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Make in India relies on Made in China

BY AKHIL RAMESH



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Introduction

India is increasingly realizing that manufacturing requires a markedly different range of expertise and increased economic linkages with nations, particularly, ones that have mastered it. Over the last decade, trade and national security policymaking have intersected at various levels across the globalized world. The overlap is acute in large economies such as India, the United States, and China, where it has led to a resurgence in industrial policies in sectors considered to be national security priorities or with significant import dependencies. As India negotiates closer trade ties with the US, it is simultaneously nurturing a robust and growing economic relationship with China even if out of necessity.

These industrial policies are designed to complement these countries' domestic needs, foreign policy, and trade relations. India, with 65% of its 1.4 billion population under the age of 35,¹ is consistently touted as a promising emerging market with a significant demographic advantage. However, for India, the demographic dividend could turn into a demographic curse if the employment generation doesn't keep pace with the population growth.

Aware of this impending socio-economic crisis, Prime Minister Narendra Modi embarked on an ambitious drive to expand manufacturing activity in the country soon after assuming office in 2014. In an attempt at capitalizing on the global interest and enthusiasm for India's large consumer market, the administration offered billions of dollars in subsidies and tax incentives to both domestic companies and foreign companies operating in India.

External events appeared to play in his favor. A surge in nationalism in the West, the Covid-19 pandemic, and Russia's invasion of Ukraine pressed the demand for supply chain diversification strategies. Industrial policies and subsidies worldwide expanded along this chain of global events. But, in India, the transformation from a services-led to a manufacturing-led economy has faced roadblocks and speed bumps. India is increasingly realizing that manufacturing requires a markedly different range of expertise and increased economic linkages with nations, particularly, ones that have mastered it.

In a paradoxical turn of events, New Delhi is warming to the possibility of increased partnerships with Chinese businesses to sustain the momentum of success with its Make in India initiative.

Make in India: Successes and failures

By 2025, while value of electronics exports has increased, neither the share of manufacturing in India's GDP has increased nor has India wholly reduced its dependence on China in key sectors. The dependence on China has only shifted from downstream goods to upstream goods. In 2014, Modi launched the ambitious "Make in India" initiative, which aimed to boost manufacturing in India by both local and international manufacturers. The government envisioned that targeted industrial policies, along with streamlined regulations and reduced red tape, would create a conducive environment for manufacturing. New Delhi set the goal of raising manufacturing's share in India's GDP from 15% in 2014 to 25% by 2025.² In his second term, Modi's administration identified 14 key sectors and introduced sector-specific industrial policies known as the Production Linked Incentive scheme (PLI). PLI had a two-pronged, zealous agenda of both increasing the share of manufacturing in India's gross domestic product (GDP) and reducing reliance on China in key sectors.

Fast forward to 2025, while value of electronics exports has increased, neither the share of manufacturing in India's GDP has increased nor has India wholly reduced its dependence on China in key sectors. The dependence on China has only shifted from downstream goods to upstream goods.

New Delhi's poor policy performance can be partly attributed to trade weaponization in response to the 2017 Doklam and 2020 Galwan valley clashes, which ignited an animus toward anything from China.³ India's response to the clashes in the Himalayan valley was to ban 59 Chinese-owned apps such as TikTok, SHEIN, and WeChat, citing national security concerns. In April 2020, the Indian government introduced new rules, requiring prior government approval for any



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Import substitution has a long pedigree in New Delhi. In Modi's version, this has emerged in a geopolitically-driven attempt to reduce reliance on Russian defense equipment imports. foreign direct investment from a company based in countries with which it shares a land border, largely meaning China. These moves restricted Chinese foreign direct investment into the country and joint ventures with Indian counterparts.

Make in India and the PLI scheme have counted few successes. As of 2025, manufacturing's share of India's GDP has dropped to under 14% of India's GDP lower than in 2014 when the Make in India initiative was formally announced. New Delhi's ambitions of galvanizing foreign investments to kickstart and sustain its manufacturing plans have not taken off.

With an outlay of 1.9 trillion Indian rupees (US\$26 billion), the PLI scheme focused on 14 sectors, including aerospace, electronics, pharmaceutical manufacturing, and textiles.⁴ Sectors such as specialty steel, textiles, and auto parts and components have failed to achieve manufacturing targets set by the government.

In semiconductors and defense, the results are more mixed. Through partnerships with American and Taiwanese companies, semiconductor manufacturing plants have sprung up in Gujarat in the west of India and Assam in the east.

Pharmaceuticals, mobile handsets, telecommunications, photovoltaic (PV) cells and modules, drones, and battery manufacturing have similarly yielded some success. The telecommunications sector has achieved a 60% import substitution in critical components.⁵ In PV modules, a tariff plus domestic production incentive led to a significant reduction in reliance on Chinese imports, due to increased domestic investments in PV manufacturing by India's largest conglomerates such as Tata Power, Reliance, Adani, and Waaree Energies (see Figure 1). In less than two years from 2023, imports of PV cells and modules from China dropped to 56% for PV cells and 66% for modules from more than 90% as a share of India's PV imports.⁶

Import substitution has a long pedigree in New Delhi. In Modi's version, this has emerged in a geopolitically-driven attempt to reduce reliance on Russian defense equipment imports. From 2020 to 2024, India was the world's second-largest importer of defense goods, after Ukraine.⁷

Spurred by Make in India, Indian companies have entered the defense and arms space to manufacture artillery and new age technologies such as drones. Indian startups have made inroads in drone manufacturing. Adani, Hindustan Aeronautics, Paras Defense, and startups such as Garuda Defense now assemble drones using imported components.

In pharmaceuticals, India has long enjoyed significant advantage in the downstream supply chain. It is one of the largest producers of generic drugs and is a leading exporter of generic drugs to developed markets, including to the US where over 40% of generic drugs are sourced from Indian companies. However, India depends on China for most of the active pharmaceutical ingredients (API) that go into the manufacture of generic drugs.⁸

A targeted PLI launched in 2020 to produce APIs and intermediaries has had little success. While Indian companies have begun manufacturing APIs such as penicillin G and clavulanic acid, India's imports of APIs from China dropped only marginally from 75% to 72% of total API imports.⁹

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Source: Adapted from an original graphic by SinoVoltaics

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Apple's contract manufacturer Foxconn's facility in Chennai is quickly turning into Apple's alternative to Foxconn's Chinese Zhengzhou base in China, the world's largest iPhone factory, with the defect rate at the Chennai facility on par with the Chinese unit. In battery manufacturing, progress has been slow and companies that availed themselves of state benefits under the PLI scheme have failed to meet their targets. Electric vehicle (EV) battery technologies are still mostly licensed from Chinese battery companies.¹⁰

The only successful indigenization in the EV battery sector is Hyundai Motor India Limited's (HMIL) plant in Chennai, built in partnership with Mobis India. The manufacturing unit has achieved 92% indigenization of production. Hyundai has created a dedicated localization team and developed a network of 194 trusted vendors to source over 1,234 parts for the assembly of the batteries. Hyundai has announced plans of replicating this indigenization in other auto manufacturing clusters such as in western India.¹¹

One of the most talked-about success stories out of Make in India and the Atmanirbhar Bharat (translates to 'self-reliant India') is Apple's iPhone. To many analysts, Apple manufacturing iPhones in India was unimaginable a decade ago. Yet, as of early 2025, Apple makes 20% of iPhones in India.¹² As the tariff war between US and China escalates, alternative production in India and Vietnam are gaining renewed significance.

Apple's contract manufacturer Foxconn's facility in Chennai is quickly turning into Apple's alternative to Foxconn's Chinese Zhengzhou base in China, the world's largest iPhone factory, with the defect rate at the Chennai facility on par with the Chinese unit. With plans of manufacturing 32% of iPhones in India by 2026-2027, the Chennai facility could very well be the success story analysts tout if this keeps up.

Nonetheless, the more complex challenge lies in the nature of success itself.¹³



In battery manufacturing, progress has been slow and companies that availed themselves of state benefits under the PLI scheme have failed to meet its targets.

Downstream success, upstream failure

While Taiwan's Foxconn, India's Dixon Technologies, and Korea's Samsung Electronics have incrementally contributed to increasing India's exports of mobile handsets, the reliance on inputs from China has not been reduced. It has taken a different form. Most of the cases outlined above have one thing in common – they are a downstream success while an upstream failure –including in sectors tied to India's national security interests such as drone manufacturing, where 70% of components are still sourced from China.¹⁴

While Taiwan's Foxconn, India's Dixon Technologies, and Korea's Samsung Electronics have incrementally contributed to increasing India's exports of mobile handsets, the reliance on inputs from China has not been reduced. It has taken a different form.

Take smartphones as an example. Apple's supply chain in China is a comprehensive collaboration between universities, research institutions, and industry. From circuit boards to displays, Apple has built up an entire value chain in China with the help of the Chinese government over the course of two decades. With 150 suppliers and 259 factories, Apple's supply chain is a significant source of direct and indirect employment for millions of workers in China.¹⁵

Apple has managed to recreate only a small part of this complex value chain in India, where it is largely limited to the downstream component. Furthermore, while India fostered software development training for its youth over the course of the last two decades, it has not cultivated a workforce ready for manufacturing, including assembly of components. This has created a dependency on Chinese expertise.



Apple has built up an entire value chain in China with the help of the Chinese government over the course of two decades. Only a small part of this complex value chain has been recreated in India.

India's industrial policy drive is at a critical juncture. The PLI scheme is up for renewal or possible termination. The share of local manufacturing in India's GDP has not increased in over a decade. While New Delhi restricted Chinese investment in key sectors and limited visas to Chinese nationals, it was in essence shooting itself in the foot as this set back India's import substitution plans. India's imports from China continue to rise for raw materials and components that go into downstream manufacturing across several sectors availing benefits of the PLI.

Government officials and supporters say 99% of mobile phones sold in India are now made in India, compared to a reliance on imports for 78% of mobile phones used in India 2014. They are only partly right.

Yes, there has been a significant increase in the assembly of mobiles. However, the local value-add for these smartphones ranges between 6%-30%. The local value-add for iPhones reaches between 6%-8% while Samsung phones have 25%-30% local value-add.

In 2024, China remains India's second-largest trading partner. This is a story of a trade dividend that has come to occlude the geopolitical loggerheads of two countries that had engaged in both kinetic conflict and a power tussle in the Indian Ocean region. Bilateral trade grew at an annualized rate of 26.7% over the last five years.¹⁶

India's industrial policy drive is at a critical juncture. The PLI scheme is up for renewal or possible termination.¹⁷ The share of local manufacturing in India's GDP has not increased in over a decade. Dependency on China has increased. Many PLI sectors have been unable to take off.

In response, New Delhi decided to continue its industrial policy but with one drastic change — it is opening itself up even more to Chinese investment and partnerships. In late March 2025, New Delhi accelerated talks with global players in the electronics supply chain, primarily Chinese suppliers, to establish joint ventures and strategic partnerships. Indian contract manufacturing successes such as Dixon, Zetwerk, and Micromax are exploring deeper partnerships with Chinese companies for display modules, sub-assembly camera modules, printed circuit board assemblies, resistors, capacitors, and ferrites. Dixon has already sealed a joint venture with China's HKC to produce semiconductor display modules.¹⁸

Enough blame to go around

With 67 startups valued at over US\$1 billion dollars, India ranks third in the world by number of unicorns, trailing the US and China. Yet, it has few to none in critical and advanced technologies. There is no shortage of finger-pointing for the lack of progress to meet the Modi administration's grand indigenization plans for manufacturing.

In late October 2024, Indian Minister for Commerce Piyush Goyal publicly confronted Germany's then-Vice Chancellor Robert Habeck in the Delhi metro over the sale of tunnel-boring machines from the German company Herrenknecht AG. The machine was manufactured by the German company in China. Beijing had placed export restrictions, without publicly explaining why, on its delivery to India.

Granted, the machine would assist India's national security by potentially facilitating troop movements to the Sino-Indian border demarcation known as the Line of Actual Control (LAC), giving China a national security impetus to restrict its exports. However, the German equipment's dual use was arguably in India's other infrastructure plans for high-speed rail and transportation tunnels across the country.¹⁹

Goyal's public tirade was not limited to the exchange with the German Vice Chancellor, who could do nothing about Beijing's export controls. Months later, the Minister blamed India's startups for the country lagging China in critical and advanced technologies.²⁰ Speaking at a startup event, the minister presented a slide drawing comparison between Indian and Chinese startups, pointing to the stark sectoral differences in the two nation's startups. The Minister lamented, "Indian startups are busy making food delivery apps, fancy ice cream and cookies, instant grocery delivery, betting and fantasy sport apps and reels, and [the] influencer economy."

On the other hand, he said, the startups in China are working on "EV and battery tech, semiconductors and AI, robotics and automation, global logistics and trade and deep tech and infrastructure."

There is validity to Goyal's arguments that there have not been many successful startups in critical technology sectors in India. With 67 startups valued at over US\$1 billion dollars, India ranks third in the world by number of unicorns,²¹ trailing the US and China. Yet, it has few to none in critical and advanced technologies.

In fairness, startups in India are often victims of government inefficiency and bureaucracy. It is not for lack of trying that Indian startups working in advanced and critical technologies leave India for greener pastures or have dropped plans of pursuing Indian clients.²² A founder of a semiconductor design company responding to Minister Goyal wrote on Reddit, "Piyush, I heard that you ranted that no one is doing semiconductors, Well I am, now you hear my rant!" and went on to outline the major issues affecting his startup and many others in the sector.²³

One could point the finger at India's conglomerates for missing the critical and advanced technologies. Unlike their Western peers, catching up is a significant challenge. India's Tata, Reliance, and Mahindra are feeling the pinch. Mahindra

The biggest conglomerates in India do not spend as much on R&D as their global peers in the US, China, or Europe. Global firms spend 2.9 times more than Indian firms on R&D. has not manufactured an EV without China's BYD.²⁴ Yet, Goyal impedes BYD's proposed US\$1 billion investment in the southern Indian state of Telangana for a joint-venture factory.

The biggest conglomerates in India do not spend as much on R&D as their global peers in the US, China, or Europe. Global firms spend 2.9 times more than Indian firms on R&D. As a result, global firms generate 13 times more patents and twice more publications.²⁵

As a Hinrich Foundation white paper on <u>friend-shoring EV batteries</u> pointed out, advanced economies in the Western world and even in East Asia were sleeping at the proverbial wheel when China was steadily expanding its footprint in both the upstream and downstream supply chains of the broader EV value chain. India was and continues to trail even its Western peers, which themselves bear no comparison to Chinese battery behemoths.

A global dependency exists on Chinese technology in EV battery manufacturing. Chinese battery companies such as Contemporary Amperex Technology Co. Ltd. (CATL), Gotion, and BYD hold patents and technology for the latest battery chemistries. For example, Amara Raja Batteries' Giga Factory under development relies on licensing Chinese technology, in this case, its partnership with the Chinese battery giant Gotion. Indian government and industry focus less on valueadd activities and R&D expenditures than global standards. This has cost India significantly in the production of critical and advanced technologies, making it reliant on Chinese technology.



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While China was ambivalent to downstream and lower value-add parts of its value chains moving to India or Vietnam or Malaysia, the growing likelihood of advanced manufacturing and products relocating in these countries has led China to unleash a slew of export controls. Analysts refer to this phenomenon as China's strategy of denial.

License Raj 2.0

India's "License Raj" was a byzantine system of licenses, permits, and regulations that businesses, particularly foreign ones, had to navigate to invest and operate in India between Indian independence in 1947 and the early 90s.²⁶

The slew of industrial policies today, with their vague criteria coupled with a melding of national security with trade policy through import controls and investment screening, has created a License Raj 2.0 that discourages foreign investment.

Startups, big business, and foreign investors blame the government for failing to adequately clamp down on government inefficiencies and excessive governance. State scrutiny and regulatory hurdles have created an environment challenging for new entrants. This challenge is acute in sectors such as electronics manufacturing where the dependency on Chinese upstream suppliers is intense. The companies must wait for Indian government approval to partner with these companies, that is, if Beijing approves in the first place.

Beijing's strategy of denial

Since President Donald Trump's first term in office, there has been a steady uptick in moving supply chains out of China. Under Joe Biden, the industrial policy drive and the China+1 strategy incentivized America's allies and partners to move supply chains out of China into countries that were deemed "friendly" to the US, such as Mexico, Vietnam, and India.

This "friend-shoring" delivered mixed results. While China was ambivalent to downstream and lower value-add parts of its value chains moving to India or Vietnam or Malaysia, the growing likelihood of advanced manufacturing and products relocating in these countries has led China to unleash a slew of export controls. Analysts refer to this phenomenon as China's strategy of denial. In India, China uses this strategy to deny India access to critical technology, capital goods, components, and expertise through visa restrictions.²⁷

While some measures are blanket restrictions that apply across countries, there are others that are targeted at India. These measures are not restricted to raw materials or components that go into advanced technologies. One such targeted case was the restriction on exporting tunnel boring equipment to India.

There is a broader strategy to secure China's trade interests which often means limiting India's advances in self-sufficiency.

A few of these Chinese export controls and trade and manpower restrictions have since been lifted with progress in talks between the security apparatus and diplomats of the two nations. If the two countries can maintain the negotiated peace at the border, increased trade and economic linkages will change their combined geoeconomic calculus against other great powers.

India-China rapprochement

India may yet have to contend with protectionism from China. As the global trade architecture undergoes an overhaul with Trump's policies, strategic integration with other economies will become vital for China and India. A catalyst for expanded cooperation between Washington and New Delhi was the shared concerns over China's belligerence in the Indo-Pacific. Since the Doklam and Galwan valley clashes of 2017 and 2020 respectively, India had an urgency to expand cooperation with Washington across conventional and non-conventional security domains. It provided an impetus to rethink partnerships in defense, security, and technology.

At the same time, however, the Indian and Chinese sides have worked to dial back tensions.²⁸

Keeping true to its strategy of multi-alignment, India is back to engaging its northern neighbor. Starting in October 2024, the signs became evident. In 2025, Indian Foreign Secretary Vikram Misri and China's ambassador to India toasted to 75 years of India-China relations, cutting a cake in the Chinese embassy in New Delhi.²⁹

Both India and China have issued more visas for travel between the two countries and revived discussions on large foreign investments such as BYD's proposal³⁰ to set up a manufacturing plant in Telangana.³¹ Indian conglomerate Reliance has signed a long-term licensing deal to let SHEIN circumvent New Delhi's prohibition, selling goods from SHEIN's platform using an independent mobile app. SHEIN was among the 59 Chinese apps that were banned in response to the Sino-Indian border clashes.³²

Debate over the China engagement continues in the boisterous democracy, including within the Modi administration. Anantha Nageswaran, the Modi administration's Chief Economic Advisor, has called for increasing linkages with China's supply chain.³³ Goyal continues to oppose closer economic and trade ties with China.

India may yet have to contend with protectionism from China. The Chinese government has warned its auto makers against rapid expansion abroad to prevent the export of technologies developed in China.³⁴ As the global trade architecture undergoes an overhaul with Trump's policies, strategic integration with other economies will become vital for China and India.

Conclusion

As a middle power with severe deficits in critical technology advancements, it serves New Delhi well to draw on increased economic linkages with both the US and China without adopting a zero-sum approach to the conflict between the two, at least in the near term. Beijing's mantra of "win-win" outcomes in bilateral engagements could apply to China-India rapprochement if increased foreign direct investment by Chinese businesses create employment in India and provide Chinese companies access to the large Indian consumer market.³⁵ The success of Chinese mobile manufacturers could prove to be the prototype for such engagement.

However, as a laggard in critical technology advancements, New Delhi runs the risk of turning its foreign policy strategy of multi-alignment, into a "multi-dependent" one: dependent on China for upstream goods; dependent on the US for advanced technologies; and dependent on sanctioned nations such as Russia for energy and defense.

This could be the price it has to pay for failing to address the domestic challenges hindering businesses.

Until India fixes its challenges at home — government inefficiency and supply-side reform — indigenization is a pipe dream. India's foreign policy will be dictated by geoeconomic realities beyond its control and technological limitations it can't master in the near future.

Over the years, India has managed a delicate balance between adversarial states, often to its economic and commercial advantage. With the war in Ukraine, New Delhi managed to get sanction exemptions for its import of crude oil from Russia.³⁶ Not only did it get exemptions, it managed to ship the refined crude back to Europe and America, earning handsomely in the process.³⁷

As a middle power with severe deficits in critical technology advancements, it serves New Delhi well to draw on increased economic linkages with both the US and China without adopting a zero-sum approach to the conflict between the two, at least in the near term.

This could mean providing an alternative to Chinese supply for the US while simultaneously encouraging Chinese foreign direct investment in Indian sectors that are not directly connected to national security.

Modi has lamented that India missed the bus in the first three industrial revolutions and promised to be in the driver's seat in the fourth. To that end, Indian ideological agnosticism driven by core economic interests could finally lead Indian trade and economic policy to success.

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Akhil Ramesh leads the India program at Pacific Forum. He oversees all research, analysis, and programming on India. Concurrently, he engages in research on the increasing intersection of economic, trade, and national security policy making in the Indo-Pacific. As an extension, he is working toward expanding the portfolio of economic statecraft related programming at Pacific Forum.

Akhil holds an M.S. in global economics from New York University and a certificate in business and geopolitics from HEC Paris business school. Prior to joining Pacific Forum, he worked with the Australian Department of Foreign Affairs and Trade in southern India. Prior to that, based out of New York City, Akhil worked as a project coordinator and lead of the mapping project of China's Belt and Road Initiative at the EastWest Institute.

Akhil is a columnist with The Hill and his analysis has been widely featured in publications such as Bloomberg and published across global and regional journals such as Nikkei Asia, South China Morning Post, The Diplomat, Hindustan Times, and Japan Times.



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