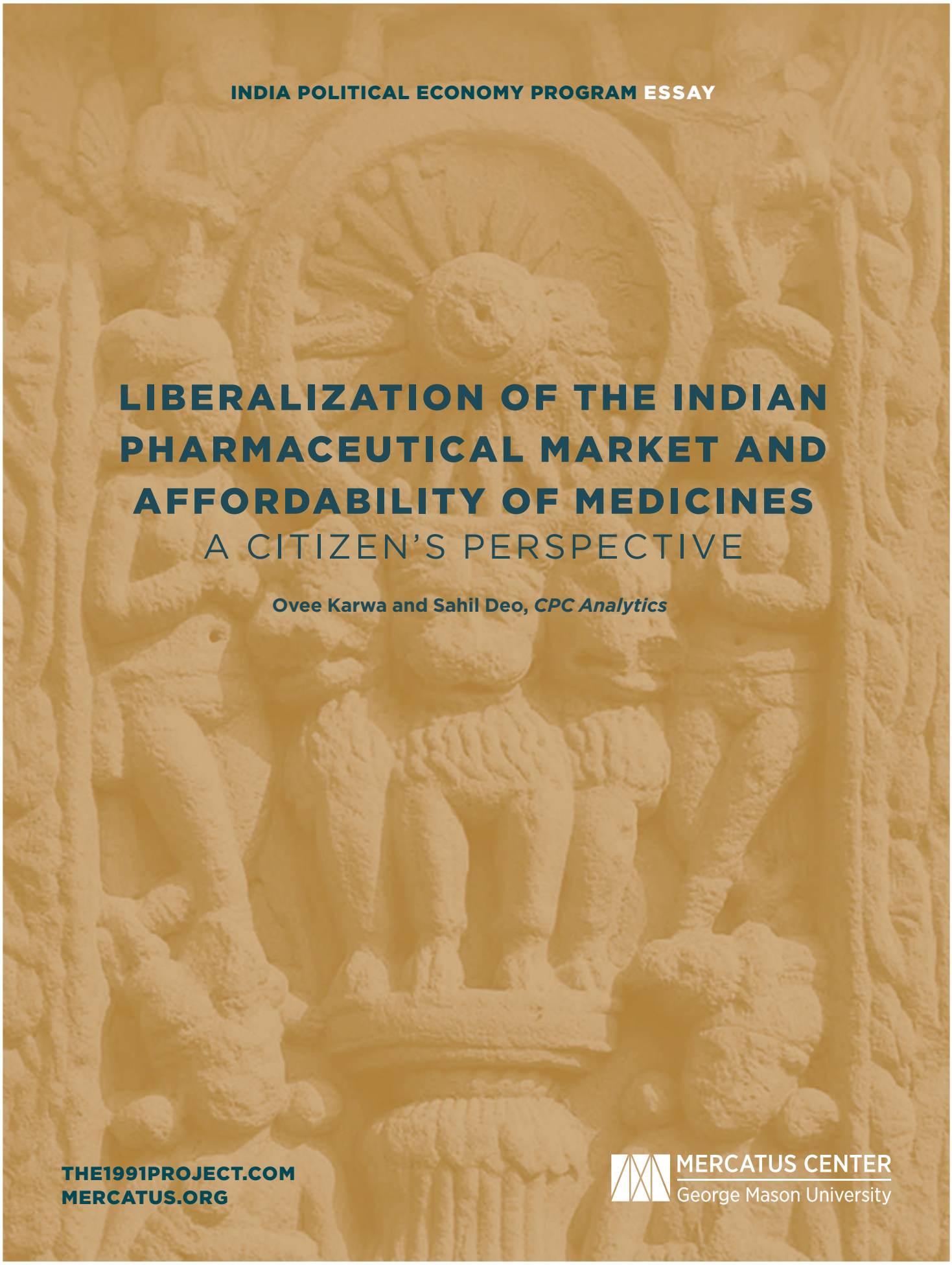

INDIA POLITICAL ECONOMY PROGRAM ESSAY

LIBERALIZATION OF THE INDIAN PHARMACEUTICAL MARKET AND AFFORDABILITY OF MEDICINES

A CITIZEN'S PERSPECTIVE

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Ovee Karwa and Sahil Deo, "Liberalization of the Indian Pharmaceutical Market and Affordability of Medicines: A Citizen's Perspective," Mercatus Essay, Mercatus Center at George Mason University, Arlington, VA, March 2023.

SUMMARY

This essay examines the liberalization of the Indian pharmaceutical market and its impact on medicine affordability. Despite India's role as a major global drug producer, the prevalence of expensive branded generics has led to high out-of-pocket expenditures for healthcare. The essay critiques the limited governmental regulation of medicine prices and calls for stronger interventions to promote affordable, unbranded generics, thus addressing the persistent issues in medicine accessibility and cost.

Keywords: Indian pharmaceutical market; trade liberalization; branded generics; medicine affordability; healthcare expenditures; 1991 economic reforms; India political economy

JEL codes: I11, I18, L65, P11, O53

On the cover: Pillar of Ashoka (detail) at Sanchi, Madhya Pradesh, India. The pillars of the emperor Ashoka the Great (268–232 B.C.), renowned for their polished sandstone and intricate carvings, were dispersed throughout the Indian subcontinent and carried imperial edicts promoting moral and ethical conduct. The Lion Capital of Ashoka, which tops the pillar at Sarnath, Uttar Pradesh, has been adopted as India's national emblem. Twenty of the pillars of Ashoka still survive.

India is famously called the "pharmacy of the world." It contributes to 20 percent of the generic medicines produced worldwide and 60 percent of the vaccines.[1] India's strong manufacturing and processing capacities made it the only lower-middle-income country, among the top 10 countries, with the highest export surplus in health-related goods in 2017.[2] But even as Indian manufacturers make medicines affordable to the rest of world, Indians' private out-of-pocket expenditure (OOPE) for healthcare continues to be among the highest in the world (see figure 1), and a significant proportion of OOPE goes toward medicinal expenses. It is common knowledge that hospitalized patients have to borrow money or sell assets to cover the costs of healthcare.[3] Outpatient care, which accrues more frequent expenses, accounts for two-thirds of OOPE.

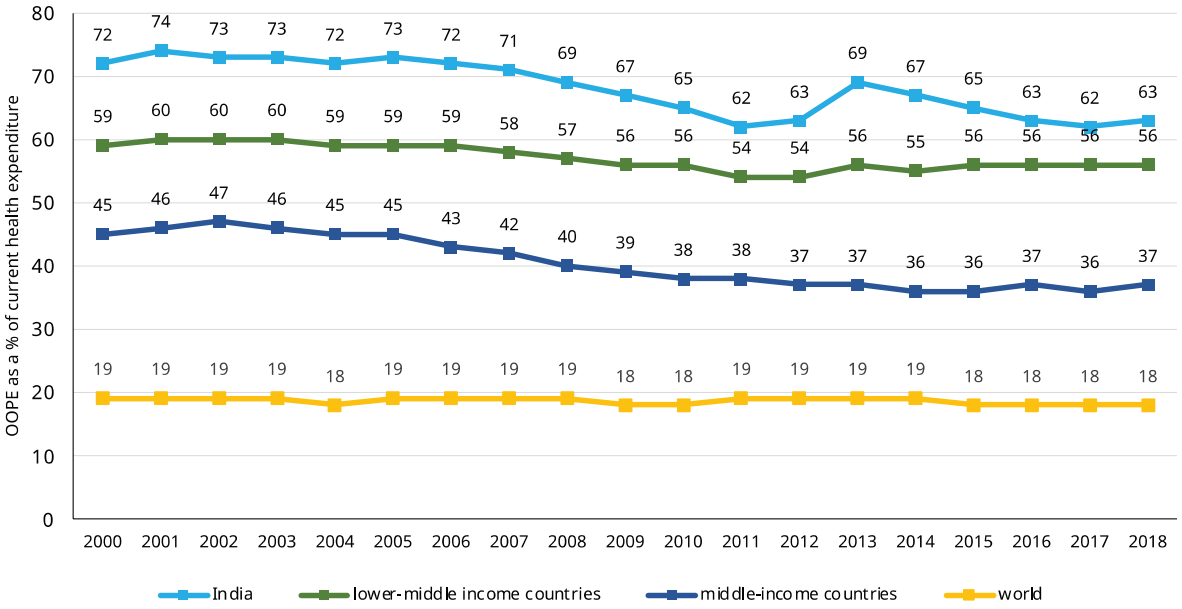
At 63 percent of total health expenditures in 2018, India's OOPE was three times higher than the world's average (18 percent), 7 percent higher than that of the lower-middle-income countries, and 26 percent higher than that of the middle-income countries.

There are many reasons for high OOPE in India. Shortages in public expenditure result in low-quality or unavailable public health services. People opt for private healthcare because of easier access to private healthcare providers and greater trust in them. Some cite unhygienic and overcrowded public hospitals as another reason to opt for private healthcare. Sometimes they must wait for a whole day to get care at a public facility, which is not feasible.

Simultaneously, economic growth over the past three decades has resulted in rising disposable incomes that can be spent in the expanding private sector. At the same time, the share of Indian households incurring catastrophic health

1. Government of India, Ministry of Chemicals & Fertilizers, Department of Pharmaceuticals, *Annual Report 2020–21*.
2. Sahil Deo and Christian Franz, "Building India's Global Health Strategy: Beyond the Role of 'Pharmacist of the World,'" Observer Research Foundation, May 6, 2020.
3. Anant Phadke, "Regulation of Doctors and Private Hospitals in India," *Economic and Political Weekly* 51, no. 6 (2016).

FIGURE 1. INDIA'S OOPE ON HEALTHCARE, 2000–2018



Source: S. Selvaraj, K. A. Karan, S. Srivastava, N. Bhan, and I. Mukhopadhyay, *India Health System Review* (New Delhi: World Health Organization, 2022).

expenditure has risen alarmingly, from 14 percent in 1993/94 to 18 percent in 2011/12.[4] It is, however, pharmaceutical expenditures that account for the greatest share of OOPE. In 2015/16, they constituted 43.16 percent of total OOPE on health. They are the largest category under OOPE, followed by other expenditure categories: private hospitals, medical diagnostics, government hospitals, and general medical practitioners.[5]

The National Statistical Survey (NSS) estimates of 2014/15 and 2017/18 show that a major portion of expenditure in non-hospitalized treatment (72 percent in rural areas, 70 percent in urban areas) is for buying medicines.[6] One study shows that the proportion of monthly income required to purchase a 30-day supply of four essential cardiovascular medicines ranged from 5 to 36 percent; the proportion for two diabetes medicines ranged from 40 to 80 percent; and the proportion for two hypertension medicines ranged from 2 to

4. S. Selvaraj, K. A. Karan, S. Srivastava, N. Bhan, and I. Mukhopadhyay, *India Health System Review* (New Delhi: World Health Organization, 2022).
5. Prachi Singh, Shamika Ravi, and David Dam, *Medicines in India: Accessibility, Affordability and Quality* (New Delhi: Brookings India, 2020).
6. Venkatanarayana Motkuri and Rudra Narayan Mishra, "Pharmaceutical Market and Drug Price Policy in India," *Review of Development and Change* 25, no. 1 (2020).

9 percent.[7] Since most insurance policies cover only inpatient care, expenditure on medicines and outpatient care continues to fall to personal finances.

This paper seeks to understand, from a citizen's perspective, why medicines constitute such a high proportion of OOPE in India. Pharmaceutical manufacturing companies proliferated with the banning of product patents in 1970. Medicines that could not previously be afforded became relatively cheaper and were produced on a large scale. This situation also led to the rise of branded generics, which now constitute the major share of medicines sold and charge brand premiums.

Pharmaceutical companies incur heavy expenditures and engage in various unscrupulous practices to provide incentives to supply chain actors and doctors to make their brands more visible to consumers. The state's interventions to check these unscrupulous practices and promote unbranded generics were *ex post facto* and are merely preliminary steps in making medicines more affordable. Public procurement of medicines is weak in most Indian states, and public hospitals cannot keep up with the demand for free medicines.

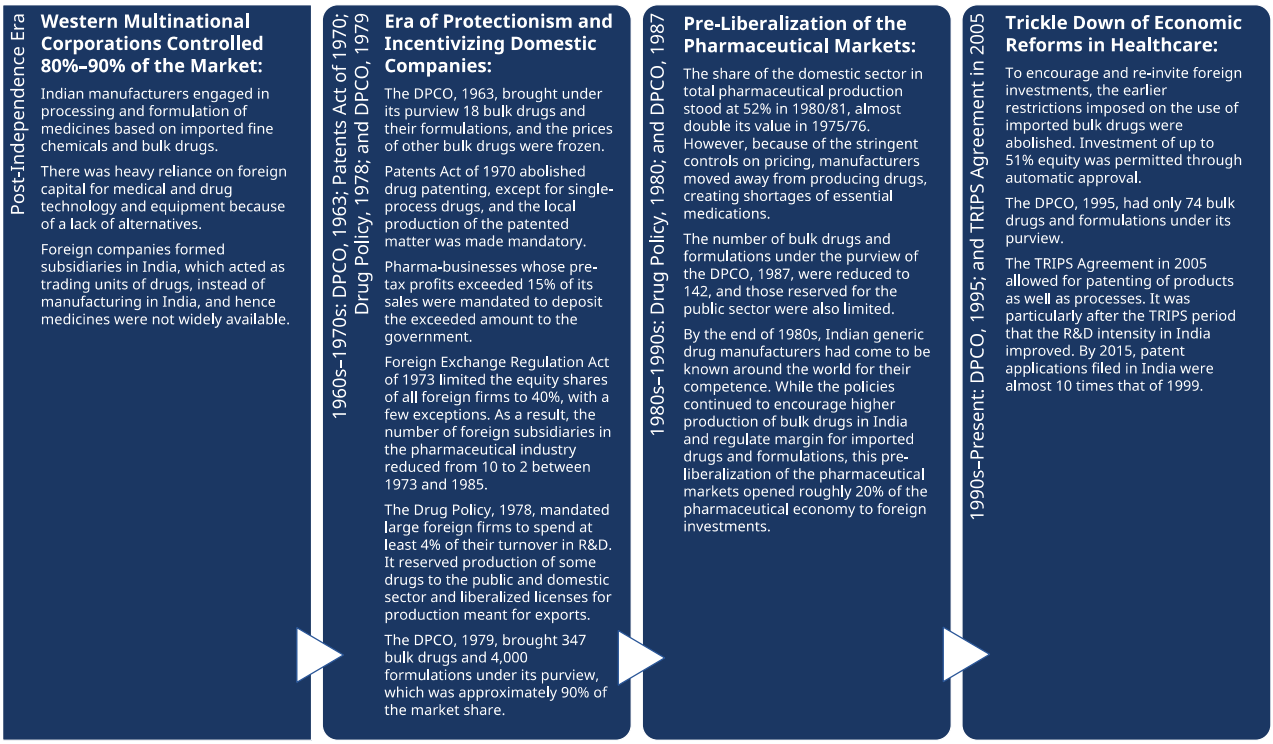
This essay calls for more research on liberalization and the pharmaceutical market, so that the pressing factors resulting in high expenditure on medicines can be understood and addressed effectively.

PRODUCTION SIDE: EVOLUTION OF THE PHARMACEUTICAL MARKET IN INDIA

The trajectory of state intervention and its role in the evolution of the pharmaceutical market in India have been comprehensively presented in figure 2. After independence, the Indian pharmaceutical market was dominated by Western multinational corporations, which controlled 80–90 percent of the market share.[8] While the demand for medicines was high, affordability was very low, and people did not have access to essential but expensive medicines. To address the critical issues of overdependence on foreign drug technology and lack of medicines in India, the Patents Act of 1970 abolished drug patenting and allowed for process patents. The move displeased foreign firms, but it allowed Indian

7. Sagar Dugani, Thongsuanmung Vualnam, Hemant Chaudhry, Lokesh Sharma, Murray Aitken, and Niteesh Choudhry, "Affordability and Accessibility to Medicines for Non-Communicable Diseases in India: A Cross-Sectional Study," *Circulation* 138, no. suppl. 1 (November 2018).
8. Reji K. Joseph, *Pharmaceutical Industry and Public Policy in Post-Reform India* (New Delhi: Taylor & Francis, 2015).

FIGURE 2. TIMELINE OF THE DRUG PHARMACEUTICAL MARKET IN INDIA



Source: Joseph, *Pharmaceutical Industry and Public Policy*; S. Kachnowski, "A History of Medical Technology in Post-Colonial India" (PhD diss., University of Oxford, 2016); and Prachi Singh, Shamika Ravi, and David Dam, *Medicines in India: Accessibility, Affordability and Quality* (New Delhi: Brookings India, 2020).

manufacturers to produce patented drugs and formulations of drugs at low rates using reverse engineering.

This marked the beginning of growth in the generics industry.[9] The share of Indian manufacturers increased to 50 percent in 1982, and by 2000 they accounted for more than three-fourths of the Indian market. Government subsidies also encouraged the development of small manufacturing units, resulting in high market fragmentation.[10]

The 1960s and 1970s were characterized by protectionism and the encouragement of local manufacturers and by curtailment of the power of foreign firms by controlling patent rights. The state heavily controlled the prices of drugs.[11] As

9. Joseph, *Pharmaceutical Industry and Public Policy*.
10. Prabodh Malhotra, *Impact of TRIPS in India: An Access to Medicines Perspective* (London: Palgrave Macmillan, 2010).
11. Joseph, *Pharmaceutical Industry and Public Policy*.

the market share of the domestic pharmaceutical sector increased, manufacturers moved away from producing drugs under price controls because of lower profitability, and this created shortages of essential medications.[12] Hence, eventually the market needed to be deregulated. This was done by the 1987 DPCO (Drug Price Control Order).

The DPCO began to reopen the Indian pharmaceutical market to private and foreign players. It was in this context that India stepped into the liberalization, privatization, and globalization reforms of 1991. Changes in the healthcare sector trailed a couple of years behind the economic reforms. The economy opened up with automatic approvals of foreign technology and foreign direct investment, abolishment of restrictions on imports, and deregulation of drug prices.[13] Investment in research and development dramatically improved after the revival of patents in 2005 and the signing of the Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement.

For the first time in India, the criteria of "market competition" and "annual turnover" were introduced into the process of identifying drugs to be brought under price control. After 1995, it was not until 2013 that a new DPCO came into force. This DPCO targeted formulations of drugs, instead of targeting active ingredients as the previous policy had, to tailor regulation to the interest of consumers. It currently regulates the prices of 347 bulk drugs.[14]

BRANDED GENERICS

In terms of sales value, the Indian pharmaceutical market is largely dominated by generic drugs,[15] followed by originator-branded and patented drugs. Generic drugs have an active pharmaceutical ingredient and a chemical composition similar to patented drugs. They have nearly the same therapeutic value and are usually much cheaper than patented drugs, whose manufacturing companies enjoy a decades-long monopoly on their sale.

There are two types of generic drugs: branded and unbranded. When a drug reaches the end of its patent term, manufacturers begin to sell generic versions under their brand name. Many other brands also sell similar drugs. Unbranded

12. Singh, Ravi, and Dam, *Medicines in India*.
13. Joseph, *Pharmaceutical Industry and Public Policy*.
14. Singh, Ravi, and Dam, *Medicines in India*.
15. Different sources put the number between 75 and 90 percent. Sonali P. Suryawanshi, Paurush S. Totlani, and R. Sahasrabudhe, "Branded versus Generic (Branded-Generic) Medicines—for Whose Benefit?," *Journal of Basic and Clinical Pharmacy* 8, no. 3 (2017); and Selvaraj et al., *India Health System Review*.

drugs, on the other hand, have nearly the same components and chemicals as their branded counterparts but are not labeled with a brand. Unbranded generics are priced significantly lower than branded generics. This is because companies incur heavy promotional expenses in order to promote branded generics, and they recover these expenses with the premium charged.

Branded drugs constitute approximately 70–80 percent of the generics market,[16] which means that citizens effectively pay heavy prices for brand premiums, despite the availability of perfect alternatives that are significantly cheaper.[17] One study noted that for 54 molecules, the price difference between branded generics and unbranded generics ranged from 8 to 190 percent.[18] However, depending on the medicine considered, sometimes the difference is more than 1,000 percent.[19] Some studies note that consumers pay a brand premium because brands can ensure the quality of the drugs and medicines offered. Over the years, there have been many cases of fake, substandard generics. In a study conducted to investigate these cases in India, it was found that the overall share of these spurious drugs was 3–4 percent in 2014–2016.[20]

Branded generics came into the Indian pharmaceutical market after the Patents Act of 1970. After this act, the accessibility of medicines increased greatly as drugs that had earlier been very expensive because of strict patenting began to be produced at lower costs in India. Access to medicines in India increased from 15–20 percent of the population in 1980/81 to 35 percent in 2001.[21] Small-scale manufacturers contributed significantly to this increase, because branded generics manufactured by the large pharmaceutical companies are significantly more expensive than the unbranded ones manufactured by the small firms. Research on the difference in their prices shows significant markups charged by the big brand firms relative to small manufacturers.[22]

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16. Other sources put it at 90 percent. See Injeti Srinivas, "Myth of Branded Generics," *Economic and Political Weekly* 49, no. 38 (2014).
17. Make in India, "In India, Generics and R&D Shine as Growth Spots for Investment," WP Creative Group, accessed February 23, 2023, https://www.washingtonpost.com/sf/brand-connect/makeinindia/in-india-generics-and-rd-shine-as-growth-spots-for-investment/.
18. Competition Commission of India, *Market Study on the Pharmaceutical Sector in India*, November 18, 2021, https://www.cci.gov.in/images/marketstudie/en/market-study-on-the-pharmaceutical-sector-in-india1652267460.pdf.
19. Warren A. Kaplan, Veronika J. Wirtz, and Peter Stephens, "The Market Dynamics of Generic Medicines in the Private Sector of 19 Low and Middle Income Countries between 2001 and 2011: A Descriptive Time Series Analysis," *PLOS ONE* 8, no. 9 (September 2013).
20. Singh, Ravi, and Dam, *Medicines in India*.
21. Malhotra, *Impact of TRIPS in India*.
22. Malhotra, *Impact of TRIPS in India*.

By 2005, around 8,000 manufacturing units belonging to the small-scale industry category accounted for around 50 percent of the pharmaceutical market by volume and 29 percent by value. In his commentary on branded generics and their proliferation in the Indian market, Srinivas notes that the capacities of larger companies that are exporters of generic medicines are utilized mainly for export production, and to meet the Indian domestic demand, they get into contract manufacturing or loan license agreements with small and medium-sized enterprises.[23]

As stated earlier, the policies after 1970 led to a massive proliferation of brands and small-scale industries in India. In 2015, there were more than 10,500 drug manufacturers spread across various states in India, of which approximately 78 percent produced formulations and the rest produced bulk drugs or active pharmaceutical ingredients. There were 47,478 brands associated with 2,871 formulations of drugs in the pharmaceutical market between August 2019 and July 2020.[24] Naturally, this proliferation gives rise to intense competition.[25] To sustain market share and profits, companies rely on brand differentiation for the sale of their drugs.

NATURE OF THE PHARMACEUTICAL MARKET IN INDIA

Market power in the drug industry is obtained by strong promotional competition rather than price competition.[26] As stated earlier, despite being cheaper alternatives to branded generics, unbranded generics are not commonly used. This is because there are many unscrupulous practices in the industry that push for the promotion of branded generics. Consumers are unable to make informed choices because they lack awareness about the alternatives and have fears about their quality. So people follow their doctors' brand prescriptions, which are influenced by aggressive brand promotion by pharmaceutical companies.

Practices such as promising higher margins to distributors, giving doctors gifts, and sponsoring doctors' holidays are rampant as companies push to sell their brands. Greater spending on the promotion of drugs can make the drugs more attractive to doctors, leading to an increase in prescriptions. Branded generics claim that they are of better quality than unbranded generics,

23. Srinivas, "Myth of Branded Generics."
24. Competition Commission of India, *Market Study on the Pharmaceutical Sector in India*.
25. For example, one of the top-selling formulations in the antibiotic category—amoxicillin and clavulanic acid (a tablet, 125/500 mg)—was sold by 217 companies under 292 brands in 2021. Competition Commission of India, *Market Study on the Pharmaceutical Sector in India*.
26. Malhotra, *Impact of TRIPS in India*.

but such claims lack the endorsement of the Central Drugs Standard Control Organization, which is the competent body in India to make such claims.[27] The state took notice of these practices and prohibited them in 2009,[28] but they continue to be commonplace today. India still does not have a regulation concerning the promotion and marketing of drugs and medical devices to healthcare practitioners—it has only a directive.[29]

To tackle this aggressive promotion of branded generics, the state mandated that doctors prescribe only the key components of generic drugs, not brands. However, this may result in pharmacies choosing to provide patients with medicines for which the pharmacies have higher margins—even in Jan Aushadhi stores.[30] Hence, there are concerns that the mandate has merely shifted the margin to the retailers rather than gaining a significant cost difference for consumers.

Supply chain margins also contribute to the overpricing of medicines (branded and unbranded). India has two major types of supply chains. The first one has many stakeholders: the medicines are manufactured by companies, sent to distributors, distributed to wholesalers, then go from wholesalers to super stockists to the retailers from whom people buy them. Some research on carrying and forwarding agents in the supply chain highlights that they were introduced because of India's taxation system. The interstate sale of goods attracted tax whereas the interstate transfer of goods did not, which is why companies began to conduct transfers via carrying and forwarding agents and super stockists. Other researchers state that during the 1970s and 1980s, with the expansion of the Indian pharmaceutical markets, many small players became stockists and wholesalers because drug marketing was more profitable than drug production. Many people found this trade lucrative and joined the supply chain.[31]

While estimates from different sources vary, it is safe to say that more than 80 percent of medicines are circulated in the market through the channel of distributors, wholesalers, super stockists, and retailers.[32] On average, retailers take

27. Srinivas, "Myth of Branded Generics."
28. Utkarsh Anand, "Pharma Companies Can't Avail Tax Benefits on Gifts to Doctors: SC," *Hindustan Times*, February 23, 2022.
29. Nishith Desai Associates, *Uniform Code for Pharmaceutical Marketing Practices (UCPMP) Decoded*, November 2017, https://nishithdesai.com/fileadmin/user_upload/pdfs/Research_Papers/Uniform-Code-for-Pharmaceutical-Marketing-Practices_Decoded.pdf.
30. Motkuri and Mishra, "Pharmaceutical Market and Drug Price Policy."
31. Roger Jeffrey, "Pharmaceuticals Distribution Systems in India" (Working Paper 1a, Centre for International Public Health Policy, Edinburgh, United Kingdom, July 2007).
32. Sitanshu Sekhar Kar, Himanshu Sekhar Pradhan, and Guru Prasad Mohanta, "Concept of Essential Medicines and Rational Use in Public Health," *Indian Journal of Community Medicine* 35, no. 1 (2010); and Selvaraj et al., *India Health System Review*.

a cut of 15–20 percent, distributors of 8–10 percent, and carrying and forwarding agents of 2–5 percent on the maximum retail price. However, these estimates are severely curtailed, as evident from the recent move by the state to cap the trade margin for drugs and medical equipment related to the treatment of COVID-19 at 70 percent of the maximum retail price.[33] Some studies found that for select branded generics, retailers' margins were as high as 201–1,016 percent.[34]

Another method of medicine distribution in the market is through public procurement, in which mostly unbranded generics are procured by the state and distributed to public hospitals and primary healthcare centers. While states have different practices, the norm is that they float tenders of their requirements and procure generic drug companies that are certified to follow Good Manufacturing Practices.[35] Some states, such as Tamil Nadu and Rajasthan, have centralized procurement agencies that make medicines freely available at government hospitals and healthcare centers.[36] However, for most other states, this procurement system is woefully inadequate to meet the demand of people who opt for public healthcare. In the de-centralized model of public procurement, research notes that there is a lack of coordination between stakeholders for the forecasting of demand.[37] Because of this, people are forced to buy more expensive alternative medicines with their own funds.

CONSUMPTION SIDE: AFFORDABILITY OF MEDICINES AND LIBERALIZATION

According to the mandates of the Structural Adjustment Program, which sought to alter the country's economic structure and improve its balance of payments, the central and state governments' expenditure on healthcare had to be reduced drastically.[38] Literature about access and the affordability of medicines and the liberalization of the pharmaceutical market expresses anxiety about the hike in medicine prices compounded by this withdrawal of the state from healthcare. These anxieties were conspicuous after the implementation of the TRIPS

33. Murali Neelakantan and Ashish Kulkarni, "In India, What Explains Distribution Margins and Drug Prices Being Linked?," *The Wire*, June 9, 2022.
34. Vijay Thawani, Abin Mani, and Neeraj Upmanyu, "Why the Jan Aushadhi Scheme Has Lost Its Steam in India?," *Journal of Pharmacology & Pharmacotherapeutics* 8, no. 3 (2017): 134–36.
35. Jeffrey, "Pharmaceuticals Distribution Systems in India."
36. Selvaraj et al., *India Health System Review*.
37. Planning Commission of India, *High Level Expert Group Report on Universal Health Coverage for India*, November 2011, http://www.uhc-india.org/reports/hleg_report.pdf.
38. Amit Sengupta, "It Was Always Measly," Down to Earth, May 15, 2004.

Agreement: concerns were raised about the future of the pharmaceutical industry, since it was heavily dependent on reverse-engineering patented drugs and this method would be banned.

As stated earlier, access to medicines increased after the Patents Act of 1970. More people could access a wide range of relatively cheaper medicines. Some safety nets upheld the cause of this affordability. The state prioritized affordability of medicines in the liberal TRIPS patenting regime, with its interventions of disallowing the evergreening of patents[39] and allowing the manufacture of medicines with significantly lower costs.[40] Research on changes in the prices of drugs and formulations of drugs after the implementation of the TRIPS Agreement shows that price increases for items outside the price control were significantly higher than for items on the National List of Essential Medicines, which was regulated more stringently.[41] While the changes because of the liberalization, most significantly the TRIPS Agreement, have resulted in higher prices for patented drugs, these drugs constitute only a small share (less than 5 percent) of the current Indian domestic pharmaceutical market.[42] It is the branded generics, which were present long before the liberalization, that constitute the maximum share of OOPE on medicines. Moreover, access to free medicines had been consistently shrinking since before the TRIPS Agreement.

The number of medicines available for free decreased, and more people began to forgo healthcare services because of "financial problems."[43] As shown in figures 3 and 4, it must be noted that medicines given to patients on payment (as opposed to those given for free or at subsidized rates), have been significantly high since before 1986. This is because, while prices have been stringently regulated by DPCOs since 1963, these price regulations have not been enough to tackle the proliferation of branded generics and fixed-dose combinations (combinations of two or more active drugs in a single dosage form).[44]

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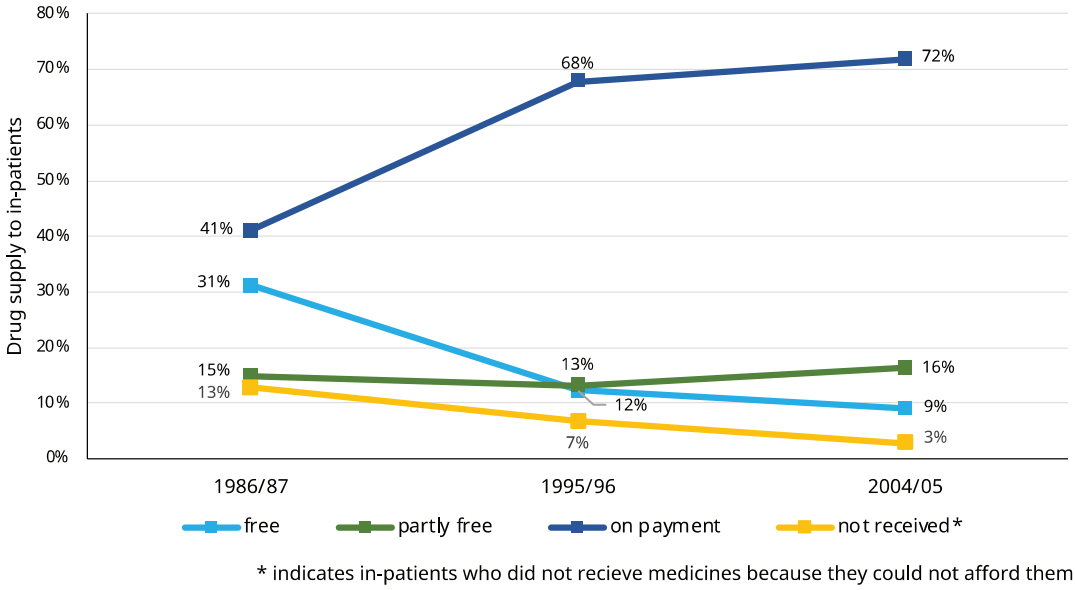
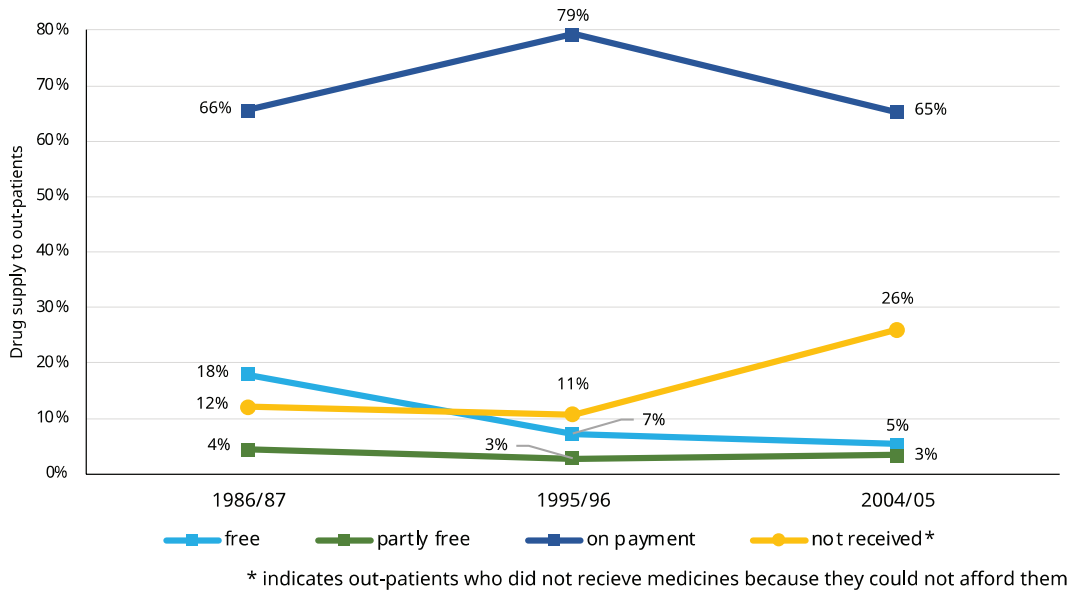
39. "Evergreening" is a strategy employed to extend the duration of a patent by making changes in the product or technology.
40. See Novartis writ challenging section 3(d) of the Patents Act of 1970. Novartis pleaded patenting for incremental innovation in its drug, which was dismissed by the court. This effectively combats evergreening of patents. And Cipla's launch of an imitation of Roche's anti-infection drug Valcyte was also upheld by the court. Malhotra, *Impact of TRIPS in India*.
41. Malhotra, *Impact of TRIPS in India*.
42. Sohini Das, "Patented and In-Licensed Drugs Post Robust Growth in Indian Market," *Business Standard*, February 10, 2020.
43. Sakthivel Selvaraj and Anup Karan, "Deepening Health Insecurity in India: Evidence from National Sample Surveys since 1980s," *Economic & Political Weekly* 44, no. 40 (2009).
44. Planning Commission of India, *High Level Expert Group Report*.

FIGURE 3. MEDICINES AVAILABLE FOR FREE AND ON PAYMENT FOR INPATIENT CARE



Source: National Sample Survey Organisation 42nd, 52nd, and 60th rounds. Planning Commission of India, *High Level Expert Group Report on Universal Health Coverage for India*, November 2011, http://www.uhc-india.org/reports/hleg_report.pdf.

FIGURE 4. MEDICINES AVAILABLE FOR FREE AND ON PAYMENT FOR OUTPATIENT CARE



Source: National Sample Survey Organisation 42nd, 52nd, and 60th rounds. Planning Commission of India, *High Level Expert Group Report on Universal Health Coverage for India*, November 2011, http://www.uhc-india.org/reports/hleg_report.pdf.

STATE INTERVENTION AND PUBLIC HEALTHCARE

Overpriced branded generic medicines, which constitute the largest share of the market in India, charge premiums on the basis of brand names rather than the efficacy of the medicines. Pharmaceutical companies incentivize doctors to prescribe their brands, and patients, unwilling to risk their health, pay these brand premiums. To correct this market failure, the state intervened by controlling the price of drugs and formulations (via DPCOs), and eventually caught up, in 2009, to controlling promotional expenditure and unscrupulous practices by brands and doctors. Because most people in India opt for private healthcare providers and pharmacies, this was a welcome move.

However, the availability of cheaper generic medicines in public healthcare is weak. The Planning Commission of India posits that this is because the states' budgetary expenditure on drugs procurement is low and because they have inefficient procurement models.[45] This results in bad forecasting of demand and, finally, drug shortages. Some states, such as Tamil Nadu, Kerala, and Rajasthan, have established efficient procurement models with centralized purchasing of drugs. Almost a decade ago the central government created guidelines that should allow other states to replicate these models, but not all states have adopted them.

After the liberalization of the Indian economy, the pharmaceutical sector was able to do acquisitions in international markets. The share of exports in relation to imports increased and so did investment in research and development. However, this strengthening of Indian manufacturers and brands was not complemented by a strengthening of the public sector's procurement of medicines or by proactive measures to curtail brand differentiation and promote unbranded or cheaper generics. Because of this, the affordability of medicines took a back seat in the growing Indian pharmaceutical sector. The latter are being done *ex post facto* by means of rulings against incentivizing doctors to prescribe brands, putting caps on margins charged by supply-chain stakeholders, and the aggressive promotion of Jan Aushadhi stores.

Along with strengthening the public sector's procurement of medicines, it is also important to focus on the ease of getting healthcare in the public sector. Many patients have to stand in queues for hours to get medicines for free at public hospitals. Some travel for days to the hospitals, only to find that the medicines are not available. A well-organized Management Information System–enabled forecasting model that ensures real-time tracking of demand for medicines must be adopted. Storage and transport infrastructure must also complement this.

45. Planning Commission of India, *High Level Expert Group Report*.

For citizens, affordability of medicines lies at the intersection of several circumstances: competition for market share on the sale of drugs, liaisons with healthcare providers, status of public health infrastructure, and timely and holistic state intervention to tackle market failures related to lack of information about alternatives. This intersection needs to be explored by scholars and practitioners working on the affordability of medicines. They should focus on designing interventions that would augment the current public infrastructure and finding alternative mechanisms to both promote small-scale manufacturers of generic medicines and increase the reach of free medications for those who need them.

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