[SQUEAKING]

[RUSTLING]

[CLICKING]

JON GRUBER: OK. The other thing to know is about my lecture style, a couple of points. First of all, I go too fast, and my handwriting is incredibly messy. So please do not hesitate to ask what the hell I just said. You will learn this semester about public goods. You all know what public goods are, which is when you provide something that helps others. If you don't understand something, chances are most of the class didn't understand it. So please don't hesitate to ask, ask to repeat or just ask a question.

This class, if I don't get interrupted, I go faster and faster. And eventually, my head just pops off. So you guys need to interrupt me with questions, thoughts. I understand you guys don't like to talk. You know the joke about Harvard students and MIT students? If you tell a joke at Harvard, they laugh. If you tell a joke at MIT, they write it down.

So basically, please laugh at my jokes. But more than that, please ask questions, not just to understand, but anything, if you're just curious about anything, I'd like this class to be a discussion. Remember, you're not just serving your own interests. Any question you ask is going to be helpful to everyone in the class. So please provide that public good and ask questions.

OK. That's point 1. Point 2 is, I have a terrible tendency to use the term guys as in a gender-neutral sense. So when I say guys, I mean economic agents, men and women, people. I don't mean men. So I'm sorry. It's just a sexist term that I just use in the generic sense of, guys are people. So I say guys, I mean economic agents, not particularly men or women. That's the second one of my teaching style. So that is pretty much the setup of the class. Come to class. Let's discuss, do the problem sets, do the exams.

Oh, problem sets, no problem at all with group work. I don't think ChatGPT is yet smart enough to solve my problems. I hope it isn't. But here's the thing. The problem sets, I should have mentioned, jointly are worth 25% of the grade. The midterm's only 25%. And the final is 50%.

So if you cheat on the problem set, you're only hurting yourself, because the problem sets are the very best practice for the exams, which is really where the bulk of the grades are. So please work in a team. That's great. But make sure you understand what you're doing. Because at the end of the day, if you don't understand the problem sets, you're not going to understand the exams. That's the closest approximate prediction of what will be in the exams. So make sure that if you work in groups, you understand what your group is doing so that you're prepared when exams come along.

OK. Any questions about the class? OK. So the way it's going to work-- if you have the syllabus, the way this is going to work is, essentially, I'm going to do roughly a chapter a lecture, with some exceptions. So today, I'll do chapter 1. This is on the syllabus. Chapters 2, 3, and 4 are background. Oh that's the other thing I need to mention, in terms of prereqs.

Prereq is a good understanding of 14.01. And how do you tell you have good understanding of 14.01? You look at chapter 2. If chapter 2 is like, yeah, I remember all that stuff, I need a little brushing up, that's great. If chapter 2 is like, I don't know the hell I'm looking at, you should not be taking this class. I will assume chapter 2. I will assume you can handle anything that's covered in chapter 2. I won't assume anything beyond that, in terms of math skills or knowing models. But I will assume that chapter 2 can be relied on as base knowledge.

I'm not even going to review it in section. So please, on your own, skim through chapter 2. Make sure that's stuff you vaguely, at least, remember. If it looks foreign to you, you should not be in this class. So that's chapter 2. Chapters 3 and 4 are also background chapters. We'll cover those in section. Chapter 3, we'll cover this Friday, chapter 4 in a few weeks. So I'm going to go, today, chapter 1. I'm then going to go from chapter 5 to 25 pretty linearly, pretty much a chapter a lecture, except some of the chapters will take more than one lecture. We'll end up with 25 lectures for the semester. All right?

So today, we'll start with chapter 1, which is just introduction. I'm just going to teach you out of the book. That's what I want to teach, so it makes it easy. So basically, we're going to start with chapter 1, which is an introduction to what is public finance and how should you think about it. So when people ask what I teach, I say I teach a course about the role of the government in the economy. And roughly speaking, that's what we'll be talking about this semester.

More specifically, we focus on what we call the four questions of public finance, the four questions of public finance. And these are the questions that organize everything we do this semester. The first question is, when should the government intervene in the economy? When should the government intervene in the economy?

The second question is, how might the government intervene? When should the government intervene? How might it intervene? The third question is, what is the effect of these interventions? When should the government intervene? How might it intervene? What is the effect of these interventions? And the fourth is, why do governments choose to do what they do? Why do governments intervene in the way we actually see them doing?

So what I'm going to do is run through these questions in the context of a specific example, which is health insurance. We'll talk a lot about health care and health insurance this semester. It's the largest single expenditure of the US government and many governments around the world. So it makes sense it's a focus of this class. We'll talk about the example of health insurance to guide our thinking.

And here is the key single guiding principle, is to remember that economics, as I say, in 14.01-- how many here took 14.01 with me? OK. I apologize that at the end of the semester, I'll tell the same joke. OK. The key, as I emphasized in 14.01, economics is fundamentally a right-wing science. We assume the market is correct, unless proven otherwise. So the fundamental guiding principle of this class on question 1 is, when should the government intervene is, is there a provable market failure? Is there a provable case that the market is not delivering the welfare-maximizing outcome?

Only then do you go on to the other questions. This is the threshold question. If there's no provable case that the market isn't welfare maximizing, you're done. You don't have to worry about these other things. You need a provable case that the market outcome is not welfare maximizing. We'll talk about many, many of such provable cases. But you need one.

OK. So, for example-- and as we prove in 14.01 and prove again quickly in chapter 2, the first fundamental welfare theorem of economics says the market outcomes efficient under certain conditions. And we want to ask which of those conditions might be violated. So there's essentially two types of reasons why we say the government might want to intervene, or two types of answers to the when question.

The first is market failures, market failures. The market does not meet the conditions that are required for an efficiently operating economy. OK. So let's take the market for health insurance. At first glance, this should be a pretty well-functioning market.

There's something like 300 million Americans or more buying health insurance. There is a price of health insurance. There's a price and quantity of health insurance. There's many firms delivering health insurance. At first, this might seem like any other market. Now, you might say, well, of course, it's not like a market because people are uninsured. Indeed, before the Affordable Care Act, about 50 million Americans were uninsured. Now almost 30 million are.

You might say, gee, well, clearly, the market's broken because there's uninsured people. But that would be wrong. Just because someone doesn't buy something doesn't mean the market's broken. There are people in America without large screen TVs. That doesn't mean the market for large screen TVs is broken. It just means some people have chosen not to buy them at the existing price. So the fact there's uninsured does not mean the market is broken. We need an actual reason why the market is not functioning efficiently.

That is, we need some kind of market failure. So classic example would be an externality. So for example-- and we learned about this in 14.01. For example, imagine that I get sick with a communicable disease. And because I don't have health insurance, I don't get vaccinated or take the medicine that I need to fix that communicable disease. And I come to class, and I get you all sick. COVID obviously is fresh on our minds here. We all lived through that.

That is a classic externality, an example when one party's actions affect another party. In such situations-- we'll cover in depth in chapter 5 and beyond in the class-- this is a reason why the social value of health insurance exceeds the private value of health insurance.

Market failures arise whenever social benefits and costs do not align with private benefits and costs. Once again, we'll go over this in detail next lecture. But that's where market failure's going to rise. A classic example would be if I am not accounting for the fact that I'm making you sick, then my private incentives are not aligned, my private benefit is not aligning with the social benefit. And this is a classic externality.

And in the book, I talk about vaccination as a classic example of government policies to fight this kind of externality. Measles used to be an incredibly deadly disease. About 3 to 4 million Americans used to get them, with about 500 people dying every year from measles. A measles vaccine was invented, and measles largely went away as a problem. By the 1980s, there were fewer than 3,000 cases.

But then in the 1990s, there was a burst of measles cases. And it turned out that basically, what happened was that basically, a bunch of patients had stopped getting vaccinated. And enough patients stopped getting vaccinated that kids were starting to catch measles again and dying from it. So immunization rates fell dramatically, and deaths increased from measles.

In response, the federal government made vaccination for measles free for everyone. And that caused immunization rates to go back up. Immunization rates went back up into the '90s. But then a new problem happened, which is-- I'll try not to be too judgmental in this class, but one of the world's biggest assholes is a guy named Andrew Wakefield. Andrew Wakefield wrote an article in *The Lancet,* actually a reputable medical journal, claiming that vaccines gave you autism.

Now, if you look at his study-- I swear to God, this is true. His study-- and we don't have to be empirical scientists to understand this. His study was, he went to a birthday party and collected data from, like, eight kids. And two of them had autism. And it was correlated whether they'd been vaccinated or not. And somehow, it got published in reputable medical journal. And it became the basis for this view that vaccines are bad for you and cause damage.

Of course, it's false. There's never been any evidence that's true. But it was the kicking-off point for a massive anti-vaccination movement. We all know about it by now. We all know about the anti-vax movement. We know that it led to a massive spread in lack of vaccination for things like measles and an explosion in measles cases. These were often concentrated in particular areas, like-- do we have any Minnesotans here?

No, no Minnesotans. My wife's from Minnesota, so I focus on Minnesota a lot in my examples. They have a large immigrant Somali community. For some reason, the word got around that community that vaccines were bad. Immunizations rates fell to less than 50%. And they had their largest measles outbreaks in more than 30 years.

So that led to other reactions. For example, the state of California started saying, we will kick kids out of school if they're not immunized, and we won't accept any exemptions. Some states said, well, you have to be immunized, but if you tell us your religion forbids it, we'll let you not be immunized. California said no. You're not immunized, you're not going to school. Is that a good policy? That's what we want to talk about. That's what we want to think about. Does that make sense? Is that a sensible way to fight this?

And obviously, COVID brings it to the fore. We all know about the vaccine skepticism and problems in COVID. We may have seen the facts that death rates in red counties, counties that typically vote Republican, during COVID were dramatically higher than death rates in blue counties, correlated with the fact that vaccination rates were much lower in red counties and blue counties. And in general, the estimates are that the availability of the COVID vaccine saved about 2 million lives worldwide-- were saved by the available vaccine. And yet, vaccination rates, even for the first COVID shot, never got much above 70% in the US, and for boosters, are well below 50% and diminishing.

So basically, this notion of, well, there's an externality, should get a vaccine is clearly not percolating through, and other things are coming in. This raises the question of, what should the government's role be? So that's the first kind of market failure, the first kind of answer to the when question. The second kind of answer to the when question is redistribution.

We learned in 14.01 that we have a social welfare function. And the goal of government is not to maximize the size of the pie but to maximize social welfare, which accounts for both the size of the pie and its distribution-- or, at least, some would say. Some people might say the goal's solely to maximize the size of the pie. That's a particular social welfare function. But other social welfare functions would say, no, distribution matters. In that case, even with a well-functioning market, you may want to engage in government intervention for your distribution.

Now, the trick here is that typically, this is going to lead to what we call an efficiency-equity trade-off. Typically, when you redistribute and intervene in economy distribute, you cause inefficiencies. So distribution is rarely free. There are a few cases where it is, where actually, you get a win-win solution of both solving market failures and redistributing.

But, by and large, there's a trade-off. And that's the core of a lot of what we'll talk about this year this semester, is basically, how do you think about that trade-off between efficiency and redistribution? So this is the first threshold. Is there either a market failure or redistribution argument for what you want to do? If not, go home. We are going to trust the market unless you have one of those reasons.

If you have those reasons, you can then turn to how question. If the government sees a market failure, it wants to redistribute, how can it do so? Well, the government has a lot of different tools to do so. I'll just give an overview here. For example, the government could tax or subsidize private purchase. The government could say, look, we think there should be more vaccination, so we're going to make it free. We think there should be more health insurance. We'll offer you a tax credit.

Indeed, the Affordable Care Act includes massive tax credits for health insurance exactly under the argument the health insurance market is not working well. So as a result, we need to subsidize the provision of health insurance. So that's one way the government can intervene. A second way a government could intervene is to restrict or mandate purchase.

The government could say, well, we're not going to change the price, but we're going to either not allow you to sell it-- for example, we think cigarettes have negative externalities. We could ban the sale of cigarettes or mandate you have to buy it. If we think that not having health insurance is negative externalities, we can mandate health insurance, which is, once again, what the Affordable Care Act did. Although, it's subsequently been repealed. That's the second thing you could do.

The third thing you could do is public provision. You could say, look, we think this is a problem that's solved by the government literally providing the good. So the government could literally say, as they do in Canada, we're going to have government-provided health insurance. We think people are not buying enough health insurance. We're not going to mess with the private market stuff. We're just going to have government provide health insurance. That is another way you could approach a problem like that.

And then finally, the last category here is public financing of private provision, public financing. You can say, look, I'll let the private sector provide it, but I'm going to pay them to do so. So an example here is in 2003, as we'll talk about in a number of lectures, the government had a prescription drug benefit to the Medicare program for our nation's elders. You don't need to know about this now. We'll cover it later.

But instead of just giving them a government-provided drug option, they reimbursed private health insurance companies to provide the drugs. So they said, you're going to buy in a private market, but the government's going to pay for it. So that's another way they can go. So there's lots of options. Yeah?

AUDIENCE: What's the difference between 3 and 4, just a form of subsidy?

JON GRUBER: 3 and 4, the difference is, is the private market involved? In 3, the private market's not involved. The government just provides the insurance. So the debate, as we'll cover about Medicare Part D, which-- the other parts of Medicare are literally, government just provides the insurance. This was, no, instead of the government providing the insurance, we're going to hire private insurance companies to provide it, and we'll just pay them.

AUDIENCE: But isn't that just a form of a subsidy, which is 1?

JON GRUBER: The difference is that-- it is a form of a subsidy. These are all sort of related. It is a form of a subsidy. The difference is the government sort of organizes the market more in 4. But they're related. It's a good point, good question. OK. So that's the second question. The third question is the what question. OK. You've decided that the government should intervene. You said there's a justification. You're considering ways the government might.

Well, how do you choose between them? Well, the way you choose between them is by understanding what effect these different interventions will have. To help choose, you need evidence on how these different interventions might work. And that is the area of what we call empirical public finance, which is actually trying to assess what effect different types of government policies actually have.

And here, of course, we have direct and indirect effects. The direct effects aren't fun. That's accounting. Accounting is boring. The indirects are fun. That's economics. That's the effect of the policy that's unintended, but yet, can have a critical impact on the outcome.

So, for example, let's say, before the ACA, the government said there's 50 million uninsured people, 50 million uninsured people. And let's say, we think we can insure each of them for $2,500 each. So that means that we could ensure all the uninsured for $125 billion.

Now, when I was a kid, that was a big number. In the year of COVID, when you guys are hearing lots of trillions thrown around like they're nothing, that's not that big a number. $125 billion-- after all, our spending on health care in the US is 3 and 1/2 trillion. That's a pretty small number, if you think about it. We cover all the uninsured. That's the direct effect. What does that miss? Why is that number wrong? Yeah?

AUDIENCE: [INAUDIBLE]

JON GRUBER: No, I'm just doing the cost for now, just the cost. Yeah?

AUDIENCE: People who have private health care but switch [INAUDIBLE].

JON GRUBER: Yeah. What that misses-- being uninsured is not stamped on our forehead at birth and irremovable. It's a choice. And if you change relative prices, choices change. So if you change the relative price of being uninsured by making going for something bad to something that's good, because you get free health insurance, you could create a lot of people who then announce themselves uninsured to get this free care.

So, for example, basically, imagine that half of everyone who has private insurance dropped it and said, well, gee, why should I pay for my private insurance? I'll just get this free insurance to the uninsured. That would cause the cost to rise from $125 billion to $340 billion a year. Now we're talking real money.

On the other hand, if only 10% of those with private insurance decide to drop it and join the program, that raised the cost to only $165 billion a year. So this is if half the privately insured say I'm going to take advantage of this free program. This is if 10% do. That's a huge difference. What's the right answer? How many will? That's the thing we get at with the what of public finances, try to understand these, measure these indirect effects so we can understand what effect government interventions will actually have. We'll get to the benefits later. This is just the cost.

So that's the what. And here, we're going to come to the heroes of our story, the people, the unsung-- not all heroes wear capes-- the hero story, which is the Congressional Budget Office, the CBO. The Congressional Budget Office, is fundamentally the last thing between us and total collapses of democracy. And I'm only slightly exaggerating. Why do I say that? Because the Congressional Budget Office is a truly-- it's hard to imagine these words still exist in America-- but a truly nonpartisan institution that is in charge of what's called scoring government policies.

So let's say you've got a bill and you want to do something. You want to provide free health care to veterans or whatever CBO takes your bill, takes the bill language, and estimates what it's going to cost. They have models of the type we'll discuss this semester. And they form estimates, including both direct and indirect effects of what it's going to cost. And that becomes the official word for Congress. And basically, what that means is that if you want to do some policy that's fiscally responsible, CBO is going to call you out on it.

So let me give a simple example of why this matters. In 1965, Lyndon Johnson wanted to introduce the Medicare program, which is universal coverage for the elderly. He knew it was going to cost x. He announced it would cost 1/10 x. And he passed it. And no one could really say he was wrong. Now, I like we have Medicare. I'm not saying that was the wrong decision. But it's no way to make a decision. We want to know-- we want our eyes open when we go in and think about government policy. We want our eyes wide open and what we're getting into. And that's going to mean actually having objective scoring of what that is. And that's what the CBO does.

So they really are sort of the truth tellers in Washington about what government policies are going to cost and what they're going to do. And we'll refer to them with great reverence throughout the semester. Now, to be clear, if they're projecting a number, it is, by definition, never right. It's impossible to project these things correctly. All you want is that the errors are symmetric. You just want an organization, which is not going to get it right-- you can't hold them by how right they get it. You just want to make sure their errors are not too large and symmetric.

One way to see that they achieve that goal is, both parties hate them equally. That is a good sign. If any party ever starts defending CBO a lot compared to the other, then that's a problem. So we'll talk about that more in the semester. And then the final question in public finance is the why. Why do governments do the crazy shit they do? Why does Canada have single-payer coverage and we have this mixed private-public system?

This, at least, is the field of what's called political economy, political economy. Now, this is a really an entire subfield of economics. You can take entire classes on that. In fact, we have the world's leading political economists right here at MIT. You can take entire classes on that. We will, unfortunately, devote a lecture to it, which is really unfair. It's just it's kind of not fun and depressing.

Basically, we're going to spend the semester talking about what a benevolent government should do. And then we'll spend a lecture talking about why governments aren't benevolent and they screw everything up. And then I'll say, oh, well, let's go back and assume what benevolent governments can do. That's not quite right, because throughout the semester, I'll talk about some political realities that intervene in doing the right thing.

But political economy is fascinating. It's really important. It's increasingly important. And we'll spend some time on this semester but not nearly as much as it deserves. OK. Questions about the four questions? Yeah?

AUDIENCE: I'm just curious. Who's the person who does a lot of the work [INAUDIBLE]?

JON GRUBER: Well, no, we have economists. We have many. We have Daron Acemoglu, Ben Olken, Abhijit Banerjee. We just hired a guy named Jacob Moscona. We have a ton of-- really, we have, by far, the best group doing that in the world. And probably the single book and political economists book called *Why Nations Fail* by Daron Acemoglu sold, like, a million copies. It's probably the central book of political economy today.

All right. Other questions? OK. So now let's go on to the next thing I want to cover this lecture, which is, why should we care? What's going on? Why does any of this matter? And to do that-- we're at MIT. I want to motivate that with some facts. So let's go to the handout. You should all have grabbed a handout from up front. By the way, every lecture, there will be a handout to pick up. Make sure you pick it up. Also, if you have the book online, you can look on your laptops. It's not a problem. You don't have to look at it on paper.

But if you don't have your laptop, you don't have access to the chapters-- the handouts will always just be tables and figures from every chapter. If you access to the chapters online, great. If not, you can grab a handout. OK. So this is from section 1.2 of the book, which is the facts about the government. Let's go through facts about the government. Figure 1.2 is the growth in the size of the US government, the percent of GDP that is spending by the federal government over time.

What you see is that when we started collecting this data around the Great Recession, the federal government was very small. About 5% of GDP was government expenditures. It then exploded during World War II, then settled back to a slowly-rising trend, really peaking in about the 1980s. Then it went back up om 2010. If this graph went into COVID, you'd see a big peak in 2021. 2021, the government spending went up to over 30% of the economy, the biggest since World War II. And now it's back down to about 25% of the economy.

So basically, if you want to extend this line, it goes up to about 30% in 2021. And today, it's back down about 24%, I think, of the economy. So this raises natural questions, such as well, what is the right percent of the economy for the government? And why did it grow? And is it good that it grew or bad that it grew? You should be looking at graphs like this. That's the central question you want to ask yourself, is, what does this all mean for what the US government's doing, both what it's done and what it should be doing?

So that's one sort of facts we'll look at. And comparatively, you can look at figure 1-2. This shows the growth of government spending. Now, let me be clear. Sometimes these figures look contradictory. If you note, the US line in this figure is higher than the previous figure, that's because this includes all of government-- federal and state and local. I'll come to that in a minute. This is total size of government. And what you see here is, you can see the US growth in the orangish line. And you compare that to the average among developed countries.

Our indicator developed countries is called the OECD, the Organization of Economic-- I don't know what it stands for. O is for Organization. I know that. And that's our set of developed country counterparts. You see, actually, we started about the same place as OECD in 1960. OECD countries have grown somewhat more than the US over time, although they've come back in line.

You see two interesting different patterns in Sweden and Greece, just two examples. Sweden, spending by the government exploded in the 1970s, to the point where, by 1980, 2/3 of all activity in the Swedish economy was government. That was a huge number that persisted for a while, but it started to fall again over time. Sweden then started reducing that over time, and it's actually come back down to about 50%.

Compare that to Greece, which, for many, many years, was well below the OECD average and then exploded in the 1990s, ultimately leading to what we know as the Greek debt crisis about a decade ago, and is now spending at a level that's comparable to Sweden and above the OECD average. So once again, lots of different patterns-- why did Sweden explode in the '70s then come back down? Why did Greece explode later? These are the kind of things we want to try to understand. And what were the effects of all those?

Fact number 3, figure 1.3, the highly-technical figure 1.3 shows the division of what the US government does between federal and state and local expenditures, or what we might call the central and the decentralized part of the US government.

Now, what you see here is, federal expenditures are about 2/3 of total government expenditure. Now, that actually is pretty steady over time but changed dramatically during COVID when the federal share went much, much higher. Now it's slowly returning back to that long-run steady state-- and differs enormously across countries. We'll see in Chapter 10, where we discuss this, the US government is relatively unusual in how little is done by the central government. Most other countries have a much larger share of the government expenditures run through the central government than the US does.

We have a relatively decentralized government. A relatively large share of our spending goes through states and localities as opposed to the federal government. This raises a set of questions you probably haven't thought a lot about, but which are really interesting, that go into the name of fiscal federalism, which is, what should be done at what level of government? Why is defense done by the federal government and education done by towns? Why are roads and police done by towns but welfare programs, like Medicaid and the FTC, are run by states?

Does it make sense? Is it done for some random historical reason, or is there actually a strong theoretical basis behind it? I'll argue there is, actually, and that, actually, there's a solid explanation for why we distribute things the way we do. And that's the purview of what we call fiscal federalism, which is what we'll cover in chapter 10. So that's the third fact I want you to focus on.

The fourth set of facts are around the government's budget balance. Now, this course is distinctly a microeconomics course. We'll do incredibly little macro. Basically, the only macro in the book is contained in chapter 4, which you'll cover in section in a few weeks. But this sort of notion that deficits are bad lies behind a lot of what we'll talk about throughout this semester.

Now, is that notion correct? You'll talk about it in section in chapter 4. But nonetheless, it's a focus of a lot of what we'll talk about as an underlying-- in other words, we're going to talk about throughout this notion that the government doesn't have an unlimited budget. It's got to eventually pay its bills. In chapter 4, we talk about why that's a framework that makes sense and where it comes from. But for the rest of the book, we'll just take that as given.

Now, what are the facts on the government budget? Well, it's rather interesting. Once again, you see that expenditures we saw before-- this is now back to the federal level only. You see, revenues, except for World War II, were largely in line with expenditures. And therefore, except for World War II, until about the early '70s, we had a zero surplus or deficit. That is, government spending was about the same as government revenues.

Then, starting in the 1970s, we started building up large deficits. That's the second panel, the numbers going below 0. And you see the gap between the red and blue lines growing. OK. We started to build up large deficits. Then in the 1990s, there was a boom in tax collections that, actually, we closed the deficit and actually briefly went into surplus. I remember was very excited. I was in the White House. I was in the Clinton administration. I got to be in the White House when Clinton did this big celebration about how we'd move to surplus, and we're going to end the national debt.

And then what happened was, of course, what always happens, which is, once President Bush got elected, we went back into deficit. That deficit got significant during both Bush and Obama handling the Great Recession of the late 2008, 2009 period. And we'll talk some about why the Great Recession led to such a boom in the deficit. It then started to close, and then COVID hit. And once again, this graph stops at an early point. You'll see there the deficit explodes during COVID again because the massive federal spending on the economy. And we'll talk about what that federal spending was. And now it's starting to close again.

So basically, if you extend this graph, you'll see the red line going way up. Like I said, we went up to about 30% of GDP in 2021. The blue line stays pretty much the same. And eventually, now, the red line is coming back towards the blue line. But we've got very large deficits now. The result is the national debt. Deficit's a flow measure. Debt is a stock measure. The debt is the accumulation of all past national deficits.

And what you see is, we had a modest national debt to World War II. World War II caused the national debt to spike at about 120% of GDP. It then fell over time. Now, here's the clear thing. Here's the key thing. When you're talking about aggregate concepts like debt or deficit, never talk about them in dollars. Politicians are very good at this. When they want to make a number sound big, they'll talk about it in dollars. To make a number sound small, they'll talk about it as a percent of something.

We aren't politicians. We care about things right. The dollar amount doesn't matter. Dollars are worth different times a different period of time. We know that. You'll review present discounted value in chapter 4. What matters is the share of the economy, how big is the debt. And what you see is, from the end of World War II all the way to 1980, the debt shrunk enormously a share of the economy, not because the debt fell-- because the economy grew, and the debt didn't grow as fast.

So we basically grew out of our debt in that period. Then deficits started to rise and the debt accumulated again. It flattened out a bit in the 2000s because we had gotten the small deficits. Now it's exploded. Now we're currently at approximately where we were at the end of World War II, about 125% of GDP. The debt's the largest it's been now in 70 years, 80 years. So once again, how do we about that? Yeah.

AUDIENCE: When we say that we grew out of our debt, is that referring to the economy is growing, or did we just inflate away the data?

JON GRUBER: Well, that's a great point. We nominally grew out of our debt. And once again, you'll cover this in chapter 4. What that means is, the debt is denominated in nominal dollars. The nominal economy grew massively. Some of that was inflation. A lot of it was underlying growth. Good question. So where does that put us in national context? Well, if you look at figure 1-5, that shows where our debt levels are relative to other countries. We were right in the middle. I'm now revising the textbook. We currently have the second-biggest debt in the world. So we've gone from being right in the middle in this graph to about second in the world with our debt.

So we're large. There is, as I said, what you'll cover in chapter 4. There's a constant debate about whether it's too large, how worried we should be. We don't need to get in that debate other than to say, in general, we're going to operate under the concept that all else equal, it's better to not spend money than to spend money. All else equal, we don't want to burn money, that that's the underlying principle with which we'll operate.

Now let's now turn to-- oh. Then it was interesting-- if you look at figure 1-6-- that's interesting. This is state and local. Note the difference the way state and local governments operate. State and local governments are generally in surplus and never in deficit. Why is that? Well, because it's the law. States have what's called balanced budget requirements that mandate that they can never be in deficit. And I think, well, that's a good idea. Why didn't the federal government have that?

Well, that's a great question. That will be part of what you discuss in chapter 4, we'll discuss elsewhere. But the answer is, because of the macro stuff we don't cover, that basically, a standard way to fight macroeconomic cyclical fluctuations through government spending, that's the standard Keynesian model. And you wouldn't want the government not to be able to spend in bad times, which is why, even if a state-level balanced budget requirement makes sense, a federal level one does not.

Now, the next thing we're going to talk about is, what does the government actually do with all this money? And that's in figure 1-7. This shows-- figure 1-7, there's four panels. The left panels are for 1960, the right panels for 2019. The upper is federal government, the lower state and local government.

And this, I think, will have a lot of facts you may not have known. For example, in 1960, the federal government basically spent about half its dollars on defense. And other stuff was small. In particular, education, housing, and welfare was about 3.6%. And healthcare spending was 2.7%.

Today, healthcare spending is the single largest thing the government does. It's gone up tenfold. So over the 60 years from 1960 to 2019, healthcare spending went from 2.6% of the government budget to 30% of the government's budget. Defense shrunk from 47% to 14%. Social Security's gone up some. Net interest is comparable. And basically, as the economist, Paul Krugman wrote, the US government has become a large social pension fund with a small army attached-- is kind of where we are. We've changed massively in how we spend our dollars compared to 1960.

Now compare that to the state level. At the state level, things haven't changed as much. Health spending has also grown at the state level. Education spending shrunk a little bit. Other, whatever it is, is about comparable. What's more interesting is less the growth. It's more interesting, the comparison from up versus down. Look at the fundamentally different things that the federal government and state and local government spend their money on.

The federal government's spending its money on health and Social Security and defense. But education, welfare, and housing together are 8%. Well, a third of what state and local governments spend the money on is education. And they spend nothing on defense and, comparable, somewhat less on health. So that raises a question I already asked, which is, why are these different spending done in such different ways at different levels of government? Does it make sense? What are the effects of that? That's a really fascinating question that we cover under fiscal federalism.

Now, that's how the government spends its money. How does the government raise its money? Well, figure 1-8 gives the source of federal receipts. Now, here, what's interesting is-- once again, 1960 versus now 2020. Top is federal. Bottom is state and local. What's interesting here is, first of all, the share of federal revenues from income tax has basically not changed. We consistently get slightly less than half of our federal revenues from income taxes.

Now, we'll talk about what income taxes are later. We'll talk about different kinds of taxes. Basically, with different kinds of tax, we tax income tax on your whole income. On the other hand, we have what we call social insurance contributions or also payroll taxes, which are that FICA line and Medicare line on your pay stub. Those are collected just on your pay but not other income. That's where the real change is. And then we also have corporate taxes, which is taxes on the profits made by corporations.

And here's the fundamental change. We've gone from corporate taxes being 23% and social insurance being 17% to corporate taxes being 6% and social insurance being 39%. We've basically massively shifted from corporations paying taxes to pay to workers paying taxes. How do we feel about that? Well, at first, that sounds bad. Big corporation should pay tax, not workers. But then you realize that corporations pay the workers. And if they pay taxes, maybe they'll have less money to pay the workers. And maybe it's not such a big deal at the end of the day if it's corporate tax or worker tax. It's all the same pot.

There's a bunch of money firms pay. They either pay it to workers or keeping profits-- doesn't really matter. It gets taxed. Which view is right? That's what we'll cover in chapter 19. We talk about tax incidence or the question of, who actually bears the taxes? Think about, what does it mean that our economy has gone from one which collects a large share of its revenues from corporations to one which collect a large share of its revenue from payroll?

Now, that's spending and taxes. But it turns out, much of what the government does does not involve much money. And that's the regulatory role of the government. So, for example, the FDA, the Food and Drug Administration, approves all the food you eat, all the beverage you drink, and all the drugs you take. Now, the FDA, their budget is only 0.025% of the federal government budget, but their regulations affect on the order of $3 trillion of goods annually. So they have an outsized effect, not a lot of spending, but a huge regulatory effect.

Likewise, if you think about work and think about safety at work, the OSHA, the Occupational Safety Hazard Administration, regulates the safety of workplaces. Once again, the agency only has 1,850 employees, but it is responsible for the safety of over 10 million work sites in America. They regulate work safety.

If you listen to radio or watch TV, that's regulated by the Federal Communication Commission. And they've got a massive reach. And then, of course, the water you drink, the air you breathe, that's all regulated by the Environmental Protection Agency, which has a large staff, but once again, small relative to the giant environment it's regulating.

So the government has both fiscal roles in spending and taxing and regulatory roles as well. Now, what we'll do in this book is, we will cover both of those roles. Let me give you a quick overview of where the story is going. So what we'll do is, we'll start in chapters 5 through 11 in talking a lot about what the government's role is in dealing with externalities and public goods. And that's largely a regulatory role. There's some spending and taxing, but that's largely a regulatory role.

That's the first segment of the course, is externalities and public goods. We'll talk about environment, environmental externalities, health externalities. We'll talk about education. We'll talk about state and local public finance. And we'll talk about how you do cost-benefit analysis.

The second third of the course is the social insurance function of the government. That's Social Security, health insurance, all the stuff the government does to insure us. That's largely about spending and taxing. And that's the second third of the book. The third third of the book is, how do we pay for it all? And that's taxation. And then we'll cover all the various forms of taxation, how taxation affects our behavior and the function of the government. So that's where we're going in thirds. The midterm is going to cover slightly less than the first half of the course, the first third and some of the social insurance stuff. So that's where we're going.

Now, the last thing I want to talk about today. Let me see. Are there any questions about this so far? OK. The last thing I want to talk about today-- I'll let you go. I usually won't let you out early. But I don't like going to next lectures. I like to keep it a little clean. So we'll start chapter 5 next time.

Last thing I want to talk about today is, why is this a particularly exciting time to be taking this class? Now, in all fairness, I say that every year, OK? But the answer changes. This is a really exciting time, I would argue, for two reasons. The first reason is because we have lived through the largest shock to the US-- probably society-- in a hundred years, which was COVID, or at least 70 years since World War II.

And COVID fundamentally shook up the whole relationship between the government and the public, shook up the whole relationship. So think about the when question. When should the government intervene? Basically, under COVID, the US government took charge of the US economy in a fundamental way it never had before. We spent-- we never did stuff in trillions before COVID. It was billions.

Now we're in the land of trillions. We spent $3 trillion essentially trying to keep the US economy afloat during this fundamental shock, between money sent to unemployed people, between money we gave to firms to try to stay open, money we gave to schools to make sure that they could still provide their services, even though students weren't in house, money we gave to states and localities, et cetera, money we gave to hospitals who are dealing with being overwhelmed by COVID patients, et cetera. We just gave away money on a magnitude we never had before.

So the question is, was that justified? That's the fundamental when question. Should we have done this massive intervention-- to be fair, bipartisan, under both Trump and Biden? Then there's the question, the when question about vaccines and about the regulatory role of the government. Should the government have mandated vaccines? Should it have mandated vaccines stronger or weaker? Should the government have mandated masks? Should they mandate it earlier or later? What should the government have said about social distancing?

COVID is so interesting because it was the biggest government intervention in our economy we've seen in my lifetime, in terms of the government coming in and regulating so many aspects of our life, spending so much money. And now the dust is starting to settle, realizing we might not have done some things right. And what lessons can we learn? And how can we use those to be prepared for future government interventions? OK. Pandemics are no longer going to be once a century. They're going to be more frequent than that. So how are we going to be prepared to deal with them? So that's the when question.

What about the how question? Well, let's think about how the government dealt with COVID. The government dealt with COVID in very different ways. On the one hand, the government provided a lot of-- spent money directly to people to support them and sent checks to people. It gave out a lot of unemployment insurance. Democrats like that.

On the other hand, the government gave a lot of money to businesses to try to keep them afloat, things like the Paycheck Protection Program, which was loans to small businesses to stay afloat. The Republicans proposed and like that. So there are different ways the government handed out money. There are very different ways the government regulated, with Republican-leaning states tending to have looser regulations on masks and social distancing than Democratic-leaning states. So the how the government should intervene was also critical during COVID.

So what are the effects of intervention are fascinating because we've just run the largest experiment in public finance in decades. What effect did it have? Indeed, we'll talk sometimes-- there's an organization in Harvard Square called the National Bureau of Economic Research, the NBER. This is the nation's preeminent nonpartisan economic think tank. They issue working papers, which are ongoing research in the field. And basically, over the first nine months of COVID, about a quarter of all working papers issued by this group were related to COVID.

There's been a massive study of the effects of all these interventions. We've learned really interesting things about the effect of more generous employment insurance, about the effect of mask mandates, about the effect of money to businesses to stay open. We've learned things from comparing the US to other countries. We've learned lots from this-- we've run a massive experiment, and we're learning from it.

And then, finally, there's, why does government do what it do? So here's a fundamentally interesting question. In the US, when COVID hit, we basically let companies shut and gave people unemployment insurance. In Europe, they paid companies to stay open and didn't give unemployment insurance. Which was the right approach? How do we think about that? Why did they do things so differently? That's the questions we'll tackle in political economy.

So that's the first reason why this semester is particularly interesting, because we've just run this massive experiment that we're starting to learn about and we can learn from. The second reason is, this course is always incredibly fun and tense to teach an election year. And there's no more fun and tense election than this one. I don't know about fun, but tense.

We are going to be hearing and seeing a lot of things that will bear on public finance throughout this semester. There's going to be a lot of current topics that are related. I am eager for folks to bring them up and discuss them. My partisan leanings are well known, but I'll try to be pretty objective. I'm actually, in the scheme of things, a fairly centrist Democrat. So I'll try to be objective. I want to hear people's opinions. I want to hear questions you're thinking about as you're thinking about this election, regardless of whether it determine your voting.

Just this election is going to raise-- should we tax tips? Both candidates now propose getting rid of the tax on tips. That turns out to be a terrible idea. I'll tell you why. So I'm not going to be shy about my opinions, but that doesn't mean that you shouldn't push back. If there are things that you don't understand, if you disagree, if there's just things that have been covered in the news this election you want to talk about, let's talk about them. This is the time when public finances in the news, hopefully a lot. Hopefully, it's not all news about personal foibles and vote stealing, but rather, news about public finance questions. And so it's a great semester for discussing those.

So, once again, I really urge you to fight your MIT instincts to just write everything down, and instead, to go ahead and ask a question. And recognize that there are no stupid questions, that any question you ask, many of your classmates also have. And you're helping them out by asking them. So I hope we'll take advantage of this election season to motivate a lot of interesting discussion we can have. OK? OK, thanks.