

Probable Causation, Episode 92: Laura Khoury

Jennifer [00:00:08] Hello and welcome to Probable Causation a show about law, economics and crime. I'm your host, Jennifer Doleac of Texas A&M University, where I'm an economics professor and the director of the Justice Tech Lab. My guest this week is Laura Khoury. Laura is an assistant professor of economics at the University of Paris Dauphine PSL. Laura, welcome to the show.

Laura [00:00:27] Thank you for having me.

Jennifer [00:00:29] Today, we're going to talk about your research on the effects of prison on mental health in Norway, but before we get into that, could you tell us about your research expertise and how you became interested in this topic?

Laura [00:00:40] Yeah, sure. So my research in general is in the field of labor economics, broadly defined, so including crime economics, and also at the intersection with public economics. So I have a first strand of my research where I look at the effects of social insurance schemes on labor market outcomes and in particular study a lot unemployment insurance systems and their effect on the behavior of workers and also the kind of jobs employers are going to offer to those workers. And so the second strand of my research is interested in crime economics and so there I try to look into the effects of prison on multiple outcomes. So trying to go beyond recidivism and looking at other dimensions such as health. So in a way, I try to look into the black box of prison to try to understand what works and what doesn't work and on which dimensions.

Laura [00:01:37] And so I started becoming interested in the topic during my postdoc. So actually, during the Ph.D., I was working, as I said, mostly on unemployment insurance so kind of a different topic. And then I had this job opportunity to work at the Norwegian School of Economics on this broad project about the effects of prison. So I was already interested in the topic, and I thought that Norway was actually a fantastic lab to study prison systems because it's often presented as a sort of very positive model in terms of prison systems with a very strong focus on rehabilitation. So I thought that it would be very interesting to really study Norway as a as a case study.

Jennifer [00:02:18] Your paper is titled "Prison Mental Health and Family Spillovers" it's coauthored with Manudeep Bhuller and Katrine Løken. So in this paper, you consider how the experience of incarceration affects the mental health of those who are incarcerated. And the conventional wisdom here is that being locked up has a detrimental effect on various health outcomes, especially mental health. So why do people think that that negative effect exists and why might they be wrong?

Laura [00:02:45] Yeah, so the first thing to know is that people who enter prison are already more likely to have poor health than the general population. So if you look at survey evidence, for instance, there is a report by the Bureau of Justice Statistics in the U.S. where they measure that more than half of all prison and jail inmates had a mental health problem as measured in 2005. And if you look at similar survey evidence in Norway, actually the picture doesn't look better. So survey evidence finds that about 76% of inmates have either a drug use or mental health problems and this has to be compared to about 20% in the general population. So that means that already when defendants arrive to the prison, they're already doing quite bad in terms of mental health. And of course, when you think about prison, you don't usually think that this is the most adequate place to get better and there are many reasons for that.

Laura [00:03:43] So first, in terms of physical health, so the prison environment is very overcrowded with poor hygiene, poor nutrition, and that also makes the spread of communicable diseases more likely. And more specifically, regarding mental health, again, incarceration conditions don't really contribute to a better mental health because you're locked up in a cell, you're sometimes in a violent or stressful, unsafe environment where inmates are sometimes themselves victimized, and you also lack a lot of social interactions. And also the prison staff is not always trained to detect mental health issues. And they also sometimes use some practices like solitary confinement, where basically inmates are locked up in a single cell for almost 24 hours a day. And so, again, here, the lack of social contact, the reduced activity is not going to potentially not going to be good for your mental health.

Laura [00:04:46] So this is kind of the most intuitive channels that people have in mind, but on the other hand, there could be also potential positive effects of prison on health. So first, it could give an access to health care to a population that does not necessarily have access to health care outside of the prison, because this population is often very low income and so sometimes for financial reasons, but also sometimes because they are not using the health care system, they may actually get a better access to health care in prison. And also prisons, prison could be a place that help them stay sober or drug free and therefore help them working on their addiction issues because we know also that the prison population, the likelihood that they have addiction issues is higher than the general population. And this is very often associated to other mental health issues.

Jennifer [00:05:39] So what had we previously known about the effects of prison on health, including mental health, before you all started this paper?

Laura [00:05:46] Mm hmm. Yeah. So there is a lot of correlational evidence on this topic. So basically, there are a bunch of studies where they compare incarcerated and non-incarcerated individuals that are sometimes matched on some observable characteristics, such as gender or age. And typically, this literature finds that incarceration is associated with higher levels of morbidity, mortality and mental health disorders, but of course, you can suspect that incarcerated and non-incarcerated individuals differ on many dimensions, and that those dimensions could themselves be correlated with health outcomes. So what I mean by that is that usually the incarcerated population is negatively selected on many dimensions, on employment, for instance, on health, as I just said. So measuring a difference in health outcomes between incarcerated and non-incarcerated defendants does not necessarily inform us on the effect of incarceration on those health outcomes and so in terms of causal studies, there are actually very few papers looking at that.

Laura [00:06:54] So there are two very recent papers. So one has been published last year and one is forthcoming and so they both look at the effect of incarceration on mortality. One is in the American context and one in the Swedish context. So the first paper by Samuel Norris and coauthors, they use 30 years of data in Ohio, and they look at the impact of being incarcerated on mortality risk. And so to do that, they use a difference in difference strategy around the removal of the treatment so the release from prison. So what it means is that they're going to compare inmates right before and right after the predetermined date of release, and they're going to use a control group made of defendants who are charged but not incarcerated to control for factors that are unrelated to prison and might affect health outcomes.

Laura [00:07:49] And so what they find is that during incarceration, they measure a 60% lower mortality risk. And this is driven mainly by homicides, overdoses, suicide, and also natural causes of death. And also importantly, when they look at the effects after release, they're able to rule out any positive effect on mortality. So this is for the U.S. study and concerning to the Swedish study. So this is a paper by Randi Hjalmarsson and Matthew Lindquist where here they they're going to use policy induced variation at the intensive margin, meaning in prison length. So the use a reform in Sweden that holding sentences constant changed the percentage of the sentence that inmates had to serve. And they're going to use the fact that this new requirement applied after a strict threshold in terms of conviction rate.

Laura [00:08:47] So because here again, you can just compare defendants with shorter or longer sentences, because again, those two populations are going to differ. And just measuring a difference in health outcomes between them does not necessarily mean that longer sentences is the cause for maybe worse or better health outcomes. So they're using this exogenous variation in the length of the sentence to look at the effect of prison length on mortality and so here again, they find a decrease in mortality risk. So they do not necessarily find a decrease on the average, but when they focus on specific causes of death, such as circulatory death, violent deaths and suicide, they do measure this decrease in mortality risk. And also when they look at specific sub samples such as younger offenders or offenders with some past employment history. So overall, both those studies in very different context, they find a negative effect of prison on mortality risk.

Laura [00:09:47] And so what we're going to do in our paper is that we're going to focus on less extreme health outcomes. So not looking at mortality, but looking at the number of health care visits. And we're going to use alternative research designs focusing on the extensive margin effect of prison. So the fact of being incarcerated or not.

Jennifer [00:10:06] Okay, great. And when you say they're finding a negative effect of prison on mortality risk, you mean negative as in it decreases mortality risk? Just to be very clear, since it is a counterintuitive finding, I think, for many people. So prison is improved there both of these neighbors, again, in Ohio and Sweden, they're finding evidence that prison is actually the causal effect, that prison is actually to improve health. There are a whole bunch of different channels.

Laura [00:10:28] Exactly.

Jennifer [00:10:29] Which is, you know, to preview a little bit basically what you guys are going to find, too. So all very surprising. So, you know, this is you know, this has been a literature or a topic that people have been really interested in for so long. And and you're right, we basically now have you know, there are these two studies plus your study. So we're up to three either causal studies of the effects of prison on health despite this long standing interests. So why don't we know more than we do? What made this issue so difficult to study for so long?

Laura [00:11:01] Yeah, so you're right. I think there are two types of challenges, both a data and identification challenge. This first, to be able to study this question, you need I mean, ideally you need individual level data on criminal outcomes or criminal variables, and you also need individual level data on health outcomes and you need to be able to link them and both of these data are very sensitive information. So even having access to it and also being able to link them is something that is usually not possible in many countries

and that's also why a lot of those studies have used mortality data, which is usually easier to access.

Laura [00:11:45] And the second, I think type of challenge is an identification issue. So I mentioned that already a bit, but as I said, incarcerated and non-incarcerated defendants differ in many dimensions. And so when you just measure the difference in their health outcomes, it's very hard to impute that difference to incarceration or to, you know, the fact that again, these are very different populations. So you need really an exogenous variation either in the probability to be incarcerated or in the length of incarceration. And because ideally you really want to compare individuals that are similar in all respects except their incarceration status and this is very hard to get.

Jennifer [00:12:25] Yeah. So all of those previous studies, you know, they, they just tried to control for lots of stuff. And the basic problem here is you're never going to be able to control for everything that matters, especially when you're talking about like underlying risk of mental illness, for instance. Like that's just very unlikely.

Laura [00:12:43] Yeah.

Jennifer [00:12:43] To be in the data in some way that the researchers would see. So tell us about prisons in Norway. As you said, people often think of Norwegian prisons as being like a best case scenario. I'm sure our listeners are already thinking about this. This might be, you know, a unique situation in some way, but in other ways not so near unique. So so it will be interesting to kind of think about how this can relate to the U.S. So in Norway, who's incarcerated, how long are typical sentences and then what are the conditions like in the prisons?

Laura [00:13:12] Yeah, so you're right, it's a very important point. Yeah. To know more about the context, to understand those results, that might be surprising. So in terms of who is incarcerated. So if you look at incarceration rates, for instance, the Norwegian incarceration rate is not that different, than the one in Western European countries. So they have an incarceration rate close to 72 individuals per 100,000 inhabitants, and this can be compared to about 100 in Western European countries and about 700 in the US. So in that sense, U.S. is really an outlier on that aspect. And if you look at the characteristics of the incarcerated population, it actually also doesn't differ that much from other countries. So the selection into incarceration is quite similar, but what is really going to differ is the prison system.

Laura [00:14:06] So in terms of the length of sentences, sentences are usually short in Norway, in our sample, for instance, the median sentence length is six months and 80% of our sample has a sentence under 12 months. So this is quite short. And this is also in line with the whole Norwegian model that relies a lot on rehabilitation. So one important principle of the Norwegian prison system is this what they call the principle of normality, which means that life inside prison should resemble life outside prison as much as possible and that means that offenders should be placed in the lowest possible security regime. So they really try to enforce this idea that the main punishment of prison is the restriction of liberty, but that no other rights should be taken away from inmates in Norwegian prisons. And so the way they also try to enforce that is by ensuring that incarceration conditions are humane and as good as possible. So first, there is very little overcrowding in Norwegian prisons at least there is during our period of study and they also have this very strict policy of one prisoner per cell.

Laura [00:15:19] And also when they allocate prisoners, they really try to make them as close to home as possible. In terms of the type of prisons they have so they have two types of prison, what they call a high security prison, also referred to as close prisons. And basically in those prisons, you will have a wall or high fence around the prison area and all doors are going to be locked and inmates are going to be, most of the time locked in their cells, except when they are participating to a work or education or leisure activity and these are actually the majority of prison beds in Norway. And then they have a lower security prison, which they also call open prisons, where they have fewer physical security measures and where in general, inmates are more free to move around the common spaces in the prison and spend more time outside their cells. And the way they're going to decide whether convicted defendants is going to be sent to an open or closed prison depends on the severity of the crime and on the geographical proximity with home.

Laura [00:16:28] And so, as I said, there is a strong focus of the Norwegian system on rehabilitation. And that means that they're going to offer a wide variety of programs. So it means that they're going to offer employment programs, education programs, but also programs directly targeting mental health, either helping fighting addictions, for instance, or even targeting social, social emotional skills such as anger management or interpersonal relationships, for instance.

Jennifer [00:16:59] And then what type of mental health care to inmates receive while they're incarcerated? And how should we think about that in relation to the health care they might receive on the outside? How similar is it or how different is it?

Laura [00:17:11] Yeah, so this is also in line with the whole system, with this focus on rehabilitation, because by law, prisoners in Norway have the same rights to health care services as the population at large. So they're really trying to make sure as much as possible that the health care access and health care quality is similar outside and inside the prison. So they use what they call the import model, which means that all public care and health services should be provided in the same conditions inside and outside prisons. And what that means is that they're also going to rely on doctors from the community so they don't have really prison doctors, but they have the doctors from the municipality around the prison who are going to come to the prison and provide their health care services to the inmate population. And this is meant to ensure the least disruption possible in terms of quality of health care provision. And also, it means that when inmates exit prison, in some cases, they're going to be able to consult with the same doctors that the one they were consulting with inside the prison.

Laura [00:18:22] So their medical staff is often specifically trained in addiction and mental health disorders. Also, if you look at survey evidence, really describing the whole process when inmates enter prison, what they describe is that when inmates enter a prison, they receive an initial health screening, and that could help to detect maybe some undiagnosed disorders that inmates were not aware of before arriving to prison. And then they're going to be assigned a prison officer as their primary contact in this prison officer who's going to be in charge of arranging consultations with those primary health care workers or even with specialists, including psychotherapists and psychiatrist. And so just looking at capacity, this survey, they explain that the ratio of psychotherapists per inmate is equal to about 100, meaning that you have 1 psychotherapist for every 100 inmates on average. And that during the time of the survey there was no waiting list to consult with those psychotherapies. So it really seems that the health care system is of high quality both inside and outside the prison.

Jennifer [00:19:34] Okay. And should we assume that in Norway, people, even if you're you're relatively poor as this population is, they're going to have pretty decent access to health care outside?

Laura [00:19:45] Yeah, exactly. Yeah. So they have a very generous welfare system, including health care insurance. So even if you have a low income, you're able to, you know, have access to health care and pay very little out of your pockets. So, yeah, it's also the case that outside the prison, health care access is quite broad and of high quality.

Jennifer [00:20:07] Okay, great. Yeah, that'll be important as we think about the counterfactual here is if you're not locked in you've got, at least in theory, access to great health care. Okay. And then so another advantage of doing this paper and this analysis in Norway is that you have amazing data. You've got this amazing Norwegian administrative data. So walk us through the various data sets that you use in this paper.

Laura [00:20:31] Yeah. So I guess it's time for me to brag about the amazing Scandinavian data.

Jennifer [00:20:37] Exactly.

Laura [00:20:38] Yeah, we're very lucky. So what we're using is longitudinal administrative data that allows us to recreate log panels of crime and health stories. So on the crime side, what we're going to do is that we use data on court cases. So we have information on old court cases over the period between 2005 and 2014, and we observe the start and end dates of every trial in various case characteristics and also, importantly, the verdict and we have unique identifiers for judges, defendants and district courts.

Laura [00:21:14] And so we're going to link this data to charge data. So we have a complete record of all criminal charges, including the type of crime when it took place and why it took place. And we also additionally match that to the prison register, where we have information on the actual time spent in prison. And so on the health side what we're going to use is also an administrative dataset that includes every visit to any type of health care professionals from 2006 to 2019. And this is actually a database that is used by doctors to get reimbursed by social security. And so they need to fill a lot of information on so first, the type of doctor, also the type of visit. So the give information on diagnosis codes that are associated to the visit. And so we can then match those diagnosis codes to international classifications to know what is the reason up to visits. And so that's how we're going to know whether a visit is mental health related or physical health related.

Laura [00:22:17] But one important thing to notice is that this database of health data does not include health care visits when in prison. So that means that when inmates are in prison, we are not able to measure how many health care visits they have. So what that means is that in terms of the interpretation of our results, we're not going to put too much emphasis on what happens the first year after incarceration, because during that time, most of the inmates are likely to be still in prison. So we cannot really interpret what's happening during that time.

Laura [00:22:53] And so lastly, we also have detailed demographic information, and we can also recreate family links. So that's also how we can look at spillover effects on the partner or the children or even the parents of the defendants.

Jennifer [00:23:10] Fantastic. Yeah. And it's sort of amazing to think that even especially these family links are becoming more and more common in all of these papers. And it's almost become a default thing you have to do. Now, let's look at what's happening to the families. And it's just amazing what we can do with these data now. So descriptively, what do the people in your sample look like before they enter prison and how do they compare to the general population?

Laura [00:23:34] Yeah, So in our sample and as often in a prison population, defendants are going to be rather young. So the median age is at 32 and almost 90% of the sample are males. And what we see is that they're also negatively selected on different dimensions. So, for instance, if you look at the probability of being employed the year before the crime, only 32% of our sample has been employed a year before the crime. So this is much lower than in the general population. And also in terms of health care utilization, they have a much higher health care utilization than the general population. So again, if you look at the year before the crime, 91% of the sample had a health care visits during that year and 55% of them had a mental health visits. And so if you want to compare to the general population what we do is that we actually build a sample of so from the general population when matched to our sample of defendants on different characteristics, so the demographic characteristics to try to have a sample that is a bit more comparable to the sample of defendants. And so when we do that and we measure their health characterization in a random year, so let's say 2010, we see that in our population of defendants, there is a 48% chance that they had a mental health visit during that year, whereas in the general population this probability is a 14%. So it's much lower.

Jennifer [00:25:11] Okay. And so so yet that highlights this problem with just matching on observables. People are going to be different on these other outcomes. So you'll need then to address the fact that people going to prison are already disadvantaged relative to those who don't. And so that simple correlational analysis that had always been done before might be misleading. So you're going to use two different research strategies to measure the causal effects of incarceration. Let's talk about each of those in turn. So first, you're going to use the precise timing of incarceration as a shock and then look at how mental health outcomes evolve over time for individual people before and after they are locked up. So tell us more about what you're doing there.

Laura [00:25:54] Yeah. So in this first strategy, we're going to restricted a sample of incarcerated dependents and look at their health outcomes right before and after the case decision events. So this methodology is called an event study. And what we're going to do is that we're going to include case fixed effects, meaning that we're really going to compared the same individual in the same case before and after case decision and see how his health outcomes evolve. And we're also going to include time fixed effect, meaning that we're going to control for common time factors that may affect the whole simple and maybe unrelated to prison. So and we're able to do that because we have variation in the date of the case decision in our sample so we can look at what happens a month after case decision, two months after, etc. and we can separate that from just calendar time fixed effects. And so we're able also to control for those counteracting things.

Jennifer [00:26:59] Yeah. So and just to elaborate a little bit on that, so so yeah. So if there's some like broader policy reform that increases health care for everybody or something that affects everybody in the year 2019, you'll be able to kind of control for that 2019 effect on everybody, but because people are constantly being sentenced throughout

your sample, you're essentially going to be able to look at those effects even when you're controlling for that time factor.

Laura [00:27:24] Exactly. So everything that relates to policy shock or another type of shock that is unrelated to prison but affect the whole sample is going to be taken care of with this time to fix that. And so what we do in this methodology is that we also try to observe many years before and after a case decision, because first, being able to observe many years before case decision allows us to make sure that, you know, defendants and incarcerated defendants are not on a different trend in terms of health outcomes, meaning that we don't want to so we want to make sure that what we're measuring is not that incarcerated defendants. We're on an increasing trend in terms of health care visits, for instance, and because their health was deteriorating and that's what led them to commit the crime and that's what we we would capture by measuring what happens after incarceration. So to be able to rule out this hypothesis, we are able to observe five years before case decision and to check that we do not observe those increasing or decreasing trend before the case decision event. And we also observe five years after case decision to be able to say something about not only short term effect but also a medium run effects rate.

Jennifer [00:28:46] Yeah, so the strategy is going to give you a whole bunch of beautiful graphs that I wish I could show people over the audio file here, but we can't. So if people like looking at pretty graphs, you should go look at the paper because it is going to basically what you're going to be looking for is these flat free trends and then suddenly someone goes to prison and then you see a change in their their mental health care access or use. And then the second strategy, you're going to use the fact that cases are randomly assigned to judges. Love it. And the judges vary in their likelihood of sentencing individuals to prison as an actual experiment. So tell us more about what you do with this strategy.

Laura [00:29:23] Yeah, so this is a very commonly used methodology in the crime literature. So I'm sure some of your listeners are already familiar with that strategy, but basically it relies on the fact that in a lot of court systems, court cases are randomly assigned to judges who are going to differ in their leniency. So the way it works in practice in Norway is that they follow this principle of randomization. So what it means is that all cases are treated exactly equally and they're going to be assigned by a chief judge to other judges in the court on a mechanical rotating basis based on the date a case is received. So within a court, within a year, you're going to have these random assignment to judges based on availability. So what it means in practice is that the judge you're going to face as a defendant is going to be sort of randomly drawn. And those judges differ in their leniency. So the way we're going to measure their leniency is by computing over a whole sample of cases, the incarceration rate leaving out the case we're interested in. So with this leave out judge incarceration rate, we have an instrument for the probability of being incarcerated.

Laura [00:30:44] And so what this methodology does is essentially comparing two individuals that are randomly sent to two different judges, and one is going to be incarcerated just because he's facing a stricter judge. So those two individuals are going to be similar in all respects at the margin of incarceration, except for the fact that when he's going to be sent to prison and the other is not going to be sent to prison. And so using that, we can there then compare those two individuals at the margin of incarceration and say something about their health outcomes in the future.

Jennifer [00:31:21] Okay. So in both cases, with both of these strategies, what are the outcome measures you're most interested in?

Laura [00:31:27] Yeah, so the good thing with the data is that we have very detailed information on this diagnosis codes that I mentioned for each visit and also information of the type of doctor. So this is very rich information. But of course, you also need to aggregate at some point to have more meaningful outcomes. So what we do in our estimation is that we're going to focus both on the number and probability of having health care visits at a monthly interval. So first, we're going to focus on all types of health care visits, just counting the number of health care visits each month. And then we're going to separate the health care visits that are related to a mental health reason using those diagnosis codes and those that are not related to a mental health reason that we call physical health related visits. So that's why for our main estimation and then to say something about mechanisms, we also further disaggregate among the health visits between what is related to addiction issues and what is not related to addiction issues, which is going to be main mood disorders so depression, anxiety and things like that.

Jennifer [00:32:40] Okay. And then so how should we think about mental health care usage as a proxy for mental health? So the ideal, the ideal data you would have is basically whether people are experiencing symptoms of different types of mental illness or something like that. You don't have that. You basically are going to see if someone's going to a doctor and what they're going to the doctor for. So you've got these diagnosis codes, which is, you know, so much cooler than anything we have any other data set, but just sort of keeping in mind like what the ideal data is and then what that's different from the the data that you actually see and I'm sure some people some listeners are thinking, you know, it could be a good thing if someone's getting treatment. So why would we count that as a bad it's not always a measure of worsening outcomes. If you're going to the doctor more, maybe you're actually getting better. So how should we think about this mental health care usage as a proxy for mental health?

Laura [00:33:35] Yeah, you're right. This a very important point. So in a sense, on the one hand, having this data on health care usage is good in the sense that it gives you a sort of objective measure of mental health, maybe more objective than some self-reported measures. But it's true that at the same time, it's difficult to disentangle health characterization from health per se. And as you said, it could be a good thing to seek treatment and to actually go more often to the doctor could be a sign of improvement of your health in a positive in terms of health. So we had no prior about that, but we just think that in our context so the fact that we measure a decrease in mental health visits is actually means that mental health is really improving. And we have several reasons to believe that what we're measuring is a true improvement in mental health.

Laura [00:34:31] So first, in our context, because as I said, incarceration conditions are relatively humane in Norway. So we don't think, for instance, that the incarceration experience could affect too much institutional trust and maybe make health care motivation decrease because of that, and also because they use this import model that really ensures discontinuity in terms of health care between inside and outside the prison. We also think that it makes it more easy to continue to use health care even after after release. And also the fact that they receive this mandatory health screening rather point to the to the fact that, if anything, that would induce more an increase in health care utilization rather than a decrease, because maybe they get some disorders diagnosed that were not diagnosed before and maybe they're going to start seeking treatment because of that. So this was what relates to the context, but of course, we also need to run some

checks to make this idea that what we're measuring is that actual improvement in mental health more critical.

Laura [00:35:42] And so the checks that we run is that first we're going to look at some types of mental health visits that are ER mental health visits where basically these are more severe things, where the question of going to the doctor does not really apply because those disorders are more severe, more urgent. So we think that here the underlying health and health care usage are more closely linked in a sense and we also measure a decrease in those emergency mental health visits.

Laura [00:36:15] We also have one estimation where we look at the severity of the mental health disorder. So here we condition on having a mental health visit and we look at whether the severity of the code that is associated to the to the mental health visits increases or decreases. And here we also measure a decrease in the severity of the mental health disorder, which means that at least for those who continue going to the doctor, it really seems that there is an improvement in terms of severity of the disorder. And two other things is that we also look at physical health related visits and here we don't measure any significant change. So that indicates that inmates don't seem to stop going to the doctor. So that's quite reassuring on their health care accusation.

Laura [00:37:05] And the last thing is that we're also going to look at the overall improvement in family well being using not only mental health measures, but also other types of measures such as child protection service incidents which are not subjected to this health care utilization issue. So I think with these pieces of evidence, we at least they all support the idea that we're measuring an actual improvement in mental health.

Jennifer [00:37:33] Awesome. Yeah, you do. You do attack this from many different angles and all of them are very convincing. And then as a whole, I agree. I think I was I was fully convinced that this mental health care usage measure is a is a great proxy for actual mental health. Okay, so let's get into the results. So first you run a naive OLS regression. Looking at the correlation between incarceration and mental health when you simply control for lots of stuff. So that's what most of the previous literature in this space has done. So what do you find?

Laura [00:38:05] Yes. So when we read this naive OLS we actually find a positive coefficient, meaning that we find that incarceration leads to an increase in the number and probability of health care visits and in particular number and probability of mental health visits so in terms of magnitudes. So here to describe the results, I'm going to focus on the average effects between year two and year five after case decision, because as I said, we don't want to interpret too much what's happening the first year. And so in terms of probability of having a mental health visit during that period, we find 13% increase in the probability of a mental health visits between year two in year five after case decision. So if you run this naive OLS we actually get something that is in line with previews, correlational evidence.

Jennifer [00:38:58] Yeah. And this exercise is very useful because you could imagine that maybe maybe this maybe everything you're finding after this is just something about the Norwegian context and the correlational design would have given you the right answer in this context, but it turns out it doesn't. It's giving you what the rest of the literature found so that gives us a little more confidence if we are skeptical that that previous literature really is suffering from some selection bias here that seems to be pointing us in the wrong

direction. Okay, so let's get into your causal approaches. So so next step you use your event study approach. So what does it tell you?

Laura [00:39:39] Yeah. So using the events study. So if we focus on the same time period between year two and year five after case decision, here we find a 20% decrease in the probability of having a mental health visit on average. And we also see looking at the dynamics so if we look at the those beautiful graphs that you were mentioning, we can see that the effect increases over time. So if you look at the point estimate again of the five year period, actually this decrease in the probability amounts to a 30% decrease. So it's a quite important effect. And what it also means is that this effect lasts and further deepens after the release. And so we also look at physical health visits. And so here, as I said, we do not find any significant change so it means that overall, if we look at the the overall probability of having any type of health care visit, we find a 12% decrease five years after the case decision event.

Jennifer [00:40:44] And then finally, use your judge severity as an instrumental variables as the judge randomization design. So what are the results there?

Laura [00:40:52] Yeah. So here reassuringly we find results that are consistent with the event study. So we also find negative coefficients for both the number and probability of mental health visits. So we do lack a bit of precision. So we have quite large standard errors, but if we look at the number of mental health visits, for instance, we measure a decrease of a 0.9 mental health visit during that period between near to a near five after a case decision and this has to be compared to a baseline average so outcome of 0.7 before the case decision event. So it's a very large effect. As I said, what is good is that is going in the same direction, but it does differ a bit in terms of magnitudes compared to our events estimates. But here you also have to keep in mind that we're not measuring the effect on the exactly same population, because then what the IV is doing is really measuring the effect by comparing the offenders at this margin of incarceration.

Laura [00:41:59] So comparing those who are aware at the margin but ended up in prison with those at the margin but ended up not being in prison. And so what the event studies doing is focusing on the sample of incarcerated defendants and looking at what happens before and after the case decision. So it does make sense that our results are not perfectly similar in terms of magnitude.

Jennifer [00:42:25] Yeah. So you've got to the event study is looking at the effect essentially on average across everybody, because everybody's going to prison at some point. And then your IV is looking at the effect on the type of person who would have had a different outcome if they'd seen a different judge, which is not everybody. But it does suggest and if we sort of take the coefficients at face value, it suggests that those people who are at the margin actually seem to benefit a lot in terms of their mental health outcomes, but from going to prison so perhaps like those, that group at the margin has even more to gain and needs that health care access even more perhaps than the average person, which is interesting. Every time I see one of these these analysis now, it just reminds me what a data hungry approach this is. It's a common approach in the crime literature, but I think every once you run one, you're like, Oh, wow, It takes a lot of data to be able to say something useful here. Okay, fantastic. And then so after you run these main analyzes, you dig into the data a bit more to explore potential mechanisms for these effects. So what do you find when you do that.

Laura [00:43:33] Yeah so we consider different mechanisms. So first we want to know whether this is due to incapacitation so the fact that when you're in prison, maybe you're not able to go to see a doctor. And so in our case, as I said, anyway, we not able to measure health care visits when in prison. But what we see is that the decrease in mental health visits does not only happen during incarceration, but actually lasts even post-release. So we can rule out that our effects are only due to incapacitation. The second channel that we consider is whether this improvement in mental health is due to the addiction. So as I said, the inmate population has very high levels of addiction. So it could be the case that because they are in prison, they're not able to use drugs or consume alcohol as they were doing outside, and also that they receive these so they can participate in those programs targeting addiction maybe the effect that we're measuring is driven by that.

Laura [00:44:37] So what we do is that we split our mental health visits by everything that is related to addiction issues and everything that is not and we actually measure similar declines in both categories. So what it suggests is that addiction is part of the answer. So, I mean, deaddiction is part of the answer, but it's not the full explanation. And so the third important mechanism that we consider is rehabilitation. And so here what we do and actually this is in the new version of the paper we're working on at the moment, we also look at non-custodial punishments. So we consider other types of punishments than prison. And what we see is that actually for sentences that share some rehabilitative components with prison, we also measure a decline in mental health visits. So this is the case for defendants sentenced to probation or community service service, for instance.

Laura [00:45:35] But we do not find that for other types of sentences, such as fines that do not share those rehabilitative components. And indeed, for those who are sentenced to probation or community service, they also have to have these regular meetings with caseworkers. They also need to enroll in some addiction programs, their drug and alcohol use is also monitored. So in some sense, they share a lot of those components with the prison sentence. And another piece of evidence that we have on this rehab and rehabilitation channel is that we also find suggestive evidence that the decline in mental health visits is stronger in open prisons so those lower security prisons where, you know, the inmate is more free to move around in the common spaces and he's not locked up in his cell most of the time. And we also find suggestive evidence that the effect is stronger in prisons with employment and education programs.

Jennifer [00:46:39] And do those effects vary across different groups and any other interesting ways?

Laura [00:46:44] Yeah. So we we consider other dimensions of the heterogeneity. So one thing that we consider is heterogeneity by employment history. And the reason why we look at that is also because there is this other paper by my coauthors where they look at the effect of prison in the same Norwegian context on recidivism and employment and so they measure a decrease in recidivism and an increase in employment. And they also measure that this effect on employment is particularly concentrated on those those defendants who are not employed before incarceration. And so what we wanted to check is whether this effect that we find on mental health is partly driven by these better employment prospects, but by doing that, so we do the same split by employment history, and we actually find very similar effects for both groups.

Laura [00:47:39] So those were previously employed and those were not previously employed, meaning that it could still be the case that part of the effect is channeled

through an improvement in employment outcomes, but it doesn't seem to fully explain the effect that we find on mental health. And other dimensions that we consider is by type of crime and sentence length and so we measure a slightly larger effect on violent offenders and also on offenders with longer sentences and so this could be driven by the fact that maybe they have more access to those programs that I was mentioning before. And the last thing that we consider is the previous mental health. So we also split the sample by mental health history before case decision. And so here we find also suggestive evidence of a larger effect on those with no or little signs of mental health disorders in the past. So it looks like prison is efficient at maybe helping some inmates getting diagnosed with a disorder that hasn't been diagnosed before and maybe have them getting diagnosed then seeking treatment and improve their mental health in a way they wouldn't have done outside prison.

Jennifer [00:48:59] Okay. And then in the last part of this paper, you do a bunch of analysis that could be a paper on its own there's so much in this paper. So you consider how an individual's incarceration affects the mental health and well-being of their family members, including spouses, children and parents. So what are the main takeaways from that analysis?

Laura [00:49:18] Yeah, so the main takeaways is that we also measure a decline in mental health related visits for spouses and children, not so much for parents. So in terms of magnitude, we measure 33% decrease in the probability of having a mental health visit during your two or three year after case decision so this was for spouses. And we measure for children an 11% decrease in the probability of having a mental health visit during that same period of time. So we do find some positive spillovers on family members. And as I mentioned earlier, we also use another type of outcome. So we look at the probability of having a child protection service incident and what is nice with this outcome is that it doesn't suffer from this health care utilization versus health issue. And so here we also measure significant decrease in the incidence of those child protection services events.

Laura [00:50:19] And so one least thing that we do regarding spillovers is that to try to understand better why we find those effects on spouses and children, we split up the sample by whether partners stayed with the inmate five years after case decision. So we measure whether they are still together or whether they split up. And it's about 40% of the sample were initially with the partner before case decision who are still together five years after a case decision. And what we see is that the effect seems to be driven by those who split up, which indicates that maybe what is going on is that incarceration is going to help removing maybe a bad influence from the family and help improving the well-being of the family. And this is true, actually, for spouses and also for children we do see that heterogeneity focus groups.

Jennifer [00:51:14] Super interesting. Okay, so that is all your paper. Have any other papers related to this topic come out since you all first started working on the study?

Laura [00:51:24] So not to my knowledge, But as I said, I think it's a very active area of research because the two other closely related causal studies that I mentioned came out very recently. So I'm sure there will be more work done on this topic.

Jennifer [00:51:42] Yes, I agree and I'm looking forward to it. So what are the policy implications of these results? What should policymakers and practitioners take away from your study and those those other studies in this area?

Laura [00:51:53] Yeah. So first, of course, I think it's very important to say that we don't want to say that all people should be incarcerated, of course, first, because with the events study says is, you know, sort of conditional on being incarcerated, how is prison going to affect your mental health? So what we want to emphasize is that what our results suggest is that prison with a focus on rehabilitation can actually help improving the mental health of this very fragile population. So our results, I think, cannot necessarily be extrapolated to any context, because I think a lot of what we find is related to the fact that, again, the incarceration conditions in Norway are relatively good relative to other countries and that they have all these employment and education programs and a whole philosophy where they really try to ensure that inmates have equal rights with people outside of prison except for their their freedom.

Laura [00:52:55] So I think that what it suggests is that we should provide high quality health care inside prison and also have more of those programs and also have more support post-release. And I think this is also consistent with the findings of the Swedish paper, because they in this paper, they also identify in prison health care treatment and program participation as a key mechanism to explain the positive effects on health.

Jennifer [00:53:22] Yeah, I definitely appreciate that caution and I think it's very irresponsible of you. But also I do think I guess I am I am more optimistic that this tells us something about prison more broadly, primarily because the counterfactual in these studies, the Norway and Sweden studies, is also so much better right. The outside health care access is so much better than it is in the United States and in so many other countries.

Laura [00:53:50] Yeah.

Jennifer [00:53:50] And so the fact that this population apparently is not getting access to sufficient mental health care or the real opportunities to address addiction and and other mental health crises until they are actually locked up, suggests that there is a challenge in getting people to actually access or actually take up the care that they need, even in a context where it is affordable and widely available, which is not the again, not the context in the U.S. And so when I think about the opportunities here, I think for me, these studies really highlight just how much need this population has for health care and especially mental health care and that doesn't have to happen in prison. So increasing access everywhere is probably a good strategy. And I know lots of people are working on that, trying different approaches to get people care outside of the carceral setting, too. And also there seems to be something here about, you know, getting people to take up this care is hard and I agree. Like we don't want the solution to be what we have to lock them up right. That's really expensive. It's really invasive. There are lots of downsides to that. And also that seems to currently be the thing that's working. And so how do we find a better solution there? That to me is like the huge policy and research question.

Laura [00:55:13] Yeah, no, I totally agree. I think it really matters as well what is the counterfactual and I agree that in Norway or Sweden, the counterfactual is also very different than the counterfactual in the US. And yeah, so I totally agree that, you know, this provision of mental health care does not necessarily have to happen in prison.

Jennifer [00:55:35] Yeah.

Laura [00:55:36] And actually what we see when we look at these other sentences like probation or community service, is that they also seem to be quite effective at improving

mental health. So I think that's also a very interesting and interesting point. And I think we also have literature saying that providing better access to health care outside prison has also positive I mean, has an effect on the likelihood to commit a crime and reduces the likelihood to commit a crime. So yeah, I agree that, yeah, just improving the way this very fragile population is taking care of inside and outside prison is definitely an important policy recommendation.

Jennifer [00:56:21] Yeah. So what's the research frontier here? And in addition, I guess to figuring out how to get people to trying to get people better access to mental health care both in and outside of prison were the next big questions in this area that you and others are going to be thinking about in the years ahead?

Laura [00:56:37] Yeah. So I think when we were doing this project, once we had established that we we're finding this positive effect on mental health, I really wanted to understand what was driving that. So what were the mechanisms and you know, exactly to provide some policy recommendations to really understand what works and what doesn't work in prison. So I think at the moment there is a very active research on the multidimensional impact of prison on other aspects in recidivism so it could be health, it could be employment. And there is also an active research on the effects of prison conditions on recidivism. So I think it would be nice to sort of combine those two literature and maybe better understand what are the effects of prison conditions on all these margins to really have a better sense of the overall impact of prison and what is actually driving these impacts.

Jennifer [00:57:35] Mm hmm.

Laura [00:57:36] Yeah. So I think that's a one big question. At least I would like to contribute to answering in the future. And as you said, I think the research also on the spillover effects of incarceration on a family member is also very active and in a very promising area of research.

Jennifer [00:57:54] Mm hmm. Yeah. And your point about probation and community supervision having similar benefits, presumably because getting, you know, going to appointments with doctors is required as part of the supervision would be my hunch about why that is useful. That, I agree, is also really promising and points another way forward here. And we know so little about the effects of community supervision and how to make it more effective. And so I guess I will add to your list and say, you know, think about all of these outcomes that we're looking at with prison right now can we extend that to be looking at probation, parole, community supervision in general, and just, yeah, alternatives to our standard incarceration approach, given that a lot of states and countries are trying to reduce incarceration populations. How can we think about improving the alternatives that are likely to replace it.

Laura [00:58:50] Yeah, definitely.

Jennifer [00:58:52] Awesome. Well, my guest today has been Laura Khoury from the University Paris Dauphine-PSL. Laura, thank you so much for talking with me.

Laura [00:59:00] Thank you for having me. It was my pleasure.

Jennifer [00:59:07] You can find links to all the research we discussed today on our website probablecausation.com. You can also subscribe to the show there or wherever

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