Introduction

Where is India going today? Is it surging, having just overtaken the United Kingdom to become the fifth-largest economy in the world? Or is it flailing, having settled at a growth rate that is grossly insufficient to provide jobs for the millions joining the labor force? Are manufacturers across the world jostling to produce in India? Or does the stagnant share of employment in manufacturing over decades suggest India has missed the manufacturing bus? Is India preparing for the future? Or is it too focused on battling the past? Are Indians uniformly doing well? Or is India becoming more unequal, with the upper class experiencing the best of times, while the middle class sinks slowly?

These questions reflect two sides of the debate over India’s economy, one side relentlessly bullish and unwilling to see, speak or hear any concerns about India’s foreordained march into the ranks of the wealthiest and most powerful countries in the world. The other side is much more critical, unpersuaded there is any good in what is happening. Is it, as Cambridge economist Joan Robinson said, “Whatever you can rightly say about India, the opposite is also true?” Or is there more truth to one side than the other?

The answer matters because the cheerleaders feel the government should impose its will wherever needed, even at the risk of turning authoritarian. After all, is this not how China grew, from economic
parity with India in the 1960s to becoming one of the world’s two superpowers today, with an economy over five times the size of India’s? The critics believe the current government is better at perception management and suppressing unpleasant facts than creating real well-being for the masses, but this side has been unable to offer persuasive alternatives.

There is certainly a restlessness in India today, most noticeable among its youth. They are the largest and still growing segment of the population, and are unwilling to settle for old bromides. They want new answers—answers that give them good jobs not handouts, which will improve their lives today, not ask them to continue to endure. Many are temporarily sustained by the optimism that it is now India’s turn to soar.

India needs a vision of where it wants to get to, for that will determine the choices it needs to make today. To see what that might be, we first need to understand the debate between the cheerleaders and critics on India’s current trajectory.

We will explain in this book why we think the critics are largely right on the facts—the relentless cheerleaders paper over the real fault lines that are emerging in the Indian economy. Too many of India’s youth don’t have jobs and don’t have a hope of getting one. So they stop looking. The fraction of working-age women employed is an abysmal one in five, the lowest in the G20 countries, and the fraction of men employed is nothing to be proud of either. India wastes too much of its human capital and is in danger of frittering away its demographic dividend—the supposed dividend from having a growing share of working-age population—because it is not creating enough jobs.

And new storm clouds are emerging. Geopolitical tensions, as well as disruptions caused by the pandemic and climate-related disasters, are causing firms to rethink their global supply chains. Many multinationals are contemplating near-shoring or even re-shoring their manufacturing. Jobs in manufacturing and services are also at
risk of being automated, either by robots or by artificial intelligence algorithms.

India needs solutions. The cheerleaders are correct in thinking the government is getting some things right. Reforms like the switch to an all-India Goods and Services Tax, which unifies the Indian market by replacing myriad state-by-state levies, had long been proposed but were executed under the current government. India is building highways, tunnels and rural roads faster than before. Direct benefit transfers, enabled by the digital stack, which we will describe later, and mass opening of bank accounts, allow the government to reach the beneficiaries directly with minimal leakage on the way. And in September 2023, India ended its turn as the G20 president with a well-organized meeting in Delhi, culminating in a statement that achieved a consensus on some very fractious issues.

This is all progress. The government’s strength has been implementation, especially when the required actions, such as building roads, tunnels, toilets or even statues, are clear, or when frameworks such as the digital stack had been initiated by previous governments. For a country that all too often has faltered in implementing its plans, this is a welcome change.

However, not everything the government has initiated—especially some of its own ideas—has been successful. The move to develop smart cities that are sustainable and citizen-friendly; the production-linked incentives (PLI) to increase manufacturing in India; the reforms to agricultural markets; the dramatic demonetization of Rs 500 and Rs 1,000 notes, roughly US$7 and US$14 at the time, in November 2016—have ranged from the ineffectual to the truly damaging. Reflecting its lack of confidence in the future, private sector investment has stayed tepid over the last decade.

Perhaps most worrisome is that economic thinking on how India will create jobs seems stuck in the past, with a combination of protectionism and subsidies intended to spur manufacturing. Successive Indian governments, including this one, have done little to prepare India’s
most precious asset, its people’s capabilities, for the mounting challenges ahead. To see why this is so important, we must understand how the economics of growth have changed.

How the Global Supply Chain Has Changed

Transportation costs for goods came down tremendously in the 1960s and 1970s. Multinational firms started looking for the cheapest place to produce, for finished goods could be easily transported to developed countries, where they would be consumed. In the early years of China’s liberalization in the 1980s, global firms compared its cheap albeit low-skilled workers with expensive American and European workers when deciding where to produce. It made sense to outsource low-skilled manufacturing—essentially, the task of assembling together imported parts to make final products, like radios and televisions—to China. The cost savings from such labor arbitrage were so large that firms ignored some of the early difficulties of producing in China, such as its underdeveloped infrastructure, and set up factories there. Production grew tremendously fast as China followed this export-led manufacturing path because factories could produce at scale, catering to the enormous demand in developed countries.

Eventually, as China grew richer, it fixed its infrastructure, and as its workers became more educated and skilled, manufacturing costs in China came down even for more sophisticated manufacturing—such as making the radio and TV components that were imported earlier. So firms moved all their manufacturing to China. China went from poor to middle income in less than four decades. Since such an export-led manufacturing path, starting with low-skilled assembly, also had worked for other East Asian countries, like Japan, Korea and Taiwan, it is natural, then, that India’s current government should think of following this path.

This simple narrative, as we will argue later, misses some important details as to why China was successful. Nevertheless, it suffices for now
to say that the China and East Asian development path starts with cheap labor attracting global (and local) manufacturers who engage in local low-skilled assembly of goods for exports. Everything else builds on the cost advantage and the profits cheap labor offers.

Unfortunately for would-be late developers like India and Indonesia who want to follow the China path, the labor cost advantage no longer exists. For one, China has a large population, and it still has not exhausted its reservoir of excess workers in agriculture, especially in its western provinces. So, today, workers in late developers compete with still-cheap Chinese workers (and with each other), not with expensive workers in the United States or Japan. The climb towards more sophisticated manufacturing is similarly not assured, because China and other emerging markets, like Malaysia and Thailand, have developed their logistics tremendously, so they can ship more sophisticated manufactured components easily and cheaply across the globe. Put differently, every segment of the manufacturing portion of global supply chains has become extremely competitive. Furthermore, a country’s presence in low-skilled assembly does not assure profits or entry into other higher-skilled manufacturing segments.

Different degrees of competition in every segment have created what is sometimes called the smile curve of value added in a product’s global supply chain. The value added in the early services segments of a supply chain, including the R&D and design that go into a product, is very high. The middle segments of the supply chain, that is, the actual manufacturing, adds only a modest amount of value. The end services segments of the supply chain before the product reaches the customer—branding, marketing, advertising, sales, financing and product content—once again constitute a lot of value added. When we plot valued added in the sequence of segments in a global supply chain, we get a smile.

So, for instance, Apple does not manufacture any of its iPhones; the Taiwanese company Foxconn does, largely in China. Apple’s market capitalization today is over $3 trillion. Foxconn’s market capitalization
is just below $50 billion. Apple is sixty times as valuable, even though it manufactures nothing! That is because it provides the R&D and product design services at the beginning of the global supply chain for iPhones, as well as the branding, marketing and content (think iTunes and the App Store) at the end. There is only a modest amount of competition in all these segments of the supply chain, so they are very profitable. When an iPhone is bought in the store, only about one-third of the value-added is manufacturing, of which a small fraction is assembly, and the profit for this step of the production chain is tiny because it is so competitive. That explains the difference between Apple’s and Foxconn’s market values. Not all global supply chains have this pattern, but many do.

India, for a variety of reasons we will come to later, missed the manufacturing bus when China took it. But having missed it, it is trying to attract firms to assemble in India by offering large subsidies. Should it? In part, we already have the answer. The China path—of starting with low-skilled assembly and moving up from there—will not work well for India because China and others are already there and have competed down the profits. This is not being pessimistic about India’s capabilities; it is being realistic about how the world has changed.

This does not mean India should discriminate against manufacturing. Indeed, it needs all the jobs it can create, so it should make manufacturing more attractive by focusing on improving fundamentals rather than throwing enormous costly subsidies at manufacturers—for instance, improving physical infrastructure, making the business environment easier and more predictable, and improving the capabilities of the workforce. Indeed, the Indian states that are now attracting foreign investment, such as Tamil Nadu, have done precisely this.

At the same time, however, using our understanding of how value addition in the global supply chain has changed, India can take a hitherto untraveled path of development, one that is more aligned with India’s strengths. India should compete for the future rather than for the past.
India should not despair if the path up from low-skilled manufacturing exports has narrowed significantly, for technology is opening up the possibility of direct services exports as well as higher-skilled manufacturing-related services exports, such as chip design. They offer a whole new set of activities that India can flourish in.

Furthermore, apart from exports, Indian employers can cater to a growing domestic market, where the pathway we propose will create many new jobs, especially in education and health care. For success in most economic activities today requires India to invest heavily in enhancing the capabilities of all its people. A focus on education, health and better vocational training will enable Indians to do the jobs that are available and also attract employers to India, whether in manufacturing or services, looking for better-skilled workers.

The old model of development is one of going up the value chain, starting at the lowest point with low-skilled assembly of goods. To break this mold, India must create an environment that fosters ideas and entrepreneurship so that many more firms with radically different, useful product offerings are started in India, with the intent of capturing the high value-added segments of supply chains. In other words, India must pivot from brawn to brain, even at this early stage of development. That requires efforts to be made on a countrywide scale.

Perhaps the best way to illustrate the India we have in mind is with a few examples, one hypothetical, others actual. The first showcases a business school that directly provides high-value services to the world, the others illustrate how manufacturing and services can be combined in different ways to create entirely new products that are a mix of both.

Exporting High-Value Services Directly in the Near Future

Professor Vinod Erali got out of his Ola taxicab and bid a good day to the sari-clad driver. As he walked through the well-kept grounds of the Well-Known Institute of Management in Western India (WIMWI), he
could see the institute’s entrepreneurship hub just across the compound wall, where many of the institute’s past students had started firms that were now household names across the world. In the far distance, he could see the steel towers of the local Indian Institute of Information Technology, whose students had collaborated with WIMWI’s students in their start-ups. So much had changed in India over the last few years . . .

Indeed, so much had changed even in WIMWI. He thought back to when he joined WIMWI in the early 2020s. At that time, a classroom was typically a large room with whiteboards, desks and chairs, and was full of chattering students if you were a popular instructor. This form of instruction had not changed for hundreds, if not thousands, of years. He still taught such classes in the afternoons. This morning, however, his “classroom” was a cabin crammed with cameras, microphones and other electronic equipment. There was a small circular area in the middle, enclosed by a plexiglass fence; his playground, as he jokingly called it, where the magic happened. Samia, his technician, had just finished her checks and gave him a thumbs up.

He put on his virtual-reality headset. A large virtual classroom awaited, modelled on the executive MBA classroom of old. And steadily, avatars of the students started taking their seats, eighty in all. They were all busy executives from all over the world, doing an MBA while holding a full-time job. Each student had their virtual-reality headset on—over the years the headsets had morphed from clunky opaque helmets to transparent headpieces, so that he could make out each one’s face. He knew each student was in front of a specially equipped computer in their office, transmitting their images into the virtual classroom. His equipment was even more sophisticated, because he was always a blur of movement, summoning videos, charts and data from the ether, while engaging his students in an intense discussion.

Professor Erali introduced the case, “Dantu Corporation and Carbon Taxes,” one of his favorites. It was about a start-up that wanted
to open a factory in Bhiwadi, Rajasthan, but had to negotiate with the local government over the size of the carbon taxes it would have to pay. The students had already gone through the necessary calculations in small groups, aided by a chatbot as well as a human teaching assistant. In the classroom, they would now learn from each other. This was what they all looked forward to—the experience that made their simultaneous presence in this global classroom so worthwhile.

Professor Erali started the discussion asking how much they, as Dantu’s CEO, would offer to pay the local government. Zuri’s avatar on the right side of his headset lit up: “I would start by refusing to pay. I would ask the city government to first fix the potholes in the road leading to my factory,” she said.

Yang joined in to ask if one should assume the city officials had also done their calculations.

Zuri said, “You must be joking. No official in my city has the time or the ability to do them. They are simply trying to estimate how much you will pay to get them off your back.”

Yang responded disapprovingly, “Here it is different. Firms typically have to upload both their data and their calculations before a meeting, and the officials question every assumption we make.”

“Good to know,” responded Zuri. “I am travelling to your neck of the woods next week to persuade your government to finance our forest preservation effort.”

And so the case went, challenge and counter-challenge, debate and argument, until everyone, even Professor Erali, emerged wiser than before.

As he was driven back home, Professor Erali reflected on why WIMWI was so successful. The technology to do this largely existed when he joined WIMWI a few years ago. Moreover, the need for such a program was obvious—it allowed busy students across the world to stay in their jobs while getting the experience of a top-quality business school, without the overhead costs. WIMWI, like any start-up, simply needed to believe it could do it, and Erali proudly remembered his role in persuading his colleagues.
But why did the students come to WIMWI when they had so many choices? India’s growing economic importance was obviously a plus, since international businesses had to engage with India. Students sought professors like Erali, who not only knew about India, but had also done consulting and research across the world. The varied backgrounds of the students in class made it even more attractive. That the program was in English helped, though instant real-time language translation was getting better.

An important attraction to students was WIMWI’s image of being open to all opinions, ethnicities, genders and nationalities, epitomizing the Sanskrit phrase *Vasudhaiva Kutumbakam* (meaning, the world is one family). India’s history of diversity and open dialogue, as well as its continuing efforts at inclusion helped enormously. Zuri was scathing throughout the class about the behavior of her country’s government officials, while Yang was the opposite. Yet they both had no qualms about making their views known, since they felt the classroom was a safe space, in a safe institution, in a safe country.

Professor Erali recognized that technology was the easy part. Ideas, generated through debate and argument, and developed with the appropriate doses of creativity and hard work, were the scarce resources. WIMWI had succeeded in persuading the world that it could be the place for world-changing ideas. This was also why his afternoon class in a regular classroom had plenty of students from outside India, including from neighboring countries in South Asia, from Africa and from the Middle East. They added enormous value, even in a country that had more people than any other on the planet.

WIMWI did much for the local economy, not just by earning foreign exchange but also by employing so many, ranging from Erali himself and Samia, who managed the technology, to the myriad teaching assistants who supplemented his lectures, the programmers who fine-tuned the chatbot assistants, the gardeners who maintained WIMWI’s grounds and, indirectly, the cab driver who dropped him off, his own household staff and so on.
Direct Services Exports: The New Frontiers

In the past, services have been much harder to export than manufactured goods. But the times they are a-changin’, as Bob Dylan would say. Professor Erali and his class is imaginary, but they are not far from the realm of the possible. In 2021, IIT Madras began offering an online three-year bachelor’s degree in programming and data science.\(^3\) Erali is exporting a service, education. Many such services have become exportable. For, today, video conferencing has become easy, and the pandemic has made it acceptable. A friend of Raghu’s, based in London, a senior partner in a large consulting firm, is expanding their India operations enormously.

“Oh, is demand in India growing that fast?” Raghu asked.

“No, we are going to serve all of Europe,” she replied.

“Ah, a back office,” Raghu said.

“No, a semi-front office, where the Indian consultants will deal directly with our clients. No more putting together PowerPoint presentations for our London consultants to deliver. Our Indian consultants will present, and do the underlying work, of course, working with our London people,” she said.

“Why does this make sense now?” Raghu asked.

“Well, during the pandemic our London consultants interacted with clients entirely on Zoom. It became clear that consulting could be done at a distance and did not require constant physical presence. Of course, local knowledge is important, but we infuse that by bringing local consultants into the team. The youngsters we can recruit in India are so good, speak English well and cost a fraction of the salary of our London consultants,” she said.

Both Professor Erali and Raghu’s friend are exporting services directly from India. India is typically known for exporting IT services. But in the last four years, professional and management consulting services exports have grown faster, at a compound growth rate of 31 percent.\(^4\) Beyond such direct services, services are also embedded
in manufactured products. Many of the world’s top manufacturers now have large R&D and design outfits in India. It is estimated that 20 percent of chip design is done in India. Such work, done out of what are now termed global capability centers (GCCs), has contributed significantly to exports since the pandemic. India has roughly 1600 of the centers, more than 40 percent of the number worldwide. The rapidity of expansion is visible in the jobs generated—data from Indian software association NASSCOM indicates 280,000 GCC employees were hired in the financial year 2023 vs 380,000 added in the previous five years. And many more GCCs are expected to start in India.

**Manufacturing Embedded in Services and Vice Versa**

Products can combine manufacturing and services in different ways. We will encounter Tilfi, which has one shop in Benares (Varanasi, locally) but is selling Banarasi silk saris across the world through its website, thus creating work for traditional artisans while preserving India’s heritage. Outfits like Tilfi add new appealing designs to traditional work. They offer an overall brand that assures buyers quality and create many new jobs while increasing incomes for the artisans.

We will also meet firms that are disrupting traditional markets at the intersection between services and manufacturing in innovative ways. Lenskart is an eyewear firm whose branches are ubiquitous in cities, and whose advertisements appear frequently on TV and online. It has developed a clever business model of custom manufacturing attached to direct service delivery—browse frames online, get your eyes tested in a local Lenskart store and order your glasses. Everything from the frame, lens and fitting is done at their Gurgaon factory, and the product is delivered within two days at your doorstep.

Another such disruptor is Moglix, a business-to-business supply platform. Need a nut or a lathe for your factory? Moglix has constructed a massive database of where to source it from, and once you order it they will deliver it at your factory. Both Lenskart and Moglix are home-
grown innovators, one merging services and manufacturing, and the other creating a service for manufacturers—both adding substantial value and jobs through the judicious use of new technology.

**ID Fresh Food and the Power of Education**

Services can even be combined with the manufacturing of a traditional product like the batter for idli rice cakes, a popular breakfast food in India, which the firm iD Fresh Food makes and distributes. P.C. Musthafa, co-founder of iD Fresh, has had an extraordinary life, epitomizing the new India we would like to see more of. His father was a laborer in Wayanad, Kerala, digging up ginger root, cleaning it and loading it on to trucks. For young Musthafa, three meals a day was a distant dream. There was a single school near the village they lived in, and when Musthafa failed in grade six, he dropped out of school to work with his father.

One day soon after, a kind mathematics teacher at the school, “Matthew Sir,” came by the field and took Musthafa aside. He asked him, “Do you really want to be a laborer all your life, or do you want to learn and be like your teachers? If so, come back.” Musthafa went back to school, enduring the humiliation of starting sixth grade again with students who had been a class below him and being the butt of their jokes. His teacher, Mr Mathew, advised him, “When you are low on confidence, focus on small steps.” So Musthafa focused on mathematics and topped the class in the subject. The students started accepting him as one of their own. Having gained confidence, Musthafa eventually topped the class overall, and got admission to a bachelor’s course in computer science at the prestigious National Institute of Technology Calicut.

On graduation, Musthafa got a job paying Rs 14,000 monthly, approximately US$300 at the time. When he gave his first monthly paycheck to his father, the latter was astonished at the amount. “Why, your first month’s pay is more than what I earn all year,” he exclaimed.

After stints in the Middle East and the UK, Musthafa came back to India and enrolled for a business degree at IIM Bangalore with the
intent of eventually starting a firm. At that time, his cousins, who owned a small grocery shop, were selling idli batter. The batter was in a plastic packet, with an elastic band holding its mouth closed. The shop constantly received complaints about the freshness or the quality of the batter, but the supplier did little to change. Musthafa and his cousins, like generations of entrepreneurs before them, felt they could do better.

Together with his cousins and with Rs 50,000 in savings, about US$1,000 at the time, Musthafa spent a year in a shed with one grinder, one weighing scale and one sealing machine, mixing and grinding rice, urad dal and fenugreek in different ratios to get the idli batter right. Eventually, they launched their batter in 2006, with the brand name iD Fresh Food, producing hundred 1-kg packets a day. Of these, ninety went unsold. Even as sales picked up within a couple of years to 2000 packets a day and 300 stores, 500 packets went unsold.

Musthafa realized he needed a more sophisticated way of predicting what each store would sell. He put his MBA learning to work. Soon enough, he improved iD’s data capture and analytics so that iD could predict how much a store would use, thus reducing wastage. Today, overall batter wastage is 4 percent, and in the well-understood Bangalore market it is 1 percent. What is left is sold to hotels and restaurants. What is left after that is donated to charities to help feed people. The just-in-time processing helps maintain the signature freshness of products, leads to low wastage (since near-term demand is more predictable) and allows the whole operation to be run on low inventories.

Musthafa has been through tough times when he could not pay a salary to his employees or his son’s tuition fees. Perhaps because he knows what deprivation is, he has tried to run the whole operation with little debt, ploughing profits back into the business. Today, with five factories, 650 vans and 2500 workers, many from little known places in India (Musthafa empathizes with workers from remote rural areas), iD has solidified its market for idli and dosa batter, and expanded to new products, such as parathas and chapatis (these are both Indian breads), yoghurt, coffee and bread.
As the name suggests, all of iD Fresh Food products emphasize freshness, natural ingredients (“that your grandmother would use,” as Musthafa asserts proudly) and simple, hygienic production processes. Indeed, the firm has placed cameras inside its factory linked to a website, so that customers can inspect the factory at any time.\textsuperscript{8} The firm has also moved to selling abroad, with one of its factories in Ajman and one-third of its sales now coming from the Middle East.

As Musthafa reflects on his life thus far, he notes the importance of education in transforming him and the tremendous role people like Mathew Sir can play by giving hope to even one child. Musthafa also remembers the sacrifices his father made, skipping a meal every day, to put him through school. He counsels would-be entrepreneurs not to walk past simple problems that can be fixed, thinking someone else will do that. No one will, and an opportunity will be wasted. At the same time, he cautions entrepreneurs against me-too products—innovative solutions are so much more fulfilling and likely to succeed.

Jobs, Jobs, Jobs

Musthafa’s inspiring story suggests the power of education. But it also suggests how products today are so much more a composite of services and manufacturing—the year the founders spent in a shed trying batch after batch to design the right-tasting idli mix that would remain fresh for a few days; the branding, packaging and communication via factory-embedded cameras that assure buyers of hygiene and quality; the fleet of vans, the demand forecasting and the logistical operations that ensure on-time manufacture and delivery are all critical components of the product Musthafa sells, over and above the making of the batter.

The broader point is that while low-skilled manufacturing jobs are certainly welcome in India, putting all of India’s hopes, resources and efforts into attracting such jobs betrays both a lack of ambition and imagination. Success in low-skilled manufacturing will not bring more sophisticated manufacturing with higher value added to India. If,
instead, India enhances its ability to export services directly or export the services that are intertwined with manufacturing, it will create good jobs. Indeed, the skills its workers acquire could allow Indian firms to break into high-skilled manufacturing. Later, we will describe Chennai-based Agnikul, which designs and makes 60-foot-long 3D-printed liquid fuel rockets. These will send payloads of up to 100 kg 400 miles into space. For Agnikul, manufacturing is largely printing. Just as most Indians acquired cell phones without first acquiring landlines, India could substantially leapfrog over low-skilled manufacturing to capture the higher value-added segments of the supply chain.

For as our discussion of the smile curve in the supply chain suggests, growing rich is not just about services or manufacturing but about acquiring the core aspect of a valuable business around which everything else is built. Ownership of intellectual property, including R&D, design and software that goes into the product, is the high ground in today’s business battles, from which everything else is controlled. That is what gives Apple ownership of the iPhone. It is why Tejas Networks, an Indian company we will encounter later, hopes to be able to sell 5G networks to emerging markets and developing countries, something no company outside the superpower blocs can do today.

India creates a lot of intellectual property today, as suggested by the amount of chip design done in India, but mainly for global firms. There is no Indian chip firm like Qualcomm or Nvidia, designing chips that it then gets manufactured by TSMC in Taiwan and sells worldwide. India needs to increase its creation of intellectual property and own it in India.

Apart from increasing the capabilities of its people, this requires India to move from incremental research and development that is the basis of much of India’s current success in manufacturing, including in affordable motorcycles and generic pharmaceuticals, to fundamental research and product development. The critical need, then, is to construct more “temples of modern India,” first-rate universities doing the research that leads to breakthrough products, such as innovative therapeutic drugs. The universities should collaborate with businesses to commercialize these ideas; Indian pharmaceutical manufacturers should be selling
patented drugs around the world and be worth orders of magnitude more than they’re worth today, which, with notable exceptions, largely reflects their sales of generic off-patent drugs. Universities also must train the PhD students who will populate research laboratories and will become instructors in the many universities and colleges across the country. And colleges should teach many more students like Musthafa, whose rags to riches story we just recounted, so that they can make the leap from poverty to well-being in one generation by becoming entrepreneurs.

The examples throughout this book will suggest that a lot of good is happening in India because of the undoubted energies and capabilities of its people. Even as we write, the Indian Space Research Organisation (ISRO), the superb public-sector undertaking, has landed a rover on the moon’s south pole, making India the first country to do so and the fourth country to land on the moon.

Isn’t India then doing enough already? Such achievements reflect what India is capable of, its potential. India can do far more, and it will have to if India is to break the development mold. A country that accounts for one-sixth of humanity should aspire for one-sixth of all Nobel laureates, patents, multinational CEOs and Olympic gold medallists. India certainly has some way to go. As another measure of the distance India has to make up, not one Indian university ranks in the top 200 in the world in the Times Higher Education World Universities Ranking for 2024.

But any Indian development path cannot focus only on improving the lot of people at the top. Far more needs to be done to employ the tens of millions who are looking for work and the many who have become discouraged. India needs to create better work for those who are struggling on the threshold of poverty, and effective safety nets for those who are in poverty. In the last full year before the pandemic, agricultural employment increased by 34 million while industry and services employment only grew by 9.3 million, so the share of workers in agriculture actually increased, a rarity for a fast-developing country. By such metrics, India is going backwards! There is a lot to be done, and India must start by getting its priorities right. As of now, they are not.
Take, for instance, the Micron semiconductor plant agreed upon in June 2023 by the government of India in consultation with the American semiconductor giant, to be set up in the Indian state of Gujarat. Assuming it goes through, it is a $2.75-billion investment, out of which 70 percent is a direct subsidy coming from the Gujarat state and the central government (what is termed the “federal government” in the United States, referred to in India as the central government or simply the Center). This is expected to create 5,000 jobs. So, India is spending nearly $2 billion for 5,000 jobs, which is $400,000 per job. Note that this venture is envisaged to be assembly and some testing, not R&D. Even if this leads eventually to some chip manufacture—and that will require significantly more subsidies—it will not be the kind of sophisticated logic chips that power a mobile phone, and India will still be dependent on wafer imports and on imported machinery for chip making.

That $2 billion is effectively a grant to a foreign company for crumbs. It is over a third of the Central government’s entire annual budget of $5.3 billion for university education! How many first-class universities, how much research, how many thousands of engineers and scientists could be created instead of those 5,000 low-level jobs? To choose the grant to Micron over better schools and universities—and India is still a country with limited resources—reflects misplaced priorities, which translate into poor outcomes.

In sum, we believe India can not only create high value-added products based on research and design, but also many low-skilled jobs in the supply chain if it controls the actual intellectual property in both manufacturing and services. Rather than hoping to move up the value chain from the bottom, India can choose the untraveled path to take the commanding heights, and then travel down the value chain if it chooses to.

To that end, it is important India prioritizes resources allocation. Does it want to create more first-class universities that will churn out world-class chip designers and capture the associated profits, or spend billions of dollars in subsidies to fabricate chips that are generations
behind the frontier? Strategically, where should India enter the global supply chain: where it has the greatest comparative advantage or where it is weakest?

How Do We Get There?

While ideas generated by universities and embedded into products by daring entrepreneurs will give India more of the high ground that leads to many good jobs, too many of India’s youth have inadequate skills and training. India needs to create jobs for those looking for them, but also equip people to do the jobs that they aspire for.

Indians have to start with a realistic assessment of their current state. Year after year, the meticulous Annual Status of Education Report (ASER) highlights learning gaps in India’s education system. For example, in 2018, less than 30 percent of students in grade three were able to achieve grade-two levels of reading and writing, and less than 30 percent of students in grade five were able to do maths problems associated with grade two. The pandemic has set Indian children back even further. In addition, India continues to have inordinately high levels of child malnutrition. So, it is harder for Indian children to absorb skills in school and many drop out with rudimentary skills. Most jobs in manufacturing, even “low-skilled” ones, require workers with stronger skills, resulting in the common refrain from manufacturers that they cannot find workers.

Of those who finish school, many go to college. While India has a superbly capable, shiny layer of elite graduates from the best universities that multinationals are salivating over and that will initially staff the creative economy India should aim for, it doesn’t produce enough of them. Many go through college but learn precious little in the way of useful skills. Indeed, a 2023 report by Wheebox says that around 50 percent of college graduates in India are unemployable.

While traditional economic conflicts, such as worker strikes, have been on the wane, the vicious circle of low employability, leading to
few jobs, mass unemployment and frustration, is now showing up in new forms of social conflict. Bloody clashes in the summer of 2023 between Meiteis and Kukis in the border state of Manipur had their roots in the lack of economic opportunities for the youth, which then spilled over into anger over the perceived unfairness of reservations or restrictions on land purchases. There is much to do.

In Part I of this book, we will explain how ideas, creativity and human capital are becoming much more important in growth and development, whether in manufacturing or services, or even in the agri-processing industry. We will argue that direct services exports (of the kind Professor Erali does) or services embedded in manufacturing exports (of the kind Tilfi, Tejas Networks or the captive multinational GCCs do) are increasingly possible, and can create many more high-quality jobs in India. They are already adding significantly to India’s exports and can contribute far more. We will also argue that services oriented to the Indian market, including education, health care and finance, will generate more jobs across the skills spectrum.

In pointing to the opportunities in high-skilled services, we do not, of course, imply India should neglect other areas of productive activity. Manufacturing, centered on innovative new products and India’s strength in engineering, should flourish. Of course, in a growing India, construction, transport, tourism and retail sectors will also expand, providing jobs for those with moderate skills.

A common factor in all these possible jobs, however, is the need to enhance the capabilities of Indians and their opportunities to flourish. Part II of this book is about how India can do so. Reforms, we will argue, need to be in three areas: governance reforms, reforms to human capital formation and reforms that will create an environment for innovation.

We start with governance reforms because we believe that underinvestment in Indians’ education and health care is not the fault of any one Indian administration. It has a lot to do with the way the Indian state is structured, a structure that worked at the time of Independence but is now showing its age. Without governance reforms, including
strengthening democratic institutions and greater decentralization, which will make the government more responsive to the bottom-up demand of Indians for better public services, other reforms will have little effect. But when accompanied by governance reforms, we believe that the reforms we suggest to education and health care can make an enormous difference. Throughout, we will highlight success stories and what we can learn from them on how best to increase investment in Indians.

In Part II we will also discuss how we get an environment where Indians can flourish, develop innovative new products and firms, thus becoming job creators rather than continuing as jobseekers. In part, that will require stronger connections with the world outside India. How can India persuade the world to be more open to India’s exports, including the new range of services that technology permits Indians to offer, such as telemedicine and legal consulting? For instance, can India get more countries to recognize Indians’ professional degrees, or to offer its students exams that allow them to show their qualifications are equivalent to other countries’ professional degrees? Innovation will also require enhancing fundamental research, starting in India’s first-rate universities, as we noted earlier, but spreading to business and government laboratories.

We conclude our argument in Part III of the book. For the creative, high-value-added breakthrough growth that we are proposing, India’s most important advantage over more authoritarian countries, like China and Vietnam, is India’s inclusive liberal democracy. Pluralism, free speech, independent institutions, a vibrant civil society, and checks and balances on government are not just a concern for the liberal elite in Delhi, they are essential for the creativity-based growth path we propose.

The villager who wants to protest teacher absenteeism in the local government school should not fear being locked up by the teacher’s police inspector brother-in-law; business people offering critical assessments of the government’s performance should not find investigative agencies at their door the next day; data that reflect unfavorably on government performance should not be suppressed, leaving society navigating in
the dark; foreign buyers of services from a domestic company like Tejas Networks should not fear that India’s government, unbound by privacy laws, will insist on the company embedding backdoors into the network through which government agencies can spy on their data; an Opposition leader who wants to protest cronyism at the highest level should not see trivial cases accelerated by a lower judiciary, seemingly intent on ejecting him from Parliament.

The possibility of abuse of power is embedded in India’s state structure; Indians have experienced centralized authoritarianism before, during the Emergency in 1975, when Prime Minister Indira Gandhi, in response to a court judgment deeming her election illegal, suspended democratic rights in the country. Today India is confronted with the additional specter of divisive majoritarianism, pitting its citizenry against each other along religious lines. None of this is good for the creativity-based growth path we advocate.

Study after study shows that authoritarianism suppresses innovative thinking—whether in the political arena, where it could challenge the existing power structure, or within research laboratories, where it could subvert the dominant scientific paradigm. If India chooses creativity and innovation, it will have to foster arguments and debates. Radical youths should be encouraged to challenge orthodoxy (non-violently, of course), and hopefully more within the university than on the street, but not locked up because they dare to speak.

Similarly, entrepreneurship flourishes in a peaceful, inclusive environment, less so in one where some community or other is targeted by hate groups. Rather than endlessly battling over India’s past on WhatsApp groups, Indians must prepare themselves to capture the future. The people of India cannot afford to be prisoners of history.

To address the huge challenges India faces, it must embark on a new path that involves a whole-of-country effort. Thus far, no developing country has grown rich by focusing on enhancing its human capital—certainly not within the generation or so we would aim for. No government can get it right on its own, because this untraveled path is
one for which there are no blueprints. That means we need data, analysis, debate and, yes, criticism. This is not a path that an authoritarian government—which distrusts experts, suppresses inconvenient data, and isolates and harasses critics—can deliver on, even if it accepts the need for change. Before we conclude, we argue our case with an imaginary figure who is convinced of India’s current trajectory.

Why This Book?

Both of us are professors, Rohit early in his career, while Raghu is much older and hopefully wiser than he used to be. We both have worked in government positions in India and care passionately about the country. We believe that India is capable of so much good, both in terms of its own development and the message it offers to the world.

Upper-class Indians have had a good last decade, with India’s economic position and stature growing in the world. The news media is overwhelmingly supportive of government policies, so it is easy for them to feel that all is well. The reality, however, is that growth is too slow for the many jobs India needs.

The less well-to-do are experiencing an economic environment that has become more precarious, with enormous competition to get children into decent schools and public universities, and few good jobs afterwards. Social supports for them are few, especially in the anonymous big city; one medical emergency can push them into poverty. Most Indians are in this category right now, enduring the present while hoping for something better.

With limited ideas on how to assuage the broader public’s economic anxieties, the reaction of many Indian leaders is to deflect the public’s attention so that they forget the grim reality of today. For instance, the sparse data on poor job growth can be buried by an avalanche of inaugurations and announcements, so that an illusion of robust job growth is maintained. Instead of the jobseeker blaming government policies for her plight, she blames herself. India can still remedy matters,
but for that it must snap out of the collective sense that its current path is fine.

If India breaks the mold to follow a truly Indian way, its future could be one of extraordinary well-being within a couple of decades. If, instead, it allows its thinking to be molded by the past experiences of other countries, without accounting for how India is different and how the world has changed, it will be left to its children to lament as they think of the India that might have been.

India must not be a faux China; there are plenty of those already around. What India needs instead is to be an irreverent, diverse and argumentative society, at harmony with its energetic chaos, one from which creative ideas emerge that will change the world. Instead of seeing its journey so far as an aberration and its democracy as a weakness, Indians should find strength in them and chart a path going forward that draws on the capabilities of all Indians, and builds on India’s historic culture of tolerance and respect for all. The path will not be easy, but it can be the basis for change. As we write, more than three quarters of a century after Independence, we believe India’s best days are still ahead.