

**Mike:** 00:00:59 Good afternoon everybody.

**Adam:** 00:01:00 Happy Friday.

**Richard:** 00:01:01 Happy Friday guys.

**Mike:** 00:01:02 Cheers.

**Laurence:** 00:01:05 Cheers.

**Adam:** 00:01:06 Larry, welcome.

**Laurence:** 00:01:07 Thank you.

**Adam:** 00:01:09 What are you drinking? That's a rum and coke, right Larry?

**Laurence:** 00:01:12 It's a coffee and coffee.

**Adam:** 00:01:15 Okay, coffee. Where are you? It's not late in the day for coffee?

**Laurence:** 00:01:21 I am in Chicago, but my head is on California time. And I live up here in the winter and I'm going there in a few weeks. So coffee it's the stuff for me.

**Adam:** 00:01:35 Got you. Mike is going to do a disclaimer. Go ahead bud.

**Mike:** 00:01:38 Oh yeah. So just as a reminder to everyone listening on a Friday afternoon, this is for entertainment purposes only. And it is not to be taken as investment advice of any kind. It's not to be taken as advice of any kind, of any kind. So if you would like advice on something, go get a professional advice, not four scallywags on YouTube having three drinks and a coffee. And with that we can really begin our chat.

**Adam:** 00:02:05 That's the kind of formal disclaimers that we like at ReSolve. Larry, thank you so much for coming on the podcast today. Just for those who don't know, Larry is research director for the CFA Institute. How long have you been doing that because I think you have been in that role for quite a while. You're sort of an institution there?

### Backgrounder

**Laurence:** 00:02:29 Well, since 2005, but it's part time. And I was at the Ford Foundation as their head of research until 2009. So I overlapped. And I also am the research director not for the Institute, but for the CFA Institute Research Foundation, which is an independently governed organization that commission's monographs, which are

books, and briefs, which are articles, and we are independent, in that we don't just serve the needs of the CFA Institute and its members, but the general public and the researchers, the people that I give grants to. It's like a university. They're supposed to follow the research wherever it takes them, and we don't tell them what to do.

- Adam:** 00:03:22 So do you play a role in vetting and choosing articles for the *Financial Analyst Journal* then?
- Laurence:** 00:03:31 I did. I was on their advisory board, and I termed out after 12 years, so now I play a role as I have since the late 80s early 90s, in choosing articles for the *Journal of Portfolio Management* and the *Journal of Investing*, which are a different organization. Those are unpaid jobs that you do for fun and to keep your name in the papers.
- Richard:** 00:04:00 Do you also participate... Yeah, sorry. I just wanted to understand because I follow the CFA Institute curriculum quite closely, and I noticed that it changes quite a bit every year, and just trying to keep up with the most recent trends in the industry, particularly after the '08, '09 period mortgage-backed securities and stuff like that, became very prominent in the curriculum. And then more recently, the blockchain revolution has also featured prominently. Are you part of that decision to curate the content that would be eligible to be added to the curriculum?
- Laurence:** 00:04:39 No. My main responsibilities are really to the Research Foundation only and it's to get books and articles selected, then curated in the sense that they edit the books and publish, and we are quite separate from the CFA Institute's education. I don't really know what is in the curriculum at this time.
- Adam:** 00:05:02 Neither do I. Richard has just been through the curriculum recently. What is it? Two years ago Richard, three years ago.
- Richard:** 00:05:07 No. It was actually closer to seven but thanks for...
- Adam:** 00:05:10 Seven years ago.
- Richard:** 00:05:12 Made me feel a little younger there, I appreciate that.
- Laurence:** 00:05:15 Yeah, I'm also not a CFA Charter Holder. When I joined the Ford Foundation one of the requirements was to either sit for the exams or already have passed them. But I'm so old that I was exempt, because I had an MBA from the University of Chicago in finance, and that was considered to be even better. We had 11 Nobel Prize winners. The Nobel Prize is yet to come, on the faculty. So at very various times not all at once. So, we would have classes, we were a bunch of 20 to 23

year olds and we'd have classes where the professors would be handing out mimeographed papers, and those would later win Nobel Prizes. We didn't know that at the time. But we just thought that they were something the professor wanted us to read, so they typed them up.

**Adam:** 00:06:10

Yeah, much of the seminal research that is covered in the CFA curriculum I know is informed by or motivated by a lot of the research that comes out of University of Chicago. So I'm sure you have an intimate understanding of a lot of the core subject matter. And then also you've got, and this is something that you're probably most excited about at the moment, this project where you've written a book called *Fewer, Richer, Greener: Prospects for Humanity in an Age of Abundance*. And I will warn you that on Riffs we have tended to skew a little bit pessimistic. We had Steve Keen on the podcast, I don't know if it was two weeks ago, three weeks ago. He's calling for a climate collapse and the end of capitalism in the next 10 years. So this will be a breath of fresh air for many viewers of Riffs. And so we're looking forward to adding a little optimism to our repertoire.

## Capitalism and Climate Change

**Laurence:** 00:07:13

Well, we're not going to have an end to capitalism and the climate is changing. And this presents real risks that I shouldn't minimize, but it's happened before. My ancestors who are Jewish came here partly because of religious persecution, but also for the same reason that non-Jews came here from Europe, which is that Europe was going through a little ice age between say, 1600 and 1680, and food was becoming scarce in the northern parts, Germany, Netherlands, and so forth, in England. And things were better here. So we've faced much worse problems in the past. We didn't have the technology. We didn't have airplanes, weather satellites, instantaneous communication, cheap, not free, but fairly cheap transportation. And so we're going to rise to these challenges.

I like to start by saying the why I wrote the book, and then what happened with COVID. Children are coming home and telling their parents, why did you have me when the earth is going to be a rotating cinder before I'm a mature adult. And of course it's not true, but that's what children are being taught and they believe it. You look up to your teachers. And what *is* true is that we face a different set of challenges than we did in the past when we had to get our kids through plague, smallpox, polio, World Wars I and II in the Great Depression. And now, compared to that these challenges are fairly moderate but they're not non-existent. With about 200 million people out of the seven or 8 billion people in the world live in areas that are threatened by rising water levels. But 200 million people move internationally every year. So we're basically that's one year's international migration extra that we have to deal with. Let me just share my screen.

**Adam:** 00:09:40 Yeah, that's great.

**Lawrence:** 00:09:42 I believe this will work. So somebody has to...

**Richard:** 00:09:48 Yeah, we see it.

**Lawrence:** 00:09:50 ... show me how to do it? Thank you. And then as I change what's on the screen, that's right, you can see this little guy.

**Mike:** 00:10:02 Yep.

**Adam:** 00:10:02 Yep.

**Richard:** 00:10:03 Yes. The Little Prince, is he?

**Lawrence:** 00:10:10 The first thing I wanted to mention is that the population explosion is almost over. We were all going to die because we were going to populate ourselves off the earth. We'd all be starving, there'd be 15 billion people on earth by now and 3 trillion by the end of the next century, and that we'd all read the limits to growth in high school, read about it. And, none of its true. What happened was, the people adjust to changing incentives. It's now much more fruitful to have fewer children and invest more in each one of them, than to have a lot of children and hope that a few of them live to be able to work on the farm and support you in your old age.

So all around the world, the population explosion is coming to an end. In Africa, it's less than in the rest of the world but I'll get to that. By the way this poor guy, we're not going to get down to one person. There's been a lot of talk now that we're having too few children and the population is going to shrink too fast. I'm not all that excited about that either. I think that incentives will change yet again. If there aren't enough children, people will respond by having more of them, but there's no actual guarantee to that. So if you look at this hockey stick that everybody is familiar with, the population of the world began to take off really in this period around 1800, and the big growth was in the 20th century. But let's look at it in large scale. What happened is that between 1900 and about 1975 to 1985, we had this hyper growth phase. And then as all exponential growth does, but nothing grows forever, it began to slow, and it's slowed but not it's stopped. The question is, where does it stop? Does it ever stop? And let's see what's actually happening.

The blue countries, they're the ones that are shrinking fastest. They are a subset of the green countries where populations are shrinking fastest. Spain, Ukraine, Belarus, some of the Baltics, Italy, some of the Balkans, Japan, Taiwan and

Singapore. So, this is essentially the *first world*. I don't know if you call Brazil first world, but close. Iran, China...

**Adam:** 14:10:00

You were on a slide with the different colors for different countries based on their population replacements rates.

**Laurence:** 14:25:00

Population growth rates, great. I was saying that after my little population talk, we should go back to the *four talking heads* and talk about that if you want. Otherwise, we'll just go on into Richard. Let me go over a couple of things that I said here. I'm going to share the window with the population information and see if that works. What I had said was that Africa is now on the path, but not very far along the path that Asia was a third of a century ago. I hope that Africa develops at that pace. I don't think it will, because Asia had a kind of a substrate of what was very poor in the middle of the last century. China and Japan in particular, but also the same extent India, had histories of having been developed in the distant past and so they had more human capital. Africa is developing very nicely from a very low level. That is going to take a while. By the end of this century African income should be, they'll still be the lowest in the world. But it should be in the middle income category which is really my goal for the world. It's not that I run the zoo but if everyone in the world has the opportunity to live a middle class or at least lower middle class life, then economic development has achieved its purpose.

I was going to talk, before going into the section on incomes, about what happened with COVID and what happened to my book. The book sold very well for the first few months, and it was kind of a high point in our own economic development. We were in a boom period. And when COVID hit, literally nobody wanted to hear an optimistic, futuristic talk. But the future went back to *we're all going to die and along the way we're going to get very poor*. And what happened was pretty bad. Once in a while, the arrow of economic progress turns around and runs along the wrong way, and it really was awful in the spring of 2020, that we had a collapse comparable to 1929 in output, and the stock market fell faster than it had ever fallen. But it did not last long, and partly because of central bank action, partly because the market reacted to lower prices. Sellers turning around and becoming buyers. We had a V shaped recovery in the markets and later a V shaped recovery in the real economy. Unbelievably TSA flow through, *throughput*, I guess is the word they use, is back to something like 90% of its 2019 level without any business travel at all. Restaurants are 60 or 70%.

So we're experiencing a very powerful recovery, simply because people want to live the way they did before COVID and can't quite walk around with masks in some areas, walk around hopefully with vaccines. I'll get off my soapbox, but this thing would have been all over by April if we'd all gotten that vaccine.

Because you don't have to have 100%. The disease dies out when you reach herd immunity. But hopefully the economy is okay anyway, and we're experiencing something that we haven't had in decades, which is a critical labor shortage. I was served breakfast by the owner of the breakfast place the other day. I don't think he'd even been in the building until COVID. He was sitting in his beach house getting rich. They have no workers and so he's the worker, and we see that everywhere. Help wanted signs - \$16 an hour and it was \$9 an hour?

## Labor Shortages

- Mike:** 00:16:52 Where have all the workers gone? Are they just sitting at home with their stipend checks?
- Lawrence:** 00:16:58 That's part of it. I don't know. First of all, in states where the stipend checks have been smaller or have ended entirely, the labor shortage is less severe but it is still severe.
- Adam:** 00:17:20 I have a hypothesis in the spirit of discussion and debate. It seems to me that the labor shortages are mostly in service industries, and they tend to be in major urban centers. And the other thing we're observing in major urban centers is an explosion higher in home prices and increasingly rents. And my observation is that the rents are now so high in many major urban centers that the wages required to support basic living standards for service sector employees, they're just not able to support the required rents. And so you've got service sector employees leaving major urban centers to find accommodations that they can afford.
- Mike:** 00:18:24 I would buy that for a minute but I happen to own a cheese factory called *Upper Canada Cheese* in Jordan Station in the middle of the heart of rural Niagara. And we are experiencing extreme job shortages and having to increase wages by 20 to 40% in order to keep people.
- Adam:** 00:18:46 Has there been a major uptick in home prices in that region to Niagara though?
- Mike:** 00:18:50 Niagara, there has been but it's pervasive. It's across the whole service industry. There's not anywhere that hasn't had a rise in home prices. How far away from Toronto do you want to go? There's nowhere that hasn't had...
- Richard:** 00:19:05 And it's not a recent phenomenon.
- Adam:** 00:19:06 You need to go a long way.
- Mike:** 00:19:09 You need to go to North Bay which is not what people are going to do. So I'm just wondering where the workers went because in the rural areas just outside

of Toronto as an anecdotal example, but it's pervasive across the whole region, you can't get anybody at minimum wage anymore. Tim Hortons in North Bay is no better off than Tim Hortons in Toronto.

**Lawrence:** 00:19:33

Really?

**Mike:** 00:19:34

Yeah.

**Lawrence:** 00:19:36

But if you're here already in North Bay and you don't have a job, where are you going to go? So I don't know about the minimum wage is in Ontario but it can't be enough to live on in Toronto. But you're saying it's not enough to live on in North Bay either.

**Adam:** 00:19:56

Well, the home prices in North Bay are up 42% year over year.

**Richard:** 00:20:03

Adam, this rise in home prices has been occurring for, call it the last decade on a yearly basis. I think the crucial variable here that is different this year is the fiscal support in Canada through CERB and in the US.

**Adam:** 00:20:17

I completely disagree.

**Richard:** 00:20:18

You think that has no basis, no foundation to keep people at home and to raise their opportunity costs to some extent.

**Lawrence:** 00:20:26

I think it will work the other way. When prices go up you need more money. So if you just go on strike and say I'm going to wait for \$33 an hour, your employer doesn't have it, and so you're not going to get it. And by the way, that's about the reservation wage for service workers in high cost areas. My lunch in San Diego, which is a beach house, has doubled this year. It's not 40%, it's 105. So I talked to the guy that owns the breakfast joint and I said, well, if you're making \$16 an hour which is not the minimum wage there, but it's about the minimum wage, and they're not coming in, what would it take to get them to come in? He said it's about double, about 30 to \$33 an hour, because the government benefits come with health care, which is worth seven or eight dollars an hour, and if you're working as an employee, you lose that. You have to pay it yourself. The employer may buy it for you but then they're going to deduct...

**Adam:** 00:21:39

That completely changes the math, I had no idea that you got health benefits with government. You're paid ...

**Richard:** 00:21:50

On top of an eviction moratorium which has been in place and is now being challenged. The only difference recently has been COVID, the lock downs, and then the subsequent support because, if your hypothesis were to hold water

Adam, why wouldn't this have occurred earlier, throughout the rally in home prices?

- Adam:** 00:22:10 There's a few dynamics. One is the marginal cost of living has gone up, like for rent has gone up by between 40% in many urban markets to 100% in many sort of vacation markets or rural markets, whatever.
- Lawrence:** 00:22:27 In places that are nice, it's closer to 100. But the average is probably more only 20 to 40.
- Adam:** 00:22:33 Yep. So you've got a massive shock. People were living at the margin before, they had never really considered am I going to move you're like, you're in the rat race, you're going to work every day, you're barely making ends meet. And then you've got, everything goes on pause. And so now you're sort of considering A, my rents going up. Like, I'm looking, staring in the face the fact that I can't afford to live in this place anymore. So now I'm looking around, where am I going to live and what am I going to do? You're checking all your premises, you're making different choices and at the same time the cost of living is going up. There's obviously a variety of different forces.
- Richard:** 00:23:13 It's a multivariate problem. Of course, it's not just the single thrust of home prices rising that is dictating the move away from major urban areas.
- Adam:** 00:23:24 Well, yeah. I don't know what a 40% one-year shock higher in cost of living would have done in non COVID times. I'm pretty sure it would have motivated, pretty substantial...
- Mike:** 00:23:34 Where are they going? I still don't understand, because in Saskatchewan, there is the lowest unemployment rate. It's pervasive.
- Adam:** 00:23:43 Are we experiencing these types of ...
- Mike:** 00:23:45 The rise in wages is, yea, it's pervasive across the country, that we're having inflation in Canada anyway and rising wage prices, but the real wages of employees is not going anywhere.
- Lawrence:** 00:23:58 It's not.
- Mike:** 00:23:59 It's going slightly down actually.
- Lawrence:** 00:24:02 Yes.
- Richard:** 00:24:02 In real terms yeah.

**Lawrence:** 00:24:05 Well, I live in a different country, I think we're experiencing the exact same thing. It's not our policies, it's something going on in the real economy under the surface. And first of all, I've had a big concern for a very long time that minimum wage and close to minimum wage employees, are actually overpaid. But they're hired because they're zero marginal product or negative marginal product employees, but they're actually just destroying your business through incompetence and inability to operate the machines or whatever, but you hire them anyway.

**Adam:** 00:24:47 So we put them to the meat grinder? What's the solution there?

**Lawrence:** 00:24:50 Well, I don't know. We line up in some sort of a broader social welfare system or something, more like a negative income tax. But the incentives there, are also scary. But I think the reason why they're still at work, or were still at work is because they used to be useful. And labor markets are very stable when you hire somebody. As David Oxheart said, if you get a job changing tires when you're 18, you may still be changing tires when you're 65.

**Richard:** 00:25:28 Unless there's a phase shift in technology and in the labor market. So I think this is a great point that you...

**Lawrence:** 00:25:33 So, they'd better start bringing the change themselves. That's right.

### Techno-optimism

**Richard:** 00:25:37 Yeah. So that's what I kind of wanted to get on and maybe go back to your original premise, the techno optimism. What are some of the major assumptions that are underpinning this hypothesis that we're actually in an age of abundance and in technologies? And if you could drill into some of the major points and then we can kind of maybe debate them as you go.

**Lawrence:** 00:26:02 Sure. Let me start with the income chart that I was on, and see if I can figure out. Yeah, thank you. And let's just take a look at this. If you make the usual economist's assumption that people are worth what you pay them, incomes have been rising at a remarkably steady 1.8% a year in the United States since the beginning of the country's existence. And it started out at 2000 or 3000. Now it's about 68,000. The growth rate has tailed off recently, but it's tailed off a few other times. In the 1930s it went negative. And then right after World War II it grew at about the same rate it is now, tailed off and then we went through a couple of other rough patches. But what's more important is the world. The world is growing like the United States did, and that has also gone back to about 1850-75, and this sharp rise toward the end here is China, India, at the beginning of the period, in southern Europe, places like that.

So there seems to be a natural growth rate of, it's not natural in the sense that it happens all by itself. It happens because people work hard to get their standard of living to be a little better next year than it is this year, and it requires capital, it requires peace so that you're not destroying capital by blowing things up, and it requires human capital which is education and ambition and training and so forth. And nothing's really changed here. We went from an agricultural economy to an industrial economy in this period earlier, had tremendous growth. We went from an industrial to, let's call it an information based economy in this period, had tremendous growth in that. Now we're in a little bit of a rut.

But I actually think that this understates the rate of growth in the 21st century because if you figure that the goods and services in the economy are worth what you pay for them, then anything that helps save money and do things more cheaply comes out of the GDP measure even if it increases the quality of life. A 2021 car is so much better than a 1971 car, that you can hardly compare them as they...

## The Hedonic Adjustment

- Richard:** 00:29:01 So you're making the case for the hedonic adjustments that are sometimes criticized in CPI calculation. So maybe we can dig a little bit into this general framework for justifying this optimism. So you're starting off with...
- Lawrence:** 00:29:18 They actually underdo the hedonic adjustments. How do you compare the value of riding a horse with the value of driving a car? You can't so they make something up? How do you compare the value of having a computer that's the size of an office building, with the value of a computer that you carry around in your pocket that's 100,000 times as powerful? You can't, so you make something up. Marty Feldstein, that one-time Chairman of the Council of Economic Advisers, wrote a series of papers shortly before he died on this. He concluded that we're underestimating the hedonic increase because you're putting something into the market basket after the improvement is over. That we put cars into the market basket in 1935 when cars were already really good. And the big gain was from 1895 to 1935 and none of that made it into the adjustments to the CPI. Instead, what you got was the rising price of horses.
- Adam:** 00:30:34 So with that you're arguing that the rate of growth of the income per capita is not linear but rather it's exponential.
- Lawrence:** 00:30:45 It's log linear, 1.8 a year.
- Adam:** 00:30:50 That's a log linear chart.

**Lawrence:** 00:30:52

That's a log linear chart and it's not...what I'm saying is that the slope of the line should be just a little higher, especially in periods of dramatic transitions in technology, such as the early 21st century. The mean, looks like a fairly young crowd here. Remember back how you grew up. My family had one car, was a beat up old Ford. My father thought he was middle class. The house that we grew up in you can't even give away now. It's some, what's called the United States, a HUD house, which is a house that the government buys in order to give to some poor family, and it was built to house workers. But now it houses non-workers. And if you want to house a worker, you have to build a 2400 square foot house, or you won't be able, not only you will not be able to sell it, you won't be allowed to build it because that's the minimum building code in a lot of these suburban developments. Some people live in condos, which is fine. And so we've moved from the starter house is a rented apartment, to the starter house is a condo, not really a big shift.

But young millennial people looking for housing where I live, they want to buy a last house when they're 35 years old or 40 years old. I don't think that most people did that two generations ago when I was kid. So the standard of living has taken a big leap upward and we're barely even aware of it.

**Mike:** 00:32:50

Do we get to some sort of peak housing if you will, in the *fewer argument*, or as we get fewer and fewer people, as you say it was a small home, you had one home? Today people have a home is much larger in square foot per person, and they also have a cottage. And they might even have a second home.

**Lawrence:** 00:33:12

Yeah, we're going to need less house.

Fewer

**Mike:** 00:33:14

Yeah, it seems to me if we go *fewer*, what's the reflexive impact on capitalism as a whole for the *fewer aspect* of the way you approach the book?

**Lawrence:** 00:33:27

Well, that's a fair question. A decline in the price of something doesn't affect capitalism one way or another. Capitalism is the idea that if you produce a resource, it's yours, and if the price goes down you will have a lower income because capital gains and losses are additive to income, and then the person who buys from you will have higher income, because it costs them less to live. So as we transition from baby boomers owning most of the good housing to a smaller younger population owning most of the good housing because I won't need it anymore, we should expect real estate to not appreciate and possibly decline substantially in areas where it's overbuilt.

Now that we're all working from home, we think that's forever. Companies haven't yet begun to fully appreciate the cost of no social interaction at the

office or conferences or meetings, but you don't discover new ideas or figure out new ways to do things when you sit at home and complete a series of tests that you've been given by your boss. You do that through serendipity and through two engineers handing over computer and saying, I wouldn't do it this way. I would do it that other way. Or two car mechanics, or two people who are working on the insides of somebody's anatomy at the hospital. We seriously underestimate the value of collaborative work.

So I think that we could have a productivity problem in the short run because everyone thinks they're working as hard as they can, but they're not working on the innovative part. And innovation is the only thing that makes the economy grow because if you do what you did yesterday exactly the same way, it may be a very decent standard of living, but you have a growth rate of zero. You have to be a little better that next day.

## Embedded Growth Obligations

**Richard:** 00:35:51

I think implied in Mike's question is a broader issue with what has been described by some as *embedded growth obligations* not only in the real estate market, but also in the stock market. The system itself is somewhat predicated on the idea of growth and the value of assets is sort of held, in addition to liquidity, obviously, but this idea that the economy is going to continue to grow. Demand is going to continue to grow and that's why assets are going to continue to appreciate. The issue then becomes when you have a transition period between one and the other. So I guess the possible pain or the likely pain, virtual certainty through this transition period. How do you see that kind of playing out from the current environment to this sort of techno utopian scenario that you're painting?

**Lawrence:** 00:36:47

Well, I think that if you're counting on conventional investment portfolios growing at real seven, they're not going to. And there may be a period in the more distant future when they do again. That'll depend on a technological transition that we can't yet see. But at current prices, growing at real seven is just about mathematically impossible, so you should budget for lower rates of return. Does that mean that the economy is going to stop growing? I don't think so. Because we're looking at per capita numbers on these charts. And if the rate of growth of the population is lower, the rate of growth of the economy can be lower and you still get the same improvement per capita? Is there a threat to capitalism itself, which is simply the freedom to keep the fruits of your own labor and reinvest them? Only if the socialists take over because they want your money. There's no logical connection between population growth and capitalism, or even between economic growth and capitalism.

If stocks all pay the 7% dividend and have zero capital gains, how would that be different from stocks all growing in price at 7% a year and paying zero dividends. The engine of market returns is related to economic growth but it isn't dependent on economic growth. Look at value stocks. On the long run, growth stocks and value stocks have had the same return. Value stocks are old economy, shrinking markets and so forth. Growth stocks are new economy, growing markets and yet, because of what we call valuation, as value stocks are cheap, you can make just as much money in this decade on average over time, in the value as in the growth sector.

So I'm not really answering the question. I don't have a completely developed theory of growth that transfers through to investment markets, and neither just anyone else by the way. But I read about it a lot. And that we've had other periods where we faced a lot of problems, and our standard of living is so much higher than it was then. I think in the 70s, the 30s, the 1880s and 90s. These were all periods of tremendous technical innovation and yet the markets didn't go up and the GDP data didn't look so good.

**Mike:** 00:39:50

Interesting. So what's underlying that?

**Lawrence:** 00:39:55

Part of it is just pricing, after a huge bull market. Bull market is either a forecast that the economy will catch up to the market prices, or that the market prices will catch up to the economies that are going down. And we haven't had a good bear market in a while, say a good bear market. I don't mean a crash like March of 2020. I mean, one where the ... and you start a new bull market after that with different stocks.

**Mike:** 00:40:33

But I'm thinking of even going back through time in history in some of the centuries past where we had huge technical revolutions. But I thought you might be referring to the GDP of those times, in fact that there was no GDP increase necessarily, but there was the increase in standard of living across the board. And so is it a mistake in the measurement? How is that?

**Lawrence:** 00:41:04

It's a mistake in the measurement. The most important industrial revolution was the second industrial revolution. The one that was cars and airplanes, electrical appliances, radio and so forth, roughly 1870 to 1930. And the GDP went up, but it didn't go up by a ratio that made clear the changes in the standard of living over that time. In 1870, the majority of Americans and I presume Canadians busted their asses all day in the family farm and lived a life expectancy, life expectancy is around 50. And their wives stayed home and cooked for huge families. But my grandmother-in-law, my wife's grandmother, had 15 children, which if you multiply by the number of meals in the day and the number of children and adults in the family, meant that she was cooking 353 meals a week,

and they did not live near a grocery store, nor did they have the money to buy anything at a grocery store. They got it off the farm.

**Mike:** 00:42:21 They had a work horse to have on the farm too, as a guy who grew up on a farm.

**Lawrence:** 00:42:25 Had a work horse and then other people had farms that grew other substances. And so they didn't just have to eat literally what they grew. But it was a small self-contained economy. And you didn't expect to live very long or have a lot of leisure while you were doing it. And that, by 1930 we had an essentially modern economy. People live so much better than its kind of hard to even describe that change. In 1870, you couldn't call your mother unless she was in the next room. And neither could the King of England to the Queen. Neither could the Queen of England. By 1930 everybody was doing it and they were getting in their cars. Now literally everyone had cars, but almost everyone could pick up the groceries in the car and visit somebody halfway across the country by taking a drive.

So we're not experiencing changes of that magnitude now, we shouldn't expect the kinds of market returns that we got over that period. At this Ibbotson/Jeremy Siegel, both of them are friends of mine. Roger Ibbotson is a very good friend. Real seven is taken from a period when we had hyper growth and in the most successful countries in the world, US, the UK, Canada, Australia, New Zealand. Look at Russia. Russia was a growth stock in 1900. Germany was the biggest growth stock in 1900. Well, they blew themselves up. Russia for communism, Germany by losing wars. So the expected return in 1900, couldn't have been real seven, because the realized return on the winners was real seven. So that expected return had to have been lower because he had big losers. Japan, a country like Argentina didn't experience a collapse but just had a bad rate of return.

So we're expecting too much out of markets if we think that we're going to save 10 or 15% of our incomes and it's going to make us rich. We'll have to work longer, save more and hopefully not consume less. But if we don't work longer and save more, then we do have to consume less because it's an accounting identity. Stuff out equals stuff in, less return.

**Mike:** 00:45:09 But I guess to some point though, just one word, with expanding life spans expanding healthy lifespans, you do have the opportunity to work for a much longer period of time and take advantage of the compounding as well. So I think we're in a bygone era of retiring at 65 when most are healthy enough to work till 72, or 73, or 75. And that goes a long way to solving that issue. I'm sorry I jumped in there, Richard.

**Lawrence:** 00:45:42 That's great. That brings up an issue I wanted to bring up but didn't think I could squeeze into an hour. I have a paper coming out called *Work Longer*, and it

basically says we can get a double benefit out of it. Not only do you make more money, but you have fewer years to pay for with the money you've saved. And our health span is expanding as fast as our lifespan, especially if you're in a... right now it's become fashionable to tell young people don't go to college, learn to trade. But what are you going to do after 55? That cannot be the boss and you don't want an 81 year old roofer on your roof.

**Mike:** 00:46:32

It's true.

**Lawrence:** 00:46:34

We can't all work to 75 but a lot of us can. I'm getting there. I'm 67 but I had to cut back a little bit because I don't quite have the desire, I have absolutely no desire to have a full time job and a boss and a paycheck. I'm self-employed, I take what comes in over the transom and so far I've been successful at it. But modesty aside, I'm not a person of average ability. And a person of average ability may have to do something that's quite uncomfortable for people over 65 or frankly over 55. I'm not sure I want a roofer who's over 55.

**Richard:** 00:47:23

But Larry, putting aside for a second the expectation of markets and staying within the realm of the economic expectations and this age of abundance, I've heard some, what I would describe as straw man criticism of this idea of techno optimism, that has been put forward by you and guys like Steven Pinker as well. And a lot of that skepticism of that thesis would come from the idea that we're hardwired to focus on the overly negative. It's made evident in the news flow, if it bleeds it leads and all that stuff. So putting that strong men version aside, what are some of the biggest challenges to your hypothesis of abundance? What are some of the variables that you're watching for that would make you rethink and reassess your hypothesis for the optimism that you put forth?

## Challenging the Hypothesis

**Lawrence:** 00:48:16

One half of the population is below average. This economy seems to be set up as a war between the smart and the stupid, where the smart won. The tax rates that would be necessary to support half the population would be unbelievable and very damaging to incentives. And if half the population is sitting around collecting benefits, they become dangerous. I'm going to stop there because there is a 356, I guess 456...

**Richard:** 00:48:55

So we don't have a hard stop on the top of the hour unless you do.

**Lawrence:** 00:48:59

Not at all. People's patience wears thin.

**Mike:** 00:49:05

For us it's just the four of us.

**Lawrence:** 00:49:06

Okay.

- Mike:** 00:49:09 If they want to leave they can leave then come back.
- Richard:** 00:49:12 Or they can fast forward later when they watch the recording. So let's not bother.
- Lawrence:** 00:49:17 Let's call time at 5:15.
- Mike:** 00:49:19 Okay.
- Lawrence:** 00:49:21 Another worry is if there are environmental costs that turn out to be much larger than the standard model. The standard model is 200 million people are going to have to move uphill but it's going to take half a century to a century for that to play out. Certain parts of the Middle East and South Asia may become too hot to support agriculture, but Russia and Canada are going to do great. In America, William Nordhaus won a Nobel Prize for calculating these environmental costs, and it's six or 7% of global GDP or a couple of year's growth. So we'll be as well off in 2102 as we would have in 2100 without the environmental costs. Well, if that's off by a factor of 50, that's something to really worry about. I don't think it is but we haven't begun to fight this war. We don't have any nuclear plants to substitute for coal and the oil in our cars. We're building electric cars like maniacs, but we're not building any way to power the cars. So we will.
- Adam:** 00:50:44 Larry, have you looked into Nordhaus' seminal papers and ...
- Lawrence:** 00:50:49 A lot of the details are criticized. I have only read the, far less, top layer.
- Adam:** 00:50:59 Because Steve Keen is a bit of an expert in Nordhaus' methods and because of his assertions I went a ways down the rabbit hole, and I found it surprising that their models are based on cross sectional data which evaluates the difference in productivity between what is observed, for example, in New York, or at New York latitude versus Florida, at Florida latitude. And so observing that Florida, productivity in Florida is X% lower than the productivity in New York and the average temperature in Florida is X% higher than the average temperature in New York, and then extrapolating this to assume that the average temperature in New York becomes the same as the average temperature in Miami, that this will only have a difference equal to the difference in productivity between those two.
- Now, of course, if you have a 10% average temperature difference, then half the current above sea level land will be underwater, and there'll be such mass migration and displacement that the world's economy will be unrecognizable. So I think going all the way back to Nordhaus' assumptions that I know it as I looked through the IPCC documents and so much of the research from that time takes Nordhaus' as models as being...

- Richard:** 00:52:51 Gospel.
- Adam:** 00:52:53 Gospel. I just think it's worth digging into those models more closely and then if those models are off by a factor of 10, or a factor of 50, or if the models are much more nonlinear in effect... Like Nordhaus assumed a linear model. If they're in fact nonlinear instead of linear, then obviously the impacts are going to be much more substantial than...
- Lawrence:** 00:53:20 Well I agree; the world is only so big. If New York becomes Florida and Florida becomes Manaus Brazil, then what becomes New York? Well, it's somewhere in Labrador, and the resources to support a population of 28 million or whatever the New York metropolitan area is, just don't exist in Labrador. And eventually you get a turn down in productivity much sharper than Nordhaus would be projecting, using that model. However, absolutely none of the land disappearance that's been predicted by the standard model, has actually occurred. Southern Louisiana which is where it's most obvious, is what wasn't productive land in the first place because it was under about one foot of water and now it's under another foot every century and a half. So now it's about under about two and a half feet of water. That's good for alligators, but it doesn't affect our GDP very much because they weren't producing any.
- Look at the Mekong Delta and the amount of land loss is one or 2%. The entire Mekong Delta would disappear if the ice caps melted, but that's a pretty extreme forecast. If the rise in sea levels at foot every century and a half were to double or triple, you still wouldn't lose the Mekong Delta or the other large population area which is threatened, which is Bangladesh. You might lose a piece of Miami because the geniuses in Florida built it on land that was five feet below sea level. In New Orleans, they have dikes to keep the water out. In Florida they have hopes and dreams.
- Adam:** 00:55:33 Yeah, fair enough. And by the way, I didn't want to derail it. It's but it's just interesting to think about how different models...
- Lawrence:** 00:55:39 I'm not going to go back to the presentation. We can have an open conversation like this. Let me let me go back just to see if there's anything worth bringing into the conversation now. I need to find it. Can you see the screen now?
- Adam:** 00:56:03 Yes, sir.
- Greener
- Lawrence:** 00:56:04 I'm going to go ahead. This has to do with past improvement in health, food and so forth, and life expectancy, I'm just going to skip it. Go to *Greener* and here's your *Greener* topic slide. Air pollution has all but disappeared in the United

States, Canada, Western Europe and it moved to China and India. Sulfur dioxide has all but disappeared in London as has smoke. The reforestation of Europe is made visible by this ... looks like going the right direction here even though the population of Europe has grown tremendously since 1900. They moved to the cities and aren't digging up the whole countryside to grow food.

But yeah, let's look at what we would actually do to deal with our environmental challenges. One is build nuclear reactors. This is a molten salt reactor. Very popular topic of discussion right now, about how it was invented, as a concept. I don't think they don't want, in the 1950s when the idea of, if a nuclear plant's biggest risk is a meltdown, why don't we build one that's already melted down? And it turns out molten salt. Salt melts at a high enough temperature to absorb the heat from a nuclear reaction and then drive a turbine, a water based turbine. And this is now on the drawing board for the revival of the nuclear age that we were all going to have electricity that was too cheap to meter, 50 years ago or 75 years ago, and now we're going to try to get back on the horse by convincing people that Chernobyl was quazi intentional. Three Mile Island didn't kill anybody and Fukushima had to do with placing a nuclear reactor on an earthquake fault, that's also on the ocean. And very few people died there. A lot of people die digging coal out of the ground or transporting coal or oil by truck and train.

This is a thing, designed like a Socotra Island Dragon Tree just to look pretty on the streets of Boston for sucking carbon dioxide out of the air. And this is an expensive nuclear energy intensive way of getting rid of the carbon dioxide that we've already put in the air, plus the carbon dioxide that we're going to put in. There are other ways that, there are various projects being funded mostly by billionaires, some by some foundations and governments, for carbon sequestration. Back in the ground, getting the carbon out of the air and putting it back in the ground is expensive but it is far more expensive for us to all boil away.

And then the last line of defense we have, and I don't like, and actually any of the ones on top here. But you could put eyeglasses on the earth, sunglasses on the earth, with space mirrors. There was a cuckoo plan that I read about in one of Stewart Frank's books. He's a dreamer. 18 trillion butterfly shape and size space mirrors in orbit in the R1 point or D1 point. I'm not a physicist here.

**Adam:** 01:00:20 Between the Earth and the Moon, or between.

**Lawrence:** 01:00:22 The sun.

**Adam:** 01:00:23 The sun. Yeah.

**Lawrence:** 01:00:24 Yeah, the moon isn't there. It doesn't heat us up. Between the earth and the sun in a place that would reduce solar radiation reaching the earth by 2%. What could possibly go wrong?

**Mike:** 01:00:42 Oh my god.

**Lawrence:** 01:00:45 Some of my talks I put a mastodon standing on an ice floe and I say this is what they're passing around. Why don't we cure the global warming by starting a new ice age. Where I am sitting, it was under two miles of ice only 18,000 years ago and it could be again. It could be again if we do nothing. We're clearly between two ice ages and the only question is how hot it's going to get.

**Richard:** 01:01:16 I guess the real question is, the duration of the transition period and how much pain is going to be inflicted on the general populace because I guess the evolution of technology is inexorable. It's going to happen as you mentioned. There's so many different avenues for improvement and for our ability to terramorph and improve geo engineering and our ability for carbon capture and all that. But how long will it take to we can do this at scale and what are some of the costs that we might all be inflicted with in the coming decades, if in fact the worst fears from climate change are true?

### The Worst of Climate Change

**Lawrence:** 01:02:02 Yeah, I don't know. I think that you want this to happen as slowly as possible. We don't control that. But we do control is how quickly we adapt and how quickly we put into place mitigation technologies, some of which I've gone over with the easy ones, everyone knows, which is to emit less CO<sub>2</sub>. If that is the critical variable. We also hear that methane and water vapor are critical variables. that fluctuations in the radiation reaching the earth from the sun is a critical variable. We have the sun as a slightly variable star. We just had a low solar activity period. Earth did start to cool a little bit for a few years and then got hot again pretty quickly. So I'm not an environmental scientist and there's so many moving parts that even the best environmental scientists can't seem to keep them all straight in their heads at once. Each one specializes in something different.

**Richard:** 01:03:17 Yeah, that's fair. I think the main concern would be that however slim the possibility for that worst case scenario, the negative outcome would be so large that one would have to contend with it in layering out of the probabilities and the mitigation. But to touch upon the point you were raising earlier, what are some of the incentives that you see that we might be able to put into place on the nearer term to help drive us towards some of these improvements in habits and behaviors that would lead us to a better outcome?

## Incentivizing Positive Outcomes

**Lawrence:** 01:03:57

A lot of people have talked about a carbon tax. I'm not against it but how big would the tax have to be for people to cut their carbon use to a level that really helps the environment? Well, a \$30 a gallon gas would get a lot done, but it would create a second Great Depression 10 times as bad as the first one. A lot of people would starve; productivity would fall to near zero in areas that require a lot of transportation, because we don't have the zero emission transportation in place. We've already got \$5 a gallon gas, and it isn't getting rid of the problem at all. People are buying more electric cars and they're driving less. They're currently driving less because there's nowhere to go. If you don't have to drive to work, you can just walk over with a cup of coffee in your shorts and go to work, you're going to see a decline in miles driven. And we were seeing a decline in miles driven before that. But it's not enough.

And in China, India and Africa, they don't need less energy, they need more energy. There are still people living in Africa who spend four hours a day collecting sticks to burn in unvented huts, where they poison themselves with carbon monoxide. You do not want to tell them to stop using energy. You want to provide them with sources of clean safe energy. And that's being done. Electrification in Africa is taking place at an incredible rate, faster than anything we ever do here during the Rural Electrification Administration in the United States, because they need it more than we do. And as we reduce our first world energy usage, ... can even increase there. And so I see nuclear power as being critical. We're using 1.5 petawatts as a human race. Using 1.5 petawatts of electricity per hour. For everyone to live at the level of the poorest first world country, which is Portugal, we need five petawatts. We need to, just a little more than triple. We're not going to do that with wind, solar, hydroelectric, geothermal, unless we work on it for 300 years. We need the nuclear and we need every source of power we can get. We need cleaner burning fossil fuels. Because CO2 isn't the only emission that you should care about.

**Adam:** 01:07:06

Are you optimistic on the mass deployment of nuclear.

**Lawrence:** 01:07:12

I don't know. Having watched the COVID epidemic unfold, I'm not optimistic that people are doing what's best for themselves when the incentives are laid out right in front of them. But we've got a population here which is 75 or 78% of adults have had at least one dose of the vaccine, while the other 25% are 75 million people, and some large percentage of them are going to get sick and keep, you can tell I don't care about them, although I do. But even if you didn't care whether they got sick or not, they're going to keep the economy from reopening.

- Mike:** 01:08:07 They also may deprive those who are vaccinated from health care on other issues. Overcrowding the healthcare system as it is by consuming all the health.
- Richard:** 01:08:17 Yeah. Numerous knock on effects that people tend to overlook.
- Lawrence:** 01:08:24 Yeah. So do I think that people will get used to nuclear plants in every city. Small to medium size, standardized, so that you only have to train one group of nuclear engineers, fly them to the nuclear plant that needs a repair, instead of having a custom design for each one? Well, the French have done it. I don't think of the French as particularly rational.
- Mike:** 01:08:54 They make some good food and wine though. Maybe that's what it takes.
- Lawrence:** 01:09:01 Americans are getting their food and wine act together faster than we're getting our energy act together. There's now like some type of gastropub in every city and all 50 states have wineries, including Alaska.
- Mike:** 01:09:23 Alaska has a winery?
- Lawrence:** 01:09:25 Yes. Southern Alaska has a climate very much like British Columbia and surprisingly warm. But I think they have a winery because somebody told them you're not a real State unless you have a winery.
- Adam:** 01:09:48 The question is; do they have a gastropub? I think it's fitting to end on that note of optimism which is that there's now a gastropub in there in the city and align over ...
- Lawrence:** 01:10:06 I think so. And you will find me in one of them, wining and dining quite comfortably and encouraging people to look for solutions, instead of despair that there aren't any.
- Richard:** 01:10:22 It's a great way to end it.
- Lawrence:** 01:10:25 Thank you, I hope you send me a URL so I can publicize this to all my friends and my readers. And that will remain up for a while because some of them have a long back list of stuff they want to look at.
- Richard:** 01:10:41 And where can people find you Larry, are you are any other social medias? We've mentioned the book, are they any other projects that are coming on the horizon apart from the paper that you mentioned that you want to mention?
- Lawrence:** 01:10:52 Yeah, I'd love to actually advertise the fact, I'm not going to hold up a copy, because I have to walk in another room do that. But I have a second book, it's called *Unknown Knowns*. The subtitle is *On Economics, Investing, Progress and*

*Folly*. And it's a collection of my articles from the last 10 years. And it's available on Amazon, just type in Unknown Knowns, not Known Unknowns.

- Mike:** 01:11:19 That's another guy.
- Lawrence:** 01:11:23 And then my website is Larrysiegel.org, and everything I've ever done is on it. So it's spelled like you see on your screen. Larry in the customary way, and Siegel the old German way, not any of these newfangled S-E-G-A-L things. It's Siegel.org, and my email address is on the website, you'll want to write to me, it's a little complicated but you just find it there. And thank you for your time and thank you in advance if you buy one of my books.
- Richard:** 01:12:00 Thanks for joining us.
- Adam:** 01:12:00 Thanks for showing up and for sharing and for being a good sport.
- Lawrence:** 01:12:04 Well, you guys are great interviewers, you actually ask tough questions and when I say I don't know something you accept no for an answer. That's different and very much appreciated.
- Richard:** 01:12:20 It's good to hear. Thank you.
- Mike:** 01:12:22 Appreciate you as well.
- Richard:** 01:12:22 Have a great weekend all.
- Lawrence:** 01:12:25 Thanks guys.
- Richard:** 01:12:25 Cue the music Ani.