

Damon Jones: Hi everyone and welcome to the inequality podcast. I'm Damon Jones. Today we have with us Michael Geruso. Michael is an associate professor in the Department of Economics at the University of Texas Austin. He's also a researcher at the Population Research Center there and a researcher associate at the National Bureau of Economics and he is an author, along with Dean Spears of the bestselling book *After the Spike*. So we're happy to have you here today Michael.

Michael Geruso: Hi, I'm so glad to be here. Thanks for having me, Damon.

Jones: So you studied demography and healthcare, how did you get interested in those topics and also how do those tie into inequality?

Geruso: I got interested in healthcare, I think, because I was a PhD student at the time that the Affordable Care Act of 2010 was being debated and then passed. That was a time when prior to that law about 18, 20% of people in this country were uninsured. And that law, especially through the expansion of Medicaid, cut the uninsurance rate approximately in half. Being a grad student at the time when that was in the air made it really exciting to be working on US healthcare, healthcare markets, healthcare policy. And some of my recent papers have been in Medicaid trying to think about how to deliver the best quality services to beneficiaries in the most fiscally efficient manner. How to do more for less, which health economists always trying to get at. A lot of my more recent work has been in global demography. But that also traces back to my time as a grad student. I was in the economics department, but also taking courses at the Office of Population Research at Princeton. Even my first publication as a grad student, my second year paper was in the *Journal of Demography*. It was a paper about black-white disparities in life expectancy in the US. So demography is a topic I've been interested in for a long time, and within demography, the topic I'm really interested in these days is in global fertility decline.

In terms of how that relates to inequality, I think the connections there aren't quite as clear as in healthcare. But immediately the moment that you start talking about fertility and population change, there's this fundamental biological source of difference. There's a fundamental inequality in who bears children. I mean, there's a lot of other additional unfairnesses that get laid on top of that biological difference that nature endows us with. A male can't get pregnant. But there's no first principle reasons that women rather than men should be disproportionately driving kids to appointments and soccer practices and birthday parties. So I think that's maybe the clearest way in which my work on fertility has connections to inequality. We live in a time when fertility is declining around the world and has been for decades and even longer. And we're also living in a time where there's been increases around the world in gender equity and equality. And there's a question and an idea out there about whether for birth rates to ever rise again would that require somehow

rolling back the progress on gender equity and gender equality. And I don't think that's quite right. But I think that's something that would be great to come back to once we start talking about fertility decline and whether and how it might be reversed.

Jones: Let's stay on that topic since you've written a whole book about it. So you have a book with Dean Spears called *After the Spike*, and the spike in question is the peak of human population on earth. How do we know that we're at a spike or we're going to hit a spike and how do we know that things are going to go down from there?

Geruso: So the spike in the title of the book is the size of the human population over time. On the cover of the book is a plot of that population's trajectory. And so if you look back over human history for most of human history, the global human population was pretty small. So 10,000 years ago, for example, there were just a few million of us on the planet. It wasn't until around 1800 that the global population passed a billion people for the first time, 1925 or thereabouts. We passed two billion people. And in the century, since then, we've quadrupled. So that rapid population growth is the spike. Now what's a bit counterintuitive maybe is that even as that population globally was climbing up very fast over the last couple of centuries, birth rates have been falling. What drove humanity's numbers up that spike in population was not increases in birth rates. It was declines in death rates and particularly the deaths of children. So that's where the population growth came from. And so the population has been getting large, but birth rates have also been falling.

And so then the question is what's next? And what we talk about in the book is that what's most likely coming next, and this is not just according to us, but according to all the major projection houses that do population projections, the demographers, the US, Europe, everywhere else, is that within a few decades, as early as the 2060s, according to some projections, and maybe as late as the 2080s, according to other projections, we're going to pass the point where annual deaths surpass the number of annual births and the global population will begin to fall. So that's the peak of global population. And I think it's important to understand there's not some automatic stop to that process. There's no automatic stabilizer that sort of stands ready to jump in and stop population from declining. And the way to think about this is to think in terms of fertility rates. So there too is the key number. A total fertility rate of two means two kids per two adults or two kids per woman. And with fewer than two kids in the next generation to replace two adults in the last generation, the population will shrink. And that shrinking continues indefinitely for as long as that condition holds. So it's not that we hit peak population and stabilize at some level. The same low birth rates that slowed population growth this century will later in the century pull population growth into negative territory. So even a steady birth rate holding at some

level below two would lead each generation to be smaller than the last. So that idea is depopulation. That's what our book is about.

What's the evidence for that? Why should we think that that's the future that we're heading towards? One thing to point out is that this peak isn't entirely in our future. We've actually already passed one kind of peak. In 2012, there were 146 million children born around the world. That to that point was the highest number in human history. But also it's been the highest number since then. So the tally has just been shrinking each year since. It might be the case that 2012 turns out to be the year in which the most humans were ever born, meaning forever as long as humanity exists. But why should we think that birth rates will remain low for a long time? Something that's important to get on the table first is to understand that this isn't a new phenomenon. It might only be getting attention in the United States in the last few years. But this is a long-run phenomenon and it's true for much of the world. So birth rates have been falling for not just a few years or decades, but for centuries, for as long as we have data documenting them. And it's not a US phenomenon.

So just to give a few examples of where birth rates are lower than they are in the United States right now. So in the US, the birth rate or the total fertility rate is 1.6. That number is lower in Mexico. It's lower in Brazil and Colombia, Costa Rica, China, Europe as a whole, Thailand, Russia, Iran, Tunisia, Turkey, Sri Lanka. I sort of give that list to give the sense that this is a broadly shared pattern. It's true in high-income places. It's true in low-income places. It's true in religious societies. It's true in secular societies.

Jones: And it's true in the largest countries. The countries with the most people.

Geruso: That's right. So the three largest countries—US, China and India, although reverse the order, India is the largest. In each of these countries, we have birth rates that are below the replacement rate. Most recently, India has fallen into that territory, which is sort of remarkable because for a long time, among people who were concerned about overpopulation, India was this place of concern about overpopulation, fear-mongering, and doom-mongering. But even in India, and even looking in asking low-income women in India, what kind of families they want for themselves, they report ideal family sizes below two. And that's what's happening in India.

Jones: Just one thing that struck me is you're saying this has never not been the case, as far as we know, that fertility rates have been dropping. So to avoid depopulation, something somewhat unprecedented has to happen.

Geruso: Yeah, I think that's right. And I think I know exactly what you mean when you say birth rates have been going down. I just want to be clear, that's not a claim that in every single year, the birth rate only ticks in one direction in every single country or in every single

subpopulation. These indicators bounce around from year to year. But when I say that, what I mean is kind of over the long run of decades, this is how things trend. For example, we had a mid-century baby boom in the United States and other countries around the world in the mid-20th century. But birth rates were falling before then. They were falling after it. And so what I mean is taking the long sweep of history.

So would something extraordinary and different have to happen for the long arc of history to start pointing in a different direction with birth rates rising? Yes, I think the answer there is yes. I'll say something that maybe others who studied this or who comment on it publicly wouldn't agree with, which is that we really have, at this point in our history, no idea about how to turn things around. And I'll even say something stronger than that. I don't believe that the state of population science today is that any of us, not policymakers or commentators or academic experts, even have a clear explanation of the causes of fertility decline.

Jones: Let's move a little forward in a book because you start with this kind of sobering fact and then it gets a little darker. The case against people. So already your popularity contest campaign is off to a great start. So you have a section where you try to address certain arguments that are, I guess, making the case against people. We have too many people. There are arguments that sort of favor depopulation. There are degrowth arguments that are made that are tied to this idea. So let's talk a little bit about those. So first, it seems very intuitive that if we have more people, we'll have more pollution, maybe more carbon emissions, and more climate change or global warming. How do you address that in a book or is that a, you know, a counterpoint to your depopulation, the worry of depopulation?

Geruso: So let me just be super clear that subtitle of the book is *Population, Progress, and the Case for People*. So the book is ultimately trying to make the case for people.

Jones: Sure.

Geruso: But we try to, we wanted to meet people where they were in starting with reviewing the case against people or the cases against people that we often hear. And I think you're exactly right that one of the big things that comes to mind for so many people is the relationship of people to the environment. You know, wouldn't more people mean more pollution? You know, I understand the intuition that would bring someone to that conclusion. But you know, it doesn't fit the facts, particularly well. Let's start with an example where we've already turned the corner on pollution, particulate matter air pollution. And a story we tell in the book is how in 2013, China faced a smog crisis. It was being called the air apocalypse. The *New York Times* reported that the embassy there that was taking air quality measurements rated the air quality 755 on a scale that went from zero to 500, where higher was worse. In the decade that followed, that story about the

smog crisis in China, the Chinese population grew by 50 million people. And so just to put that in some context, that's like the size of one and a half Texas's where I am.. So it's larger than many country populations, the size of Spain or Argentina. But over that same decade, when all of that population growth was added, particulate air pollution in China declined by half. Right, so the harm of particulate air pollution, which is coming from fires, coal plants, crop burnings, that all got smaller as China got bigger. So that's a sort of a story that's looking over time within one place.

If you look across the world and you compare places that have, this isn't quite the right comparison, but it's a proxy for population size. Think about population density. You look at dense countries and less-dense countries. Is there a clear relationship where there are more people living more densely, there's more particular air pollution? The answer there is no. So you have dense countries like India is one, Nigeria is one, China that have relatively bad pollution. But you also have other dense countries like Japan and South Korea with very low pollution. And if you look at the data for the world as a whole, there really just isn't a lot of correlation between particulate matter air pollution and population density. That's in part because a much better predictor of air pollution is wealth. Citizens in wealthy countries don't want it. So whereas in a poor country like India, you get a lot of particular matter, air pollution from burning crops, burning crop residue to clear fields after a harvest, or burning dirty fossil fuels, or burning other sort of solid fuels. You don't get that in South Korea or Europe. That's not because those places don't have agriculture or don't use power. They use lots of power. They have lots of agriculture. It's because citizens demanded something else. And the takeaway there is just first, we don't see that strong correlation, but also there's an important element of choice here about what people want. And when people touch the environment, it always comes down to the choices they make, the policies, the regulations, the technologies they employ.

Jones: Yeah, I'll just note what I found pretty interesting in your book was that to extent that more population would affect carbon emissions, by the time our population lifts the global temperature, we would already have gone beyond points of really bad climate change. So we just need to fix climate change no matter what.

Geruso: Yeah.

Jones: Whether the population grows or shrinks, hopefully it can be fixed and it should be fixed, it could be fixed either way.

Geruso: Yeah, there's really no solution to climate change and carbon emissions other than reducing per capita carbon emissions. If we do that, then we can avert the worst disaster. If we don't do that, then we won't avert it. But what happens with fertility rates

today just turns out to be much too late to have a large impact on climate. And that's because no matter what happens with fertility rates from this point forward, that's not going to spill out into large differences in global population sizes, the stocks that actually create annual emissions for generations at this point. So whether we're heading for a rapid population decline after 2070 or whether or not, the population is still going to be increasing between now and 2060 or 2070 or 2080. Those are exactly the decades that we need to be focused on actually implementing solutions that reduce per capita emissions. So it's sort of like there's a hollow promise here when people are thinking about population decline as a means to rescue us from better climate stewardship. The timing of this just does not work out.

Jones: Making a case for people, there's this other kind of tension between different people, kind of a trade off that you alluded to earlier, which is that there's a sense in which when you invoke the idea of increasing fertility, people think that that is fundamentally incompatible with bodily autonomy and gender parity; that you have to wind back the clock on gender roles and other things if you're going to implement higher levels of fertility. What evidence do you see that like speaks to that fear or that concern?

Geruso: First let me just tell you what my values are in this space. I've no interest in any proposed solution to raising birth rates that would in any way encroach on individual bodily autonomy. That's something I feel very strongly about. I also think—maybe we can get back to this—that the empirical track record of when governments have tried to do this besides the fact that it's ethically awful just turns out to not be nearly as effective as people sometimes give it credit for. So maybe we'll come back to that or maybe we won't, but that's something we talk a lot about in the book. In terms of not coercive reproductive policy, but just what's happening in liberal democracies about the relationship between progress on gender equity and birth rates, I certainly understand why you might come to this. Someone might come to this with the notion that there sort of needs to be this inverse relationship as opportunities expand, as women's place in society and politics and culture and the economy improves and expands, as those opportunities expand that birth rates would have to go down. So the implication being that to reverse decline in birth rates, it might mean rolling back progress on those areas.

One thing to say about that is that how we divide the labor, the responsibilities of raising children is a choice. One of the refrains of the book is that we really might be in a better situation overall if we had understood for a much longer time that children are not just women's responsibility, they're everyone's responsibility. Not even not just mothers and fathers, but societies as a whole. People who aren't parents, people who aren't parenting young children right now. Even if you just dig into the data and I'm going to focus here on

what we see in high income countries, like OECD countries, it turns out there isn't actually much correlation between markers of gender equality or equity and fertility rates. Now, I want to say that's not true if you look at the long sweep of history or if you start clobbering together like very poor places right now with rich places. But among advanced economies, there's a lot of heterogeneity in markers of equity like the gender wage gap, how much does typical woman get paid relative to the typical man or female labor force participation. These sort of things that we can measure well. There's a lot of heterogeneity in that, but that heterogeneity, that variation turns out not to be predictive at all of fertility rates in these societies. So I think that is a hopeful reason to think that there might be a solution out there to be found to create societies in which people want to choose more children than they want to choose today without any sort of rolling back of gender equity and progress. But I also think, as I said earlier, that we have a lot of work to do, even as researchers and scientists in trying to understand these patterns and trying to understand what responses actually could be successful.

Jones: People will say also we just don't have the resources to sustain population growth. Fertility is going down, that leaves more for everyone else. First let's say quickly, how do you respond to that idea that as population grows, we'll have less to go around. We just kind of have a fixed size of resources that we're dividing up over people.

Geruso: These sort of forecasts of doom related to population have panned out very poorly. So the most prominent sort of advocate for this view, forecaster of doom was Paul Ehrlich. In 1968, Ehrlich published his book, *The Population Bomb*, which was just hugely successful in affecting how many, many millions of people thought about this issue. He was in his book, predicting doom of every kind. So, that we were going to face hundreds of millions of deaths by famine if the population kept growing, because we simply did not have the material resources to feed so many people. In 1968, the population was about 3.5 billion. Today, it's about 8.2 billion. Ehrlich was wrong in nearly all of his predictions. It's hard to find a wronger public figure in recent American history than Paul Ehrlich. The famines didn't materialize. He predicted rising poverty and material scarcity of every kind. What actually happened was because of innovation, including innovation in the sort of green revolution—work by people like Norman Borlaug and others who developed high yield, disease resistant varieties of grains—we learned to grow more calories with less land, with less human labor, and have those yields be more robust and dependable. And just to say a few more words about calories, because Ehrlich spent so much of his time fear mongering about mass starvation if we added another billion people to the world, on every single continent since the 1970s, and in every decade in every continent, we've grown so much food that even as the population has been growing very rapidly, the calories available per person have been growing in every decade and every continent.

In terms of other forms of scarcity, if you think about the world as just a pie that's fixed that we're dividing up more thinly if there's too many of us, the reality is that over the last half century, lives have become better around the world, not just in terms of incomes, but access to education, health, life expectancy, opportunities to work outside the home. And I don't just mean for rich people in rich countries, but for the bottom of the global distribution. You know, and that's continued into recent decades. So in 1990, maybe 40% of the global population was living in extreme poverty on less than three dollars a day; today that's less than 10%. You know, that's not me saying that everything is hunky-dory and great, but there really, it's not been the case that more people have meant less for each of us.

Jones: A lot of the evidence you bring up right here is about declining poverty, improvements in many places with a number of measures of well-being. Many of them kind of in absolute terms—how much in resources do the worse off people have over time, and that's been increasing. And a lot of the kind of discourse you hear with respect to bringing children into this world and whether things have gotten better is a lot of frustration with inequality. And so you can have everybody getting better and inequality growing over time at the same time with maybe more wealth and income concentration at the top, even though the people at the bottom of income spectrum are improving. Do we know anything about whether the absolute measures matter the most when people are thinking about whether to have kids or whether glaring inequalities might discourage people from having kids even though things are improving at each income percentile or at each point along the income distribution?

Geruso: That's a great question. I've got sort of two answers to that. So I mean, at the broadest level, I think we don't quite know, but let me tell you some things that are connected that we do know. The absolute measure of well-being, whether that's income per capita, life expectancy, educational access, these things do matter. So it's a very robust empirical relationship, whether you look across countries today, you look within countries over time, that as incomes have risen, as educational attainment has risen, as markers of health and morbidity, some rise in life expectancy have improved, so those things have a very strong, maybe the strongest prediction, more than anything else, more than contraception access. They have a prediction of declining fertility. So that's true in the cross section, it's true over time, it's true in every region on the planet. So that's saying that material conditions in an absolute sense do matter.

Jones: Just to clarify there, you're saying when income and other resource available and material conditions improve fertility goes down?

Geruso: That's right.

Jones: Because the kind of concern is that people don't want to bring their children into a world that is in the future that is dark and grim.

Geruso: Yeah, the empirical pattern is just the opposite of what you would expect if people want to bring children into a world that's getting better and don't want to bring children into a world that's getting worse, at least on these objective measures.

Jones: So they're sort of saying, I want to enjoy this world, it's getting better.

Geruso: I do think that's an important aspect of what's going on. Although I think again, we need to understand this better, but my framework for understanding what's happening here is that we really are in a period where opportunities have expanded way beyond what was even imaginable to people decades or centuries ago. The prospect of having children with all its benefits is competing against an ever-expanding, ever-improving set of alternative options.

To the earlier part of your question about how much of this is a response to real material conditions versus how much of this is a response to perceived conditions, even if those perceptions, even if sentiment is moving against the fundamentals of how much money people actually have in their pockets. I think that's a super important avenue for future research, but I actually haven't seen papers on that yet. So I think that's, I'm excited for someone to work on that. Maybe it'll be me, maybe it'll be a grad student who's hearing us right now.

Jones: And I didn't want to misrepresent your book. It's not all doom and gloom. You then pivot to talking about why should we care if population is growing? What are the benefits of more population growth? So let's talk a little bit about those. One that you talk about is that we all enjoy the fruits of technological advancement, medical, scientific advancement, technological improvements. Probably the net effect of my smartphone is positive, it's unclear, but these things that did not exist, people would never have imagined even a few decades ago. And so one thing you point out is that the more people we have, the bigger, the more chance we have for these things to hit, for these ideas to pop out and percolate and to compound with each other. You can talk a little bit about your argument for population growth in terms of ideas.

Geruso: Yeah, and this is an argument, not just for population growth, but just population stabilizing at some level, rather than sort of diminishing indefinitely. And at the highest level, there's a couple of really important benefits of living in a big world. One is the, if I can use an Econ 101 term, the non-rivalrousness of ideas, which means that an idea is a special kind of resource. It's an endlessly renewable resource. Knowledge, ideas, discoveries, process improvements—these things can be used over and over and over

again, and they don't get diminished when we use them. So, if I take an antibiotic pill to treat infection, that particular pill is gone, but the formula for the pill, the knowledge of the production process, the underlying germ theory of disease, these all endure. To get back to the question, the arrival of these broadly shared innovations, they depend on population size because they spring from human minds.

One part of this is these endlessly renewable resources that people create, and then once they're in the world, we all get the benefit from. Another benefit of living in a big world is that there are some things that only happen, or only can happen if they can happen at a certain large enough scale. So, just to give a few examples, and this will mix the two categories, but the high yield disease-resistant crops that ensure that we didn't face Ehrlich's predictions of famine and doom. That comes from non-rival innovation. So, did the vaccines and medicines that keep us well, but also the public transit network or the private car that you took to get around today, that wouldn't have been made if there weren't many others that wanted the same thing. It's all sorts of things too, like the museum that wouldn't be able to cover its land costs, its building costs, its operating costs, if there weren't many patrons, donors, taxpayers, podcasts, news programs. Yeah, so this podcast is only going to make sense for us to do if there are enough people that are interested in it. That's what's going to make it make sense for us to spend our time on it. That's true for us. That's true for Taylor Swift, right? There are some things that just aren't going to happen if there isn't a big enough market for them.

The thing that I like to say, and I sometimes maybe push this a little bit too much in people's faces, I'm going to do it for the podcast audience too, is like you listening, you didn't pull yourself up by your bootstraps. The reason that you and I and Damon live better lives, meaning less precarious, more educated, healthier, safer than the average person did in the past, isn't because we have more grit or more intelligence or more more integrity, it's because we live in a big world and we get to enjoy the progress that other people have made. We should hope for that progress to continue and that progress depends in part on people. The number of people that are on the planet isn't the only thing that matters. Good institutions like the rule of law matter a lot for innovation and doing things at scale. So does human capital investment, all of these things matter. But one ingredient in that equation is population size.

Jones: And just because I enjoyed reading this part of the book, what does us all have to do with the movie *Armageddon*? For those of you that haven't read the book yet maybe you could share that.

Geruso: Sure. I guess and for those for the audience that's under 40, I should probably explain what *Armageddon* is. So the movie *Armageddon* was about this asteroid that was

coming to Earth and then humanity mounted an attempt to break up the asteroid so that it wouldn't collide with Earth. So in the book, we talk through a sort of imaginary scenario where you have this asteroid hurtling towards Earth. The point of this is to communicate that there are some big important problems that could be solved by a big population and just couldn't be solved by a small population. So in the language of economics, we cast this in terms of fixed costs. Fixed costs are fixed in the sense that they're the cost of doing something rather than nothing, regardless of how much of that something you do. So like at a restaurant, the typical e-commerce one example is fixed cost or the cost of being in business, no matter how much the shop sells. So that's like the rent, the stove, the cookware, the earnings that the owner gives up by not doing something else, and then the variable cost are things like the noodles that they're going to serve.

In the case of dodging the asteroid, the fixed cost is the cost of averting a collision with Earth, and they're fixed in the sense that whether there are a billion people on Earth, there are 10 billion people on Earth, it's going to take the same effort of engineering, the same amount of steel, the same human labor effort and capital investment to launch the rockets and divert the asteroid. In this kind of silly example, the asteroid is coming and maybe what we learn is that the brightest minds tell us that we can avoid it, but it's going to cost 10 trillion dollars. And those dollars is masking what's really happening, which is researcher hours, so many tons of steel and concrete created, so many fabrication hours and so on. And with enough of those materials and labor effort, we can build the guidance system and train the astronauts or whatever and divert the big rocks so it bypasses the Earth. That investment is going to be much easier to pull off in a larger population, the smaller one. If in a 10 billion person population, we'd have to devote 15 or 20% of global GDP to that effort. Maybe we'd succeed. In a 1 billion person population, that would mean 150% of GDP, 200% of GDP, so oops, that's not possible. We use that as a sort of example to guide thinking about fixed cost, but I don't want the particular example to cloud the point. Mostly in that chapter, what we're talking about is how these scale effects and fixed costs means that a larger population is going to be helpful for things like great museums or new vaccines to come about. The sort of asteroid vignette is meant as metaphor really for anything where there would be big fixed costs of doing something important. And where a larger population would be able to achieve something that a smaller population wouldn't. So maybe that's something like a breakthrough in cancer research, you know, I'm more concerned about that, the importance of something like a literal asteroid.

Jones: Those are kind of some practical points about big populations that have to do with what can be done, what are some of the benefits, economic, quality of life benefits, amount of resources that are needed to avoid certain cataclysmic things. But you also have to, you get into moral and ethical arguments in favor of stemming depopulation. Here, this

is a particular interest to me as an economist because I think sometimes in economics, we focus a lot on certain types of normative arguments, mainly about efficiency. Can you talk a little bit about some of the moral concepts that you had to grapple with?

Geruso: Yeah, so far when we've talked about the benefits of a large population, they've really been external benefits, right? So it's been the benefit for me of getting to live in a big world, the benefit of you of getting to live in a big world. But we haven't talked about the value of lives for the people who get to live them. And that's something that we take on in the book. It's chapter eight of the book, like the chapter title is "More Good is Better". And, you know, our point there is that more good *is* better. And that's true for any of a good thing, holding all else equal, and that includes lives. More good lives would be better. And so what we're saying there is that people's lives matter for themselves, you know, completely separate from their consequence for others. We need to weigh all those consequences together. And that's sort of what we do, sort of chapter by chapter in the book. Here are some negative consequences of people. Here are some positive consequences of people. But we wouldn't want to bypass that there is an—or ignore that one of the consequence of another person living, another hundred people living, another billion people living is that those people get to be born to enjoy their lives. And so that's an idea that we take up in the book. That builds on and I think even advances a field of ethics called population ethics that asks about how to think about the value of different futures with different people in them. I know Damon, like when you and I are doing like a social welfare evaluation, that's often a very static evaluation. We're thinking about, you know, summing up the cost of benefits to, you know, some set of people usually fixed in time. That sort of social welfare evaluation, we need to go beyond that if we're talking about, you know, what's the value of doing some massive investment that would change the trajectory of birth rates in the future and result in, you know, differences of billions of lives lived or not lived.

There, then, we need some sort of framework to think about, are those lives worth anything? Should they count for anything in our social welfare evaluation? And what we present in the book is arguments that say, yes, we should care about the value of people getting to live a good life, not that it should be the only thing that matters, but that to me, it sort of self-evident that it can't be the case that whether or not billions of people get to live good lives 100 years from now is a matter of complete indifference. It has to count for something. And so we sort of, we engage with these ideas in chapter eight of the book, including engaging with, you know, the very common and reasonable reactions that we've encountered when people sort of object to that idea. You know, like, if it's true that it matters that someone gets to be born to live a good life, then, you know, wouldn't that require each of us to, you know, somehow spend all of our life and all our effort maximizing the number of children that we produce and raise and make everything else in our life

subordinate to that. I mean, the answer is no, of course, because to say that something's good isn't to say that it's the only thing that matters, you know. There's lots of things that matter. Every dollar vote, every moment of attention spent on improving US healthcare is a dollar vote, a bit of attention not spent on global poverty or improving education or building housing. So, of course, we need to balance all these things together that matter, but we think that one of the things that matters is the chance to live a good life.

Jones: What I want to finish on are some questions about what can be done. Can you talk a little bit about the general idea that maybe technology will just fix this on its own?

Geruso: Sometimes when people want to sort of dismiss the idea that this is an issue to worry about, they'll say, well, this will correct itself. And sometimes, like when a particular kind of person wants to sort of dismiss the idea, they'll say, technology will solve this. But we've had a lot of technological advances over the past century, and that's been a time of declining fertility. So, one question to ask if you imagine that some sort of external mechanical wounds are going to solve the fertility rate decline is to ask, who's going to parent the child when it comes out of the machine? Because creating a new person, of course, a big part of that is what it does to a body and the challenges of that over nine months of pregnancy and some months, years of breastfeeding. But a big part of raising a kid, I can tell you as the parent of a 13-year-old or 12-year-old, soon to be 13, is like, you've got to do a lot after the baby comes out of the pod.

I don't want to downplay the challenges of medical infertility. That's challenges that my family has gone through. But the idea that the hurdle that is keeping people from having more babies is just like the production process of a baby. That's going to matter for some people. It's especially going to matter for people like me and my families who have problems with medical infertility. But the main reason that people aren't having children is that they don't desire that many children. And a pod that births a baby isn't going to solve that problem. Nor is whatever technology you have in mind, I think it's a really good question to ask ourselves, well, how does this compare to past technologies? We've had lots of past technologies. We've had formula to reduce the burdens of breastfeeding or to allow babies to have good nutrition in cases where breastfeeding isn't possible. We have all sorts of household gadgets—washing machines, dishwasher, garbage disposals—that have, if you were trying to keep the same, trying to do the same kind of home production, we could do it much more with much less labor costs now than the past. We've had all sorts of technologies that in principle could increase the family's budget for how they spend their time and make child rearing easier. But in practice, that has not been a series of changes that have caused people to choose more children.

Jones: Another natural direction, some people think about this and dread this, and others live for this, is for the government to kind of mandate fertility of some way or to control how fertility happens. And here it also seems interesting that there are two directions that a government could push fertility—they could push it down, they could push it up—and your book you talk about what has happened in the past when they've tried that. And maybe first, if you could talk about those efforts by government to reduce fertility and how that speaks to this question.

Geruso: There are these efforts of governments to reduce fertility in the past and some of them have been the sort of things that I think would be, you know, people would find acceptable today, like education campaigns, providing contraception and so forth. But there's also been like really coercive efforts in countries to try to reduce fertility rates. So, you know, this happened in, it's happened in India. It very famously happened in China with the One Child policy. People were denied basic human rights. Children were denied government services. You know, there were pressured or forced abortions. People who were like “illegal” children were, you know, sort of forced to exist under the radar. Women went into hiding to have children. I mean, just really awful stuff. One of the things that we talk about in the book is that although lots of lives were negatively affected or ruined by this, we think probably these policies have had a lesser impact than people often give them credit for.

If you ask why is fertility below replacement in China today, I think many people would give the knee jerk response, well, it's because of the One Child policy. My response to that is, of course, the One Child policy changed the trajectory of fertility rates, but the reason that fertility is low in China today is because fertility is low everywhere today. It would sort of, it would be strange if fertility fell for, you know, to below replacement levels for, countries that cover two-thirds of the global population today. And everywhere else, it was because of what people were choosing. And in China, it was because of government coercion. I think there was the government there was, you know, pushing a boulder that was already rolling downhill and did a lot of damage with that. But I don't think it's, you know, I don't think that we'd have anywhere close to replacement level birth rates in China if the One Child policy didn't happen. So one thing I, we tried to make the point of in the book is that when you start investigating these coercive policies, they often have a lesser effect than they're credited with widely. And that shouldn't be surprising because people have been controlling their fertility, have been planning their families and have been, you know, working around external restrictions for a very long time.

It happens in the other direction too. So in Romania, the dictator there, Nicolae Ceaușescu, implemented Decree 770, which was trying to effectuate the opposite outcomes, trying to

raise fertility rates. What Decree 770 said was abortions were no longer going to be available. And this was a society, you know, I should say that at the time abortions were more freely and readily available prior to this than they've ever been in the United States as a whole. The rug on abortions was pulled out from under people. And also modern contraception was banned. And what you saw was that immediately in the next year, birth rates almost doubled. But within a few years, those birth rates started ticking down as people changed their plans, changed their behaviors, adapted to the new policy regime. And so what you wouldn't want to do is look at that the first few years of that program and see what happened to period fertility rates and conclude that the program was a sort of like wild success in its own terms of raising fertility rates because people adapted. The sort of lifelong cohort effects on birth rates—how many children did women have over their lifetime?—that moved up I'm sure. It's actually quite hard to quantify how big an effect that is. But it's much smaller than the effect that you would estimate if you just looked at what was happening to period fertility rates, what happened in the years, immediately following the policy. People who had a child they weren't planning on in those early years would reasonably be expected to scale back on fertility that they would have otherwise planned for later in their life. So coercion often ends up, you know, in addition to just being horrible, ends up being less effective than people often credit it with.

Jones: Rounding out a lot of the common things you hear in this area, you hear about affordability. The reason why fertility is down is because it's so expensive to raise a child. Child care is expensive, there's inflation. Other things are costly, housing is costly, things of that nature. Would something like a child allowance or, you know, a transfer to people upon having a child, are those types of policies that could shift or, you know, make a dent in these demographic trends?

Geruso: That's exactly, you know, one of the right questions to ask. And I think, you know, the disappointing answer is, I think we really don't know. I mean, at some kind of first principles level, there has to be some amount of money that not just someone who's on the margin between a child or a third child or a second child and not having that. There has to be. But, you know, when researchers have looked at, you know, the few cases where national or provincial or state governments have implemented baby bonuses, you know, so like a one-time payment around the time of birth or child allowances, which could be something like a tax credit or a cash payment that's tied to the number of children in the household. Those policy evaluations, they haven't shown robust evidence of a large effect. So I'm not here to say that those things have had no effect. I'm saying that whatever the effect has been, it's been too small to detect given the, given the sort of analyses that people have been able to do on these things. And that work really is quite hard because usually when is the government interested in funding a baby bonus or a child allowance?

Often that's when birth rates have just fallen. And so there's all sorts of questions about whether it's a sort of mean reversion story where birth rates would have rebounded even in absence of the program. And the sort of the decline in birth rates is both the cause of the eventual rebound in itself and it's the cause of the policy response. These are pretty difficult questions, especially because, you know, often what we're interested in for long-term population growth or decline is how many children families have over their lifetime. How many children a woman has over her entire child-bearing life. And if what a tax credit does is shift forward births that would have happened at like age 32 and age 34. Instead, they're happening at age 28 and age 30. I mean, great if that helps the family, but you know, have the kids at the time that works best for them. But that's not clear, in that example, that has no impact on sort of lifetime completed fertility. So I think we're in a place where it would be really great to have both more experimentation by governments in these sorts of things, but also to have much more, and more rigorous, research done. Because I think that's a place where there really is a gap right now.

But I want to say one other thing before moving off of this. I think we're really at the very beginning of understanding this issue of sustained low fertility in the United States and everywhere else. And we're probably not going to make much progress on addressing it if we're still in a world where, you know, like half or more people don't even really see what the benefit is of raising fertility rates. You know, if most of us are still in a world of kind of zero-sum thinking, you know, the sort of scarcity mindset where another person on the planet is, you know, a harm to me rather than a benefit. If we see them as competition rather than a source of abundance, then I think, you know, governments doing the sort of small things around the margins that they would be empowered to do in that sort of environment, you know, a little bit of a, you know, a thousand dollar child tax credit here or there. I just, I don't think we should expect anything, anything important to change. For me, as I think about these issues, the most important thing is sort of changing the fundamental orientation that we have towards other people and towards the importance of, you know, a sustained, stable population.

Jones: At first, I thought what you might be discussing or alluding to is that we need to change things so that a person finds the value for themselves to try to form a family and have more children. But you're talking about something different, which is people seeing a general social value in higher fertility. And that could be because I, it could be that I'm just really rooting for other people to have more children. And now I value it more. I want to support it. I may not have children, but I'm just more interested in the idea of more people have children and society's built more around that. Another version is that now things are so much easier to have a child. I might as well go and do it. And the third one is that I want to have a child for the human race. This is not just about my own family and my own private

benefits. It's like what we thought recycling was, which is, you know, this is going to save the planet Earth as well. And it's like this is a higher calling. So those are three different things. I want to help other people have children. It makes sense for me to have children or the reason why, one reason why one should have a child is because it's like there's a bigger value to everyone else. If I have a child, I'm thinking about other people. How do you think about those different framings?

Geruso: So I do think about all of those. I think they all matter. I will admit because I'm an economist and I think about social welfare like it's my job because it is. I think I probably do tend to weight more the idea that you know our actions have consequences for other people that matter an awful lot and that we should we should take seriously—whether that's carbon emissions, or you know, all the way down to our fertility decisions. I think those things do matter. I also am not so much economist brained that I think that that's what's going to move *most* people. What I would hope for is a future in which first we can just sort of shed these ideas that people are bad for one another so that we're no longer pointed in exactly the wrong direction on the question of 'is another person or another million people on the planet better a worse for everyone else?' I do think that you know most people quite reasonably are going to be thinking about themselves first and last when it comes to decisions like this and that's okay. But you know we have a long tradition in public policy and economic advising of trying to make it the case that the choice, the personal choice that is prosocial, that's better for all of us is also the choice that is easier and better for each of us.

When I was living in DC a couple years ago and I was taking the bus to work every day, like sure, part of my motivation was to you know contribute to lower carbon emissions and not be jamming up traffic. But really the reason I took the bus is because someone made it easier for me to do the thing that was prosocial, to do the thing that was going to result in less traffic fatalities and congestion and carbon emissions. That was somebody's careful planning, that was someone in a transportation department's decision that was a local government's decision to fund public transit. And there's just there's just lots of examples like that where we can make decisions as a society where at a social level we recognize the value of other people we recognize the value of stabilizing the population, but what that redounds to is making it easier for people to choose the thing that is better for all of us. And so I think you know I can imagine a future like that with fertility. I don't know exactly what that would look like. Like, what exactly would be the changes that we made so that people feel more empowered to aspire to larger families? But we know we know it must be possible, right, and the reason we know is because you know none of us are born with like a desired family size etched into our soul. We form our desires for families and you know for partnerships, for children based on what we see around us what we see people getting,

what we see people rejecting, what we see people enjoying. There's a lot of heterogeneity around the world so you know birth rates are about, in South Korea today, are about half what they are in France. So it must be that something is different across these places it's certainly not about you know coercion or access to contraception or anything else. People are making different choices in different contexts. And so I think the question for us that care about the social value of all of this is, how do we make it easy for people to choose the thing that is good for all of us? And I think that is the challenge and that's what I hope people will start working on.

Jones: Mike thanks so much for joining us.

Geruso: Thank you for having me this was great. Yeah.

Jones: The Inequality Podcast is a production of the Stone Center for Research on Wealth Inequality and Mobility at the University of Chicago. I want to end by giving a shoutout to our team. First, I want to thank our producer and engineer Shane McKeon. Second, I'd like to thank our Assistant Director Nina Gray for the production oversight and doing so much to make the podcast possible. And last but not least, thanks to our Executive Director Grace Kolavo for her support, not just on this project but for everything you do at the Stone Center. You can get in touch with us at stonecenter@uchicago.edu. Thank you so much for listening.

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