[SQUEAKING]

[RUSTLING]

[CLICKING]

All right, I'm going to get started. This is lecture 22 on 14.13 on happiness and mental health. OK, so what are we going to talk about today? Happiness and subjective well-being and a little bit of mental health. So we're going to talk about rationality and revealed preferences and what can we learn from choices, and what does that tell us about happiness. We also talked about utility and how we can measure utility. In particular, how do we measure happiness, and is that a good or bad idea?

And then at the very end, we'll have, hopefully, a llama or a goat visit, which will at least improve my happiness, hopefully yours too. I've had some trouble communicating by email with the llama, goat, and their keepers. So I'm not exactly sure when they're going to show up, so they're scheduled-- the problem is, so they had only different certain time slots. The only time slot that was available was at 2:30, so I asked them to show up earlier, 2:20 or so.

I hope that's actually going to happen, but I haven't heard back, so I'm not exactly sure. So it might have to be at like 2:30. I hope you don't have to run. There was also some confusion about which Zoom room code the llama should go into, and hopefully, they find our room, even though they don't have and MIT ID. So anyway, that's that.

And then on Monday, we're going to talk about policy with people agents, which is very much the idea that, well, now if people are potentially making mistakes or have certain biases and we might think that we know about it, then perhaps we can do policies to improve their behaviors. And in some cases, that's straightforward. If you think people have biased beliefs or just have wrong information based on which they make information, then you might say, well, it should have just improved their information, and then they make better choices.

In other situations, it's much trickier, because A, people might have certain preferences that are not stable over time, and then it's very tricky to figure out what is the objective function that we should maximize. Second, it might be tricky because who knows what we know versus what people know? So who knows that the government or anybody else knows actually better what's good for other people?

So in some sense, if you want to intervene, you better be reasonably confident that what you're doing is actually well founded and you know better what's good for people than they know about themselves. And that gets you in tricky situations, because potentially, if you get it wrong, or maybe if you just misunderstand people's preferences, or their choices, or behaviors, then you might intervene and make things actually [AUDIO OUT] because you just misunderstood [AUDIO OUT].

OK. So what is rationality in classical economics? How do we [AUDIO OUT]? So broadly, we think that beliefs, preferences, and actions are rational if they are mutually consistent. What do we mean by that? Well, we mean by that that if we see certain behavior or certain actions, we can measure people's beliefs in certain ways. And then we essentially can find preferences that could rationalize these actions.

And so that's a very odd definition, and without that definition, we can essentially say it's possible to be a rational cocaine addict. It's possible to rationally commit suicide. It's possible to rationally marry somebody who you met six hours ago. And it's also possible to be rational violent offender. If there's preferences that people have, you could write down some preferences that rationalize all of those things.

And so [AUDIO OUT] in mainstream economics very much a main assumption. So the researchers' jobs is to identify preferences that are consistent with observed human behavior. So when you see people [AUDIO OUT] way, so then the question is like, what are preferences that rationalize that behavior?

Now what's the idea? We talked about this already before. So actors make choices, economists observe their choices, and then [AUDIO OUT] generate these choices if an actor were perfectly rational. [AUDIO OUT] tend to give these imputed preferences normative meaning. That's essentially, if I know your preferences, that [AUDIO OUT]. And that's what you should be doing, as in, if you prefer B, I should be helping you to do that. That would be a good thing for you.

Now just to give you an example of where this could lead you potentially astray, or where you might argue, is that really rational versus not, for example, take Jack, who prefers taking cocaine over quitting. Jack has lots of speeches about wanting to quit, but in a way, he doesn't actually act on. That's just cheap talk. Jack might, in fact, be [AUDIO OUT] if he were clean. But getting clean is too costly, because there are withdrawal costs.

Jack probably didn't [INAUDIBLE] [AUDIO OUT] tried cocaine, but this bad outcome was sufficiently unlikely that his early experiments with it made sense. So finally, cocaine should be legalized unless it generates externalities. That's essentially, people make choices.

They make-- if Jack started taking it, it must have been that he preferred cocaine over not taking cocaine, even though there's a chance that [AUDIO OUT] get really addicted and really be miserable now. And probably even if he keeps taking cocaine and [AUDIO OUT] to quit-- well, if he doesn't do it, well, then it must be a rational choice for him to, not because it must be that the withdrawal costs are really high.

Now we talked a little bit about this theory of rational addiction, much about Becker and Murphy. We talked about already that there's present bias or other factors involved, including biased beliefs. That might not be the case. [INAUDIBLE] understand that traditional economics, until very recently, would say that the rational thing to do with Jack here-- in fact, no good reason to make certain or any drugs illegal on externalities.

So externalities would be like if Jack causes behavior that's bad for others. Then well, we shouldn't let him do that, because other people are harmed and you might not internalize [INAUDIBLE]. But unless that's the case, we shouldn't intervene in any way.

OK, but so now, you might say, but what did we talk about in all [INAUDIBLE]? How is that consistent with what we talked about before? And the key of that question is the question of, do people act in their best interest? And so what we essentially assume often is that there is a rational relationship between people's choices, what they actually do, and the hedonic consequences of those choices, which are true well-being.

And so what we assume is essentially that you make certain choices that maximize your well-being. Essentially what you learned in 14.01 or 14.03 is essentially utility maximization, and that's at the heart of the rationality assumptions. So economists then tend to believe that most of the time, people act, at least approximately, in their best interest.

Now as we talked about already, and this is our previous lecture about Nisbett and Wilson telling more than we can know, we should be actually quite skeptical about the fact that people actually know what they're doing and why they're doing it, because [INAUDIBLE], as I showed you last time, in some sense, people often seem to have essentially no clue of why they do what they do. So it seems like a bit of an odd assumption to say, well, people are maximizing what's best for them.

So now how can we check whether this assumption is appropriate? What would you do? So I'm telling you here some behaviors. How can you actually check whether this assumption is an appropriate one? Lauren.

AUDIENCE: We could check their well-being after they make these decisions and if they're better or worse off.

FRANK SCHILBACH: Yeah, and we have to somehow figure out some situations where we can track people's well-being. Ideally, we would have some sort of experiment. There's group A and B, and in group A [INAUDIBLE], you let them choose, and in the other groups-- [INAUDIBLE] group C-- in some group, we essentially tell people, you should be doing A, doing one thing, and another group, we say, you should be doing another thing. And then there's another group where we have people essentially choose.

And then you can look at-- track people's well-being. And then we could figure out, is the group that gets to choose actually doing better than maybe some groups where we actually just tell them what to do?

And in some ways, or the work by Dan Ariely and others, if I can essentially manipulate you into making very drastically different choices by changing small things that really, arguably, should be irrelevant for your choice, like for example, the Social Security number-- for example, if I could manipulate you with anchoring you with your social security number and then say, would you like to purchase this item for $10, yes or no, and that affects your choice, well, then presumably, that's a clue in some ways that something is not going right. And so you are not necessarily optimizing, precisely because the Social Security number really should be entirely irrelevant, arguably.

Some forms of what we talked about, like preference reversal, or some form of demand from commitment or the like. If that's the case, it seems to be that then there's self control problems involved or biased beliefs in various ways that we all talked about, which seems then sent to say, well, you keep saying you want one thing. You keep spending money on, say, healthy eating, but then you never-- the food all goes bad in your fridge, and you keep eating donuts. That seems to be something that's not quite-- don't seem to be maximizing your utility.

But in general, it would be great if you could measure behavior and then the hedonic consequences of those behaviors, people's well-being, and if you then could say, well, option A or option B is better for people in general, or specifically when you ask them to choose, they can figure out what's best for them. Notice that you need to know the counterfactual here. You can't-- if I see you doing one thing and then track your well-being, it's not enough, because I don't know the counterfactual, whether you would be happy otherwise if you were not to choose that, OK.

So great idea. So now, how do we actually do that? So it's useful to have some terminology here that, in particular, that Kahneman and others have introduced. And Kahneman, remember, this is from Tversky and Kahneman, the Nobel Prize winner, who worked a lot on loss aversion and prospect theory that we talked about. Then Kahneman also has quite a bit of work on well-being and happiness and so on.

So and he introduces very useful terminology, which is-- they call decision utility and experience utility. So now what's decision utility? So economists tend to use the word utility or utility function to describe the preferences that rationalize observed choices.

Essentially, if you took 14.01, 14.03, et cetera, people talk about the utility function. Essentially, it's the function that you write down that maps your choices into well-being. And the function that you maximize, or by maximizing it, essentially say, well, given this utility function, given your behavior, it must be this utility function or that utility function allows me to rationalize what you're doing. That actually allows me then to explain why you choose apples over bananas.

And so Kahneman calls these revealed preferences the decision utility. That's essentially the preferences that rationalize decisions. When people make choices, that's the utility that they perceive or that they think they will perceive or receive as a consequence of their choices. That's essentially-- you might call that wanting or choosing.

So quickly, for an addict, the decision utility of drug consumption exceeds the decision utility of quitting. So if that person makes the decision of taking drugs, it must be that their decision utility is higher. When making those choices, they prefer one option over the other, which, again, doesn't necessarily then mean that afterwards, the experience is actually better. But when making the choice of taking the drug, they think that's a better option for them.

Now in contrast, Kahneman also talks about experience neutrality, which implies or talks about the hedonic consequences of choices. He calls these hedonic experiences experience utility. That's essentially the preferences that coincide with doing. So while you actually experience the whole consequences of your choice, what experience do you have, and what utility, or what's your well-being during that?

That's actually going back a long time ago. If you look at some of the wards in economics, Bentham and others, they talk a lot about pleasure and pain, which is very much about the experience people have in their life, as opposed to utility, which is, again, the construct that you have at the time of [INAUDIBLE]. Now how do we measure these hedonic experiences of well-being? So there's two questions, I guess.

One is, how can we measure this? If I wanted to know, what is your hedonic experience of this lecture right now, how would I do this? How do you enjoy, how much do you enjoy things? And then second, well, I can measure your experience right now, maybe this moment, maybe this hour, but somehow I need to aggregate those over time.

I need to know, you took class A versus class B. Now I can measure you at different points of time, but somehow, then I need to aggregate this overall experience. And how people are doing that is [INAUDIBLE] some questions.

Let's start with the first question, how do you measure people's well-being? If you wanted to learn about your classmates' experience in any type of situations, what would you do? What would you measure?

One is you can ask them verbally, like, how did you like activity A, how do you like B, or feel [AUDIO OUT] now? So this is asking what people want. But also just look at their facial features or the like and try to see how much they're smiling or the like.

Notice that that, you need to map into some happiness as well. In some sense, I could be smiling but be deeply unhappy, and then you would misinterpret that. So you'd have to have some function from facial feature to some underlying well-being that's somewhat grounded in some assumptions. It seems reasonable to think that when people are smiling, they're happy, and when they're crying, they're unhappy, but I'm just pointing out that that requires some underlying data to be able to map those things.

One is the physiological measures such as heart rates, [INAUDIBLE], et cetera. And so there, again, I think commonsensical stuff, like if you're really afraid and your heart goes up, presumably that's not a good thing. But if you're really excited and your heart rate goes up, presumably that's a good thing. So one has to add some assumptions or some structure on these measures. In some sense, you're just measuring them by themselves. In general, it might be misleading, but with some structure, [INAUDIBLE] use that well.

The other part is measuring-- there's lots of neuroscience and other work on this. Measuring people's brain and parts of the brain, and seeing which parts light up at which times could be another option. Of course, again there, you need to map that into something else. So you need to then be able to say, suppose I do something nice for you or [INAUDIBLE], and I can then figure out which parts of the brain are affected.

And then I can use that then to later, now if I wanted to figure out, suppose I could measure your brains during lecture. If I had figured out earlier which parts of the brain are associated with happy versus unhappy things, and now I could see what your brains are doing during lecture, I could then figure out whether you are happy or unhappy. But notice you need to have some mapping, because otherwise, it's hard to interpret what's going on. But of course, people have already worked a lot on that, that kind of mapping.

And just to be clear, so the revealed preference measures are-- hold on, let me just share what I have here. But the revealed preference measures are useful for some things, but in a way, if you wanted to measure whether revealed preferences give you a good answer, then of course, the real preference measure is not helpful. Or put differently, you want to check precisely. Suppose if I ask you, do you want lecture A or lecture B, and then everybody says they want lecture A-- or whatever, good A or good B, and everybody says they want good A-- the econ assumption is, by revealed preference, it must be that A makes you happier than B.

But if I wanted to the test, is that actually true, then I need to have your revealed preference, but then I also need to know your counterfactual in some sense. So I'd say give you good A, and I'd give you good B. How would that make you?

So I need the measures that we have here in the slides, a version of that, to say, OK, I'm going to look at your facial expression and see how happy you look when I give you good A versus good B. Or I look at your brain and see which parts of it-- do the pleasure parts of your brain light up? And if that's the case, I'm going to conclude that you're happier with good A versus good B, or if that's more so the case for good A.

And then I can look at your revealed preference. Is it really the case that you choose A over B, if the experienced utility says A makes you happier than B? Does that make sense? OK.

So what are these techniques? [AUDIO OUT] I think we covered most of [AUDIO OUT]. There's the observer ratings, facial [AUDIO OUT], reports of mood, pain, pleasure, happiness, and so on. This is what [AUDIO OUT]. There's autonomic measures, which is the respiratory, cardiovascular, your blood pressure, or your pulse, and so on, and so forth-- sweat.

There's vocal measures as well, which is pitch, loudness, tone. And you can probably detect whether somebody is angry or excited and so on. And again, you can apply some mapping here. You can look at people's brains.

There's also some responses to emotion sensitive tasks. So if I ask you, do you want to talk to a friend or do you want us to do something nice, and if the answer is, no, absolutely not, it could obviously be you're busy. But when people are in a bad mood, they tend to not want to do things that likely should make them happy.

OK, so we can try to do that. Now why might decision utility and experienced utility differ? That's of course what we discussed at length in the class already. There's various different explanations. One is-- we're going to talk about this a little bit, which is inaccurate memories of past experiences.

So you might just misremember your past experiences, and based on that, you might have poor forecasts of your future preferences or your utility. So this is essentially saying people's beliefs might be wrong in various ways, perhaps because people's memories are tricking them in some ways. People might also have wrong beliefs because they have some failures to anticipate adaptation, which is very much like projection bias that we talked about already previously. I'm going to talk about this a little bit more.

There could be things like emotions, which again, is in some ways often like projection bias, which is about things like people might be really angry, or people might be hungry. [AUDIO OUT] essentially it's very hard for them to make certain choices, failing to anticipate their anger or their hunger or other impulses [INAUDIBLE] over time. There's plenty funding of other reasons, but we talked about this quite a lot. And so you could think about a lot of what we discussed in the course about disconnects between decision utility and experienced utility.

Now I mentioned this already a little bit. The third part in people's utility is what Kahneman would call remembered utility, which essentially is to say, well, when you think about a past experience, you might not actually evaluate it correctly. In a sense, you might-- as I said, I might look at your experienced utility using these kinds of features, and then I might ask you afterwards, how did you like certain experiences? And then I can test, in a way, how are you aggregating, or how appropriately are you aggregating your experienced utility when I just ask you afterwards, how did you like certain experiences?

And one quite interesting feature in people's remembered utility is what's called-- excuse me-- duration neglect. People tend to remember the quality, rather than the length of the experience. And it seems to be also what's called the peak-end rule, which essentially says that retrospective evaluations are very much predicted by two things, or an average of the peak affective response recorded during an episode and the end value recorded just before the termination of the episode.

And how do I think about this? Well, mostly, I think this as being very salient. So when you think about and I ask you about a semester or a certain lecture or a certain experience that you had, maybe a TV show or the like, when you think about it and try to remember how much you enjoyed that experience, well, what's most salient, of course, is your latest experience. That's what comes to mind.

The last thing you remember is the last thing you experienced. And if the last episode of a TV show was terrible, that's what comes to mind. And you might say, well, the whole series was really bad, even though maybe previously, it was quite good.

And then the other thing, I guess, that seems to be really important is the peak, both positive or negative. So if something was really, really great or really, really bad, people really, really remember that, as opposed to stuff in between. And again, I think that's something that's just very salient in people's minds, and then in thinking about these experiences, that's what comes to mind.

And in studies that-- so what are these studies doing? Well, there are these studies that tend to measure experienced utility in certain ways, either through just measuring people's-- tracking people's well-being over time and then trying to predict their remembered utility, how did you like that experience. That's one version.

Another version is-- let me show you. Hang on one second-- is where people do certain tasks specifically, and they manipulate the experience deliberately. For example, there are these tasks which is called a cold pressor task, which is they ask people to put their hands into cold water and then vary the temperature, or they vary the duration. And then essentially, you can then try to predict people's remembered utility and then show things such as duration neglect or the like.

And let me show you what that looks like. For example, this is a famous study by Schreiber and Kahneman. They did a short trial, which is you put your hand into 14-degree water for 60 seconds, which is very cold, or a long trial where you put it into water for 60 second, and then the temperature rises to 15 degrees. I think this-- I hope this is Celsius, not Fahrenheit. But anyway, it's cold.

But the point here is that putting your hand for 60 seconds into 14-degree water, and then another 30 seconds into 15-degree water, these are both unpleasant experiences. So if you did each of these things in separation, people would say, [AUDIO OUT] just 60 seconds of cold water. I also don't like 30 seconds of 15-degree water. These are both unpleasant experiences.

So neither of them are actually desirable. If you ask people, if you give people [AUDIO OUT] do you want to experience this again, people say, hell no. I really don't like this, for both of these, in separation. But once you put them together, the 30 seconds of 15-degree water is more pleasant than the 14-degree water. So when you do that, people say they prefer the long trial over the short trial.

And the reason being is what they remember is the last experience, which was not that painful, when things got better over time. So people's remembered utility is violating any sort of rules of what you would usually think in terms of rationality and economics, which is precisely because they remember the end rather than the overall duration. So essentially, the utility does not aggregate in the way we would think they would, because the experience at each point in time [AUDIO OUT] negative.

There's more unpleasant studies for colonoscopy. Don't ask me about how they got ethical approval for those things. But anyway, a study [INAUDIBLE] where getting an extra minute where nothing bad happens. And essentially, the treatment group has better experience and memories of those kinds of-- of the overall experience. Now that sounds kind of like torturing people, but in fact, if you think about it, well, if-- in particular in medical procedures that are unpleasant overall, if we can help people have better memories of those experiences, maybe they will be a lot likely to come back and get future treatments or the like.

So in a way, you might say, what are these studies? Why are people torturing people? Why are researchers torturing people? I agree with that notion, but in fact, if you think about if you wanted to design, and if you think people are under-using certain medical procedures or certain medical tests that they should be doing-- think of dentists-- if there's some [AUDIO OUT] people's overall memory or memory of their overall experience better by having the end of that experience slightly better than the previous parts, that could [AUDIO OUT] helpful in generatings of behavior that's good for people in terms of their health, even though, of course, the last minute of the actual experience would not be pleasant.

Nobody wants to say, would you rather have another minute of colonoscopy? Absolutely not. But maybe the overall experience that you remember is, in fact, better than if not.

So there's other types of experience that shows this duration neglected and peak-end evaluations. People have shown pleasant and unpleasant movies or contents of movies. They have done these experiments with sounds or noise of various loudness and duration.

There's also animal [INAUDIBLE], where essentially animals are given unpleasant experiences, and then you look at what-- there's different types of experiences where the animal can go into one direction or the other, press one lever versus another, and then bad stuff happens in both of them, and one of them is worse than the other. And then you can look at, essentially, do animals have similar duration or other peak-end evaluations of experiences? And it seems to be very much a phenomenon that's also true for animals. Any questions on this?

OK. So then, of course, if that's the case, if people remember things differently, that will lead to violations of the decision utility maximizing the experienced utility. If you think about the experienced utility or the overall experienced utility of a certain choice that you make, in this case, I guess, the cold pressor task, think about this like the integral over, say, in this case, I guess, 90 seconds. In the first case, it's 60 seconds plus 30 seconds, 60 seconds feeling bad, versus the 30 seconds of putting your hand out, which is somewhat of a neutral experience.

If you're integrating that, presumably, the short trial would give you a higher valuation of higher, better, more positive experience overall. But then if you ask people, which one do you want, because people remember the long trial as being less bad, people might choose the longer trial over the short trial overall. So then that leads to, essentially, violations of the decision utility maximizing the experienced utility, because essentially, people remember things in a biased way.

OK. So then we talked about this very briefly. So so far, we talked about different ways of measuring. One specific thing that people have done a lot is just asking people simply about their happiness and life satisfaction. So simply, you ask people. There's different ways.

There are these types of ladder questions, how satisfied are you with your life as a whole these days? There's also affect questions about like, did you experience certain emotions yesterday? Did you feel angry? Did you feel happy? Did you feel sad? And so on.

The ladder question is a mixture of-- some people think of this as life satisfaction. Some people interpret it as happiness. Others would argue that it's rather about social comparisons.

So the ladder question has this notion of-- I'm going to show you the definition in a second, or in a bit. The ladder definition is very much just, on a ladder from 1 to 10, how great could your life be? Where are you in this ladder? So it has very much this flavor of some social comparison, which is not quite ideal, because it very well makes it like, well, on the ladder, how far and low are you at the ladder? It makes it very salient that some people are higher or lower than others.

So some of the responses that you see in those kinds of ladder questions are about happiness, but they potentially are also about people comparing each other to others in society and so on, which might not be necessarily the same as, how happy are you right now [INAUDIBLE]. Now what's problematic about these happiness questions, or why are economists skeptical, or what instances do we [AUDIO OUT]?

So just to be clear, so some people would argue, we should have a World Happiness Report and GDP. We should not maximize GDP or look at GDP growth as an overall performance of society. Instead, we should measure subjective well-being, and that's what we should essentially maximize. And policy should be-- the objective should be to maximize that. So what's the pushback on that?

So part of that is people and stuff that we talked already about, about remembered utility, or people just might not know what's good for them. But what's wrong with just asking people, how happy are you? And are people just going to tell you, or what's happening with that?

Yeah, so one problem, broadly speaking, is when you look at different countries, different societies, particularly, for example, if you look at Germans, Germans tend to be pretty grumpy and not super happy. So when you ask a German, how are you doing, the typical German would say, OK, by which they mean, actually pretty good. If you ask a typical American, how are you doing, they say, amazing. They probably mean, pretty good.

So when people give you certain statements, there's lots of cultural and other aspect that make comparison, particularly across societies, kind of tricky. You might think people in Latin America tend to report higher levels of happiness because that's a cultural thing, which might be that they're actually happier, or it might be that that's just the thing that you're supposed to exhibit. While people in some other states, Scandinavia, Germany, et cetera, might be, in fact, quite happy, but what they report to you is just some moderate level of enthusiasm overall.

So one is cultural comparison is quite hard using those types of questions. There's lots of Gallup surveys that people have done at large scales. It's the Gallup world happiness, or whatever, surveys. There's huge amounts of data that are being collected. They're a nationally representative surveys, and so on and so forth. So those data are available.

Of course, there's questions of, in some places, it's much harder to collect these than in others, and so on and so forth. And some people don't reply to surveys, and so on and so forth. For example, the elderly might be much less likely to answer some surveys, or some people without phones or internet, and so on and so forth, you might not be able to reach them. But in principle, you can solve all of those issues. But I think that it's just cost of use.

The reference dependence is a very interesting issue, because in some ways, you might say, well, now your income, but then your reference point goes off. Something happens to your reported happiness? But presumably you're happier than before? So that [AUDIO OUT].

On the other hand, utility might, in fact, be very much reference-dependent. For example, you might compare yourself to others. And then inequality, for example, might be extremely important for people's happiness. And one of the things that people argue is that, for example, [INAUDIBLE] the GDP, also for the US-- GDP in many places has gone up quite a bit, but happiness has not increased.

And people argue that's because, in part, inequality also went up a lot. And if then inequality really makes people deeply unhappy, well, that is important, and we should incorporate that in some ways in our considerations overall. But you see, that causes tricky issues, because in one case, doubling everybody's income, and presumably, people should be happier, because their living standard goes up.

So presumably, there, even if happiness doesn't go up, presumably, because living standards have gone up, and something is going wrong if I don't see increased happiness in terms of measurement-- on the other hand, there might be very much real issues about, inequality is quite important, and reference-dependent matters for people's happiness and well-being, in the sense that what really might matter a lot is relative income rather than absolute income, and we should capture that in some meaningful way. Oops. Sorry.

In particular, there's lots of issues with, depending on what I focus you on when I ask certain questions, I can get very, very different answers. And one, for example, example of this is a paper by Strack et. al. that looked at the correlation between general happiness and happiness with dating. And so what they did is a very simple thing. They essentially just manipulated the order of questions.

So first, they asked people about how happy are you in general. And then they asked people, how happy are you with your dating life? And in a different subsample, they asked people, how happy are you with the dating life, and then asked people about their general happiness. And what that does, essentially, it focuses people very much about dating as part of their life being important and for their happiness.

And similarly, I think this is exactly what Maya was saying as well. We need to ask, as you know, about the ladder question, which is about other questions about, depending on how I phrase the question, I can get very different answers and what you're saying. So that makes it very tricky to figure out which questions should we use, how much weight should be put on it. And even things like the order of questions matter. Matters quite a bit, which makes economists very nervous and so on, and then that's why, in part, economists would argue that we really should have revealed preference and choice.

Now on the other hand, I very much think the questions, when you just ask people and say, I'm deeply unhappy, that has some content, and there's information there. And so then the question is, well, how do we weigh these considerations? On the one hand, the survey instrument is really just very fragile, and we don't measure very much. On the other hand, there's useful information here that we should be incorporating somehow.

So I just wanted to have you-- that caveat in mind. And so let's now look at some data that people have collected. So what's a very nice source overall is what's called Our World in Data, which has lots of interesting graphs and figures where you can look at happiness and all sorts of things data on the world.

And when you look at life satisfaction around the globe, this is very much the ladder question here, which you see, exactly as I was saying. There's the ladder from zero to 10. And again, the ladder question is very much something hierarchical and makes inequality or relative comparisons quite salient. Even if it only asks you about your worst or your best possible life for yourself, it does have the feeling that really, it's about comparing yourself to others.

But anyway, that's very much used in many cases. Often people will call it life satisfaction, but even here, they also call it happiness overall. This is from the World Happiness Report.

And what you see is that, in general, rich countries tend to be-- report higher happiness, Scandinavian countries in particular. The US is reasonably happy. Europe is quite happy. And then if you go to poorer countries, in particular in Africa, they tend to report a lot lower happiness level.

When you look at comparisons across countries, you see a very clear relationship. Rich countries tend to be a lot-- report much higher life satisfaction compared to poor countries. That's a very clear association. That's true, both across countries but also true within countries.

So what this graph here shows you is the average income in a country. And then these arrows show you the gradient. Within the slope of the arrows is the gradient within countries. And what you see is essentially-- so this is comparing people within countries, rich versus poor countries. If you increase income within a country by $1,000 or something, how much does people's happiness go up?

And what you see is all of those countries have-- almost all countries have increasing gradients, which tells you that, both within and across countries, richer people report higher life satisfactions compared to poorer people. Similarly, that's also true for mental health. So these are all questions about subjective well-being, how happy are you overall, asking the overall population. But if you try to look at mental health conditions in terms of particularly depression and anxiety, so using clear definitions and psychiatric disorders for depression and anxiety and also for other conditions, you find that the poor in any given location are more likely to suffer from depression and/or anxiety.

Interestingly, the prevalence of depression, in fact, also and anxiety, is higher in rich countries. There's a lot of questions about measurement problems, like is it really measuring the same thing, and so on and so forth. But it could also be there's other factors involved, in particular, issues such as inequality. And it could just be that really, what's really important is relative income as opposed to absolute income.

Now we know also that anti-poverty programs improve mental health in various ways, including things like cash transfers and other anti-poverty programs. So this is an overview of studies. This is essentially a recent meta-analysis that we did for some [INAUDIBLE] paper of mine. And what you see here is a number of different interventions, both cash transfers and other anti-poverty programs, which are more broader programs. And what you see here is the treatment effect estimated in the different studies.

These are overall poverty anti-poverty programs. These are cash transfer programs. But overall, essentially, the overwhelming answer is that once you give people cash or reduce their poverty, that improves their mental health, as measured by different-- these are PWB, means psychological well-being indices. This is also depression screening scores and so on. So by various measures of people's mental health, giving people more money improves their mental health.

So that's true at the extreme in terms of really mental illness, depressive and anxiety disorders. It's also true for other measures of psychological well-being. If you just give people cash, they report higher happiness, in addition to what I told you before, this being true in the cross section. Now interestingly, we also tend to think that others are less happy than they say they are. So if we just ask people, how happy are other people in your country, almost every country in the world, what you find is that people tend to say the fraction that people actually say that they're very happy or rather happy is lower than they actually say they are, which is an interesting fact.

Now this-- as we talked about this already a little bit-- how is life satisfaction and happiness related to life events? In terms of when you look at different life events-- it's quite interesting that a lot of life events tend to affect people's reported well-being or life satisfaction a lot. For many events, including stuff like widowhood or divorce or marriage and other types of events, or winning the lottery, these effects are very much transitory, which is to say, when something really bad to somebody happens, their happiness goes down a lot. But it tends to recover quite a bit.

This is what we talked about before. People are quite adaptive to many changes, and they adjust quite well. This is what people call the psychological immune system, except for a few things, including unemployment. And one potential reason is that, for example, unemployment might also cause things like depression. And once you're really depressed, that doesn't really go back over [INAUDIBLE] that easily. That's true for women. It's also true for men overall.

There's also some other issues which you want to be careful of whether to interpret some of this data, which is there's called this evolution of latent situations, which is when you look at things like divorce, it tends to be that people-- when you look at people's divorce, you might say, well, divorce makes them happier in some ways. But really, what seems to be-- or you would look at this and say, marriage makes people less happy. But really, what seems to be the case is that people build up to a positive event, and then that peaks positive or negatively and then essentially goes back to what's before. For example, unemployment, things tend to go worse, even before people become unemployed, which seems to say, people tend to-- these underlying events, people tend to anticipate them already psychologically in some ways.

Now, this is what I was saying before. When you look at comparisons over time, you get sometimes these situations where, particularly in places including in China, but also in the US, where real income has risen a lot in many places, but yet people's life satisfaction does not tend to increase. Why is that? Well, that's, in part, I think, because of inequality going up, but [INAUDIBLE] inequality really staying the same and relative income really being important.

Could be other things going on. For example, pollution is really bad for people's health, mental health, but also their happiness and so on. It could also just be that people's reference points adjust, which is just, you make everybody twice as happy, and now everybody's-- the reference point goes up, even though their overall objective well-being standards, in terms of how much can they consume, et cetera, has gone up a lot.

Now this is quite interesting data now on ceiling effects. So there's some controversy over this. Some people are arguing that when you give people more money, at some point, there's a ceiling effect. It doesn't really make them happier anymore.

Now when you look at this graph here-- let me go back for a second. When you look at these graphs here, this-- whoops, sorry. [INAUDIBLE]. One second.

When you look at this graph here, it just doesn't look at all like ceiling effect. This looks like, essentially, self-reported life satisfaction as measured by these ladder question, essentially, is increasing, and there seems to be no ceiling, or it doesn't seem to be flattening in any way.

When you look at this one as well, it seems to be if you increase income by $1,000, at any level, it seems to be that reported life satisfaction goes up. So again, that doesn't look like a ceiling effect. And that's true as well if you look at these questions here.

Gallup had done these surveys in the US. When you look at the ladder question, which is this one here, when you look at annual income in the US, once you increase people's income, their mean ladder score, which is here on the axis on the right, tends to go up pretty much monotonically. Maybe it's a little bit flattening, but essentially, it goes up. So people report higher life satisfaction when they have higher income.

But when you look at people's affect, both things like positive affect, which is like happiness, smiling, enjoyment, not being blue, being stress-free and so on, what you see is-- in particular, this is for the US. When you go from something like $10,000 to $20,000 to $40,000 per year of income, there's a clear increase over time. So being poor is really-- or poor in the US, it is really, really bad for your affect and for your reported well-being overall.

But once you reach something like $50,000, $60,000, $70,000 in the US, it seems to me that there's no effect on positive affect, feeling blue, stress-free and so on. So one interpretation of that is that if we take these affect questions as more like a measure of experienced utility and happiness in any given life, essentially, having something like $70,000, $80,000 per year in the US-- granted, this is from 2009, so maybe this number has gone a little bit higher. But that number is sufficient to make people sufficiently happy, and beyond that, doubling of income will not do very much on how much you smile every day and how happy you are as a measure of those things.

In contrast, if I ask you the ladder question, which again, is very much about comparison, about how you feel yourself compared to somebody else in society, going from $100,000 to $200,000 will make, potentially, still quite a big difference. Any questions on that? OK.

So then let me-- this is among the most interesting parts of these kinds of studies, is the question about what, in fact-- so if not just income-- so if you know income essentially-- overall, if you're rich, you're going to be happier compared to if you're poor. But again, it seems to be really, if you want to not be unhappy, having income above $50,000 in the US is really important. Beyond that, it doesn't seem to do very much anymore.

But now what other things matter quite a bit? And this is a very simple exercise. So what they did is, this is [INAUDIBLE]. They looked at the Gallup survey questions from 450,000 Americans. And what they did is, for each of these four measures of psychological well-being, which is these here, positive affect, not blue, stress-free, and the ladder questions, they were first just trying to predict, what is the regression coefficient of high income? So if you just split the sample in two and look at high income versus low income, what is the regression coefficients of that?

They're trying to interpret that as causal effect, which, of course, is a little problematic. But you can think of this as the question, if I wanted to try to predict how happy you are, what do I need to know about you? What are the factors that I need to know about you if I wanted to predict how happy you are in your life on any point in time? If you wanted to know, 20 years from now, are you going to be happy or not, what are the things that you need to know about yourself?

And so it turns out that high income is predictive. So there's some coefficient that says that if you have higher income, you're somewhat more likely to have positive affect, less likely to feel blue or less likely to be stressed, and a lot more likely to give a higher answer in the ladder questions. So in some sense, higher income is good.

And then what the table does is it looks at-- it normalizes high income to 1 and then shows you other characteristics and says, OK, if I knew another about you, are you religious versus not and so on, what is the relative coefficient of that compared to a high versus low income? OK? So for example, if you're old, you're-- so a positive coefficient means you're happier or more likely to have positive affect here, and a negative, the opposite, I guess, for positive affect here.

So if you're old, for example, older people, at least in the US, tend to report higher positive affect. So that's good news for you. In 20, 30 years, you'll be likely to be happier. It turns out that religious people, for example, tend to be more-- report more positive affect compared to non-religious people. And the magnitude of these effects is pretty large.

That is to say-- 1.16 is to say, if you compare religious-- if I knew about you, are you religious versus not, that is as predictive as knowing about you, are you rich versus not, are you in the upper or lower half of this income distribution? So that's quite important in terms of trying to predict whether people are happy.

Now what's particularly striking here when you look at this here is alone, smoker, and headache, and particularly pain. I want to emphasize the alone here. Social relationships or people being in relationships with friends or in family or with partners is extremely predictive of people's well-being. This is what I was talking about before when it came to social preferences.

Investing in social relationships in one way is-- A, of course. Making other people happy and being nice is good. But in a way, you think about investing or being nice to others and investing in a social relationship. It's very much an investment in your future well-being. And the magnitudes here are enormous.

Now another way you could do is-- so here, you could say, well, what should I do to make me happier in the future? So one thing you could do is just look at data. So one thing you could do is look at data. And well, what are these predictors [AUDIO OUT] people happy? These are all correlations. You want to be careful.

[AUDIO OUT] tells you something about, if you want to be happy in 20 years, things you want to invest in, these numbers are probably a pretty good start. [AUDIO OUT] your health seems to be quite a good idea. Smoking, for example, not so much.

Now another thing you could do is just ask people at the above and just [AUDIO OUT] about what they should have or could have done in their life. What do you think people said? So this is an Australian nurse who recorded the experience from palliative care as end of life experiences and asked people about-- or she did not simply ask, but she was just recording what people are saying. What are the top five regrets? What would you think they are?

AUDIENCE: Not spending enough time with family?

FRANK SCHILBACH: Mm-hmm. Wished I had worked less, somebody else says. Good enough. So essentially, what people tend to say is a combination of they wished they had been more social, they wished they had expressed their feelings more, they had had been more true to themselves in some ways and not done things that others wanted them to do but rather spend more time with their friends and family and so on.

Now you want to be a little bit careful with this. Again, there's issues with remembered utility. It's also issues with if you are alone at the end of your life, you might be quite unhappy because of that. Be careful how to interpret that. But I think we can actually learn quite a bit about this.

In some ways, if you think about certain choices you make in life, understanding some of these issues seem to be quite important overall. And when you think about what should you maximize, it seems to be that maximizing income, if that comes at the cost of not having friends, seems to be not a good idea if you want to be happy in the long run. Another thing that people-- by the way here, this is not in here-- tend to emphasize quite a lot is having a meaningful job or having work that they believe in in terms of something meaningful as opposed to maximizing income, which seems quite important.

OK. So then what kinds of things then could you do to make yourself happier? And I have a few things written down here. So one of the thing things that I really is invest in and maintain social relationships. Small acts can make big differences, as we talked about, of letters of gratitude or random acts of kindness. These are very small things that you could do. Of course, you can do also really important things. It matters quite a lot how much you help your friends or how much you invest in others. Again, that's partially reflective of just being pro-social and being nice to others, but you can think of this very much as-- neurotically in some ways, you can think of this also as investing in your own happiness in the future.

Choosing meaningful work over money seems really important. If you think about what to do with your life, there's so much talent at MIT, and I sometimes wish that talent would go more into more meaningful things, or because it's society or making society better overall, as opposed to some perhaps potentially [INAUDIBLE] that pay you a lot of money. That's, in some sense, potentially socially optimal in terms of just use MIT's talents or MIT students' talents for useful things in the world.

But if you're just selfish and want to make yourself happy in 20 years from now, it seems to me that just maximizing income is just not what's going to get you there. So it seems to be like being rich is certainly glamorous and exciting, but in fact, if that comes at the cost of your health, [INAUDIBLE], and your friendships, most likely, or at the cost of having a meaningful job that you actually believe in and think is useful, that's not going to make you happy in the long run. So for those of you thinking about what kind of work to pursue in the future, keep that in mind.

And then I have two more things here in my list, which is seeking support to improve your mental health and reduce social media usage. So what do I mean by that? So psychotherapies have very much been shown to be effective in reducing depression, anxiety, and so on. Yet people tend to not make use of those services. Now why is that?

There's obvious reasons, which is stigma, shame, and on. There's also potentially misperceptions, projection bias. Also depression itself, for example, could precisely generate these kinds of beliefs. There could also be other behavioral biases like other health conditions, where people just don't like to see doctors and so on.

Now another way to view this is to say, well, you might think that psychotherapy is really important for depression and anxiety, but psychotherapy could also be viewed as a coach to make you happy. Just think about this as a happiness coach. It might help you figure out your objective function in life, what really makes you happy, and how to pursue that. And that's regardless of depression, anxiety, or any mental disorders.

It's to say, think about sports. In sports, you get a coach to be a better tennis player or whatever, soccer or whatever sports you do. That's a very natural thing to do. People help you to do better. Now why not have a coach for many other things in life, including how to be happier and how to lead a life that makes you satisfied?

In some sense, if you're maximizing your wrong objective function, which again, could be you just maximize money over other things, if a therapist helped you do that or helped you correct that, that could be extremely valuable and helpful. And again, that's in the absence of any serious mental illness. That's just for the average person. Having somebody to talk to to help you optimize your life and mental well-being seems to be extremely important and worth trying.

Second, about social media. So there's a recent paper that's quite intriguing. Or there's actually a couple papers, but let me just mention one, which is by Alcott et al that randomizes paying students to stay off Facebook for a month. This was before the 2018 election, midterm election, which is, in some sense, perhaps relevant in some ways. The timing might matter for some of these results.

So what they find is that getting people to pay-- you have to pay students quite a lot to do this. So students, you have to pay them like $50, and otherwise, they're not willing to do this. When you do that, people reduce their online activities. They also reduce their factual new knowledge, political polarization and so on, all kinds of things that you might expect.

Then you see increased subjective well-being, both happiness but also reduced depression. So students are happier, quite a bit happier by doing that Moreover, there seem to be large, persistent reductions in post-experiment Facebook usage. That is to say, once the experiment is over, lots of students who have been paid to stay off Facebook tend to do that, or to continue doing that, which very much seems to say that it's a habit good. Perhaps there's also some learning involved as students learn that they're now happier overall.

Now that always leads to the question, well, why are people then on Facebook if it doesn't make them happy? And does it have to do with peer pressure? Does it have to do with habit formation? Does it have to do with self-control problems? Does it have to do with biased beliefs and so on?

But overall in some ways, I think the reason that I show this evidence is, when you think about your life or things that you do in your life, you want to think about what are the things that you do in your life? What are the things that make you happy or not? And perhaps experimenting with those kinds of things, or just looking at data from studies seems like a very reasonable thing to do.

So it could well be that social media makes you really happy in connecting with your friends. In particular right now, you think that's really helpful, because you can stay in touch if you need to talk online and so on and so forth, and that's truly a thing that's worth doing. So that could really be very beneficial for your happiness overall, but it might also be that there's large costs of not, coming from perhaps social comparison or just seeing everybody happy on Facebook, or whatever people post selectively makes it look like people are way happier than they actually are. And then that makes people feel bad about themselves, seeing others post overall.

But I think the reason why I show you this is I want you to think about or be more conscious about, what are the things that do make you, in fact, happier and try to invest in those that seem to make you happier overall. So some of these things you could obviously experiment with. For example, you can obviously turn off your Facebook or Instagram, whatever, very quickly and easily. Other things, of course-- the stuff that I showed you in the very long run, like the Kahneman here, these kinds of data, of course, it's much harder to experiment with that.

It's harder to say, I'm going to be religious for a month, from now on, and then see, are you happier? But it is worth to think about, what are the things that you're really pursuing, and are these things going to be making you happy? Not just right now and, is this just doing some things because your friends want it or some other influence that you have, as opposed to what are the things that you really want, and what are the things that are going to make you happy, not just this month or next month, but five 10, 20 years from now? Because a lot of choices that you make in the next couple of years will be very persistent in terms of depending on what jobs you choose, what kinds of friendships you have, what kind of partners you have, and so on, will be very much persistent for a long time in terms of determining your long run happiness. And so that's a very useful thing to think about.

Let me see. So what do people think? I guess, at some point, hopefully-- so Cubek is monitoring the llama situation, I hope. We'll see about that, because hopefully, that makes people happier.

But what do people think is-- why are people on Facebook if it doesn't make them happy? So it could be essentially issues with present bias or the like, that any point in time, there's some temptations of perhaps posting or the like, and then that makes you happy in the very short run. But in the long run overall, then that's not really helping you overall, and there's essentially some self-control problems in some ways.

In particular right now-- and so to be clear, the study that was done here-- and I actually talked to [INAUDIBLE] some of the authors of the study would also tell me, if you did the study right now, we would find the opposite, because now, in fact, Facebook or any other social media helps people stay in touch, and there's some positive benefits. So what you're saying is, well, presumably, Facebook was developed early on. Or the reason why it's successful is because it really helped people connect to each other in some ways. And people thought there were some benefits from that. And that's particularly true if you're not in the same place physically.

And particularly right now, then there are these benefits overall. And then there's a question of, well, what are the costs and benefits of that? And maybe people misperceive some of these or the like.

What I'm trying to encourage you is to say, well, there's ways to learn about this. And Facebook is actually a very good example where you could learn very easily, where you just say, let's turn it off for a month and see what happens. You could also-- there's some other activities where you say, let's do more sports, or let's get up earlier in the morning or sleep more at night. There's some things that are quite easy to experiment with. Other stuff, as I said, becoming religious versus not, is much trickier to experiment with, or being healthy versus not. In some sense, it's just a very much long run effect.

But exactly as you said, people have never actually experienced any of this, so how would you know how you're going to be happier? There's also some public goods issues and some issues of externalities [INAUDIBLE]. If all of [AUDIO OUT] are on social media and you are not, you're a bit of an outsider, and that will make you likely very-- or likely not increase your happiness. But it might well be that if everybody decides to go off social media, then in some sense, you don't have to rely on social media to go to parties or whatever and so on.

And so there might be also some coordination issues, potentially. So conditional on everybody being on Facebook around you, you might want to be on Facebook or whatever other social media. But if that's not the case, then-- so it could be for every single person. Every single person could be happier if everybody else were not on social media, but conditional on that everybody is on social media, that's not the case.

And what I'm saying here is, we tend to do the same things over and over again. As Maya was saying, is what if we just experiment more off of this and we did costs, perhaps long run, benefits. There's default effects, of course, and so on that keep us from experimenting. But if you think about it, if you could make yourself just a little bit happier every day for many, many years, it seems to be worth experimenting a lot.

I would very much encourage you to go and try out new things in life that potentially make you happier. [INAUDIBLE] has as a nice-- I hope this is still working, the link, but it has a very nice *New York Times* article that argues that [INAUDIBLE] experiment more and try to figure out what makes us happier. Any other thoughts on social media or Facebook?

OK. So that's all I have for now. Next time, we're going to talk about policy. That's the last lecture. Please do read Thaler and Sunstein. Peluk tells me the llama is not here yet, neither in my private room where the llama might be otherwise. I'll sit here just to wait. I think the announced time is 2:30, so that's in four minutes. So if you have to run, of course, that's fine. Otherwise, I'm just going to stick around and wait.

If you want to talk about more, I'd love to know more about why people are experimenting more. I also would love to know more about how people think. So one thing I was mentioning here is that, while social media might be bad and there might be detrimental effects, in particular coming from social comparisons, which is to say, look. You see everybody on Instagram looks like they have a glamorous life and are happy all the time.

You see that, and that might make you feel depressed. By the way, that might also lead you to [AUDIO OUT] glamorous pictures yourself. So you might reinforce the whole issue overall.

I think there surely are some downs, actually. But there's also potential upsides of connecting people online, in particular that I'm trying to work on. [AUDIO OUT] if anybody has some small things [INAUDIBLE] could do right now online to help people be more connected, and less lonely, and less depressed.