

3 Takeaways Podcast Transcript
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Ep. 122: Superabundance: Separating Fact From Myth About Human Flourishing on an Infinitely Bountiful Planet

INTRO male voice: Welcome to the 3 Takeaways podcast, which features short, memorable conversations with the world's best thinkers, business leaders, writers, politicians, scientists, and other newsmakers. Each episode ends with the three key takeaways that person has learned over their lives and their careers. And now your host and board member of schools at Harvard, Princeton, and Columbia, Lynn Thoman.

Lynn Thoman: Hi, everyone. It's Lynn Thoman. Welcome to another 3 Takeaways episode. Today, I'm excited to be with Marian Tupy and Gale Pooley. They're the authors of "Superabundance". We've all been taught that as population grows, we are consuming and depleting the Earth's resources at an alarming rate. But after analyzing the prices of hundreds of commodities, goods, and services over the last 200 years, Marian Tupy and Gale Pooley have found that's actually not true, and that resources become more abundant as the population grows. I'm excited to learn more. Welcome, Marianne and Gale.

Marian Tupy: Thanks for having us.

Gale Pooley: Great to be here.

LT: My pleasure. With all we worry about in today's world, how much progress has humanity made in the last 100 years? Are we better off or are we worse off?

MT: Well, certainly we are much better off. Take something as simple as life expectancy. Life expectancy in the richest countries in the world, like the United States or Great Britain, was around 50 years in 1900. Today, it's 78 or 79 years in the United States. It's 88 years in Japan, and globally, it's 72 or 73 years. So clearly, on the most basic and the most important measure of human wellbeing, which is to say how long we live, the world is much better off. But there are many other aspects of human wellbeing. For example, we have almost universal literacy for the first time ever. The age-long education gap between boys and girls has shrunk basically to almost zero throughout the world. We have more calories per person than ever before, maybe even too much, since obesity is now a problem not just in Western world, but also in Africa. In urban centers in Africa, obesity is a problem. Famines have basically disappeared from the world outside of war zones. Even violence has declined. Of course, that doesn't mean that the world is at peace. There is a war in Ukraine and Russia. But what needs to be borne in mind is that in the previous centuries, countries used to be at war 100% of the time.

MT: The default position in the world was war. Today, it's peace. So when we do have a conflict like Russia and Ukraine, everybody is a little bit surprised by it as well as horrified by it. Our ancestors wouldn't be. Other aspects of human wellbeing, slavery is now abolished throughout the world. Women have a vote, which 100 years ago would have been the case only in a small number of countries like New Zealand. We have pretty much abolished torture, cruelty to animals, and many other ways in which humanity is better off.

LT: And it's also much better off in terms of our comfort. We have air conditioning, our entertainment. We have so many more options. We can travel. We can get on a plane and go around the world in a matter of hours. We have so much more food available.

MT: Yes, absolutely. I mean, 100 years ago, only the richest people would travel for pleasure. There were, of course, multitudes who moved around the world in search of a better life. But for pleasure, it was just very few people who got to see the Egyptian pyramids or what have you. So in that sense, we are, of course, much better off. And let's not forget the tremendous advances in terms of our wellbeing, such as, for example, everybody has in his or her pocket a supercomputer. It's called an iPhone or a smartphone.

LT: The idea of the time cost of things, which William Nordhaus, the Yale University Nobel Prize winner, applied to lighting is really interesting. Can you tell us about that?

GP: Sure. I'd be able to answer that question for you. Yeah, we actually call it the time price. And it goes to this idea that we buy things with money, but we really pay for them with our time. So there are two prices. There are money prices, which are expressed in dollars and cents, and there are time prices that are expressed in hours and minutes. The idea that Nordhaus kind of took is how much time did it take a person to earn the money to buy this quantity of light? He measured light in terms of human hours. So he had this way to measure this physical quantity of light. And what he found is that over time, this time price had fallen dramatically. And that really wasn't showing up in the economic statistics because they were measuring the money price of light versus the time price of light. So we were inspired by that finding. And part of what we did was let's see if we can use time prices to analyze things in addition to light. So we began by looking at basic commodities. Then we extended it to looking at finished goods. What's a toaster cost in terms of the hours and minutes today, and what did it cost in 1980?

GP: We began to develop this framework and then apply the framework methodology to lots of different products and services. And what we discovered is just that everything has [chuckle] just become so much more abundant. Things used to be really expensive in terms of a person's time. So it's the change in time price over time that really we believe is the best way to measure our standard of living as human beings.

LT: Can you give an example in terms of a product, what it costs in terms of number of hours for an average worker to earn it?

GP: Think about the time it takes you to earn the money to buy a refrigerator. You go to Home Depot today and buy a refrigerator and what's the price? How much do you earn? So it's, here's the nominal price divided by your hourly income and that will give you that ratio. And that will say, well, it's going to cost you 10 hours of time to buy that product today. And then we go back to 1956, for example, find out what the price was in 1956. And you can find it in catalogs and so forth. And then compare that price to what hourly income was in 1956 and you get a time price. So for the time it took someone in 1956 to earn the money to buy a refrigerator, you get 13 refrigerators today.

GP: So your refrigerator abundance is 13 times greater than your grandparents' abundance. If you go back a 100 years and look at a bicycle, for example, a basic bicycle, you find these prices. Sears did these catalogs every year. If you're very old or you talk to your grandparents, they'll know about

these catalogs. And they were kind of like the Amazon of their day. So you go find these catalogs and you find all these products in these catalogs.

GP: And a bicycle, for example, was \$12.95 in 1919. It's like, wow, that looks like a pretty good deal. But then you divide it by the hourly income and you realize, wow, it's going to take like 66 hours to buy that bicycle. Well, today you can buy a bicycle for 3 hours, which means for the time it took your great-grandfather to buy a bicycle, you get 22 bicycles. So your bicycle abundance is increased by a factor of 22. So once you start thinking in time, you start seeing these comparisons and it reveals this kind of astonishing increase in abundance for all of us. We don't realize how expensive things used to be.

LT: I find the examples so eye-opening. I love the example on light that William Nordhaus cites that for a light on for three hours each night for a year, would have required 17,000 candles, which would have cost the average worker about a 1,000 hours of labor. Now it takes just 10 minutes of work. And of course, none of this is captured in any of our productivity statistics.

LT: There's the idea that as the population grows, we need more of everything and we are depleting the planet's natural resources, which are finite. So population growth, according to conventional wisdom, is a problem. What do you both think?

MT: Well, I would simply start by saying that the only way in which we can estimate whether something is getting scarcer or more abundant is by looking at the price. So if things were running out, if we had serious shortages, then we would see prices spiking. And it is true that occasionally, you get spikes in resource prices. We are living through such an episode right now. But if you take the long-term view, if you look over a period of a decade or two decades or a 100 years, then there is an overwhelming trend toward everything becoming cheaper. So there is no evidence showing that we are running out of anything because everything is getting cheaper. If we were running out of something, prices would skyrocket. They're not.

MT: I would simply quote the great American economist, Thomas Sowell, who says that we have exactly the same amount of natural resources as the cavemen had hundreds of thousands, millions of years ago, but the difference between their standards of living and our standards of living is new knowledge. And when you think about it, it is true that except for a few hundred pounds of iron and plastic that we shot out into the space, we have exactly the same amount of copper, exactly the same amount of tin.

MT: It's what we do with them that makes the life today possible. And the truth is that out of any resource, we can create ever more value. I like to talk about something as simple as sand. About four and a half thousand years ago, people realized that they could heat sand to produce glass. And we started using it as decoration for beads, glass beads. And then later, we figured out that we can create glass jars. And then later, we created window panes. And in every step of the way, we were able to derive greater value from sand. And now, of course, we are using glass in fiber-optic cables, which are transporting information at close to the speed of light around the world. And that's just sand. But you can see how we are creating additional value from just something as simple as sand. There is no reason why we cannot create additional value from other resources like copper and zinc and tungsten and whatever.

LT: Many people would say, well, there's sand all over the planet Earth. But if you look at a recent

time period, let's say the last 40 or so years, when population growth has been enormous, I think population growth over the last 40 or so years is over 70%. What's happened to the price of basic commodities over that time period?

MT: Well, they have fallen, of course. We have no idea how much more of raw materials are available in Earth's crust because the prices are so low that we have no incentive of exploring deeper into the ground or in parts of the world where exploration is difficult to find out where the additional deposits are. And the stuff that we have already used, it's still here. It's just tied up in certain things. So for example, 10 years ago, if you went into a hotel, every hotel would have a blue cable that would come from the wall and it would plug into your computer, and that's how you would receive your internet. Now, all of those cables are gone because we are using Wi-Fi. So all that copper gets reused for other things. And if the price of those raw materials was high enough, then we would go and search for more copper. But the reality is that it's so cheap and so readily available that we have no reason to go and search for it.

GP: Just going from an ethernet copper cable to wireless illustrates this idea of we're replacing atoms with knowledge. And that ability to do that is what's allowed us to have much more with much less of this physical world. We like to say that we are intelligizing atoms by adding knowledge to them. And at some point, they completely disappear and it becomes a pure knowledge product like wireless. I mean, we're still using something physical. We're using the physical atmosphere, but the way that we're using that becomes much more valuable and abundant at the same time. So another key thing to remember is it's not counting the atoms. It really has to do with thinking about the price. So knowledge has this really interesting characteristic that it can grow and it can be shared and it actually grows when you consume it. So when we really think about a knowledge economy, that's what's allowed us to really create much more abundance with just these fixed limited number of atoms.

LT: Can you give some more examples of producing more with less physical goods? Those copper cables are a wonderful example. Can you help make that concrete for more people?

MT: Think about something as a smartphone or an iPhone. In the past, you would have to buy a camera. You would have to buy physical paper maps. If you needed a compass, that was its own gadget. If you wanted a radio, you would need a radio. I don't use my cell phone as much as other people, but just in terms of my cell phone, I've got a calculator here. I've got a clock, an alarm clock. All of that would have been subject to having separate items that you need to buy that you now have on your phone as an app. Not to mention things like Uber and Lyft. These are just some of the ways in which we are de-materializing the world.

GP: There's a real simple one that when they first came out with a tin can to hold soft drinks, it weighed about three ounces and today it's less than a half an ounce. So we see just this ability to use atoms smarter to create products, thinner, lighter, more efficient. This physical world is also, we're getting much more with less. There's actually a book called, is it "More From Less"? Our friend...

MT: Andrew McAfee.

GP: Andrew McAfee, yeah, has written this great book, MIT Research scientists, about how we're getting much, much more and we're using much, much less.

LT: I've had him actually as a guest on 3 Takeaways. It's Andy McAfee, Episode 8.

GP: As Andrew has documented, about 20 years ago, there has been a decoupling of American economic growth from the absolute usage of, I think it's 75 out of 78 different commodities. Now that is a bit of a difficult concept to translate, but let me attempt. It doesn't mean that we are using less stuff relative to dollar of output. What it means is that the absolute total tonnage of these materials, copper, zinc, et cetera, is declining even though the American economy is growing. So more and more, we are switching over to creating wealth out of knowledge rather than raw materials.

LT: It's quite extraordinary. What do we need to have that continue to happen?

GP: Well, in part, we need to carry on having a human population. Our argument is that actually people are not just an empty stomach, but also a brain and the more brains you have, the more ideas you have, the more inventions and innovations you can produce. If people stop having children for whatever reason and we have a population collapse, then of course, we will also run out of new ideas. Be there ideas about how to tackle the new pathogen, how to create more food out of less acres of land. For all of that, you need new ideas. And so you have to give people at least a little bit of freedom to think, to speak, to publish, to associate, to invest, to profit, so that these ideas can be then translated or actualized in human progress.

LT: Before I ask for the 3 Takeaways you'd like to leave the audience with today, is there anything else you'd like to mention? What should I have asked you that I did not?

MT: I would just say that once again, this abundance is happening all around us and we tend to be biased a little bit toward negative news. But so much of this is happening around us that we don't really... We're not hearing about it all the time. So to this issue of this little small progress, if something grows at just three and a half percent a year, it doubles every 20 years. The size doubles every 20 years. So if you woke up this morning and everything was 50% off, wouldn't we all celebrate? [chuckle]

MT: There'd be this huge global celebration. But that's in fact what's happened over the last 20 years, is everything is 50% cheaper because we've had this three and a half percent growth rate that we've been experiencing, but we don't notice it because it just happens a tiny bit every day. So being able to look back and have this perspective of, we're better off to compare ourselves to who we were yesterday, not to who someone else is today. And by that, we really just mean go back and look at what your parents' life was like and your grandparents. You can be nothing but just profoundly grateful for what we have today to live our lives with, this material abundance, but it's also time abundance and it's choice abundance. It's just super abundant.

GP: And I would maybe add that, of course, our work is a work of economic history in many ways, which is to say that we were able to look at the last 170 years and we found all of these relationships and they are important. But it doesn't mean that super abundance has to continue into the future. If we do not protect our political freedom and if we don't protect our economic freedom, then we are not going to have a super-abundant future. So the takeaway really is that people ought to protect freedom. That's number one. Number two, humans are not a cancer on the planet. Having a child is not an act of selfishness. Quite the contrary, people create more than they consume and consequently, we are able to create a better world. And so we need people. People are not a

problem. They are the solution. And thirdly, when you measure things in time, which is a deeply egalitarian concept because everybody has only 24 hours in a day, you realize just how much better off you are in terms to our ancestors. And that's something to be grateful for.

LT: Thank you. This has been wonderful.

GP: Thank you very much.

MT: Thank you, Lynn.

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