

What’s Wrong With Indian Agriculture?

Episode 18 | Everything is Everything

Ajay Shah, Amit Varma

Transcript

October 27, 2023

Shah, Ajay, and Amit Varma. “What’s Wrong With Indian Agriculture?” Episode 18 of Everything is Everything. XKDR Forum, October 27, 2023. Podcast, video, 1:19:33. <https://www.xkdr.org/viewpoints/whats-wrong-with-indian-agriculture-episode-18-everything-is-everything>

Abstract

Markets are cruel but efficient rationing systems. When supply falls short, prices must rise enough to force some buyers to walk away—and the more essential the good, the more dramatic the price swing required. This fundamental truth about how markets work helps explain why tomato prices in India can swing from 200 rupees per kilogram to 2 rupees.

Ajay and Amit explore this phenomenon through Paul Samuelson’s cobweb model and examine why such extreme volatility doesn’t occur in healthy agricultural markets elsewhere. They trace the problem to systematic interference with four key mechanisms: futures markets, storage systems, domestic trade, and international trade. The conversation moves from economic theory to ground-level reality, examining how policies like APMCs (Agricultural Produce Market Committees), the Essential Commodities Act, and MSPs (Minimum Support Prices) create negative subsidies that trap farmers in poverty while making food expensive for consumers.

The episode concludes with a tribute to Sharad Joshi, the remarkable economist-turned-farmer who built a mass movement around market-oriented agricultural reform, demonstrating that sophisticated economic ideas can resonate with farmers when they align with lived experience.

Supplementary Resources

- **India: An Agricultural Trade Powerhouse** by Ajay Shah (Article, *Business Standard*) [4]
- **Diagnosing and Overcoming Sustained Food Price Volatility** by Anirudh Burman, Ila Patnaik, Shubho Roy, and Ajay Shah (NIPFP Working Paper) [1]
- **Economic Freedom in Agriculture** by Ajay Shah (Article, *Business Standard*) [5]
- **Climate Change for Practical People** by Ajay Shah (Article, *Business Standard*) [6]

- **Price Distortions in Indian Agriculture** by Shweta Saini and Ashok Gulati (ICRIER–World Bank Report) [3]
- **Six Puzzles in Indian Agriculture** by Shoumitro Chatterjee and Devesh Kapur (Journal article, *India Policy Forum*) [2]

Contents

1	Introduction: Ajay is a Tomato	4
2	Chapter 1: How Our Farmers are Hobbled	6
3	Chapter 2: The Problem of Land	29
4	Chapter 3: The Larger Problem	33
5	Chapter 4: Why MSPs are a Problem	34
6	Chapter 5: The Great Sharad Joshi	38
7	Chapter 6: A Modern Satyagraha	38
8	Chapter 7: Amit's Recco	40
9	Chapter 8: Ajay's Recco	41

[00:00:00] **Amit Varma:** A beautiful sher by the great Sharad Joshi, and I'll talk about Sharad ji a little later in the show; we have a segment on him. But Sharad ji once said, and this is from the voice of a farmer speaking to a consumer, and it runs thus.

[00:00:14] **Amit Varma:** Marte tum bhi ho, marte hum bhi hai.

[00:00:17] **Amit Varma:** Marte tum bhi ho, marte hum bhi hai. Hum sasta bech ke marte hai, to mehenga khareed ke marte ho.

[00:00:24] **Amit Varma:** Right, and the English translation of this would run like this.

[00:00:28] **Amit Varma:** I die, my friend, and so do you. I die, my friend, and so do you. I sell my produce cheap and die; you pay so much that you die too.

Introduction: Ajay is a Tomato

[00:00:52] **Ajay Shah:** Welcome, gentle readers, to another episode of Everything is Everything.

[00:00:56] **Ajay Shah:** Uh, my friend Amit Varma and I try to entertain you and trigger your curiosity every week.

[00:01:00] **Ajay Shah:** Amit, what cool things do you have to show us today?

[00:01:00] **Amit Varma:** I wrote a limerick for you.

[00:01:00] **Ajay Shah:** Okay. Let's do it.

[00:01:00] **Amit Varma:** The limerick is called "Tomato." Okay, right?

[00:01:00] **Amit Varma:** So the title is "Tomato," and this is how the limerick goes. My good friend Ajay sat in his bed, reading YouTube comments in his head.

[00:01:00] **Amit Varma:** He was all a-glow, like a tomato. The fulsome praise made his cheeks go red.

- [00:01:00] **Amit Varma:** So, and it is indeed, by the way, nice. I must, you know, kind of tell all our gentle readers that please keep leaving comments. Apparently, we are told it helps the YouTube algorithm, engagement, this and that.
- [00:01:00] **Amit Varma:** But more than that, it's a great feeling to know that someone is watching, someone is appreciating. Mostly appreciating Ajay, of course, and why indeed not?
- [00:01:00] **Amit Varma:** And yeah, so you wrote limericks when you were a young man, didn't you?
- [00:01:00] **Ajay Shah:** So, when I was a callow, immature youth, I spouted one limerick every 10 minutes.
- [00:01:00] **Ajay Shah:** Uh, the great mathematician Meena Mahajan at the Institute of Math Sciences in Chennai was one year my senior at college.
- [00:02:00] **Ajay Shah:** And she coined a nickname for me. She called me Limya, which is a Maharashtrian's way of coming up with a funny name for a guy who spouts too many limericks.
- [00:02:00] **Amit Varma:** I'm a big fan of Maharashtrian nicknames, as it were.
- [00:02:00] **Amit Varma:** And I am actually perhaps the only professional limerick writer in the world in the sense that for a period of a couple of years, I would write a weekly limerick for the Sunday Times of India.
- [00:02:00] **Amit Varma:** I was also a columnist for them, and I'd have a limerick which would, you know, come in the middle, and it was a nice little experiment that they tried, except that at one point it got too political and they were like, you know, it no longer appears there. But I did, I think, about a hundred.
- [00:02:00] **Amit Varma:** And yeah, fascinating times. But so how do you feel that my first mention of you is in the context of tomatoes?
- [00:02:00] **Ajay Shah:** Ashok Desai wrote a book, The Price of Onions.
- [00:03:00] **Ajay Shah:** And it just feels like we are in that story all over again with one small substitution.

- [00:03:00] **Ajay Shah:** It's not onions; it's tomatoes. So we've been through this 200 rupees a kg to 2 rupees a kg drama around tomatoes.
- [00:03:00] **Ajay Shah:** I thought it was hilarious that people who were flying in from abroad would get requests from people in India that, "Just fill up the rest of your bags with tomatoes and bring tomatoes to India."
- [00:03:00] **Amit Varma:** Are you hiding tomatoes in your cheeks, or are you happy to see me?
- [00:03:00] **Amit Varma:** So Ajay, we are recording this on September 19th, obviously. By the time the episode airs, some of, you know, some of the basic facts would have changed; they would have moved on the ground.
- [00:03:00] **Amit Varma:** But the principles stay the same. Actually, we have seen this before, and we will see this again.
- [00:03:00] **Amit Varma:** So, you know, give me a little bit of a primer on what exactly is happening with the price of tomatoes and what are the fundamental problems that it points us to?

Chapter 1: How Our Farmers are Hobbled

- [00:04:00] **Ajay Shah:** There is a fundamental piece of understanding of the price system and a piece of understanding of the food market, which comes together to create this phenomenon.
- [00:04:00] **Ajay Shah:** So let's go one step at a time. First comes the price system. Okay? So, for whatever reason, there is either an unusually big harvest or an unusually small harvest.
- [00:04:00] **Ajay Shah:** These things happen; they're part of life. There are fluctuations; they happen.
- [00:04:00] **Ajay Shah:** Now, it is just in the nature of the price system that finally, the amount of tomatoes that are purchased on the market is equal to the amount of tomatoes that are sold in the market.

- [00:04:00] **Ajay Shah:** So supply ex-post will have to be equal to demand. That is the meaning of a market. How does that happen?
- [00:04:00] **Ajay Shah:** It's important to drill deep into the working of the market.
- [00:04:00] **Ajay Shah:** So, you know, as children we are taught supply will equal demand ex-post, but it's good to think more about how and why that happens.
- [00:05:00] **Ajay Shah:** So imagine that if instead of 100 units of tomato, you have 90 units of tomato, okay?
- [00:05:00] **Ajay Shah:** So 10 units of tomato are absent from the market. So under normal circumstances, there used to be 100; for whatever reason, now there are 90.
- [00:05:00] **Ajay Shah:** The way the price system works is pretty cruel. It rations out those 90.
- [00:05:00] **Ajay Shah:** So we should think of the word a "rationing system" associated with the price system, okay?
- [00:05:00] **Ajay Shah:** And this kind of rationing appears cruel to some, but it is the nature of the beast, and we should coldly understand how that works.
- [00:05:00] **Ajay Shah:** The idea is that the price of tomato has to go up so that some people look at that price and say, "You know what?
- [00:05:00] **Ajay Shah:** At this price, I'd rather not buy the tomato," and some people choose to step away.
- [00:05:00] **Ajay Shah:** Now, people could choose to step away for many reasons. Some people may not like the taste of tomatoes.
- [00:05:00] **Ajay Shah:** Some people might switch to cheaper tomato puree or tomato paste. Okay.
- [00:06:00] **Ajay Shah:** Some people will change recipes to make the same pav bhaji with a little more beetroot and a little less tomato.

[00:06:00] **Ajay Shah:** There could be many, many responses in adaptation.

[00:06:00] **Ajay Shah:** But the point is the price has to go up so that some people walk away.

[00:06:00] **Ajay Shah:** Now, think about it. If the price of tomatoes goes up by 20%, is that material?

[00:06:00] **Ajay Shah:** Is that big enough to generate the required 10% reduction in purchases? Okay, maybe it's not.

[00:06:00] **Ajay Shah:** Maybe tomatoes are so fundamental to making a pav bhaji that people say, "Look, I'll grin and bear it, and I'll just pay through my nose."

[00:06:00] **Ajay Shah:** I'll whine about the price of tomatoes, but I'll go ahead and buy those tomatoes.

[00:06:00] **Ajay Shah:** In that case, that price has to go up even higher. The price has to just keep on going up till some people walk away, and then you are in business.

[00:06:00] **Ajay Shah:** So, the price system should be understood as a rationing mechanism.

[00:07:00] **Ajay Shah:** And so I want to take this all the way to something like wheat. Imagine wheat, imagine rice, the cheapest, lowest-value sources of calories in the society.

[00:07:00] **Ajay Shah:** Imagine that there is a shortfall in supply. Now, you and I are not going to respond to a change in the price of wheat.

[00:07:00] **Ajay Shah:** Okay? So, imagine that the price of wheat goes up; the price of our chapati or the price of our bread contains some embedded component of the price of wheat.

[00:07:00] **Ajay Shah:** We're not going to respond. You need a very large increase in the price of wheat for people to change their minds and back away.

[00:07:00] **Ajay Shah:** Okay, so the more a food is consumed by people who are not paying attention to the price, the bigger the price change has to be.

- [00:07:00] **Ajay Shah:** It's not a malfunction on the part of the market economy. This is it.
- [00:07:00] **Ajay Shah:** Whereas, imagine you have avocados. These are completely a discretionary luxury spending by people.
- [00:08:00] **Ajay Shah:** So, if there is a shortage of avocados, the price of avocados needs only to go up by a little, and people will say, "You know what?"
- [00:08:00] **Ajay Shah:** At this price, I'm not going to buy avocados," and supply and demand are restored. So the percentage price fluctuations that are required for wheat and rice and potato and tomato are actually very large to close a modest gap between supply and demand.
- [00:08:00] **Ajay Shah:** Okay, so this is the first point, that the price system works by having prices move up and down in both directions till people change their behavior.
- [00:08:00] **Ajay Shah:** And if the behavior of people is less flexible, the price change needs to be larger.
- [00:08:00] **Ajay Shah:** If the behavior of people is more flexible, you'll get away with a smaller price rise. Okay, this is a critical intuition into the price system.
- [00:08:00] **Ajay Shah:** And you know, it's a very powerful toolkit to apply to everything that we study.
- [00:08:00] **Ajay Shah:** And then we come to the second idea, which is Paul Samuelson's cobweb model.
- [00:09:00] **Ajay Shah:** His idea is simple: that suppose farmers are not very bright, and suppose farmers look back into the past.
- [00:09:00] **Ajay Shah:** If they see that in the market, tomatoes are going at 200 and 300 rupees a kilo, then many, many people will make the decision of sowing more tomatoes.

- [00:09:00] **Ajay Shah:** People will spend more on inputs, whether it is labor or fertilizers or pesticides, and that will create a surge in the tomato crop.
- [00:09:00] **Ajay Shah:** And then you'll get a crash in the price of tomatoes. Okay, so the same reasons why the small shortage of tomatoes will generate a price rise to 200 rupees will trigger off sowing by farmers.
- [00:09:00] **Ajay Shah:** And the decisions on what to sow, the decisions on how much money to invest in the agricultural inputs.
- [00:09:00] **Ajay Shah:** And that will generate a 10%, 20% increase in production. And then the price will crash all the way down to 2 rupees.
- [00:09:00] **Ajay Shah:** And now the farming community will say, "Oh, tomatoes, that's a very bad idea.
- [00:10:00] **Ajay Shah:** I was dumping truckloads of tomatoes on the highway because I couldn't pay for the transportation cost of tomato to a neighboring market."
- [00:10:00] **Ajay Shah:** And so you stay stuck in the cycle over and over again. So Paul Samuelson told us this story around a dysfunctional agricultural sector.
- [00:10:00] **Ajay Shah:** And it's a good intuition that we should keep in our minds. So, I think these are some basics that went off in my mind when I saw this drama about two rupees and 200 rupees.
- [00:10:00] **Amit Varma:** And just to add to that, you know, for those gentle readers who may have missed that episode, we had an episode on Bastiat and Hayek, and there we also spoke about the price system.
- [00:10:00] **Amit Varma:** And like you correctly said, it not only changes the behavior of the consumer that if I don't want it so desperately, I'll go and have something else.
- [00:10:00] **Amit Varma:** And frankly for me, I'd rather have avocado than wheat because, you know, hey, sugar is poison, and you know, wheat is carbs.

- [00:10:00] **Amit Varma:** Not only does it change the behavior of the consumer, it also acts as, you know, a carrier of information and incentives.
- [00:11:00] **Amit Varma:** It changes what producers do. So somebody who is, say, making potatoes or whatever else may say, “Let me do tomatoes instead. I’ll make a profit that way.”
- [00:11:00] **Amit Varma:** And therefore, what is happening is the price system is helping society fulfill the needs of society.
- [00:11:00] **Amit Varma:** Individuals among us, for our self-interest, get in there to fulfill the needs of others.
- [00:11:00] **Amit Varma:** And that sounds all very beautiful. But as Paul Samuelson’s, you know, cobweb model, as you know, seems to point out, you can just go through boom and bust, boom and bust cycles. But you know that doesn’t happen in healthy markets.
- [00:11:00] **Amit Varma:** Why so? So tell me more about that.
- [00:11:00] **Ajay Shah:** So Paul Samuelson’s model is sort of a pure, clean model where there is a certain kind of dysfunctionality.
- [00:11:00] **Ajay Shah:** It needs Mr. Farmer to be a little stupid, to not understand what is going on, but there is a germ of truth there.
- [00:11:00] **Ajay Shah:** The reason this doesn’t happen in the world is because there is actually a lot of thinking and care in precisely the ways that you describe.
- [00:12:00] **Ajay Shah:** Uh, what we talked about around the Hayek conversation was that each of us look at prices and respond to prices.
- [00:12:00] **Ajay Shah:** People respond to incentives, people respond to prices, and a great deal of decision-making happens.
- [00:12:00] **Ajay Shah:** We are not just dumb ignoramuses lurching around without thinking in the world. So, it’s good to focus on the three big decisions of this field.
- [00:12:00] **Ajay Shah:** First decision: what to sow? Okay? Should I grow tomatoes? Should I grow potatoes?

- [00:12:00] **Ajay Shah:** Okay, is a choice that every farmer makes. Question two: how much to invest? How much money do I put into the growing process?
- [00:12:00] **Ajay Shah:** Do I buy more fertilizers or less fertilizers? And more pesticides or less pesticides?
- [00:12:00] **Ajay Shah:** And more agricultural labor or less agricultural labor? It's a choice. It's a decision that is made by the grower in response to a variety of incentives in various market mechanisms.
- [00:12:00] **Ajay Shah:** And the third decision is what to store and how. So, there is a whole question around storage technologies, and it doesn't have to be the same person.
- [00:13:00] **Ajay Shah:** So, for example, imagine if you see that there are these great fluctuations in the price of tomatoes, maybe you want to build a cold storage where you'll store tomatoes into next month, wondering whether there'll be a good deal next month that I can buy tomatoes at two rupees.
- [00:13:00] **Ajay Shah:** And I can put them in a cold storage and sell them next month. Maybe there is a business opportunity there. Or maybe there is a business opportunity in making tomato puree or in tomato paste, okay?
- [00:13:00] **Ajay Shah:** And in dehydrated onions. There's a whole variety of storage technologies through which you can move food from time T to time T plus one.
- [00:13:00] **Ajay Shah:** And these are all private business decisions where you're looking at the price of two and wondering, you know, is there an opportunity for me to make money?
- [00:13:00] **Ajay Shah:** Note, no central planners are required in all these things. Each party is just looking at prices.
- [00:13:00] **Ajay Shah:** So, people look at prices and choose, "I should be growing tomatoes."

- [00:14:00] **Ajay Shah:** People look at prices and choose, “This is a good time to invest money into fertilizers, pesticides, agricultural labor, high-yielding varieties, a little more care of my plants.”
- [00:14:00] **Ajay Shah:** And people are looking at prices and making a decision, “You know, we should be storing this stuff.”
- [00:14:00] **Ajay Shah:** And then you get to storage technologies and a variety of ways in which you could exploit a situation with two rupees.
- [00:14:00] **Ajay Shah:** And as private people see the opportunity that, “You know, two rupees is a bargain, I should be buying this stuff.”
- [00:14:00] **Ajay Shah:** Then that buying pressure effectively pushes the price up from two rupees to four rupees to eight rupees and so on.
- [00:14:00] **Ajay Shah:** So, the three decisions are key. And we should be asking ourselves, how do people make these three decisions?
- [00:14:00] **Ajay Shah:** Samuelson’s cobweb model wants a certain kind of dysfunctionality. He wants people to look back at the present or past price of tomatoes and make a sowing decision.
- [00:14:00] **Ajay Shah:** That people are stupid and don’t look forward, they’re not appreciating what each other is doing.
- [00:15:00] **Ajay Shah:** He wants something fixed in terms of the inputs, and he doesn’t want the existence of a storage technology.
- [00:15:00] **Ajay Shah:** Under these conditions, you get these really bad decisions that people have to only look at the current price of tomato or the past price of tomato and they’re not looking forward.
- [00:15:00] **Ajay Shah:** They’re not thinking more about the world. Okay? So to get the cobweb model, which is indeed a dysfunctionality that you can see in the world, you got to get these three decisions going wrong.
- [00:15:00] **Ajay Shah:** Now, the market economy has a whole array of ways in which these problems are solved. Okay?
- [00:15:00] **Ajay Shah:** So this is not a problem under most normal circumstances all over the world.

- [00:15:00] **Ajay Shah:** The tomato fluctuation of two and 200 is a peculiarity of what happens in India. It is not normal and mainstream in the world of food.
- [00:15:00] **Ajay Shah:** And the reason that is considered a solved problem is because there's a whole array of mechanisms. So let's talk about the ways in which these things get sorted.
- [00:16:00] **Ajay Shah:** The first piece is futures markets. Okay, what you want in every country is active, vibrant, dynamic futures markets where there is trading, where there is speculation, where a farmer can see that, "I'm sowing something today."
- [00:16:00] **Ajay Shah:** "At a future date, the crop will arrive. What is the prediction for the price of tomatoes on my harvest date?"
- [00:16:00] **Ajay Shah:** And then if that price is high, then I can decide maybe I should be growing this today or maybe I should be selling into that futures market directly.
- [00:16:00] **Ajay Shah:** It's important to emphasize that I don't need to be a user of the futures market.
- [00:16:00] **Ajay Shah:** The price that the speculators make on the futures market is a public good.
- [00:16:00] **Ajay Shah:** Everybody sees the price. Everybody benefits by looking at the price.
- [00:16:00] **Ajay Shah:** Once again, the price is the carrier of information. Everybody organizes their activities around the price system.
- [00:16:00] **Ajay Shah:** It's a public good. It's the great contribution made by the futures market to human society that a price is shown to everybody.
- [00:17:00] **Ajay Shah:** And that is piece one, that there are futures markets using which people can see what's coming and make sowing decisions today and also sometimes can make that futures transaction where you sell your tomatoes at a future date.

- [00:17:00] **Ajay Shah:** The second piece is storage, that there should be ample mechanisms and private players who are doing the storage business.
- [00:17:00] **Ajay Shah:** It could be a cold storage, it could be the food processing to make tomato paste, to make tomato puree, and so on, and to be able to process these in various ways.
- [00:17:00] **Ajay Shah:** The third piece of the puzzle is domestic trade. Maybe the tomato crop failed in Maharashtra, but maybe tomatoes are plentiful in Andhra Pradesh.
- [00:17:00] **Ajay Shah:** And we need to be able to move things around the country so that whenever there is a two-rupee tomato in one place, somebody is buying it up and transporting it somewhere else or vice versa.
- [00:17:00] **Ajay Shah:** When tomatoes are priced at 200 rupees somewhere, then buyers are scouring markets all over the country, buying those 20 rupees, 40 rupees tomatoes and taking them to the place where tomatoes are running for 200 rupees.
- [00:18:00] **Ajay Shah:** So an extensive mechanism for movement of goods and domestic trade.
- [00:18:00] **Ajay Shah:** And finally, the fourth mechanism is international trade. The global market is a great buffer stock. Okay?
- [00:18:00] **Ajay Shah:** So whenever you have a shortage of wheat in India, please buy it abroad.
- [00:18:00] **Ajay Shah:** Whenever you have a surplus of wheat in India, please sell it abroad. The world market is infinite.
- [00:18:00] **Ajay Shah:** The world market is vastly greater than anything we can conceive of. India is a small country compared to the size of the globe.
- [00:18:00] **Ajay Shah:** So there will always be things that can be purchased from abroad, and it's a matter of establishing those mechanisms and getting a container of frozen tomatoes from Dubai or from Singapore into India.

- [00:18:00] **Ajay Shah:** So, these are the four mechanisms through which the market addresses these problems.
- [00:18:00] **Ajay Shah:** And the presence of these mechanisms in other countries is what creates a more sane agricultural sector that does not experience these kinds of price fluctuations of tomatoes.
- [00:19:00] **Amit Varma:** And these all seem like very basic things. And yet they are, all of them, a problem in India, each of them, you know.
- [00:19:00] **Amit Varma:** So I've had an episode of *The Seen and the Unseen* a long time back with Karthik Shashidhar where we spoke about the absence of futures markets.
- [00:19:00] **Amit Varma:** Now the first time I heard about futures markets, I thought it's some arcane financial thing, doesn't concern common people like us.
- [00:19:00] **Amit Varma:** But as you point out, futures markets actually can be an incredible tool in removing uncertainty for a farmer.
- [00:19:00] **Ajay Shah:** It's so simple and basic that it's a kharif harvest. I'm going to sow rice in June, and the harvest will be at Dashera.
- [00:19:00] **Ajay Shah:** Okay? It's such a basic thing. Can we, as adults engaging in voluntary transactions, do a trade that we write a piece of paper, we lock in a contract that come Dashera, my rice will be sold to you at 40 rupees a kg or 4 rupees a kg or whatever.
- [00:19:00] **Ajay Shah:** It's a private transaction between consenting adults, and it's a wonderful transaction for the producer. It's a locked-in price, saying, "Now I'm not exposed."
- [00:20:00] **Ajay Shah:** I don't care whether prices will go up or down. I get a committed price." And then I can back-calculate what is my point of profit, that assuming that price, now I can decide what inputs to sow.
- [00:20:00] **Ajay Shah:** And it takes the fear out of my head because now I'm not worrying about the price at a future date.
- [00:20:00] **Amit Varma:** And not just that. It's not just that you can, you know, seal the deal at the moment.

- [00:20:00] **Amit Varma:** Maybe you don't want to seal the deal now. You just want information, right?
- [00:20:00] **Amit Varma:** And if there is a functioning futures market, futures markets where thousands and tens of thousands of people are trading, then you get a sense of what all of these people together feel is viable and not viable in terms of the price.
- [00:20:00] **Amit Varma:** Even if it's not a price you're committing to at the moment, you can make a better decision rather than just go by your own gut feel or whatever limited evidence you might have.
- [00:20:00] **Amit Varma:** So it plays that role also.
- [00:20:00] **Ajay Shah:** Absolutely. So it's such a fundamental piece of making an agricultural market work correctly.
- [00:21:00] **Ajay Shah:** But unfortunately, in India, we have completely messed up the agricultural futures markets. Uh, it used to be regulated by an old agency called the Forward Markets Commission.
- [00:21:00] **Ajay Shah:** Mostly it was a game of banning stuff. Uh, I was one of those who argued that this should be merged into SEBI, thinking that there was derivatives knowledge in SEBI that would percolate into agricultural futures markets in India.
- [00:21:00] **Ajay Shah:** By and large, that hasn't happened. Uh, commodity futures trading in India remains as hobbled as it used to be in the Forward Markets Commission world.
- [00:21:00] **Ajay Shah:** So we just have like very pre-modern views on banning these things, and just when in doubt, we think the futures market is a culprit.
- [00:21:00] **Ajay Shah:** Every time some price goes up, some policymaker in India wants to say, "Shoot the messenger." So if the futures market is showing a high price, I want to shut off the futures market.
- [00:21:00] **Amit Varma:** So let's talk about storage. Like, you would think that this is a basic thing, that farmers are incentivized to store, and you know, you hear of farmers dumping so much crop ki, "Arey, tomato ka price neeche gaya," they can't even afford this thing.

- [00:22:00] **Amit Varma:** It's perishable, so they dump it. And you imagine that they would plan and they would store. But even here, actually, the government gets in the way.
- [00:22:00] **Amit Varma:** Like the Essential Commodities Act, uh, you know, made with the best of intentions, all these government laws are there with the best of intentions, but you know, that acts as a disincentive against storage and so on.
- [00:22:00] **Amit Varma:** So explain to me why, you know, this is a problem and this factor isn't there either.
- [00:22:00] **Ajay Shah:** So, storage, transportation, speculation is a distinct skill from farming.
- [00:22:00] **Ajay Shah:** So we should not mix up these. Farming is the skill of understanding the land, where a person thinks deeply about the land, understands the yield of alternative crops, looks at the futures market, thinks, "I'm going to make a lot of money if I grow potatoes or if I grow avocado."
- [00:22:00] **Ajay Shah:** That's farming, okay? You carry it till the farm gate. That's the task of farming.
- [00:22:00] **Ajay Shah:** That how do I work the land, the weather, the climate change, and how can I do well on growing a couple of species on a given piece of land?
- [00:23:00] **Ajay Shah:** That is the skill of farming. Next, you get to a very different commercial skill in the world of food, which is primarily a speculative skill where you're looking into the future and wondering, "How will the world unfold?"
- [00:23:00] **Ajay Shah:** So it's a very intellectual project. Uh, just like the populists hate intellectuals, the populists hate speculators.
- [00:23:00] **Ajay Shah:** It's an intellectual project of looking into the future and forecasting that, "You know what?"

- [00:23:00] **Ajay Shah:** I think there's going to be a shortage of tomatoes,“ or “I think there's going to be a shortage of potatoes.“ So, the speculator undertakes the complex activity of finding the cheapest sourcing of that particular product, of finding the places in India where you go buy it, transporting it to the places where storage is cheap, and tucking it away into storage.
- [00:23:00] **Ajay Shah:** And choosing a storage capability at the optimal level of expenditure. Most importantly, it is about how much cold storage do you want?
- [00:24:00] **Ajay Shah:** Okay? That are the goods imperishable, such as wheat, where, you know, there is no question of heat.
- [00:24:00] **Ajay Shah:** You just want to keep it safe from insects and rats. That's the kind of storage that is required.
- [00:24:00] **Ajay Shah:** Or you come to more perishables, then you start thinking what kind of cold storage will be required to carry this for a couple of months into the future.
- [00:24:00] **Ajay Shah:** So that's a very different skill, that you're putting money on the line. You're taking a risk where you're buying something from the market and you're sticking it in storage and you're paying money for storage.
- [00:24:00] **Ajay Shah:** Okay? And you're doing a favor to the universe on a future date where these goods come out of your storage and you're going to be selling them and they'll depress the price at a future date.
- [00:24:00] **Ajay Shah:** Okay? This I call God's own work, but it's all the fault of you Bengalis that because there were so many Bengali movies around hoarders, that storage just got a bad name.
- [00:24:00] **Ajay Shah:** It went by the name “hoarding.“ And the Indian state, sure enough, under the influence of all these sad movies, organized itself to outlaw storage.
- [00:25:00] **Amit Varma:** For the purpose of this episode, Ajay, I am half Punjabi. We shall not refer to the other half. So don't say “you Bengali.“ You know, there is plenty to blame us Punjabis also for, as we shall find out, but continue.

- [00:25:00] **Ajay Shah:** Yeah. So the Indian state has a whole array of restrictions which hinder the ability of formal sector storage organizations and of private persons putting their own money on the line, buying things, putting them into storage, carrying them into a future date.
- [00:25:00] **Ajay Shah:** These are just completely private, voluntary transactions. And the Indian state comes and interferes in that and disrupts the ability of people to do sensible things.
- [00:25:00] **Amit Varma:** Let's talk about domestic trade because you imagine that, you know, like the miracle that the European Union achieved, where if you have a common market, you suddenly have a far greater supply of everything.
- [00:25:00] **Amit Varma:** You have far greater potential customers, and everything is much more efficient.
- [00:25:00] **Amit Varma:** Customers buy things cheaper, and businesses make more profit.
- [00:25:00] **Amit Varma:** It's a beautiful positive-sum game happening. So you imagine that India is like that, right? We are basically like the European Union.
- [00:26:00] **Amit Varma:** If a farmer in Gujarat has some excess produce and there is demand for it in Bengal, there should be a mechanism by which that gets sorted out. But that's not the case.
- [00:26:00] **Ajay Shah:** Yeah. So there are restrictions in two parts. The first is that there are ways in which states use the term "export."
- [00:26:00] **Ajay Shah:** And they don't like to permit exports of cotton out of Maharashtra. These kinds of things are there. But the other barrier on trade is even more basic.
- [00:26:00] **Ajay Shah:** Uh, we in the Indian state have made the grower a prisoner of a local market that is called the APMC.
- [00:26:00] **Ajay Shah:** This is again bad ideas from development economists. I believe this one comes from the World Bank, that the government shall push for the creation of a market called the APMC.

- [00:26:00] **Ajay Shah:** Okay, this is, there is no need of state intervention, okay? Private people would have created these things by themselves.
- [00:26:00] **Ajay Shah:** And the farmer shall be forced to only transact at one APMC, and if there is a voluntary transaction between consenting adults other than through that APMC, then state power shall be used to inflict punishments on both those entities.
- [00:27:00] **Ajay Shah:** So now the poor farmer is stuck, that they have no choice but to sell only at that one APMC.
- [00:27:00] **Ajay Shah:** And then they come into the trap of a few individuals at the APMC that have market power, and this adversely affects the ability of the farmer to get a good price.
- [00:27:00] **Ajay Shah:** So, these are just really bad interventions that have been concocted by the Indian state.
- [00:27:00] **Amit Varma:** So I was saving my APMC rant for later, but it involves poetry and I shall go with my APMC rant. APMC stands for Agricultural Produce Market Committee.
- [00:27:00] **Amit Varma:** And like you said, it's a monopsony. Like, you know, in a monopoly there's just sort of one company, you have many buyers, one seller, many buyers, they don't have a choice.
- [00:27:00] **Amit Varma:** A monopsony is the opposite. You just have one buyer, so the sellers don't have a choice.
- [00:27:00] **Amit Varma:** So what happens is that you have to, if you're a farmer, you have to go to your local APMC and sell there only.
- [00:28:00] **Amit Varma:** Anything else is illegal. And the consumer, or whichever retailers are buying, have to buy from those APMCs themselves.
- [00:28:00] **Amit Varma:** And this creates a severe distortion in the sense that I remember an old study which found, and this was in the context of tomatoes, that the farmer was selling his tomatoes for two rupees, whatever the unit was, I forget.
- [00:28:00] **Amit Varma:** The farmer was selling his tomatoes to the APMC for two rupees. The consumer was buying it for 20 rupees.

- [00:28:00] **Amit Varma:** And the reason for, and there's a massive gap in between, right?
- [00:28:00] **Amit Varma:** And the truth is that if you have competition of middlemen or direct sales are allowed and etc., etc., then chances are that the farmer would sell for 10 rupees and the consumer would buy for 12 rupees.
- [00:28:00] **Amit Varma:** And the middleman would make two rupees, which is, you know, a standard hefty margin. If middlemen are competing against each other, that's enough.
- [00:28:00] **Amit Varma:** And the farmer would therefore earn eight rupees more. The consumer would pay eight rupees less.
- [00:28:00] **Amit Varma:** But instead of 10 and 12, you have two and 20, and they both suffer. And there's a beautiful sher by the great Sharad Joshi, and I'll talk about Sharad ji a little later in the show; we have a segment on him.
- [00:29:00] **Amit Varma:** But Sharad ji once said, and this is from the voice of a farmer speaking to a consumer, and it runs thus. *Marte tum bhi ho, marte hum bhi hai.*
- [00:29:00] **Amit Varma:** *Marte tum bhi ho, marte hum bhi hai. Hum sasta bech ke marte hai to mehenga kharid ke marte ho.*
- [00:29:00] **Amit Varma:** Right? And the English translation of this would run like this.
- [00:29:00] **Amit Varma:** I die, my friend, and so do you. I die, my friend, and so do you. I sell my produce cheap and die. You pay so much that you die too.
- [00:29:00] **Amit Varma:** Right? And absolutely sort of tragic words where this is like a negative-sum game. What the state has done is with state power, you've created a monopoly and a monopsony.
- [00:29:00] **Amit Varma:** And the people, the traders at the, um, you know, at the APMC, they are the ones who reap the benefits.
- [00:29:00] **Amit Varma:** They're basically rent-seekers, as the economic term goes, rent-seeking, and they are getting all of the rent.

- [00:29:00] **Amit Varma:** Consumers are suffering, the farmers are suffering, you know, and each might well blame the other, but actually it is this mechanism that is messed up. And it really gets my goat where, you know, we understand the good intentions this comes out of, and it's fairly predictable the mess that they would lead into if you know Econ 101.
- [00:30:13] **Amit Varma:** And it really irritates me when people talk of expanding, doing away with APMCs, and letting private companies go directly or letting farmers sell to whoever they want, you have all this talk of, "Oh, farmers will get exploited," and all of that. And that makes me mad.
- [00:30:27] **Amit Varma:** One, it is incredibly condescending to farmers. They are not fools; they know what they're doing. Two, you're offering them the choice, right? And you're often, you know, like the recent farm bills said that APMCs can remain, but we'll open up that choice.
- [00:30:42] **Amit Varma:** So they weren't even taking the APMC away. You want to sell there, you sell there, but you open up the choice. And I just think about in my life, if I had to sort of go through this.
- [00:30:52] **Amit Varma:** For example, let us say that I'm a columnist, you are a columnist, right? Let us say there is not an APMC, but a CPMC for columnists, right? We are only allowed to sell to one central party. They give us some tiny little figure.
- [00:32:23] **Amit Varma:** Like, I don't know what you get paid. I hope you're the best-paid columnist in India, but perhaps not. But let's say you would get one-tenth of that, and anybody who wanted your column would have to pay a crazy amount, and therefore, you know, they might not buy it at all, and there would be all the APMC politics, and you would get absolutely nowhere with that.
- [00:32:23] **Amit Varma:** And it is just, it makes me so mad. But you will have elites sitting in cities, living comfortable lives where no one's telling me that I can buy my grocery only from one place and at 20x the price I would otherwise have. No one's telling me that. I would be so outraged if someone told me that.
- [00:32:23] **Amit Varma:** So there are people who have choice and freedom in their lives, who will speak from a distance, from an ivory tower, and say farmers will get exploited. And that just makes me so mad.

- [00:32:23] **Ajay Shah:** The great economist B.S. Minhas was a very important part of persuading all of us about getting away from this notion that the farmer is some kind of dumkopf. Okay?
- [00:33:24] **Ajay Shah:** Farmers are people. They're every bit as bright as you and me in understanding incentives, in understanding choices. It will take a little bit of explaining, it'll take a little bit of time, but they understand their interests and they will maximize around them. We should not model them as some subhuman creatures who are unable to make decisions.
- [00:33:24] **Ajay Shah:** And then the last one, which is international trade. Think about this. There was a war in Ukraine, the world price of wheat went up, and export of wheat and rice from India was banned by the government. Well, why is that fair? The same farmer would have got a better price by selling their grain overseas.
- [00:33:24] **Ajay Shah:** That's a good thing. It should be their choice. And on the flip side, when there is a drought in India, when there are shortages in India, goods should get imported from abroad. So, the Indian state claims that we want to stabilize food prices.
- [00:33:24] **Ajay Shah:** They set up entire systems. They hold buffer stocks, they run a public distribution system. They do all these things supposedly to stabilize the prices of food. But the biggest source of stabilization, namely free trade with the world, is something that they interfere with.
- [00:34:25] **Ajay Shah:** The Indian state uses its coercive power and prevents imports and exports at a whim. Every now and then some import ban comes in, some export ban comes in. And that just disrupts the ability of the private trade to establish those continuous transportation mechanisms through which price stabilization will happen.
- [00:34:25] **Ajay Shah:** So, these are the four pieces where the Indian state has created the interference that spoils the working of the Indian food sector. Um, I just want to say two last things around this.

- [00:34:25] **Ajay Shah:** First is that to me, this is always and always a reminder of the power of ideas, of the importance of ideas. These interventions did not come out of thin air. They came out of the top of the game of the knowledge of agricultural economics in India.
- [00:35:26] **Ajay Shah:** So I just want to say that, you know, whatever intellectual capital was brought together, we needed to do better. And what we need is a new breed of thinkers who will build the paradigm, who will build the literature, who will build the knowledge, who will change the climate of opinion, who will change the consensus. Okay?
- [00:35:26] **Ajay Shah:** The public policy will surely follow. What is wrong in India is the lack of ideas, is the lack of knowledge, and that is the choke point. The present edifice is the creation of the academic scribblers of the years gone by. I am stealing from a beautiful John Maynard Keynes quotation that we ascribe too much to the mad men in frenzy.
- [00:35:26] **Ajay Shah:** They're just stealing ideas from obsolete thinkers. And our job is to create that next generation of ideas. Finally, my last comment is that my views have shifted a little. This stuff is phenomenally hard when you go to a worm's-eye view. There is a fundamental sense in which farming in India is subscale.
- [00:36:27] **Ajay Shah:** When you have one acre of land, two acres of land, it's a little bit broken that it is a business. Okay? So once again, we should never think that farming is an individual, is a family, is a heartbreak case. It's a business. It's an entrepreneurial problem. The person doing agriculture is engaged in a business. And we should apply our full understanding of a firm in that business.
- [00:36:27] **Ajay Shah:** That person is engaged in business. There's a P&L, there's a balance sheet, there are risks. Okay, the entire knowledge of what it is to be in business should be applied there. When you are a one-acre farm, two-acre farm, you're fundamentally subscale. You don't have enough technology, you don't have enough access to choices. And then all too often, you get the semi-feudal dependency where there is some one rich person that gives credit, that sells agricultural inputs, that buys back the product.

- [00:36:27] **Ajay Shah:** And it's an almost feudal dependency, and it's very difficult to break that arrangement and get better prices into the hands of the farming household. And I think there's only one way out, which is that nobody should be doing two-acre land.
- [00:37:28] **Ajay Shah:** That the way out is to think in formalization of farming on bigger units of land. And you need land leasing, you need land transactions, you need to get up to minimum economies of scale. Again in India, there is a romantic illusion that this will be done by cooperatives.
- [00:37:28] **Ajay Shah:** I think there are limits to what cooperatives will do. This stuff needs to be a business. So there need to be people who own 20 acres, 200 acres, 2,000 acres and run it as a business. And there will be plenty of work to go around for the so-called landless laborers, which again is a curse word in Indian economics, but it should not be.
- [00:37:28] **Ajay Shah:** It's a normal activity that you don't need to be the owner of the land. You need to be a supplier of labor, and there are many, many ways in which labor can be supplied. And there needs to be a labor market where these things play out.
- [00:38:29] **Ajay Shah:** So, I feel we need to think through this entire field with fresh eyes and create a new paradigm of knowledge around food and agriculture in India.
- [00:38:29] **Amit Varma:** So, I have like, uh, you know, three take-off points on this. And one of them is that, you know, what you pointed out, that because international trade is not allowed, there are random export bans, import bans, blah, blah, blah. What often happens is that the farmer gets a lower price than he otherwise would because he would have gotten whatever the international prevailing price is, but he will often get a lower price than that for a variety of reasons, including all of this.
- [00:38:29] **Amit Varma:** And this is what the great Sharad Joshi termed a "negative subsidy." And I want everyone listening to this to kind of pay attention to that term: negative subsidy. Many of us city-slickers have the impression that, "Oh, farmers get this subsidy, that subsidy, free electricity, blah, blah, blah, etc., etc., and you know, they are scrounging off us taxpayers."

[00:38:29] Amit Varma: Number one, every farmer pays a ton of tax. And number two, it is the other way around. Farmers are giving money to the state, or rather, it is just money being wasted. It is left on the table. I think Joshi Sahab had also done a calculation of how much this is, and it's billions and billions, and it is an absolute crime, and we can elaborate on this.

[00:39:30] Ajay Shah: Let me just amplify on that slightly. Once again, we should understand the price system deeply. Okay? Imagine, I am a humble bloke doing tomato farming or tomato storage year after year after year. In most years, it's a boring trade, nothing much is happening. Once in 10 years, the price of tomatoes goes to infinity. That's the time when growing tomatoes, storing tomatoes really makes a lot of money. That's the deal that is offered to the private trade.

[00:39:30] Ajay Shah: So, it's an option-like character, it's an insurance-like character when there are people engaged in production and storage of these things. And it is only fair and reasonable that once in 10 years you should make out like a bandit because you were doing that storage. You were performing a service for society. You were the insurance provider year after year.

[00:40:31] Ajay Shah: You kept buying the damn tomatoes and making tomato paste, and most years you really didn't make much money. But that once in 10 years, once in 20 years, you make out like a bandit. The profit of that time pays for being there year after year for decades.

[00:40:31] Amit Varma: And you're putting that profit back in the business. You're building more storage facilities with it. You're building better infrastructure with it, etc., etc.

[00:40:31] Ajay Shah: Whereas when the Indian state comes in and says, "In that moment of the surge in the price of tomatoes, I will come after you, I will take away your ability to make money," that's a really unfair thing. This bloke has worked to be there serving the people all these years. And the profit is really made only once in 10 years.

- [00:40:31] **Ajay Shah:** All the other years, it's a dull business. The confidence that the Indian state will misbehave with the producer has a sustained adverse impact upon the supply of those facilities. It's like, why would I be an investor building a vaccine manufacturing capability in India when at the peak of the pandemic, the Indian state basically destroyed my ability to charge a decent price for that vaccine?
- [00:41:22] **Amit Varma:** Absolutely. And I also want to make a broader conceptual point. Like when we talk about borders, for example, now I'm in Andheri, you're in Bandra, right? If I have something that you want to buy and I'm happy to sell it for whatever you're willing to offer it, no one would get in our way.
- [00:41:22] **Amit Varma:** It's a voluntary transaction between two adults. Bandra, Andheri, what difference does it make? If someone in Bombay wants to sell to someone in Pune, again, we'd all agree. You know, if someone in Maharashtra wants to sell to someone in Tamil Nadu, even though the Indian state doesn't allow it, everyone watching this, all our gentle readers would surely agree.
- [00:41:22] **Amit Varma:** That should be allowed. Why should it be any different if I am sitting in Bombay and somebody is in Georgia or somebody is in Azerbaijan or somebody is in Arkansas, right? It is individuals playing a positive-sum game, and both of them benefit.
- [00:42:23] **Amit Varma:** So I think conceptually, when we think of it in terms of nation states and, you know, I have a bit of a problem with that because we are not really playing that game, you know, it just, it's a wrong frame through which to look at it. And my third point is actually the subject of my first episode of *The Seen and the Unseen*.
- [00:42:23] **Amit Varma:** Do you have any idea what my first episode was about? It was about scale in agriculture. It was about allowing corporatization of agriculture, which is exactly what you said, where my guests Ra Karthik Shashidhar made a really important point where they said that look, you know, when I have a particular skill, I can specialize in that skill and do only that and get whatever the market pays me for that.

[00:42:23] **Amit Varma:** Farmers have to, perforce, master two skills. One is the skill of being a farmer, like you said, you know, the land and all that. And the other is being an entrepreneur. And a farmer may not want to be an entrepreneur; a farmer may not have the tools to be an entrepreneur.

[00:42:23] **Amit Varma:** And like you said, with really small holdings, which is, you know, I'll come to in my next point, with really small holdings, sometimes you cannot be an entrepreneur. You can't achieve scale. And people, you know, you hear a word like "corporatization" or "scale" and people think, "Oh, some big business will come and take over and exploit landless laborers."

Chapter 2: The Problem of Land

[00:43:24] **Amit Varma:** It isn't like that. How many of us work in companies? I mean, I don't anymore, and you run your own nonprofit, but the thing is that so many people work in companies. They're not being exploited. These are...

[00:43:24] **Ajay Shah:** Or, you know, we can just keep it very basic. Imagine an individual entrepreneur who owns 10 acres, 100 acres of land. Okay? There are Sikh farmers from Punjab who own land in Madhya Pradesh, who own land in Ukraine. Okay? What's wrong with that? It doesn't have to be a corporation. On the other hand, if somebody should choose to make it a limited liability corporation, by all means, more power to you.

[00:43:24] **Ajay Shah:** If somebody manages to obtain private equity funding, what's wrong with that? And so on. I'm just on the simple point that let this evolve organically. Let it come out of the people rather than from some policymaker. What does a policymaker know about the appropriate institutional arrangements and the ways in which to work the land in a way that maximally creates value?

[00:44:25] **Amit Varma:** And asking every farmer to be an entrepreneur is like asking every banker to own a bank, his own little bank, and banks will never achieve scale. Anyway, that's another matter. But let's now talk about land.

[00:44:25] Amit Varma: I want to talk about a number of aspects of what has gone wrong in agriculture. And one thing that really gets my goat is that you're not allowed to sell agricultural land for non-agricultural purposes, right? Which means if I am a farmer, I have to sell it to another farmer who can only do farming on that land. And this restricts your market enormously.

[00:44:25] Amit Varma: Now, I had a great episode of *The Seen and the Unseen*, episode 26, with our friend Shruti Rajagopalan on the right to property, where she elaborates at great length on, you know, what this particular restriction can eventually lead to. What it leads to is that number one, the market price of my land is really low because only another farmer can buy it. But how do I get the market price up?

[00:45:26] Amit Varma: If I change the land use certificate, you know? And changing a land use certificate means my price can go up by as much as 40 times or more. So, if my land is worth 100 rupees today, it will be worth 4,000 tomorrow. So, one of the common scams in India is just buying agricultural land through connections or whatever and then using government contacts to change the land use certificate.

[00:45:26] Amit Varma: And suddenly your land is worth 40 times as much. So, this is a common kind of scam that happens. But what this means is that agriculturalists can't exit so easily because they can't get the fair value for their land. So, there is no exit. And even if they're able to sell off parts of it to other farmers, they are not allowed to exit completely. They are trapped in agriculture, and they can't kind of, you know, you can check out, but you can never leave, that kind of a situation.

[00:45:26] Amit Varma: And you know, that makes it a problem. You also cannot capitalize your land. You know, your land in an open market may have a particular value, but you know, because that value is depressed by so much, you can't get proper credit on the basis of that land. It is what Hernando de Soto would call "dead capital." You know, and again, a random reco in the middle of the episode, why not?

[00:46:27] **Amit Varma:** You know, one of the greatest books that I've read that really opened my mind to so much about economics and had so many TIL moments was *The Mystery of Capital* by the great Peruvian economist Hernando de Soto. And he talks about how so much capital is dead capital, which is a great phrase when you think about it. And he points out, for example, slums in Indian cities, because there are no property rights, the people who have effectively, you might have been living there for decades, but you don't have a land title.

[00:46:27] **Amit Varma:** So you can't get credit for that. So it is dead capital. It is worth something, but it is not worth a fraction of what it would be worth if you were able to capitalize it. And we are surrounded by dead capital. You know, the government owns so much land in India, and a lot of it is being put to no use at all. You know, in fact, one could argue that FSI regulation, something we should speak about another time, also creates a kind of dead capital.

[00:47:28] **Amit Varma:** If you can build 20 stories and sell apartment blocks, but you're only allowed to build five, there's dead capital happening there. You know, there's a wastage there. The economist Alex Tabarrok has a great phrase I love when it comes to FSI, where in an episode with me, he once told me that, "You know, Bombay, in Bombay, you reclaim the sea. You need to reclaim the sky." And another great conceptual shift. Like one conceptual shift that has happened in this episode while talking to you is when you spoke of processing as a means of storing.

[00:47:28] **Amit Varma:** You know, I would never earlier have thought of tomato puree as a way of storing tomatoes and you know, making them last longer than they would. And a great conceptual shift, which in fact Shruti Rajgopalan first kind of opened my eyes to was that, you know, the most common and the most useful mass transit vehicle in the world is the elevator. Right?

[00:47:28] **Amit Varma:** And we don't think of it as transportation because it is not taking us through the city in a horizontal way; it's taking us up and down vertically. But anyway, that's a separate episode on its own. But this really gets my goat. And the other thing about if you have one acre, two acres, you can't really do much with it.

[00:48:29] Amit Varma: What has happened because you can't exit agriculture is that with every generation, your family's land holdings get divided by the number of kids in that family, and it reaches a stage where it's really not viable. Over the last few years, you've seen agitations for reservations in jobs from Jats, Patidars, Marathas in different parts of the country. They're all land-owning castes.

[00:48:29] Amit Varma: And a lot of the rightful anger comes from the fact that they can't do anything anymore. Their land holdings are too small, and they're kind of screwed by that. So this is just one of the completely bizarre laws where you're telling a farmer that, "Hey, you own your farm, but hey, guess what, man, you don't really own your farm. You know, we own your farm. Whoever has a land use certificate has, you know, 39 upon 40 of the value of the farm at his mercy." And I just find that so tragic.

[00:49:30] Ajay Shah: I agree with everything you've said about land, and at the risk of going away from our main subject, I just want to put in one idea for the gentle reader. In my organization, XKDR Forum, we're active in working on land, and we're active in working on climate change.

[00:49:30] Ajay Shah: And I've had this slow, dawning realization that by and large, the world is not succeeding in holding back the addition of carbon dioxide into the air. So the world will become warmer. The adverse impact will be worst within India above the Vindhyas. And a very important response could be migration.

[00:49:30] Ajay Shah: So, instead of people staying there in situ, stuck with a small piece of agricultural land where the old ideas of how to work the land are breaking down in a world with changing climate, it would make sense to sell that land and make a new life south of the Vindhyas. Maybe in agriculture, maybe in things other than agriculture. But all this requires a working land market.

[00:50:31] Ajay Shah: You need a liquid land market that you can sell in the Hindi heartland, and you need a working land market where maybe you would buy land below the Vindhyas. And when these two kinds of land market liquidity are limited, the cognitive failure of households will then be to embrace the land.

[00:50:31] Ajay Shah: They'll hug the land. They'll stay with the land much longer while climate change grinds away, destroying their livelihoods and messing with their lives. So there's just such a horrible human tragedy coming ultimately out of the foundations of bad policies in India that have inhibited the liquidity of the land market.

Chapter 3: The Larger Problem

[00:51:22] Amit Varma: And I don't, it's probably an inappropriate joke to crack at this point, but if, you know, the state won't allow our land markets to be liquid, maybe climate change will create liquid land markets. But leaving that aside, uh, you know, let's actually take a step back for a moment, and, uh, you know, we should have perhaps at the beginning of the episode, but we are so bad at structuring these things.

[00:51:22] Amit Varma: At the beginning of the episode, you know, given a larger context of what is the agricultural crisis in India today. So I really want to kind of lay that out.

[00:51:22] Amit Varma: In India, we are in a position where in 1991, the rest of our economy, which affects rich and middle-class people, got liberalized. Agriculture did not. Right? And the result of that is that between 50 and 60% of the country, it is estimated, depends on agriculture for a living, which produces 14% of GDP.

[00:51:22] Amit Varma: Now, in advanced, in all advanced countries, that figure is much lower. In the US, it's between 4% and 8%. In Europe, it's again in single-figure percentage digits. In India, it's up to 50 to 60%. That's simply not sustainable.

[00:52:23] Amit Varma: And typically, you know, there is what economists call a structural transformation that takes economies away from agriculture into manufacturing, and there is a certain way in which economies grow and it is a natural way forward. And we missed that bus, or that boat as it were, if climate change comes knocking. And, you know, so much went wrong. So can you elaborate a bit more on what economists mean by structural transformation?

[00:52:23] **Ajay Shah:** Structural transformation is the transition of a primitive country out of agriculture and from rural to urban. Uh, when high economic growth takes place, these two things happen. In India, you know, given the difficulties of growth, we got one great episode of growth from 1991 to 2011.

[00:52:23] **Ajay Shah:** Apart from that, by and large, in the entire period, we have had weak economic growth, and as a consequence, the job creation in the modern sector has not happened, and the pace of transformation from rural to urban has been mild, the pace of transformation out of agricultural jobs has been mild.

[00:53:24] **Ajay Shah:** That said, I just want to quibble about facts. Um, the facts you quoted are mainstream, standard facts. They depend on the precise phrasing of household survey questions. If a household survey question is phrased roughly as saying that, “Do you do some work in the world of agriculture;” then you get those kinds of answers.

[00:53:24] **Ajay Shah:** But that’s overstating the case for the extent of dependence on agriculture because hypothetically, imagine you’re rain-fed, you’re doing one kharif crop, then for four months, you’re doing agricultural work. For the remaining eight months, you’re doing nothing. Or even if you’re doing four months of agricultural work, you’re not working eight hours a day on that.

[00:53:24] **Ajay Shah:** It requires some hours a day. Everybody who is supposedly an agriculturist tends to do some other income-generating activities. So, it’s important to go closer into time use and phrase questions correctly. And if you phrase the question correctly around, “Do you primarily rely on agriculture for your income;” then it comes to about 35%.

Chapter 4: Why MSPs are a Problem

[00:54:25] **Ajay Shah:** So this is from the CMIE CPHS household survey data. We get a number like 35%, which I think is a better description, but it’s still way beyond the 2%, 4%. It’s still eight to nine times the USA, the 2% to 4% that you see in advanced economies. I also want to link it to land markets.

- [00:54:25] **Ajay Shah:** Mechanization in agriculture works best when the pieces of land are large. If you're stuck with one acre, two acres, a weird geography of a piece of land, then you end up being much more labor-intensive, and that's part of what we're facing. So all these problems are intricately interconnected, that if you could do more land consolidation and create large chunks of land, there'd be more mechanization, and you'd need fewer people to work that same land.
- [00:55:26] **Amit Varma:** The last sort of issue in agriculture I quickly want to sort of bring up before we move from issue to person, because I also want to talk about a great hero of mine. But the last issue is MSPs, which are Minimum Support Prices. Now again, a classic example of good intention gone wrong, right?
- [00:55:26] **Amit Varma:** The idea of minimum support prices is that hey, life for farmers is nasty, brutish, etc., etc. Let's, you know, again, I think it was during the 1960s before the Green Revolution that the torment of farmers was up front. And the idea of the state there was we'll give minimum support prices.
- [00:55:26] **Amit Varma:** So a farmer no longer has to worry about, "Will I be able to sell my crop?" The government will guarantee it, and you know, we'll guarantee that at the end of every season, we buy whatever. Now, this doesn't actually happen in practice in large places. I think Barun Mitra in an episode with me had once pointed out that, you know, across 24 particular commodities he looked at in a particular year, the MSP was only paid for six. It was promised for 24.
- [00:56:27] **Amit Varma:** But what it does is it corrupts the incentives. So two examples. One example is that circa late 60s, 70s, I forget exactly when, the government instituted MSPs for cereals. Now, you would think it's a great thing. The country needs cereals, and the government is assuring farmers that no matter what happens, you know, you'll get that minimum support price.
- [00:56:27] **Amit Varma:** And the result of this was farmers were incentivized to grow cereals because there was that assurance that there'll be a market for their wares, and therefore they moved away from pulses to cereals. And therefore for many, many years, in fact, until 12 or 13 years ago, you know, there weren't enough pulses being produced.

- [00:56:27] **Amit Varma:** Now, think of the unseen nutritional impact of this, right? We get our protein either from animals or for those of us who cannot afford animals or eat animals, or don't eat animals, vegetarians, you get it from pulses, right? So, tremendous nutritional impact on the nation that there's not enough protein being provided, and it is because of a public policy which comes from a good intention that, you know, support those who make cereals, but on the other hand, the pulses markets suffers.
- [00:57:28] **Amit Varma:** While typically in a well-functioning market, demand and supply would work each other, work itself out and you know, the production would be according to what people actually really wanted. But here it is perverted because the supply is perverted, and there are more people making.
- [00:57:28] **Ajay Shah:** Just think about it as a public subsidy for cereals. Yeah. That's it. So what has happened is pulses are a market and cereals is a government subsidy. So effectively from a health system point of view, okay, we would just recommend people should go look at our episode on diabetes, where we're trying to say to folks that please eat less cereal.
- [00:57:28] **Ajay Shah:** And instead, the government is subsidizing the cereal and amplifying the Indian diabetes epidemic.
- [00:57:28] **Amit Varma:** Exactly. Less carbs, more carbs, less protein. And this is one powerful example for me, almost a sinful example, you know, in terms of what it sparked and like you said, yeah, it made the diabetes epidemic worse. The other example is crazy. The other example is MSPs for rice on the one hand and support for sugarcane as well.
- [00:58:29] **Amit Varma:** Now, look at Punjab. Punjab is relatively arid. There isn't such a great groundwater supply. So technically, they should not grow rice because rice is water-intensive. But A, you institute an MSP for rice, and then B, you give free electricity to farmers, again with good intentions.

- [00:58:29] **Amit Varma:** Farmers use free electricity to put borewells and tubewells and whatever and take out huge amounts of groundwater, more than they normally would, more than is good for the ecosystem. And that goes into rice production because now they're getting the MSPs, and the water is not a problem because of groundwater. Now I have a great episode with a gentleman named Zenrainman, Vishwanath, on groundwater issues in India, groundwater depletion.
- [00:58:29] **Amit Varma:** And part of it is exactly this, bore wells, tube wells, all of that, you know, sucking out excess groundwater because of bad incentives. And if you look further downstream, it is even more bizarre because this also causes Delhi's bad pollution in its worst months because the farmers make rice and they need to get rid of the rice stubble.
- [00:59:30] **Amit Varma:** And the easiest way to get rid of the rice stubble is by burning it, and then the wind takes it to Delhi on the other side of the Himalayas, so it's not going to go there. So the wind takes it to Delhi, and then Delhi has its terrible fog, smog problem. And one would think that, and it's politically almost impossible to solve because what is the Delhi Chief Minister to do when the problem is caused by farmers in Punjab over which he has no jurisdiction?
- [00:59:30] **Amit Varma:** And yes, you do have the same party there now, but nothing's going to happen because politics gets in the way.
- [00:59:30] **Ajay Shah:** You narrated the full arc of the journey of, you know, what should go down in a hall of fame as one of the world's worst policy interventions. You raise rupees one from the people as taxes, which imposes roughly a rupees three cost to the society in terms of the adverse impact on GDP. You use that to subsidize rice and wheat growing in Punjab, Haryana. That cheap price and wheat goes out into the country and spoils the health of people first.
- [01:00:31] **Ajay Shah:** It damages groundwater resources in that region, and it makes demands upon the electricity system there, and it emits solid particulate matter into the air and damages the health of the entire Hindi heartland. All this flowing from mistakes of the government.

[01:00:31] **Amit Varma:** And the same bad incentives playing out with sugarcane, for example, which is also water-intensive. In fact, when Tamil Nadu had a water problem a while back, apparently, you know, people were doing all these campaigns on social media that, “Hey, you know, take a bucket bath, don’t take a shower,” and all of that. And all of this has a minimal impact on water conservation.

[01:00:31] **Ajay Shah:** Most of the water was going to, you know, make for crops that shouldn’t have been grown in the first place. Right, you know, left to normal circumstances would not have been bad incentives.

[01:00:31] **Amit Varma:** And you know, another conceptual shift, I think it was Ashok Gulati.

Chapter 5: The Great Sharad Joshi

Chapter 6: A Modern Satyagraha

[01:10:52] **Amit Varma:** The great agricultural economist who once pointed out and pointed to rice and sugarcane as examples of this, both of which we export, and he pointed out that India is one of the biggest exporters of water in the world.

[01:11:03] **Amit Varma:** Because it amounts to exporting water when you’re exporting rice and sugarcane, right? Created by such bad incentives. So that’s another great conceptual shift when you think about it.

[01:11:14] **Amit Varma:** And in a country where there is so much water supply problem, there are droughts, there’s, you know, there are such chronic shortages, to think that we are actually one of the world’s biggest exporters of water is just, it blows my mind.

[01:11:37] **Ajay Shah:** Amit, tell us about that fascinating person in this field.

- [01:11:40] **Amit Varma:** So that fascinating person is a gentleman named Sharad Joshi, right? And people will often complain about, “Oh, in our freedom struggle, we had such great leaders. Where are the great leaders today? Independent India didn’t have them.”
- [01:11:50] **Amit Varma:** In my opinion, Sharad Joshi is one of our great leaders of the century, a man I respect enormously. Now, he was born in 1935 on September 3rd, and a man who, you know, sort of did commerce at Sydenham college, I think, got a good education.
- [01:13:31] **Amit Varma:** Was a civil servant for a very long time. At one point, in fact, before that, he taught economics and statistics in circa 1957. He was a professor there. Then he went on to become a civil servant.
- [01:13:31] **Amit Varma:** As a civil servant between 1968 to 1978, he was working in informatics in Bern in Switzerland and also worked in the UN. So, you know, an extremely well-educated, rational man.
- [01:13:31] **Amit Varma:** And then decided in 1977, when he was in his 40s, to come back to India and become a farmer and live here. So he bought 23 acres in a village called Ambethan in the Pune district and became a full-time farmer.
- [01:13:31] **Amit Varma:** And immediately began to realize that what we just discussed this entire episode, that everything was messed up. But he also had the ability to look beyond the obvious solutions, you know, government handouts, etc., etc.
- [01:14:32] **Amit Varma:** And to diagnose the problem correctly and realize that it stems in every case from state overreach and from clamping down on freedom. Now, it is one thing for a person to get that understanding.
- [01:14:32] **Amit Varma:** The point is, can you do anything with it? Can you tell people at large? You and I bemoan that, “Oh, these ideas, they are counterintuitive, people won’t understand, you know, populism rules.”
- [01:14:32] **Amit Varma:** Sharad Joshi was not bound by such pessimism. He said that, “No, this is something every farmer should understand intuitively.” And he built this great movement, this great party called the Shetkari Sanghatana, right?

[01:14:32] **Amit Varma:** And he built this great party where he would do rallies which lakhs of people would attend and they would all agree with him. And, you know, they would agree with his diagnosis, and it was a lived experience.

[01:14:32] **Amit Varma:** And I remember this amazing experience I had about five or six years ago when this friend of mine, Barun Mitra, who's done an episode on agriculture with me as well, he took me to this place near Nashik where a whole bunch of farmer leaders from around Maharashtra were meeting and talking, and the Shetkari Sanghatana people were there.

Chapter 7: Amit's Recco

[01:15:33] **Amit Varma:** And I got a great episode out of that, my only Hindi episode with Gunvant Patil ji, episode 86, just, you know, a masterpiece of illumination. And I learned something there which moved me deeply.

[01:15:33] **Amit Varma:** And what I learned there was that all these ideas that I have about freedom, about liberty, about, you know, the state being parasitic and all of that, in a sense, they have come from a distance.

[01:15:33] **Amit Varma:** Right? I haven't experienced it viscerally. I've read a lot of books. I've applied frameworks. I've tried to grok the world, but in a sense, there is a distance. And over there, I met farmer leader after farmer leader, farmer after farmer who had the same beliefs about the world as me, but it had come to them from experience.

[01:15:33] **Amit Varma:** They had not read Hayek and Bastiat, but they agreed with every word that Bastiat or Hayek would have written because it was a lived experience. And that was an eye-opening moment for me because it shows that even in grassroots politics, it need not all be about populism or the politics of handouts, that like these people are not stupid.

[01:16:34] **Amit Varma:** Right? They're rational human beings. They can see what is going wrong with them. They can articulate what is going wrong with them. And Sharad Joshi tapped into that. You know, with a phrase like "negative subsidy."

[01:16:34] **Amit Varma:** You know? Or the beautiful sort of command he had over language. You know, "Marte hum bhi hai, marte tum bhi ho. Hum sasta bech ke marte hai, tum mehenga khareed ke marte ho." And immediately you're reaching out to everyone and achieving something there.

[01:16:34] **Amit Varma:** So he built this great movement called the Shetkari Sanghatana, and he also realized something critical that all of us forget. Like many years back, when I was editor of the policy magazine Pragati, I had, I used to have this section called "Brainstorm" where I would take a subject and I would ask five, six experts to write essays to it and then write another essay responding to each other's essays.

[01:16:34] **Amit Varma:** So I did one on the crisis in agriculture, and one of the writers I got to write for me was Mrinal Pande. And Mrinal ji made a really profound point there which she's written about at length elsewhere. And her point was that behind every crisis in India, there is a further layer, which is a crisis of the women in it.

Chapter 8: Ajay's Recco

[01:17:35] **Amit Varma:** So she's saying you have an agricultural crisis, you also have a deep crisis of the women in agriculture. And this is something that Sharad Joshi ji saw, and he realized that one way of mobilizing farmers with him is also to involve the women, right?

[01:17:35] **Amit Varma:** And he started a women's organization called Shetkari Mahila Aghadi in 1986. I think sometime in the mid-1980s, there was this legendary rally which had two lakh women farmers, no men, two lakh women farmers all coming together.

- [01:17:35] **Amit Varma:** You know, and women bringing their common sense to the party, and once you think about the problem, once you have those light bulb moments, it becomes obvious what causes these. So he became a massive leader in sort of Maharashtra.
- [01:17:35] **Amit Varma:** And he also led one of the most inspiring satyagrahas. Like we think of the word “satyagraha“ and we think Gandhi, we think pre-independence. This particular one blows my mind, and that’s what I want to talk about now.
- [01:18:36] **Amit Varma:** In the 1990s, there was a crisis brewing in cotton farming in India. And the crisis was this: that the existing breeds of cotton were being destroyed by bollworms, right? And the way of countering this was pesticide.
- [01:18:36] **Amit Varma:** And then eventually more and more pesticide, and it becomes a race to the bottom, and crops just weren’t surviving. Now, around this time, there was something called BT cotton, which was genetically modified cotton, which had become available across the world.
- [01:18:36] **Amit Varma:** Now the Indian government, using the precautionary principle, you know, and not understanding the new technology involved, decided to ban BT cotton. So BT cotton was banned. Okay? It was something, all GMO stuff, all genetically modified organisms are banned in agriculture and food.
- [01:18:36] **Amit Varma:** Now, a group of farmers started experimenting with it. They got it from the black market, as far as I remember. And a group of farmers in Gujarat actually planted BT cotton, and what BT cotton had is that the bollworms did not attack it.
- [01:19:37] **Amit Varma:** It kept the bollworms away and therefore it flourished. And there is a seminal year, 2002, where crops all across Gujarat failed, except in a small subset of farms where BT cotton was used. So get this, it’s a catastrophe. Cotton farms everywhere have failed. The bollworms have finally gotten to be too much.
- [01:19:37] **Amit Varma:** But all the BT cotton people, that cotton has grown. So guess what the government did? The government said, “Hey, that’s illegal. We’re going to destroy those crops.“ The only ones that survived. They said we’re going to destroy those crops.

- [01:19:37] **Amit Varma:** And Sharad Joshi, Shetkari Sanghatana gathered together farmers from Maharashtra and elsewhere across the country, and they marched to Gujarat, and they stood on those lands, and they stood on those farms, and they said, “Over our dead bodies.”
- [01:19:37] **Amit Varma:** Right? And eventually, and they marched to Delhi with bales of cotton and all of that, and there’s a famous press conference they also gave where my friend Barun Mitra was one of those who spoke.
- [01:20:38] **Amit Varma:** And to the credit of the Vajpayee government, they saw sense and the ban was lifted and everything was fine. And this is one of the great satyagrahas. And what happened after that is that last I checked, which was four or five years ago, the percentage would have grown today.
- [01:20:38] **Amit Varma:** But last I checked about, I think five years ago, and I’ll link to a column I wrote on this, over 90% of the cotton grown in this country was BT cotton. Cotton farmers were thriving. We became the biggest cotton producers and exporters in the world. We passed China.
- [01:20:38] **Amit Varma:** Right? What has also happened is that across the world GMO crops have taken over, and really everything is genetically modified. You and I are genetically modified. Even something grown organically has been genetically modified by nature.
- [01:20:38] **Amit Varma:** Millions of hectares of genetically modified crops have been grown. It’s been incredible. You know, there are examples of them actually saving a nation in crisis. BT brinjal is widely used in Bangladesh. In the Philippines, I believe there was the danger of starvation and all that and millions of babies were helped by GMO crops.
- [01:21:39] **Amit Varma:** So GMO crops are now standard. The science is established. Billions of meals have been eaten with the food that has come out of this. It is completely safe. You know, if there is anything on which there is scientific consensus, it is this: that genetically modified foods are completely safe, and yet they are demonized and they’re given a bad name.

- [01:21:39] **Amit Varma:** And what happened in this case was farmers. We talk of farmers as if they don't have agency, they can't make good decisions. It was farmers who decided even if the government has banned it, "We have to save ourselves. For our self-interest, we will get those crops."
- [01:21:39] **Amit Varma:** You know, many years later what happened was you had sort of two generations of genetically modified cotton kind of happening in India, but the world moved ahead to a third generation, a fourth generation, a fifth generation.
- [01:21:39] **Amit Varma:** In India, that didn't happen, and there were problems. And what happens is that there is a degradation with each generation. You need to go on to the next one. And eventually, a bunch of farmers in Maharashtra, in Gujarat and all that, you know, through the black market got something which is called HTBT cotton, which is, you know, a superior brand.
- [01:22:40] **Amit Varma:** And people get arrested for this. There was, you know, people get arrested, people protest, there are many satyagrahas. But I found, you know, Sharad Joshi's work just incredibly sort of inspiring here because not only is there a mass leader who's got his understanding of the world from the ground up, but he is actually spreading that and you know, building a mass movement through good ideas and through good sense.
- [01:22:40] **Amit Varma:** And that was incredibly inspiring for me, and it showed that it could be done. And that's a great place to segue to my recommendations.
- [01:22:40] **Ajay Shah:** I just have two tidbits to add to this. One is that all too often in India, this irritation at the gap between the farm gate price and the price charged to the consumer is channeled into a certain populist hatred of the middlemen.
- [01:23:41] **Ajay Shah:** Okay? And in India, middlemen are, you know, certain occupational castes, they are rich people. And there is a very close connection between resentment about that price premium and a populist hatred of, you know, rich or certain occupational castes, or the business of being a middleman where, you know, there is some old Prussian love of the land kind of concept which lurks inside many a land-oriented family in their imagination.

- [01:23:41] **Ajay Shah:** And I just want to say that we should be careful about this populism, okay? Hating elites and hating rich people and hating middlemen comes very easily in the Indian landscape, and we should be cautious about that.
- [01:23:41] **Ajay Shah:** Actually, all that's going on here is a lack of freedom. That's all. What is at fault is not those individuals who are maximizing their own economic opportunities in the set of constraints that have been created by the Indian state.
- [01:24:42] **Ajay Shah:** What is wrong is what the Indian state has done in terms of creating conditions where voluntary bargains are not able to overcome and solve these problems. And my last little thing that I wanted to say was I remember Purvi Mehta of the Gates Foundation has been talking several times. She has said to me that there are magical possibilities for BT rice that is able to create a better micronutrient package, which can be transformative for women's health in India.
- [01:24:42] **Ajay Shah:** So there are magical things that can come out of this, and we've just got to play this through and persuade people and, of course, be mindful of ways in which hacking in nature can go wrong.
- [01:24:42] **Amit Varma:** Yeah, and one example of sort of a genetically modified crop which really helped was something called Golden Rice, which helped, you know, generations of children avoid blindness, which was otherwise a problem in the Philippines. You know, you can just do so much with genetic modification, and the science is completely proven and safe.
- [01:25:43] **Ajay Shah:** But I just want, I want to, I want to disagree with you on the possibilities here at a somewhat basic level. I think of editing DNA as being a wee bit harder than editing computer code.
- [01:25:43] **Ajay Shah:** Okay? And everything that we know about editing computer code tells us that it can go horribly wrong. It's very difficult to get it right. There will be all kinds of unintentional consequences.
- [01:25:43] **Ajay Shah:** So we should approach it with respect. So I'm neither here nor there. Neither am I at infinity, that all editing is good and, you know, with a little bit of superficial testing, I'm ready to field the code.

- [01:25:43] **Ajay Shah:** Nor am I at the other extreme that you should ban these things. We should be cautious. The great software genius, the name is Bill Joy, I think in Wired magazine in 2000 wrote an article titled “The Future Does Not Need Us,” where he started worrying about these kinds of things, that we will build micro-machines, we will build nanotechnology, we will be editing DNA, and then the entire body of knowledge about how messed up computer software is can be brought to that, that things will go wrong.
- [01:26:44] **Ajay Shah:** But I view it as part of the human condition that you’ve got to play this complexity, you can’t abjure it.
- [01:26:44] **Amit Varma:** I think there is a danger that the precautionary principle taken too far stops all progress entirely.
- [01:26:44] **Ajay Shah:** Finding the right balance.
- [01:26:44] **Amit Varma:** That’s number one. And number two, as far as GMO is concerned, it’s done. It’s settled. You know, as far as GMO foods are concerned, they have caused so much humanitarian good through the last three, four decades across the world that, you know, you have to be an extreme Luddite and someone extremely ignorant of science to oppose them.
- [01:26:44] **Amit Varma:** And there will still be NGOs who oppose them because, you know, their funding comes from being alarmist. And there will be, for example, the pesticide lobby will of course be against GMO foods. You know, that’s what happened in the late 90s. The pesticide lobby was one of the biggest lobbies saying, “Don’t let them in.” Why?
- [01:27:45] **Amit Varma:** Because if BT cotton comes, people will stop buying their pesticides. So one also has to look at who are the interests involved and what’s going on.
- [01:27:45] **Ajay Shah:** Tell us Amit, what are your fun recommendations for today?
- [01:27:45] **Amit Varma:** They’re not so much fun, but they’re deeply felt recommendations, and they’re both books by Sharad Joshi, and they’re both here in fact. And one of them is called Down to Earth. This is a collection of his columns.

- [01:27:45] **Amit Varma:** The remarkable thing about Joshi saheb is that, and it's a pity that I wish he had lived a few more years and done an episode of *The Seen and the Unseen* and I could have paid my homage to him. But the remarkable thing about Sharad Joshi is that he was not only a great thinker and a great politician.
- [01:27:45] **Amit Varma:** He also took his role as a public intellectual seriously. Through his life, he wrote columns and put in a lot of work to get his thinking out there and you know, we have those thoughts with us. We have all of it here.
- [01:28:46] **Amit Varma:** You know, so if you look at the show notes, there are tons of great links. I've done many great episodes on agriculture, including with Ajay. You know, there are articles by both of us that we will link to and so on and so forth.
- [01:28:46] **Amit Varma:** But this is one of the great resources, and if you really want to understand agriculture from the point of view of a farmer who's experienced it and who's led a great farmers' movement, this is a book you should go to.
- [01:28:46] **Amit Varma:** The other book by him has a title that breaks my heart. Sharad Joshi ji spent many years in the Rajya Sabha. No one gave a shit about his ideas, right? And the title of the book, and this is a collection of his speeches in the Rajya Sabha, and the title of the book, *Talking to an Empty Room*.
- [01:28:46] **Amit Varma:** Right? Just breaks my heart. Such a great man, such great ideas, could have done, you know, it would have done so much good to all of us if we paid more attention to him. And that's my recommendation.
- [01:29:47] **Amit Varma:** So Ajay, what are your recommendations for the day?
- [01:29:47] **Ajay Shah:** I have a book that is connected to this subject and is a segue between some of this thinking and a next frontier of the problems of the food system. The book is by Charles Mann, I don't know how to pronounce it, MANN.
- [01:29:47] **Ajay Shah:** The title of the book is *The Wizard and the Prophet*. It's about Norman Borlaug and another great thinker called Robert Vogt, I don't know how to pronounce it.
- [01:29:47] **Amit Varma:** William Vogt.

- [01:29:47] **Ajay Shah:** William Vogt. I forget how to, I don't know how to pronounce V-O-G-T. And this is about the tension between the scientific and industrial revolution in agriculture versus concerns about sustainability.
- [01:29:47] **Ajay Shah:** And I think that's a great question of the food system for the next 25 years, on how we go from some basics about feeding 1.4 billion people to the notions of sustainability and consistency between the food system and the health system.
- [01:30:48] **Amit Varma:** Wonderful, and that's a great note to end on. I can't wait to pick that book up. But wait, we will not end here. We have a plea for our gentle readers. And the plea for our gentle readers is this: that, you know, do comment, tell us how you enjoy the show, what would you like us to talk about? Are there subjects you want?
- [01:30:48] **Amit Varma:** And there is one specific gentle reader who had a request for you. And this is a demand that I think all your fans, including me, can heartily be part of, rather, which is that in every episode, Ajay, you must recommend at least one book because some episodes you're recommending masala tea and all kinds of other delightful things.
- [01:30:48] **Amit Varma:** And they want the delightful gyan, but a quota has been put: minimum one book per episode. In this episode, you've gotten away with it, but in future episodes, Mr. Shah, I must remind you that you have to recommend at least one book in every episode, and I, of course, will.
- [01:30:48] **Amit Varma:** And with that, gentle readers, you can see that no matter how gentle you are, we do listen to you. We take you seriously. So just leave some nice comments there and tell us what you like about the show and what you would like us to do that goes beyond this and why are you watching me gentle reader, is there? Kindly watch there and wave goodbye.
- [01:31:49] **Ajay Shah:** I think that, you know, books are very nerdy and I am very nerdy. So I thought it'd be hazaar cool to go beyond books and talk about fun things like kefir and masala tea and so on. So I was just like broadening the ambit of fun stuff.
- [01:31:49] **Ajay Shah:** Books are hazaar cool.

References

- [1] Anirudh Burman, Ila Patnaik, Shubho Roy, and Ajay Shah. Diagnosing and Overcoming Sustained Food Price Volatility: Enabling a National Market for Food. Working Paper 236, National Institute of Public Finance and Policy, New Delhi, July 2018. URL: https://macrofinance.nipfp.org.in/PDF/BPRS_National-Market-for-Food.pdf.
- [2] Shoumitro Chatterjee and Devesh Kapur. Six Puzzles in Indian Agriculture. *India Policy Forum*, 13(1):185–229, 2017. URL: https://pages.jh.edu/schatt20/papers/SC_DK_puzzles2016.pdf.
- [3] Shweta Saini and Ashok Gulati. Price Distortions in Indian Agriculture. Report, Indian Council for Research on International Economic Relations and World Bank, New Delhi, 2017. URL: https://icrier.org/pdf/Price_Distortions_in_Indian_Agriculture_2017.pdf.
- [4] Ajay Shah. India: An Agricultural Trade Powerhouse. *Business Standard*, May 2019. URL: https://www.mayin.org/ajayshah/MEDIA/2019/agri_intnl_trade.html.
- [5] Ajay Shah. Economic Freedom in Agriculture. *Business Standard*, May 2020. URL: https://www.mayin.org/ajayshah/MEDIA/2020/food_economic_freedom.html.
- [6] Ajay Shah. Climate Change for Practical People. *Business Standard*, January 2022. URL: https://www.mayin.org/ajayshah/MEDIA/2022/climate_change.html.