

Economic development and agriculture : Global story

Nanasaheb Patil IAS MA

References

- I have borrowed from many references I do not claim any originality .
- World Development Report 2009 : Reshaping Economic Geography
- World Development Report 2024. : Middle Income Trap .
- India's Reckoning Geopolitics ,Trade and India's Development strategy Hinrich foundation 2026
- Economic Survey GOI 25 26
- Visual Capitalist 2026
- China's 90 % Model by Ram Charan Dec 2025.

India

WILL YOU BE A
CASUALTY OR WILL
YOU BE LEADER .
THE CHOICE IS YOURS .

RAM CHARAN Indian Business Consultant
Harvard



India's Reckoning

How shifts in geopolitics and trade are testing
India's development strategy

UNITED STATES
\$31.8 TRILLION
 Projected 2026 GDP

1

TOP 50
 ECONOMIES BY
GDP
 IN 2026

CHINA
\$20.7T

2

INDIA
\$4.5T

4

AUS
\$1.9T

S. KOREA
\$1.9T

IDN
\$1.6T

TAIWAN
\$971B

SGP
\$606B

JAPAN
\$4.5T

5

THA
\$562B

BGD
\$519B

MYS
\$505B

HONG KONG
\$447B

PHL
\$534B

VIETNAM
\$511B

KAZ
\$320B

CANADA
\$2.4T

MEXICO
\$2.0T

GERMANY
\$5.3T

3

ITALY
\$2.7T

RUSSIA
\$2.5T

SPAIN
\$2.0T

BRAZIL
\$2.3T

UNITED KINGDOM
\$4.2T

TÜRKIYE
\$1.6T

CHE
\$1.1T

BEL
\$761B

IRL
\$750B

SWE
\$712B

ARGENTINA
\$668B

CHL
\$363B

PER
\$327B

COLOMBIA
\$462B

SAUDI ARABIA
\$1.3T

UAE
\$601B

FRANCE
\$3.6T

NETHERLANDS
\$1.4T

AUSTRIA
\$604B

DENMARK
\$500B

PRT
\$365B

FIN
\$336B

ISRAEL
\$666B

IRAN
\$376B

POLAND
\$1.1T

NORWAY
\$548B

ROMANIA
\$445B

GREECE
\$417B

S. AFRICA
\$444B

EGYPT
\$400B

NIGERIA
\$334B



VISUAL CAPITALIST

Source: IMF, World Economic Outlook October 2025



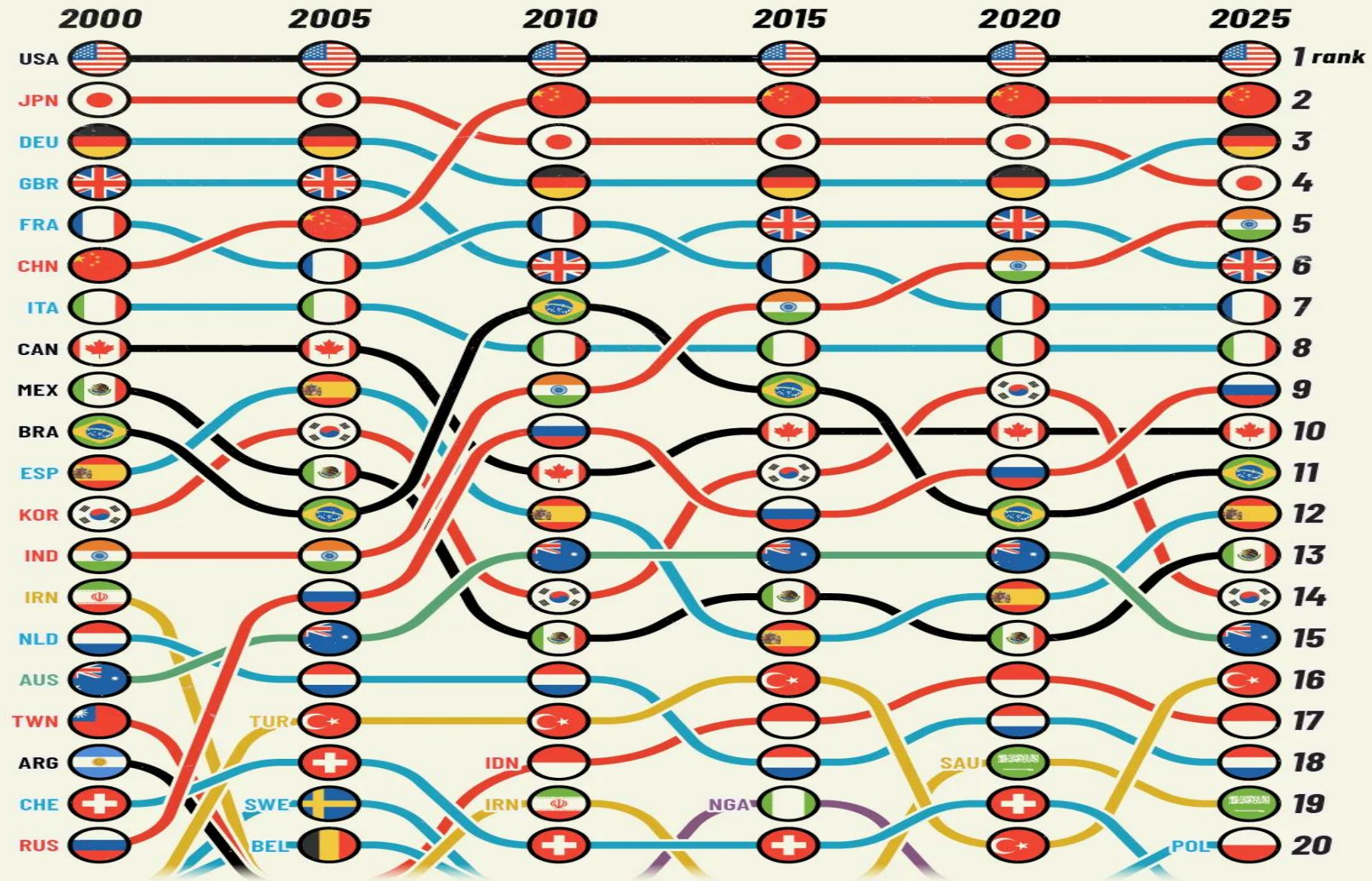
Where Data Tells the Story



Top Economies

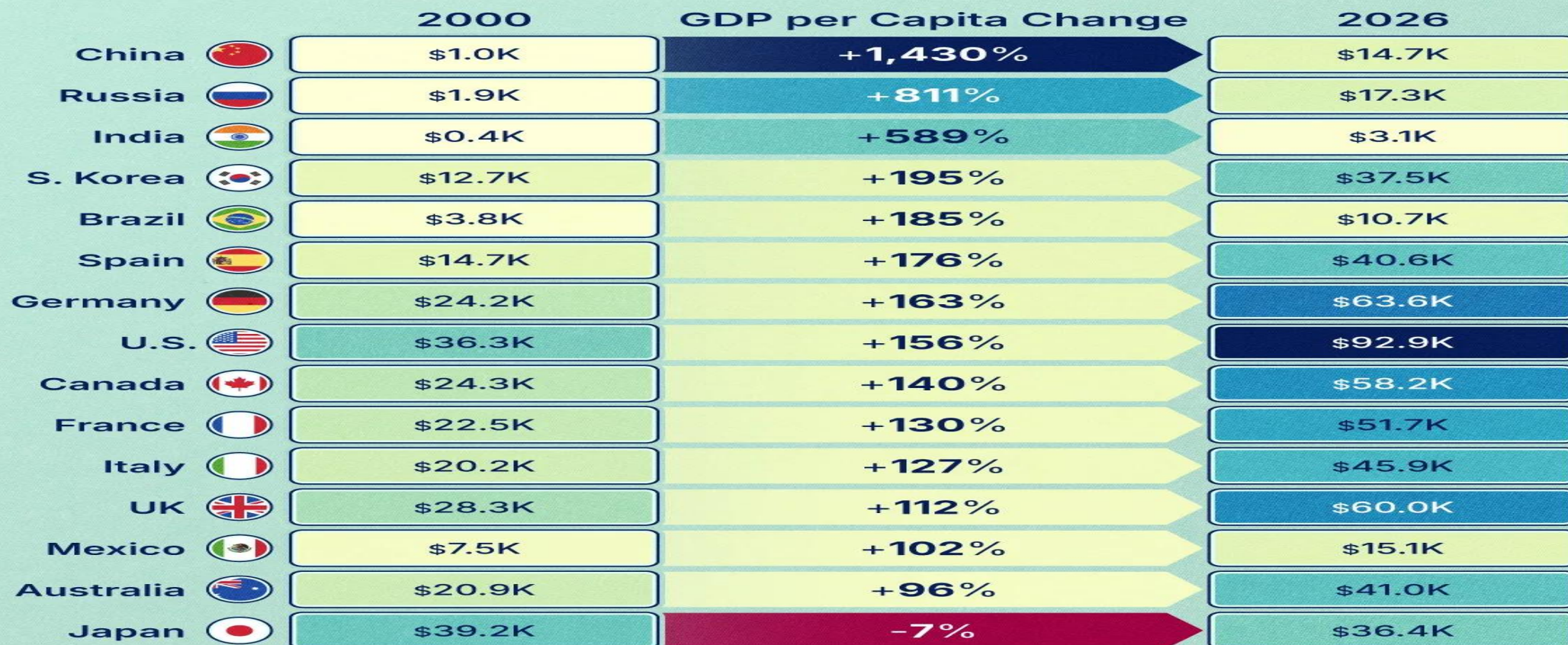
IN THE WORLD, BY GDP

- Americas
- Asia
- Europe
- Middle East
- Oceania
- Africa



GDP Per Capita GROWTH

of the World's Top 15 Economies



A GLOBAL LOOK AT R&D SPENDING

The companies and nations that are leading the way in innovation and research



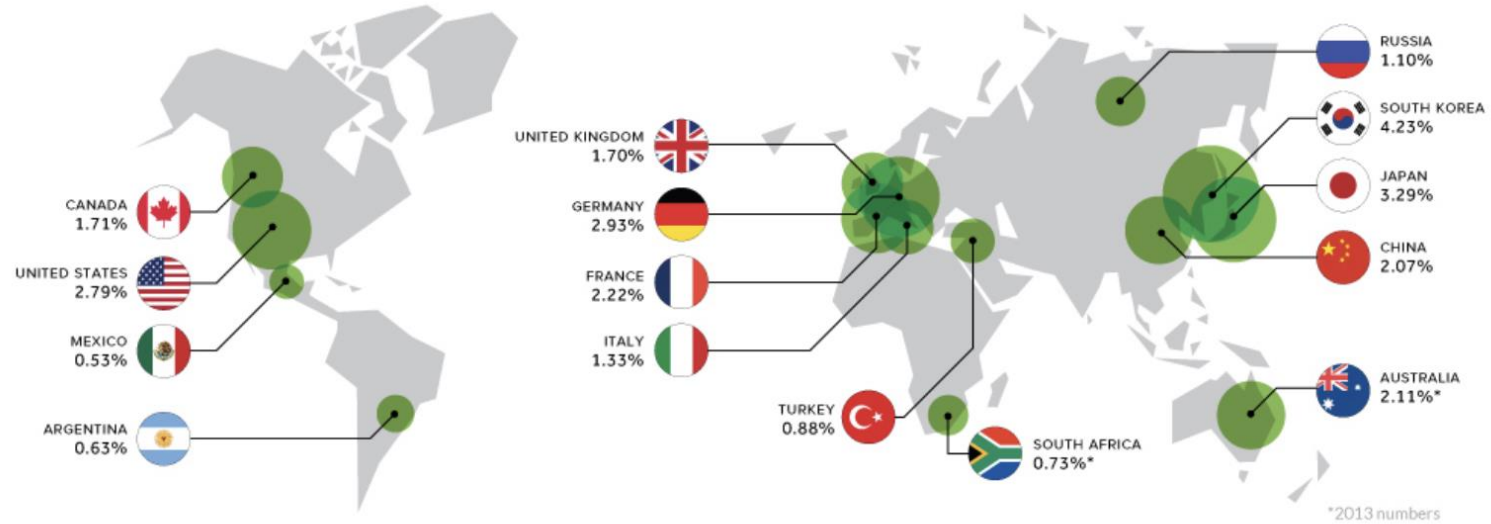
The G20 accounts for **92%** of global spending on research



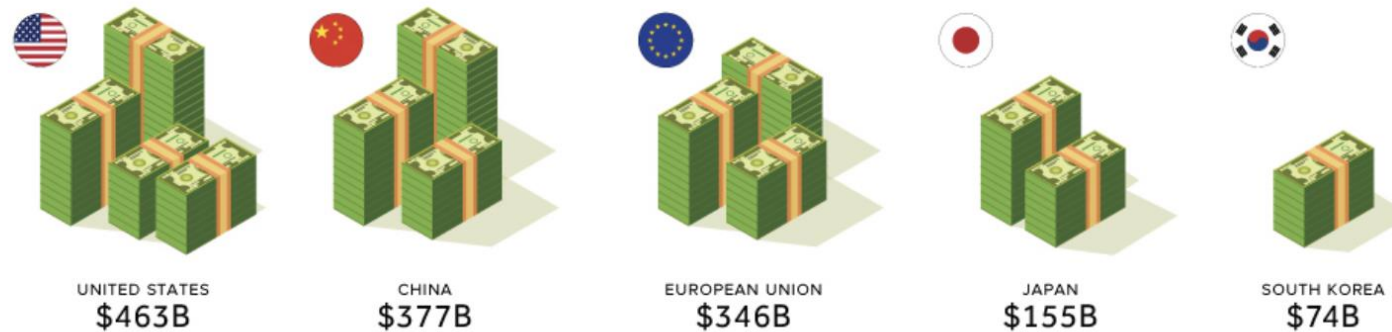
94% of patents granted by the US Patent and Trademark Office stem from G20 countries

R&D Expenditure as a percentage of GDP

Select G20 countries; 2015



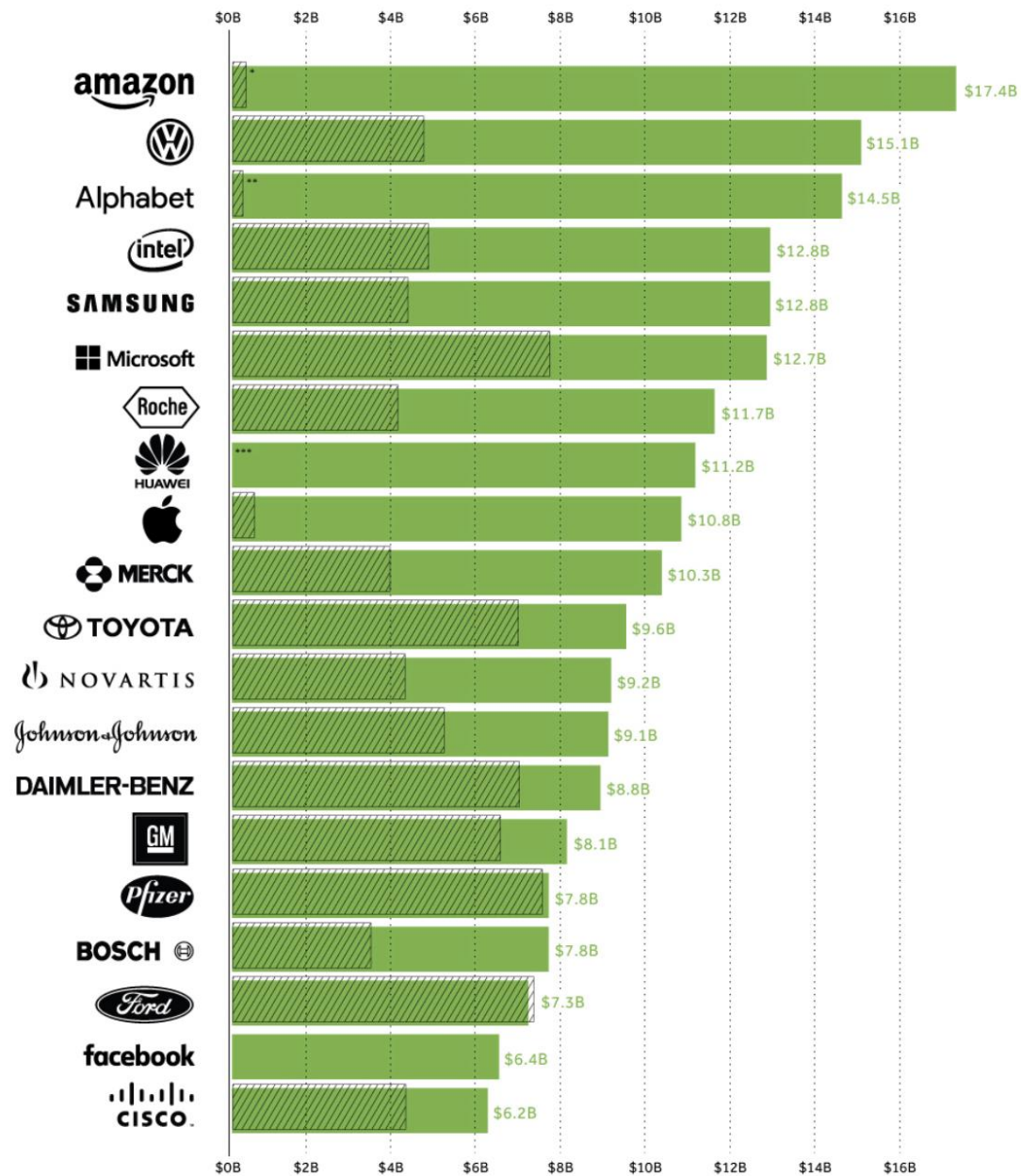
Top 5 Jurisdictions by R&D Expenditure (2015)



Top 20 Companies R&D Expenditure



2004 Last 12 months

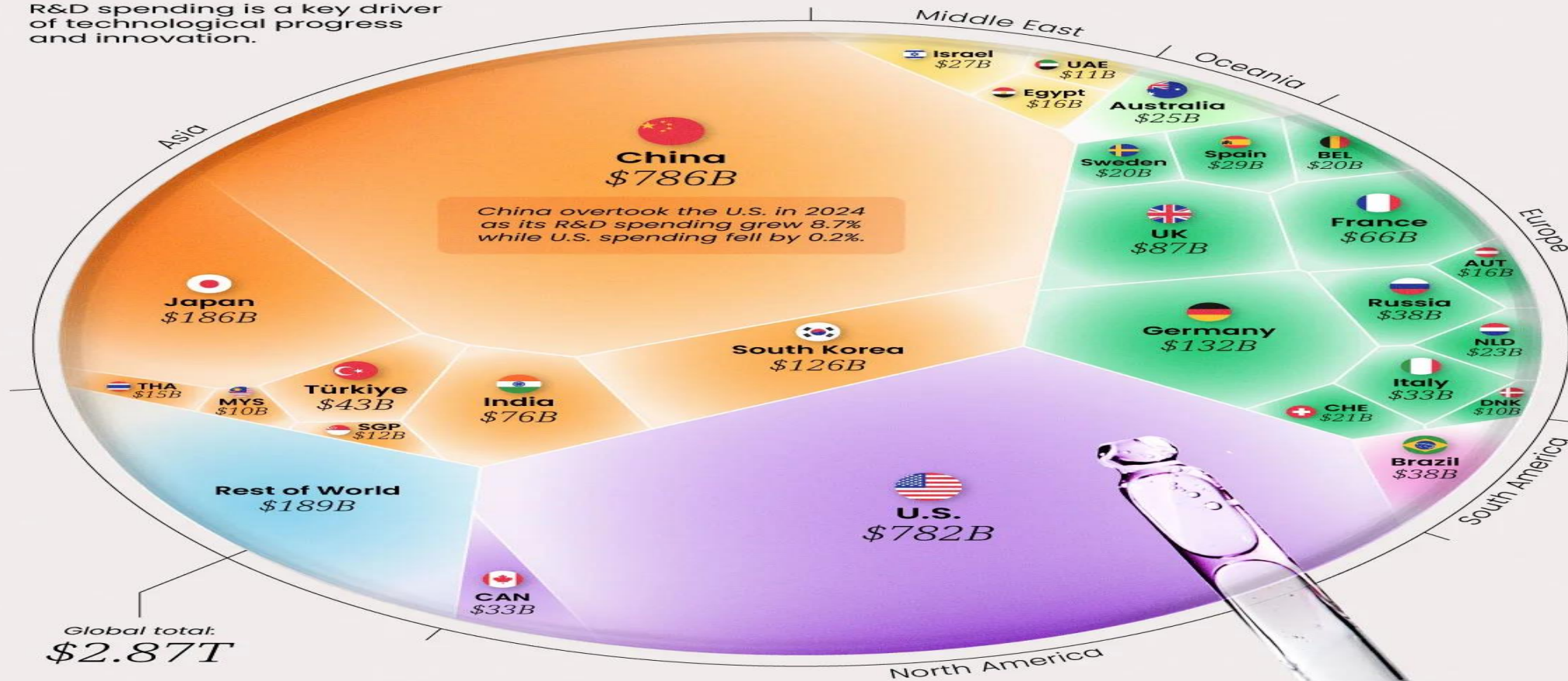


*Amazon data from "Technology and Content" line **Google ***Information not readily available



Research & Development Spending by Country

R&D spending is a key driver of technological progress and innovation.

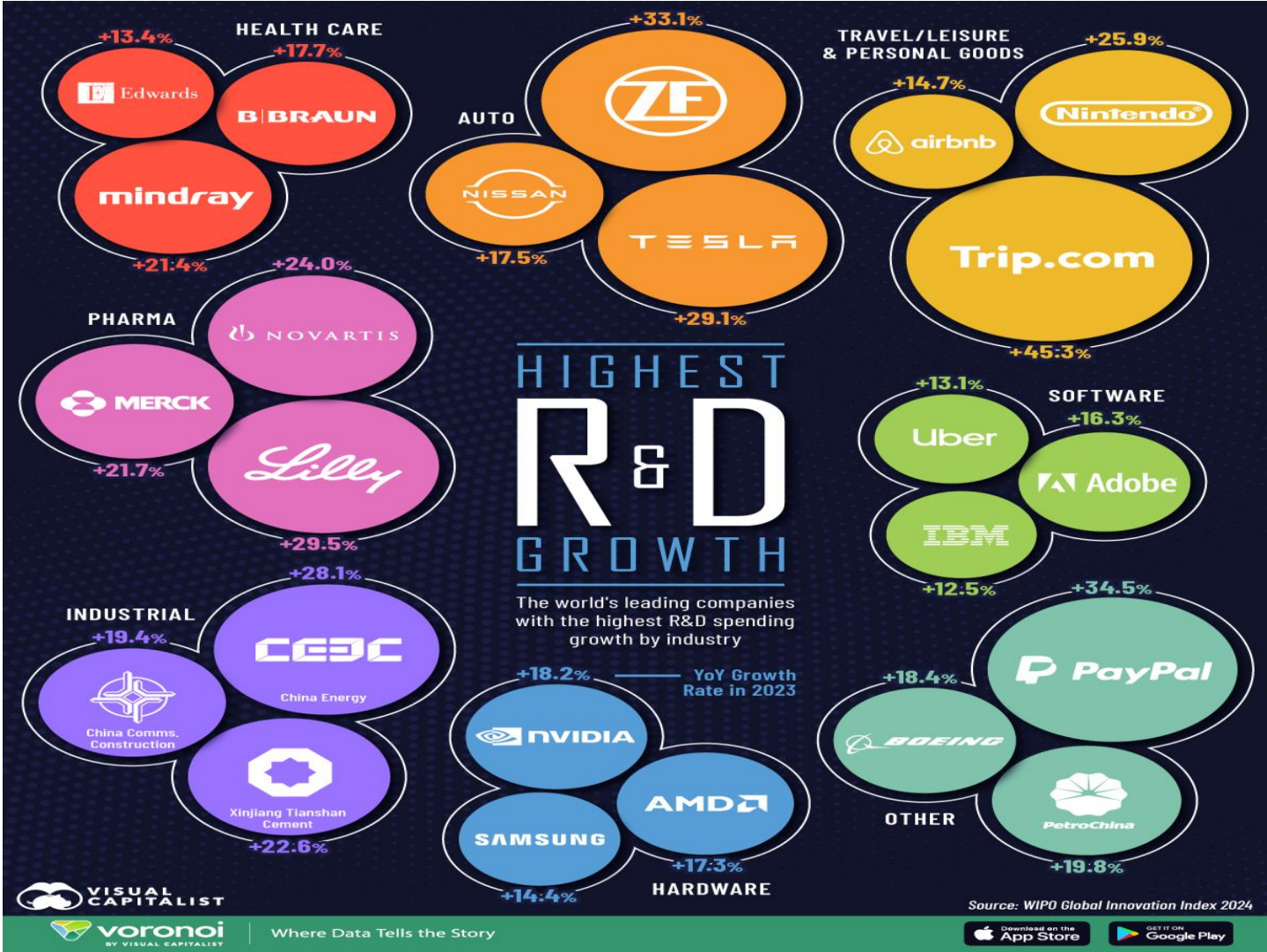


Source: World Intellectual Property Organization. Values are constant 2015 U.S. dollars adjusted for purchasing power parity (PPP). Data for 2024, latest available as of Jan 2026. Figures rounded.



Where Data Tells the Story

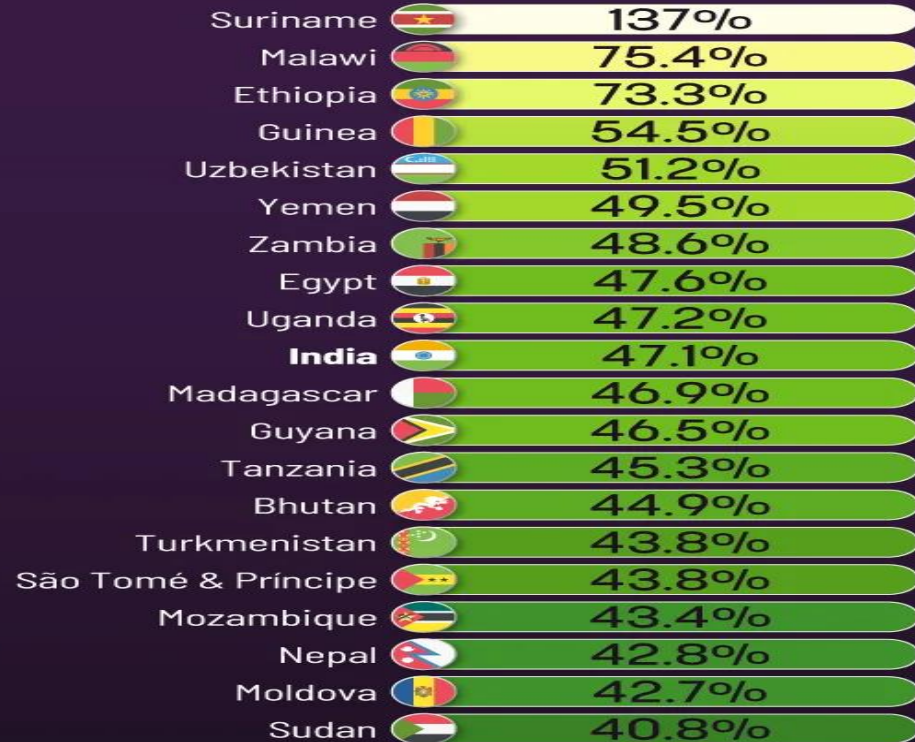




2026F-2030F

Fastest GDP Growth

GDP % GROWTH



GDP ADDED (USD)



India is the only country that appears in both lists, highlighting a rare blend of scale and speed.

 **VISUAL CAPITALIST** Source: IMF

Figures rounded. Values are IMF nominal GDP projections, not adjusted for inflation.

GLOBAL INNOVATION INDEX 2025

The GII captures the innovation ecosystem performance of 133 economies based on 78 individual indicators.



TOP 3 ECONOMIES by Income Group

High-income

- 1 Switzerland
- 2 Sweden
- 3 U.S.

Upper middle-income

- 1 China
- 2 Malaysia
- 3 Türkiye

Lower middle-income

- 1 India
- 2 Vietnam
- 3 Philippines

Low-income

- 1 Rwanda
- 2 Togo
- 3 Madagascar

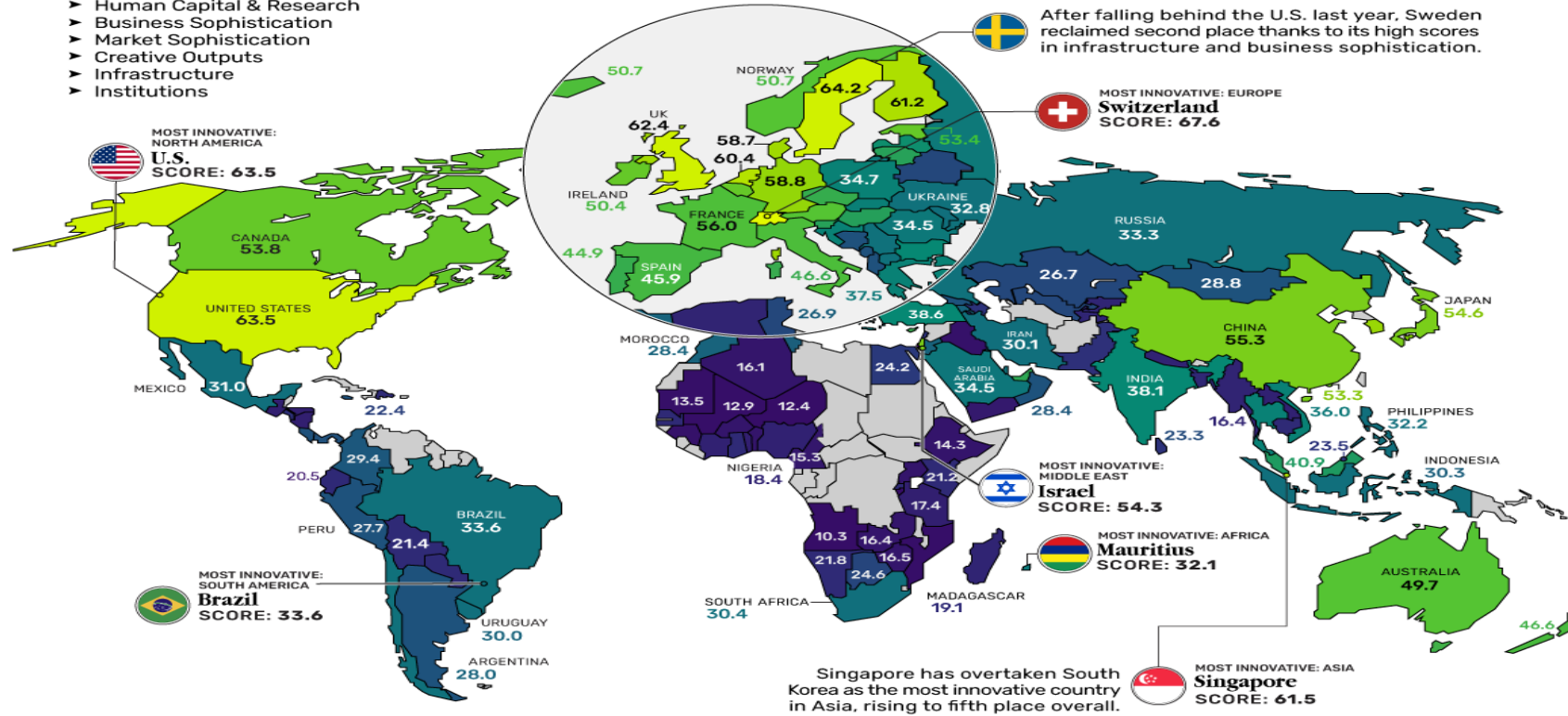
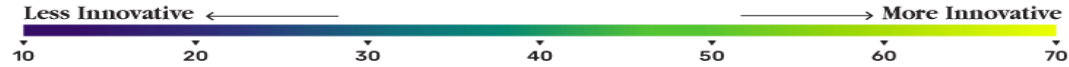
Global Innovation Index

We show global innovation rankings across 132 countries at a time of rapid technological advancement.

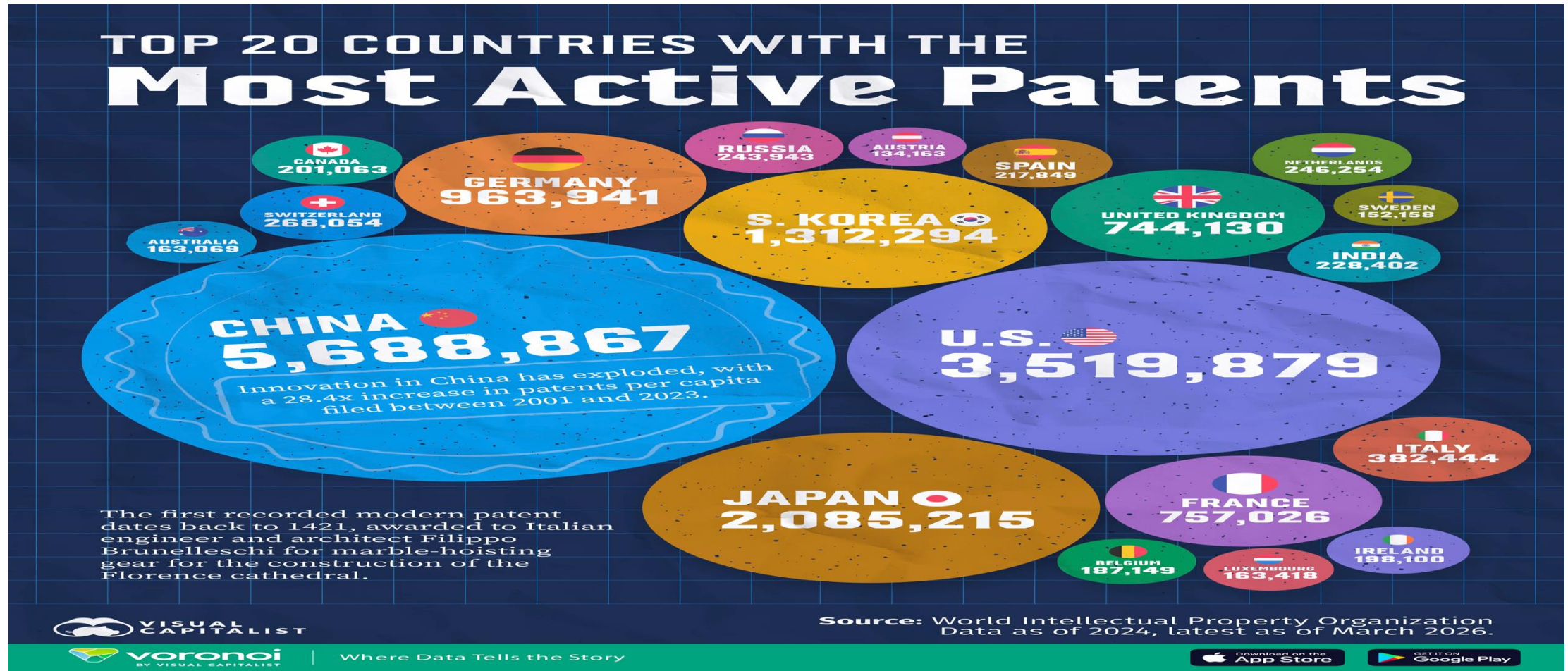
2023

Countries were analyzed across 80 indicators in the following categories:

- ▶ Knowledge & Technology Outputs
- ▶ Human Capital & Research
- ▶ Business Sophistication
- ▶ Market Sophistication
- ▶ Creative Outputs
- ▶ Infrastructure
- ▶ Institutions



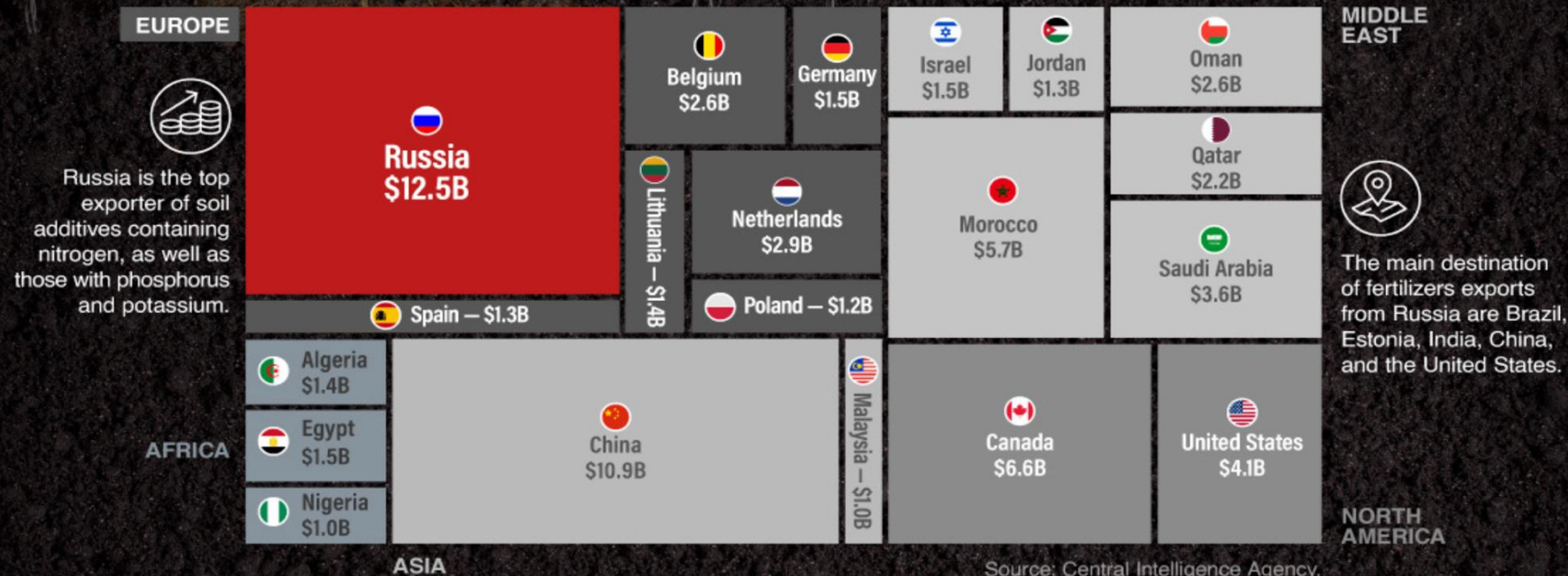
Global Patents



1 TOP EXPORTERS OF FERTILIZER

Crops across the world are dependent on fertilizers from Russia, the world's largest exporter, and the invasion of Ukraine has roiled up markets for crucial chemicals.

Export Value (Billions in USD)



Source: Central Intelligence Agency, The Fertilizer Institute, The World Factbook Field Listing: Exports – Commodities

2 TOP GRAIN EXPORTERS

Russia and Ukraine together account for nearly a third of the global wheat supply. Ukraine is also a major exporter of corn, barley, sunflower oil, and rapeseed oil.



With ports blocked in the Black Sea, Ukraine's exports of cereals and oilseed dropped from six million tonnes to two million tonnes per month.



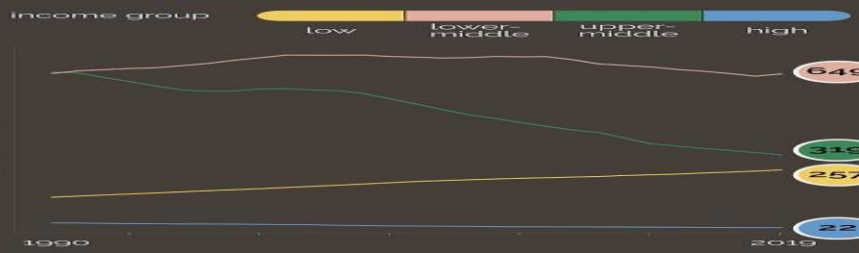
Russia and Ukraine signed a deal in July 2022 to resume grain exports through Ukraine's Black Sea ports.

*Estimates for the 2021-22 season, for wheat and coarse grains. Excluding rice
Source: International Grains Council, Farm Policy News

Ranked

Number of Agricultural Workers by Country

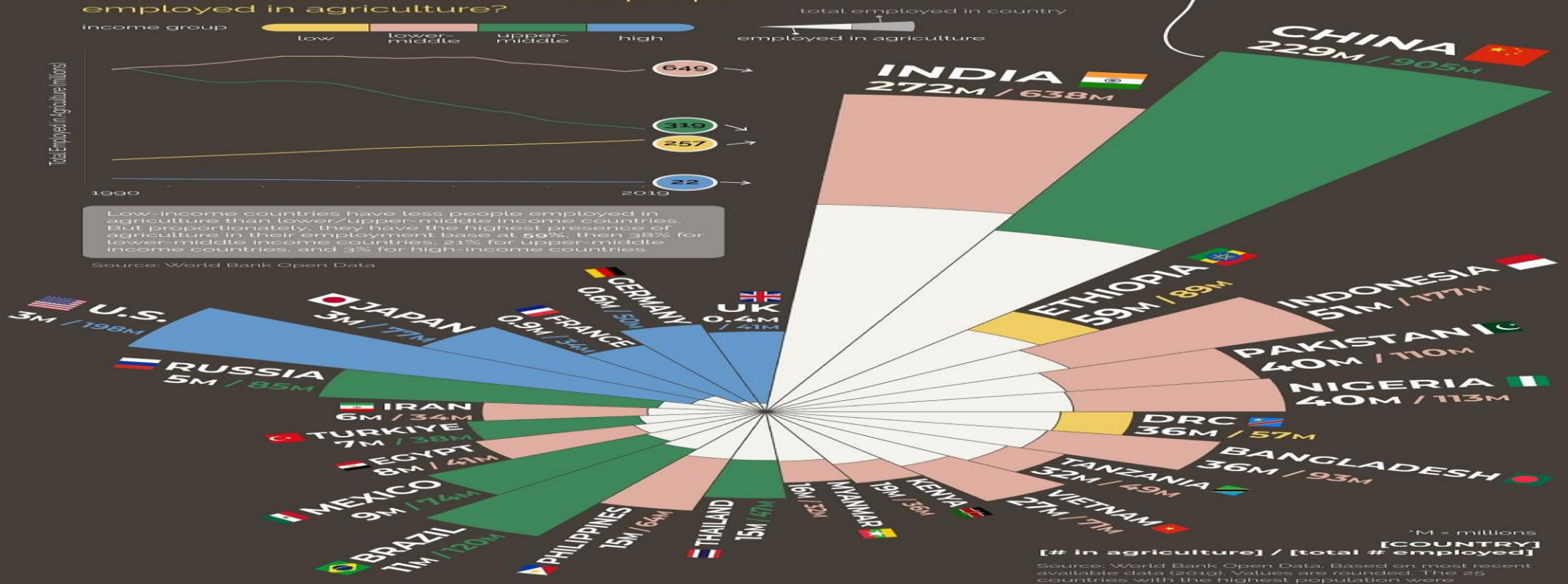
Which countries have the most people employed in agriculture?



Low-income countries have less people employed in agriculture than lower/upper-middle income countries. But proportionately, they have the highest presence of agriculture in their employment base, at 59%, then 38% for lower-middle income countries, 21% for upper-middle income countries, and 3% for high-income countries.

Source: World Bank Open Data

China accounts for 72% of all agricultural employment in upper-middle income countries. Since 1991, China has continued to decrease its share of people working in agriculture by ~3% per year.



*M = millions
 [# in agriculture] / [COUNTRY # employed]
 Source: World Bank Open Data. Based on most recent available data (2019). Values are rounded. The 25 countries with the highest population were considered in this analysis.

Top 5 by:

% Employed in Agriculture

The proportion of people who are employed that work in agriculture

Burundi	86%
Somalia	80%
Malawi	76%
Chad	75%
Niger	73%

Proportion of Females Working in Agriculture

Out of the total people employed in agriculture

Uzbekistan	60%
South Sudan	60%
Mozambique	58%
Armenia	56%
Gambia	56%

Proportion of Males Working in Agriculture

Out of the total people employed in agriculture

UAE	100%
Qatar	100%
Kuwait	100%
Bahrain	99%
Oman	99%

Employment: persons of working age who were engaged in any activity to produce goods or services for pay or profit.
 Agriculture sector: includes activities in agriculture, hunting, forestry and fishing.

Graphics by: Airi (iris) Ryu

Agriculture workers

Rank	Country	Agricultural Workers (2019)	% of Total Workers
1	IN India	272M	43%
2	CN China	229M	25%
3	ET Ethiopia	59M	66%
4	ID Indonesia	51M	29%
5	PK Pakistan	40M	36%
6	NG Nigeria	40M	35%
7	CD DRC	36M	63%
8	BD Bangladesh	36M	39%
9	TZ Tanzania	32M	65%
10	VN Vietnam	27M	38%

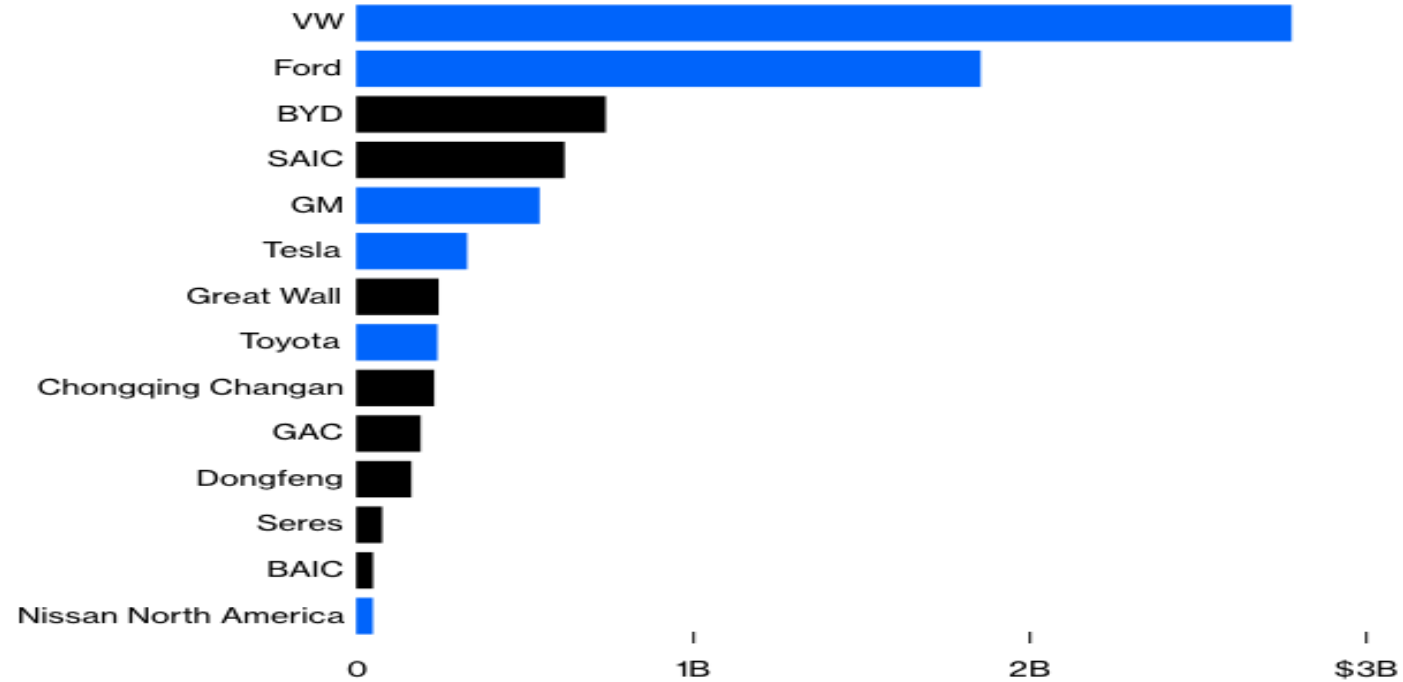
Agriculture workers

Rank	Country	Agricultural Workers (2019)	% of Total Workers
21	US U.S.	3M	2%
22	JP Japan	3M	4%
23	FR France	0.9M	3%
24	DE Germany	0.6M	1%
25	GB UK	0.4M	1%

Rules for Thee, Not for Me

Declared subsidies to Chinese carmakers are dwarfed by some of those elsewhere

■ US ■ China



Source: Bloomberg, Good Jobs First

Note: US data is for 2023. China data is for latest fiscal year.

WIND INSTALLATIONS

AS OF 2024

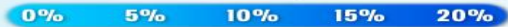
521,746 MW

TOTAL INSTALLED WIND TURBINE CAPACITY IN MEGAWATTS (MW)



CHINA

SHADING BASED ON ANNUAL GROWTH RATE (2023-2024)



153,152 MW



U.S.

72,823 MW



GERMANY

48,163 MW



INDIA

32,959 MW



BRAZIL

31,811 MW



SPAIN

30,902 MW



UK

24,592 MW



FRANCE

18,376 MW



CANADA

17,239 MW



SWEDEN

15,288 MW



AUSTRALIA

12,992 MW



ITALY

12,973 MW



TÜRKIYE

11,679 MW



NETHERLANDS

10,059 MW



POLAND



COLLABORATORS RESEARCH + WRITING Niccolo Conte | ART DIRECTION + DESIGN Sabrina Lam

Capacity figures include both onshore and offshore wind are on an alternating current basis.
Source: Energy Institute, 2025 Statistical Review of World Energy



Where Data Tells the Story



India

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RAM CHARAN Indian Business Consultant
Harvard



India's Reckoning

How shifts in geopolitics and trade are testing
India's development strategy

India economy its challenges

- To become a developed economy (\$ 13 4 846 Per capita)
- To fully utilize the Demographic dividend before it becomes the demographic debacle leading to social volcano .
- To improve the female participation rate and nurse human capital.
- Improve the urban miserable structures to become the growth centers .
- To change the labour laws to increase its absorption and improve scale of production .

Indian economy its challenges 2

- To reduce carbon intensity of economic growth .Also climate friendly farming needs to be promoted .
- To become self sufficient in fertilisers to sustain the agriculture
- To promote the energy security of India by renewable and nuclear energy .

Distribution of Workers by Industry (%)



45.8%
Agriculture

Agriculture employs nearly half of India's workforce but contributed only 16.2% of GDP in 2023.

13.0%
Construction

12.1%
Trade, hotel & restaurant

11.4%
Manufacturing

11.4%
Other services

5.4% Transport, storage, & communications

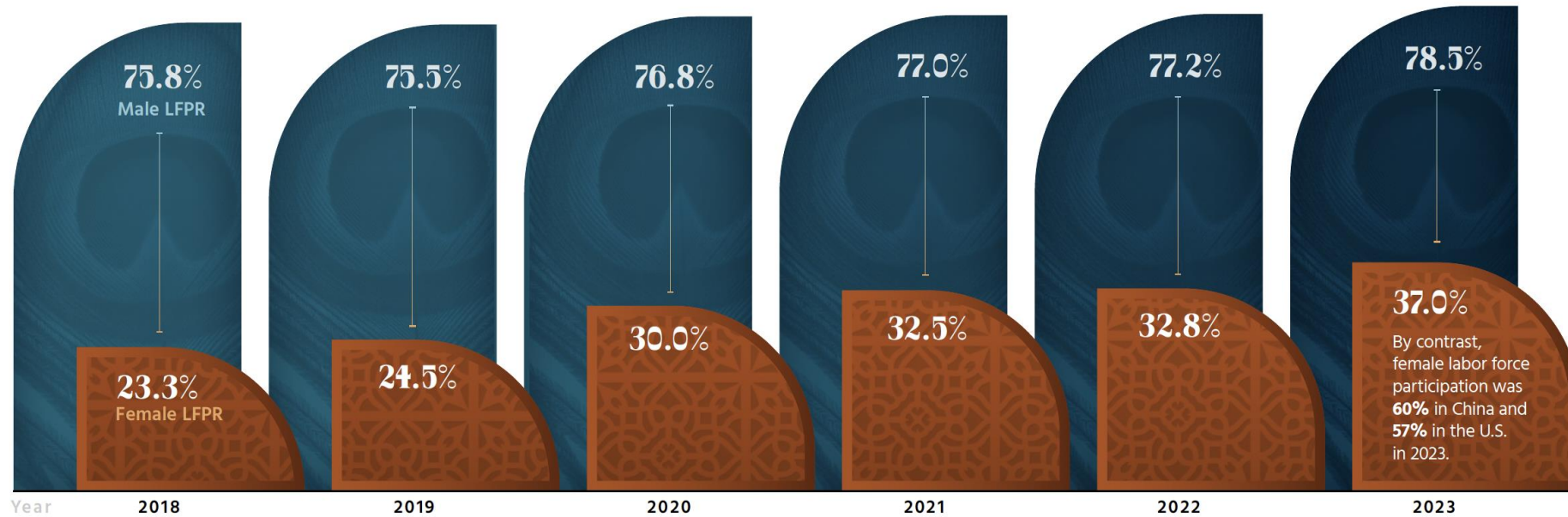
0.5% Electricity, water, etc.

0.3% Mining & quarrying

India's Challenge with Women in the Workforce

India's female labor force participation is among the lowest globally, representing a major structural drag on productivity and household income. Unlocking women's economic participation remains one of the country's greatest opportunities for broad-based growth.

Male vs. Female Labor Force Participation Rate

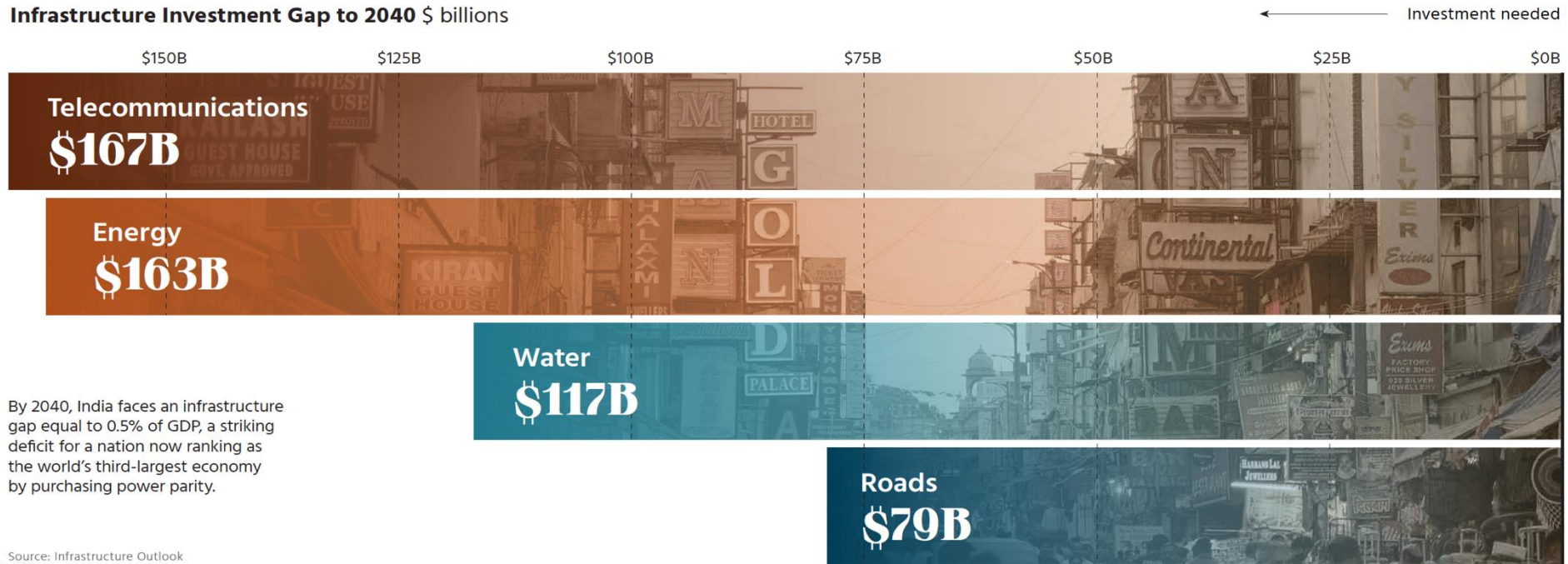


Source: Directorate General of Employment India

Infrastructure Gaps & Investment Needs

India faces a \$526 billion infrastructure investment gap through 2040, a shortfall that threatens to constrain both productivity and economic opportunity. Without closing this gap, the country risks limiting the very foundations needed to sustain long-term growth.

Infrastructure Investment Gap to 2040 \$ billions

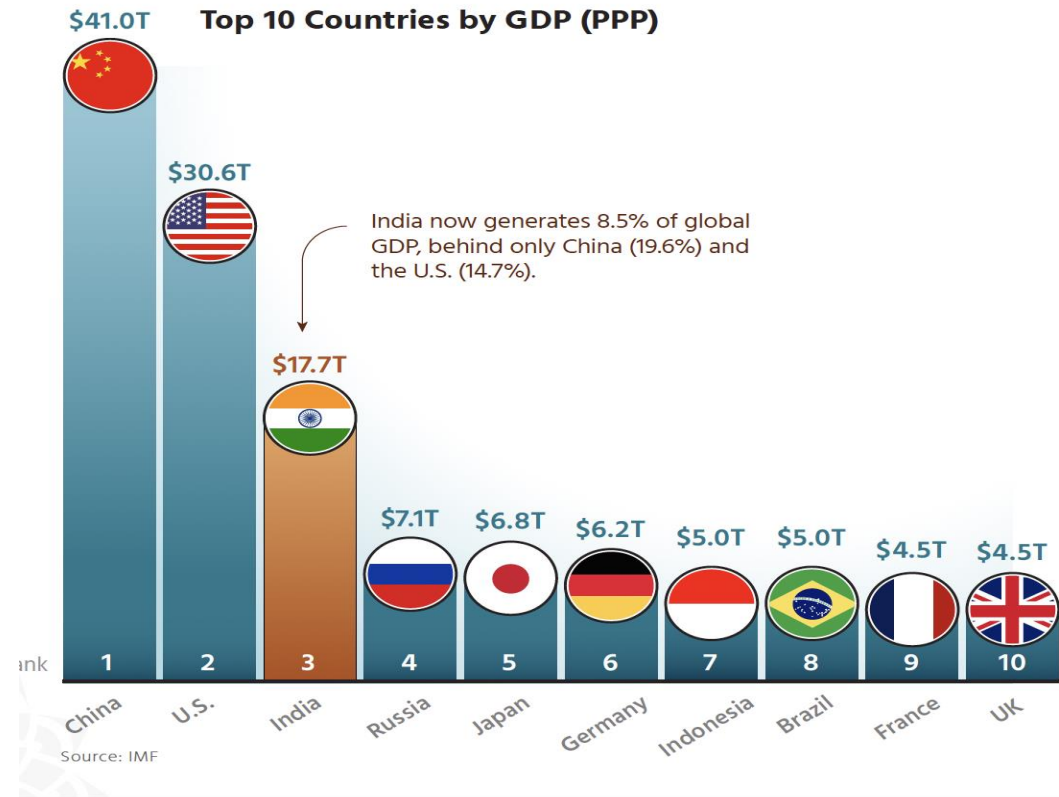


By 2040, India faces an infrastructure gap equal to 0.5% of GDP, a striking deficit for a nation now ranking as the world's third-largest economy by purchasing power parity.

Source: Infrastructure Outlook
PAHARGANJ MARKET, NEW DELHI, INDIA

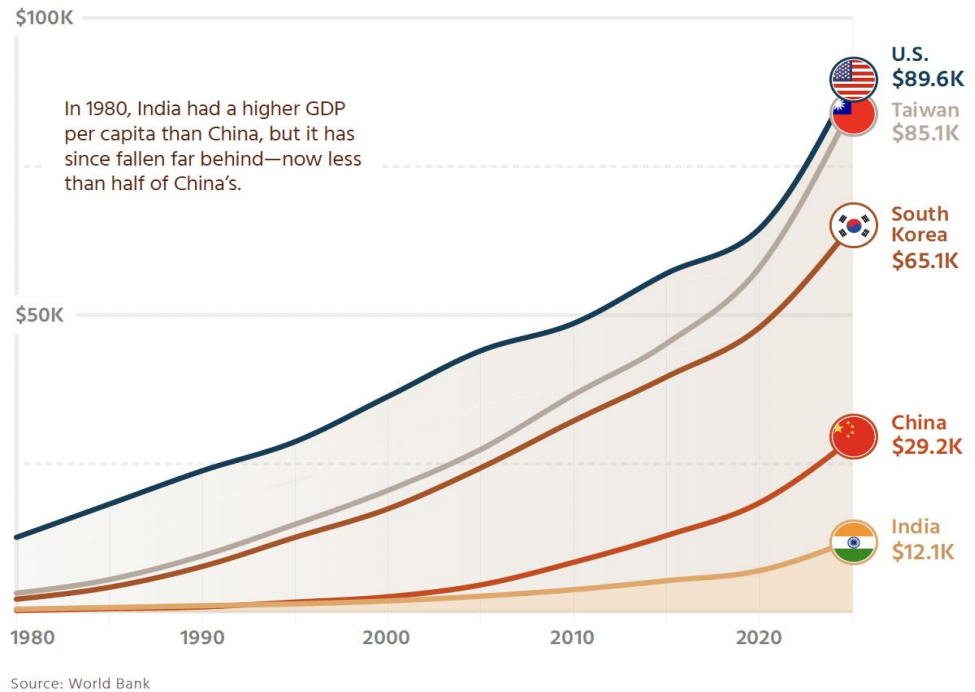
India Rising

Economic Scale Lacking Shared Prosperity



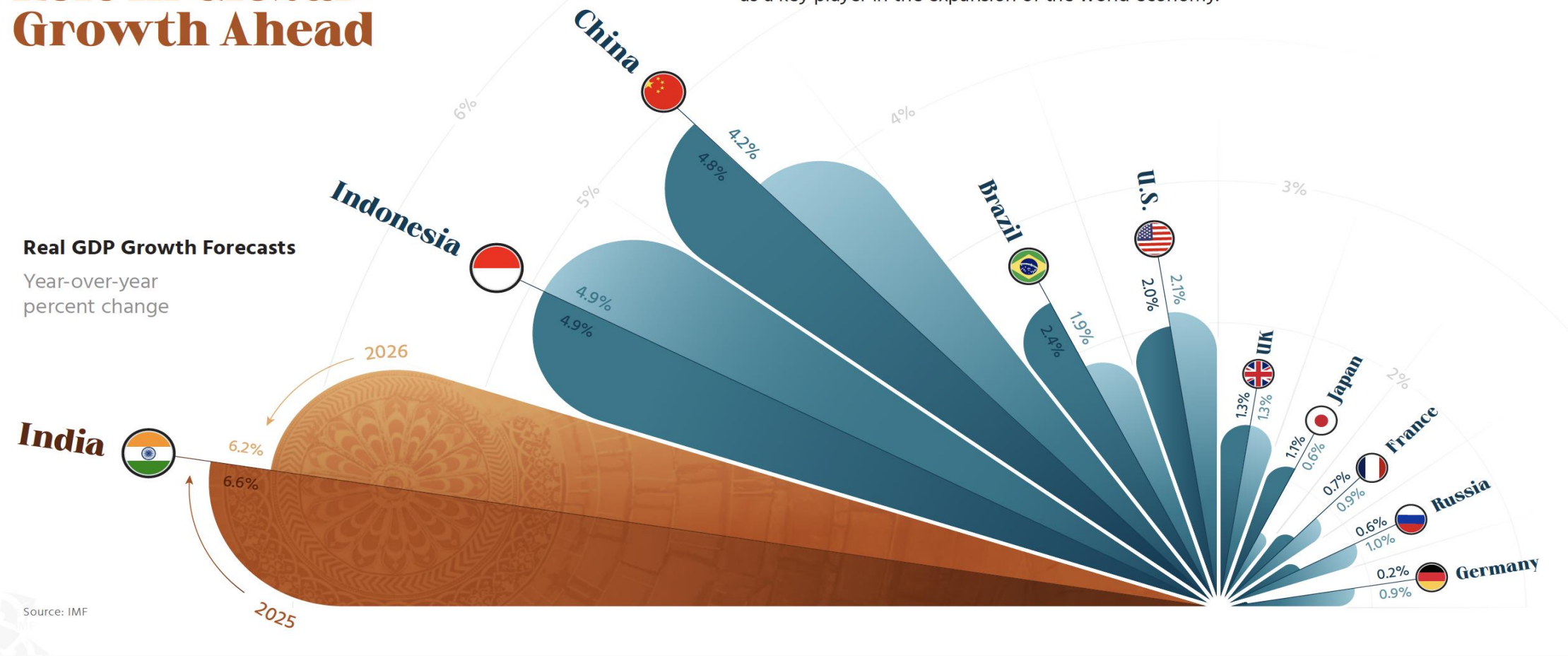
India is now the world's third-largest economy on a PPP (Purchasing Power Parity) basis, underscoring its rapid rise as a major global power. Yet this scale masks a stark income gap: despite its size, India ranks just 126th globally in per capita income, with development lagging far behind comparable economies.

GDP Per Capita Over Time: India Plays Catch Up on a Lost Opportunity



India's Pivotal Role in Global Growth Ahead

Looking ahead, India's prospects are strengthening, with forecasts showing it will post the highest real GDP growth among major economies in both 2025 and 2026. As global growth slows elsewhere, India is increasingly emerging as a key player in the expansion of the world economy.

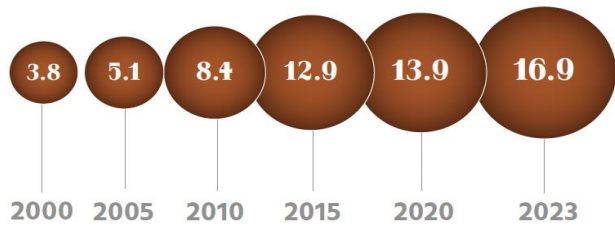


India's Trade Geography

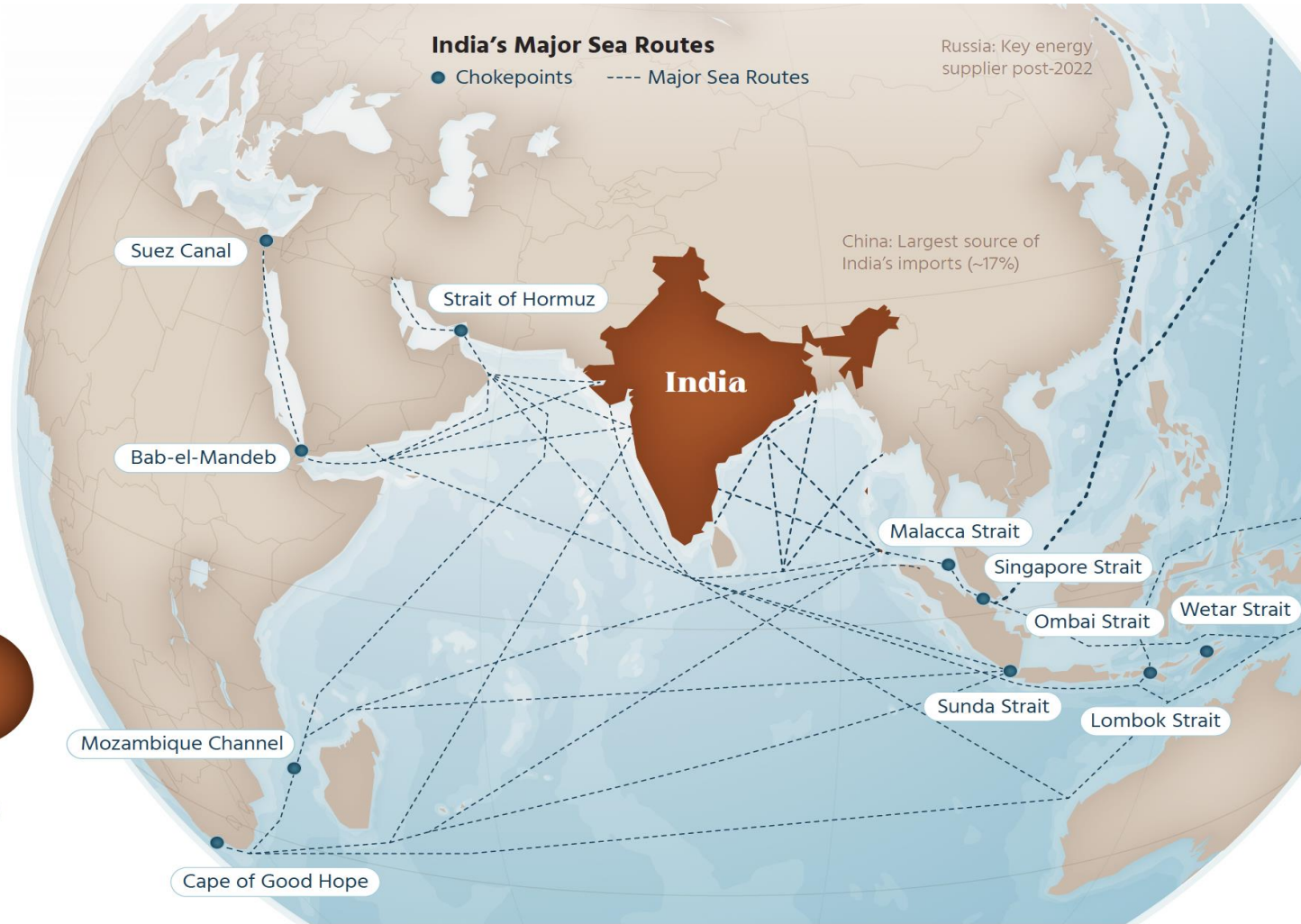
India's trade relationships are shaped by its geographic realities, from maritime access and energy dependence to its location between major economic powers. Yet its ability to wield such influence in the global economy is hampered by capacity constraints at older ports, inadequate infrastructure, poor connectivity, and high logistical costs.

India's Net Energy Imports

Millions of terajoules (TJ)



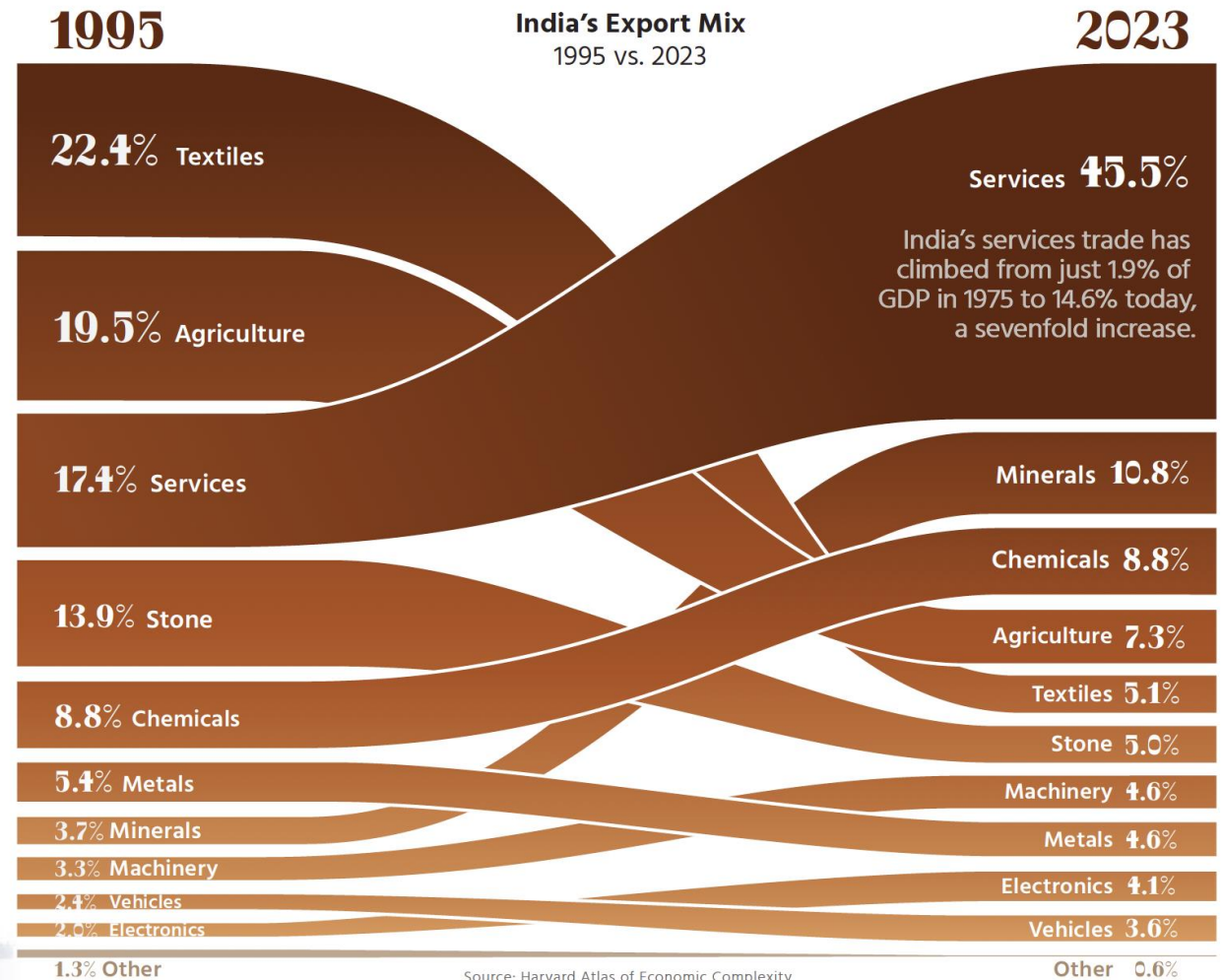
Source: Carnegie, IEA



How India's Export Basket Evolved

India's export mix has steadily modernized, with a rising share of higher-value sectors and more diversified output, yet the overall transformation remains incomplete.

The economy's heavy reliance on services and agriculture has clear limits: weak job creation, dependence on foreign digital platforms, and the weight of low-productivity sectors that slows the shift toward more complex, higher-value products, and manufacturing-driven growth.



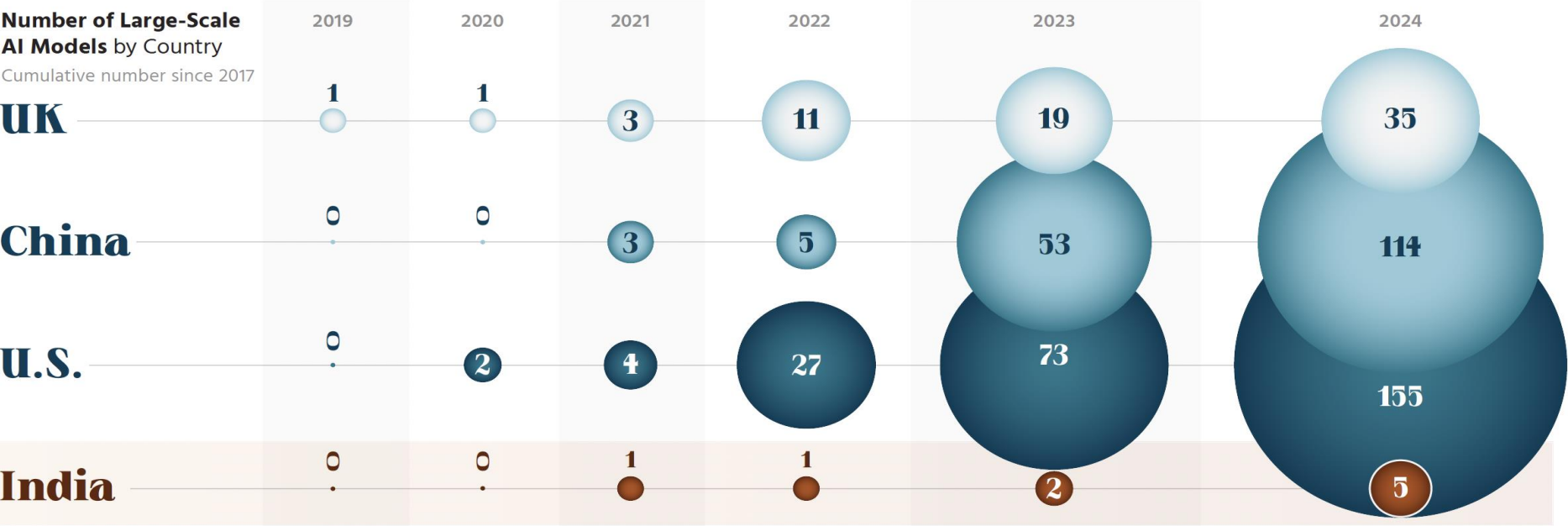
Source: Harvard Atlas of Economic Complexity
ALAPPUZHA, KERALA, INDIA

Digital Swaraj:

India's Push for Digital Sovereignty

India's push in some quarters for "Digital Swaraj", a movement among some in India's intelligentsia toward greater self-reliance in tech ("swaraj" means self-rule), reflects a growing drive for digital sovereignty and reduced reliance on imports. The country has prioritized expanding domestic tech, AI, and cybersecurity, both to strengthen national security and to insulate its supply chains from geopolitical risks.

Number of Large-Scale AI Models by Country
Cumulative number since 2017



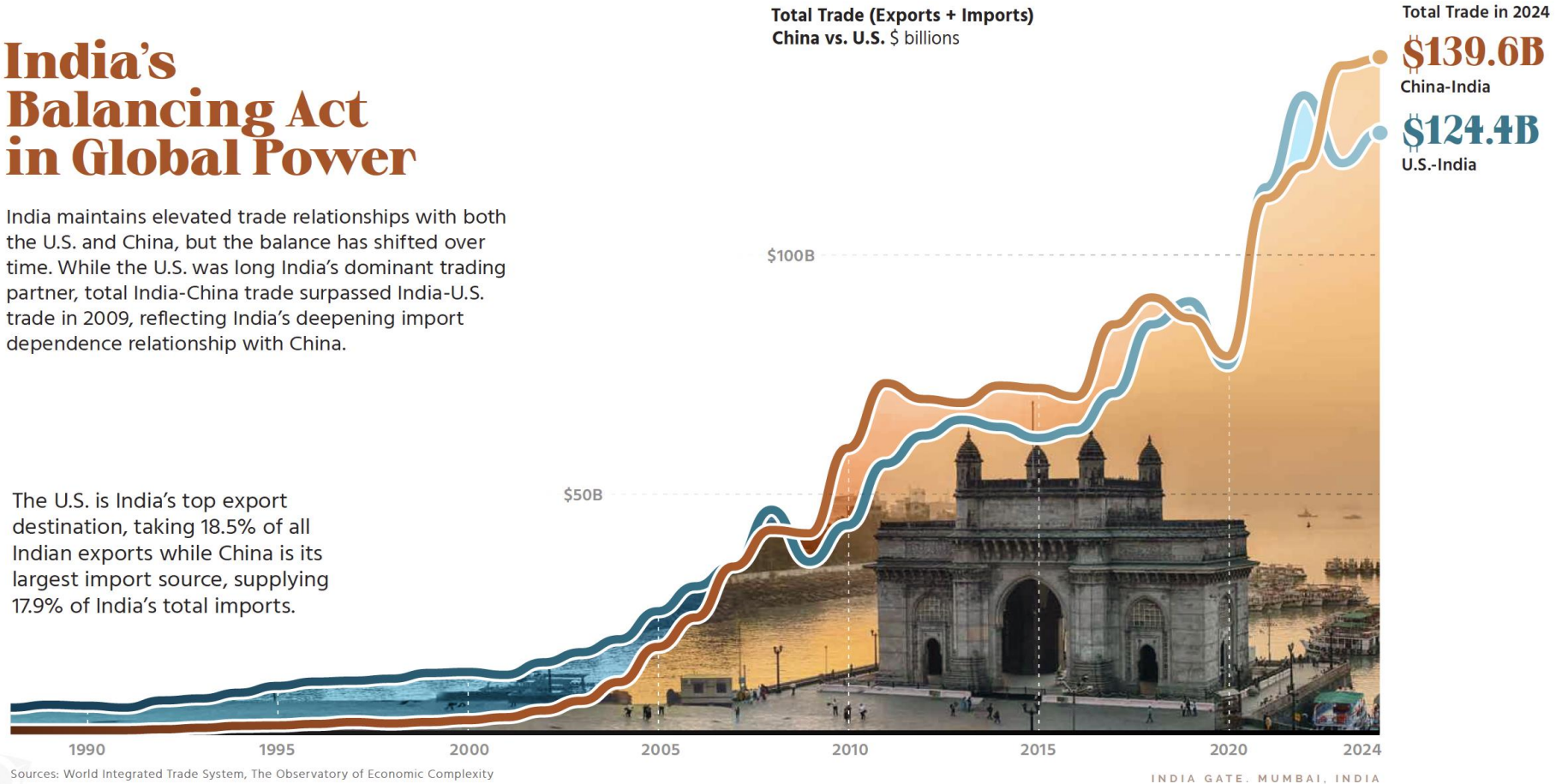
Source: Our World in Data

With 500+ million smartphones running on foreign platforms, India's plan pushes for domestic OS, sovereign cloud, and full migration to Indian software by 2030.

India's Balancing Act in Global Power

India maintains elevated trade relationships with both the U.S. and China, but the balance has shifted over time. While the U.S. was long India's dominant trading partner, total India-China trade surpassed India-U.S. trade in 2009, reflecting India's deepening import dependence relationship with China.

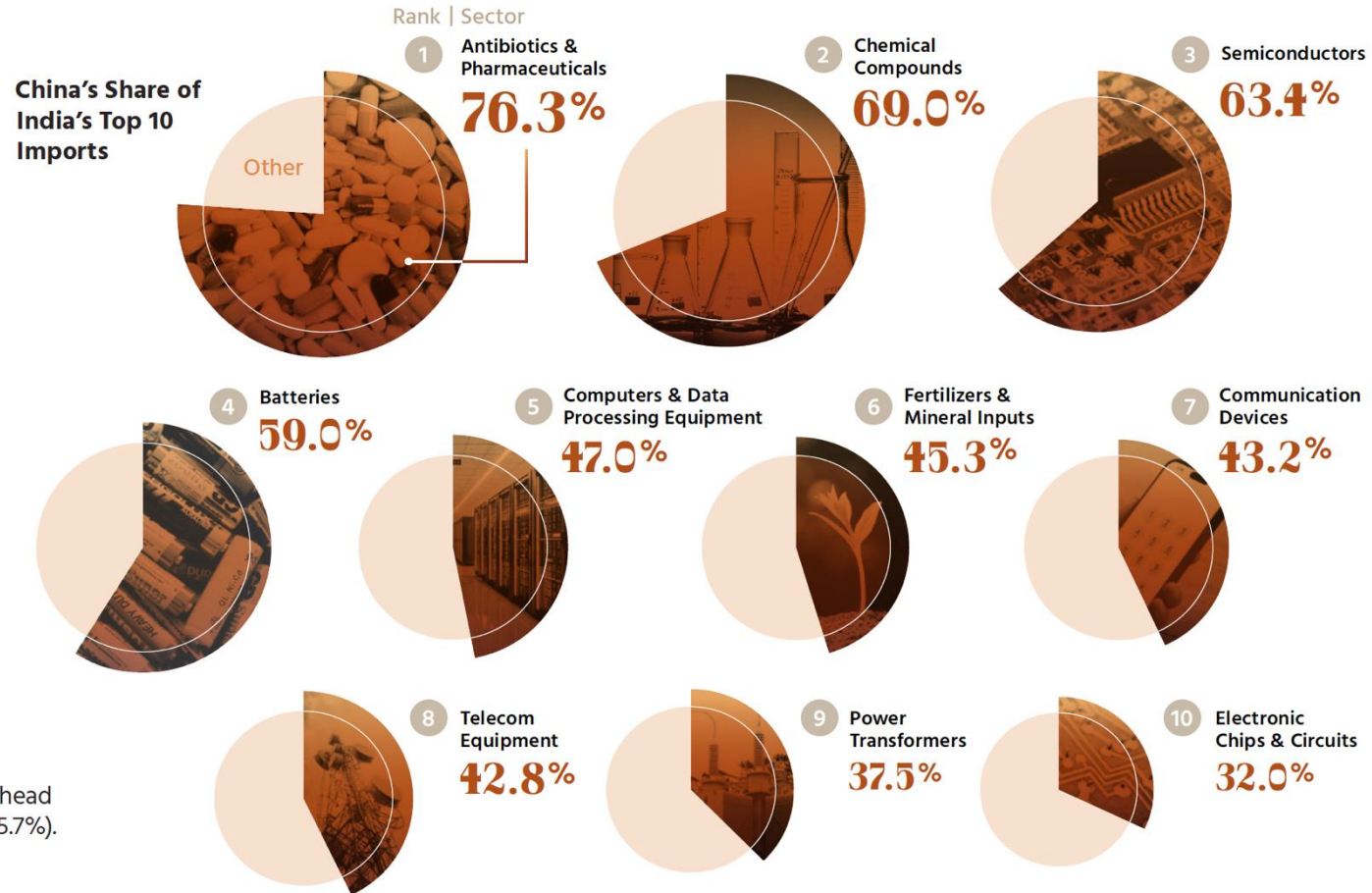
The U.S. is India's top export destination, taking 18.5% of all Indian exports while China is its largest import source, supplying 17.9% of India's total imports.



China: Strategic Rival, Economic Anchor

India's relationship with China is defined by concerns over deep economic dependence alongside strategic rivalry. China's outsized share of India's most important imports reveals how difficult it is for India to unwind this reliance, even as geopolitical tensions persist.

China supplies **17.9%** of India's total imports, well ahead of Russia (9.6%) and the U.S. (5.7%).



Source: Korea Economic Institute of America, The Observatory of Economic Complexity

India developed economy @ 47

- Prime Minister Narendra Modi has pledged to transform India into a high-income, developed country by 2047. India is also on course to become the [world's third largest](#) economy in six years, according to several projections.
- High-income economies have a per capita Gross National Income - total amount of money earned by a nation's people and businesses - of \$13,846 (£10,870) or more, according to the World Bank.
- With a per capita income of around \$ 3000 ,India is among the lower [middle-income countries](#).

Middle Income trap

- Many economists have been warning that India's economy could be headed for a "middle income trap". This happens when a country stops being able to achieve rapid growth easily and compete with advanced economies.
- Economist Ardo Hannson defines it as a situation when countries "seem to get stuck in a trap where your costs are escalating and you lose competitiveness".
- At the current growth rate, India will need 75 years to reach a quarter of America's per capita income, [World Development Report 2024](#) says. It also says more than 100 countries – including India, China, Brazil and South Africa - face "serious obstacles" that could hinder their efforts to become high-income countries in the next few decades.

NITI Ayog V IKSHIT BHARAT

- As for the economy, to become a developed nation, we need to strive to be a USD 30 trillion economy by 2047 with a per capita income of USD 18,000 per annum.
- "The GDP would have to grow nine times from today's USD 3.36 trillion and the per capita income would need to rise 8 times from today's USD 2,392 per annum," it said.
- The document said improving the competitiveness of industry is equally necessary for the transformation of the country's agricultural workforce into an industrial workforce and making India a global manufacturing and service hub.
- The paper said upgrading capabilities in manufacturing and logistics and bridging the gap between rural and urban incomes are some of the structural challenges that India needs to address.

Grow like South Korea

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- “these countries need to focus on more investment, infuse new technologies from around the world and grow innovation.”
- South Korea exemplifies this strategy, the report says. In 1960, its per capita income was \$1,200 - it rose to \$33,000 by 2023.

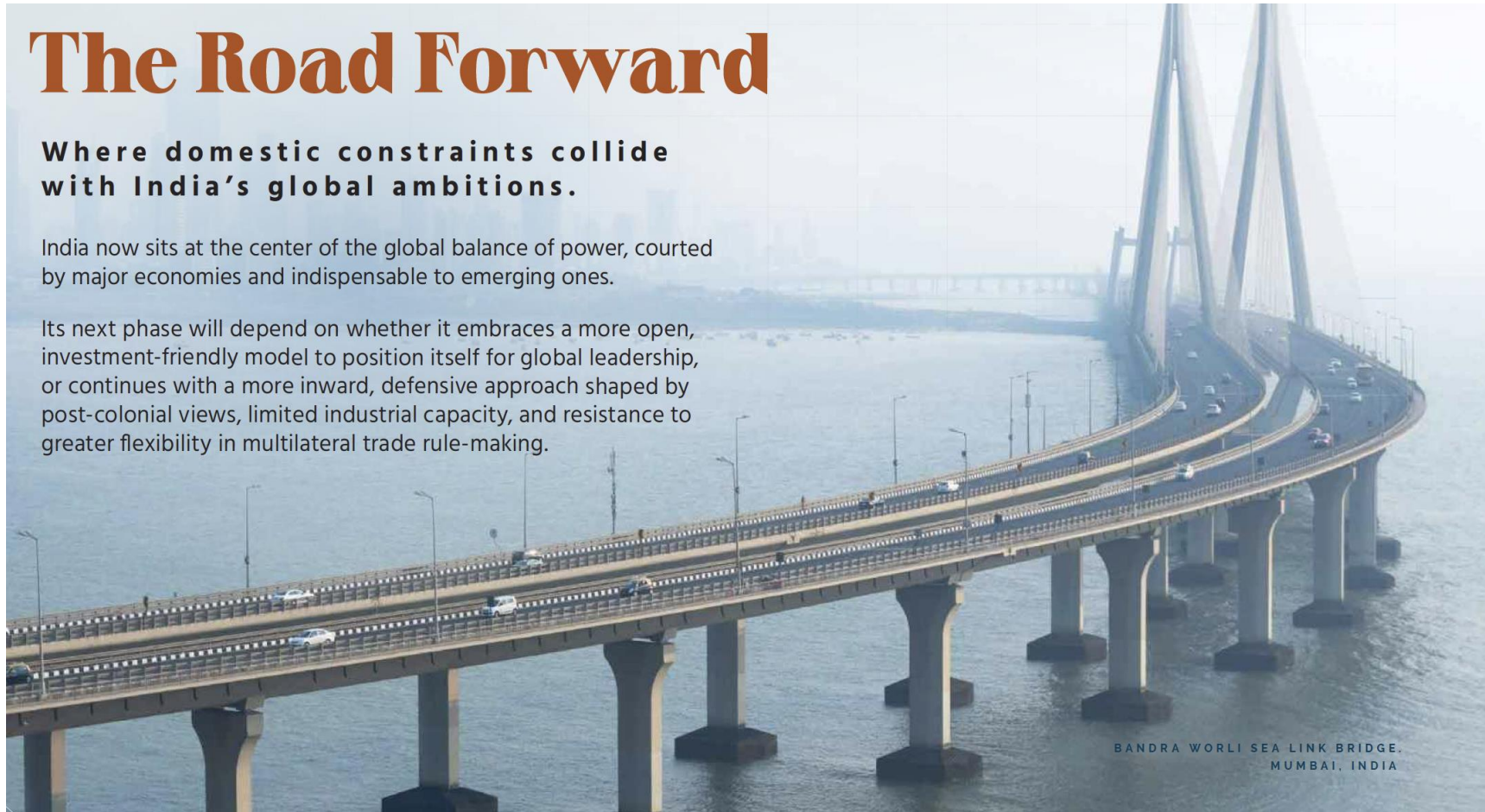
Initially, South Korea boosted public and private investment. In the 1970s, it shifted to an industrial policy that encouraged domestic firms to adopt foreign technology and advanced production methods.

The Road Forward

Where domestic constraints collide with India's global ambitions.

India now sits at the center of the global balance of power, courted by major economies and indispensable to emerging ones.

Its next phase will depend on whether it embraces a more open, investment-friendly model to position itself for global leadership, or continues with a more inward, defensive approach shaped by post-colonial views, limited industrial capacity, and resistance to greater flexibility in multilateral trade rule-making.



BANDRA WORLI SEA LINK BRIDGE,
MUMBAI, INDIA

India GDP 25 26 (Economic Survey 25 26)

Share as % of Nominal GDP, Percent				
Production Approach (Supply Side)				
	H1: FY25	H1: FY26	FY25 (PE)	FY26 (FAE)
Agriculture, Livestock, Forestry & Fishing	14.0	13.2	16.3	15.2
Industry	24.5	24.3	24.6	24.3
Mining & Quarrying	1.6	1.4	1.6	1.4
Manufacturing	12.7	13.0	12.6	12.8
Electricity, Gas, Water Supply & Other Utility Services	2.5	2.4	2.4	2.3
Construction	7.7	7.6	7.9	7.8
Services	52.6	53.6	49.9	51.1
Trade, Hotels, Transport, Communication & Services related to Broadcasting	15.1	15.0	15.9	15.8
Financial, Real Estate & Professional Services	23.7	24.3	20.8	21.4
Public Administration, Defence & Other Services	13.7	14.3	13.2	13.8
Expenditure Components (Demand Side)				
Private Final Consumption Expenditure (PFCE)	61.1	61.4	61.4	61.5
Government Final Consumption Expenditure (GFCE)	10.0	9.6	10.0	9.9
Gross Fixed Capital Formation (GFCF)	30.6	30.5	29.9	30.0
Exports	21.1	21.2	21.2	21.5
Source: MoSPI				

India agriculture growth 25 26 (Economic Survey 25 26)

Share as % of Nominal GDP, Percent				
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Source: MoSPI				

GDP Share sector wise 25 26 (Economic Survey 25 26)

Chart I.15: Growth in manufacturing GVA deflator has remained moderate

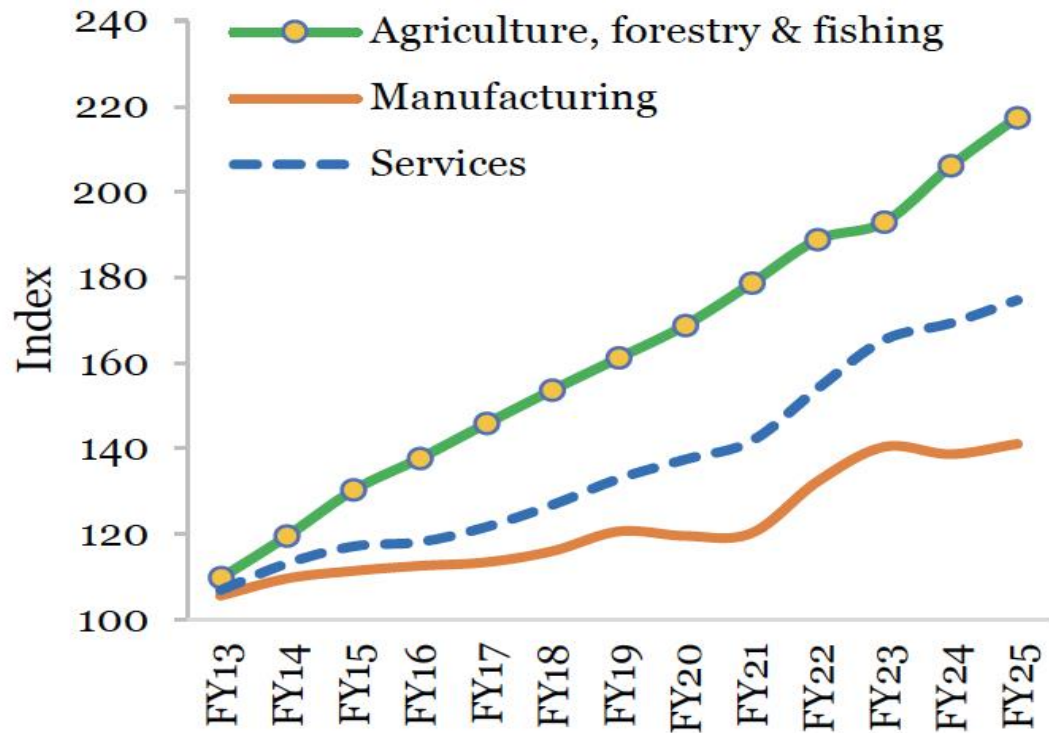
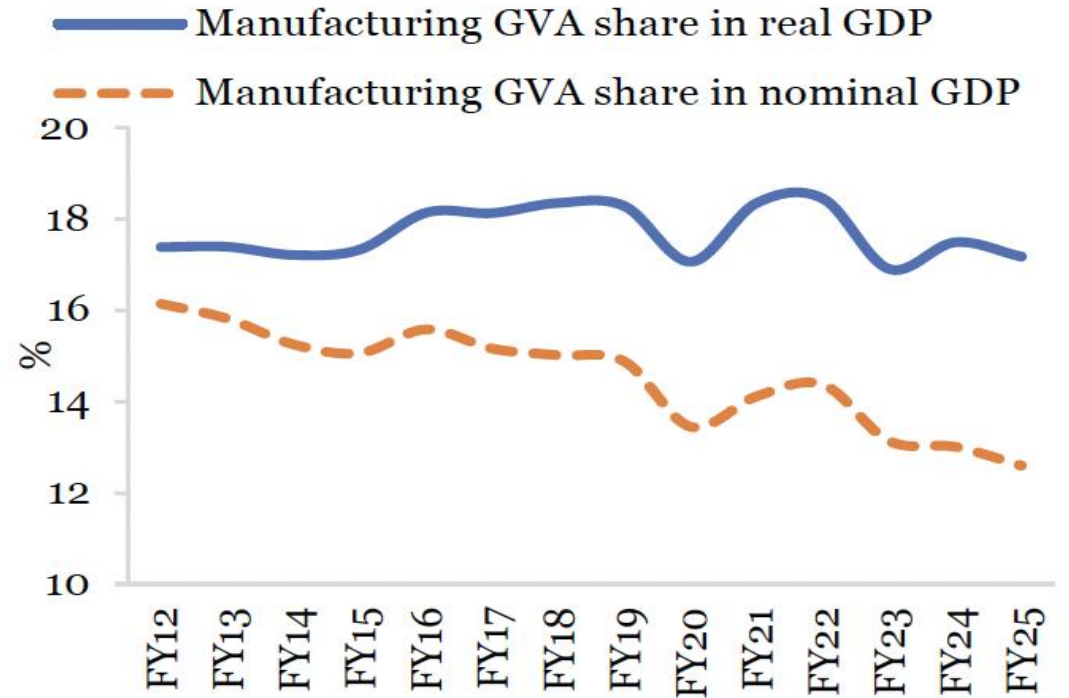
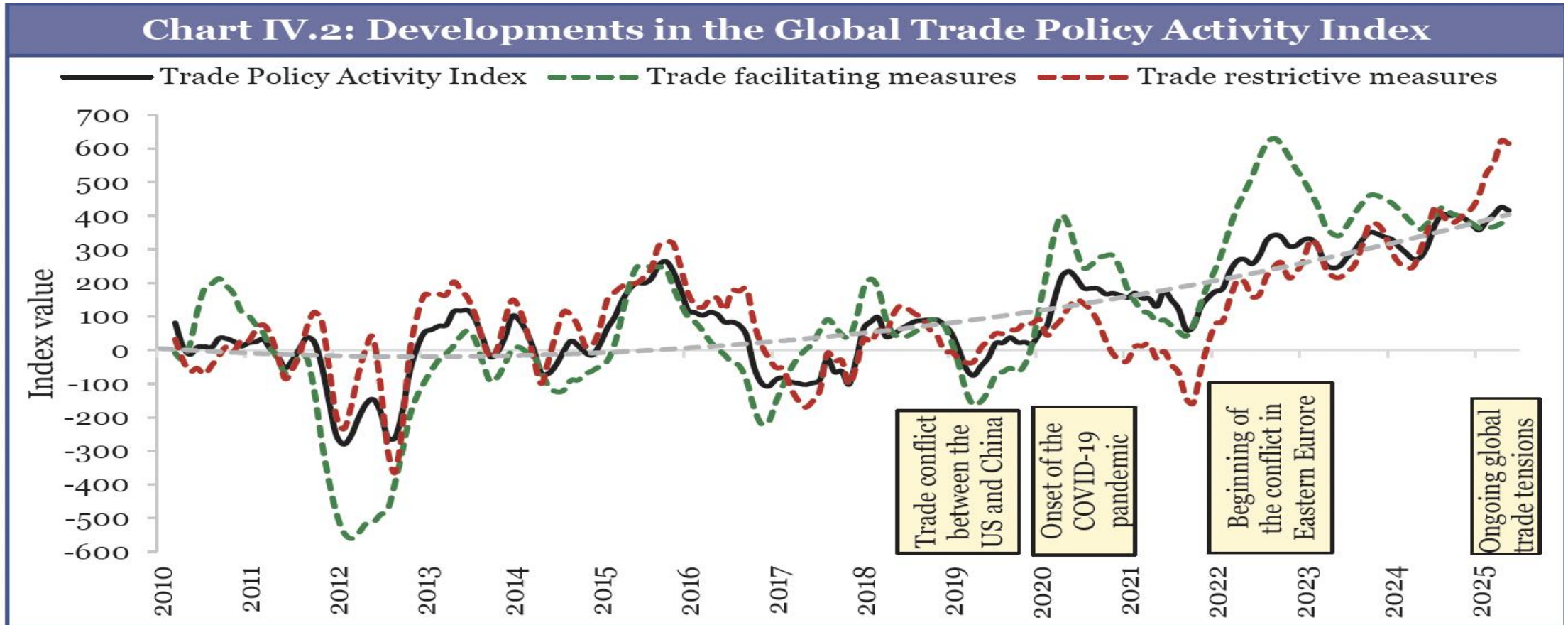


Chart 1.16: Share of manufacturing remains stable in real terms



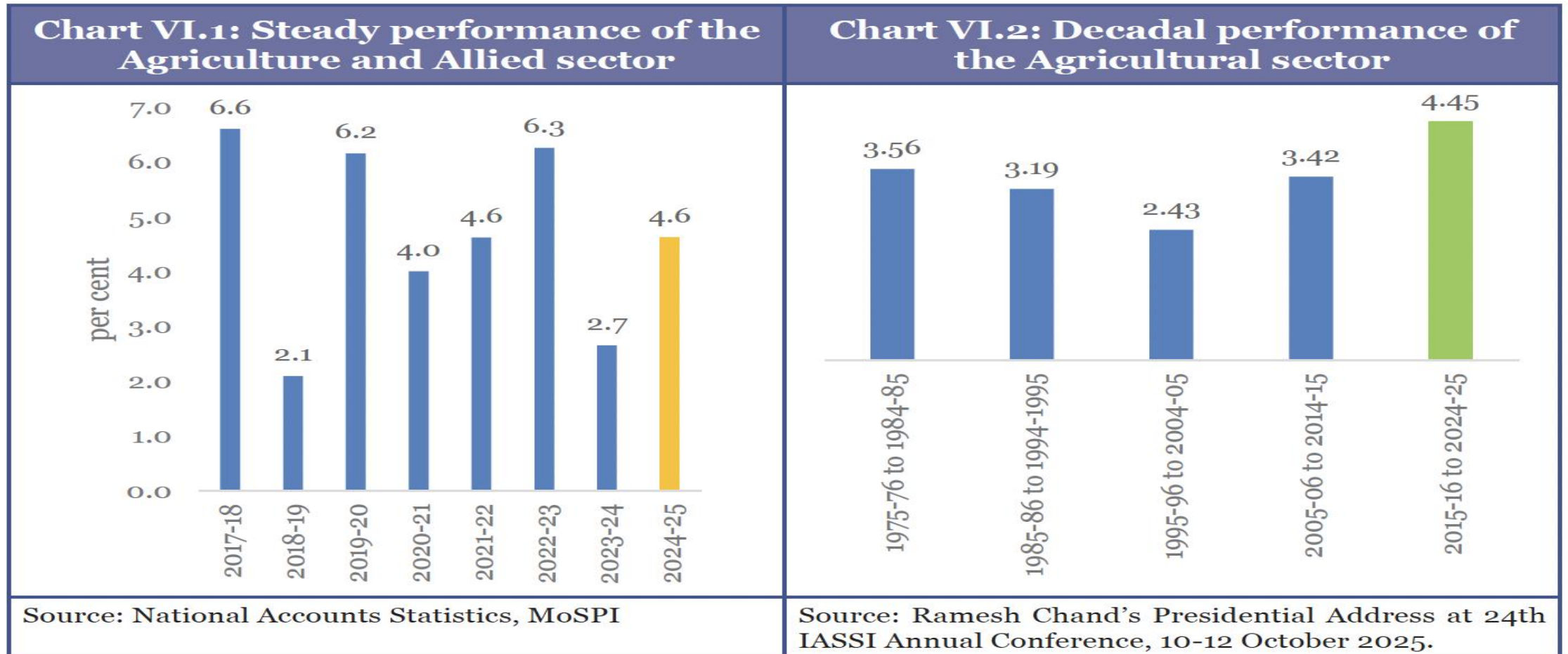
Source: MoSPI

Global trade activity 25 26



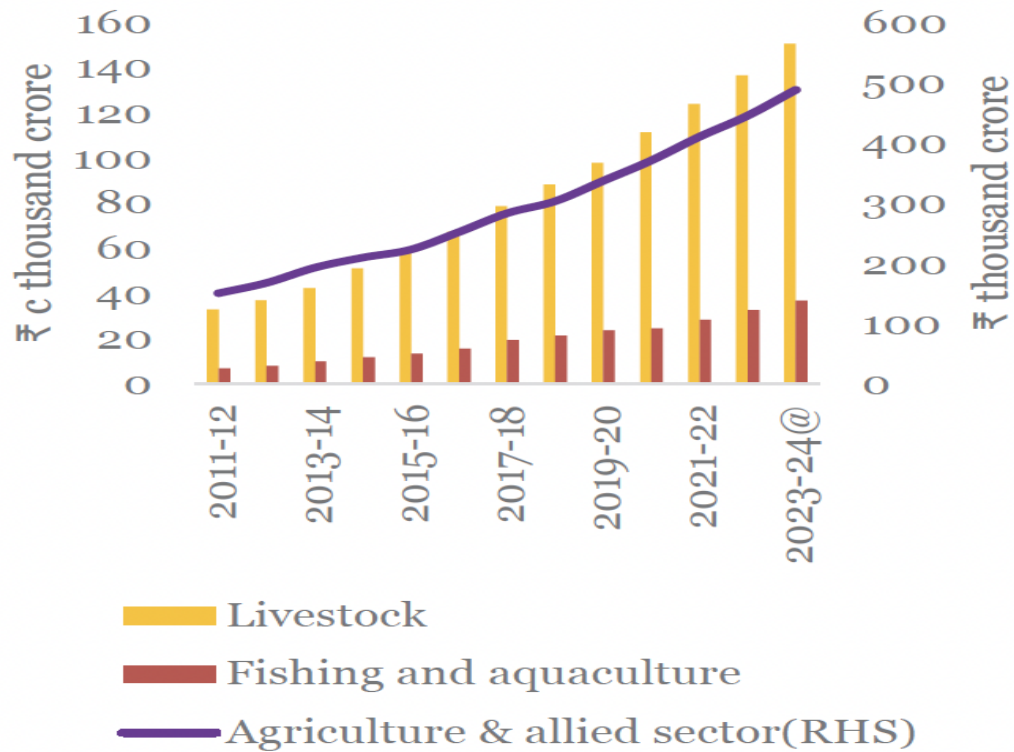
Source: Centorrino, S., Diakantoni, A., Keck, A., Ruta, M., Sztajerowska, M., & Wei, Y. (2025). Measuring global trade policy activity, <https://doi.org/10.30875/25189808-2025-7>.

India agriculture sector 25 26



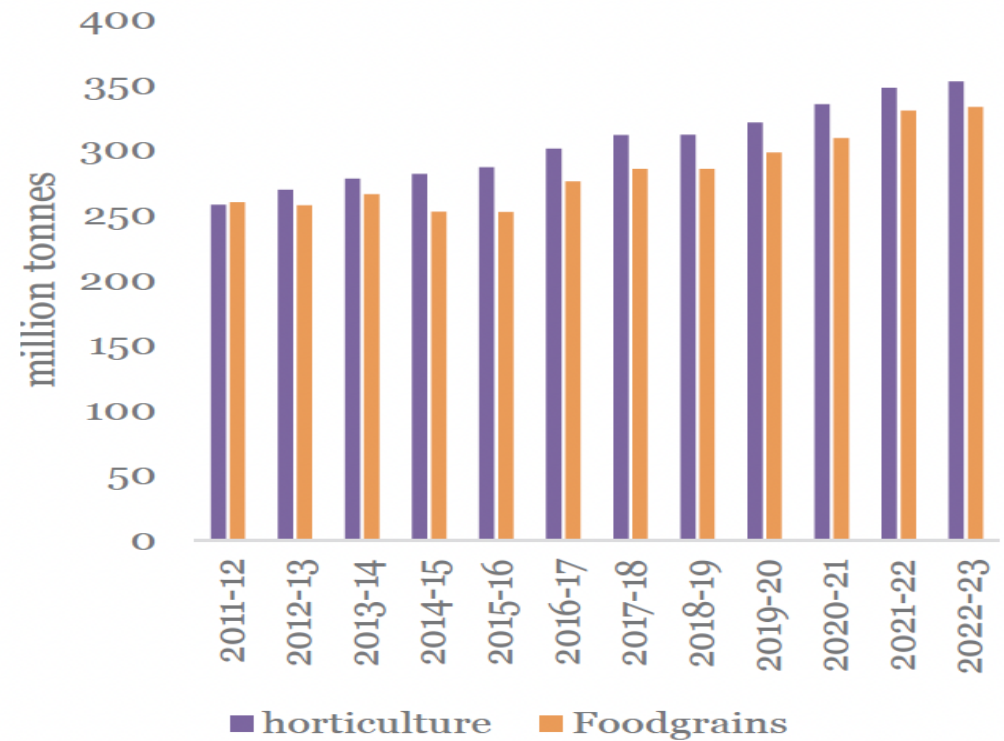
India agriculture and allied sectors 25 26

Chart VI.3: Performance of allied sectors(GVA at current prices)



Source: MOSPI

Chart VI.4: Production of foodgrains and horticulture



Source: Department of Agriculture Farmers Welfare

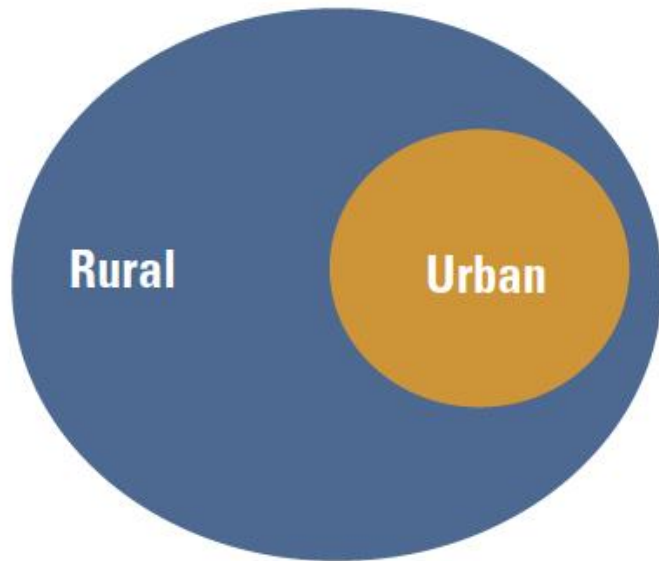
New Global economics

- New economics development
- Economic geography
- Urban coastal nodes as the growth centres .
- Promoting economic density of place .
- Spreading the prosperity by mobility and infrastructure .

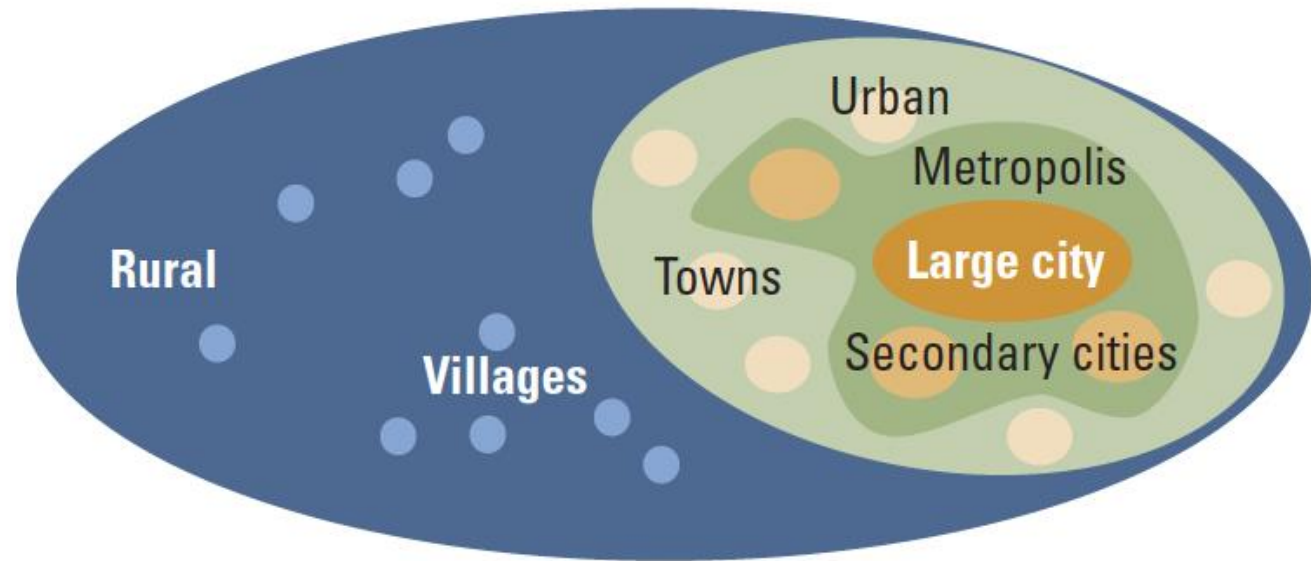
Economic development new perspective

Figure 1.1 From dichotomy to continuum: a portfolio of places

The simplified area economy



and a more realistic representation



Source: WDR 2009 team.

The World is not flat

- Development is neither smooth nor linear—at any geographic scale.
- Growth comes earlier to some places than to others.
- Geographic differences in living standards diverge before converging, faster at the local scale and slower as geography exercises its influence.
- *As countries develop, people and economic activities become more concentrated. But the speed varies, depending on the spatial scale—economic forces do not operate in a geographic vacuum.*
- *The concentration of people and production is fastest locally, slowest internationally.*
- *Concentration is fastest locally. Economic concentration at the local scale is most conveniently measured by the rate of urbanization—the growth of economic and population density in towns and cities.*

Economic development : three attributes

- *Geographic unevenness—the first attribute of development—implies that governments generally cannot simultaneously foster economic production and spread it out smoothly.*
- *Circular causation—the second attribute— provides hope for policy makers wishing to pursue progressive objectives. Rising concentrations of economic production are compatible with geographic convergence in living standards. And the market forces of agglomeration, migration, and specialization can, if combined with progressive policies, yield both a concentration of economic production and a convergence of living standards.*
- *Neighborhood effects—the third attribute— come with a principle for policy making: promote economic integration. Unevenness and circularity imply that it is more difficult for places left behind to catch up. Economic integration is an effective and the most realistic way to harness the immediate benefits from concentration to achieve the long-term benefits of convergence.*

Agriculture workers

Rank	Country	Agricultural Workers (2019)	% of Total Workers
1	IN India	272M	43%
2	CN China	229M	25%
3	ET Ethiopia	59M	66%
4	ID Indonesia	51M	29%
5	PK Pakistan	40M	36%
6	NG Nigeria	40M	35%
7	CD DRC	36M	63%
8	BD Bangladesh	36M	39%
9	TZ Tanzania	32M	65%
10	VN Vietnam	27M	38%

Agriculture workers

Rank	Country	Agricultural Workers (2019)	% of Total Workers
21	US U.S.	3M	2%
22	JP Japan	3M	4%
23	FR France	0.9M	3%
24	DE Germany	0.6M	1%
25	GB UK	0.4M	1%

Figure 1 At all three geographic scales, the patterns of concentration of economic activity are similar

a. As nations start to develop, people concentrate in towns and cities

Agglomeration index

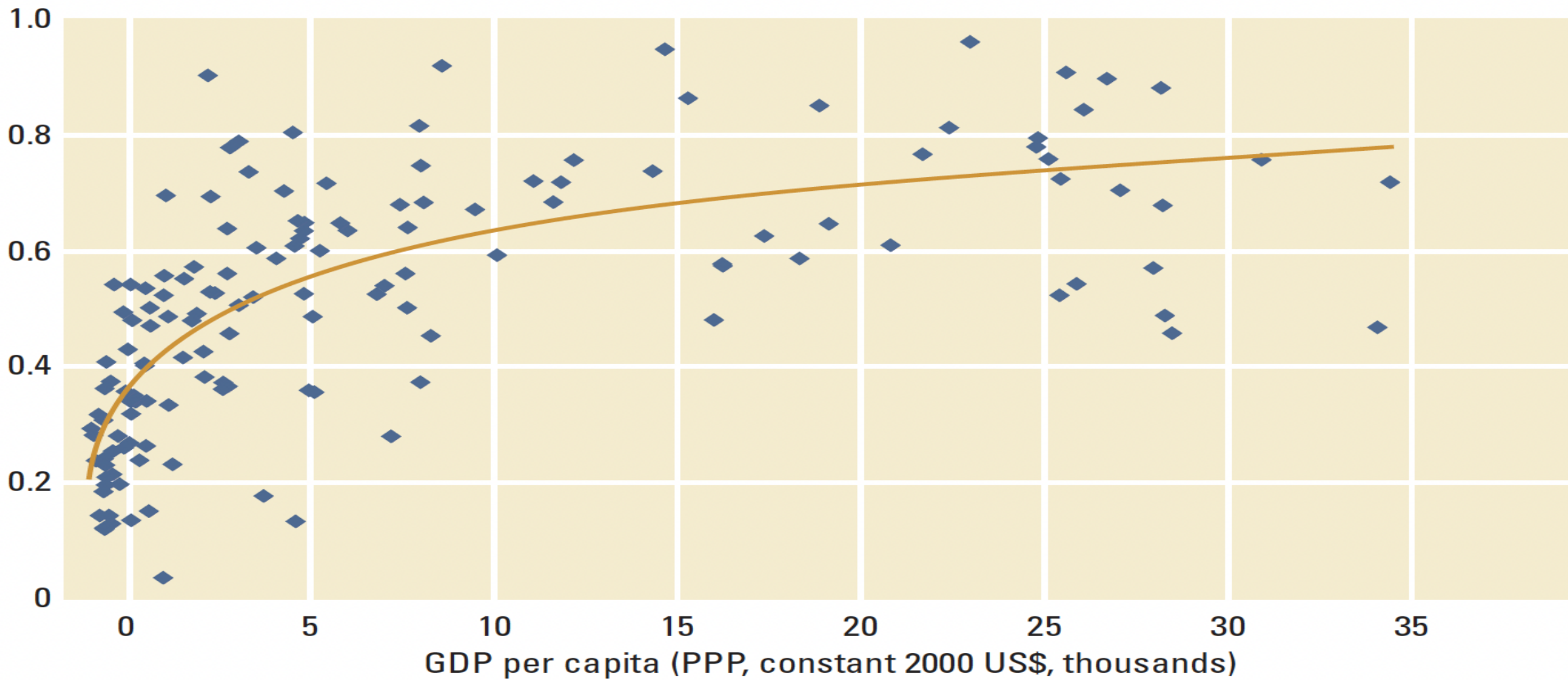
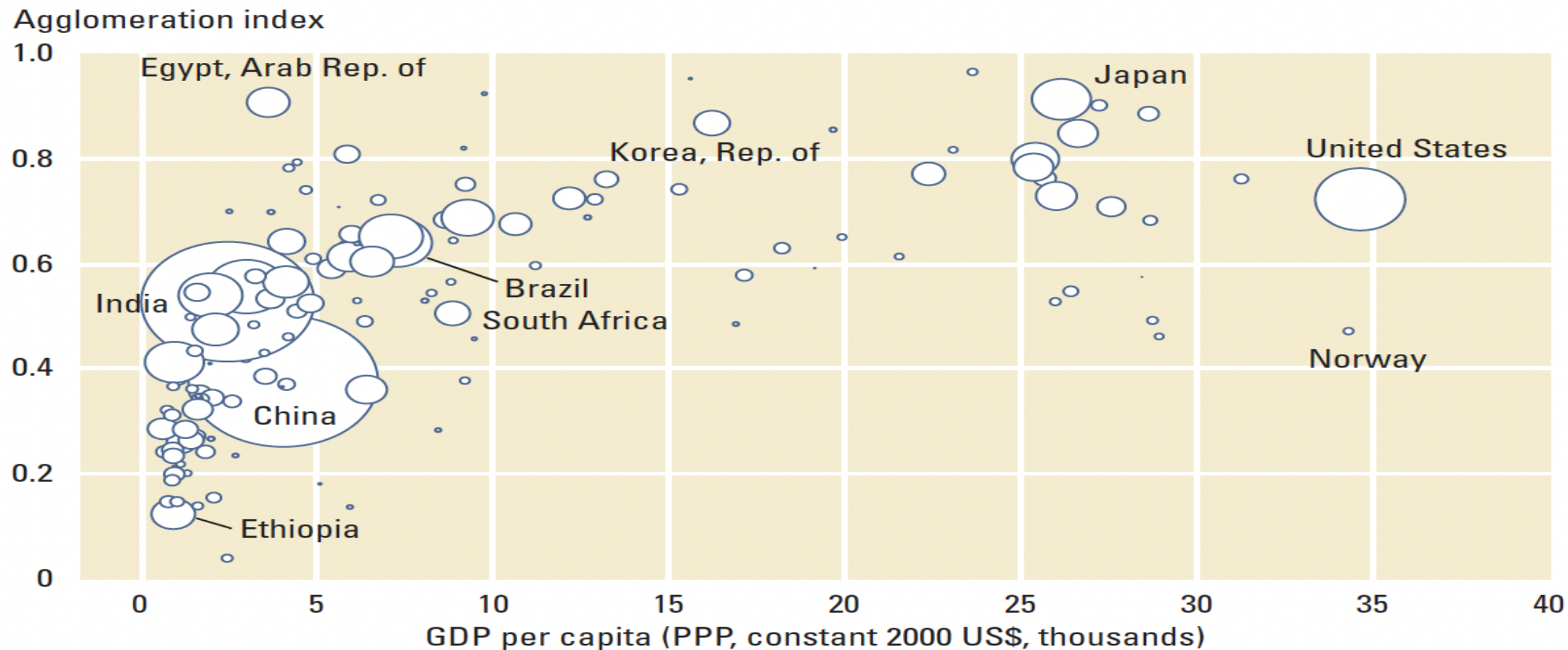


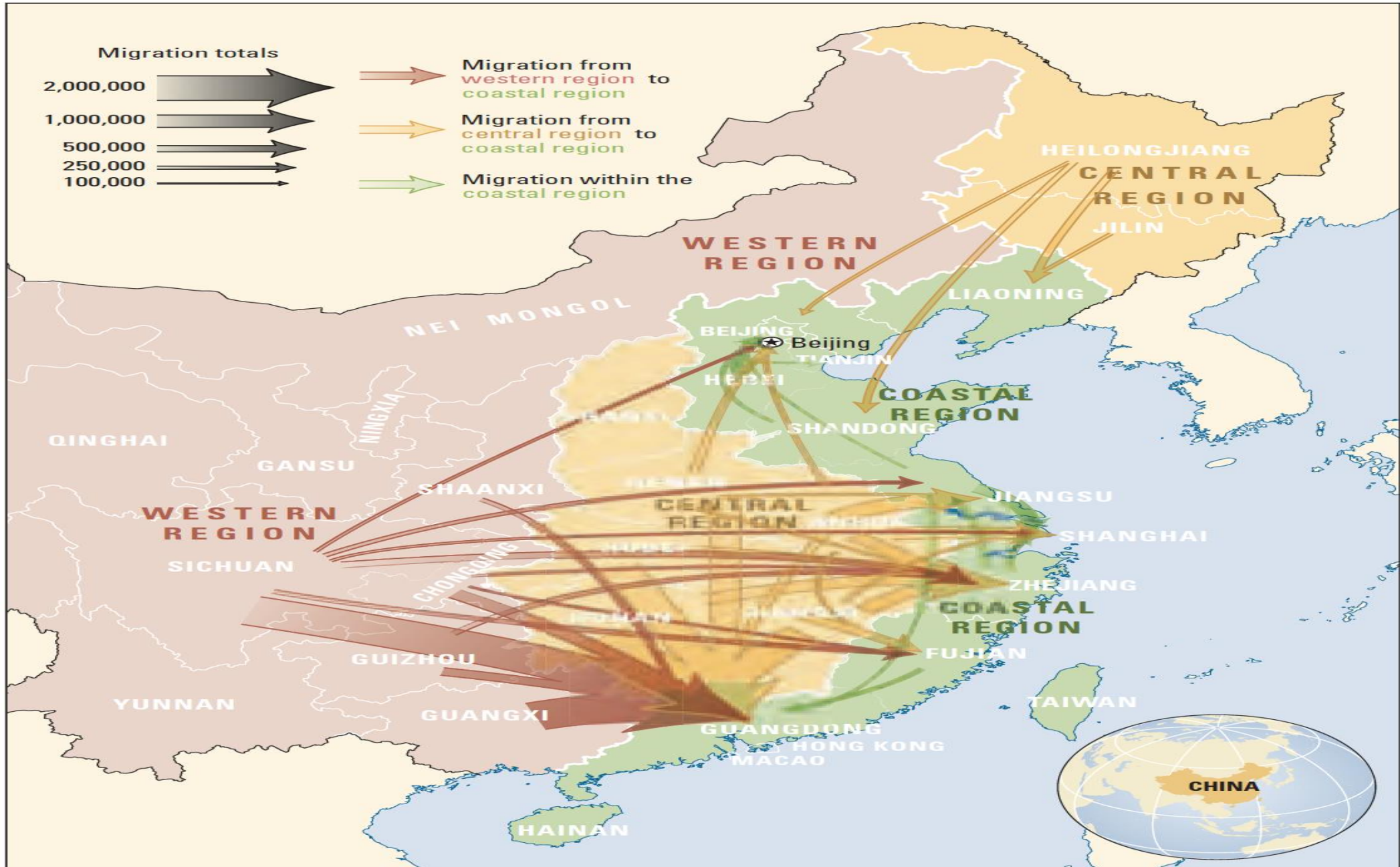
Figure 1.7 Shares of population living in urban agglomerations rise with the level of development



Sources: Calculated by WDR 2009 team using Nelson (2008) and World Bank (2006g).

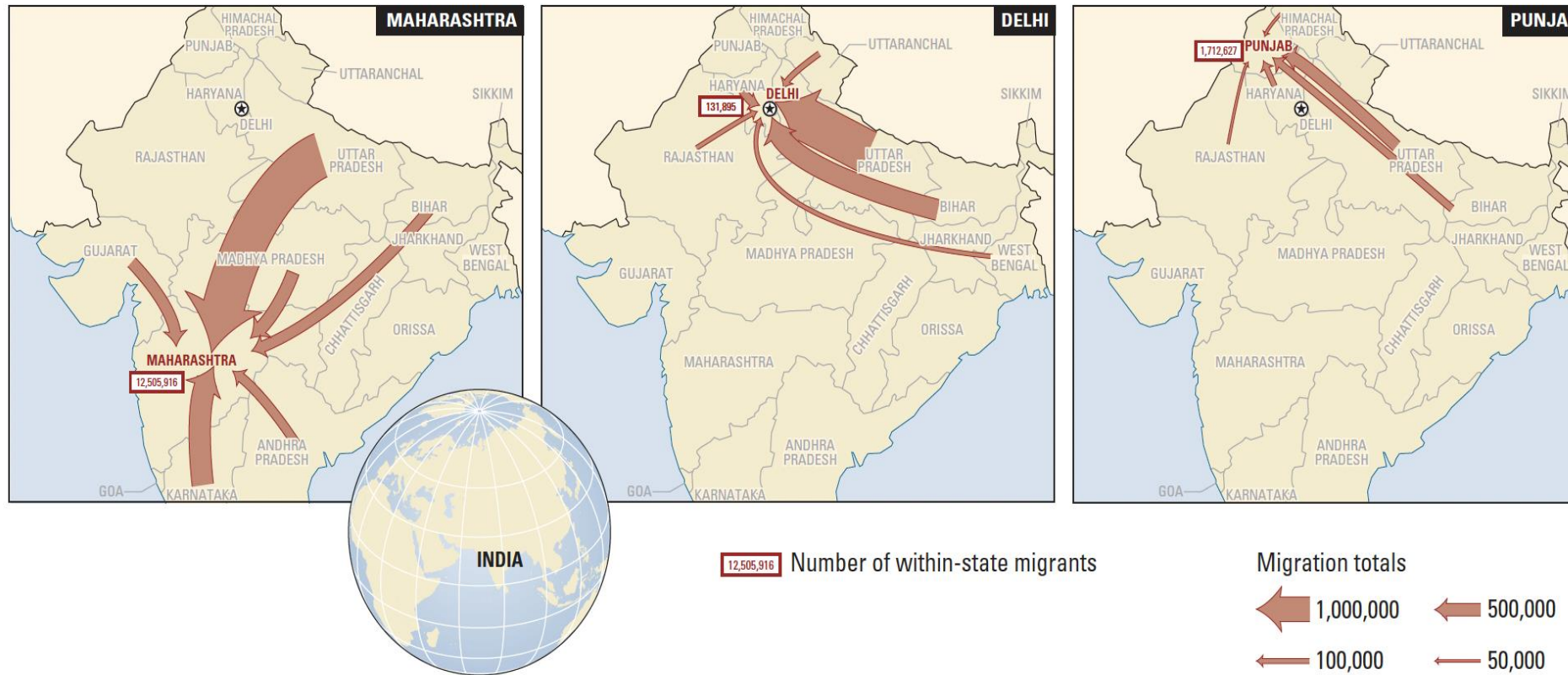
Note: The size of each circle indicates the population size of that country. PPP = purchasing power parity. The agglomeration index uses the following criteria: density of 150 persons per kilometer or more, access time of 60 minutes or less to a sizable settlement, defined as one that has a population of more than 50,000.

Map 3 Migrating to reduce distance to density: Despite the obstacles, Chinese workers have migrated in the millions

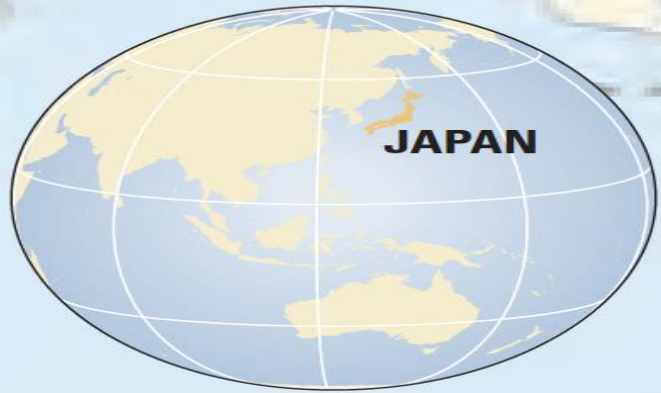


Source: Huang and Luo 2008, using data from the population census of China.

Map 5 Migrating to reduce distance to density: Migration in India has been less frenetic



Source: WDR 2009 team, based on census data from the Census of India.



Sapporo

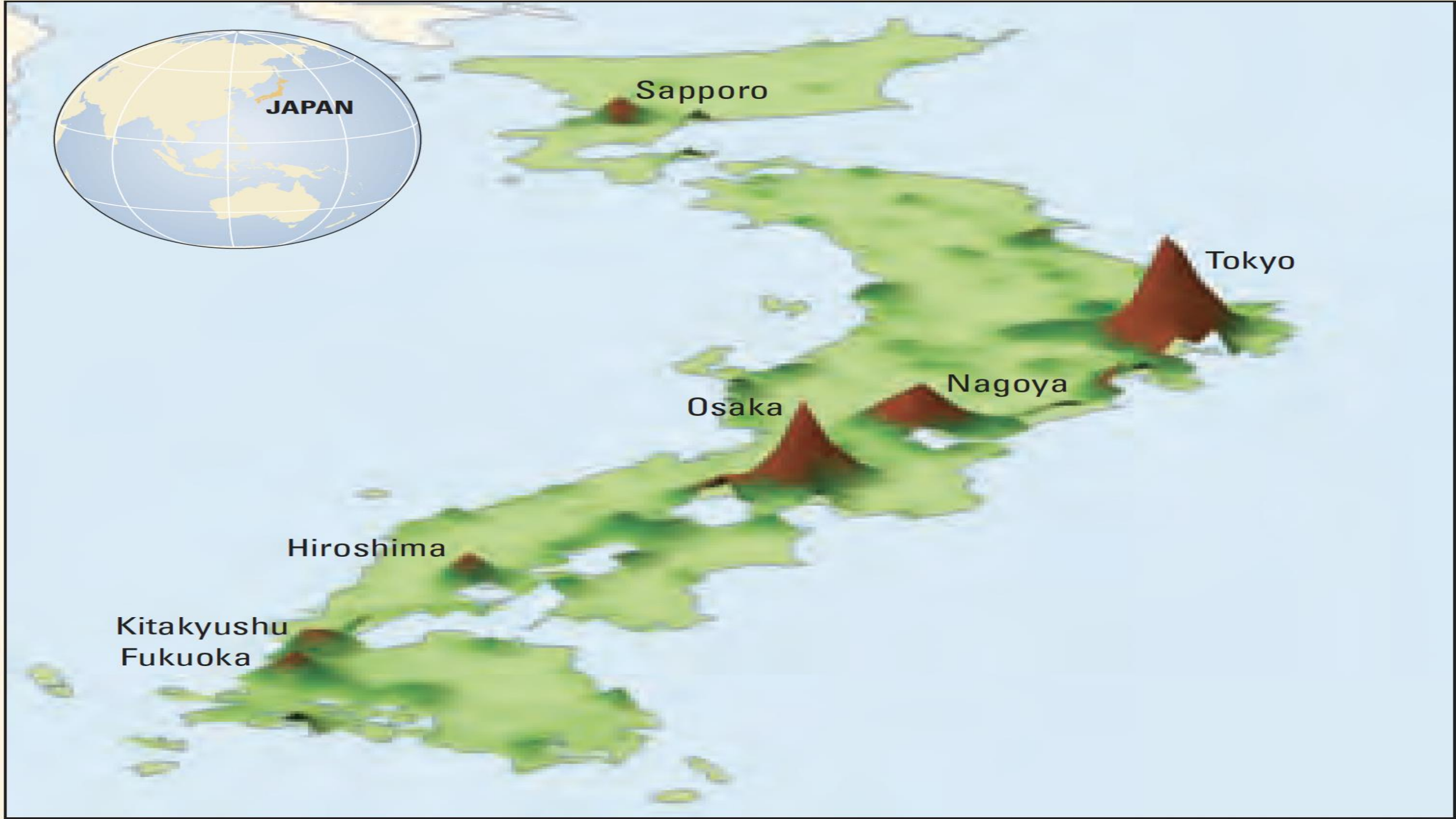
Tokyo

Nagoya

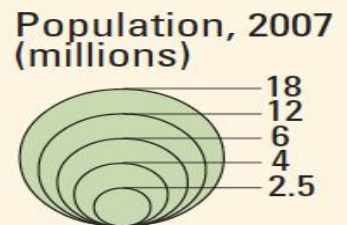
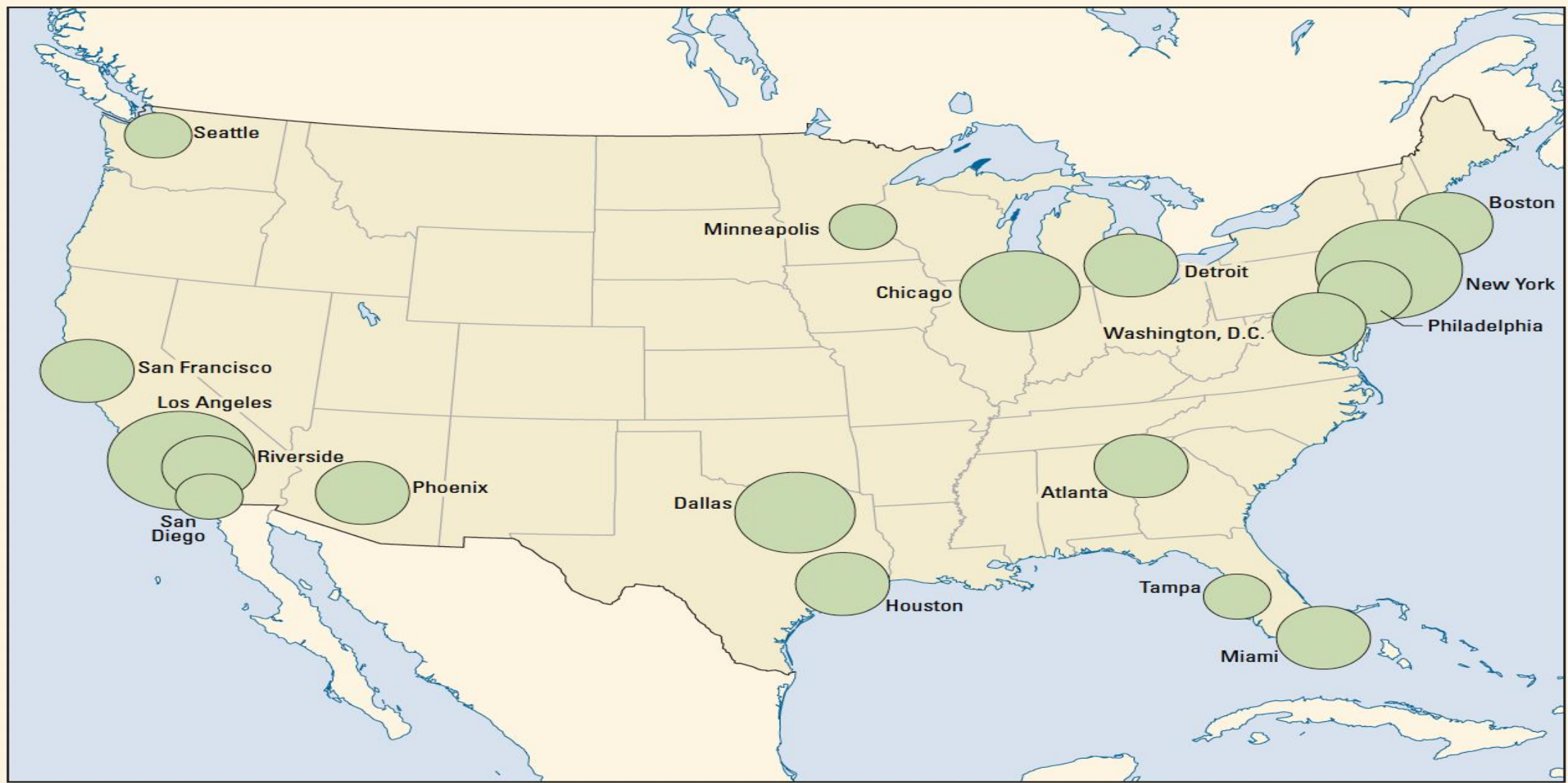
Osaka

Hiroshima

Kitakyushu
Fukuoka

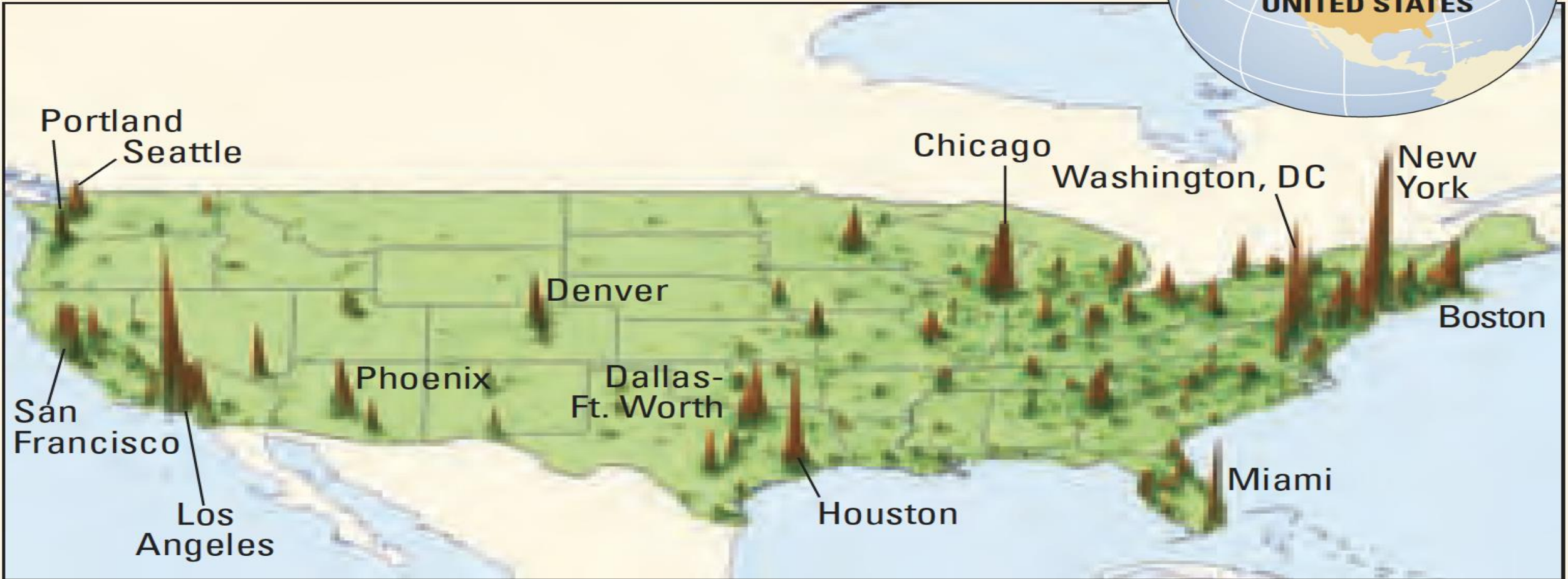


Map G1.2 America's large cities are in the Northeast and on the two coasts



Source: Population of Metropolitan Statistical Areas: U.S. Census Bureau

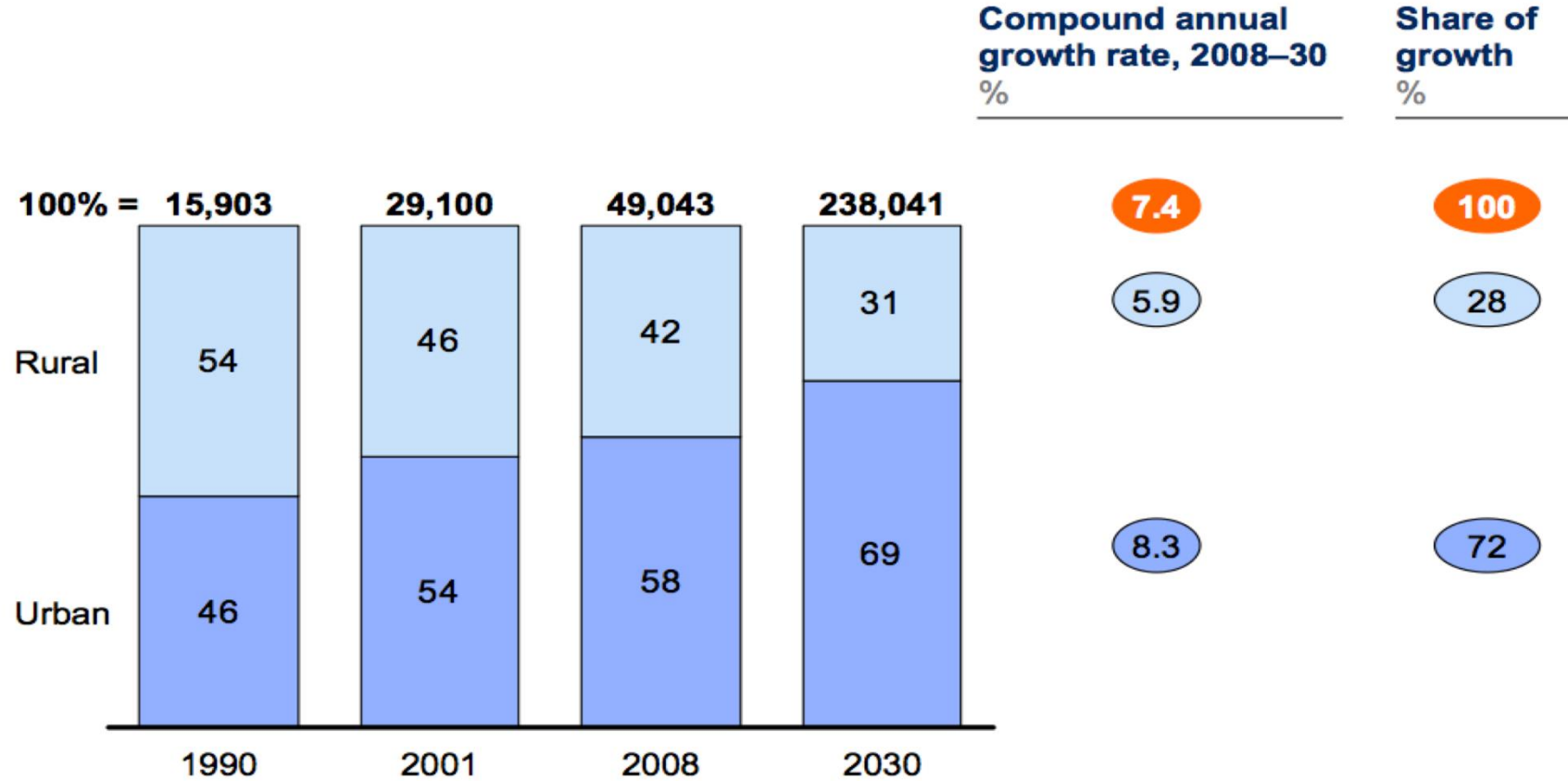
Map G0.2 Distance—why Americans must be mobile
Economic production per square kilometer in the United States



Source: WDR 2009 team and World Bank Development Research Group based on subnational GDP estimates for 2005. See also Nordhaus (2006).

Cities will account for nearly 70 percent of India's GDP by 2030

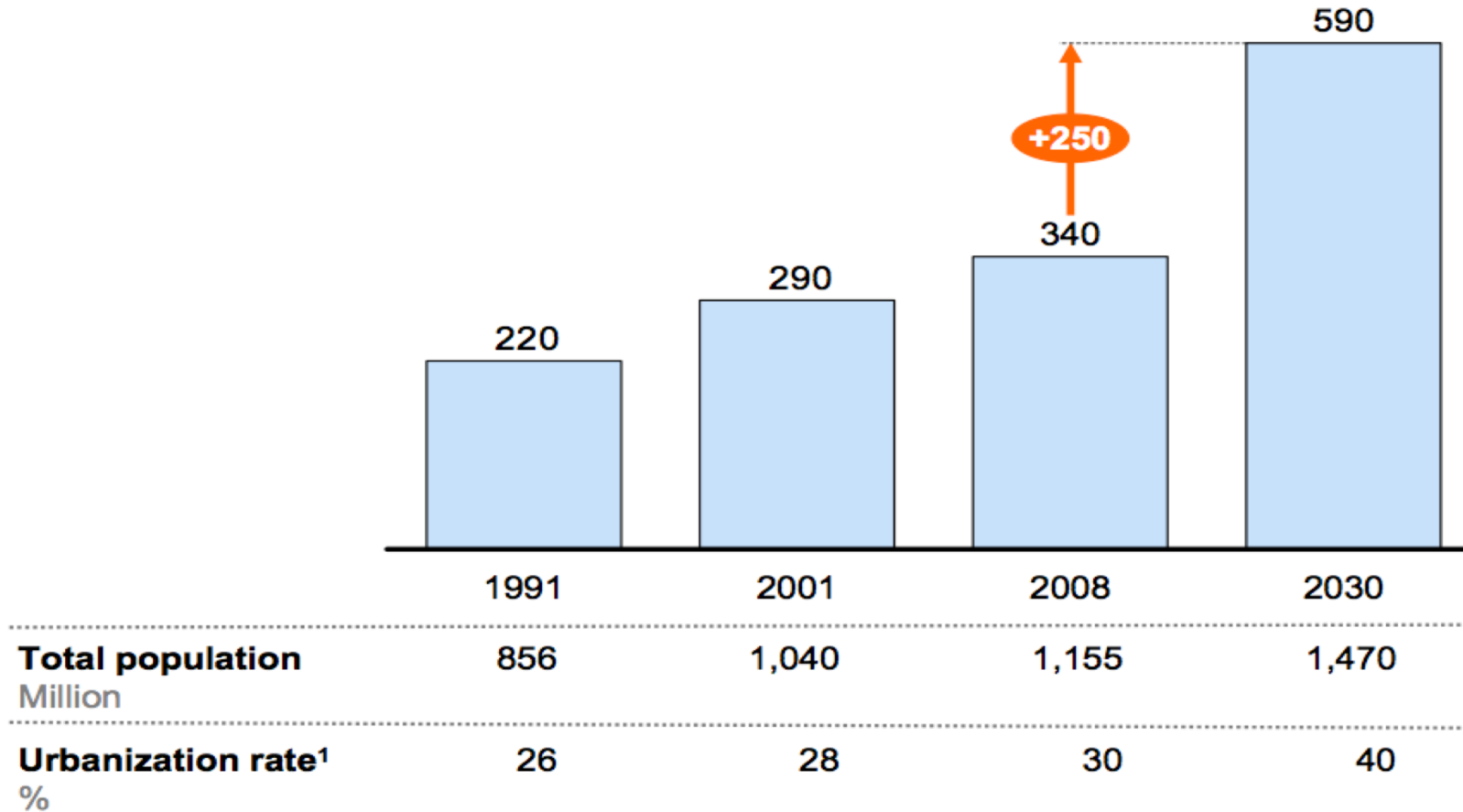
Share of India's GDP
%; rupees billion, real 2008



SOURCE: India Urbanization Econometric Model; McKinsey Global Institute analysis

In MGI's base-case scenario, cities are likely to house 40 percent of India's population by 2030

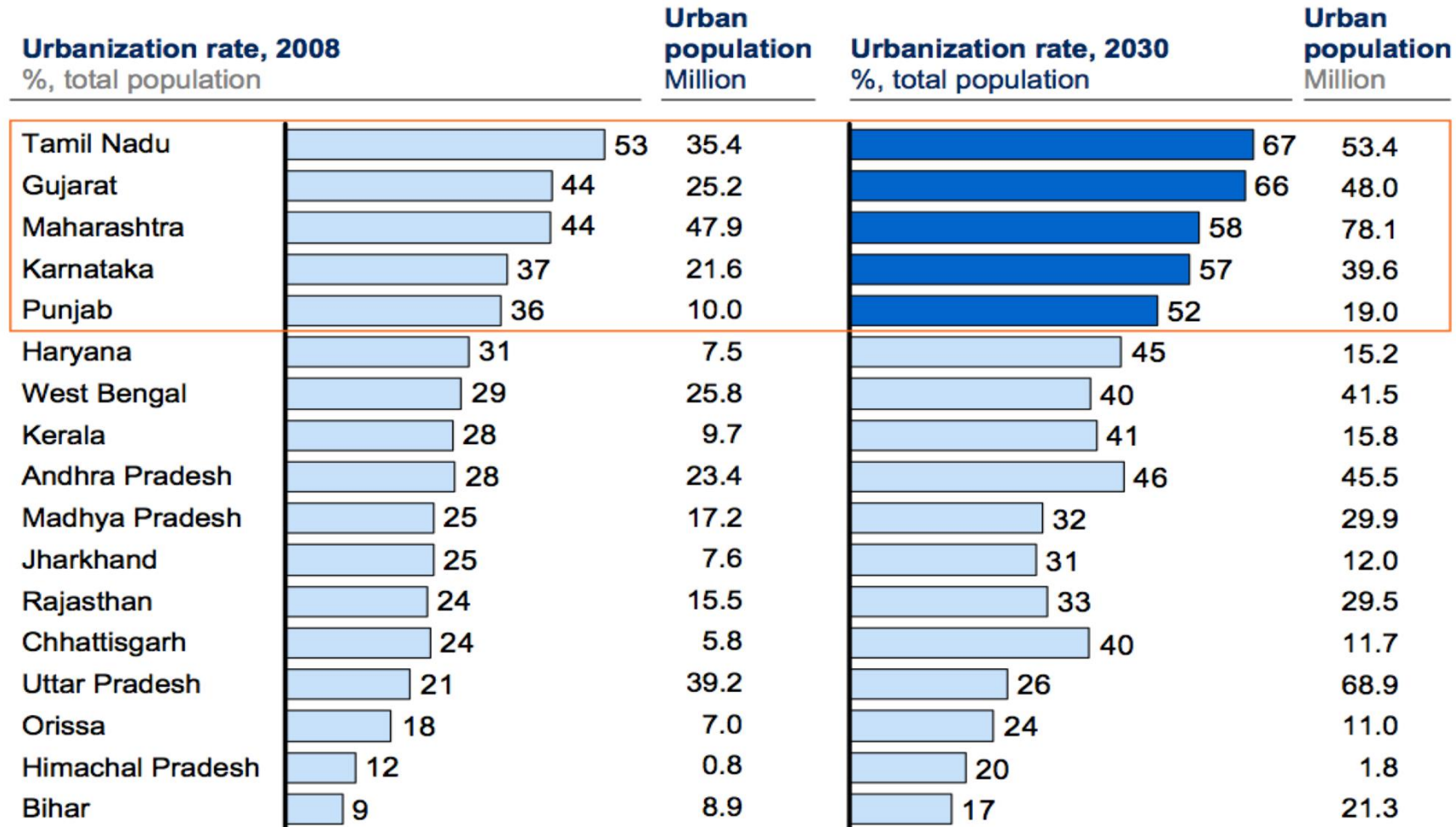
Urban population
Million



1 Defined as the ratio of urban to total population based on the census definition of urban areas; population >5,000; density >400 persons per square kilometer; 75 percent of male workers in nonagricultural sectors; and other statutory urban areas.

SOURCE: India Urbanization Econometric Model; McKinsey Global Institute analysis

Five states are likely to be more than 50 percent urbanized

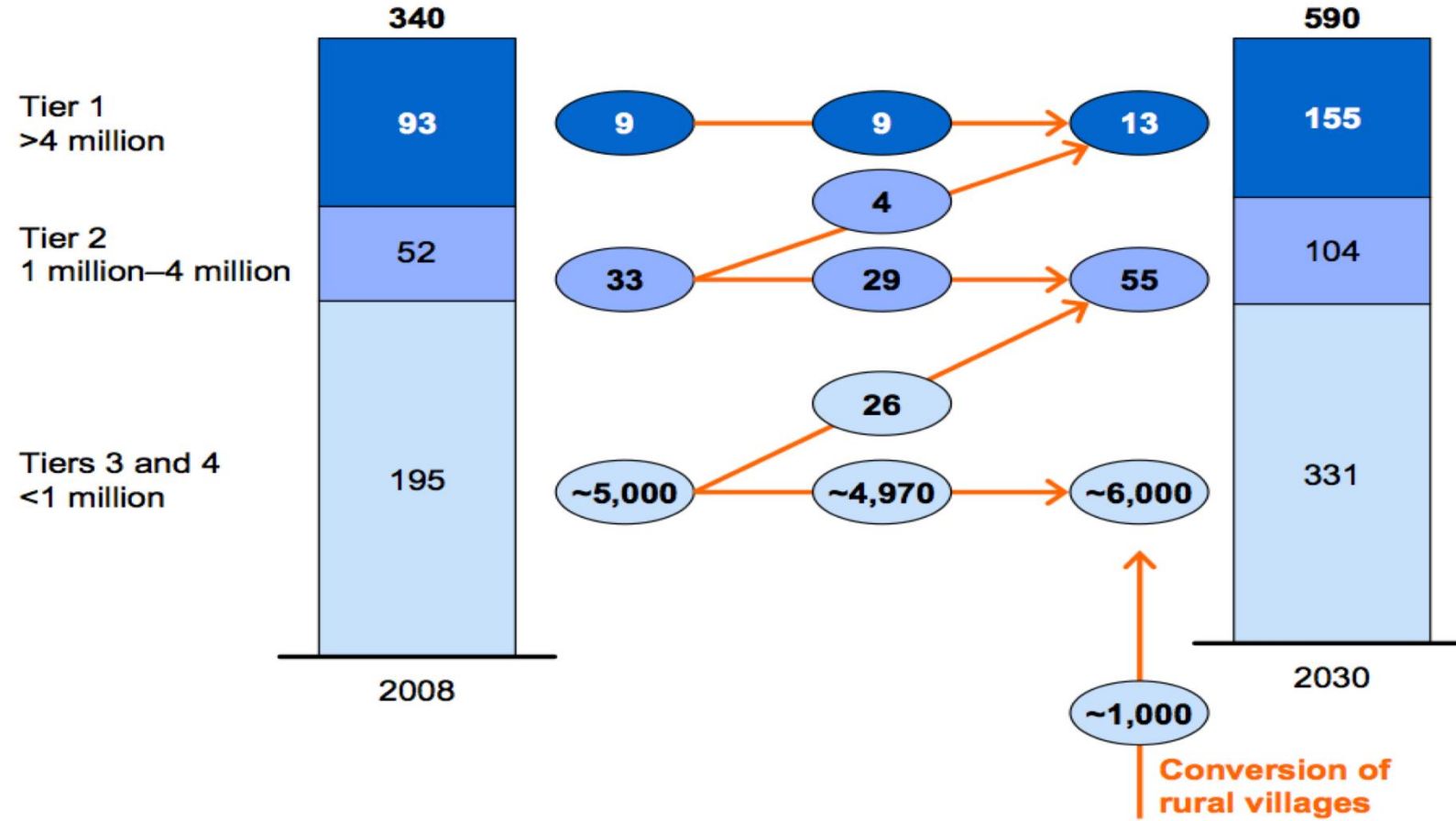


SOURCE: India Urbanization Econometric Model; McKinsey Global Institute analysis

India will have 68 cities with population of more than 1 million by 2030, up from 42 today

Population by tier
Million

X Number of cities



SOURCE: India Urbanization Econometric Model; Census 2001; McKinsey Global Institute analysis

Thirteen cities will have a population of more than 4 million

	Population in 2030 Million	GDP, 2030 ¹ \$ billion	Per capita GDP, 2030 ¹ \$ thousand
Mumbai (MMR)	33.0	265	8.0
Delhi (NCT) ²	25.9	296	11.4
Kolkata	22.9	169	7.4
Chennai	11.0	73	6.6
Bangalore	10.1	127	12.6
Pune	10.0	76	7.6
Hyderabad	9.8	67	6.8
Ahmedabad	8.4	68	8.1
Surat	7.4	53	7.2
Jaipur	5.4	24	4.5
Nagpur	5.2	37	7.1
Kanpur	4.2	15	3.6
Vadodara	4.2	35	8.5

1 2008 prices.

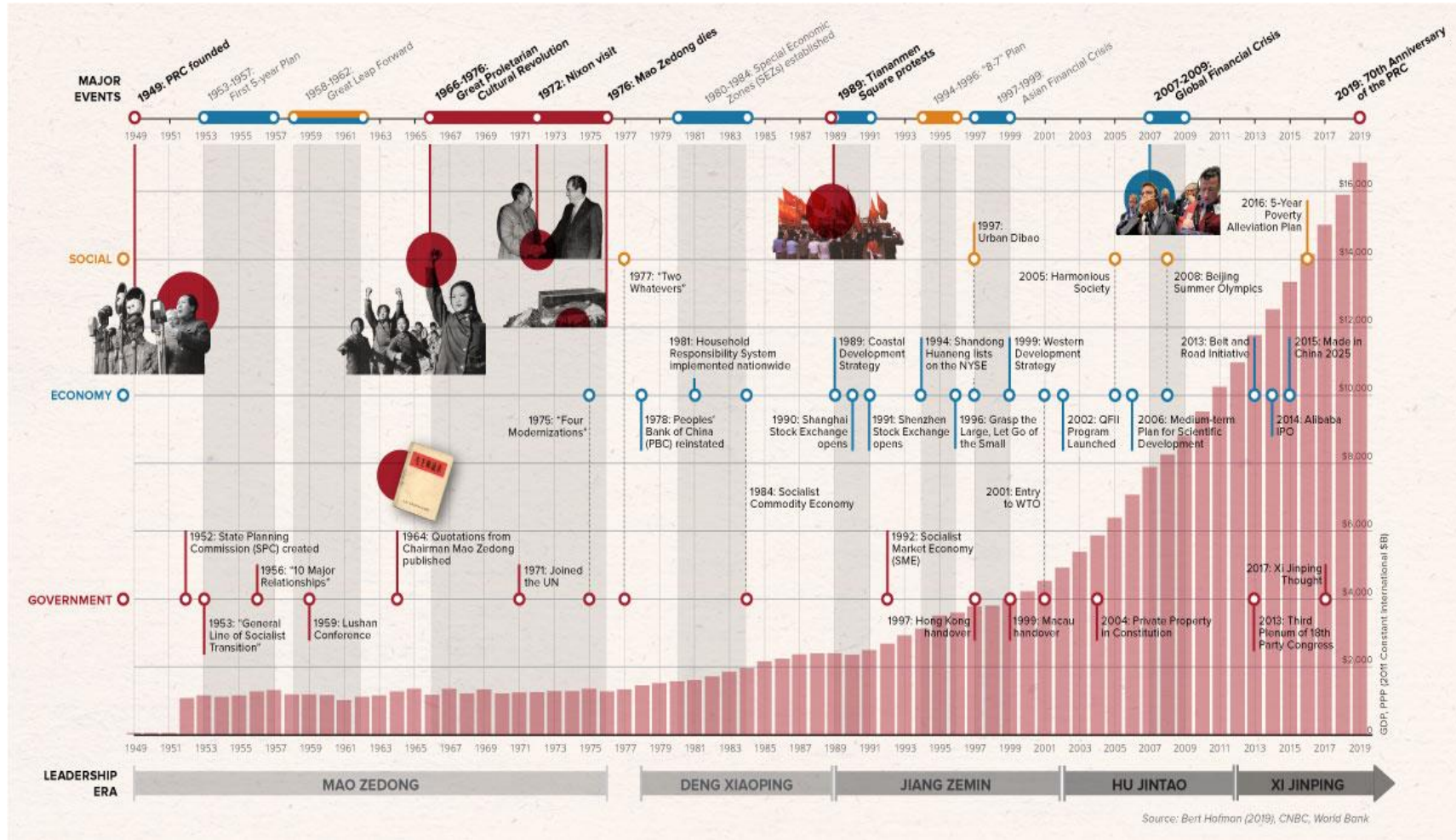
2 National Capital Territory; excludes Noida, Gurgaon, Greater Noida, Faridabad, and Ghaziabad.

SOURCE: India Urbanization Econometric Model; McKinsey Global Institute analysis

China

Global trade is
rigged by China ,
Europe, Japan,
South Korea



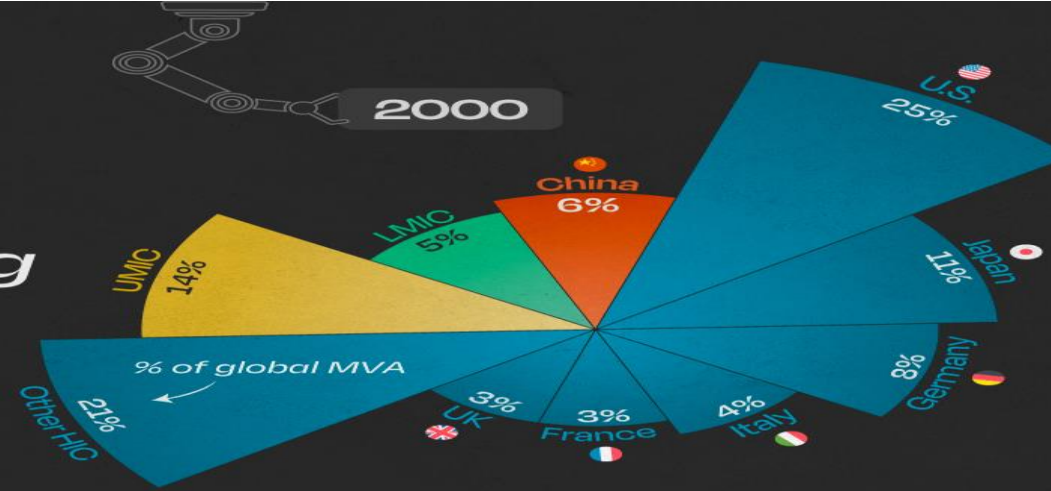




China's Takeover of Global Manufacturing

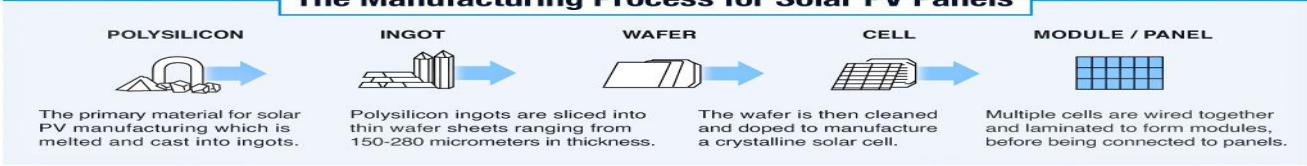
China will account for nearly half of global manufacturing value added (MVA) in 2030, up from 6% in 2000.

Country Groupings

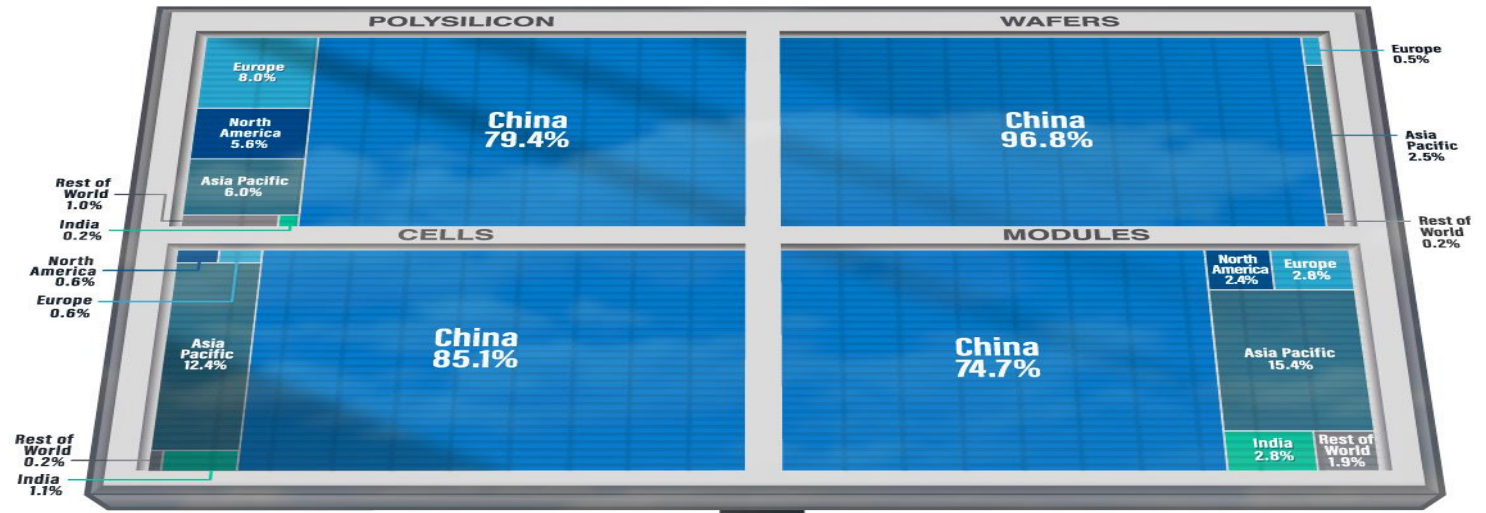


Who Controls the Solar Panel Supply Chain?

The Manufacturing Process for Solar PV Panels



Share of Manufacturing Capacity by Country/Region in 2021



China made up 55% of global solar panel manufacturing capacity in 2010, with its share rising to 84% in 2021.

The total value of global solar PV related trade increased by more than 70% YoY to reach over \$40B in 2021.

Future Solar Energy Capacity

 Prospective
 Operational



China
1.1M
Total Capacity

Megawatts alternating current (MWac)
 A measure of how much usable electricity a solar farm can deliver to the power grid



Where Data Tells the Story

As of Feb. 2025
Source: Global Energy Monitor, IEA



Global Trade Dominance: US vs. China

In 2000, US, trade totaled \$2.0 trillion—more than four times China's \$474 billion. From 2000 to 2024, US trade expanded by 167% (4.2% CAGR), while China's trade surged by 1,200% (11.3% CAGR), surpassing the US in 2012. By 2024, total trade reached \$5.3 trillion for the US and \$6.2 trillion for China.

■ US as the Larger Trading Partner ■ China as the Larger Trading Partner

2000



2024



Global trading system rigged

- The global trading system has been rigged for decades, and almost no one noticed until it was too late. Nearly every major trading partner developed rigid systems to exclude imports while flooding the US market.
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- Japan. South Korea. Germany. China. They subsidize exporters, block consumer and agricultural imports, and manipulate currencies to stay artificially cheap. This is not accident. It is strategy. They accumulate reserves. They protect industries.
- They prosper at America's expense.
- The US is the world's largest consumer market, growing at 3 percent annually. Every country wants access. But they do not reciprocate. They trade for market access, not fair exchange.
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China 90% model

- China's economic model is designed to destroy competitors, not just outcompete them.
- This strategy was invisible because it was insidious. Only those whose supply chains were destroyed, whose prices were trashed, or who were forced into joint ventures felt the pain early. Everyone else—consumers, retailers, CEOs, Wall Street—saw only benefits. Lower costs. Better margins. Higher returns. Who would complain?
- At the heart of the 90 Percent Excess Production Capacity Model. understood it. China's : Build enough industrial capacity to meet 90 percent of global demand in a targeted sector.
- Undervalue the currency by about 20 percent to make exports unbeatable on price.
- Flood the market with subsidized exports priced at or below marginal cost. Force competitors out of business. Dominate the sector. Then move to the next one.
- China has already done this in apparel, furniture, toys, and solar panels. Now it is targeting the industries that matter most: automobiles, defense, semiconductors, critical minerals, pharmaceuticals, chemicals, telecom, and others. Industries.
- Almost all of this high-quality, high-tech manufacturing in China has been built in the last 10 years. All of it is funded by trade surpluses accumulated through currency manipulation. And the know-how? It came from America and its allies.

US Trade Imbalance: With China, Its Proxies, Even Allies

Value of Goods in 2024 by US Trading Partner (USD, Billion)

■ Imports ■ Exports

CHINA

Exports \$143.5
Imports \$438.9
Balance -\$295.4



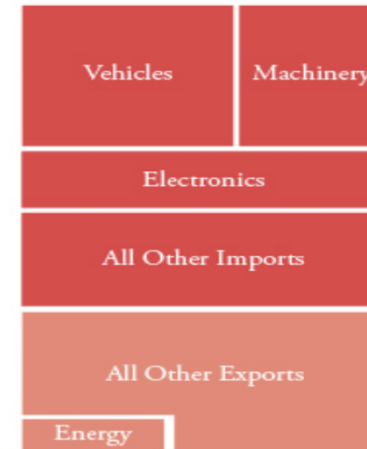
EUROPEAN UNION

Exports \$370.2
Imports \$605.8
Balance -\$235.6



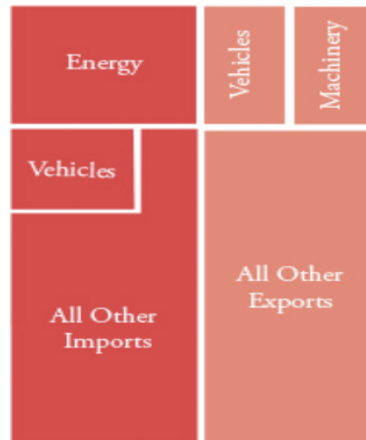
MEXICO

Exports \$334.0
Imports \$505.9
Balance -\$171.8



CANADA

Exports \$348.5
Imports \$412.7
Balance -\$64.2



VIETNAM

Exports \$13.1
Imports \$136.6
Balance -\$123.5



TAIWAN

Exports \$42.3
Imports \$116.3
Balance -\$73.9



SOUTH KOREA

Exports \$65.5
Imports \$131.5
Balance -\$66.0



JAPAN

Exports \$79.7
Imports \$148.2
Balance -\$68.5



China 90 % strategy

- Identify a key industry, build hyperscale capacity to produce 90 percent of global demand, and flood the market at marginal (the cost of producing one additional unit) or below variable cost pricing.
- Then push prices even lower by exploiting a chronically undervalued currency giving Chinese exports an artificial edge.
- All of this is funded by almost unlimited subsidies drawn from China's trillion-dollar trade surplus. No one can compete against this model.
- The result? Entire industries collapse. Companies disappear. And whole towns or even states are economically ravaged.

USA industry destroyed

- This model has already wiped out or marginalized at least 10 major industries in the US, including furniture, textiles, toys, and consumer electronics.²⁸ Entire regions—Michigan, Ohio, Pennsylvania—have been devastated.
- The next wave is already underway: EVs, renewables, advanced agriculture, maritime equipment, biopharma, new materials, advanced rail transit, aerospace, artificial intelligence, and robotics.
- These are the 10 sectors named in the Made in China 2025 plan. And they are being targeted with precision.

Chinese State-backed dominance

- DJI controls over 90 percent of the global consumer drone market.
- CATL is the world's largest EV battery maker, powering everything from Tesla to European commercial fleets.
- Haier has displaced legacy American and European brands in appliances across key markets.
- CRRC manufactures 44 percent of the world's trains, dwarfing all competitors.
- WuXi AppTec and WuXi Biologics now dominate the outsourced pharma manufacturing space. They serve all of the top 20 global pharmaceutical companies and support over 1,000 active clinical trials.
- Chinese chemical producers now account for more than 40 percent of global basic chemicals output, tightening control on precursors essential across critical industries.







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USA 10 Industries destroyed

Industry	Examples
 Furniture	Home, Office, Outdoor Furniture
 Toys	Children's Toys, Dolls, Scooters
 Consumer Electronics	Phones, Small Appliances, Game Consoles
 Basic Chemicals	Bulk Chemicals, Industrial Inputs
 Solar Panels / Photovoltaics	Modules, Wafers, Cells, Polysilicon
 Rare Earth Processing	Magnet Processing, Rare Earth Refining
 Textiles / Apparel	Garments, Fast Fashion, Fabric Processing
 Pharmaceutical Ingredients	APIs, Generics, Core Ingredients
 Lithium Battery Manufacturing	EV Batteries, Cell Manufacturing
 Telecom Infrastructure	Mobile Networks, Switching Gear, Core Systems

Made in China 2025—10 Targeted Industries

Industry	Focus Areas
 Next-Generation Information Technology / Artificial Intelligence	AI, IoT, Cloud Computing, Semiconductors
 Robotics & High-End Automation	Industrial Robots, Service Robots, Automation Systems
 Maritime Equipment & High-Tech Ships	Ocean Engineering, High-Tech Ships
 Advanced Rail Transit Equipment	High-End Speed Trains, Smart Transportation System
 New Energy Vehicles & Equipment	Electrical Vehicles, Fuel Cells, Autonomous Driving Technology
 Power Equipment	Smart Grid Technology, Renewable Energy Equipment

China : exports more , consumes less .

- China is deeply embedded in every walk of American life like a spiderweb. They are inside the arteries of American commerce—digitally, financially, and physically.
- The numbers tell the story. China produces almost a third of global manufactured goods—more than the US, Germany, Japan, and South Korea combined. Yet it consumes just 15 percent of what it produces. That’s not a flaw. It’s the model.
- In 730 of 5,000 globally traded product categories, China accounts for more than 50 percent of world exports—three times more than the EU, and nearly eight times more than the US.
- China continually invents new methods using AI to advance manufacturing; it now commands the steepest AI-driven experience curve on the factory floor.
- 90 percent of US microwaves come from China. So do three-quarters of phones, game consoles, and small appliances. China makes 75 percent of American toy imports—dolls, scooters, tricycles. Even Mattel still produces 40 percent of its global output there, despite tariffs remaining punishingly high.

China : New frontier technologies

- China now dominates critical inputs, the raw materials, components, and manufacturing capabilities that underpin modern life and national security. These aren't just economic assets. They are potential choke points.
- A single export ban could freeze Western industries, paralyze supply chains, and weaken military readiness. The warning lights are already flashing.
- Consider just a few examples: Rare earths: China refines 85–90 percent of global rare earth elements and produces 92 percent of rare earth magnets essential for missiles, aircraft, EVs, and electronics. Lithium-ion batteries: China controls 60–90 percent of the entire supply chain across mining, processing, cell components, and battery assembly.

China : New frontiers

- Pharmaceuticals: China controls roughly 80 percent of the global supply of generic active pharmaceutical ingredients.
- Defense metals: Nearly 80 percent of US weapon systems rely on materials like antimony, gallium, and tungsten—all dominated by China.
- Chemicals: China controls nearly 40 percent of global chemical sales and is a top exporter of base chemicals, polymers, and critical inputs like.
- Solar panels: China holds over 80 percent of global production, even while many suppliers operate at crushing debt and cash losses.



CHINA'S GRIP ON CRITICAL MINERALS

China strategy must be defeated

- For decades, American leaders assumed that economic integration would make China a responsible stakeholder in the global system. That trade would soften authoritarianism. That openness would win.
- China took everything the West offered—technology, capital, market access—and used it to build a system designed to replace the American-led world order.
- Not reform it. Replace it. American leaders, all leaders other than Trump, hesitated to take the actions needed. They feared a war of global proportions. Without cogent ally coordination, one cannot stop the march of President Xi.
- Tariffs alone will not work. Why? Because unless you address the root cause, currency manipulation, China will always have an advantage. China's deliberate 52 percent currency devaluation—from 4.8 renminbi (RMB) per dollar in 1990 to 7.3 in 2024—is how Chinese exports remain artificially cheap. That is how China sustains its trade surplus. That is how it funds its military expansion, its Belt and Road Initiative, and its technological ambitions.

20 YEARS OF CHINESE INVESTMENT WORLDWIDE

Outward foreign direct investment 2005–2025

Top 10 Countries

\$806.8B IN USD

 **CHINA**

Rest of the World

\$751.2B

Total

\$1.558T

Since 2005, Chinese companies have invested over \$1.5T worldwide.

\$204.1B
IN USD

 U.S.


\$108.1B

 Australia

\$106.6B

 UK

\$78.9B

 Brazil

\$62.9B

 Switzerland

\$57.3B

 Canada


\$56.3B

 Germany

\$49.4B

 Indonesia


\$46.1B

 Singapore

\$37.1B

 France

\$34.3B

 Russia

\$29.1B

 Peru

\$27.9B

 Malaysia

\$25.8B

 Italy

\$25.2B

 Kazakhstan

\$22.0B

 Netherlands

\$19.9B

 DRC

\$18.5B

 Finland

\$17.6B

 Chile

\$17.3B

 India

\$17.3B

 Sweden

\$16.8B

 Laos

\$16.6B

 Pakistan

\$15.7B

 Saudi Arabia

\$15.6B

 Iraq

\$14.6B

 Cambodia

\$14.3B

 South Korea

\$14.2B

 Vietnam

\$14.0B

 Guyana

\$13.8B

 Hungary

\$360.7B

 Other

106 countries

Source: China Global Investment Tracker, AEI / Heritage Foundation. Includes verified transactions valued at over \$100M spanning from 2005–2025.

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Where Data Tells the Story

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China Asymmetric power

On Friday, October 10, 2025, something extraordinary happened. A declaration by China that would shake the world. And it went largely unnoticed.

President Xi Jinping announced that Chinese exporters would require licenses to export specific items—items that could shut down entire industries in America and other targeted countries at will.

The pace of that shutdown, the magnitude of the damage, would depend entirely on how Beijing chose to exercise that choke hold.

- This is Asymmetric power. And Xi has built it step-by-step.
- December 2025: China's global trade surplus reached \$1.08 trillion in just 11 months. A record no country in history has ever achieved.
- In 2025, China solidified its position as the world's largest goods exporter, with its total exports reaching approximately US \$3.776 trillion, representing roughly 15.8% of total global exports, a rise from 15.1 % in 2024.
- China achieved a record trade surplus of nearly \$ 1.2 trillion, driven by high-tech exports and diversified trade toward Southeast Asia, Africa, and Latin America, despite strong US tariff pressures.

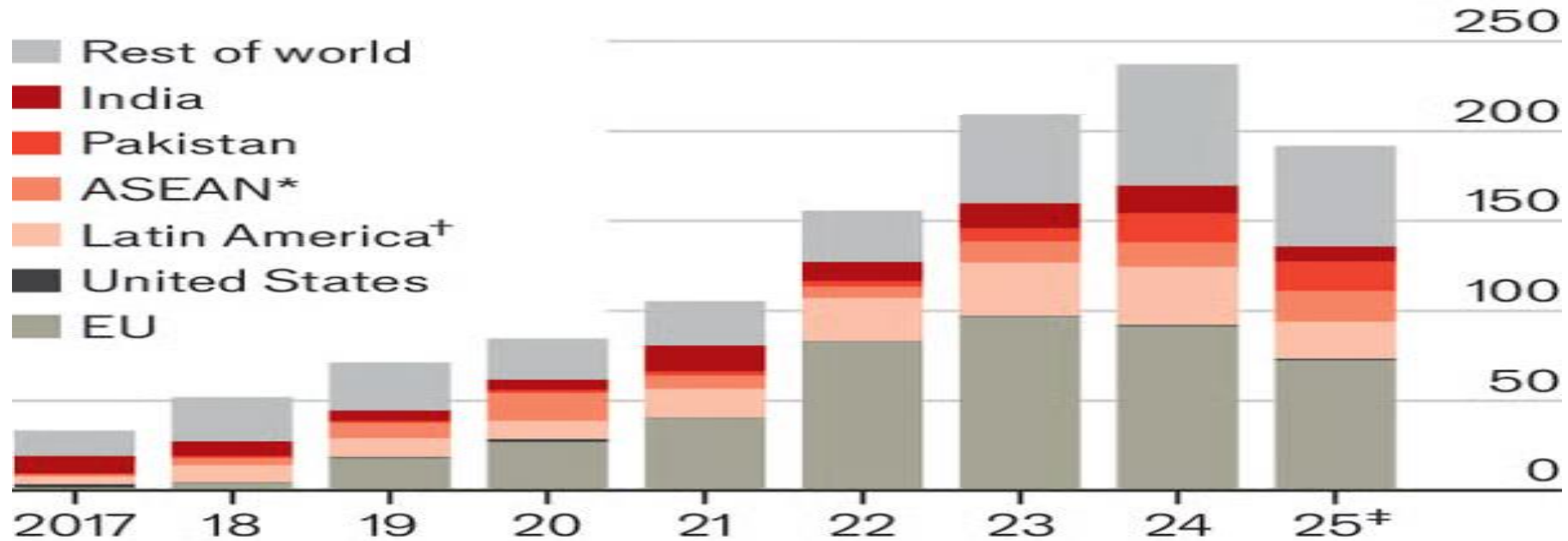
China the great

- China can now shut down entire industries in other countries at will.
- Take the chemical industry. It has reached a point where large segments in Europe and America are suffering, and plants are being closed.
- American companies are finding niche customers just to survive. It is under the radar. The press does not know it. The public does not either. Olin shut major US chlorine and chemical plants, citing high costs and overseas competition. BASF shuttered ammonia units and sold off high-value pigment divisions.
- In Europe, LyondellBasell and Tronox have closed Rotterdam plants, blaming Chinese overcapacity.
- The magnet restrictions were just the beginning. In October 2025, Xi made it explicit: China controls the choke points. Rare earths. Battery components. Advanced chemicals. Semiconductor materials.
- If Beijing decides to cut off supply, industries in the United States, Europe, Japan, and South Korea grind to a halt.
- This is power. Asymmetric power. And Xi has built it step-by-step.

Countries	Share of MVA (2000)	Countries	Share of MVA (2030P)
US U.S.	25%	CN China	45% (+39pp)
JP Japan	11%	US U.S.	11% (-14pp)
DE Germany	8%	JP Japan	5% (-6pp)
CN China	6%	DE Germany	3% (-5pp)
IT Italy	4%	KR South Korea	3%
FR France	3%	Other High Income Countries	16%
GB UK	3%	Upper Middle Income Countries	8%

Southern exposure

China, solar-panel exports, gigawatts



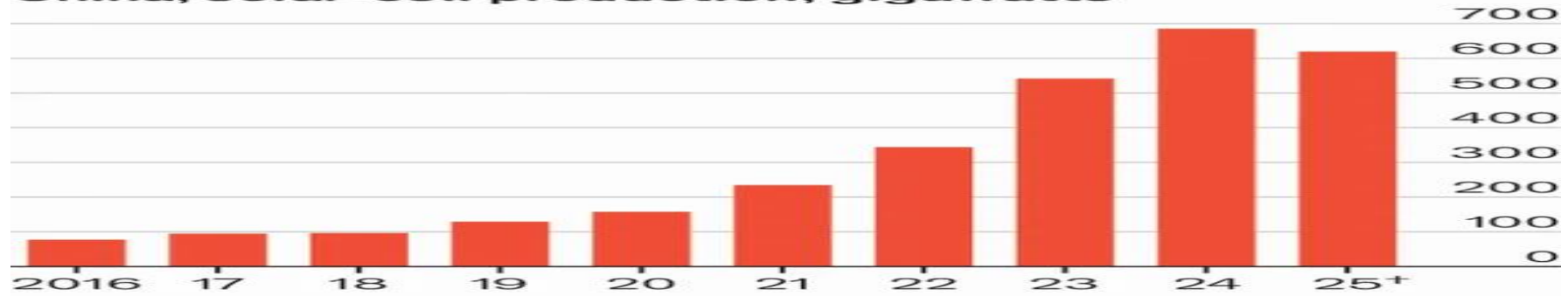
*Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam

⁺And the Caribbean [‡]To September

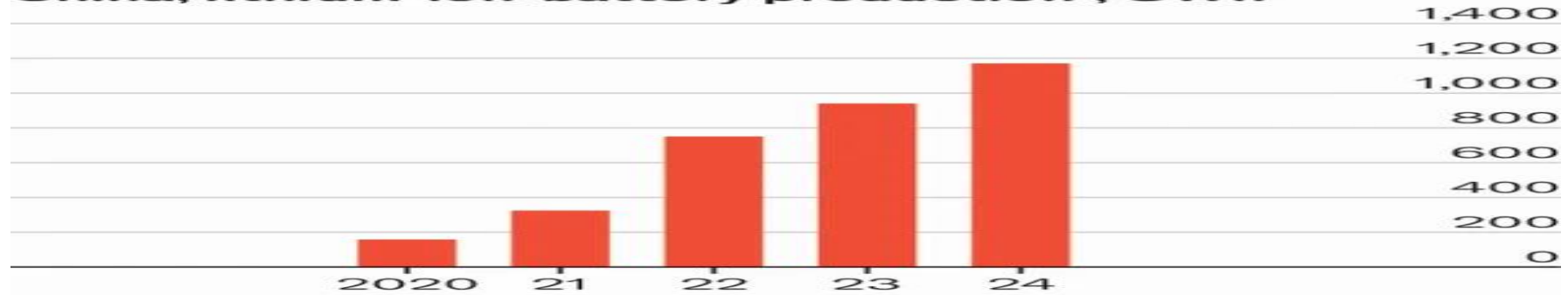
Source: Ember

Spot the similarity

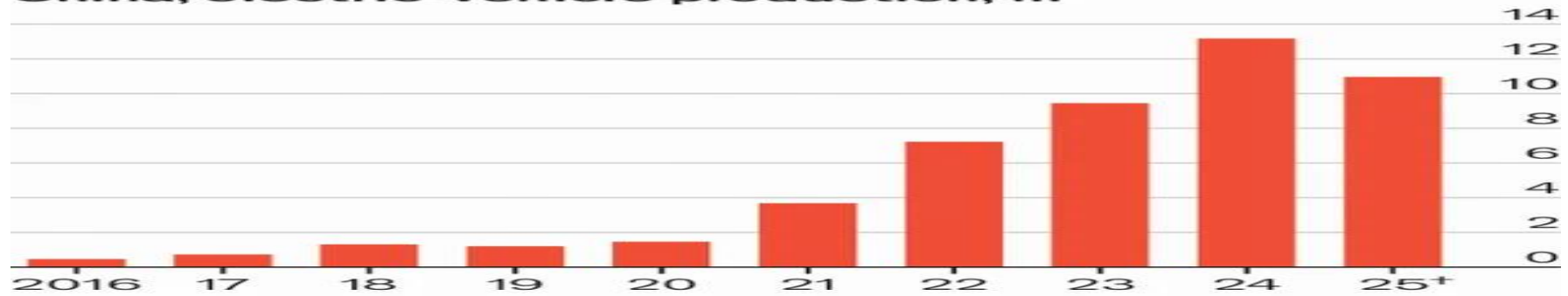
China, solar-cell production, gigawatts



China, lithium-ion-battery production*, GWh



China, electric-vehicle production, m



*Including consumer-electronics, car-power & energy-storage

[†]To September

Sources: Ministry of Industry and Information Technology; National Bureau of Statistics; Wind