

Probable Causation, Episode 1: Chloe Gibbs

Jennifer [00:00:08] Hello and welcome to Probable Causation, the show about law, economics and crime. I'm your host, Jennifer Doleac at Texas A&M University, where I'm an Economics Professor and the Director of the Justice Tech Lab.

Jennifer [00:00:20] My guest this week is Chloe Gibbs. Chloe is an Assistant Professor of Economics at the University of Notre Dame. She's also a faculty affiliate at the Wilson Sheehan Lab for Economic Opportunities. Chloe, welcome to the show.

Chloe [00:00:32] Thanks for having me.

Jennifer [00:00:34] So you have a new paper coauthored with my Texas A&M colleague, Andrew Barr considering the intergenerational effects of Head Start. That paper includes effects on the next generation's criminal activity and I'm obviously interested in the crime angle here. Well, let's back up a bit. Could you talk about your research expertise and how you came to study this topic?

Chloe [00:00:53] OK, great. I yes. This recent work uh fits right in with the broader agenda I have on looking at interventions in the early childhood years. And I'm particularly interested in really the long term effects of those interventions. So we leverage a lot of things, particularly in the time between children's sort of birth to five years old in an effort I, I think to remediate what we see as substantial gaps that form in sort of the resources kids experience and their outcomes over that time horizon. So that when kids arrive at school, they're already sort of experiencing some of the disadvantage of the backgrounds into which they are they're born. And so we leverage a lot of different types of interventions and that in in those years. And what I'm interested in is do those have sort of their ultimate intended outcome, which is to improve kids' life chances? And so in measuring that, you really have to look over the long term and think about sort of does this put kids, do these sorts of investments, put kids on a different trajectory and and ultimately lead to potentially disrupting sort of the cycle of poverty or the transmission of of bad outcomes across generations. And so in that work, I've looked at programs like the federal Head Start program, which is the largest sort of federal investment in in preschool. It is targeted at children from disadvantaged families. And I've also looked at other types of early childhood interventions. But in the case of Head Start, it has been long running. It started as part of the War on Poverty in 1965. It was actually sort of the first program out of the gate in the sweep of of war on poverty programs. It was seen as very politically popular to help children from low income backgrounds. And so it's been long running and it gives us the kind of time horizon that allows us to look at these really long term outcomes and in particular, to look at the second generation, that is the children of people who were exposed to Head Start to really get at this question of whether these types of of interventions and these types of anti-poverty efforts can disrupt that cycle of poverty or that transmission of poverty across generations, which we know to be very persistent and pernicious.

Jennifer [00:03:29] So what did we previously know about the effects of Head Start or other anti-poverty programs in that general genre?

Chloe [00:03:37] So I think especially over the past decade, we've learned a lot, particularly in terms of how these programs affect what I'll call the first generation, since we'll be thinking about intergenerational transmission. You have the sort of first generation of people who are directly exposed to these programs. And we've learned a lot from work

by a number of great economists working in this area about programs like the Women and Infant Children Nutrition Program, WIC, as it's more commonly known; Supplemental Nutrition Assistance Program, or SNAP, food stamps, as it's more commonly referred to too; the Earned Income Tax Credit; and I'll also lump in some some health insurance types of programs that such as Medicaid and the Children's Health Insurance Program. So we've learned a lot about these types of programs, all that are sort of operating in the anti-poverty space and their effects both over the short and long term and particularly their effects on people who are exposed to these programs as children and realizing long term benefits from having been exposed as children. In early childhood, where I'm more firmly situated, where a lot of my work is, we have a lot of evidence, both from sort of model comprehensive early childhood programs - so these are generally fairly small programs that were leveraged in the 1950s, 1960s so we've heard of the Perry Preschool program and many people talk about Abecedarian - and then from the federal Head Start program, work that documents the long term effects of these programs, so in terms of improving health, reducing criminal engagement, greater educational attainment, all sort of in the first generation, including some recent papers also in economics from Owen Thompson and from Rucker Johnson and Bo Jackson, that really document well the important long term effects of Head Start on the first generation. And so that really got us thinking. If you're having these kinds of improvements in what we consider really important outcomes in the first generation, wouldn't that potentially spill over to the second generation, spill over to their children? And so this seemed like a ripe area to think about that. And then we also, I think, have these sort of little nuggets from, for example, Janet Currie and Enrico Moretti's work on the effects of educational attainment, so opening up access to higher education for women improved birth outcomes for their children, so that's one of the channels we were thinking about. And you also see that with the case, in the case of SNAP and WIC, that women who were exposed to these nutrition programs when pregnant have better birth outcomes as well. So there's sort of, I think, this sort of building body of evidence that when we improve moms' outcomes, there are ways in which that then translates to better outcomes for her children.

Jennifer [00:06:39] Right. Yeah, and it's interesting thinking about all these different types of programs and what kinds of outcomes seem important and are really, you know, the the outcomes we really care about, right. So, it's not just take up. It's not just test scores in the case of educational interventions, but thinking about these things, like whether you graduate from high school and what your earnings are and what the health of your baby is and all that stuff, which feels like such an incredible data challenge to like get those outcomes and link it to the people that you care about. Is that, so I gather there hasn't really been any other intergenerational work here. Has data been the main constraint?

Chloe [00:07:19] That is I think one of the two main constraints. And so you're exactly right that I think in a lot of cases we focus on some of those short term outcomes. I mean, they matter. They are they are correlated with some of the things that we think are important over the long term. So, we think test scores do have some meaningful content, but ultimately, in the case of these kinds of programs, as you described, I don't think they're the sort of key thing we're trying to change with these anti-poverty efforts. But often that's what we're limited to being able to explore, particularly in the short term, because we can readily measure them and they're widely available, that sort of thing. So that has been one I think one of the main challenges to looking at intergenerational effects is, is really just the data challenges and the data challenges are that you need sort of this long time horizon too, right? Because you need the program to have affected a cohort or cohorts of people, the first generation, and then you need to be able to see and track their children. And in our case, what we were really interested in is really sort of the somewhat long term effects

for those children to really see if this got any meaningful traction on the problem of poverty sort of being passed down from generation to generation. And so to really answer that question, we were interested in things like educational attainment and reducing potential criminal engagement or reducing teen pregnancy, some of the things that we know to be related to your long term outcomes and socioeconomic condition. And so that that data challenge really is really sort of paramount. But then also, as I mentioned, that having that time horizon, having sort of enough time from the program operating to be able to then see both the long term outcomes of the first generation and then potentially see a second generation. So it's both of those things that are really embedded, they're sort of the flip side of a coin. It's like being able to see people and being able to have these linkages across data so that we can see their their children have been really, I think, some of the the big challenges in the space. And so what you have in the context of Head Start, War on Poverty programs that rolled out in the 1960s, we're sort of now at the point where we can see the longer term outcomes of a second generation or sort of a generation once removed from the generation that was initially exposed. And many of the social programs we're talking about here, many of the anti-poverty programs we're talking about, were initiated around the time of the War on Poverty, if not directly as part of the War on Poverty in the late 1960s.

Jennifer [00:09:59] Yeah. So let's talk about what what the programs looked like during that period. So I imagine things have changed a bit. And Head Start is different from what it was in 1965, late 1960s. So so what does Head Start, this program that you're studying in this paper, what does it look like at this time?

Chloe [00:10:17] This is a great question. I think really critical to thinking about our paper and our results, because I think not only does the Head Start program look pretty different in the late 1960s from what it looks like today for people who are familiar with what it is in current in its current implementation. But it's also the case that sort of who the program served looked pretty different as well. And what they would alternatively do if they weren't getting exposure to a Head Start program has changed probably the most dramatically of those sort of three considerations. So I'll sort of tackle those each in turn. I mean, in terms of who participated, it continues to serve a disadvantaged population. But when we're talking about the late 1960s, what disadvantage looks like in high poverty counties in the U.S. And high poverty counties in the south is is pretty different than what we think about today. And so Lady Bird Johnson, who Lyndon Johnson's War on Poverty, she she often went out and and gave sort of stump speeches about some of the programs and in particular, she focused on Head Start a fair amount. And she would talk about how the program was really targeting kids who would arrive at school, at formal schooling, having never seen a book or sat in a chair, sort of not knowing how to engage in a group environment. And this was really targeting sort of the most needy kids to to provide this kind of transition into what a school setting was like. And so just to give you a sense, only, you know, something like a third of mothers of kids in the early Head Start program had a high school diploma or more. Nearly 70 percent of the mothers of children in the early program were unemployed and something like 10 to 15 percent, depending on the year, of families who participate in Head Start had no running water at home. So, you know, this was really targeting very, very disadvantaged households. And, you know, just as a side note, my coauthors on some other work, Doug Miller and Jens Ludwig, have some work on the Head Start program, and they actually find that the early iteration of the Head Start program reduced child mortality on some dimensions that Head Start could have affected through providing vaccines and nutrition and that kind of thing.

Jennifer [00:12:53] Oh, interesting.

Chloe [00:12:54] And when you look at what child mortality among, you know, sort of this age group, so four- or five-year-olds looked like in the highest poverty counties in the U.S. in the late 1960s, it's really quite shocking. So, you know, child mortality rates in these in these counties looked something like that those of a developing country. You would not think you were looking at statistics for the United States. These have dropped dramatically since then. But just to kind of give you a sense of of the kind of disadvantage that this program was rolling out into and was really focused on targeting. So the participants were really disadvantaged. The programming was also pretty different. Although some threads of what the program looks like then continue to this day. Head Start is a comprehensive program that provides nutrition and health care access. So the program in the early years was providing a lot of medical and dental services to kids. And we can think this is probably one pretty important dimension. And so children all received a medical examination when they were enrolled in Head Start. And if it uncovered problems, they would be screened for things, they would be referred to doctors, they received vaccines. They were screened for tuberculosis, anemia, hearing problems, vision problems, those sorts of things. And then, as I mentioned, they got dental care as well. And many of them were found, something like 50 percent of kids in the early Head Start program were found to have cavities and other dental issues that needed to be addressed. So, that was a really pretty important part of what the programming did. It didn't actually explicitly talk about academic skill building as a key part of what was sort of featured in the early years. It was really more about sort of all the other dimensions of being ready for school, not directly about cognitive development. And that has certainly changed. It is now much more firmly situated as a preschool program that focuses on preparing kids for school. Again, on many dimensions, but much more intentionally on cognitive skill building now.

Jennifer [00:15:13] And would the health components of that still be, is there any part of that in the current Head Start program or is that all coming through other programs at this point?

Chloe [00:15:22] It's still provided through the Head Start program. But I think it plays less of a role because I think now, given what health insurance looks like, particularly for children from low income families in the United States, they have already often been connected with those kinds of services before they arrive at a Head Start program at four or five years old, where that was not the case in the late 1960s. So in many cases, they have they will have already had seen a doctor and be getting preventative well-child kinds of care and in many cases also already seen a dentist. They will in many cases today already have their vaccines. Those were not, those types of services were not as sort of widespread at the time. So I think Head Start played more of a role in both direct health care service provision and also sort of connecting families to the other types of services and supports that were available to them. Whereas I think a lot of that happens now, even earlier in children's lives.

Jennifer [00:16:26] So when we're thinking about this version of the Head Start program and the impacts that you are going to be measuring, we've got an extremely disadvantaged population and a pretty comprehensive intervention that includes less about education and more about access to services and health care. Are those the main mechanisms we should have in mind here? Or is there more that you want to flag?

Chloe [00:16:48] Yeah, I think there's a couple more I'll put on the table. There was also a real emphasis on community involvement that continues to be the case, but one of the

direct ways in which I think that early Head Start program could be affecting families is that they employed parents in Head Start centers. And so these were actually sort of viewed as kind of community development centers as well, sort of employing the local community, including many parents of the children that were being served in the centers, and there was a there were also sort of community building activities that were happening through Head Start centers as well. So they would provide parenting classes and and teach parents about nutrition and that kind of thing. They would involve the community in the center. So that also could potentially have have some effects on on children and on families. You know, those those themes persist to this day, but I think it looks a lot different in practice than it did then. And then I think the final point that is just important to keep on the table is that if you didn't have Head Start in the late 1960s, you weren't really doing anything else in those preschool years. There was not much there were not sort of alternatives to the Head Start program. Only about 10 percent of kids in the late 1960s reported being in any kind of formal setting before they arrived at school. So so a sort of Head Start or nothing in those days. And that's something that has certainly changed over time. So now, you know, many kids, around 70 percent of kids participate in some kind of nursery school, preschool, day care, formal setting before they arrive at at formal schooling, which, you know, now is kindergarten for the most part.

Jennifer [00:18:46] And just to go back very briefly to the the employment for the parents is this, so should we be thinking about this as an income shock for the families too, potentially? And how much money might that be?

Chloe [00:18:56] Potentially, it's not it's I should clarify that also in some cases, this was volunteer work where parents were because they were serving a population that wasn't particularly attached to the labor market, some sometimes it was sort of job skills development. So you could volunteer in the center and that would kind of help parents get some- gain some skills. But the, you know, something like 70 percent of Head Start centers in those early years did directly employ parents as staff members. But another important side note is that the programing was, for the most part, half day, a couple hours a day and so not sort of probably not a very intense employment opportunity. Although, you know, I think sort of keeping the idea that this might have been some increased resources to families on the table is is important.

Jennifer [00:19:56] OK, great. So, OK. So in this paper, you and Andrew are measuring the effects of this program on the next generation. This is measuring the effects of programs like this is always tricky because we don't want to just compare people who enrolled to the people who didn't, because they're probably different in a lot of different ways, and those other differences are could very likely be driving whatever differences we see down the road. So so let's talk about what you actually do in the study. How do you how do you get around this empirical challenge to measure the effects of Head Start?

Chloe [00:20:26] Yes. So beyond the data and the time horizon challenges that we talked about, there's also these study design challenges in really isolating the effects of Head Start and in the context of Head Start, it's particularly tricky because as I've mentioned, the kids who participate in Head Start were really disadvantaged. And so you can't really in data find nonparticipants. You can't sort of find a nonparticipating group comparison group that you could just generate in a in a big data set that looks like Head Start participants on a lot of dimensions because they are so disadvantaged. So what we're gonna do here is we're going to focus on the fact that the Head Start program rolled out very quickly in the late 1960s and we're gonna argue somewhat randomly across counties over time in the early years of the program. So we zero in really on a few years. It's really the late 1960s.

It's 1966 through 1969 that we're really focused on in which the program was introduced very rapidly. There's a couple of nice features of the rollout of Head Start for our purposes. One is that the dollars from the federal government flow directly to county level grantees, to grantees that are operating locally. This was really intentional. This was by design because the federal government was worried that any flow through to states - so which is the way that many other types of federal programs operate would mean that the dollars would not reach some of the neediest populations, particularly in the south, where you had some racist governors who actually directly said we will not use these funds to support black children attending these programs. So the federal government designed the program to flow directly to to local grantees. So that's going to be nice for us because we have a lot of variation over space and over time.

Jennifer [00:22:24] How did they find and just how did they find the grantees? I mean, this is just it just sounds like such a logistical challenge for the government to roll this out in a way that avoids the local governments.

Chloe [00:22:35] Yes. And they say you can read in some of the accounts of administrators who worked in the federal government at the time on rolling this program out, that it was a bit Wild West-ish in trying to get this program out because, as I mentioned, they really wanted to get this program out first in sort of the the whole package of War on Poverty programs that were gonna be leveraged. This one was sort of, in their view, relatively easy to get off the ground because you were going to have these local operations so school districts or faith based organizations or community organizations that were going to run the programs. And as I said, it featured it supported four-year-olds, five-year-olds so that was very sort of publicly appealing. So the way that it worked was that these local organizations would submit a grant application to the federal government and they would essentially indicate the number of children that sort of met the criteria to be served in this program, that is, you know, that were from very disadvantaged families in their community. And then they would get a grant that was essentially a per eligible child allocation. And there was a requirement that local organizations sort of chip in some some of the total cost of operating the program. And what that typically meant was they sort of would would provide the space, say, in their facility, in their church or in their school or wherever the program would operate. That was kind of their in kind contribution, and then the federal government would kick in the operational dollars to support the number of children that they were going to serve. So it was really sort of incumbent on these local organizations to put in grant applications. The federal government did send around some sort of just-out-of-college with what are called Presidential Management Fellows, I believe, or interns who work for the federal government. They sent them to high poverty counties to support them assembling this grant application so that they could apply for the for the dollars.

Chloe [00:24:52] And so what you see in the data is that counties are, you know, organizations which we sort of assigned to a particular county in which they were operating, applied to the federal government. By 1970, the grantees are pretty stable and they remain stable for almost two decades thereafter. So sort of like if you got a Head Start program in these early years, you continued to operate a Head Start program for a long time. And so what we see is there just seems to be variation in whether your first year of operation was 1966 or '67 or '68 or '69, but thereafter that group of grantees remains pretty stable. In the 1990s and thereafter there started to be some- the federal government imposed some new accountability restrictions and that sort of thing. And so then you start to see programs switching or or no longer receiving their grants. But but it seems like there was sort of this very quick ramp up and there's some variation in whether you got your

grant application in the first year or the second year, that sort of thing, but thereafter, pretty stable.

Jennifer [00:26:02] You said that when you look at which places get the money to launch Head Start programs, it looks unrelated to other characteristics about those places that might drive effects. That seems crucial for you. So can you talk more about that and what created the variation in when places got this funding?

Chloe [00:26:21] Yes. So when we look at things like the 1960 county characteristics and when we control for those things or use those characteristics to to predict the timing of your grant receipt over these years, we don't see or we don't see relationships there. So, many of the kinds of characteristics of counties like I guess the way to think about it is that a lot of these counties that ever get a Head Start grant over those late 1960s timeframe, they all look fairly similarly disadvantaged. And so there is some variation in whether you get it in, you know, '66 or '67. But, you look fairly similar in your county characteristics, whether you get it in sort of the early timeframe or the slightly later time frame. I think we are advantaged by the fact that we're zeroing in on a pretty short timeframe of these few years. And if you look in the paper, we include a map of sort of what roll out looks like across that time. And it looks really diffused sort of geographically. It doesn't seem to be the case that say, you know, the Northeast and and South were kind of the early adopters and then you see it sort of head westward. There's not there's no sort of real geographic pattern that we see there.

Chloe [00:27:44] And I think the way to think about the comparisons we're drawing is we're sort of doing two comparisons among the first generation or the mothers that we're interested in that are being exposed. You can think about birth cohorts in the same county where we are using where the woman was born and when. And so you can have someone who, based on their their birth cohort, is just the right age when Headstart comes into their county to be served by the program as compared to the birth cohort, a woman in the birth cohort, that is just a little bit too old. So she's now school aged when the program comes to her county. So that's one of the comparisons we're drawing, is different birth cohorts in the same county. And the other comparison you can think about is we're looking at, say, the same birth cohort, birth cohort in neighboring counties, so a four-year-old in one county and a four-year-old in the neighboring county. Head Start arrives in County A in 1966, but doesn't arrive in County B until 1967. And so that four-year-old can be served in County A as compared to their counterpart in County B, who cannot be. And so we're really leveraging those two comparisons at the same time. And we're really kind of standing on, we think, the shoulders of giants and using this approach, it's a it's a similar sort of geographic rollout strategy that's been used in the cases of of the SNAP program, the food stamps program and in WIC. And one of the things we do that is also the case in those other papers is that we control for the other programs that are rolling out. Because one of your concerns might be, I think rightfully so, is well is it just the case that, you know, a county gets Head Start, but they also make sure to apply for these other federal programs that are coming into being and they are just sort of a county that has their act together and getting access to lots of programs?

Jennifer [00:29:44] Right, they're really good at filing applications for government grants, and so maybe they get a lot of government grants, right?

Chloe [00:29:49] Exactly. I think, you know, we once we control for those programs, we see no differences in our results. It does not seem that these programs are rolling out in sort of that kind of a coordinated way. I think we're advantaged by the fact that, as I

mentioned, Head Start flows directly to the local grantees and many other programs had a sort of a state flow through and then the state disbursed the funds. And also by the fact that Head Start is rolling out a little bit earlier than some of the other programs in the War on Poverty, but we do account for those other programs to make sure that that's not potentially driving our results. It's also the case that we, unlike many of the programs in the War on Poverty, we're really focused on a very specific age group. Right? You have to be four or five to have been served by this program, particularly in the early years, four and five were the predominant ages, not every place had kindergarten. And so this program would in those cases often serve five year olds and this was sort of their first introduction to being in a in a formal sort of school-like setting. And so we're really interested in a very sort of narrow time window in which you could be exposed to this program, unlike lots of other programs like increasing access to health insurance or or food stamps or those sorts of things where obviously a much wider range of of ages would be affected by exposure to that.

Jennifer [00:31:12] Got it. Yes, the very precise timing of which kids are affected in particular years buys you a lot here. So let's get into the main results. What did you find?

Chloe [00:31:22] So we look at four sort of key outcomes in the second generation, and we really narrowed to these because we felt like these are outcomes where we think if your mother or the first generation- so we're gonna be looking at mothers here because the data we're using, the National Longitudinal Survey of Youth, we're going to use the NLSY79 survey because that survey very nicely saw two nice features. One is the birth cohorts in that survey line up perfectly with our dates of Head Start rollout such that we have some birth cohorts in the NLSY79 who would not have been exposed to the program at all. And we have some that are turning four and five at exactly the right time as the Head Start program is rolling out. But the other really sort of critical feature for us is that there is a children of the NLSY survey that then followed all the children of women in the NLSY79 and that is where we're going to see the second generation outcomes.

Chloe [00:32:26] So when we're thinking about what do we think would potentially spill over into the second generation- so we think if you're improving mother's human capital, which is one of the sort of main effects that we see documented in the first generation literature- so, improving mother's high school completion, college going, that's a pretty, I would say, robust finding in the first generation literature- what are the ways in which that might improve her children's outcomes, her her children's long term outcomes? And so we look here at educational attainment, so we look at high school completion, we look at some college, and then we look at criminal engagement and teen parenthood. So those were sort of our four key measures chosen primarily because a couple of things. We think those are good measures of whether you have actually experienced improved life chances via the spillovers of this program from your mom to you. And we also felt like we have an age group that is on average 27 at our most recent follow up that we use in the paper. We restrict to people who are- to children who are at least 20 so that they will have realized some of these outcomes. So we didn't want to include something like some measure of income, lifetime permanent income or something like that, because they haven't really experienced enough of the labor market for us to get a good, stable measure of that. So that was sort of our selection of outcomes. And what we find is particularly in what we call our high impact samples. So we kind of zero in on a sample whose grandmothers- so think of the sort of the mothers are the ones exposed to Head Start, their own mothers were low socioeconomic status. We measure this by grandmothers with less than high school degree because we think this is the population that's most likely to have participated in Head Start. Also most likely to benefit probably from from Head Start and from exposure.

And among that sample we see are reductions in teen parenthood, reductions in criminal engagement, improvements in high school completion and improvements fairly large in some college going. And then we compile this all into an index. And so in sort of just to be consistent with the existing literature in standard deviation units, what we find is is about a .46 standard deviation improvement in this index of of long term outcomes. But on criminal engagement, for example, what we find is, is about a 15 to 16 percentage point reduction in any sort of criminal engagement as measured in this in the survey, off a mean of about 30 percent, which is, you know, a substantial reduction.

Jennifer [00:35:29] And so, yes, so in the NLSY it's self-reported criminal behavior. I think they also ask some questions about whether you've been incarcerated, things like that. What exactly is the measure of criminal behavior you're using here?

Chloe [00:35:43] Yeah. So we're going to use a measure that incorporates all of what you just mentioned. It's basically consistent with a measure that Dave Deming uses in his paper on the first generation effects of Head Start. So it's any arrests, any reported arrests, convictions or probations. So any of those that the individual reports in in there. This is a every two year survey. So every two years they're asked to update whether any of those things have occurred in the last two years. So that is self-reported. And then we also include whether at any time of survey, your residence is in a criminal justice facility. So whether you are residing in a jail or prison at the time that the NLSY comes to survey you, and that is is all embedded in our measure of any interaction with with the criminal justice system.

Jennifer [00:36:36] OK. So someone is coded as engaging in criminal behavior, if they say they did or if they're currently incarcerated. And is the sample big enough for you to look at which types of criminal behavior people say they've been involved in? So, for instance, can you look at effects on violent crime versus property crime separately?

Chloe [00:36:53] No, we're not able to do that. And that would be interesting because in in a lot of the early childhood literature that looks at long term effects, for example, you do see effects on certain types of crimes as opposed to others. And one reason I'd be particularly interested in that is I think in this intergenerational work, the mechanisms that we think probably mattered for seeing second generation effects on these outcomes seem a little different than what we would expect to see in the work that looks at the direct participants in programs. And so, you know, a lot of what we talk about in the early childhood literature, and I know you you know this work, is that you know, kids experiencing these early childhood programs, it actually improves some of their social behavioral skills, maybe it improves their ability to their self-control or their executive functioning, some of these things that we think matter for their own impulse control in their own behavior later in life. We could think that that also is a is an important mechanism here, but I think, you know, it's being driven through the mom's participation in Head Start. And so we do look at a few outcomes in the first generation to get at sort of what is changing for the moms and actually in many ways to sort of confirm with the existing literature has found. And we do find that mothers have higher educational attainment and they also have higher income. And so those seem like important ways that kids are being affected by the mom's exposure is that, you know, the mom is better off. She has she has higher human capital. She is more likely to finish high school, has more years of schooling, and then the family has more resources. And so that could be sort of reducing crime, I think, in different ways than when we think about a child who is directly participating in an early childhood program.

Jennifer [00:38:54] Right. Yeah. And even I think you mentioned the paper, something about you could potentially change parenting practices. You could imagine just being in a better socioeconomic situation means you have different peer groups and different parents that you hang out with that you know, your kids are going to school with or any anything like that. And that could all affect, I would imagine, a lot of the more social factors in addition to your economic opportunities, which I think a lot of us, if you think of the classic Becker model of crime, where you're weighing your criminal options relative to your non-criminal options, your economic opportunity would most directly affect that. But especially when we're thinking about violent crime there there are a lot of other factors that that are involved there.

Chloe [00:39:47] Right. I think and so so as you initially ask, I think it would be really interesting to be able to tease that apart, we're not in a place in terms of power to be able to do that. And sort of the key reason here is keep in mind that we have we're looking in the first generation at a particular set of birth cohorts, right? We're looking at a window around the introduction of Head Start. And then we need to only focus on women because it was only the women whose children were then tracked in the CNLSY and so and then it's women who had children. And so we're sort of and then we are focused on this higher impact sample where the grandmothers were particularly disadvantaged, so we think they were likely to have been exposed to Head Start. And so with all those sort of zeroing in on what we think is the relevant population and the data restrictions, we just get into sort of small samples to be able to tease apart some of those things. Another thing I'll just mention as an aside is we did look at some fertility effects in the first generation. I actually thought maybe this was one of the pathways that might be most relevant is that women make different decisions around their fertility, and you could imagine that that then affects their children. We don't see much happening there, both in terms of age at first birth, or whether you have children at all, number of children. So we don't actually see fertility effects of having been exposed to Head Start in the first generation. So, I mean, I would argue that I think a lot of what this is, is that the moms are made better off by their own participation in the program and that, as you mentioned, having, you know, just being in a better economic position as a family has important ramifications for their children.

Jennifer [00:41:33] So I know power is limited. You guys do do a little bit with racial and gender differences, I think.

Chloe [00:41:39] We do.

Jennifer [00:41:39] Can you talk about what you find there?

Chloe [00:41:42] Yes. So one of the main ones we were interested in that I think is relevant to our discussion about effects on crime was whether there were gender differences. And again, we're going to be pushing the limits of power here. So we can't statistically rule out that the effects are the same for men and women. But essentially, the bulk of what we're seeing on crime is when we look at the male children. So that is the the male children of the women who were exposed seemed to experience the largest reductions in criminal engagement. They're pretty pronounced. And not surprisingly, the reductions in teen parenthood are concentrated among the female children. But like I said, we're sort of unable to kind of formally say that those groups experience differential effects. The same is true when we look at effects for for black children. We can't really rule out that the effects, for example, on crime are different for black and white children because we're just getting into some sample constraint, sample size constraints there.

Jennifer [00:42:59] Sure. But, yeah, it sounds like it all goes in the direction you would expect it to be driven by, driven by that voice. So how how old are the kids by, say, like the mid 90s? Reading this paper, it made me think about the big drop in crime rates that the U.S. experienced starting in the mid 90s that I think no one, to this day, no one really has a good explanation for. It's probably it's probably the result of a lot of different things. But as I was kind of doing the math back to the late 60s, it struck me that maybe this group is timed so that this might be one of the many things that helped contribute to that. Is that how how does that period line up with the the ages that these kids are in your in your study?

Chloe [00:43:41] Yes. So, I mean, we we look at the latest follow up that we look at in the second generation. So as of 2012, they're on average 27. So mapping that back to the mid 1990s, they're going to be a little young.

Jennifer [00:43:56] They're young. OK.

Chloe [00:43:58] So you're going to have some kids certainly in this in this group that will have been sort of adolescents in the in the 1990s. But for the most part the second generation is not going to be sort of coming of crime, potential crime committing age in that timeframe. You do have sort of, you know, first generation participants in the Head Start program that would have been aging into sort of those that sort of peak crime committing age window in the mid 1990s. It's difficult, though to be able to directly look at whether this this program is could be having those intended effects because in the timeframe that those kids would have been exposed, you don't have this nice identification strategy that we're capitalizing on.

Jennifer [00:44:53] Right.

Chloe [00:44:54] So, you know, say like in the 70s, you don't have you don't have a lot of variation in at least over geography in the program, because at that point, basically, you had already gotten your Head Start program, you were operating a Head Start program, and then there wasn't much change. So it's difficult to be able to actually sort of zero in on that. But I think, you know, it's worth I think it's it should remain in the conversation of sort of all of the things that potentially could have reduced crime in that time period. One of the things is that not only was the Head Start program you know, in operation at that time. But you have other early childhood programs coming online as well, and so and in part that's driven by Head Start. So there was sort of this increasing focus on the fact that perhaps these early childhood interventions had meaningful effects. That was also driven by sort of what was being seen in the Perry Preschool Program and Abecedarian, these programs that have been leveraged at small scale. And so you have over that sort of 70s timeframe, even early 80s timeframe, a real ramping up of participating in some kind of early childhood program before heading to school.

Jennifer [00:46:10] Have you guys done any sort of back of the envelope cost benefit analysis on this?

Chloe [00:46:17] You know, we-

Jennifer [00:46:18] It's kind of hard.

Chloe [00:46:20] Yeah, it's tricky for a couple reasons. I mean, I think Head Start is is a fairly inexpensive program on a per child level. And so, you know, many of the studies that have looked at first generation effects do some rough calculations. And essentially, the

program easily passes a cost benefit test if you're improving, say, high school completion or, you know, some college going. So just sheer just merely on the educational attainment effects, you can tip the scales in favor of the program being cost effective pretty easily because, you know, we're talking about a not super expensive program on a per child level. Here it's a little tricky because we are simply looking at exposure to the program, so we're looking at sort of the roll out of the program. And I think there are reasons to believe that not only, you know, if you see any spillovers to the second generation, that's kind of icing on the cake, because that's in addition to what the first generation was experiencing. But also that I think there were a lot of these sorts of broader effects of just the introduction of Head Start. So you have Head Start come into a county and so now you have this group of of disadvantaged kids that have gotten their vaccines and access to medical care and they've been in a formal setting where they've learned to be in a group and, you know, sort of all the things that the program provided. And now they arrive at school and you can imagine that K-12 schooling was able to adjust in some ways to the fact that their incoming cohorts were just better prepared. And so then that sort of, you know, changes what K-12 schooling looks like in those areas over time. And, you know, the sort of community development aspects that the program provided, I think could potentially spill over into other effects on the community and that sort of thing, so. And then as I mentioned, I think there was an important role for Head Start in just simply exposing people to the importance of these early childhood years. And it really did, I think, in some ways drive increased focus on early childhood more broadly, the expansions of preschool over the subsequent decades. And so I think there are these sort of much broader spillovers of the program than just thinking about direct participant level effects. But I think even on the direct participant level effects, we now have a preponderance of evidence to suggest that the program, at least the program as deployed in its early years and for for the earliest cohorts that participated was certainly cost effective.

Jennifer [00:49:08] So your paper came out sometime last year, your working paper. I gather there has been this intergenerational spaces, feels like it's really hot right now in research circles. A lot of the work seems to come from Scandinavia, where they have much better data. But what what other papers are now sort of in the mix? What else have we learned about intergenerational effects since since you guys first wrote this paper?

Chloe [00:49:35] So, as you mentioned, some international contexts have provided some insights here. So, Maya Rossin-Slater and Miriam Wüst have a nice paper that looks at home visiting programs. So even earlier, sort of in the early childhood years and preschool programs in Denmark and looks at both the kind of complementarities between those two programs or the substitutability between those two programs, but also looks at the long term, very long term and intergenerational effects of those two programs as they rolled out in Denmark. And I would say generally finds evidence that is consistent with what we're finding in this paper. And so that paper is sort of a, I think, a nice sort of companion to our work. There's also a really new piece of work on by Bhashkar Mazumder and coauthors about school building, school construction in Indonesia and looking at the effects then on the children of mothers who were exposed to these new schools and finds persistent effects, so intergenerational effects of that school construction project. So you have some some emerging work in other countries. And then I think in the U.S., you also have a recent paper on the intergenerational effects of Medicaid exposure and so being exposed to health insurance by Marianne Page, Laura Wherry, Sara Miller, Chloe East, are all on that paper, which also finds intergenerational effects. And so I think you have a number of contexts in which we see that improving, in particular, moms is typically who we're focused on here, because that's where we can then in data see children, but improving moms outcomes, either her health or her human capital, does have important spillovers to the

second generation. And I see this sort of all of this work as as almost kind of a proof of concept that, in fact, interventions that we leverage in one generation can, in fact, manifest themselves to improvements that persist into subsequent generations.

Jennifer [00:51:46] It's possible to break the cycle of poverty.

Chloe [00:51:49] Exactly.

Jennifer [00:51:49] So so I mean, that that alone is a great takeaway for policymakers. When we think about what the programs are in their in their original form as they're being measured by these different papers, what's your takeaway about what how exactly policymakers should be investing their resources to get the biggest bang for their buck? Is it education? Is it health? What what is it?

Chloe [00:52:14] I mean, I think when when especially when we're thinking about potentially having these kind of persistent effects into subsequent generations or, you know, disrupting the cycle of poverty. So really somehow breaking the fact that we know there's, especially in the United States, this really pronounced correspondence between the experiences of your parents and then the experiences of of the next generation. I really think the focus here is on improving what what sort of all of that work coalesces around for me is that when you improve mom's human capital, you make her better off in ways that then make her a better parent. And I think that that is through her improved health and through her greater educational attainment. And then she has more resources and she, you know, potentially invests in different ways in her own children, but also is just better off socioeconomically. And that really seems to be the way that we then see improvements for the second generation. And so, you know, I think we talked about all the kind of challenges and we're always sort of chasing these long term effects, right? So for a current day program, we're never going to know about sort of what its long term impact is right now for policymakers to make decisions about a program. But I think that when we know a program improves one generation's human capital in ways that then, you know, improve their own condition, that that is likely to have persistent effects beyond that first generation. And, you know, it's it's not to say that we should necessarily be designing- you know, maybe the point of a program is not to necessarily have these second generation effects. I think it's sort of like if we really are trying to get traction on some of the key social problems, like the persistence of poverty, then, you know, you kind of you need to be really getting at the root of problems in ways that then do, in fact, translate to to the second generation. And I just, you know, it always comes back, to me, to if we if we make moms better off, then there are lots of ways in which that translates to their children.

Jennifer [00:54:46] So what's the research frontier here? What are the next questions that you find interesting in the space that you and others will be working on next?

Chloe [00:54:57] I think this is a great question. I think, you know, as we just talked about, I think demonstrating the existence of these intergenerational spillovers was really key. And I think we now have just even really in the last year several papers that that do that. And I think we'll even see more coming online, because it is the case that now that programs are mature and have had, you know, have had impact in in first generation, and now given sort of what we can do with data, we are increasingly able to actually formally test these kinds of questions. But as I mentioned, we're always sort of going to be pursuing the long term effects of current programs. And so that is kind of I mean, that is, you know, a catch-22. I mean, I think we we are always going to be in a position where we want to say, well, what about the current Head Start program? Does the current Head

Start program have long term effects? Does it potentially have intergenerational effects? And because we're always sort of going to be chasing that, I think really understanding the mechanisms so that we can better assess what programs and policies are likely to have these lasting effects is going to really be the next set of important questions. So if we could isolate sort of what are some of the key mechanisms through which these programs do in fact have persistent effects, then we can be designing programs and looking at current programs and policies such that they are sort of operating on the same pathways.

Chloe [00:56:29] And then I think a related point is that we still have to get better at capturing what are the intermediary measures that are strong predictors of long term or intergenerational effects, because being able to capture those intermediary pathways would really help policymakers and program developers in the short term to think about sort of whether their programs are affecting some of those intermediate outcomes such that they then might have the kinds of long term effects that they're trying to improve. And I think that innovations and administrative data, being able to link data across multiple existing systems will really contribute to being able to get at these questions of both mechanisms and intermediate outcomes so that we can better answer those questions. Sort of more, you know, it's never going to be sort of a fast response, I don't think, because we're we're always going to be interested in things that are at least a little bit removed from actually experiencing a program. But I think being able to kind of map better what that path looks like to long term outcomes would really be hugely important for both researchers and for policymakers and practitioners.

Jennifer [00:57:48] My guest today has been Chloe Gibbs from the University of Notre Dame. Chloe, thank you so much for doing this.

Chloe [00:57:53] Thank you.

Jennifer [00:57:57] 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 you get your podcasts to make sure you don't miss a single episode. Big thanks to Emergent Ventures for supporting the show. Our sound engineer is Caroline Hockenbury. Our music is by Werner, and our logo is designed by Carrie Throckmorton. Thanks for listening and I'll talk to you in two weeks.