

Securing India: Significance of Geoeconomics and Innovation in India's Foreign Policy and Strategic Competition with China

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Abstract

This article examines the relationship between national security, India-China strategic rivalry, geoeconomics, and innovation. It first looks at India's immediate and long-term security threats and the nature and intensity of strategic competition with China. It then examines the influence of national security threats from and strategic rivalry with Beijing on India's economic statecraft and innovation strategies. The article argues that India's actual and perceived security threats from China and its strategic competition with Beijing is increasingly shaping its geoeconomic and innovation strategies. It also argues that India's inadequate geoeconomic endowments and innovation setup in comparison to China are a major obstacle to providing an effective response to Chinese belligerence.

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Introduction

India celebrated its 75th Independence Day on August 15, 2021. The occasion marked not only the resilience of the country in remaining united despite several challenges threatening to its unity and integrity, but also the progress it has made in becoming a modern state. The journey of independent India since 1947 has, however, been anything but rosy. The country has so far fought five wars with its arch rivals—Pakistan and China—four of which were fought before the end of the Cold War. India's last war, i.e., the Kargil War of 1999 with Pakistan, was a limited war and fought just one year after both the countries became overt nuclear weapon powers.

The absence of war since 1999 does not, however, indicate improvement of India's security environment. In fact, the opposite could be said to be true. Given the unresolved border disputes with Pakistan and China, a full-scale conventional war is not discounted, though it is unlikely given the nuclear deterrence erected by these three countries. Short of a full-scale war, India has, nonetheless, been subjected to a number of border skirmishes and military standoffs, traditionally with Pakistan and, more recently and frequently, with China.

From India's long-term national security perspective, the military standoff with China in recent years is a matter of big concern, not least because of the border clashes in the Galwan Valley in eastern Ladakh in June 2020, in which for the first time in 45 years, 20 Indian and at least four Chinese soldiers lost their lives. Given the meteoric rise of China's economic and military sinews, its military aggressiveness along the borders, its strategic encirclement of India, and its growing strategic nexus with Islamabad, Beijing is now considered the biggest strategic challenge for New Delhi.

To ward off challenges to its national security, India has made continuous efforts. It has stepped up military spending in a sustained manner and, as a result, is now the third largest global military spender,¹ even though in gross domestic product (GDP) terms it ranks sixth. Boosting military capacity through sustained increase in military spending is just one part of the India's statecraft. Along with the increase in military spending, it has also attempted to equip its armed forces with indigenous equipment for which the Indian government has spent a great deal of efforts to create a strategic innovation network.

¹ Diego Lopes da Silva, Nan Tian, and Alexandra Marksteiner, "Trends in World Military Expenditure, 2020," SIPRI Fact Sheet, April 2021, https://sipri.org/sites/default/files/2021-04/fs_2104_milex_0.pdf (accessed on May 28, 2021).

India has also stepped up diplomatic efforts, aligning and realigning with major powers in the region with which it has found greater strategic convergence to counter common security challenges, particularly those emanating from China. As part of its strategic rivalry with China, India is also increasingly using geoeconomics as an instrument of statecraft in advancing its strategic goals. The India-China power rivalry, which has intensified in recent years, has also transcended to the field of innovation, with the Indian government announcing a host of measures to ramp up domestic research and development (R&D) and manufacturing under the flagship Make in India initiative and *Atmanirbhar Bharat Abhiyan* (self-reliant India mission).

This article examines the relationship between national security, India-China strategic rivalry, geoeconomics,² and innovation. While so doing, it first looks at India's immediate and long-term security threats and the nature and intensity of strategic competition with China. It then moves to examining the influence of national security threats from and strategic rivalry with Beijing on India's economic statecraft and innovation strategies. The article argues that India's actual and perceived security threats from China and its strategic competition with Beijing is increasingly shaping its geoeconomic and innovation strategies. It also argues that India's inadequate geoeconomic endowments and innovation setup in comparison to China are a major obstacle to providing an effective response to Chinese belligerence.

India's National Security Concerns & Strategic Competition with China

Though India has fought four of its five wars with Pakistan, China has emerged as New Delhi's biggest strategic challenge, not just the "potential threat no. 1," as it was characterized by then Defence Minister George Fernandes in 1998.³ This is not to suggest that India's threat perceptions from Pakistan have diminished. Pakistan, given its ideological hostility and asymmetric war against India, would remain a security threat for the foreseeable future. In fact, with the Taliban capturing power in Afghanistan and its deep linkage with the Pakistani security establishment, cross-border terrorism is likely to be a major headache for India going forward. The persistence of the Pakistani problem notwithstanding, where China has overtaken Islamabad in India's security calculus is in realm of power balance.

² The article uses the definition as given by Robert D. Blackwill and Jennifer M. Harris, *War by Other Means: Geoeconomics and Statecraft*, Belknap, Cambridge, 2017.

³ Manoj Joshi, "China is the potential threat No. 1, says George Fernandes," *India Today*, May 18, 1998, <https://www.indiatoday.in/magazine/cover-story/story/19980518-china-is-the-potential-threat-no.-1-says-george-fernandes-826430-1998-05-18> (accessed on May 30, 2021).

As Table 1 illustrates, Pakistan is significantly behind India in key economic and military indicators, indicating a huge power balance in India's favor. It is this power balance, especially India's conventional military superiority, that Pakistan has attempted to blunt through overt nuclear threats, and it has largely succeeded in abetting terrorism in India without attracting conventional war. In comparison to its superiority over Pakistan, India is much weaker than China.

Table 1. Economic and Military Balance: India, Pakistan, and China

Indicator	India	Pakistan	China
GDP, 2019 (US\$ billion)	2,871	276	14,341
Current Account Balance, 2019 (as % of GDP)	-0.86	-4.87	0.99
Foreign Exchange Reserve, March 2021 (US\$ billion)	579.3	18.2	3,193
Merchandise Exports (% of global share)	1.7	0.2	13.2
FDI Inflows (inflows + outflows), 2019 (US \$ billion)			
Total Trade in Goods and Services			
Military Expenditure, 2020 (US\$ billion)	72.9	10.4	252
Active Military Personnel	1,458,500	6,51,800	2,035,000
Main Battle Tank	3,640	2,467	5,650
Submarines (strategic + tactical)	16 (1+15)	08 (0+8)	59 (6+53)
Combat Aircraft (navy + air force)	841 (73+768)	422 (09+413)	2,793 (426+2367)
Aircraft Carrier	01	0	02
Principal Surface Combatants	28	12	80

Source: Table compiled from IMF, SIPRI, WTO, UNCTAD, and IISS.

From New Delhi’s point of view the worrisome trend is that its weakness compared to China has widened over the years, giving an edge to Beijing to pursue aggression and containment strategy against India. In 1978, when China opened its economy, its GDP was similar in size with that of India. The military expenditures of both the countries were also similar till 1989 (see Table 2). By 2020, the gap in GDP has widened to five times and the military expenditure gap to four times.

Table 2. GDP and Military Expenditure Trends, China and India

	1978		1989		2020	
	India	China	India	China	India	China
GDP (US\$ bn)	137.3	149.54	296.04	347.77	2708.77	14772.84
ME (US\$ bn)	n.a.	3.98	10.6	11.4	72.9	252.3

Source: Manjeet S. Pardesi, “Explaining the Asymmetry in the Sino-Indian Strategic Rivalry,” Australian Journal of International Affairs, Vol. 75, No. 3, 2021, p. 347; IMF, World Economic Outlook Database: April 2021; SIPRI Military Expenditure Database.

One of the biggest concerns for India is that China’s rapid increase in military expenditure combined with heavy infrastructure development and military reforms has “transformed the PLA [People’s Liberation Army] from an instrument of national consolidation into an expeditionary force, and an instrument of power projection with joint theatre commands.”⁴ The enhanced capacity of the PLA has a direct consequence on Indian security, especially with regard to deployment of PLA troops along the treacherous Tibetan plateau. As Shivshankar Menon, former Indian national security advisor, observes, the PLA’s “mobilisation times in Tibet has shrunk from two seasons to two weeks,”⁵ narrowing the response time for the Indian forces to respond to any border incursion.

India’s concern regarding China’s military capability has further been complicated with the ascendance of a strong authoritarian and nationalistic Chinese leadership in the Chinese Communist Party (CPC), which seems to have discarded the old Chinese dictum of “hide your strength and bide your time” and have shown a clear penchant for “wolf warrior diplomacy.” This has been manifested in China’s belligerence along the disputed

⁴ Shivshankar Menon, *India and Asian Geopolitics: The Past, Present*, Penguin: India, 2021, p. 290

⁵ Shivshankar Menon, *India and Asian Geopolitics: The Past, Present*, Penguin: India, 2021, p. 290.

border with India and in the South China Sea and East China Sea. Since Xi Jinping came to power in 2012, China has upped its border incursion, leading to a deadly military standoff in June 2020 in Galwan Valley in which lives were lost for the first time since 1975.⁶ What distinguishes the events in the eastern Ladakh from those of the past is that the latest incursion shows little sign of abatement. After 17 rounds of commanders-level talks (as of December 2022) the tensions at the border have yet to be diffused. With both sides deploying heavy forces (50,000 to 60,000 troops each)⁷ in the Ladakh theater, the long peace that was arrived at post-1962 border war through high-level political visits and several agreements are all but over. As India's foreign minister Subrahmanyam Jaishankar puts it, the "relationship is at a crossroads," with the border tensions threatening "cooperation in other areas."⁸

It is worth noting that China's aggression against India is not just confined to the borders. Its aggressive behavior has also extended to the domains of cyber and trade. According to India's 1st chief of defence staff, General Bipin Rawat, China's cyber capability is the "biggest differential" between the two countries and Beijing is "capable of launching cyberattacks on us, and that can disrupt a large amount of our systems."⁹ The October 2020 power outage in Mumbai, India's financial capital, was widely attributed to China's state-sponsored hackers.¹⁰ Chinese commercial espionage, a major concern in the United States and the West, is also noticeable in India. Recently, attackers from China attacked two Indian COVID-19 vaccine manufactures, Serum Institute of India and Bharat Biotech, which are at the forefront of India's vaccine manufacturing and the country's vaccine diplomacy. Considering that India is major global supplier of vaccine, the cyberattacks on the Indian manufacturers could be a geo-economic ploy by China to promote its own vaccine in the international market.

Chinese trade warfare against India has intensified after the Galwan crisis of 2020, though not with the same intensity as Beijing has inflicted on countries. (China imposed a major trade ban on several Australian products following Canberra's demand for investigation into the origin of the COVID-19 virus). In November 2020, just a few

⁶ Menon, p. 326.

⁷ Rahul Singh, "India, China talks complete a year, issues not fully resolved," The Hindustan Times, June 06, 2021, <https://www.hindustantimes.com/india-news/india-china-talks-complete-a-year-issues-not-fully-resolved-101622917405138.html> (accessed on June 09, 2021).

⁸ "India, China and the US: A New Geopolitical Landscape?" The Indian Express, June 08, 2021, p. 11.

⁹ Krishn Kaushik, "China has capability to launch cyber attacks: CDS General Bipin Rawat," The Indian Express, April 08, 2021, <https://indianexpress.com/article/india/china-has-capability-to-launch-cyber-attacks-cds-general-bipin-rawat-7263541/> (accessed on May 29, 2021).

¹⁰ Kiran Tare, "Chinese cyber attack: Why Maharashtra should worry," India Today, March 02, 2021, <https://www.indiatoday.in/india-today-insight/story/chinese-cyber-attack-why-maharashtra-should-worry-1774905-2021-03-02> (accessed on August 20, 2021).

months after the Galwan crisis, China imposed phytosanitary restrictions on Indian shrimps. Even though India took the matter to the World Trade Organization, China, the second largest importer of seafood from India, remained undeterred and upped the ante by putting further restrictions on import of shrimps, this time alleging traces of the SARS-CoV-2 virus in the outer packaging of the shipment.¹¹

In another incident, the All-India Seafarer & General Worker Union complained in June 2021 about the unofficial ban imposed by Beijing on ships with Indian crews from entering Chinese waters, causing direct and indirect loss of 21,000 jobs.¹²

While the loss of life in border skirmishes and trade warfare are relatively new phenomena, they are nonetheless part of the larger India-China strategic competition for influence and dominance. As two civilizational powers with rich culture and tradition, and having achieved rapid economic growth in the post-Cold War period, both countries aspire to restore their past glory from before their European subjugation and attain “regional hegemony, global political influence, economic development and military power.”¹³ Also, given the importance of sea routes for trade and their dependence on the same external sources for resources, investment, and market for their continued economic growth, India-China strategic competition is largely a zero-sum game. To further complicate their strategic rivalry, there are several unresolved issues, including the border disputes, China’s support for India’s arch rival Pakistan and its strategic encirclement of India, India’s strategic cooperation with the United States, and New Delhi’s political support of the Dalai Lama. Not surprisingly, both countries have adopted aggressive strategies in containing the power of the other.

The rising wealth of China has enhanced its international clout and emboldened it to openly contain India in international forums and in India’s traditional sphere of influence, particularly South Asia and the Indian Ocean Region (IOR). China is the only major power that has not supported India’s permanent membership in the UN Security Council.¹⁴ Since 2015, China has publicly opposed India’s membership in the Nuclear Suppliers Group (NSG),¹⁵ the only multilateral arms control forum that India has not got a membership. In response to India’s August 05, 2019 decision to change the constitutional status of Jammu and Kashmir, China, on behalf of Pakistan, made a

¹¹ Anubhuti Vishnoi, “India-China Shrimp Row All Set to Turn Political,” *The Economic Times*, July 31, 2021.

¹² Surendra Singh, “China ‘ban’ on entry of Indian sailors, says seafarers’ body,” *The Times of India*, July 25, 2021, <https://timesofindia.indiatimes.com/india/china-ban-on-entry-of-indian-sailors-says-seafarers-body/articleshow/84720445.cms> (accessed on July 31, 2021).

¹³ Arjit Mazumdar, “From ‘Look East’ to ‘Act East’: India’s Evolving Engagement with the Asia-Pacific Region,” *Asian Affairs*, Vol. LII, No. II, 2021, p. 368.

¹⁴ C Raja Mohan, “The G-7 Opportunity,” *The Indian Express*, June 08, 2021, p. 9.

¹⁵ Menon, p. 327.

fervent attempt to internationalize New Delhi's decision.¹⁶ On behalf of Pakistan, China has also blocked several past Indian attempts to designate Masood Azar, a key conspirator behind many terrorist attacks in India, as a global terrorist by the UN Security Council.

China's India containment strategy is probably most visible in South Asia and the Indian Ocean region, areas that have traditionally been New Delhi's sphere of influence. Pakistan, China's all-weather friend, has been the lynchpin in Beijing's South Asia policy in limiting India's influence. Beijing has assiduously supported Islamabad as a counterweight to New Delhi by supporting its nuclear and missile programs and providing it with massive defense equipment and economic support. Pakistan's utility as a strategic counterbalance to India, has further been enhanced by the \$62 billion China-Pakistan Economic Corridor (CPEC), the most high-profile project of the Belt and Road Initiative (BRI). Given that the CPEC passes through the disputed Pakistan occupied Kashmir, a territory that India claims as its own, and the massive Chinese stake in protecting its strategic investment, military experts fear that the possibility of a two-front war (involving India against Pakistan and China simultaneously) is now much higher than ever before.¹⁷

Outside Pakistan, China has also made strategic inroads in several countries in India's neighborhood, particularly Nepal, Bangladesh, Myanmar, and the Maldives. From Delhi's point of view what is worrisome is that China's entry into these countries is not just a counterbalance against India but a of its efforts to protect its own strategic and commercial interests that have grown since the launch of BRI in 2013.¹⁸ As Muni, an expert of South Asian affairs, argues, China's BRI is not only influencing South Asia countries economically but also politically, socio-culturally, and strategically, while "denting India's economic and strategic space."¹⁹ From a security point of view, New Delhi is increasingly uncomfortable with China providing military assistance to countries and building several ports in India's neighborhood. Suffice it to say that during 2011–20, South Asia accounts for nearly 56 percent of total Chinese defense exports, with Pakistan

¹⁶ Elizabeth Roche, "China calls for a discussion on Kashmir at UN Security Council," LiveMint, August 07, 2020, <https://www.livemint.com/news/india/china-calls-for-a-discussion-on-kashmir-at-un-security-council-11596766754489.html>.

¹⁷ Vikram Jit Singh, "China-Pak corridor a factor, 2-front war a reality: Northern Army ex-commander," The Times of India, June 03, 2017, <https://timesofindia.indiatimes.com/city/chandigarh/china-pak-corridor-a-factor-2-front-war-a-reality-northern-army-ex-commander/articleshow/58970928.cms>.

¹⁸ S.D. Muni, "Security Challenges from the Neighbourhood," in R.K Arora and Vinay Kaura (Ed.), *India's National Security: Vision 2030*, Pentagon, New Delhi, 2020, pp. 127-139.

¹⁹ S.D. Muni, "Security Challenges from the Neighbourhood", in R.K Arora and Vinay Kaura (Ed.), *India's National Security: Vision 2030*, Pentagon, New Delhi, 2020, pp. 127-139.

and Bangladesh being the main destinations.²⁰ In regards to China's port building, New Delhi's fear is that that these ports would act like military outposts and serve as naval bases for the PLA in a crisis and constrain India's naval operations.

To counter China's influence, India has also adopted its own strategic posture. Its worldview, which was centered on nonalignment and strategic autonomy, is slowly paving the way toward a closer strategic partnership with major powers, particularly the United States, which has declared "renewed great-power competition" with Beijing and Moscow.²¹

Shedding its long-held inhibitions, India has forged a strong defense and security partnership with the United States. This is evident on multiple counts. After a protracted delay, India has signed all the foundational defense agreements with the United States. Signed between 2016 and 2020, the four agreements—Logistics Exchange Memorandum of Agreement, Communications Compatibility and Security Agreement, Industrial Security Annex, and Basic Exchange Cooperation Agreement²²—pave the way for logistics sharing, interoperability of military platforms, intelligence and sensitive technology sharing, and industrial cooperation between the two countries. India's close security relationship is also evident from massive defense deals signed with the United States in the recent past: Between 2008 and 2020, U.S. arms sales to India amounted to \$20 billion.²³ Both countries have established the Defense Trade and Technology Initiative to "bring sustained leadership focus to promote collaborative technology exchange and create opportunities for co-production and co-development of future technologies for Indian and U.S. military forces."²⁴ Recognizing the importance of India in its strategic calculus, the United States has designated it as a Major Defense Partner and accorded Strategic Trade Authorization-1 status to New Delhi to facilitate easier access to American technologies.

It is pertinent to mention that India's growing strategic ties with the United States has, however, created a degree of divergence of interests with Russia, India's Cold-War partner and major arms supplier. Given Russia's deteriorating relationships with the

²⁰ SIPRI Arms Transfers Database, <https://armstrade.sipri.org/armstrade/page/values.php> (accessed on December 23, 2021).

²¹ Ronald O'Rourke, "Renewed Great Power Competition: Implications for Defense—Issues for Congress," Report of the Congressional Research Service, August 03, 2021, <https://fas.org/sgp/crs/natsec/R43838.pdf> (accessed on August 20, 2021).

²² Ministry of External Affairs, "India-U.S. Bilateral Relations," March 2021, <https://mea.gov.in/Portal/ForeignRelation/IndiaUSnew2021.pdf> (accessed on August 05, 2021).

²³ U.S. Department of State, "U.S. Security Cooperation with India", Fact Sheet, January 20, 2021, U.S. Security Cooperation With India - United States Department of State (accessed on September 28, 2021).

²⁴ Press Information Bureau, "India & US Sign Project Agreement for Air-Launched Unmanned Aerial Vehicle," September 03, 2021.

United States and Europe, and Moscow's close economic and security ties with Beijing, India has been finding it increasingly difficult to maintain its old ties with Moscow. The divergence has come out in the open with Russia's opposing stand on several geopolitical issues that concern India's security interests. On India's membership in the Quad, Russia has added to New Delhi's discomfiture by terming the group as an anti-China game that the West is pushing India toward.²⁵ In the Afghanistan peace process hosted by Moscow in the wake of the U.S. decision to withdraw troops, Russia excluded India, while keeping both Pakistan and China in the loop.²⁶ India's growing strategic difference with Moscow is also seen in the post-Taliban takeover of Kabul on August 15, 2021. In the evolving chaos, India shut down its embassy and preferred to coordinate with the United States to evacuate its personnel from Afghanistan, whereas Moscow not only stayed put but described the evolving situation as "better now (under the Taliban) than it was under Ashraf Ghani."²⁷

A major arena of Indo-U.S. strategic convergence has been in the maritime domain with a common objective of countering Chinese belligerence in the Indo-Pacific. Given China's assertiveness in the South China Sea, East China Sea, and the Indian Ocean, both India and the United States have advocated for free and rule-based order in the Indian Ocean Region (IOR), much to the consternation of Beijing.

Besides the United States, India has also strengthened strategic ties with other major democratic countries, particularly France, the United Kingdom, Japan, and Australia among others. Among all non-U.S. democratic countries, Australia and Japan stand out because both of them have been subject to Chinese military or trade assertiveness. Taking the 2+2 dialogue framework (involving defense and foreign ministers) developed with the United States, India has established a similar framework for meetings with Tokyo and Canberra.²⁸ Both countries are also part of the annual Malabar naval exercise. The exercise, which began as a bilateral exercise in 1992 between the navies of India and the United States, now includes the navies of Japan (since 2015) and Australia (Canberra joined in 2020 after it was excluded in 2007). China has opposed the exercise, particularly its expansion to include Japan and Australia.

²⁵ Rajesh Rajagopalan, "India, Russia less useful to each other now. Disagreements will only grow," ThePrint, March 15, 2021, <https://theprint.in/opinion/india-russia-less-useful-to-each-other-now-disagreements-will-only-grow/621264/> (accessed on August 05, 2021); C. Raja Mohan, "Are Indo-Russian Ties the Next Casualty of Great-Power Shifts?" Foreign Policy, September 07, 2021.

²⁶ Suhasini Haidar, "India not part of Russian meet on Afghanistan," The Hindu, March 10, 2021.

²⁷ Indrani Bagchi, "As Afghanistan challenges grow, India and US double down on ties, coordination," The Time of India, August 19, 2021.

²⁸ Shyam Saran, "India's embrace of the Quad," Business Standard, November 10, 2020.

India's response to China's growing assertiveness is perhaps best described by its wholehearted support of the Quad, a security group of four countries that include India, Australia, Japan, and the United States. Dismissed by China as "sea foam," the Quad, from the Indian perspective, is "about addressing the growing power imbalance with China that has manifold consequences for India's security and prosperity as well its regional and international standing."²⁹ It is worth mentioning that though the Quad has been around for a long time, India had its reservations about it because of the China factor, with then prime minister Manmohan Singh calling India's relations with China as "imperative necessity."³⁰ A major consideration behind India's hesitation was that it was the only country among the Quad group that shares land borders with China, and New Delhi was hesitant in antagonizing Beijing. However, thanks to Chinese military aggression in eastern Ladakh, India has not only shed its past hesitations but placed the group at the "heart of India's Indo-Pacific strategy."³¹

A sign of increasing cooperation among the Quad in the maritime domain is evident in the form of Regional Cooperation Agreement on Combating Piracy and Armed Robbery against Ships in Asia (ReCAAP) in which India defeated China with the support of Quad members.³²

As part of India's counterbalance strategy toward China in the Indo-Pacific, India has cultivated Southeast Asia. In 1992, India launched the Look East policy, with a clear intent to counter Chinese influence in the region apart from promoting its own economic ties with the region. The Modi government upgraded it to Act East policy in 2016, with renewed focus on security. As part of the policy, India has enhanced its existing "relations to strategic partnership with not only ASEAN [Association of Southeast Asian Nations] but also with Indonesia, Vietnam, Malaysia, Japan, Republic of Korea (ROK), Australia, Singapore and forged close ties with all countries in the Asia-Pacific region."³³

As part of the policy, India has placed greater emphasis on connectivity to Southeast Asia. Given the strategic location of Myanmar as a gateway to Southeast Asia, India has undertaken the strategic Kaladan Multimodal Transit Transport project, by developing a

²⁹ "The Quad Endures", The Indian Express, February 20, 2021, <https://indianexpress.com/article/opinion/editorials/quad-india-us-biden-7196185/> (accessed on April 05, 2023).

³⁰ Simon Denyer, "Indian PM eyes common ground with rival China," Reuters, January 11, 2008, <https://www.reuters.com/article/idUSDEL317298> (accessed on August 13, 2021).

³¹ Shyam Saran, "India's embrace of the Quad", Business Standard, November 10, 2020.

³² Shishir Gupta, "India defeats China for ReCAAP elections with Quad on its Side," Hindustan Times, August 05, 2021, <https://www.hindustantimes.com/india-news/india-defeats-china-for-recaap-elections-with-quad-on-its-side-101628177963037.html> (accessed on August 06, 2021).

³³ Press Information Bureau, "Act East Policy," December 23, 2015; Sanjaya Baru, "What's going wrong with India's Act East policy?" The Indian Express, May 26, 2021.

port at Sittwe on the western coast of Myanmar and linking it with a river channel and road to India's northeastern state of Mizoram.³⁴ India has also given importance to Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation to connect much of South Asia with Southeast Asia.³⁵

On its western side, India has attempted to counter China's development of the deep-sea Gwadar port in Pakistan, a key component of the BRI, through development of a new trade route via the Iranian port of Chabahar. The port is strategically located on the Makran Coast of the Arabian Sea and is just 400 km (about 250 miles) by road and 100 km (62 miles) by sea from the Gwadar port. Given China's increasing maritime focus on the Indian Ocean, the port is also likely help India to monitor Chinese activities besides that of Pakistan. In the absence of a land route through Pakistan, the port is India's "gateway to Afghanistan, Central Asia, Russia and beyond."³⁶ However, with the Taliban taking over power in Kabul, the strategic importance of the Chabahar port to connect Afghanistan and the larger region of Central Asia is in doubt, especially considering India's loss of influence in Afghanistan.

Last but not the least, India has also adopted an aggressive geoeconomic strategy to counter Beijing's influence, particularly in its neighborhood. As discussed in the following sections, India has taken both unilateral and multilateral routes to unleash a range of geoeconomic initiatives in response to China's economic and military aggression and to counter Beijing's influence.

³⁴ Department-Related Parliamentary Standing Committee on Home Affairs, "Demands for Grants 2021-22," 232nd Report, p. 72, https://rajyasabha.nic.in/rsnew/Committee_site/Committee_File/ReportFile/15/143/232_2021_3_11.pdf (accessed on August 20, 2021).

³⁵ Elizabeth Roche, "BIMSTEC nations eye transport links," *mint*, October 25, 2021, <https://www.livemint.com/economy/bimstec-leaders-give-nod-for-robust-connectivity-linkages-11635168003857.html> (accessed on December 25, 2021).

³⁶ "7 reasons why Iran's Chabahar port is crucial to India," *India Today*, August 10, 2017, <https://www.indiatoday.in/fyi/story/chabahar-port-iran-importance-to-india-pakistan-afghanistan-1028342-2017-08-07> (accessed on August 01, 2021); "Why Iran's Chabahar port is important for India", *The Economic Times*, October 23, 2014, <https://economictimes.indiatimes.com/nation-world/why-irans-chabahar-port-is-important-for-india/slideshow/44914183.cms> (accessed on August 01, 2021).

India's Economic Statecraft

It has been widely acknowledged that a strong economy is a prerequisite for a strong military, which, in turn, “holds the centre stage in the narrative on statecraft—the means by which governments pursue foreign policy goals.”³⁷ However, post-Cold War, the narrative of statecraft has undergone a subtle change—from the one that was dominated by military power to the one that gives equal, if not more, weightage to economic statecraft. This change is perhaps best portrayed by Edward Luttwak who in 1990 argued that “the methods of commerce are displacing military methods—with disposable capital in lieu of firepower, civilian innovation in lieu of military-technical advancement, and market penetration in lieu of garrisons and bases.”³⁸

Blackwill and Harris in their seminal work, *War by Other Means*, have observed that more and more countries are using geoeconomics to wage geopolitics.³⁹ The authors have nonetheless noted Russia and China among the astute players of geoeconomics in modern times.

Though not in the same league of China or Russia, India has nonetheless tilted toward economic statecraft to promote strategic ties with important countries and regions. India's tilt toward geoeconomics as statecraft has, however, been largely been possible because of its sustained economic growth following economic liberalization undertaken in early 1990s. A comparison with the pre-economic liberalization period will illustrate how India's economic heft has played a major role in India's statecraft.

After independence in 1947, India's first prime minister, Jawaharlal Nehru, followed nonalignment to pursue country's foreign policy. Deeply linked to nonalignment was an economic strategy based on self-sufficiency that gave primacy to centralized planning, import substitution, and a strong aversion to international trade. The economic autarky was a major failure in promoting economic prosperity. Whereas the 200-year British colonialism eroded India's global economic share from 20–25 percent to 3 percent by 1950, independent India's economic policy further accelerated the economic slide; by 1980, India's global share was down to a mere 1.7 percent.⁴⁰

³⁷ Amit Ahuja and Devesh Kapur, “India's geoeconomic strategy,” *India Review*, Vol. 17, No. 1, 2018, p. 78.

³⁸ Edward N. Luttwak, “From Geopolitics to Geo-Economics: Logic of Conflict, Grammar of Commerce,” *The National Interest*, No. 20, 1990, p. 17.

³⁹ *War by Other Means*, p. 4.

⁴⁰ Amit Ahuja and Devesh Kapur, “India's geoeconomic strategy,” *India Review*, Vol. 17, No. 1, 2018, p. 82.

The economic difficulty was also mirrored in India's "defensive" strategic outlook. Following the humiliating defeat in the 1962 border war with China, India decided against developing connectivity in its northeastern region, fearing an easy access for Chinese invasion. The defensive mentality was also extended to India's dealings with two crucial regions: ASEAN and West Asia.

The end of the Cold war, the collapse of the Soviet Union, and India's severe balance of payment crisis of 1990–91 forced India to liberalize its economy, accelerating its economic growth. Over the next 28 years—that is, between 1991 and 2019—the Indian economy grew by 10.4 times in nominal dollar terms. It is this growth and the concomitant changes in the size and structure of the Indian economy that has played a pivotal role in bringing a positive change in India's foreign relations. Commentators attribute India's "encompassing posture in the Middle East" and its proactive Look East/Act East policies to its increasing economic heft. They also attribute India's dramatic improvement in relations with the United States to the rise of India's economy.⁴¹

An indication of India's geoeconomic success could be deciphered from the changing perceptions of several Muslim countries in the Middle East toward India and Pakistan. Historically, countries such as Saudi Arabia and the United Arab Emirates have been staunch supporters of Pakistan on India-Pakistan disputes, particularly on issues of Jammu and Kashmir. Pakistan has traditionally used their support in the Organisation of Islamic Cooperation (OIC) to corner India. But India's deep economic engagement, fostered over the years, has led to a distinct change in both Saudi Arabia and the UAE's outlook. The change in perception was amply visible in the wake of the India's August 05, 2019 decision to abrogate Article 370—which gave the provincial state of Jammu and Kashmir power to legislate certain laws outside the Indian Constitution—and bifurcate it into two union territories.⁴² Infuriated with India's decision, Pakistan attempted to shore up support from countries like Saudi Arabia, a key player in the OIC. The kingdom, instead of providing support, was blunt in its message that Jammu and Kashmir was internal to India.⁴³ It also declined Pakistan's request to convey a special meeting of the OIC's Council of Foreign Ministers to discuss India's decision.⁴⁴ Suffice it to say, India is a major oil importer of Saudi Arabia and the latter has growing business

⁴¹ Amit Ahuja and Devesh Kapur, "India's geoeconomic strategy," *India Review*, Vol. 17, No. 1, 2018, pp 92-95.

⁴² Press Information Bureau, "Government brings Resolution to Repeal Article 370 of the Constitution," August 05, 2019.

⁴³ Nayanima Basu, "Saudi Arabia 'backs India' against Pakistan on Kashmir and Article 370," *ThePrint*, October 31, 2019, <https://theprint.in/diplomacy/saudi-arabia-backs-india-against-pakistan-on-kashmir-and-article-370/313677/> (accessed on July 23, 2021).

⁴⁴ Baqir Sajjad Syed, "Saudi Arabia Unwilling to Back OIC Ministers' Meeting on Kashmir," *Dawn*, February 06, 2020, <https://www.dawn.com/news/1532746> (accessed on July 23, 2021).

and economic dealings with India, and Saudi Aramco, the world's biggest oil explorer, was in talks to buy an about 20 percent share in Reliance Industries, one of the largest Indian private companies in a deal worth \$20–25 billion.⁴⁵ (The deal was however subsequently called off due to valuation concerns of Reliance.⁴⁶)

India's geo-economic strategy against Pakistan is also visible in other places. Following India's August 2019 decision, Pakistan's attempt to change the venue of the meeting of the OIC Council of Ministers from the capital city of Niger, Niamey, to Islamabad also failed, ostensibly because of India's deep economic and other engagements with that country. Pakistan's intent of changing the venue of the meeting was a ploy to leverage the home advantage to impress the OIC member to take a strong anti-India stance. Niger's decline came just few months after the Indian foreign minister inaugurated one of the biggest convention centers—Mahatma Gandhi International Conventional Centre (MGICC)—built by India in Niger through a grant assistance of \$56 million.⁴⁷ India's other economic engagements with Niger include a line of credit worth \$96.54 million for projects relating to transport, electrification, portable water, and solar energy. India also extended \$15 million grant assistance in support of organizing an Africa Union summit in 2019. Additionally, India, under the Indian Technical and Economic Cooperation, has trained hundreds of Niger officials in a capacity-building program.⁴⁸

India's economic engagement with Niger is part of the country's broader economic diplomacy in Africa, a region where China has made significant economic investment to further its geopolitical goals. India's economic diplomacy, though modest in comparison with China's, has nonetheless a benign face.⁴⁹ Indian government officials maintain that unlike China, India's economic outreach program has been demand-driven, with projects considered upon request from partner countries. In the past, India has constructed several presidential and parliamentary buildings in Africa, in addition to providing capacity-building training and scholarship to African nationals. Taking the MGICC initiative further, India agreed to construct such centers in more than 20 African countries, with nine countries being given immediate priority.

⁴⁵ "Saudi Aramco in advanced talks on up to \$25 billion Reliance deal," *The Times of India*, August 16, 2021.

⁴⁶ "Reliance, Aramco call off \$15 bln deal amid valuation differences, sources say," *The Hindu*, November 26, 2021, <https://www.thehindu.com/business/Industry/reliance-aramco-call-off-15-bln-deal-amid-valuation-differences-sources-say/article37696580.ece> (accessed on December 23, 2021).

⁴⁷ Abdul Basit, *Hostility: A Diplomat's Diary on Pakistan-India Relations*, HarperCollins, Noida, 2021, p. 258; Sidhant Sibal, "OIC FMs meet takes place at convention centre in Niger built with India's assistance," *DNA*, November 27, 2020, <https://www.dnaindia.com/india/report-oic-fms-meet-takes-place-at-convention-centre-in-niger-built-with-india-s-assistance-2858900> (accessed on July 25, 2021).

⁴⁸ Dipanjan Roy Chaudhury, "First convention centre made by India in Africa launched as Delhi enters China's turf," *The Economic Times*, January 21, 2020, <https://economictimes.indiatimes.com/news/politics-and-nation/first-convention-centre-made-by-india-in-africa-launched-as-delhi-enters-chinas-turf/articleshow/73492225.cms?from=mdr> (accessed on July 26, 2021).

⁴⁹ "India Inc," *The Economist*, April 17, 2021.

India's rising economic heft has also given it a degree of confidence in using an assertive economic stance against countries who have been vocal in criticizing India's internal political affairs. For instance, India banned imports of Malaysian palm oil after Malaysian prime minister Mahathir Mohamad publicly criticized India's decision to change the constitutional status of Kashmir and its 2019 law of providing citizenship to non-Muslim minorities from neighboring countries.⁵⁰ A similar retaliatory measure was also on display when India toyed with the idea suspending a \$2.3 billion naval shipbuilding contract with a Turkish firm after president Recep Tayyip Erdogan raised the Kashmir issue in the UN and Turkey's "cozying up to Pakistan."⁵¹ However, later the government allowed the contract to go through, indicating the limitations that punitive economic measure can play in defending foreign policy goals. It is worth mentioning that economic coercion as a geoeconomic instrument rarely works, especially when it is not supported by other means. In the past India has had similar experience while imposing economic blockades on Nepal in response to the latter's tilt toward China. Instead of changing the Himalayan state's behavior, it resulted in its greater strategic cooperation with Beijing.

Given that China is India's biggest strategic challenge, it is not surprising that much of India's economic statecraft is geared toward China and countering Beijing's influence, particularly in India's neighborhood. A range of instruments ranging from goodwill investments to aid and economic assistance and connectivity projects have been made use of by India in the region. In Afghanistan, India has invested over \$3 billion in building roads, dams, schools, hospitals, electricity transmission lines, and even the Afghanistan Parliament building.⁵² In Bangladesh, Indian investment is currently about \$3 billion and is likely to increase to \$9 billion after Memorandum of Understanding or numerous projects were signed following prime minister Sheikh Hasina's visit to India in April 2017.⁵³

⁵⁰ Rajendra Jadhav, "Govt bans refined palm oil imports targeting Malaysia over Kashmir, CAA criticism," *mint*, January 08, 2020, <https://www.livemint.com/news/india/govt-bans-refined-palm-oil-imports-targeting-malaysia-over-kashmir-caa-criticism-11578492981253.html> (accessed on July 23, 2021).

⁵¹ Huma Siddiqui, "UNGA fallout: Turkish Company could be out of the FSS project for Indian Navy," *Financial Express*, October 02, 2019.

⁵² Nirupama Subramanian, "Explained: A look at India's investments in Afghanistan," *The Indian Express*, July 21, 2021, <https://indianexpress.com/article/explained/explained-indias-afghan-investment-7406795/> (accessed on July 28, 2021).

⁵³ "Indian FDI to reach \$9b in future," *The Daily Star*, January 23, 2020, <https://www.thedailystar.net/business/news/indian-fdi-reach-9b-future-1857817>.

A key plank of India’s geoeconomic instrument to counter Chinese influence in its neighbourhood has been aid and developmental assistance. As Table 3 shows, of India’s successive annual aid budgets, over 70 per cent is earmarked for the South Asian countries, indicating how important India perceives the region to retain its geopolitical influence.

Table 3. India’s Aid Budget: South Asia and Rest of the World (INR Billion)

Country	2017–18	2018–19	2019–20	2020–21	2021–22	2022–23	2023–24
Bhutan	25.9	24.8	26.7	21.0	16.5	25.0	24.0
Afghanistan	3.7	4.7	4.1	3.5	1.7	3.5	2.0
Bangladesh	0.8	1.3	1.4	1.8	2.2	1.7	2.0
Nepal	3.8	7.6	12	8.8	4.5	4.3	5.5
Sri Lanka	0.8	1.7	2	0.4	0.5	0.8	1.5
Maldives	1.1	4.4	3.1	1.6	2.5	4.0	4.0
Total South Asia	36	44.5	49.2	37.1	27.7	39.2	39.0
Non-South Asian Countries	11.7	16.6	19.9	15.0	19.0	15.6	15.1
Total	47.6	61.1	69.2	52.1	46.8	54.8	54.1

Figures for 2022–23 and 2023–24 are revised and budget estimates, respectively.

Source: Table compiled from Ministry of Finance, Government of India, Union Budget (relevant years).

Like the aid, India has also used lines of credit (LoCs) to blunt Chinese footprint in South Asia. During 2010–19, India provided 168 LoCs worth \$23 billion.⁵⁴ A big chunk of these LoCs have been extended since the Modi government came to power. Between 2014–15 and 2021–22, India extended LoCs worth \$18.648 billion, of which six South Asian countries have received 65 percent, with Bangladesh receiving the bulk of it.⁵⁵

⁵⁴ Lok Sabha, “Line of Credit”, Unstarred Question, No, 3714, Answered on December 11, 2019.

⁵⁵ Ministry of External Affairs, Government of India, <http://meadashboard.gov.in/indicators/133> (accessed on July 29, 2021).

Trade, investment, and physical connectivity are also the other geoeconomic instruments that India has employed in South Asia to counter China's influence. India has signed a free trade agreement with Sri Lanka, a Treaty of Trade with Nepal, an Agreement on Trade, Commerce and Transit with Bhutan, and launched key infrastructure projects linking with Bangladesh.⁵⁶ In view of Pakistan's objection to the SAARC MVA (South Asian Association for Regional Cooperation Motor Vehicles Agreement) to facilitate cross-border movement of people and cargo traffic, India has opted for a subregional framework with the participation of Bangladesh, Bhutan, and Nepal.

India's Geoeconomic Response to China Following the COVID-19 Pandemic and Galwan Crisis

India's geoeconomic response toward China has taken a definitive turn in recent years, particularly after the outbreak of the COVID-19 pandemic and the Galwan crisis, revealing India's intense power rivalry with Beijing. In the past, the geoeconomic instruments to counter Beijing's influence in third countries were wielded through aid, trade, and investment; the instruments used recently were more direct with an intention to hurt China economically, delink the Indian economy from that of China, and create an alternative to the China-dominated international economic order.

On April 18, 2020, the Indian government announced a key amendment to its foreign direct investment (FDI) policy governing investments from countries sharing land borders with India. Clearly directed against China, the policy stated in unequivocal terms to curb "opportunistic takeovers/acquisitions of Indian companies due to the current COVID-19 pandemic."⁵⁷ The policy was in response to increased Chinese stakes in Indian companies and the concerns over its strategic consequences. The concerns have further been heightened by China's 2017 National Intelligence Law that forces companies to share data and other information to support state intelligence agencies.

It is worth mentioning that there has been a visible increase of interest by Chinese companies in acquiring stakes in their Indian counterparts. Between 2014 and 2017 there was a five-fold increase in investment to \$8 billion.⁵⁸ Much of the investment has been in the technology sector with start-ups witnessing a 12-fold increase (from \$381

⁵⁶ PIB, "Regional Trade Agreements," December 15, 2021.

⁵⁷ Press Information Bureau, "Government amends the extant FDI policy for curbing opportunistic takeovers/acquisitions of Indian companies due to the current COVID-19 pandemic," April 18, 2020.

⁵⁸ Priscilla Jebaraj, "Government nod mandatory for FDI from neighbouring countries," *The Hindu*, April 19, 2020, <https://www.thehindu.com/business/Economy/government-nod-mandatory-for-fdi-from-neighbouring-countries/article31379229.ece> (accessed on July 24, 2021).

million to \$4.6 billion) in Chinese investment between 2016 and 2019. The massive investment has resulted in a piquant situation of the majority of Indian unicorns—17 out of 24—being funded by Chinese companies such as Alibaba and Tencent.⁵⁹

India's economic response to China was in full display in the wake of the June 15, 2020 Galwan crisis. Within two weeks of the death of 20 Indian army personnel, India responded with a ban on 59 Chinese mobile applications, including popular apps like TikTok and PUBG. By November 2020, the ban was extended to over 200 apps, indicating India's determination to respond to a military and diplomatic crisis through economic means. (However, within a year of the ban, several of Chinese apps resurfaced with separate names, indicating the limitation of India's digital warfare.)⁶⁰

The app ban was soon followed by the Indian government's instructions to the state-run telecom firms, Bharat Sanchar Nigam and Mahanagar Telephone Nigam, to exclude Chinese telecom equipment from participation in the upgrade of their mobile networks to 4G.⁶¹

The 4G ban was then extended to cover 5G. In May 2021, India announced the exclusion of Chinese equipment providers Huawei and ZTE from 5G trials in India.⁶²

The 5G ban, which came after similar bans by several other countries including the United States and Australia, was sealed after India issued the National Security Directive on Telecommunication Sector to vet trusted vendors and products for use in the country's telecom sector. The 5G ban also revealed that India is prepared to bear additional cost when it comes to safeguarding its national security: The exclusion of Chinese equipment could lead to additional cost of up to 20 percent.⁶³

⁵⁹ "Chinese investments in Indian start-ups grow 12 times to USD 4.6 bn in 2019: GlobalData," The Times of India, June 28, 2020, <https://economictimes.indiatimes.com/small-biz/startups/newsbuzz/chinese-investments-in-indian-start-ups-grow-12-times-to-usd-4-6-bn-in-2019-globaldata/articleshow/76647471.cms?from=mdr> (accessed on July 24, 2021).

⁶⁰ Pankaj Dhoval, "Defying ban, Chinese apps quietly grow in India, again," The Times of India, August 29, 2021.

⁶¹ Sankalp Phartiyal, "India tells two state firms not to use China telecoms gear, source says," Reuters, June 18, 2020, <https://www.reuters.com/article/us-india-china-telecoms-idUSKBN23P23T> (accessed on July 25, 2021).

⁶² Press Information Bureau, "Telecom Department gives go-ahead for 5G Technology and Spectrum Trials," May 04, 2021.

⁶³ Aman Grover and Shivangi Mittal, "Chinese firms left out of 5G trials in India but Modi govt played fair. Here's how," ThePrint, May 25, 2021, <https://theprint.in/opinion/chinese-firms-left-out-of-5g-trials-in-india-but-modi-govt-played-fair-heres-how/664638/> (accessed on July 25, 2021).

After the Galwan crisis, India also briefly erected customs barriers to prevent certain imports from China.⁶⁴ The measures came in the wake of popular demand to curb imports from China, with the commerce minister asking the trade associations to identify nonessential items imported from China for possible sanctions.⁶⁵ India has not resorted to any sanctions, however, possibly due to the marginal impact it would have on China—China’s exports to India amount to just about three percent of its total exports. Similarly, contrary to the popular perceptions that China exports only finished goods and imports raw materials in return, Beijing’s exports to India include several intermediate items critical for India’s domestic manufacturing and exports.⁶⁶ Not surprisingly, no concrete action has been taken after the initial demand for trade sanctions.

In a further move to delink the Indian economy from China, India decided against signing the Regional Comprehensive Economic Partnership (RCEP). India, which was negotiating the RCEP deal from the very beginning, decided to pull out at the last moment due to several concerns, including the fear that it will further widen the trade imbalance, giving an edge to China to use trade as a weapon during times of crisis.⁶⁷ (In 2020–21, India’s trade deficit with China was \$73.3 billion, or 38 percent of India’s total trade deficit of \$191 billion).⁶⁸ Suffice to say that India’s trade negotiations with China over the “millions of non-tariff barriers” that Beijing has erected have been what India’s foreign secretary, Vijay Gokhale, termed a “frustrating” experience.⁶⁹ To him, instead of addressing India’s concerns, Beijing has brought “new ones,” further widening the trade deficit. However, proponents of the free trade have cautioned against India’s decision to withdraw from the RCEP. Arvind Panagariya, former vice chairman of NITI Aayog (National Institution for Transforming India; the official think tank of the Indian government), argues that India’s decision to remain outside will put the country at a disadvantage, as large multinational foreign companies would be hesitant to invest in India in the absence of a duty-free access to the larger RCEP market.⁷⁰

⁶⁴ C Shivakumar, “Uncertainty over Chinese imports hits Indian industries hard,” *The New Indian Express*, July 04, 2020, <https://www.newindianexpress.com/states/tamil-nadu/2020/jul/04/uncertainty-over-chinese-imports-hits-indian-industries-hard-2165190.html> (accessed on August 08, 2021).

⁶⁵ “Government working on steps to cut import dependence on China, boost manufacturing: Sources,” *The Economic Times*, June 18, 2020.

⁶⁶ Arvind Panagariya, “On China Trade Sanctions,” *The Times of India*, June 25, 2020, <https://timesofindia.indiatimes.com/blogs/toi-edit-page/on-china-trade-sanctions-india-can-serve-its-national-security-much-better-by-rapidly-expanding-its-economy/> (accessed on August 08, 2021).

⁶⁷ Harsh V. Pant and Nandini Sarma, “Modi Was Right. India Isn’t Ready for Free Trade,” *ORF Commentary*, November 20, 2019, <https://www.orfonline.org/research/modi-was-right-india-isnt-ready-for-free-trade-57963/> (accessed on August 03, 2021).

⁶⁸ Ministry of Commerce, Export Import Data Bank.

⁶⁹ Committee on External Affairs, 16th Lok Sabha “Sino-India Relations Including Doklam, Border Situation and Cooperation in International Organizations,” Report No. 22, September 2018, p. 44.

⁷⁰ Harikishan Sharma, “Arvind Panagariya: RCEP in our interest, no MNC will come if we sit outside,” *The Indian Express*, November 13, 2019.

Apart from the unilateral route, India has also taken the bilateral and multilateral paths to blunt China's economic dominance and the concomitant geopolitical influence. The initiatives, though nascent at the moment, include promotion of alternative resilient supply chains and building critical infrastructure to rival China's BRI.

Reflecting the concerns shared by other democratic countries, India has made an effort to develop non-Chinese global supply chains to lessen dependency on the Chinese economy and blunt Beijing's economic diplomacy in the region. A key momentum in this regard came in the form of a Quad summit-level meeting on March 12, 2021, which led to formation of four groups, including Critical Vaccine Partnership and Emerging Technology Working Group. Under the Quad Vaccine Partnership, India, the world's larger vaccine manufacturer, is set to leverage U.S. and Japanese finance and Australian logistics support to manufacture at least one billion vaccines to supply countries in Indo-Pacific, a region where intense rivalry of major powers is underway.⁷¹ The emerging technology group, considered by some as the "most critical group of Quad," is intended to "facilitate cooperation on international standard and innovative technologies of the future."⁷²

Subsequent to the Quad summit-level meeting, India along with two other group members, Australia and Japan, launched the Supply Chain Resilience Initiative (SCRI) on April 27, 2021. Though in a formative stage in its present form, the initiative, which was dismissed by China as "unrealistic," aims at "supporting the enhanced utilization of digital technology; and (ii) supporting trade and investment diversification."⁷³ The SCRI comes in the wake of India's announcement of \$26 billion worth of production linked incentives (PLIs) to boost domestic manufacturing and lessen imports. Initially meant for three sectors, the scheme has expanded to cover 13 sectors including electronics, pharmaceuticals, and automobile components. Further, in a significant development, the Union Cabinet on December 15, 2021, announced a package of over \$10 billion for the development of semiconductors and a display manufacturing ecosystem within the country.⁷⁴ Though the schemes/program is not directed against any country, they are clearly intended to create trusted sources and insulate the country against geopolitical risks created by Chinese belligerence.

⁷¹ Ministry of External Affairs, "Quad Summit Fact Sheet," March 12, 2021, https://www.mea.gov.in/bilateral-documents.htm?dtl/33621/Quad_Summit_Fact_Sheet (accessed on July 28, 2021).

⁷² Indrani Bagchi, "Blinken & You Won't Miss it," *The Times of India*, July 30, 2021; Ministry of External Affairs, "Transcript of Special Briefing on First Quadrilateral Leaders Virtual Summit by Foreign Secretary (March 12, 2021)," *Media Briefings*, March 13, 2021.

⁷³ Press Information Bureau, "Australia-India-Japan Trade Ministers' Joint Statement on Launch of Supply Chain Resilience initiative", April 27, 2021; Ananth Krishnan, "China wary as India, Australia, Japan push supply chain resilience", *The Hindu*, April 28, 2021, <https://www.thehindu.com/news/national/china-wary-as-india-australia-japan-push-supply-chain-resilience/article34431964.ece> (accessed on July 26, 2021).

⁷⁴ PIB, "Cabinet approves programme for development of semiconductors and display manufacturing ecosystem in India", December 15, 2021.

To counter China's BRI, India has taken two key steps. It has supported G-7 countries' Build Back Better World (B3W) initiative to help narrow the \$40+ trillion infrastructure requirement of the developing world.⁷⁵ Prior to this, India along with Japan launched the ambitious Asia-Africa Growth Corridor (AAGC). Launched in November 2016 by prime minister Modi and Japanese prime minister Shinzo Abe, the AAGC is geared to link the two regions through sea links and quality infrastructure.

It is pertinent to mention that India's bilateral or multilateral initiatives to counter China's economic diplomacy following the COVID-19 pandemic and Galwan crisis are in stark contrast with its previous support of China-dominated multilateral economic institutions such as Asian Infrastructure Investment Bank and BRICS (Brazil, Russia, India, China and South Africa) Bank. India's participation in such China-led economic institutions was not just motivated to influence them from within but was also partly due to the India's attempt to promote a multipolar world to counter the US dominance in the post-Cold War era. This is also seen in India's participation in other forums—such as BRICS, Russia, India and China (RIC), and Shanghai Cooperation Organisation (SCO)—involving China. As Raja Mohan argues, India's support for such institutions was part of New Delhi's "strategic inertia," emanating from a "misreading of great-power relations" and its inability to comprehend the Chinese threat. However, a series of events—China's 2016 blocking of India's entry into the NSG, Doklam crisis of 2017, China's raising of questions in the UN Security Council about India's 2019 decision to change the constitutional status of Jammu and Kashmir, 2019 Galwan crisis, and the ongoing crisis at Ladakh—has left little room for "ambivalence about Chinese power and the unprecedented problem it poses for India."⁷⁶ Not surprisingly, India has responded in all possible manners, including through economic means to counter China.

⁷⁵ White House, "Fact Sheet: President Biden and G7 Leaders Launch Build Back Better World (B3W) Partnership", Statements and Releases, March 12, 2021, <https://www.whitehouse.gov/briefing-room/statements-releases/2021/06/12/fact-sheet-president-biden-and-g7-leaders-launch-build-back-better-world-b3w-partnership/>; "Looking forward to working with G7: Jaishankar on its mega infrastructure initiative", The Times of India, June 22, 2021, <https://timesofindia.indiatimes.com/india/looking-forward-to-working-with-g7-jaishankar-on-its-mega-infrastructure-initiative/articleshowprint/83756667.cms?val=3728> (accessed on July 28, 2021).

⁷⁶ C. Raja Mohan, "Kissinger and India's Geopolitics," in Sanjaya Baru and Rahul Sharma (ed.), *A New Cold War: Henri Kissinger and the Rise of China*, HarperCollins, Noida, 2021, pp. 207-209.

Limits to India's Economic Statecraft

Though India has taken both direct and indirect economic measures to blunt Chinese dominance, there is limit to which India could play its geoeconomic card to achieve strategic objectives. New Delhi's basic limitations emanate from its limited economic endowments compared to Beijing's. In terms of GDP, trade, foreign exchange reserves, or manufacturing capacity, China is far ahead of India.

As mentioned earlier, India could not resort to punitive trade measures, largely because of its negligible impact on China. With China accounting for a mere 3 percent of India's total export, it is obvious that any impact of trade restrictions would be minimal.

India's constraints on China in using geoeconomic policies to promote strategic goals is particularly visible in South Asia. Even though India has provided significant aid and made big investments in its several neighbors, they pale in front of China, which has wooed these countries through massive investment through its flagship BRI. China announced to make \$24 billion investment in Bangladesh, in comparison to India's promised investment of \$9 billion. In Nepal, where India used to be the biggest investor in the past, Chinese FDI now far exceeds that of India.⁷⁷

Innovation

India has a diversified innovation setup spanning across sectors of defense, space, atomic energy, pharmaceuticals, biotechnology, automotive, information technology, and myriad others. Much of India's innovation ecosystem is, however, within the public sector, with the private sector largely confined to nonstrategic areas. With time, there has been some noticeable improvement in India's innovation. This is evident from a number of studies. As per the Global Innovation Index, India has jumped 33 places and was ranked 48th in 2020. The country aspires to break into top 25 innovative countries in the near future.⁷⁸

While self-reliance and global power status have been the key drivers behind the creation or expansion of India's innovation ecosystem, national security considerations and strategic competition with key rivals, especially China, are increasingly shaping its contour.

⁷⁷ "How China is trying to push India out of Nepal", The Economic Times, October 14, 2020.

⁷⁸ Press Information Bureau, "India's ranking in Global Innovation Index jumps to 48th in 2020, (+33 ranks from 81st in 2015-16)," August 17, 2021.

The Indian defense industry has been at the forefront of developing technologies to counter threats to national security. Consisting of a vast network that includes 16 Defence Public Sector Undertakings, over 50 dedicated research labs under the umbrella of the Defence Research and Development Organisation (DRDO) and a growing private sector, the industry is responsible for designing, developing, and manufacturing arms for the defense forces.⁷⁹ Though the performance of the defense industry is not upto the mark, leading to huge arms import bills year after year, the industry has nonetheless delivered a range of capabilities to meet the national security requirements. Some of the high-profile items designed and manufactured locally include combat aircraft, a main battle tank, nuclear submarine, aircraft carrier, helicopters, tactical and ballistic missiles, radars, and other electronic items.⁸⁰

Within the defense industry, the DRDO, the R&D wing of the Ministry of Defence (MoD), is at the heart of India's defense innovation. Formed in 1958, it caters to diverse disciplines such as aeronautics, armaments, combat vehicles, combat engineering, electronics, missiles, life sciences, materials, and naval systems.⁸¹ The cumulative value of products developed by the DRDO that are either inducted by the armed forces or in the production process amounted to \$32 billion in 2019–20.

Though technology development to meet the requirements of defense forces is the primary goal of the DRDO, its developmental goals have increasingly been shaped by India's threat perceptions from China. This is particularly evident from some of the key strategic technologies developed by India. Three clear examples illustrating India's response to Chinese military modernization pertain to India's nuclear weapons program, Agni-V intercontinental ballistic missile, and anti-satellite (ASAT) testing.

In May 1998, India conducted five underground nuclear tests, heralding its nuclear weapons status. The 1998 tests came over two decades after the country conducted its first nuclear explosion in 1974. As Manjeet Pardesi argues, the politico-strategic threat from Beijing was among the key factors behind India going on the nuclear path.⁸² Prime minister Atal Vihari Vajpayee, under whose leadership the tests were conducted in his letter to U.S. president Bill Clinton referred to the "deteriorating security environment," obliquely referring to China and its ally, Pakistan, as the reason for India's nuclear test. Since the latest nuclear test, India has also upgraded its nuclear arsenal and fielded a nuclear triad, including the vital sea-leg: nuclear submarine-based ballistic missile.

⁷⁹ Laxman Kumar Behera, "Examining India's Defence Innovation Performance", *Journal of Strategic Studies*, Vol. 44, NO. 6, 2021, pp. 830–853.

⁸⁰ Laxman Kumar Behera, *Indian Defence Industry: An Agenda for Making in India*, Pentagon, New Delhi, 2016.

⁸¹ Standing Committee on Defence, 17th Lok Sabha, "Demands for Grants 2021-22," 22nd Report, p. 18.

⁸² Manjeet S. Pardesi, "China's Nuclear Forces and Their Significance to India," *The Nonproliferation Review*, Vol. 21, No. 3-4, 2014, pp. 337-354.

India's missile program dates back to 1980s when the government sanctioned development of a number of missile systems. The most high-profile of the series developed by the DRDO is Agni-V, the maiden test of which took place in 2012. With a range of over 5,000 km (3,100 mi), the missile forms a key part of India's nuclear triad. More significantly it brings nearly all of China within its range, which no other ballistic missile in India's armory had the capability to do. It is worth noting that when India conducted the fourth and preoperational test of the missile in December 2016, Beijing's reaction was "belligerent and hostile."⁸³ To complement the land-based missile, India has also fielded submarine-launched ballistic missiles, the K-15 (750 km/466 mi range), with a much longer range K-4 missile (3,500 km/2,175 mi range) being currently tested. Suffice it to say, the sea-leg of India's nuclear triad is much more China specific than it is for India's western neighbor, Pakistan.

In March 2019, India successfully conducted Mission Shakti, an ASAT test, by engaging an orbiting satellite at an altitude of nearly 300 km (186 mi).⁸⁴ With the test, India joined three other nations—the United States, the former Soviet Union, and China—that have demonstrated such capability. More significantly the test also demonstrated to China India's "capability to defend its assets in outer space"⁸⁵. Though the Indian government was cautious in stating that the test was not against any country, the new found space capability was a strategic response to balance China. As Kanwal Sibal, India's former foreign secretary puts it, the ASAT test, like that of India's nuclear capability, was an attempt to redress the "strategic balance" with China.⁸⁶

India's strategic competition with China regarding the development of frontline defense technologies could also be seen as India bracketing itself with China in the select group of countries that have achieved success with such technologies. The mentioning of India's global status has been frequently made in recent years with reference to India's aircraft carrier, ASAT, hypersonic missile technology, main battle tank, fighter aircraft, submarine, and ballistic missile defense. Considering that these technologies/platforms have little military use other than against China or its proxy, Pakistan, such statements bring out India's intent to engage in strategic rivalry in critical defence technologies.

⁸³ G Parthasarathy, "Why our Agni V launch fired up China," *The Hindu Business Line*, January 12, 2018, <https://www.thehindubusinessline.com/opinion/why-our-agni-v-launch-fired-up-china/article9474120.ece> (accessed on August 09, 2021).

⁸⁴ Laxman Kumar Behera, "Mission Shakti: What Next?" *IDSA Comment*, April 09, 2019.

⁸⁵ Press Information Bureau, "India Joins Select Group of Nations, Destroys Live Satellite in Low Earth Orbit," March 27, 2019.

⁸⁶ Kanwal Sibal, "The A-SAT test restores the India-China strategic balance," *Hindustan Times*, April 04, 2019, <https://www.hindustantimes.com/analysis/the-a-sat-test-restores-the-india-china-strategic-balance/story-jkn9FsMQE3OqNd7edCIAO.html> (accessed on August 09, 2021).

Compared to the nuclear, missile, and defense industries, India's strategic rivalry with China in the space domain is rather subtle. India's space program, which began in the early 1960s, was primarily driven to serve the country's socioeconomic needs. However, owing to militarization of space by major space powers, especially China, India has also spread into this domain since mid-2000.⁸⁷ Apart from the ASAT of 2019, which was undertaken by the MoD-owned DRDO, India's use of space for military use consists of several dedicated defense satellites, apart from a range of dual-use satellites. India has already launched two dedicated defense satellites, with a plan to send more in the future.⁸⁸ To coordinate the military aspects of space, the MoD has further raised a tri-service body: Defence Space Agency.⁸⁹

It is, however, to be noted that China's space program is much more advanced than India's in terms of technology, number of launches, payload lift capability, manned space missions, space navigation, and an independent space station.⁹⁰ India's space program is nonetheless advancing rapidly. It has its own satellite launch vehicle that can send satellites of up to four tonnes into geosynchronous transfer orbit.⁹¹ In 2014, India became the first country in the world to succeed in its maiden Mars Orbiter Mission, which placed a space probe in the orbit of the red planet.⁹² *Chandrayaan-I*, India's first moon mission launched in 2008, discovered water molecules on the lunar surface (India's 2nd moon mission, launched in 2018, was a partial success with the lander crash-landing on the moon surface). India also plans to launch its first manned space mission, *Gaganyaan*, in 2024.⁹³

With rapid progress in space science, India has also achieved a degree of self-reliance. Nearly 90 percent of the Indian Space Research Organisation's (ISRO's) launch vehicles are sourced from domestic industry. (In satellites, however, India's self-reliance is around 50-55 percent. In electronics, ISRO's import dependency is about 60-70 percent).⁹⁴

⁸⁷ Rajeswari Pillai Rajagopalan, "From earth to space: India and China's space programmes gear up for intense competition ahead," ORF Commentaries, June 29, 2020, <https://www.orfonline.org/research/from-earth-to-space-68717/> (accessed on August 13, 2021).

⁸⁸ Ajeey Lele, *Institutions that Shaped Modern India: ISRO*, Rupa, New Delhi, 2021, pp. 116-117.

⁸⁹ Press Information Bureau, "Commercial Exploitation of Space Research and Development," November 21, 2019.

⁹⁰ Ajeey Lele, "Space Security Dilemma: India and China," *Astropolitics*, Vol. 17, No. 1, 2019, pp. 23-37.

⁹¹ <https://www.isro.gov.in/launchers/gslv-mk-iii>.

⁹² "Mars Mission: India creates history as Mangalyaan successfully enters Mars orbit in first attempt," *The Economic Times*, September 24, 2014, <https://economictimes.indiatimes.com/news/science/mars-mission-india-creates-history-as-mangalyaan-successfully-enters-mars-orbit-in-first-attempt/articleshow/43299562.cms?from=mdr> (accessed on August 14, 2021).

⁹³ Lok Sabha, "Gaganyaan Mission", Unstarred Question No. 2417, Answered on March 15, 2023.

⁹⁴ Department of Space, Annual Report 2020-21, p. 64; Rajya Sabha, Demands for Grants (2021-22) of the Department of Space, Report No. 345, p. 9.

With a robust space program, India has attempted, though modestly at present, to use spatial capability to promote its geopolitical goal. This is especially visible in its region, where, as mentioned earlier, China's strategic footprint has grown. In a move to promote South Asian regional cooperation by harnessing India's prowess in space sector, prime minister Modi in 2014 announced the launch of the SAARC satellite as an Indian gift. The name of the satellite was changed to South Asia Satellite (a communication satellite), in response to Pakistan's reluctance to join the program and was successfully launched in May 2017. The strategic importance of the satellite was registered in Beijing, with state-sponsored *Global Times* praising the initiative and hoping that China not be excluded in such regional endeavors.⁹⁵

India's space diplomacy at present is however modest in comparison to China. For instance, as part of the BRI, China has offered its homegrown Beidou space navigation system to over 100 countries, including Pakistan, consolidating its geopolitical hold over them. India's own navigation system, which is on a much smaller scale, is yet to be fully functional.

One area where India has established its prowess pertains to the low-cost launch of commercial satellites into low Earth orbit, allowing the space agency to be a carrier for international satellite launches. As of March 2021, ISRO successfully launched 342 foreign satellites from 34 countries, earning a total of €190 million and \$56 million.⁹⁶ This is also an area where China is also competing aggressively.⁹⁷

To provide a leg up to India's space economy, the government has taken a number of reform initiatives as part of Atmanirbhar Bharat Abhiyan. Apart from domestic factors, geopolitical reasons are also a key driver behind the reforms.⁹⁸ These include the establishment of a regulatory body—Indian National Space Promotion and Authorization Centre (IN-SPACe)—with an objective to provide a level-playing field to private players and encourage their participation. The creation of IN-SPACe follows another step taken in 2019 to establish NewSpace India Limited (NSIL). The reforms have led to some visible interest from the industry with 35 companies submitting undertakings to carry out space activities in different sectors.⁹⁹ With the new

⁹⁵ K. J. M. Varma, "India's South Asia satellite worth praising, says China daily," *LiveMint*, May 03, 2017.

⁹⁶ Lok Sabha, "Private Satellite," Unstarred Question No. 4789, Answered on March 24, 2021.

⁹⁷ Stephen M. McCall, "Challenges to the United States in Space," Congressional Research Service, January 27, 2020, <https://crsreports.congress.gov/product/pdf/IF/IF10337> (accessed on August 14, 2021).

⁹⁸ Chaitanya Giri, "India's Catalytic Reforms for Space 2.0 Era," *Journal of Indo-Pacific Affairs*, March 08, 2021, <https://www.airuniversity.af.edu/JIPA/Display/Article/2527968/indias-catalytic-reforms-for-space-20-era/> (accessed on August 15, 2021).

⁹⁹ Of the 35 companies, 16 have evinced interest in the satellite segment, followed by seven each in ground and launch vehicle segments, and five in space applications. Lok Sabha, "Private Sector Participation in Space," Unstarred Question No. 2596, Answered on March 10, 2021.

regulatory body and institution, NSIL, in place, the ISRO is freed to focus on core areas of space science and technology, with the industry to take over industrial and commercial parts of the space program.

Apart from traditional areas of defense, nuclear and space, India's strategic competition with China has also spilled over to manufacturing and also emerging technologies. Under Modi's government, manufacturing has come under a great deal of focus, enshrined under the Make in India and Atmanirbhar Bharat Abhiyan. The key objective of the government is to increase the share of manufacturing in the country's gross value added from the present 14 percent to 25 percent and create employment opportunities for a vast segment of the population.

Besides the economic imperative, a strong geopolitical factor is also driving India's efforts in promoting its domestic manufacturing. Following the COVID-19 pandemic and particularly after the Galwan crisis, India has been quite vocal in achieving self-reliance and lessening import dependency, particularly from China. The Production Linked Scheme (PLI) launched by the government is another attempt to stimulate several critical manufacturing sectors. Under the scheme the government provides an incentive of 4–6 percent on incremental sales. It is worth noting that of the 14 sectors identified under the PLI, India's dependence on China is about 40 per cent.¹⁰⁰ It is not surprising that among the first three sectors for which PLI was notified include telecom, key pharmaceutical ingredients in which India's dependence on China was significant.

Emerging Technologies

Emerging technologies such as artificial intelligence (AI), lethal autonomous weapons, hypersonic weapons, directed energy weapons, biotechnology, and quantum technology are now touted to have a disruptive impact on the future conduct of warfare. The United States, which had been at the forefront of many disruptive technologies in the past, is now facing increasing competition, particularly from China and Russia.¹⁰¹

The Indian government has recognized the importance of emerging technologies for nation building and national security. The Ministry of Electronics and Information Technology (MEITY) has listed eight emerging technologies—5G, artificial intelligence, blockchain, augmented reality, virtual reality, machine learning and deep learning,

¹⁰⁰ "In Charts: How India can reduce dependence on China for imports by leveraging PLI schemes", The Time of India, February 06, 2023.

¹⁰¹ Kelley M. Saylor, "Emerging Military Technologies: Background and Issues for Congress," Report of the Congressional Research Service, November 10, 2020, <https://fas.org/sgp/crs/natsec/R46458.pdf> (accessed on August 15, 2021).

natural language processing, and robotics—which it expects to play a “crucial role in the government and industry alike, whether it is planning or decision-making; accelerating development or analyzing deployment, problem solving or product development; discovering new trends or drawing out correlations.”¹⁰² Further, the MEITY has taken a number of initiatives to identify emerging technologies by setting up of centers of excellence on internet of things and virtual reality.

India’s interest in emerging technologies goes beyond technology development to enable the country to become part of the global governance of such technologies. Keeping this in mind, the Ministry of External Affairs has established the New and Emerging Strategic Technologies (NEST) Division to “engage in technology diplomacy and deal with the foreign policy and international legal aspects of new and emerging technologies.”¹⁰³ Among other things, NEST is likely to play a role in influencing the industrial standards that will shape the contours of future industries dealing with emerging technologies. This assumes importance in view of the intense geopolitical rivalry between United States and China for dominating technology standards and Beijing’s fervent efforts to stay ahead of the US.¹⁰⁴ Given the burgeoning Indo-U.S. strategic partnership and India’s participation in several U.S.-led technology groups, including the one linked to the Quad, it would be in India’s interest to oppose Chinese dominance and be part of U.S.-led tech standards.

China’s giant strides in several emerging technologies such as AI, quantum computing, and hypersonic missiles is a key concern for India. It has, in turn, attempted to overcome Chinese dominance through the help of a domestic innovation system and forging alliances with like-minded countries.¹⁰⁵ As mentioned earlier, India has excluded China in its domestic 5G trial on national security grounds and has asked telecom service providers to choose either the home-grown technologies or non-Chinese technologies. Though Indian 5G technology is not mature, Reliance Jio, India’s largest telecom service provider, has publicly stated to have developed a 100 percent homegrown 5G solution that it intends to deploy in Indian and international markets.¹⁰⁶ According to India’s

¹⁰² Ministry of Electronics and Information Technology, “Emerging Technologies Division,” <https://www.meity.gov.in/emerging-technologies-division> (accessed on August 15, 2021).

¹⁰³ Lok Sabha, “New and Emerging Strategic Technologies Division,” Unstarred Question No. 552, Answered on February 05, 2020.

¹⁰⁴ James Kynge and Nian Liu, “From AI to facial recognition: how China is setting the rules in new tech,” *Financial Times*, October 07, 2020, <https://www.ft.com/content/188d86df-6e82-47eb-a134-2e1e45c777b6> (accessed on August 16, 2021).

¹⁰⁵ Laxman Kumar Behera, “India’s High-Tech Strategy to Counter the Era of Chinese Assertiveness,” *Global Asia*, Vol. 17, No. 4, December 2022, pp. 44-49.

¹⁰⁶ Danish Khan, “Jio to take 5G tech to global telcos after proving it in India; achieved 1 Gbps speeds: Ambani,” *The Economic Times*, June 25, 2021.

defense secretary, Ajay Kumar, the domestic 5G ecosystem is, however, confined to parts, components, subsystems, and technologies that together constitute about 10–20 percent of the technologies required in 5G.¹⁰⁷ This ambiguity notwithstanding, several Indian companies are believed to be working toward 6G, with Bangalore, widely known as India’s Silicon Valley, reportedly doing “more work on 6G than is generally known.”¹⁰⁸

In defense, the MoD has taken steps to prop up its defense innovation system. The initiatives include several new procedures in the defense acquisition manual to give an impetus to local design and development. It has articulated a list of 411 defense equipment that are reserved for India-based production. The MoD has also asked the state-owned defense companies to prepare a roadmap for developing AI-based technologies for use in their platforms and reducing dependence on external sources for parts, components, and raw materials.¹⁰⁹

The DRDO, the key defense innovation organization, has also established five labs on AI, quantum technologies, cognitive technologies, asymmetric technologies, and smart materials, with labs being headed by a “young scientist.”¹¹⁰ The organization is also working on hypersonic technology. In September 2020, it successfully flight-tested a hypersonic technology demonstration vehicle by using a solid rocket motor.¹¹¹ Underscoring the importance of the technology for India’s minimum credible nuclear deterrence, especially in view of China’s July 2021 test of a hypersonic missile, the Indian defense minister has urged the DRDO to expedite indigenous development.¹¹²

¹⁰⁷ “India can be significant player in 6G technology: Defence Secretary,” *The Economic Times*, December 08, 2020, <https://economictimes.indiatimes.com/industry/telecom/telecom-news/india-can-be-significant-player-in-6g-technology-defence-secretary/articleshow/79628270.cms?from=mdr> (accessed on July 30, 2021).

¹⁰⁸ Indrani Bagchi, “Blinken & You Won’t Miss it,” *The Times of India*, July 30, 2021.

¹⁰⁹ Ministry of Defence, Government of India, Annual Report 2018-19, p. 59.

¹¹⁰ Lok Sabha, “Young Scientist Laboratories,” Unstarred Question No. 597, Answered on February 05, 2020.

¹¹¹ Press Information Bureau, “DRDO successfully flight tests Hypersonic Technology Demonstrator Vehicle,” September 07, 2020.

¹¹² Rajat Pandit, “Rajnath Singh asks DRDO to fast develop hypersonic weapons,” *The Times of India*, December 15, 2021.

Innovation Constraints

Though India has made significant progress in innovation, especially in nuclear, defense, and space sectors, it is still much behind its key strategic competitor, China, which is substantially ahead of India in key innovation indicators (see Table 4). Among other factors, lack of adequate funding has been a key stumbling block for India's innovation. Currently India spends just 0.7 percent of its GDP on R&D, compared to over 2 percent for China and over 4 percent for countries like Israel and South Korea.

Table 4. India-China Innovation Indicators

Indicator	India	China
R&D Expenditure (billion current PPP \$)	63.2	499.1
R&D Expenditure as % of GDP	0.7	2.1
No. of Researchers per Million Population	255	1,225
Patents Filed Across the World	50,055	1,542,002
No. of Scientific Research Publications (SCOPUS database)	171,879	605,797

Source: Ministry of Science and Technology, Research and Development Statistics 2019–20.

The problem of lack of adequate funding has further been compounded by its skewed distribution. Unlike in advanced countries where the business sector lead R&D spending, in India it is the government that spends an overwhelming proportion. The inefficiency of the public sector, together with its lack of urgency to take innovation from lab to market, has led to slow progress in many projects. Encouraging the private sector along with substantial increases in R&D spending will be key to rapid progress in India's innovation performance.

Conclusion

Though India faces multiple security challenges to its security, it is China that has emerged as New Delhi's biggest strategic challenge. The rivalry with China, with which India fought a brief but bloody war in 1962, and is presently engaged in a military standoff on the northern Himalayan border, transcends to a much bigger plane than the disputed borders. China's military and economic support to Pakistan, its opposition to India in global and multilateral organizations, and its strategic forays into India's traditional spheres of influence, that is, South Asia and the Indian Ocean region, have vastly complicated India's security calculus.

For sure, to counter threats from China, India has adopted a multipronged strategy that includes an emphasis on military modernization through sustained increases in military spending and a major realignment of its strategic world view. Shedding past inhibitions, India has adopted a much closer defense and security partnership with major democracies, particularly the United States, which is also presently engaged in a "renewed strategic competition" with China.

The strategic rivalry with China has also driven India to adopt an aggressive geoeconomic response as well as an innovation strategy—the latter in an effort to respond to the technological challenges emanating from Beijing. India's geoeconomic response to China, which was earlier subtle, has taken a direct approach and is intended to hurt Chinese economic interests in India, decouple the Indian economy from that of China, and promote an alternative economic order. However, given India's poor economic endowments in comparison to China, there is a limit to whether India's economic statecraft could achieve the intended objectives. Similarly, India's innovation strategy, which has resulted in key successes in nuclear, defense, and space sectors, is also constrained by a lack of funding to effectively respond to China's progress, particularly in emerging technologies. Sustaining robust economic growth at above 7.5 percent and a well-funded and efficient innovation ecosystem will be critical in building India's effective response to the Chinese threat.