

Made in India: Industrial Policy in a Changing World

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Roadmap

1. Industrialization, De-Industrialization, and Industrial Policy
2. Learning from the past
3. Looking into the future

Structural Transformation in India: A Tale of Two Waves

Structural changes in the composition of output in India: 1950–51 to 2019–20 (in %)

Sectors	1950–51	1960–61	1970–71	1980–81	1990–91	2000–01	2010–11	2019–20
1. Primary sector	51.3	42.0	42.4	37.8	32.3	26.2	21.9	20.3
of which								
Agriculture	50.5	40.9	41.3	35.9	29.4	23.6	18.4	18.3
2. Secondary sector	14.5	19.5	21.3	25.6	27.1	27.2	29.6	25.0
of which								
Manufacturing	11.3	14.6	14.9	18.2	18.2	17.4	18.4	14.7
Construction	2.9	4.3	5.1	5.3	6.3	6.8	8.9	7.5
3. Tertiary sector	34.2	38.4	36.2	36.7	40.5	46.6	48.5	54.8
of which								
Low-skill services	10.8	11.9	11.8	13.6	14.6	16.1	17.1	19.5
High-skill services	23.4	27.1	24.8	23.0	26.0	30.6	31.5	35.3
TOTAL (1 + 2 + 3)	100	100	100	100	100	100	100	100

NSO National Accounts Statistics

The (relative) stagnation in manufacturing jobs

Structural changes in the composition of employment in India: 1950–51 to 2011–12 (in %)

Sectors	1951	1961	1972–73	1977–78	1983	1987–88	1993–94	1999–00	2004–05	2011–12	2019–20
1. Primary sector	74.7	76.2	73.9	70.8	68.7	64.0	64.6	61.7	58.5	48.9	45.9
of which											
Agriculture				64.3	60.6	57.7	54.5	56.0	52.3	45.7	45.0
2. Secondary sector	10.1	10.7	11.3	12.5	13.8	16.9	14.6	15.8	18.1	24.3	23.4
of which											
Manufacturing				9.9	10.6	12.0	10.4	10.7	11.7	12.6	11.1
Construction				1.8	2.3	3.8	3.1	4.3	5.6	10.6	11.6
3. Tertiary sector	15.2	13.1	14.8	16.3	17.6	19.1	20.7	22.5	23.4	26.8	30.8
of which											
Low-skill services				11.9	12.1	12.7	14.6	15.9	16.5	18.1	21.8
High-skill services				4.9	5.5	6.4	6.1	6.6	6.9	8.7	9.0
Total (1 + 2 + 3)	100	100	100	100	100	100	100	100	100	100	100

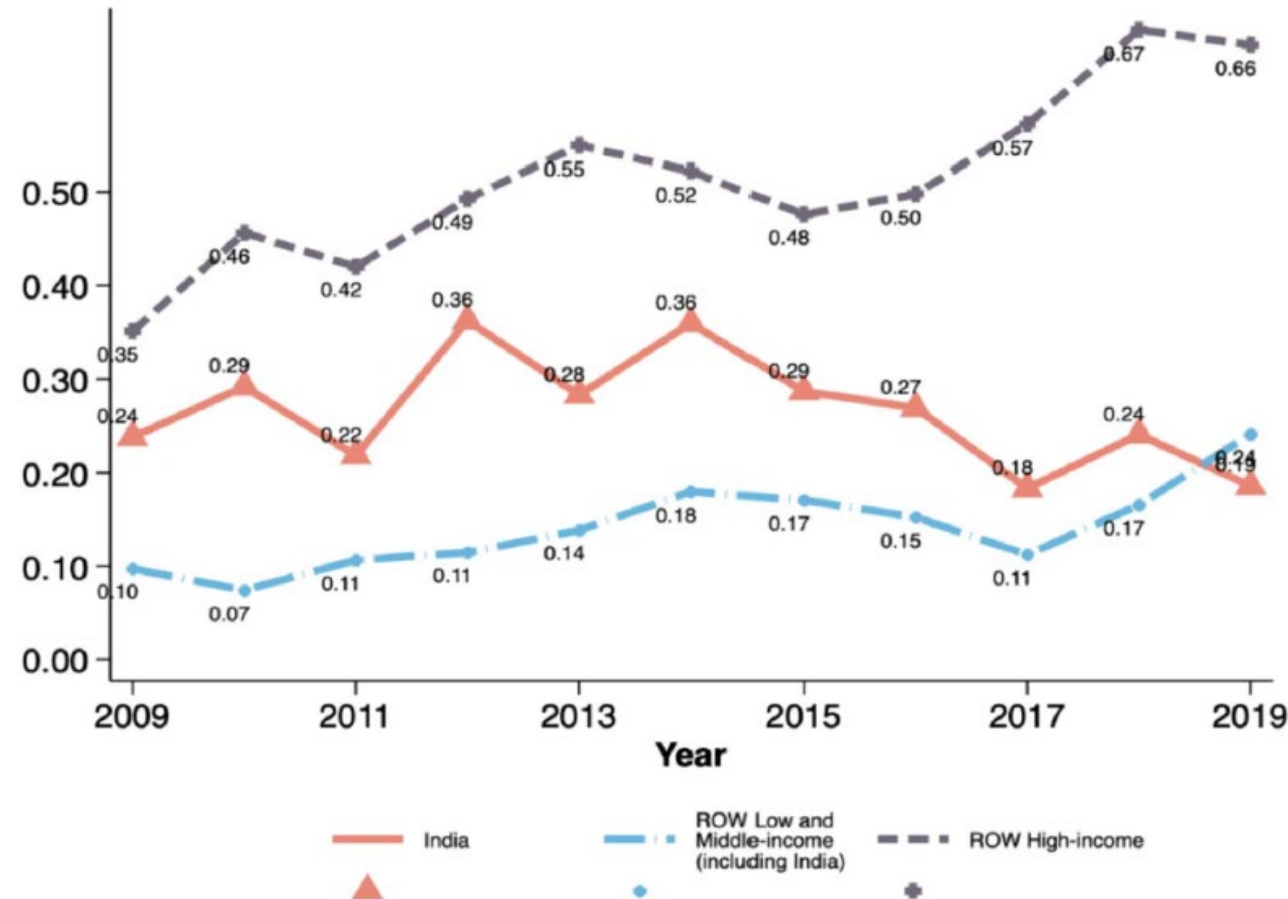
National Sample Survey Organisation, Surveys on Employment and Unemployment (1972–73 to 2011–2), and Periodic Labour Force Survey (2019–20)

Industrial Policy: No Black or White!

- 1950–1980
 - Infant industry protection through import substitution
 - Rates of growth in manufacturing output that provided a sharp contrast with de-industrialization between the mid-19th and mid-20th century
 - Most infant industries did not grow up to become competitive in world markets
- 1980-2020
 - Economic liberalization, beginning in 1991, coincided with a worse, rather than improved, performance in India's industrialization journey
 - The withdrawal of industrial policy support in the form of unilateral trade liberalization came without creating the enabling conditions (missing coordination among trade, investment, and technology policies, but also the lack of investments and regulatory changes in complementary markets and institutions)

Industrial policy did not vanish altogether with economic liberalization...

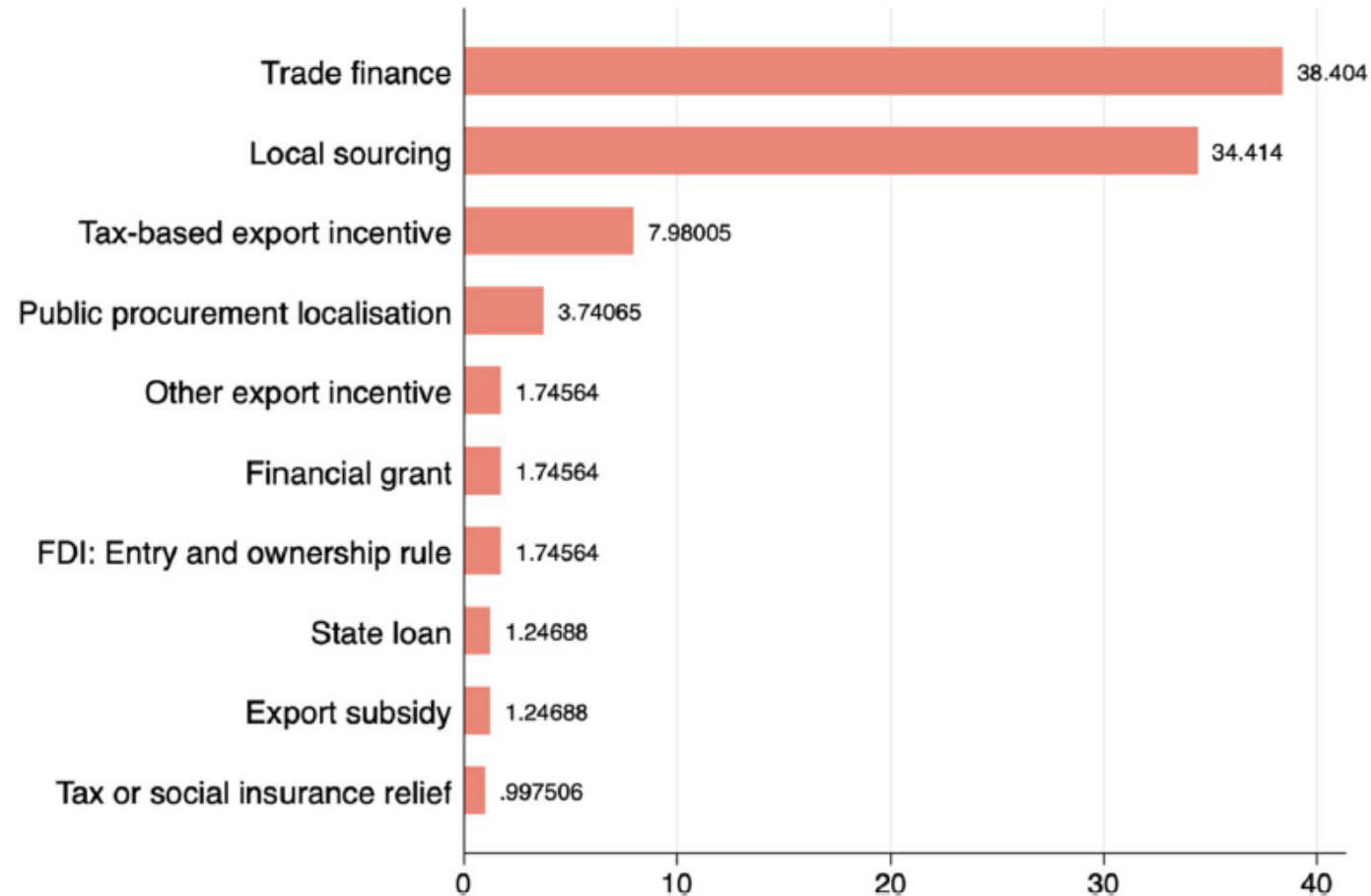
Share of industrial policies in measures that discriminate against foreign commercial interests, 2009–2019



Source: Juhász et al. (2023); The authors provided the plots based on data and methods in Juhász et al. (2023)

While macro- and meso-level interventions made way for micro-level interventions

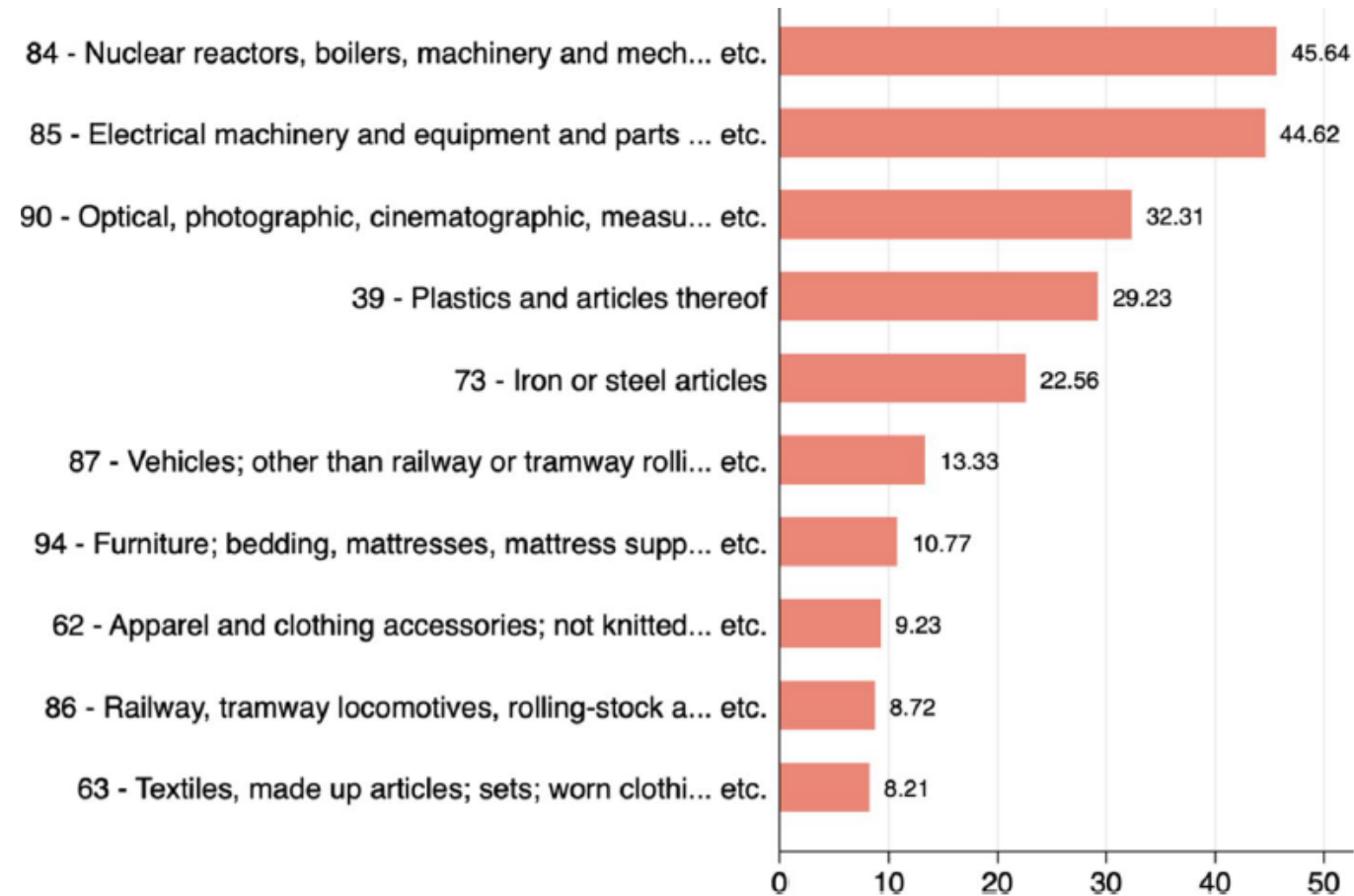
Share of industrial policies by using specific instruments, India, Average between 2009 and 2019, Top 10 instruments



Source: Juhász et al. (2023); The authors provided the plots based on data and methods in Juhász et al. (2023)

Much of this industrial policy support targeted “heavy industry”

Share of industrial policies in measures that discriminate against foreign commercial interests, India, Average between 2009 and 2019, Top 10 industries.



Source: Juhász et al. (2023); The authors provided the plots based on data and methods in Juhász et al. (2023)

Production-Linked Incentives (1)

- In 2021, the Government of India announced the Production-Linked-Incentive (PLI) Scheme for 13 selected sectors
 - The disbursements will be based on performance as a percentage of incremental sales (over base year): 4% in first year, 3% in second year, 2% in third year, and 1% in fourth year
 - The largest shares are for automobiles and components (29%), mobile phones and components (20%), pharmaceuticals and ingredients (11%), advanced cell batteries (9%), and telecom (6%)
 - The remaining 25% of the outlay is divided between food products, textiles, specialty steel, white goods, electronic products, solar PV modules, and medical devices.

Production-Linked Incentives (2)

- Risky bets?
 - The selection of automobiles and related components, pharmaceuticals, textiles, and food products are consistent with a revealed comparative advantage visible in exports
 - The choice of specialty steel, mobile phones, and other electronic products is consistent with an assessment of potential comparative advantage that might stimulate exports
 - The choice of batteries, telecom, white goods, and medical devices is consistent with neither revealed comparative advantage nor potential comparative advantage
- Jobs?
 - Most of the selected sectors are largely capital, technology, or skill intensive in production, so they are likely to do little, if anything, for labor-intensive manufactured exports

India's Industrialization Imperative

- There are 7.5 million new entrants to India's work force every year and its population will continue to grow until it stabilizes in 2045
- India's services-led structural transformation since the 1990s has presented a dichotomy in addressing this challenge of job creation (Nayyar 2013, Nayyar 2011)
- False dichotomy between manufacturing and services-led growth
 - India's global success in exporting ICT services has induced technological upgrading and boosted educational outcomes (Oster and Steinberg 2013; Nano et al. 2021)
 - High-skilled services are associated with multiplier effects on jobs in low-skilled services (Avdiu et al. 2023)
 - Yet, the formal manufacturing sector provides a path to good quality jobs, relative to low-skilled services (Nayyar 2012)

Learning from the Past: India's Islands of Excellence

- Pharmaceuticals

- The Patents Act of 1970 enabled firms to produce medicines at affordable prices for domestic consumers and for the developing world
- In 2019, the pharmaceuticals industry contributed 9% of manufacturing value added, while employing around 1 million people

- Automotives

- The government in India entered into an agreement with the Japanese firm, Suzuki, in 1982, to produce a car in India with 70% domestic content within 5 years
- In 2021, the automobile industry contributed 7% of GDP and almost 50% of manufacturing value added, while providing employment to nearly 20 million people

- Information technology

- Ban on IBM in 1977 followed by the gradual introduction of competition with the new Computer Policy of 1984 that reduced import duties on hardware and software, and allowed foreign ownership in firms
- In 1991, the government established Software Technology Parks of India

Looking to the Future: Changing Global Context

- The use of industrial automation in advanced economies, and in China, that can potentially narrow the paths for labor-intensive economies to industrialize
- Geopolitical uncertainty and new strategic interests in major world economies might curb or limit access to markets
- The boundaries between the manufacturing and services sectors in the broader production process are increasingly blurred

Critical Importance of Coordinating Economic Policies

- Coordination of policies at the meso-level
 - Example: if electronics is a thrust sector in India's PLI scheme, the sector would benefit from investments in roads that connect manufacturing hubs with a seaport, increased funding to relevant training institutes, and securing international accreditation for the sector's national certification body
- Coordination of policies across the meso, micro, and macro levels
 - Tariffs, which make imports of inputs for export production more difficult or expensive, would be inconsistent with production-linked subsidies
 - Affordable access to industrial finance for firms is also necessary

Industrial Policy for Technological Leapfrogging

- Foundations

- Emphasis on higher education and science research
- Internationalized firms, e.g., Infosys, Wipro and TCS in IT services; Tata Steel (steel), United Phosphorous (chemicals), and Dr. Reddy's Laboratories (pharmaceuticals)
- Institutional mechanisms to create national technological capabilities, e.g., the Patents Act of 1970 that allowed only process patents which supported the possibilities of reverse engineering

- Technology policy instruments

- R&D incentives for the semi-conductor industry? (global evidence for large firms is strongest for tax incentives, Cirera and Maloney 2017)
- Experimentation through development banks (Fernandez-Arias et al. 2020)

Industrial Policy for Services

- Providing support to many services that are important upstream inputs into the manufacturing sector when the latter is provided financial support
 - Distortions in the downstream sectors magnify their market failures through backward demand linkages making the most-upstream sectors become more “central” to market imperfections (Liu 2019).
- Providing incentives for manufacturers to diversify into the production of related services can help them differentiate their product
 - In India, the bundling of manufactured goods with services is positively associated with exposure to import competition, but also positively associated with firm productivity (Grover and Mattoo 2021).

Thank you!