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[00:00:00] **Nate Hagens:** 30 years ago, I graduated from the University of Chicago with a master's in finance, with honors. at that time it was one of the best business schools in the world. haven't looked lately, I still believe it is. I learned a lot. I learned mostly about how to deal with other 25 year olds, how to get lots of job interviews and how to tell a narrow boundary story of finance and economics.

[00:00:30] that on the surface, ran the human economic system around the world. In the intervening 30 years, I've. Been on this, curiosity obsession quest to understand the reality of how the human animal, 8 billion of us now today, expanding into this growing economic global, supply chain connected technological energy field system fits together.

[00:01:01] And I have found that the things that they are teaching in the business schools around the world and the economics classes. Are quite flawed. there's a lot of things that are true that they're teaching, but those things relative to the fundamental truths I'm about to outline are trivial. and I. It was difficult to parse these into 10, but I've come up with 10 myths that are still being taught, in the business schools around the world.

[00:01:34] before I get into these, I'd like to make a qualifying statement. I. I care about a lot of things. but I mostly care about the natural world, that we are a part of on this earth and about the truth. those are the things that I care the most about. So, what follows is values neutral? I.

[00:01:57] It's not about what I think should be, or what I would prefer. It's about describing the myths. The realities and the implications of the rules and the

guidelines and the laws, that are part of economic theory underpinning our current system.

[00:02:26] Okay, beginning the 10 myths. Myth number 10. Let's start with a simple question. What is something worth? What is the value of something? If you've taken an econ class or an MBA seminar, the answer you'll hear is pretty straightforward. It's worth what the market price is. What is someone willing and able to pay?

[00:02:52] It sounds pretty clear cut, right? If there's a painting and you're willing to pay a hundred dollars for it, and I'm only willing to pay $7, the logic says that you must value it more, and if you decide to buy it, society values that item a painting at a hundred dollars. Price equals value. Simple, right?

[00:03:12] But here's the catch. The story is clean, measurable, and totally blind to the real world because willingness to pay isn't just about how much we want something, it's about how much we can pay. And that depends on income, wealth, and, other factors not actual need or the importance, of the issue. So imagine this, a poor villager, needs clean drinking water, but is old only able to pay maybe 20 cents a billionaire.

[00:03:47] Wants a third yacht and she drops 20 million, without blinking on a third yacht. So according to the market, the yacht has massively more utility to the world and to our economic system than the clean water. Does this make sense to you? It doesn't really to me or to reality, but this is what's taught in our economic textbooks, this belief that price equals value is not just wrong, it's dangerous because it pushes us.

[00:04:20] To overproduce luxuries for the wealthy humans while under providing basics for the everyday people. It's how we end up with $10,000 handbags and kids drink from polluted streams. but even worse. But wait, there's more. markets

ignore what can't be bought or purchased. So a forest that protects a village from flooding the market says the forest is worthless unless you cut the trees down and then sell them for timber.

[00:04:56] And this is a kind of blindness that economists refer to as externalities, but these externalities are often the foundations of life. Breathable air, drinkable water, a stable climate, ecosystem, functions of a forest. And the markets measuring stick in today's economy of value doesn't see them at all.

[00:05:19] Looking ahead, this system will overproduce what the smallest, richest demographic of society I. Wants and values, and we will underinvest in what most people need, and in the process probably destroy the shared foundations of life just because no one paid to protect them, because not everything that counts can be bought and not everything with price.

[00:05:46] Is worth the cost. Okay. Number nine is one of the oldest and most persistent, assumptions in economics that humans are rational utility maximizers in theory. so it goes, we make decisions by calmly weighing costs and benefits, calculating what gives us the most value or utility. We act logically.

[00:06:14] Consistently and selfishly, like well-behaved agents in a spreadsheet. but here's the thing. This model taught in Econ 1 0 1 doesn't describe people. It describes robots. Real humans we're messy, emotional, deeply social creatures. I think it's goes without saying. Well, it doesn't, which is why I'm saying it.

[00:06:42] I guess, that decades of research from neuroscience to behavioral economics to evolutionary psychology paint a very different picture than what is called homo economicus. We don't act on spreadsheets. We act on instincts. We chase status, we copy what others are doing. We avoid losses more than we seek gains.

[00:07:04] And maybe most importantly, we care what other people think. We are not isolated utility engines. We are social primates, wired to belong, and we are intensely other regarding not selfish, incredibly social. And sometimes we'll even act against our own interest, just to fit in. With a group. So what happens in society when we build systems based on the idea that humans are rational and self-interested, we get structures that don't fit the creature that lives inside them.

[00:07:44] Us, we get fragile markets, we get shallow isolated relationships, and a culture that thinks more stuff will actually fix. The need for deeper social connections. If we want a model of economics in the future that reflects reality, it needs to reflect the real human animal, not homo economicus, the calculating individualist consumer, but homo sapiens emotional.

[00:08:16] Tribal and beautifully irrational because understanding how we actually tick is not just a philosophical question. It is a design question, and right now we are solving for the wrong species. Okay, moving on to myth number eight. The upward sloping supply curve still taught in econ classes around the world.

[00:08:40] The story goes like this. As a firm scales up production, each additional unit costs a bit more to make. So to keep expanding production, the economy needs to have higher prices to justify it. This is why the demand curve slows down. The supply curve slopes up simple, clean. And intuitive and almost completely divorced from how the modern economy works.

[00:09:06] Most production today doesn't get more expensive. As a firm grows its production, it gets cheaper. This is especially the case in tech and manufacturing. The more copies of a software program you sell, the lower your average cost. The more smartphones you produce, the lower each one gets in terms of cost.

[00:09:25] This isn't a fluke. It's a default thanks to automation, global supply chains and digital infrastructure, marginal costs fall. Alan Blinder is a very famous

economist. He's written many economic textbooks. He was, the head of the Chair of Economic Advisors. He's the Vice Chairman of the Fed. He's written a book saying that 11% of firms actually have upward sloping supply curves.

[00:09:50] I don't even think that's true anymore. I think it's close to zero. And he's one of the guys that writes the textbook. Within the textbook he wrote, he still talked about supply curves are upward sloping. This is a throwback to a world of local shops and hand tools. Useful for teaching, less, useful for describing the reality of our world because when the cost of scaling drops, the advantage of being big.

[00:10:19] Grows. Many industries, especially digital ones, don't trend towards healthy competition. They trend toward winner take all or winner take most situations, not because cheating or corruption or anything like that because math. Rewards scale. That's how we've ended up with a handful of players dominating entire sectors.

[00:10:43] You know, the categories, retail, search, smartphone, logistics, media, and yet our policies, regulations, and even antitrust frameworks still operate as if con competition was still the norm and monopoly. Is a bug. In reality, scale driven concentration is a feature of the system. It doesn't mean it's good or bad, but it does mean it's predictable.

[00:11:10] And if we wanna understand the terrain we're actually operating on, whether as citizens or policymakers or entrepreneurs, we need to let go of the old curves and look at the new landscape, which is definitely not a upward sloping. Supply curve. 'cause when costs fall as scale rises, the curve doesn't slope up anymore.

[00:11:32] It bends sharply towards power, concentrated power. Okay, this next myth is one I've spent pretty much the last two decades unpacking and

understanding. In fact, I wrote my PhD thesis. On it. The myth as taught in business schools and economic classes around the world goes like this. Capital and labor are what drive productivity and wealth.

[00:11:57] Creation. Energy is just another commodity like copper or wheat or sand. It's substitutable. It's exchangeable. It's not special. It's just one of the inputs into the production function. This is. Catastrophically and demonstrably wrong. Let's start with a first reality check. Energy underpins everything in business school.

[00:12:23] The foundational model of economic productivity is called the Cobb Douglass function, where output equals capital times labor with some vague total factor productivity, asterisk in there, multiplier, but energy. It's not even in the equation, and yet energy is required. For every single thing in that formula, machines need it.

[00:12:47] Human labor needs it for food, heat, mobility, infrastructure, manufacturing, communication, transport, and none of it works Without energy. No energy. No economy. Less available. More costly energy. Smaller, more expensive economy. Steve Keen has famously said that labor without energy or food is a corpse, and technology without energy is a sculpture.

[00:13:14] And I would add that a city without energy is a museum. We have seen staggering economic growth, the last two centuries, but it was not based on magic. It wasn't just ingenuity or capital. It was primarily fossil energy, cheap, abundant. Powerful fossil energy. Let me spell this out in raw numbers and for the, any of the business school professors, MBA teachers or econ profs that are watching this video, all six of you.

[00:13:49] I encourage you to just listen to this section, pause it and google it yourself. Spend five minutes verifying what I'm about to say. One barrel of crude

oil, which we currently pay around $60 for. Actually we pay $50 to extract it out of the ground, and the market price is $60. That barrel of oil has 5 million, 700,000 bridge thermal units worth of energy potential, and if you translate that into work potential, it's around 1700.

[00:14:19] Kilowatt hours of work potential. The average human, working 40 hours a week generates 0.6 kilowatt hours per day of work. So one barrel of oil does the physical work of 11 years of. A full-time working human. Now, machines are not as efficient at converting our muscle labor, into work. So we have to handicap that by 40% 'cause humans are around two and a half times.

[00:14:52] more efficient, but still that means that we're looking at four to five years of work that is replaced by a barrel of oil combined with a machine. So considering that humans currently use 30 billion barrels of oil and around 70 billion barrel of oil, equivalent of coal natural gas, that's 100 billion barrel of oil equivalents worth of dense fossil hydrocarbons that we're adding to machines around the world.

[00:15:23] This is the equivalent of adding a 500 billion person army of workers to the global economy of around 5 billion real workers. And yet none of this is in our textbooks nor our business schools. We treat energy as a footnote, a cost, something to be replaced when the price gets too high, which brings us to the second energy reality check.

[00:15:47] Energy is not substitutable. Other than buy other energy of, similar quality, we're taught that if oil or any other commodity, energy becomes scarce or expensive, price signals will take care of it. We'll substitute, we'll innovate, we'll find alternatives. But this misunderstands what energy is. You cannot replace energy with money.

[00:16:11] You can't replace it with cleverness. You can only replace it with other energy, and even then, it needs to be the right quality in all the different ways of energy density, energy scale, energy duration, all the things. So when we imagine that we can swap out oil for some mystery tech or that the market will figure it out, we're misunderstanding the most fundamental input to our civilization.

[00:16:38] That brings us to the third and perhaps most sobering truth about energy relative to what economic textbooks teach us. We are drawing down energy stocks millions of times faster than they were formed, and we're treating them. In our economic system as if they were flows. Fossil fuels are not income.

[00:17:00] They are capital. They are a trust fund, and we've been burning through that inheritance as if it were a continual paycheck. Even Exxon, I. Yes, Exxon admits we're facing a global oil-based decline rate of 15% a year, and I have to believe that is unbelievably conservative. So everything else being equal, we're gonna be down to 10% of our current oil in 30 years with all the existing oil fields in the world.

[00:17:28] Yes, we will find new fields. Yes, we will have better technology to extract other resources, but this is. Constantly depleting in the United States. Production from existing fields is declining faster and faster, and data shows a clear steepening curve where we have to drill faster and faster just to stay in place.

[00:17:51] And unless artificial intelligence does miracles on extraction, we are about to leave the long flat plateau and go downhill. Yes, there is still a lot of oil reservoir oil molecules in the ground, but it's harder to reach lower quality and more expensive, both in dollar and energy terms. And since we add vast amounts of energy to processes using technology that humans used to do manually, our economy is incredibly sensitive to price.

[00:18:23] Upticks. A doubling or triple of energy costs kills a lot of our economic model. I. And poverty and everything else that comes. So we are, as viewers of this show know, are at the apex of what I call the carbon pulse, which is this one time once in a planet, historical spike in energy availability, and it's peaking.

[00:18:47] So what's the takeaway? If we ignore energy, it's centrality. It's limits, it's depletion, it's non exchange ability. We are flying blind. We are designing economic systems that assume infinite growth from a finite inheritance. Yes, capital and labor matter, but without energy, they don't function. When we forget that, which most people in business schools have, we end up with a mythological economy, one where wealth comes from cleverness and energy is just an afterthought.

[00:19:21] In reality, when the fuel runs low, the machine doesn't care how smart the operator is. Okay? So now we move into the real dicey, categories. Money. Most of us never really stop to think about where does money come from. I. In business schools around the world, a standard story that is still taught in textbooks is something like this.

[00:19:44] People save money. Banks gather up that saved capital in people's bank accounts. Then they lend that out to others who need it, and they charge interest for the service. It's a nice story. Logical, comforting. It gives us the sense that money is grounded in something real like thrift or discipline. But here's the twist, that is not how money works at all in the modern financial system.

[00:20:10] Most money in circulation wasn't saved first, it was created. Instantly when someone took out a loan. Here's how it works. You walk into a bank, you sign up for a mortgage or a business loan. The bank doesn't hand you money that someone else deposited. It types a number into your account. That money didn't exist a moment before.

[00:20:30] What happens is at that moment, there's an asset in your account and a liability in your account that you owe the bank that money, and in the bank account they have the asset, which is your loan. The liability is the money they just put into your account. The whole system from the perspective of the world's financial system, is in balance.

[00:20:49] And just like that new money was born not from savings but from debt. This is called endogenous money creation, and it is not a fringe theory. It is how commercial banking. Actually works. And even central banks like the Bank of England and the Federal Reserve have publicly confirmed this is what's happening.

[00:21:09] And by the way, 20 years ago when I was telling this story, those central banks had not yet confirmed, this is what's happening. So what does this mean? It means that money in the world is not a fixed pool of capital. It's a dynamic flow created by private banks constrained only by regulation, capital buffers, and a borrows ability to repay.

[00:21:31] There are two systems at work here, the monetary system where things actually are in balance, and this is what's taught in business schools, the assets and the liabilities balance. But when we increase the total amount of monetary claims in the system, that's relative to the energy that forest, the lithium salts, the dolphins, the orangutans, the ecosystem functioning capacity of our earth.

[00:21:58] We keep creating more and more claims on the same amount of biophysical reality. So this is not so different than a Ponzi scheme or Bernie Madoff who pays their new investors by, drawing down the. Principle, not the actual returns. So this, in many ways, in coming decades, we will look back at this. In my opinion, this is the largest Ponzi scheme in the history of the world.

[00:22:28] We are creating hundreds and hundreds of trillions of monetary claims on a flat to declining amount of biophysical energy material. An ecosystem realities. It's a big deal. Okay, moving on to the next myth, which is related to money, and that is debt business. Schools in the world today still teach that debt is just a neutral tool.

[00:22:51] That debt is an intertemporal transfer of consumption preferences from the future to the present or from the present, to the future in terms of a creditor. so. They treat that debt is neutral to an economy. So if you spend a million dollars from your bank account to build a business and that contributes to GDP or someone else goes to a bank and borrows a million dollars and does the same business, those impacts are identical on the economy.

[00:23:24] So let's back up to energy. Every time we spend money, whether it's for a phone or a sandwich or a road. Energy is part of that transaction. Every dollar, every rupe, every Euro in our pockets or our bank accounts, when it is spent, we'll buy something with energy embedded in it. Full stop. So in effect, money is a claim on energy and materials.

[00:23:48] And if money is a claim on energy, then debt is a claim on future energy. But in today's economic textbooks, debt is presented as a neutral mechanism. Debt just moves money from the future to the present. and as long as returns exceed the interest, it's seen as a win. Governments do it, corporations do it, households do it.

[00:24:07] Debt is really just leverage. It's amplifying an opportunity or so we're told. But that framing leaves something out. Debt is not just a financial promise. It is a bet on the future of real world inputs, energy, labor, materials, ecosystem stability and functions. Because when someone borrows today, including central banks, they're not just assuming there will be money to repay that loan.

[00:24:35] They're assuming the real world will be able to supply the physical goods and services needed to fulfill it. And what happens if the future doesn't show up as expected with climate change or oil depletion, or the fact that lithium and many rare earth minerals aren't in places that like, the industrial west.

[00:24:57] What if energy becomes more scarce or expensive? then these. Debt-based systems start to weaken, and this isn't theoretical, it is already showing up in the data. Since the 1970s, the United States and the world have grown their debt more than they've grown their GDP in every single year. Right now, we are doubling our debt.

[00:25:18] Every nine years or so, and we're doubling our GDP, which is the income stream needed to replace the debt every 25 years or so. And this is while we're still on an energy plateau, and all the other things are still going. So debt productivity means. How much additional GDP we get for an additional unit of debt.

[00:25:42] And that's also been declining for decades, not just in the United States, but around the world. in other words, we're borrowing more and more, but we're getting less and less bang for each additional debt dollar. This isn't leverage. This is diminishing returns with enormous risk. Our financial systems still operate as if none of this matters, and we have problems.

[00:26:06] We just write a check and no matter which administration is in the White House, Republican or Democrat, we will raise the debt ceiling again because debt allows us to consume energy and materials today and the future be damned. In 2009, we had a too big to fail situation and we let, Lehman Brothers go under and, we bailed out.

[00:26:29] Bear Stearns, at some point, probably in the next decade, almost for sure, in the next decade in my calculus, we will have a too big to save moment. I.

Where Japan or France or some entity will be so large in the amount of monetary claims and debt that they've accumulated relative to the real world, that no other group of central banks will be able to bail them out.

[00:26:53] And that's when The Great Simplification, the name of this podcast, begins in earnest. So debt as currently taught and practiced assumes the future will always be able to pay. And debt in this light is not a neutral financial tool. The real world is starting to push back on this assumption. The next myth revolves around a number you've probably heard your entire life.

[00:27:19] GDP, it stands for gross domestic product and it's the total monetary value of all the goods and services. A country produces in a given quarter or a given year in news reports, in political speeches, in business forecast, GDP is held up as the main headline indicator of national success if GDP is going up.

[00:27:42] so the story goes, we are doing well as a nation. If it's flat or declining, it's a warning sign. and in business schools and economic pundit circles, the assumption often follows, GDP Growth is not just a signal of success. It is the goal that we should aspire to more. GDP means more progress, more jobs, more prosperity.

[00:28:06] But what does GDP actually. Measure GDP counts monetary transactions. If money changes hands, it shows up in the number. It doesn't ask whether those transactions are good or bad or helpful or harmful or even necessary. So by definition, GDP adds up everything that we spend money on, whether it's building a hospital, cleaning up an oil spill, fighting a war, or treating cancer caused by pollution, it's all counted as economic activity.

[00:28:39] Which brings us to the core reality. The core insight. GDP is often a better measure of cost than benefit. It's like judging the health of your car by how much you spend at the auto mechanic. If you spend three, do $3,000 on engine

repair this month. GDP says, great. Economic activity, but does it mean your car is working and, thriving?

[00:29:07] or imagine a society that's getting sicker, more polluted, more anxious. Medical costs go up, security spending goes up, disaster recovery spends up, spending goes up. GDP rises, but are people better off 22 or 23% of U-S-A-G-D-P today goes to healthcare? This is insane, but if it keeps rising to 30%, that's good for GDP, right?

[00:29:38] now to be fair, GDP is a useful accounting tool. It tells us how busy our economic engine is, but it doesn't tell us. Where the engine is headed, whether it's overheating, whether it's chewing through parts faster than it can replace them. It also leaves out some of the really important parts of real wealth in our world.

[00:30:01] Healthy ecosystems, clean air and water, time with family, mental health of our citizens, education, biodiversity, community trust, safety. None of these are properly counted. In GDP, if you cut down a forest and sell the timber, GDP goes up. As I mentioned earlier, if you leave the forest standing to provide flood protection and shade and carbon storage, GDP sees nothing.

[00:30:33] There are declining benefits to more GDP and more energy use. So GDP growth can easily mask real declines in wellbeing, resilience, and ecological functioning, and integrity. It is a tally of throughput. Not of outcomes, and yet our society continues worldwide to treat GDP like the scorecard of modern civilization.

[00:31:00] The reality is much more nuanced. GDP measures economic motion. I. It adds up transactions, but it doesn't ask what we're gaining or losing in the process. GDP as it stands, is a blunt instrument. It is not a measure of progress. It

is a speedometer without a map, without a fuel gauge, or even a sense of destination.

[00:31:25] Okay, three left. this is the one, well along with energy that caused me to leave Wall Street. the myth is. Still taught in business schools is that the environment is a subset of the economy. And not only that, but a tiny, puny, irrelevant subset at that. In most policy debates and business textbooks, there is an implicit framing that we hardly.

[00:31:50] Even notice it. The economy is the main thing. The main event and the environment is a side issue. Something to manage with regulations to fix with carbon offsets or fund with profits once growth is secured. This flips the real relationship in our world on its head because the environment. To those following this podcast, are well aware isn't a subset the of the economy.

[00:32:17] The economy is a wholly owned subset of the broader environment where we all live. Everything we buy, sell, build, or consume, relies on the flows from the natural world. Sunlight, water, minerals, soil energy, pollinators, climate stability. These aren't optional inputs to an economic system. They're the preconditions.

[00:32:41] For any long term or intermediate term activity at all. Yet, our models treat these real world foundations as externalities, which are outside the pricing incentives and behaviors of the economic equation. So we build our forecast on lines and charts that stretch out forever, assuming stable climate, infinite water, fertile soil, abundant minerals, all priced at zero beyond extraction.

[00:33:10] But physics doesn't negotiate and ecosystems don't do bailouts. If the biosphere phrase, and we are now leaving the stability of the Holocene, the economy eventually follows, not the other way around. Yes, we can print money

and we are going to increasingly do so, but we can't print topsoil. We can issue bonds, but we can't restock.

[00:33:36] Fossil aquifers. We can do IPOs, but we cannot recover dead coral reefs. And these are not theoretical risks. These are real live trends happening today. So when we treat the environment as a footnote to the economy, we end up measuring short-term profits while eroding long term. Viability and capacity, and that logic only works in the very short term or in an economics textbook.

[00:34:05] In reality, the economy is fully embedded within and entirely dependent on the natural world of earth. Alright, second to last, the invisible hand will result in the best outcomes. This is still taught, in business schools around the world. It is one of the most enduring ideas from Adam Smith, even though he only mentioned the term once and in a different context.

[00:34:35] But the invisible hand is the notion that individual humans, while pursuing their own self-interest. Will unintentionally in aggregate produce the best outcomes for society as a whole? It's elegant, it's appealing. It is a meme that has lasted centuries and it works, but under very, specific conditions.

[00:35:00] And when it's stretched to a universal law taught in business schools around the world, it breaks down. Markets are incredibly powerful at allocating certain kinds of resources, especially things that are rival excludable and can be priced like shoes or cars or apples, but many of the most important things in life.

[00:35:24] And on this planet do not fit that simple model, clean air, trust, climate stability, ocean vitality, biodiversity. These are public goods and you cannot sell them in tidy units. As I mentioned earlier on price versus value. And markets by design tend to undervalue or ignore. What can't be owned or priced.

[00:35:48] So instead of optimizing outcomes, the invisible hand often leaves critical systems degraded or neglected or undervalued. And even when markets do function well, the outcomes depend heavily on the rules of the game. Like regulations, property rights, externalities, and who holds the power? There is no law.

[00:36:12] Of nature that says markets will align with justice, equity, or sustainability. The belief that self-interest always guides us to collective wellbeing is no longer just incomplete. It can be a blindfold. Our whole, cultural story. Markets are tools, and they reflect the incentives and the boundaries that are built into them.

[00:36:37] And without guardrail, that accounts for shared costs and long-term impacts, the invisible hand tends to point to short-term gains and long-term loss. Last but not least. Economic theory articulates laws that are immutable and timeless in most economic classrooms. And an MBA school's models are presented with the authority of a natural law, like a natural science, chemistry, or biology or physics, supply and demand, rational actors, efficient markets, growth curves.

[00:37:14] These aren't just theories. They're often treated like gravity, unchanging, universal. Objective. But here's the thing. Economic models are not describing physics. They're describing human behavior embedded in this specific historic, cultural, and ecological context. That is pretty much one time, very, special, unique period in human history because those contexts are very rare and they change most of what we call modern economics emerged in the last 150 years.

[00:37:50] Especially the last 50 to 70 years, an eye blink in human history during, as listeners of this show are well aware during a period shaped by fossil fuels, colonization, rising populations, and expanding ecological impact. So much of our

economic theory was built in this tiny, sliver, a period of abundance and globalization.

[00:38:15] And the, western industrialized consumption model. Cheap energy, accessible resources, expanding markets, a one-time bonanza, but not the best sample size to base economic laws for the future On. 'cause those conditions are not timeless. They are not repeatable, and they're certainly not guaranteed going forward.

[00:38:38] So when economists speak of laws, the infinite growth, rational behavior, perfect substitution as if they were universal truths, it misses the fact that they're really more like assumptions, baked into a model, often detached from ecological limits and lived human experience. There are patterns, tendencies, and relationships worth studying, but they're not laws in the way.

[00:39:01] Gravity is a law. They're context dependent and subject to change, and they should change the belief that economic models are fixed. Truths immune to feedback in the real world has led to profound blind spots, especially when these models collide with planetary boundaries. The wellbeing of people, the depletion of fossil resources.

[00:39:24] And endowments that can't be replaced once they're used. So the MBA map is not the economic territory for humans. And the models built during this one time period of abundance when energy was cheap, ecosystems were stable, and growth seemed limitless, are not going to hold up in a world facing ecological constraint, credit overshoot, social fragility, and the long tail of natural capital in decline.

[00:39:53] How do I conclude? this lengthy, frankly, like I started, by saying that my values are truth and the natural world and future generations of ours and other species depending on that natural world. I'd like to think that economic theory is

kind of like a peer review thing, that over time the truth comes out and there's evidence that shows why the assumptions that we use are wrong.

[00:40:23] I'm starting to not think that's the case. I'm starting to think that. Just like, the economy of scale and the supply curve is actually tr trending downward is that economists as a, group and business, schools as an institution, I. Got so big that they grabbed the momentum of the story of the cultural story, and we've not been able to dis dislodge that, because they have such a dominant, say in how we run the world.

[00:40:58] I think it's not about truth. It's about. Power. and so economic theory right now fits the support of the super organism's growth, like a hand and glove, 'cause economic theory. All the things that I've outlined here are in service of more energy, more consumption, more money, or whatever we need to do to access more power and resources and.

[00:41:25] The wellbeing of the citizens and the health of the environment are downstream of these drivers, and so they're immune to facts. I can hope that in the future, truth matters and who we are as an evolved social creature and who we are this decade, the decade of the 2020s, we're the first generation of our species to understand.

[00:41:48] Where we came from, who we are, how we got here, what we're doing, what the natural resource source and sink balance sheet is, what the stakes are, what the pathways are. My fear or my worry is that in order for economics to change, to better reflect our biological and physical reality, we're going to need governments and institutions and Truth in the media and, understandable and agreed upon facts. And we are not so much in that situation right now with our lack of trust and polarization. So for me, bearing witness to this is something I feel very clear about, in my research over the last 20 years. Sure. I probably have little

things wrong on each of these myths, but if you squint and see how these fit together.

[00:42:43] These 10 things and more are deep flaws in what is being taught to young humans around the world about how the world works onwards towards a better, more aligned with the reality, more aligned with the future story. I'll talk to you next week on frankly 100, where I think I'm going to do some I. Ask me anything, questions, about my thoughts on the world.

[00:43:06] Thank you.