, plus 50 people who are going to cost you $1,000, plus another $50,000 equals $100,000. And you've lost money. You priced at above the expected total, and lost money. Why did you lose money?

You lost money because of the problem of adverse selection-- the problem of we call "adverse selection." Adverse selection is the problem that, due to information asymmetries, only the worse risks will participate in the market. And that will cause

people selling in the market to lose money, or likewise here, the concern is that only the worst cars will participate in the market. And so if people buy cars, we'll be worse off. Yeah.

AUDIENCE: Wouldn't you make $90,000?

JONATHAN GRUBER: No. You sell to-- you sell $1,500 each, and you sell to-- yes, you're right. You make $90,000, my bad. Yes, $1,500 each times 60 people is $90,000. You still lose money, but not as much. Right.

Now, you might say, look, you're not losing that much. Your solution-- just raise the price. What if you said, fine, let's just raise the price, and let's charge $2,000 a person.

Then that would cover, because $2,000 a person, 60 will make $120,000, the costs are $100,000. You'd be golden, right? Yeah.

AUDIENCE: [INAUDIBLE]

JONATHAN GRUBER: Who would you lose?

AUDIENCE: The healthy.

JONATHAN GRUBER: Not the sick. The sick are delighted by $10,000. But once you raise the price, more healthy people drop out, because it's higher than their risk premium. So what happens is by raising the price, you're not necessarily going to make money. It depends on how many healthy people drop out.

So for example, imagine that you raise it to $2,000, but now the number of healthy people that buys drops to 20 from 50. Then you lose money again. So the point is, you can't actually solve this problem just by raising the price, because there's this what we call "death spiral."

This is a term called "death spiral," which is as you raise the price, you chase out the healthier people, which means you have to raise the price more, which shakes out even more healthy people. And you end up in this death spiral. So that is the problem of adverse selection.

And that leads you to say, you know what, I'm not going to offer this product. I can't make money on it, because if I set the price, whatever price I set, I'm going to lose money. So I'm not going to offer the product.

Therefore, the market has failed. A market that might have existed-- on average, this was a market that made people better off, but the market that might have existed doesn't does exist. Yeah.

AUDIENCE: With the death spiral, wouldn't it converge like something equivalent [INAUDIBLE] market forecasting is [INAUDIBLE] still [INAUDIBLE].

JONATHAN GRUBER: Right, so if you leave this alone-- it's an excellent point-- what should the new equilibrium be? The price now should potentially have chased all the healthy people out. And then you price, but you'd have to price it, then, at what?

AUDIENCE: $5,000 [INAUDIBLE]

JONATHAN GRUBER: $5,000 plus something. So as long as sick people are risk averse, you could still make money. You could still make money if you sold, say, $5,500 with even modest risk aversion. Why is that still a market failure?

AUDIENCE: [INAUDIBLE]

JONATHAN GRUBER: Because there's all these healthy people who now can't get health insurance. So yes, it doesn't mean the market collapse-- market failures doesn't necessarily mean market collapse. It means a reduction in welfare, because transactions that might make some people better off aren't happening.

Here, you might be able to offer insurance for healthy people that makes them better off, but you're not. You're only offering insurance for the sick. So it's a market failure, because healthy people who might want the insurance end up being kept out of the market by adverse selection. Questions about that?

And that is the fundamental market failure we face in insurance markets. That's why we think private insurance markets will not function well. Because private insurers-- in some sense the fundamental problem is that you're setting one price for multiple products.

A great case of adverse selection is going to buy fruit at the beginning versus the end of the day. What's the difference? Buy fruit at the beginning or the end of the day? You guys probably don't buy a lot of fruit, but try to think about it. Yeah.

AUDIENCE: Normally, better is at the beginning of the day. Then you have--

JONATHAN GRUBER: And at the end of the day, in particular, what's left?

AUDIENCE: [INAUDIBLE]

JONATHAN GRUBER: All the shitty fruit is left, because you set one price. You didn't say good apples $1.80, shitty apples $1.40. You said apples, $1.70.

So people come, and they buy apples. They go and they feel it. They feel around.

They find the good ones. The ones that left are crap. And that is the adverse selection problem.

Now, with apples, the market still exists. Why? Because they charge so much they can live with a few bad apples being at the bottom, so to speak-- a few bad apples being at the bottom.

With health insurance, if I get one bad risk-- someone, say, who's really, really sick and costs $1, million-- I go out of business. So adverse selection may not destroy markets. It doesn't destroy the apple market, but it can destroy or significantly impede insurance markets. Questions about that? Yeah. Manny.

AUDIENCE: Is there some way insurance companies that hassle hospitals, like lower the prices or they give them better discounts so they can increase the price of people--

JONATHAN GRUBER: Well, that's a separate issue. We'll talk about that next lecture when we talk about health care. So that's separate, about the cost of health care. This is the reason why insurance companies make you fill out a lot of forms before you go in.

So it's for this reason-- insurance companies are not powerless against this problem. They could try to collect as much information about you as they can. As I get more and more [INAUDIBLE] can learn more and more who's healthy, who's sick, then I can solve this problem.

AUDIENCE: So your familiar with those home kits that [INAUDIBLE] and 23andme will send you.

JONATHAN GRUBER: Yeah, 23andme. Yeah.

AUDIENCE: So is it possible that at some point in the foreseeable future, those are going to become part of [INAUDIBLE]? Those are going to become part of how insurance is determined, like if it's in your DNA, get some condition when you get old that we can say you have a preexisting condition now that hasn't manifested yet?

JONATHAN GRUBER: So this is a great point. I was going to talk about it next time. I'll talk about it now, which is in some sense, we are eventually moving to a point where there'll be no adverse selection.

Now you might say, on the one hand, that's because ultimately, we'll know everything about you from the moment you're born. We know your genes. We won't know if you're a skydiver, but we'll know-- we'll probably know genes that determine risk taking.

And we'll charge more for people who like taking risks. So the good news is that then, I can make the market work. The bad news is in that world, how would I set my insurance?

AUDIENCE: [INAUDIBLE]

JONATHAN GRUBER: I would charge-- because what I would do is I'd say, your genes say you're healthy, so I want $1,100 from you. Your genes say you're sick, so I want $6,000 from you. So essentially, insurance wouldn't exist anymore. There'd be no insurance.

What is insurance? Insurance is pooling people with different probabilities of adverse events, and letting us all benefit from the fact that if it happens to us, at least we're protected. Well, if you charge me my expected cost, I'm no longer protected.

So here's the example that makes it perfectly clear, one of the most famous examples. Ken Arrow was one of the great economists of the 20th century, died recently. He had his famous islands example.

Ken Arrow's island example is the following-- imagine there's two islands somewhere in the South Pacific that are very small, that's got one farmer on each. And the farmers know a hurricane is coming and it's going to wipe out one of their islands, but they don't know which. They just know one's getting wiped out.

What will they naturally do? They'll naturally get together and say, look, islands get wiped out, but let's insure each other. If I get wiped out, you give me a bunch of your crop. If you get wiped out, I'll give you a bunch of my crop.

That will improve both our welfare, because getting wiped out is going to zero. You die. That's a terrible outcome. So that will improve our welfare if we insure each other.

Now let's say a weather service comes along, and provides information, and tells you that farmer A's island is getting wiped out and farmer B's island is going to be fine. What has happened to welfare? It's gotten worse.

Why? Because farmer A goes to farmer B, says it turns out I'm going to be wiped out. Farmer B says, well, see you. I'm just going to keep consuming my high level. Farmer B is somewhat better off. Farmer A is dead.

Total social welfare has fallen because the concavity, because diminishing market utility. More information has made us worse. We say more is better in economics. Once you get into topics like, this you realize more is not always better. More is worse.

More information has destroyed the insurance market that might function. So in fact, this issue I'm talking about is becoming paramount as we move more and more towards perfect information environment. So the kind of government policies I'm talking about next become critical as you move towards that environment. But first, I want to make sure we all understand why the private markets failed, why it's a failure.

Now, what can the government do about this? What are some potential government solutions? And we've tried all of these in the US and around the world. Let's talk about three categories of government solutions.

The first is subsidization. The government could subsidize the purchase of health insurance. So for example, what if the US government said to all the MIT grads, I'm going to give you a $400 tax credit that you could have-- or $500 tax credit if you buy health insurance.

Well, if there's a $500 tax credit if I buy health insurance, and I charge $1,500, then what's the effective price now to the healthy guy?

AUDIENCE: [INAUDIBLE].

JONATHAN GRUBER: $1,000, so he buys. Even if he's risk neutral, he buys, as long as he's a tiny bit risk averse. So I do sell to everyone. I make my money.

So one way to solve this problem is to basically pay the healthy people to get into the market. They can't just give money to the healthy people. You've got to give it to everyone, because you can't tell who's healthy.

But if we give everyone a tax credit, then we could bring everyone to the market and solve this problem. Well, in fact, we do this in America. It's actually perhaps the largest hidden government expenditure in our country, which is the tax subsidy to employer-sponsored insurance, employer health insurance.

The tax subsidy on employer health insurance-- what do I mean by that? What I mean is the following-- when MIT pays me in wages, I am taxed on that, like the taxation we talked about a couple lectures ago. When MIT pays me in health insurance, I am not taxed on that.

So what does that mean? If MIT comes to me, and they say, would you like $1,000 raise or $1,000 orthodontic benefits for your daughter? I say, well, $1,000 raise in today's tax rates, I'm going to take home about $550. If you add up all the tax I'll pay, then I'll take home about $550.

$1,000 of orthodontic benefits for my daughter, I get the whole $1,000. So why not? So I got these cool braces.

They spin and change color. And every two weeks, she's in for a different kind of braces. It's great, because it's free.

So we do subsidize health insurance in America. And this amounts to-- this program that I just talked about amounts to almost $300 billion per year. We spend almost $300 billion per year giving a tax break to people to buy health insurance.

So that's one tactic we take to try to solve this problem to get healthy people into the market. That's approach one. A second approach one can use to try to get people into the market is a mandate.

Suppose I just pass a law that says everyone has to buy health insurance. Then I've solved the problem. I know what my expected costs are if everyone has to buy.

I know my expected costs are $1,400, so I know I can make money at $1,500. That's easier at one level. I don't have to spend-- $30 billion is a lot of money. This cost me $0.

It's harder on another level. Why? What's the problem with that solution? Yeah.

AUDIENCE: Not having the money for insurance.

[INTERPOSING VOICES]

JONATHAN GRUBER: Well, it may not have it. That's right. What else? Yeah.

AUDIENCE: He may not want it.

JONATHAN GRUBER: The healthy people are going to be pissed. They're like, look, if I had chosen not-- you're going to basically-- the mandate only has an effect if it changes people's behavior. But changing people's behavior means you're making them do something they didn't want to do beforehand. So the problem with that the problem with this is you spend a lot of money. The problem this is you piss off healthy people.

The third approach we could do-- there's lots of examples of a mandate. Obviously, we know about the health insurance mandate that was originally part of Obamacare. But that's not the biggest example.

The biggest example in the US is what's called "Workers' Comp Insurance," which is insurance that you have for on-the-job injuries. If you get hurt at work, your employer pays money so that you get reimbursed when you're-- it pays your

medical bills when you get hurt at work and gives you partial replacement of your wages. That is mandated insurance on all employers in America, except in Texas.

Texas, they can choose. Every other state, it's mandated. Mandated insurance for every employer in America. They have to buy Workers' Comp. So we've examples of that. And that's an $80 billion a year program. That's a big deal.

Finally, we can just provide the insurance. That's actually the most common thing we do in America. Social Security is our program that provides insurance for the elderly, for the costs for survival after retirement.

Medicare is insurance for the elderly we provide. Unemployment insurance is insurance we provide against losing your job. Disability insurance is insurance we provide against having a career-ending disability.

So this is actually the most common thing. Indeed, provision of social insurance in America costs almost-- costs more than private insurance. So we spend about a trillion and a half on private insurance in America. Social insurance is probably about $1.7 to $2 trillion, depending how you measure it. So actually, this is the biggest thing we do is we just provide insurance, and that is a very large solution.

Now once again, what's the problem with this? You don't make the healthy people unhappy, because everyone, you just give it to them. The problem is you have to spend money on this. This is $1.7 trillion in taxes we've got to raise every year. That's non-trivial.

So basically, each of these solutions has potential problems. So the adverse selection problem will cause the private market to fail. There are potential government solutions, but they each have limitations. This one's pretty expensive, this one's super expensive, this one pisses off healthy people.

Now, you'll note the middle one, the pissed-off healthy people is kind of subtle. You don't see a lot of healthy people railing against mandated [INAUDIBLE] Workers' Comp like they did against the health insurance mandate, because people don't know. So in some sense, this one's a little bit subtle, because people have to know.

Basically, it's sort of crazy that I'm paying tax that I'm never getting hurt at work. Am I going to have-- what am I going to do, like slip at my desk or something? Never

going to get hurt at work, but I pay taxes all the time just in case someone else at MIT gets hurt.

Some of the janitorial staff has a risk of being hurt. I'm paying taxes in case the janitor gets hurt. I should be upset about that, but I'm not. And in some sense, it's about what people know, what they don't.

So that is the basic argument for social insurance. But when we provide social insurance despite all these problems, we enter into a fundamental trade-off, which is, let's decide we've determined some optimal government policy. Let's decide that the markets failed, so we're going to do one of these things or are some combination of these things and solve the problem.

The problem is that when you insure people for risks you create a new problem called "moral hazard." Moral hazard is basically the adverse behavior that is encouraged by insurance. When you insure people, you encourage adverse behavior.

So the classic example of this is-- if I have health insurance, I ride my bike less carefully, because if I get in a crash-- I'm not crazy. I certainly don't want to get in a crash, but I'm a little bit less careful because I know I'm insured in case I get in a crash. If I have fire insurance, I don't buy a fire extinguisher for my house, because if it burns down, I'm just going to get the money back anyway.

Or if workers have insurance against losing a job that pays them when out of work, they might search less hard for a new job. Basically, if I lose my job and I got nothing, I'm going to work my ass off to get a new job. If I lose my job and the government says, well, for 26 weeks, we'll give you half your salary while you look for a job, I'll be a little bit less rushed.

And there's lots of evidence that moral hazard is a problem. I comes with two types of evidence. The first type evidence is fun anecdotes. So the great effect that-- workers' compensation, let's take that.

Workers' compensation, it's a program [INAUDIBLE] needed. Lots of people get hurt at work. I don't, but lots of people do get hurt at work. And so it's a sensible social insurance program.

The problem is it has a huge moral hazard component. And there's fun examples of this, like the prison guard in Massachusetts who claimed he got hurt on the job, collected $82,000 in benefits, while the whole time running a karate school and teaching students karate. And finally someone noticed online this guy who couldn't work was running a karate school and doing karate kicks and stuff online.

So there's all sorts of fun examples about that. But more convincing for economists is statistical evidence. And the statistical evidence is clear that moral hazard is a big problem.

For example, if you raise the benefits people get under workers' comp, suddenly they become injured more often and stay out of work longer. There's no reason-- injuries should be because you got hurt. So how can it be that suddenly, when a state raises its benefits, suddenly, there's more injuries?

The answer is moral hazard. When states raise their unemployment insurance benefits, more people leave their jobs and they stay unemployed longer-- moral hazard. So the moral hazard problem is real.

It's an inherent trade-off, actually not just with public insurance. Private insurance, too-- anytime you insure people and something bad happens, you're providing less of an incentive for them to try themselves to avoid that bad thing happening. So moral hazard is a real problem and it's essentially the trade-off.

On the one hand, we talked about why people like insurance. We talked about why people like private insurers because of risk aversion. We talked about why government intervention insurance in markets is necessary. But that comes with the trade-off, which is the more insurance you provide, the less people take care of themselves. And that's the trade-off.

Now, why do we care? Let's just sit back and say, that's an interesting economics concept, but why do I care? Why do I care if someone stays out of work longer, fakes an injury, or whatever? Why do I care about this? Why is this a problem?

It's a problem for two reasons. There's two costs to moral hazard. The first cost to moral hazard is lower efficiency. And the best way to see this is just to think about

the economics of the consumption/leisure trade-off.

Think about how I make my decision of how hard to work. Basically, if there's no insurance, no social insurance, no workers' comp, no unemployment insurance, how do I choose how hard to work? How do I choose how hard to work? How do I do that? What's the trade-off I consider in deciding how hard to work? Yeah.

AUDIENCE: Consumption versus leisure.

JONATHAN GRUBER: Consumption versus leisure, in particular, I will trade them off until the marginal value of the next hour of leisure-- marginal value of leisure-- equals the wage. Because the marginal value of leisure is above the wage, I should work less hard. That means I'd rather be at home.

If the marginal value of leisure is below the wage, that means I'm just wasting my time at home. I should work harder. So I'll continue to trade off work and leisure till the next hour of leisure makes me just as happy as the next hour of working.

And that is the efficient outcome. That is the socially efficient outcome, because leisure is not a social bad. There's nothing wrong with leisure.

People value leisure. They should get to trade off the leisure versus what they get from working till they choose the right amount. That's what makes society best off.

Now, what happens if I say, if you sit at home, you're also going to get a check from the government? Now, what's my new equation? Now, if I work, I still get the wage.

But what happens if I sit at home? I get the marginal value of leisure plus the government check. So now I sit at home until this equation is true, which means that I sit at home until the marginal value of leisure equals the wage minus the government transfer.

That means the marginal value of leisure will be lower than it would be without the government transfer, which means I work what? More hard or less hard? If the marginal value of leisure is forced down, that means I'm doing what? Someone raised their hand. Yeah.

AUDIENCE: More leisure.

JONATHAN GRUBER: More leisure, because remember, there's diminishing marginal value of everything, so I'm taking more leisure, less work. So the government is causing me to work less by essentially saying, look, I'm going to reward you more for staying at home. What does that do?

That means that people work less than is socially optimal. This is the social optimum. This means people are taking more leisure and working less than is socially optimal.

When people work less, that shifts in the supply curve and creates a deadweight loss. Social welfare has fallen. Let me remind you, it's not falling because people take some time off.

Many people on the conservative side of the spectrum will act as if work is a virtue. Work is not a virtue. The optimal solution is to work until your value of working equals your value of leisure.

If you're someone who has a job that you hate and doesn't pay well, and you love watching TV, you should work less. That's what's optimal for society. But you shouldn't work even less because the government's paying you to stay home. That reduces efficiency.

So that's a problem of moral hazard is it lowers efficiency. There is a second problem, of course, of moral hazard, which is if you work less, then we have to tax people who do work more to pay for these programs. So it raises taxation, raises the required tax revenues, raises the tax revenues required.

Because if you're sitting at home more, I've got to make more money to pay for you to sit at home. And we know taxation also causes deadweight loss. So it's a double win. I cause you to stay at home and I cause other people to have to pay more taxes to pay for you to sit at home, which causes them to work less, too. There's a second round effect.

As a result, moral hazard causes inefficiency in society. And that is the trade-off. Once again, I told you, this course is annoying. We don't give you right answers. We just tell you trade-offs.

The trade-off here is we need programs like unemployment insurance, because

otherwise-- let's take the case of unemployment insurance. We'll go through it one more time. Imagine there's no government unemployment insurance, and you said, that's great. I'll offer private unemployment insurance.

Well, that's not going to work. Why? Because people know way more than you do about whether they're going to lose their job. If you tried to offer private insurance, you'd lose your shirt because of adverse selection.

So absent government-provided unemployment insurance, there would be no unemployment insurance. And that would be bad. That would mean people would be subject to a risk that would drive their consumption to zero. Remember, most Americans have no savings.

That mean Americans would be subject to risk where if they lost their job, they would starve. That's a very bad outcome. So it is socially valuable to insure against unemployment risk.

The private market can't do it because of adverse selection. Therefore, there is a compelling case for government unemployment insurance. But with government-provided unemployment insurance, that causes people to sit at home extra and not work as hard. And that's the sort of chain of logic which teaches you the trade-off.

What this says is optimal social insurance-- that in these markets, we're going to want some social insurance, but not too much. We're going to want enough to protect people against starving, but not so much that it causes people to sit at home. So for example, if I told you I'm going to set up an unemployment insurance program, and the way it's going to work is if you lose your job, I'm going to pay your entire wage for as long as you need until you find a new job, that would not be a good idea.

That would cause a huge amount of moral hazard. And remember, compare that program to one where I'll pay you 50% of your wage till you find a new job. Well, 50%, going from 0% to 50%, 0% of your wage to 50% of your wage is a huge consumption smoothing benefit. You go from starving to being able to eat decently.

50% to 100% is an increase, but not as much. But 50% to 100% has a huge moral hazard effect. So you want something more towards the middle, where you're

getting people away from starving, but not so much that they don't work.

So that's the trade-off. So let's talk about that trade in practice. Let's talk about the US Social Security program.

The Social Security program in the US-- Social Security is our biggest single social insurance program in the US. Currently, the Social Security program is about $800 billion per year. That's real money. That's even more than Jeff Bezos has, $800 billion a year. That's more than he's worth, every year.

What does this program do? What this program does, in a nutshell, is it insures you against the income loss you're going to face when you retire. When people retire, they suddenly go from having a lot of income to having no income. And basically, the idea of Social Security is to make sure you don't starve when you're old.

So the way it works is you pay a tax. And if you ever see a line on your pay stub that says FICA, that's what this is for. You pay a FICA tax. It is 12.4% of payroll, half on you, half on your employer.

But it doesn't matter that half is on your employer, because we learned two lectures ago it doesn't matter who pays the tax. It's a 12.4% tax. That's what matters on you.

That money then provides that when you retire, starting at age 62, you get a check from the government. And you get a check from the government that lasts until you die. The check from the government you get is what's called an "annuity." An annuity is a payment.

Annuities are the opposite of life insurance. Life insurance is money that your family gets when you die. Annuity is a regular payment you get until you die.

The way it works, you pay 12 and 1/2 percent of your income all the way through your working life till we turn 62, or you can collect it later. You then get a payment for the rest of your life. That payment is typically about half of what you made when you were working, but it's very progressive, in the sense that for someone who's very poor, it would probably more than half of what they made. For someone who's rich, it would be much less than half what they made.

It's a progressive payment. Everyone gets it. Everyone gets Social Security. But how much you get from it depends on your income. The poorer you are, the more generous it is relatively when you retire. Now the-- yeah.

AUDIENCE: Is it possible as life expectancies get larger, it's going to be harder to have Social Security because if you're going to--

JONATHAN GRUBER: That's a huge problem. It sounds like you should definitely be enrolled in 1441. That's a whole half a lecture we spend on that. I don't have time to talk about it here, but clearly this is a huge, huge-- so just to give you a couple numbers just to keep you up at night.

We all know, we're all talking about the deficit is $500 billion. It's a big deal. If you ask how much has America promised to pay to our senior citizens over the foreseeable future minus how much we'll collected taxes, we are currently, as a nation, $75 trillion in debt. And it's because of the aging society and things like that. We've got big problems coming down the road. We can talk about that another time.

But let's focus on the program itself at a point in time right now. So basically, we see here the moral hazard trade-off. On the one hand, we don't want people to starve when they're old.

On the other hand, if I pay you once you're retired, that could cause you to retire. If I say, once you're retired you're going to get a check, 50% of your wage, you might say, 50% of the wage isn't that much, but I really don't like working. I'd rather just hit the links at 50% of my wage. So that's the trade-off.

Now, how do we think about evaluating that trade-off? Evaluating that trade-off, different countries think about it differently. In the US, we think about it in what I would say is a fairly rational way, which is let's consider your decision to retire at 62 versus 63.

The way it works in the United States is we say, look, if you work one year more, since it's an annuity, you will get one less year off payment. If you start at one year later, you're going to die the same time, you get one year less. So what we do is we pay you more every month.

Indeed, for every year you delay, you get 6.7% more every month, reflecting the trade-off that you're going to get it for a shorter period of time. And that turns out to be roughly fair. Given the expected life of Americans, that's a roughly fair trade-off. Every year you delay gets 6.7% more.

In Europe, they don't have this. So every year delay, you just get less money before you die. So let's take the example of the Netherlands.

In the Netherlands, you can retire at 55 with a benefit that is 90% of what you made. So if you earned $30,000, you can retire at 55 with a benefit of $27,000. And if you decide to work instead, you just forego that $27,000.

There's no bump up of your benefits. That's just one less year of $27,000 you get. So what that means, if you're in the Netherlands, your choice is work and get 30,000 or stay home and get 27,000.

In other words, it's sort of like a 90% tax. Think about it-- by working relative to staying home, I'm only keeping 3,000 of the 30,000 I made. It's basically like a 90% tax.

But that's not all. How do they pay for this program? They tax people. You can't tax people who are at home. You've got to tax workers.

So if you work, you also have to pay a 45% tax to pay for this program and lots of other things. 45% tax is a high tax rate for everything. What that means is if you stay at home, you get 27,000. If you go to work, you get 30,000 times 1.55, or about 18,000. That's 1.6, It's 16, 5.

So your choice is stay at home and get 27, work and get 16, 5. Guess what? No one works. No one over 55 in the Netherlands works, like zero. And they might work on the black market and ways they don't report to the government. But basically, they just sort of sit around coffee shops and spend their retirement money.

So here's a case where they've made a very different decision about how to make this trade-off, which is it's a pretty sweet life for the elderly in the Netherlands, but no one's working over age 55. And that's a different way to resolve this trade-off. So basically, this illustrates different design features of the program.

What makes the Netherlands program have much more moral hazard than the US is the benefits are higher and they don't increase your benefits if you work more. So essentially, these are little kind of tweaky details that turn out to matter enormously for how we think about the program. Now, I hope you find that interesting.

That was a lot to put in one lecture. Like I said, if you find this interesting, there's the whole third of a semester in my class 14.41. So take that. We can learn a lot more about it.