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**FRANK  
SCHILBACH:**

All right. I'm going to get started. This is Lecture 23, about policy with behavioral agents, the last lecture of 14.13, for better or worse.

OK. So what's the plan for today? We're going to talk about paternalism, what is paternalism, reasons for paternalism, why it might be popular or not. We're going to talk about the specific example of what was coined as libertarian paternalism. I'll explain more, which is the Save More Tomorrow plan, what's good about this specific example. And we'll discuss that.

And finally, we'll talk about some market solutions. Often one solution that's often mentioned is to say, well, why can't the market solve these kinds of issues. And we're going to talk about why that may or may not be a good idea.

So then, let me just ask very simply to start with, from your classes that you've taken in economics and otherwise, what are some reasons for government policies? And it doesn't mean that you necessarily endorse those reasons. But what are the reasons why the government, why we might want the government to engage in an economic or other sort of government policies?

So one reason might be that people don't quite know what's good for them. And so we can potentially help them by doing so. That's, of course, the reason-- that's, of course, what we're going to talk about today. Let me rephrase my question.

In neoclassical economics, what are reasons for the government to engage? The behavioral ones of course, we're going to call externalities, which is essentially people must optimize in certain ways. But what are the neoclassical reasons for the government to engage?

So this would be things like externalities. This could be individuals causing externalities. Externalities, essentially, is a fancy word for people causing some positive or negative effects on others that they might not be able to internalize. This could be smokers or individuals doing that. Like, for example, smoking might cause health effects on others.

Could be also farms polluting the environment or polluting water or some other resources of other people polluting like-- otherwise the air, and so on, and so forth, which might be bad for others' health. And to the extent that the firm or others are not sort of taking that into account, that will lead to socially sub optimal outcomes. Now the government would say, well, let's tax that. Because we want to make sure that people are taking into account these externalities. And with the optimal tax schedule, potentially, these can get back to the [INAUDIBLE] potentially.

So usually the terms that look like free markets, et cetera, they essentially will-- the free market will achieve that things are efficient and potentially under some conditions. But what the market will not typically achieve is some form of equity. And to the extent that we are interested in that, you might want to engage in social security, insurance program, unemployment insurance, and so on, and so forth.

So if you have lots of competition, the prices will fall down to often marginal costs. And that's good for consumers because stuff is cheap. It could [INAUDIBLE] only one firm, the firm, the monopolist in the [INAUDIBLE] case, the monopolist will charge above a marginal cost. So prices will be higher, fewer things will be sold, and people will be less happy about that. And then there's sort of this antitrust in 1420, as you say, exactly Nancy Rose and others are working on that, antitrust commissions, et cetera, trying to essentially make sure there's sufficient competition in markets because we think that's good for welfare.

So there's other sort of market failures. For example, public goods, parts, and so on, the government might want to provide that. Because in general, people might under-provide that. Could be also other things, like information, [INAUDIBLE] information, tend to fail, reason being that, when I come up with an idea that's useful for a lot of people, I might not be able to internalize the rents from that if I'm under investing, therefore, in R&D, and so on.

So now I think we have all the things I have on my list. There's macroeconomic policy, as Tom just mentioned. The Federal Reserve might try to [INAUDIBLE] its interest rate and fiscal stimulus.

Competition policy, that's what Even just mentioned. Then there's just redistribution, social insurance. I think that's what Justin said on unemployment insurance, social security, and so on.

And then there might be externality. That's what Natalie said, particular taxes and other sort of market failures, such as innovation. That's what Jose, as well, said.

What we're going to focus on now is none of these things which, and that's getting back to what we said at the very beginning, which is the internalities. So that's not a traditional way for governments to engage. And if you went back, like, 20 years from now, the government, there would be no such urge to use such considerations. But more recently, in part, perhaps, as a consequence of the rise of behavioral economics, people are much more interested now in internalities.

So what are internalities? It's essentially sort of similar to [INAUDIBLE]. The coin is very similar. Instead of causing damage or not internalizing sufficiently effects on other people, this is now effects on your future self, essentially. So that the consumer is not fully [INAUDIBLE] the costs and/or benefits she imposes on her future potential self. And if the government is sort of now confident that that's the case, well, then, the government might want to intervene.

Now what's paternalism? Paternalism is essentially a version of that. There's a very convoluted definition by the Merriam-Webster dictionary, which I'm not going to read to you. But it is one definition.

And there's a better one from David Laibson, which is "An attempt to influence or control people's conduct for their own good. In other words, when the motivation for the intervention is not about externalities."

So it's to say if we try to affect people's behavior for their own good in some way, that sort of assumes, of course, that people are not fully optimizing in certain ways, not when it comes to their effects on others, [INAUDIBLE] the effects on themselves, [INAUDIBLE]. OK? [INAUDIBLE]. There was a question?

Now when is paternalism warranted? Because [INAUDIBLE] going through the list of topics that we discussed in the class. And it's important to understand that not all of these topics are, in fact, warranting intervention. For example, if you think people have certain risk preferences, reference-dependent preferences, or social preferences, that's not a bias or problem that we need to fix. People care about others. And that's just the way their utility function is like.

And then you show that people can optimize accordingly. That's not necessarily a bias or a problem. Of course, if there's problems with self-control, problems with people at [INAUDIBLE] inconsistent preferences, we might want to help people. That assumes, of course, that we know which self is the one we want to support.

There's lots of space here, when we think about non-standard beliefs, for people to make mistakes, or for our governments and others to intervene. This would be limited attention, also things like memory, like, people just forget stuff. Learning failure is where people have just wrong information. Overoptimism, overconfidence, projection, and attribution bias, these are all essentially people that make mistakes in some ways. And to the extent that they make mistakes, we might want to intervene.

Importantly, we discussed this already, motivated beliefs are not necessarily a reason, or going to be very careful with that. That is, as we said previously when we talked about health issues, for example. So if somebody does not want to know their health status because they want to feel happy or make themselves think that they are happy, and they don't want to know that, because they want to have a few years of their lives in which they think can [INAUDIBLE] themselves into thinking they're happy, healthy and happy, it's not obvious that they're making a mistake.

In a sense, they could be making a mistake. Because potentially, there could be health investments or health behaviors that they could engage in to improve their behavior. But it could also just be that, look, there's actually not much one can do.

And so now, if we intervene, we might actually make things worse. Because they're somebody who actually doesn't even want to know what's going on. Often, that's actually the case. But instead of just flagging that for motivated beliefs, when people derive utility from beliefs, things get tricky quite easily.

And then we talked about non-standard decision-making, gender discrimination. There's a clear case for intervention if people don't get treated the right way, as they should, or any other discrimination. And then we talked about these other aspects here.

Of course, then, defaults, frames, and nudges are not necessarily reasons to intervene. These are more like instruments that we can use to intervene. You can set defaults, or frames, or nudges in certain ways that help us to make people make different choices in ways that are potentially fairly cheap and then also in ways that don't really necessarily distort behaviors of everyone. I'm going to get back to that in a second.

And when it comes to poverty and mental health, these are more like aspects that we say, if poverty affects people's decision-making, it causes behavioral biases, or low productivity, and so on. Then things like cash transfers, [INAUDIBLE] might help business [? sincerely. ?] Not sure that's counts as paternalism. That's more, like, sort of support programs.

And then things like happiness and mental health, here you would think about if you think people are misoptimizing in certain ways, they sort of underuse psychological services, or if they sort of misoptimize in various ways, but we think they could be experimenting more, they could be doing more things to improve their own happiness. Perhaps there's some ways in which you could push people to experiment more and try to figure that out.

Notice that I'm sort of careful here in my wording. I'm saying "pushing people to experiment and trying things out" as opposed to, like, pushing people to do certain things. For example, if we said people should be working more and they work to more or working less. And while it's very hard for the government to actually understand what's good and bad, but it could be that people are maybe working too much.

And you could sort of push them towards trying to think about it. And then see that, OK, they want to experiment and sort of learn more. Would they perhaps be happier by doing so? Any questions on this?

So then there's different forms of paternalisms that you can think about. There's hard paternalism and there's soft paternalism. And what's hard paternalism, essentially forcing choices on people, changing prices significantly, and mandate choices or procedures, outlaw products, including taxes.

So you think of taxes as sort of changing prices. You can make things cheaper. You can make things more expensive for people. You can subsidize things. You can outlaw [INAUDIBLE].

Hard paternalism, if you're really significantly changing people's optimization problem in pretty harsh ways by essentially changing prices, potentially making some options infinitely expensive. Right? It's just to say, look, I'm just not allowing you to buy certain goods. You can think of the price as just being infinitely expensive for those goods.

So that's hard paternalism. Now in contrast, there's other forms of soft paternalism. There's two versions of that. There's what's called the libertarian paternalism, which is Thaler and Sunstein are known for, which are essentially policies that constructively influence behavior while preserving or nearly preserving freedom of choice.

But that's essentially nudges that we talked about previously. Essentially, they're saying, you can choose whatever you want. But I'm trying to influence your behavior in some ways that push you towards some options or some outcomes that we think are better than others.

Right? Notice that the government, or the policymaker, needs to be very clear on what's good and what's bad. And then, sort of try to understand if maybe here's some good behavior that we have identified, let's now try to push you towards that direction. But since we're kind of unsure what people want, we're not sort of trying to exclude some options for some people because you might make things worse for some people, but instead just try to push you towards that.

Very much related to that is what's called asymmetric paternalism. This is the term from Camerer et al., which are policies that help people who make mistakes while interfering minimally with people who behave optimally. That is to say, you want to be careful. If we see people doing certain things, you want to be careful not to make things worse for some people.

Suppose there are some people, for a share of the people, like, half of the population, as behavioral agents, they make a bunch of mistakes. And half of the population doesn't make mistakes at all. Now you could say and some people are smoking and some people are not smoking in each of these.

You might say, well, the smokers are making mistakes. The behavioral smokers are making mistakes. So let's help them. So they're going to tax smoking. Right?

Now what's going to happen is, well, you might just improve some outcomes for those people. And that might be good. But there will be other people who just like smoking. And they're just happy, very happy to smoke.

And they know that there are health risks. But they decide to smoke anyway. If you now start to tax smoking, you're going to distort their choices and make things worse off for them.

So in particular, asymmetric paternalism is trying to avoid that by essentially saying, look, we will try to come up with some policies to make things better for some people. But we want to be very careful not to make things worse for others, in particular, people who are already optimizing, anyway. OK?

And so libertarian paternalism is a version of that. Or it's just very closely related. Which is essentially to say, if you preserve or merely preserve freedom of choice, then it often follows that you're not going to make things worse for people optimizing anyway. Right?

Because if somebody is optimizing anyway, and I'm just essentially sort of providing these small nudges one way or the other, then often, I'm not going to make things worse for people optimizing anyway. That's not necessarily always the case. But it's pretty much closely related.

I'm saying there could be some people who just smoke-- they have, like, five cigarettes a day, or one cigarette a day. And suppose there's two types of people. There's one type of people who are essentially making mistakes. They have internalities in the sense that they misunderstand the consequences of smoking for their future self. These are people who make mistakes.

Now those people who might want to help by increasing the price of smoking, by taxing it, or in other ways. OK? But there could be other people who essentially are fully aware of the consequences of smoking for their future health. And those are optimizing. And they're essentially in the optimization to decide that smoking is optimal for them.

Those people might be made worse off by cigarette taxes. Because essentially, what you do, what those taxes are, any other taxes, you distort people's behaviors. And then you have a situation where we have potentially made some people better off, but also other people are worse off. And a lot of people would then be upset or unhappy about this. Because they say, like, look, those people who screw up their choices or they don't know what they're doing, we're trying to help them. But now that comes at the cost of others who actually prefer optimizing it.

And in some sense, that gets you in trouble. Because there will be unhappy people on the other side of it, and potentially, quite a few of them. All right.

So what are the arguments against paternalism? Or why is paternalism bad? You might say that sounds pretty good. But, like, now, if you try to actually implement this, what's bad about it?

So one typical argument is to say, well, people make mistakes. Well, the government is made out of people. And so, how do we know that the people who run the government actually know better than people choose for themselves? And if the government is also making mistakes, then, essentially choosing for others, it's not clear that it makes things better. Or it could make things worse. In particular, if you think that the government doesn't have enough information. [INAUDIBLE].

So I know what's best for me. And so therefore, I'm best equipped to make decisions for myself. It might potentially, in particular if there's heterogeneity, it might make some people better off. But that might come at the cost of some others. And then it's not clear that on average or overall making things better.

[INAUDIBLE] very important [INAUDIBLE] in particular that comes up a lot in 14.75, for example, which is Political Economy, that will come up often. Because while we might want to help people, want to give people money, but then the government gets essentially-- the village government or whatever gets captured by elites [INAUDIBLE] keep the money for themselves. And so the more, the more opportunity they get for that, [INAUDIBLE] resources and power, the more opportunity they give for misuse, and corruption, and so on, and so forth.

And so that's essentially saying that-- so this one class up argument is to say, well, even if the government wanted to do the very best for people, if the government wanted [INAUDIBLE] for its citizens, that would be hard to do. Because it doesn't know how to do that. There is inherent problems with that because of heterogeneity, knowledge issues, and so on, and so forth.

And then, there's a second type of argument, which Tad just mentioned, which is, well, who's there to say that the government is actually benevolent and actually wants people to be better off? Maybe they just want to get rich, and so on, and so forth.

And so now, if you let them make choices, then that opens the door for corruption and misuse of money, and so on, and so forth. And so there's sort of a slippery slope argument to say, well, there's some things in which I'm going to argue. For some things, it's pretty clear that we can make things better, or make some people, at least, better off without hurting others.

And there's some cases where you say, let's have the government do that or whatever, but set policies that help people. By the way, it doesn't have to be necessarily the government [INAUDIBLE] company [INAUDIBLE]. But then, [INAUDIBLE] once we started with, like, some things, then they're going to do more and more things. And at some point, they'll reach a point where the government actually doesn't know what they're doing. And then they make things worse off.

So I have a bunch of different arguments here. I think we mentioned quite a few of them. There's informational issues, sort of not understanding preferences, people optimizing anyway. The comments said, or we discussed previously, that some people's choices might be distorted.

So these are issues of heterogeneity, often. Then there's sort of the government is terrible and wastes money, anyway. The government does not like people's best interests in mind. There's regulatory capture. And there's also what Chad mentioned, freedom of choice.

Then there are some other arguments, which is freedom of choice matters, per se. That's a little trickier to grasp. But you say, look, it's just I want to choose for myself. And I don't want the government to tell me anything.

And that's important by itself. This is not about the outcome. This is about the freedom of choice mattering itself.

Then similarly, there's arguments about people just don't like hard paternalism. They just don't like to be told there are, like, certain options to be excluded for various reasons. Perhaps partially because they don't want the government to be powerful.

And then, finally, there is some sort of practical problems, which is once we agree that we want some paternalistic policies, which policies should we choose? And how do we know which is better than another? I'm going to get back to that in a bit as well.

There's also practical implementation problems, which is to say even if the government wanted to do the right things, the government is often inefficient, and so on, and so forth. And so it's too costly to do. And practically, it's just hard to do certain things.

Now what are arguments in favor? I'm going to just speed things up a bit. So the arguments in favor are often very simple. Which is that people make mistakes, people screw up, and we can help them potentially screw up less.

People often also don't like to necessarily make choices for themselves. It could be just because they don't like doing it. It could also be just as costly to do that. And that's just, there are some activities that are just hard to do. And I'd rather have somebody regulate this for me, as opposed to, like, me having to choose or make these choices all for myself.

An example would be, suppose there's insurance plans or some form of retirement plans, and so on, if there are some options that are just terrible and they just would be exploiting me and making me worse off, I could probably figure it out if you gave me these plans and I spent, like, a day studying them. But you know, I have better stuff to do. And I'd rather have somebody else screen out the bad plans and sort of then offer me sort of the choices that try to not exploit me. And then, maybe, make some choices from a limited set.

That's not to say I couldn't do it. But it's just sort of saying it's efficient for me to try to deal with these things on my own.

Now, and then finally, and this is, I think, one of the most important arguments, is that there are a lot of soft paternalism regimes where people can opt out and are unaffected potentially. So when you go back to the previous concerns that people might have, these are often arguments against hard paternalism. These are often things about government wasting money, and so on, and so forth.

If this is about sending reminders or, like, phrasing letters in one way versus another, in some simple way, or putting food or putting apples next to the counter versus candy bars, this is not about the government taking over or restricting people's free choice. It's rather to say we're just trying to make people better off in some simple ways to do. And so a lot of these criticism or arguments go away once you go into soft paternalism territory.

And so then, at the end of the day, I think it's hard to make arguments often for paternalism. Because you need to be very confident [INAUDIBLE], right? It's much easier to argue for soft paternalism, simple policies that are not expensive, that arguably are not hurting a lot of people, that make at least some people better off.

And I think-- sorry. This is a little hard to see, maybe. But sometimes it's actually quite hard to figure out whether people are making mistakes. This is, for example, a survey from Gallup that looks at Americans and looks at people who call themselves very or somewhat overweight versus the percentage who are overweight and obese by some standards by the CDC and so on.

And so here you see essentially that people tend to [INAUDIBLE] more obese. Because the US tends to be quite high [INAUDIBLE] increasing people's perception of that might be not necessarily the case. Now in some ways, like, who are we to sort of say that people should change their behaviors, or that they're making mistakes? So in some situations, at least, it's quite tricky to figure out what's a mistake and what's not and what should we do or not.

And, again, you get into tricky issues when it comes to, in particular, for different selves and self-control. Again, who are we to say that somebody should lose weight, or change their behavior in certain ways, when perhaps that's not in their best interest, or that's not what they're doing. Maybe they're fully optimizing. How would we know that that's not the case?

Now what are some forms of paternalism that are quite popular? There's lots of examples of in fact for popular paternalism. There's Social Security. There's health care programs for retirees, including Medicare, which tends to be quite popular.

There's often restrictions of investment menus and 401k savings plans, where essentially that's precisely what I was just saying, is where essentially just bad plans and dominated plans are often just excluded. There's often consumer safety regulations that the FDA has essentially certain drugs cannot be offered. You cannot take certain drugs the government essentially just sort of [INAUDIBLE] if they're not being safe.

There's mandatory education. In many places, you have to go to school. You can't just sort of say I'm just-- sort of my kid is learning in the forest. That's not an option. It often has to do with protection of minors in some ways.

Then there's cigarette taxes, or sin taxes, as they're often called. But it's also hard paternalism. Notice that here, you're changing people's prices. In many places, prostitution, polygamy are banned. These are like hard bans. So you're just not allowed to marry three spouses.

Mandating face masks, interestingly, that seems to be-- that's hard paternalism, as you have, for example, in Cambridge. I think that the punishment is going to be \$300 if you go outside and don't wear a face mask. I'm pretty sure in Cambridge that's quite popular. Notice, of course, that's not true in all states, and so on. So there might be some policies that are very much popular in some places, but not at all in others.



There's also some soft paternalism that tends to be quite popular. There's some places where it's not clear whether it's hard versus soft paternalism, or what exactly the definition is. Things like banning junk food in school vending machines, you can call that sort of hard paternalism because you take away options but of course, it doesn't really prevent you from bringing in candy to school anyway.

So why call that hard or soft paternalism? I don't really care. But that tends to be quite a popular policy.

Calorie disclosure laws, which essentially just is saying, OK, you have to put in some information for our customers, which could be easily available. You could just look it up online or the like. And things like default enrollment and 401(k) [INAUDIBLE] all tend to be quite popular.

And for some goods, you know, there's huge taxes. For example, cigarette taxes tend to be extremely high. This is from 2019. Notice that there's this huge variation across places. If you look at some places here, these are some of the highest, such as Connecticut, including Massachusetts, it's \$3, \$4 per pack of cigarettes.

In addition, there's also like \$1 from the federal government. Then there's some other places, including North Dakota, or North Carolina, and so on, where cigarette taxes are extremely low. So that's kind of quite interesting, because it sort of says, here's a policy that, depending on your view of how people make choices, governments make very different decisions. And presumably that has to do with freedom of choice or the popularity of that choice itself in the specific state. Of course, it also has to do with, potentially, the party, and so on.

Similarly, there's also an aspiration [INAUDIBLE] state alcohol taxes. In fact, they vary hugely. In particular, you find some states where the taxes per gallon are \$20, \$30, and some other states where it's essentially close to 0.

Notice that there's also a bunch of other blue laws as they're referred to, which is things, like, on certain days, you're not allowed to sell alcohol, and so on. Now that's kind of interesting. Because that's sort of additional restrictions, which would tend to be quite inefficient in various ways. That is to say, some economists would tend to think that if there's certain behavior that we don't want people to engage in, we should tax it. Instead, you could essentially sort of outlaw it in certain ways. That tends to be quite inefficient. Because often, people find ways to get it anyway. Plus, the government does not get any taxes or revenue from that.

Now what are some unpopular paternalism or things that people don't like? That's exactly it. One of them is helmets and seatbelts. So there, often there's no externality here. This is essentially just something to protect yourself. While they tend to be quite unpopular in many places, it's not quite clear why that is.

So often, it's sort of a thing that's not cool, or like there's some social norms in some ways where people think it's not a thing you want to do. So I was sort of explaining to my 14-year-old, 15-year-old niece to wear a helmet was sort of very hard. And then she would say, yes, yes, but then drive around, ride her bike around the corner and then take it off, and so on. So that seems to be about something about personal trade offs between risk and reward in some ways where the government of some people might just not value the benefits of looking cool or whatever sufficiently, or as much as the individual itself. And then they tend to be sort of unhappy about it.

Of course, the alternative way of putting this is that the individual itself is underestimating the risk potentially or doesn't take into account how bad it would be to actually have a bicycle accident or the like. But that's essentially something about people disagreeing with the government, or with their parents, or the like, about the risk versus reward and the cost benefits of certain actions. And there seems to be disagreement.

And then you could sort of mandate that. But that leads to unhappiness. Because there's precisely that disagreement.

Now wearing masks is in some sense quite similar. There, it's quite different. What's different here is that there's externalities, right?

So the externalities here are that certain people benefit a lot from having their shops open, or being able to sell things. And others are affected a lot. So in particular, the elderly might be disproportionately affected and sort of might essentially-- the number of people who will die, well, clearly, if people are not wearing masks, or if shops, if people are running outside, or meeting, and so on, and so forth.

But there's others who are really-- for them, that's really costly. Because their businesses are not open and the like. Now there could be entirely rational issues where you might say, well, people just don't care about certain other groups of the society. And therefore, you want to have your shop open. And you don't want to be told that you should be doing that.

There could be also mistakes in the sense that people just don't understand, necessarily, there are these externalities. They might sort of say, well, I'm not affected. And I'll be just fine.

And it might be, actually, that the risk for themselves is not that high. But of course, there's large externalities in others that they might not appreciate or not take into account. Exactly. So Chad, Carmen is saying speed limits, similarly, are similar to that.

Because it's sort of, like, I'm driving. But there's [INAUDIBLE] in certain accidents. And so why is that? Or so how do we think about [INAUDIBLE] say? So I mentioned here, this is an example.

So here we have [INAUDIBLE] are quite popular. And why is that popular? And why is making certain drugs illegal, why is that unpopular? What's the problem there?

So I think there's, when you think about, when you do, like, economic analysis of that, is [INAUDIBLE] you can think this might be externality. Externalities might actually be much lower than for smoking or drinking. Because drunk driving and so on is very lethal. There might be also some externalities from smoking weed.

But the externalities [INAUDIBLE] are for drinking, well, then there could be [INAUDIBLE] But, again, for internalities, usually the solution would be just the typical sin taxes, and so on. You can say, well, do you want to tax it. Sure.

But then you at least would get some revenue. You would increase the price. You would get some revenue for the government, plus you would lower people's consumption. In addition, there's all this stuff about locking people up unnecessarily. By making it illegal, essentially we create a large prisoner population, and so on, which surely is [INAUDIBLE] society.

So once you sort of have this policy [INAUDIBLE], there's actually not a lot of reasons for outlawing how these sort of tend to be gut reactions or some sort of judgments that were made at some point. And there's some lobby arguing in favor of alcohol and maybe less of a lobby arguing for other drugs. But as we say, the sentiment has very much changed. And it seems to me, sooner or later, pretty much all states are moving towards legalization and that leads to, essentially, [INAUDIBLE] government revenues as well.

So I think one argument perhaps that one could make is sort of these gateway-drug arguments, which I don't think there's actually that much evidence for that. But you say, well, actually, marijuana might not be so bad by itself, but perhaps it leads to other [? worries. ?] It's not obvious at all that legalization of that-- so A, it's not obvious that that's necessarily true, but B, it's not obvious that making it legal versus illegal changes that rationale. Because when it's illegal, lots of people are using drugs anyway. And maybe it makes it even more [INAUDIBLE] and maybe more dangerous, potentially.

But I think it's important to realize that some of these policies are very much, in some ways, arbitrary, based on some legacy or some lobbies and so on and so forth. And what's important here is then that the popularity itself then also will affect policies in some way. So like, [INAUDIBLE], as you say, the public sentiment has shifted in various [INAUDIBLE] some ways stuff will become legal as a result of that. And once you do it in some states and things seem fine and the states make a lot of money from it, a lot of other states eventually will follow suit, in part because it's also much harder to enforce laws if you have a bunch of surrounding states where you can buy stuff legally. And that makes it, of course, trickier, then, to enforce the law anyway.

I have some other unpopular examples [INAUDIBLE] unpopular-- paternalism, junk food bans, junk food taxes. And some of these things, again, are changing over time. So it may well be that things are different in 10, 20 years from now. Gambling laws, pornography laws, other kinds of sin taxes.

Mandating face masks-- and again, in some states, they're just really, really popular. And people are on the streets protesting against it, which is quite interesting [INAUDIBLE] might be. But often it is the case that there are some forms of-- that there's real economic interest behind that, often. And perhaps, [? so ?] again, that could be very much fully rational and could also be that people might misunderstand the externalities that are at play.

There's some other kinds of hard paternalism that's also kind of unpopular and also not a particularly efficient thing to do, which is things like the ban on 16-ounce sodas, which is kind of like a weird thing to do if you think about it, because you can just buy smaller bottles or the like, which tends to be quite inefficient overall.

Here's a sign for seatbelts. Now, OK, so here's the legalization, which also there is massive variation across states. Now, there's some nudges. And some policies have massive impacts. And we studied at least some of this. For example, this was automatic enrollment. There is essentially a huge swing towards that. Essentially lots of companies and so on are now using that. And the fraction of people who are participating in retirement plans is way higher than the fraction of people when there's voluntary [INAUDIBLE].

There's other policies which are quite simple policies which are things trying to get people to appear in court. So essentially lots of people who have to appear in court for, like, initial court hearings tend to not show up in those meetings. And as you can imagine, that's not a great idea. Because that essentially leads to really bad consequences.

Now, what you can essentially just do is try to do very simple policies. And there's a very nice paper by [INAUDIBLE] and others that looks at this. You can sort of change the forms. You can phrase things differently. That essentially tries to nudge people in the right direction.

You can also do things like text message reminders. And the text message literally just says, your court date is on May 22 at 9:00 AM. Please show up.

And you remind people to do that, and what you get essentially is that you get large decreases in timely court appearances-- or non-appearances, or the fraction of people who don't show up in court, to their own court hearing, decreases a lot by using very, very simple policies.

Once you do those kinds of policies, presumably, [INAUDIBLE] not much to say against this policy in the sense that you might say, well, so A, you're not restricting anybody's choices. You're also not really making anybody worse off by sending some text message reminders. There might be some small inconveniences of receiving these text messages, which are kind of annoying and spam for some people.

But overall, nobody's really made off by this. It's a very cheap thing to do. So there's not a lot of arguments against such policies, where you say, look, here's a policy that's extremely cheap to do. Some people are benefiting. Presumably showing up in court is a good thing-- for your court hearing. And it's cheap thing to do.

And the benefits are potentially large. Because now we prevent some people from essentially ending up in jail for too long or for unnecessary time because they failed to appear to their hearings. But so then I think it's also important-- so there's some examples that essentially show large effects, including automatic enrollment, including things like text messages of some interventions to induce court appearances.

But it's important to understand that not everything always works. What you see often, or what I've shown you are examples of successful examples of stuff that works. But there are some examples that just don't work at all.

So here's an example of a clinical trial, which is called the HeartStrong randomized clinical trial, which gave people essentially a kitchen sink of things that we think are all good things to do. This is stuff like [? reminders, ?] financial incentives, social support, and so on and so forth, for people, essentially, who had heart attacks, by giving them wireless bottles, lottery-based incentives, and again, social support, having friends and family to help them. And essentially that did exactly nothing for people and had no effect whatsoever.

So it's not to say that we think everything works, always, and we should just always nudge people and provide incentives and so on and so forth. And something that might work but in fact there's no reason to think that it might always work. In some situations, this might be helpful and others not.

More concerningly there's also a very recent paper from Stefano DellaVigna that just came out like a week ago that looks at academic studies and nudge units. That's to say what they're trying to do is look at treatment effects in academic studies that are published in papers which are papers like the stuff that we saw on default effects and so on, which is Carroll et al is the 401(k) savings one, here is the study on FAFSA involvement that I showed you, there's some changing many orders in buffet line for healthier food consumption.

So there's a bunch of papers that usually you would teach in a typical class. And what you see here is, on the y-axis, you could see treatment effects and percentage points. On the x-axis here you see the control group tick up, which is to say, if you don't do anything, what does the control group do? And what do you see is pretty large effects in many of these studies that are published. There are some questions on this is like U-shaped or inverse U or whatever. Let's ignore that for a second. But overall what you see is pretty large treatment effects in these situations. And this is like 26 trials and 71 different nudges here.

When you instead look at nudge units-- so what are nudge units? These are essentially, for example, the UK government has what's called the BIT, the Behavioral Insights Team, which essentially is a team inside the UK government that tries to support or nudge people to make better choices. And that's very much coming from the nudge movement, from Thaler and so on, that sort of advised the UK government to set this up. And they're now nudging away. Because the government is really happy about cheap stuff that doesn't cost very much but potentially has large benefits.

Now what they then also do, often, is they evaluate their interventions in part because they try to figure out what works best. Now, when you look at these interventions, you see essentially that the treatment effects in those kinds of interventions tend to be much larger than on the left. If you at the right, there's a bunch of stuff, a massive bunch of points that are pretty high, above 10%, 20%.

When you look to the right, essentially you see almost everything is between 0% and 10%. A lot of it seems to be not statistically significantly different from 0. So that should give us some pause in the sense of we should be careful in necessarily recommending a bunch of stuff to government and saying we should always nudge and so on and so forth.

What's going on here? Well, some of this could be about publication bias. Essentially there's a bunch of studies that are being run, and what's being published is essentially stuff that's highly significant and flashy and important. There could be also issues with implementation, that maybe what's done with researchers is sort of implemented better, potentially, and maybe what's done at scale is just harder to do in nudge units and harder to do carefully. And then the effects might be lower. Not to say that governments shouldn't nudge in a sense of, if there are effects of the order of magnitude something like 5%, percentage points, and that's really cheap to do, you should probably do it anyway.

But it's just the same, nudges are not the magic bullet that sort of change everything and the government should always engage on them. And it's quite important, in fact, for the governments, or governments, or any sort of these policy units. And firms, by the way, do the exact same thing to try and figure out what works and what doesn't, and not just rely on the academic evidence that might sort of be more proof-of-concept rather than sort of something that evaluates cost-effectiveness. Any questions on this?

Now, another question-- this is a little blurry-- another question you might ask, and you might have seen these kinds of letters before, whether everybody wants to be nudged. And so what there's a very famous study by Allcott and others that looked at energy comparisons. It's a study done with Opower, the company, that essentially tries to reduce energy usage.

And the way this works is what you do is you send people these kinds of letters. And I'm getting these letters too that sort of say, here's your energy consumption in the last month, the last year. Here is all of your neighbors. So it's your comparisons. You see the blue bar is like how much did you use and the gray bar is like how much did all of your neighbors use. And then there's the green bar that sort of says how much do efficient neighbors use.

And then there's smileys, where you have two smileys if you're doing great, one smiley if you're doing good, like this fellow here. And then there's no smiley, I guess, if you're not doing well. Sometimes there's also like a sad smiley if you're using lots of energy and so on.

And so then essentially what this is trying to do is trying to provide some social comparison here. It's a very cheap policy to do. In particular, when you're sending energy bills anyway, it's very cheap to add this at the top, where essentially you're sending people energy bills anyway. And now you're adding this social comparison to try to nudge people to use less energy.

There's a question of why the company might do that. But that's a separate issue.

And what you see here is, when you look at treatment effects, there tends to be clearer treatment effects-- at least some treatment effects of providing those kinds of information reduces overall energy consumption in RCTs that people have.

Now, one question you might ask is, well, shouldn't we then always do this? So what's the reason not to do that? And it turns out [INAUDIBLE] not everybody wants to be nudged.

So here's an intervention where now, again, Allcott and co-author have now, in fact, asked people about, would you like to receive these letters or would you like to receive these kinds of social comparisons? And what they ask is what's your positive willingness to pay for it. So would you like to have a dollar, versus these reports? So a dollar and no reports versus just receiving the reports. What is people's willingness to pay?

But they also ask their willingness to pay not to receive these reports. That is to say, I could either tell you-- I would ask you, you receive zero dollars and no reports or you receive a dollar and the reports. And some people turn that down, which essentially implies that they'd rather have a dollar less and no reports. They're willing to pay not to receive reports.

And this is what you see here on the left, is essentially people's willingness to pay for home reports. So there are quite a few people here on the right who have positive willingness to pay. They think it's kind of useful, it's kind of interesting. Maybe it helps them reduce energy consumption. Maybe that motivates them in certain ways.

But some people are just saying, essentially, I do not want these reports. And the reason being that, essentially, it's kind of just annoying to get nagged all the time. Maybe in some cases you just don't have a lot of choice. And in some cases maybe you just like to use lots of energy for whatever reason. And it's really annoying to be told all the time that your neighbor is really better than you are. It makes people uncomfortable and makes them unhappy and so on and so forth. Maybe it makes them feel guilty. Who knows? Maybe they just don't want to think about it.

But importantly, there are some people who just do not want to be nudged. And I think that's important. Because when you think back about the libertarian paternalism or the soft paternalism criteria, asymmetric paternalism that we talked about, well, what the asymmetric paternalism would say is we should not make anybody worse off. So now if we send all these letters and make, actually, people uncomfortable, then in fact we are potentially making people worse off.

And you can think about some other types of interventions. If you [INAUDIBLE] letters from MIT all the time, how are you doing compared to classmates, in terms of study efforts, in terms of problem sets, [INAUDIBLE] and so on, potentially that would likely increase study efforts in some ways and would perhaps increase learning in some ways. But it's not clear at all that we would increase welfare. Because maybe everybody would be even more stressed and everybody would sort of be less happy and so on and so forth, at least in some cases.

Yeah, actually so Jenna is asking a question about who's unhappy about this. So the asymmetric paternalism is just to say suppose there are some people who are just very happy with their choice about using a lot of energy, and they just don't want to be nudged. They're fully rationally choosing this. Maybe they know, deep down in their heart, that it's bad to ruin the planet and climate and so on and so forth. But they really made a choice that they want to use lots of energy. Those people are not the people who want to receive any letters.

So asymmetric paternalism would say we should just leave them alone. They should just be doing whatever they want to do. And us sending them letters to make them feel bad if they don't even change their behavior anyway, or even if they would change their behavior, that's not for us to say. And we should just leave them alone because we make them worse off by receiving these letters by their revealed preference to say they are willing to pay not to receive these letters.

Now, there could be some situations where people who have potentially large treatment effects, these are people who use lots of energy and they just don't know about it. And those, you want to sort of send them letters and push them.

But I think the whole point of the asymmetric paternalism is to say we shouldn't make anybody worse off. So if somebody reveals to us, by their preference, which is what these fellows are doing here, that they really don't want to receive these letters, we should respect that.

And then one potential solution here is to say, well, why don't we just let people opt out, where you just say, OK, you send people these letters. And then you have to click on something or you have to opt in or out. And then maybe people who really don't want to receive these letters, we can essentially just let them be. There's no judgment here in terms of is that socially what we want to do and is this a good or a bad thing, this is just to say we should respect people's preferences in certain ways. Does that make sense?

Now the next question you might ask is, well, what form should paternalism take? And that's the thing, since it's important, because you could take 401(k) savings policies, you can come up with a lots of different options with which you could design your 401(k) savings policies. You could have active decisions. You can have defaults for participation. You have defaults for all this information. You have a personal financial planner sitting down with you. You might have a minimum amount of-- this is, I guess, hard paternalism-- minimum amount of non-zero 401(k) savings rate, which is just force people to save.

And it's important to say it's not just about paternalism versus non-paternalism. Once you get into the paternalism realm, it's actually very hard to figure out what should we do because there's so many different options. And it's hard to tell which one is better than the other.

More generally, even, it's actually quite hard to come up with any non-paternalism option. That is to say, think of all the options that are there. In some sense, once you think that defaults affect people's decisions, then no savings default is also a form of paternalism. In some sense you say, you choose something for people, and that's going to push them to not, say, fully choose [INAUDIBLE] like there's nothing special about the zero [INAUDIBLE] also have a 10% savings default.

And so it's important to understand, regardless of what choice you choose, you're going to affect people's choices and their behaviors in certain ways. And so that's what it means, essentially, that have to take a stance in which you affect people's behavior. In a way, just saying we're just choosing a zero savings default is in some sense a cop-out. Because even the zero savings default is affecting people's behavior quite a bit.

So in a way, the discussion should rather be about what is the optimal way or the optimal paternalism-- soft paternalism, I would argue-- rather than saying paternalism versus not. Because regardless of what option you choose, you're going to affect behaviors in certain ways because precisely the way you provide information to people on their default frames, et cetera, affect people's choices. Does that make sense? OK.

So here's a very quick example of a very useful and helpful example of libertarian paternalism that has been quite successful. So Thaler and Benartzi were asked to design a 401(k) savings for a company that wanted to increase its employees' savings. So the company hired a financial advisor. The employees could sit down with the advisor to evaluate their financial situation and make a plan.

So for those who agreed to talk to the advisor, the advisor-- he, I guess, in this case-- recommended a savings rate. Some agreed to implement this. And then Benartzi and Thaler got the leftovers. So that's arguably a group that's negatively selected towards saving a lot.

Now, what's then the SMarT-- the Save More Tomorrow-- plan? Employees were then approached about increasing their contribution rate a considerable time before the next scheduled pay raise. So that's to say, before the next scheduled pay raise, they were essentially asked about whether they would like to join voluntarily and if they wanted to do their contribution to the plan was going to be increased beginning with the first paycheck after the raise.

So that's to say, I told you, in December, you're going to get a pay raise, would you like to increase your contribution then once you receive that pay raise? And so then you could choose a preset maximum. And then what would happen is the contribution rate would automatically increase over time with each pay raise that you would receive. Suppose your pay raise is like, say, 5% or 3%, what you would get then is like-- and suppose it's 3%. You would get only a 2% increase in your pay and 1% or 1% percentage point of your pay would then go towards the retirement contribution. Importantly, the employee can opt out of the plan at any point in time by essentially just making a phone call or the like.

Now, why is this plan a libertarian paternalism? Well because of aspects 2 and 4. It's voluntary. So you can do whatever you want. You don't have to choose this at all. You can essentially decline it. You can also opt out at any point in time. So arguably nobody is made worse off. Because essentially what we're doing here is increasing people's options by saying, here's an option for you to increase your saving automatically over time. And you can leave it whenever you would like to do. So arguably nobody should be worse off by this. And potentially some people are made better off quite a bit.

And that's exactly what you see here. Essentially, when you look at the people who joined the SMarT plan-- notice that this is not random here. So there's some concerns about an indication. But setting that aside, if you look at the people who, again, arguably, are negatively selected, these are people who declined the financial consultant, they essentially increased their savings dramatically as a consequence of this SMarT plan. And now the SMarT plan has been introduced or implemented in quite a few places.



But anyway, that's not the point here. I want to say what's good about the plan is, well, it's a SMarT plan not just because of the acronym but also because it's using behavioral principles or stuff that you learned in class quite a bit and carefully.

So what are these principles? So why is this a useful plan to use? And I'm going to show you again what the plan is. What's clever about this plan? What is it using carefully?

By the way, I don't know if you can hear this background noise. My neighbor has engaged in various home improvement projects since the quarantine. I have so far refrained from complaining about it because I don't know what's going on in their lives otherwise. And maybe that's a way of dealing with stress and so on, if you can hear this.

Once you opt in, the default is for the contribution rate to increase. So the default is essentially working towards increasing people's safety. So there's two things going on here. One is present bias, when you say, well, yeah, in the future, I want to save more. So precisely that's kind of great. Because now the future self will be virtuous and so on. So if people have present bias, that will help.

And then there's also the part that's about paycheck increases. Remember, people tend to be loss-averse. So what this plan is also accomplishing is, so if I'm asking you right now, today, would you like to increase your savings rate, well, not only are you present-biased, but also you're going to have a cut in your paycheck. And people hate cuts in their paychecks.

So instead, it's saying, well, in the future, your raise will be lower. And people are less averse to reducing those increases compared to experiencing pay cuts.

So that's, I think, what we have here. So this essentially present bias is helping. Then there's reference dependence. And then there's defaults that help people switching out of some form of present bias, where precisely as we said previously, people are not switching out of those kinds of plans.

So if you think that's a good thing to increase people's savings, here that's [INAUDIBLE], because people might actually procrastinate switching out of it once they're in the first place. So that seems to be a great example. Because not only is it preserving people's free choice and not making people worse off, but also it's using, in a smart way, behavioral principles.

Let me briefly talk about the market. And we talked about this a little bit already previously, but I want to make this explicit. So one argument that often comes in particular out of [INAUDIBLE] is, well, if people have self-control problems or other issues, well, will not the market come up with some goods or some solutions that will help people?

After all, there's money to be made in improving people's choices. So if, really, self-control problems or the like are really important, why is not anybody coming up with a market solution and a great product that helps people? And then they're going to make a lot of money from doing so.

And so particularly if consumers are sophisticated and they demand ways to change the consumption, and then there will be somebody who is providing that good. And if the welfare effects of those kinds of self-control or other distortions are large, then you can make a lot of money from helping people improve their behavior.

So what's problematic with this line of argument? Well, the market is precisely part of the problem. So on the one hand, you can say, if you try to-- so if you Google-- and this is quite a while ago, but right now it's, in some sense, more sophisticated ways and there's lots of targeting going on. But if you Google impulsive credit-card spending, what you're going to get is a bunch of advice to help you with that. But at the same time, you also get a bunch of credit card offers or you're going to get targeted eventually by companies that try to precisely exploit you.

So on the one hand, there will be a side of the market who will potentially help you, but there's another side of the market who will want to exploit you. And importantly, what the market will do is firms will try to target naive people. And you might remember this from lectures 5 and 6. But essentially firms precisely try to find people who are perhaps less sophisticated financially in other ways. So the firms are precisely trying to target naive people. Because those are the people you can exploit.

Moreover, the naive are the ones who will think, well, I don't have any problems, so I don't actually need any goods or any sort of products that might help you. So not only are they being targeted by people who try to screw them over, but also they actually are reluctant to seek help because precisely they're naive and they think it's not even necessary to seek help.

So even a firm who wants to help has trouble making money with this. Because people, if they're naive, will not necessarily understand that help is required. And that's precisely the tension that we see in many markets, where there's some firms who might want to help and support-- in this case, self-control, but it's also true for other issues. But there's, on the other side, firms that try to break down the self-control from consumers precisely because they can make a bunch of money from that. And so now the second part, "severely limits the market's ability to provide self-control," because it essentially [INAUDIBLE].

Now, the government of course can try to address this. And this is what behavioral IO would be about. Behavioral IO would be about saying-- Industrial Organization, which would be there's behavioral consumers, there's firms who try to exploit consumers. Now the government is trying to support, or by some form of regulation, trying to help customers, in particular things like the Consumer Financial Protection Bureau and so on trying to help consumers not to get exploited by banning advertising, by capping interest rates, and so on and so forth, but also by, for example, mandating disclosure and so on and so forth.

Now I'm going to say one final thing about nudges, which is, on the one hand, we talk about nudges in a sense of saying that, look, there's some behavior that we're trying to improve, which would be like suppose people keep forgetting certain things, to take their medication or to appear in court. Let's send reminders to improve behaviors. We can set defaults in certain ways and so on and so forth, which is policies to improve good behaviors, assuming that the person who makes those choices is benevolent in certain ways.

Now, on the other hand, of course, firms can use the same techniques on the same approaches to do the exact opposite and so to harm people. And this is what Thaler and Sunstein called sludges, which essentially is like using these nudges in bad ways by trying to push people in wrong directions.

So an example of that would be offering rebates on a product and then having customers required to mail in forms and to, like-- and you may have encountered these and wondered why I have to mail in this form. And this is kind of tedious. And then you end up not doing it. [INAUDIBLE] want you to think, oh, I'm getting this great discount, and then actually never send it in because then they don't have to actually pay you. They can sell you the good, but then they don't have to give you the discount at the end of the day.

So there's a bunch of types of cases, both on the private sector but also from the public sector, such as things as voter registration. When you think about it, why is voter registration harder in certain places? Well, the reason why it's hard is because certain parties and groups do not want certain types of groups of people to vote. And those are essentially deliberate ways of making it hard for people to make choices that aren't really good for them or for society. And that's what Thaler and Sunstein would call sludges.

And then here it's important to realize that it's, in fact, identifying and eliminating such judges, which essentially are certain ways that make it hard for people to make good choices for themselves and for society, can be equally important or perhaps as important as sort of implementing nudges to improve people's behavior in certain ways. So it's not just about taking behavior where people, on their own, screw up in certain ways and trying to improve them and trying to help them, but rather helping people being misdirected in certain ways to be exploited.

And in many cases, in particular in companies, identify those kinds of sludges and calling companies out gets you pretty far, in some sense, on social media and the like. Once called out, companies often back down and try to reduce them because they don't want to have bad reputations of exploiting customers.

OK, so let me sort of summarize the lecture and then briefly, in two minutes, the whole class. So some forms of, in particular, soft paternalism can unambiguously improve welfare. And we should be quite excited about that. And they can help quite a bit.

Now, on the other hand, nudges can also make things worse. And particularly if the government doesn't know what's good for people and we want to be careful in nudging. And there's some examples [INAUDIBLE] in class. But there's also some examples of nudges actually backfiring.

Now, in addition to that, some people dislike being nudged. And we should respect that and take that into account. We try to maximize utility, remember, as opposed to certain behaviors or take-up of certain outcomes. And you want to be careful not to make people worse off. And helping people opt out of certain nudges or certain [? interventions ?] should be quite helpful.

In addition, the market does not solve everything. So we should not have faith in the market solving things. In particular, the market might make things worse. And finally, reducing sludges can go a long way in improving behavior overall. Now, the big-picture summary of this class, what is it, in one slide, that I want you to take away and have learned? Of course, things are more complicated. But let me give you a very brief summary.

So one, psychological considerations can be quite important in a lot of economic choices and behaviors. And we should take them very seriously. For you, personally, I think that means, in some ways, understanding your own biases and mistakes and issues better and try to improve decision-making. It seems quite important. That's true for short-run or simple sort of considerations, such as how to deal with procrastination and exercising and so on. It's also true for long-run considerations like which jobs you want to have, what friends do you want to keep, and so on and so forth. It could make you [? both happy ?] or unhappy in the future. And you want to be quite mindful about that.

Small changes or thinking about things for a while can make big differences. So I very much encourage you to introspect, be more mindful or mindful in your choices. As I said last time, experimenting, seeking advice, including psychological support and so on, seem to be quite helpful. At the same time, you also shouldn't stress too much and just try to be happy and don't be too harsh on yourself.

Often, people are doing quite well already overall. It's also worth understanding that sometimes it's actually easier to help your friends or others than yourself. It's often easier to see, in others, how they're misoptimizing and how to improve their behaviors. So in some ways, helping others might be, in fact one of the things you might have taken away from this class. And then, finally, you want to think about, in particular, when you think about designs of teams, working with others, incentives, products, and so on, if you try to design an app or any website or [INAUDIBLE], thinking about psychological considerations and designing things [INAUDIBLE] is quite important that you should [INAUDIBLE] take those things into account.

Somebody is asking about books to read. So I just added them here. I was planning to say a little bit more, but I'm out of time so I'm just leaving this here. I'll try to add a couple of sentences for each [INAUDIBLE]. There's some quite amazing books that you can read. In particular, for example, Cialdini's '93 *Influence* book is an amazing book to read. Then Ariely has really nice books, including *Predictably Irrational*. And some of these are more basic than others. But if you're interested in poverty, Mullainathan and Shafir's *Scarcity* book is really an amazing read.

And then Danny Kahneman's *Thinking, Fast and Slow* is also extremely insightful and interesting. Of course there's other books, for example, Dick Thaler talks about the history of behavioral economics, Lewis is what's called *The Undoing Project*, which is about Kahneman, first his friendship, and how they sort of essentially came to, in some really important ways, revolutionizing some parts of economics.

So there's lots of things to read. If you're interested in any of these, just let me know. I'm very happy to chat. So that's pretty much all I have to say. I had lots of fun teaching this class. I know this semester was tricky and difficult for many of us. Every time I teach this class, I'm surprised how much I learn. I hope you learned something useful things too.

I guess this is from last time. So there's no course evaluations this year. We might do an informal one to just [INAUDIBLE] try to learn more about what you thought. We did already an informal evaluation, but that's assuming that there would be actual evaluations this semester. Unfortunately, MIT has canceled them this year, I think to be mindful for some people who are particularly affected by the quarantine and so on.

Come to my office hours if you have questions. I have some Europe opportunities. Some of you have already applied for those. There's been quite a bit of interest. So if you have already applied, I'll get back to you soon. But any case, come and talk to me if you're interested. I hope you learn more economics in the future [INAUDIBLE] help you take psychological considerations in those economic issues quite seriously. So thank you very much.