Brain drain or brain circulation?

Options to expand innovation capabilities in the Global South

- Not enough quality jobs? Move to greener pastures.
- What are the impacts of *brain drain* for innovation? Does it prevent the Global South from catching up or will it eventually enable it?

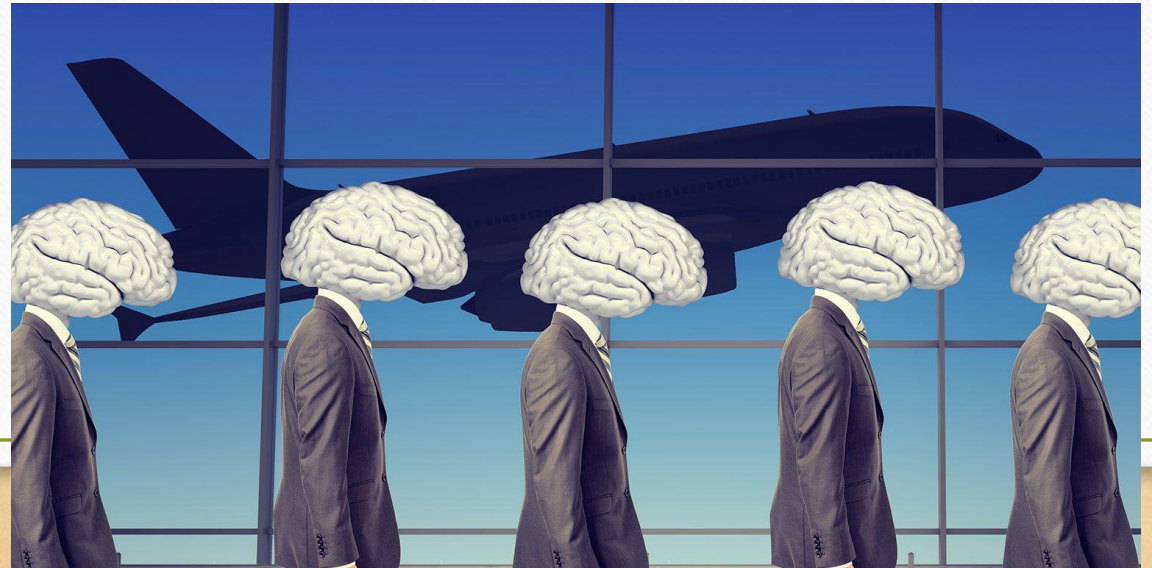
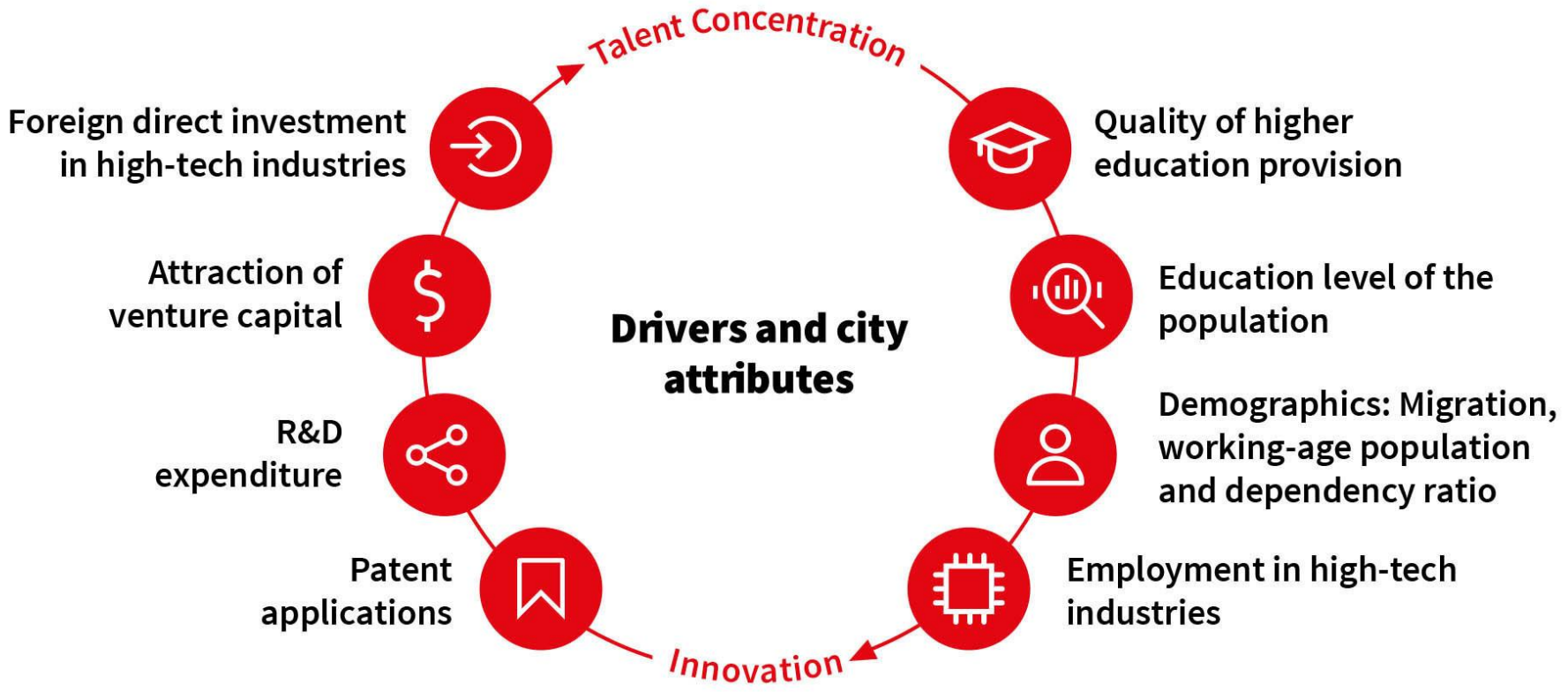


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1. Introduction

These factors have been combined to create two global city rankings.

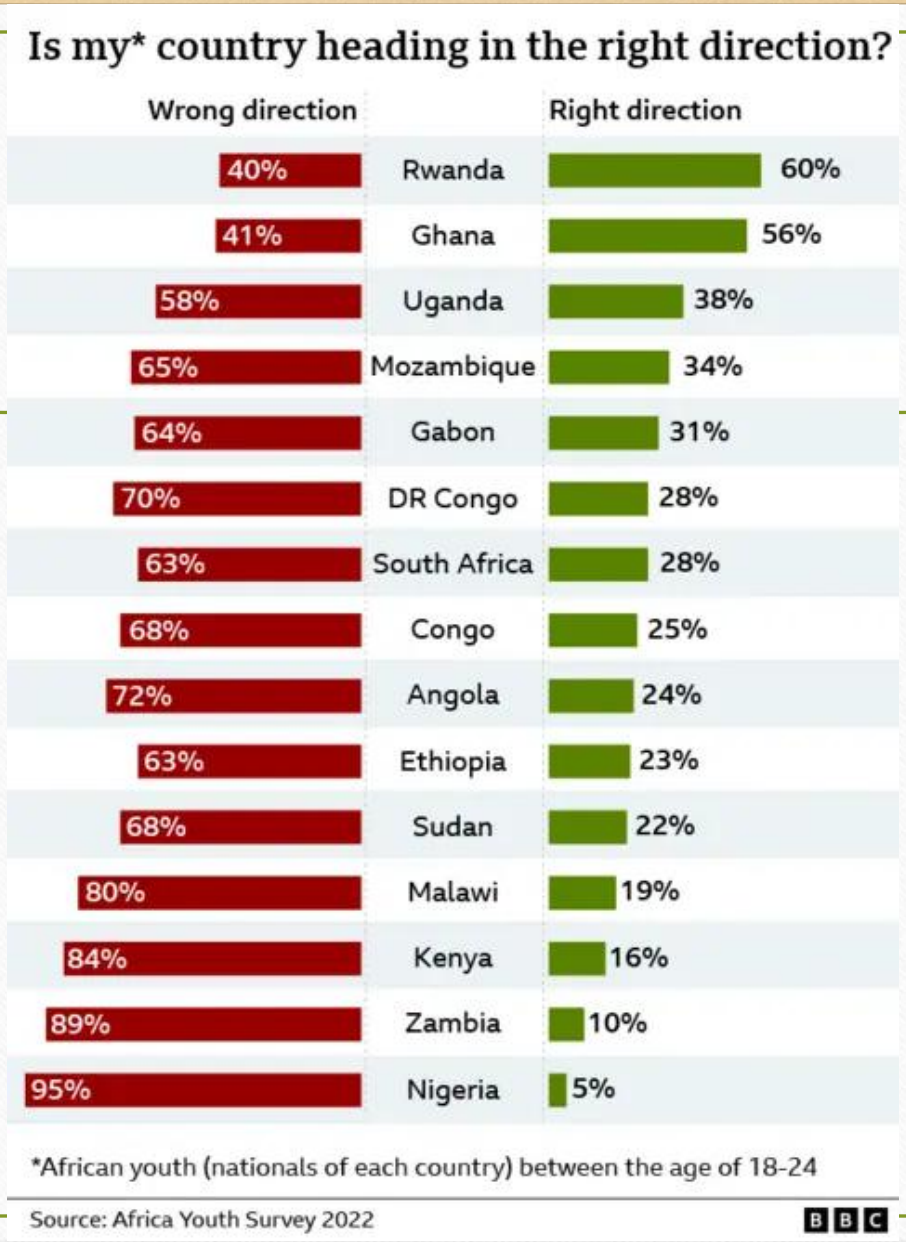


https://www.weforum.org/agenda/2022/02/innovative-global-cities-talent-property/

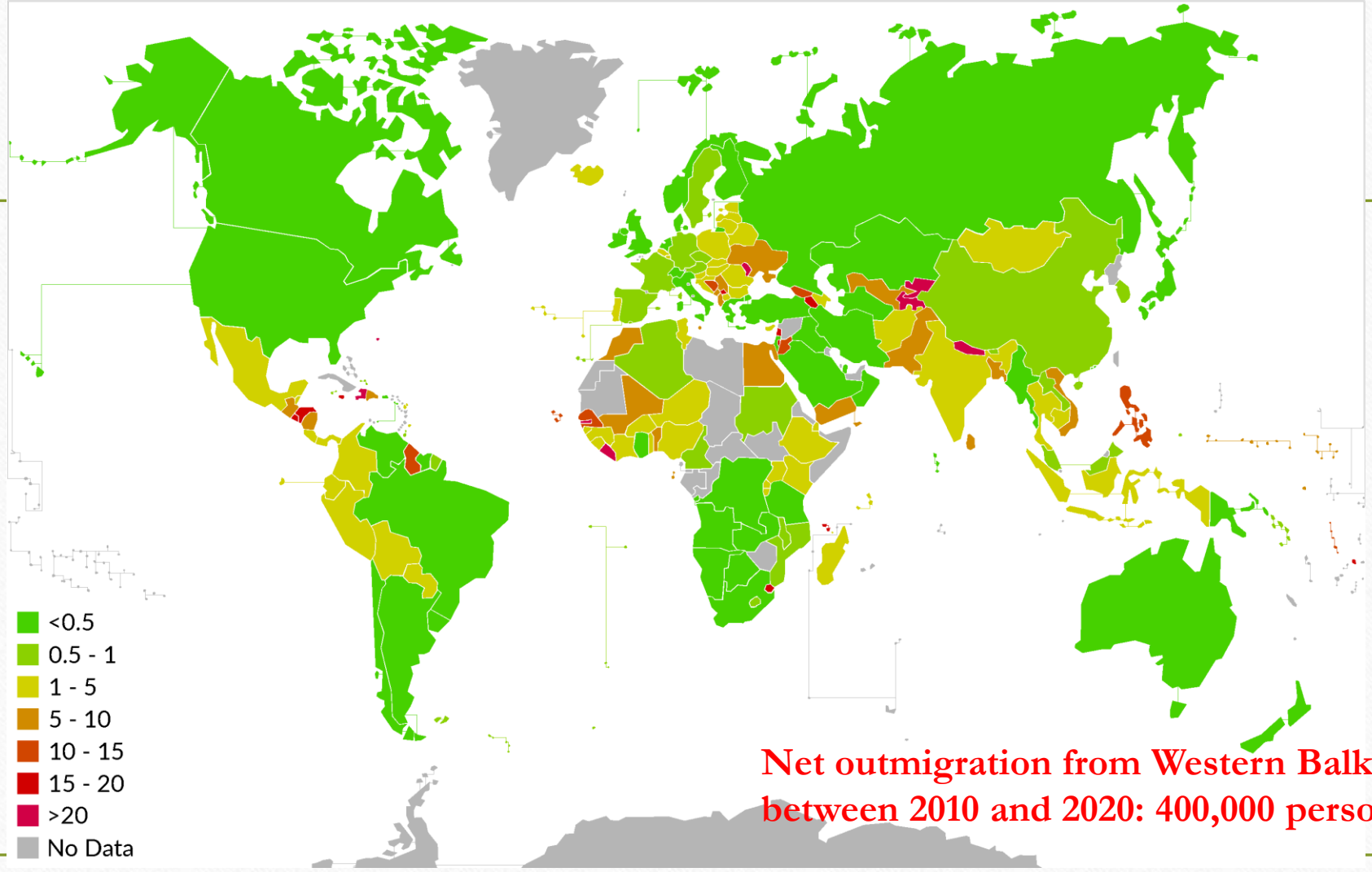
Push factors in developing countries

1. Unemployment and underdevelopment
2. Low salaries
3. Political uncertainty and corruption
4. Uncertainties regarding pensions and health care
5. Lower quality of life

Push factors



Remittances as % of GDP



Net outmigration from Western Balkan countries between 2010 and 2020: 400,000 persons

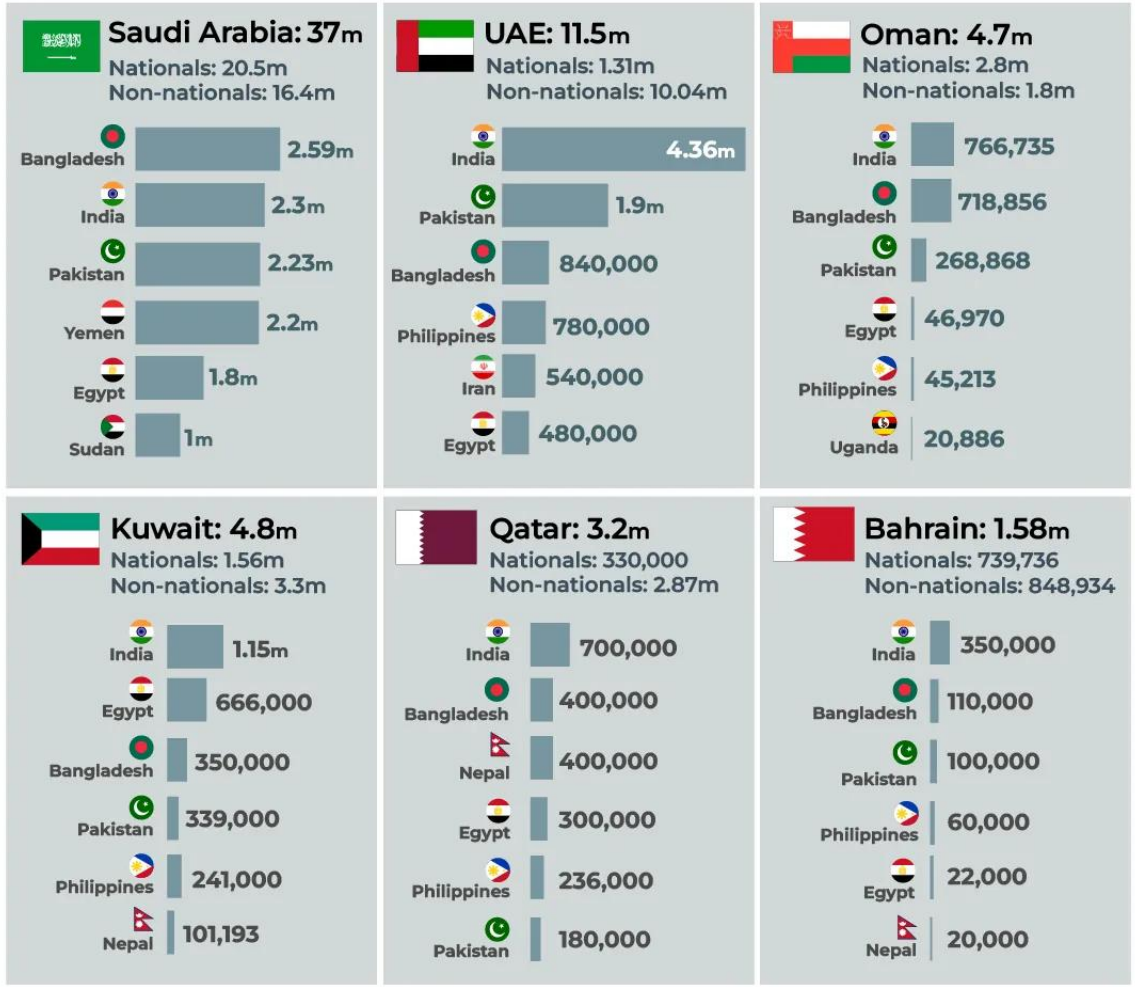
Salaries for Philippine people in US$

- Elementary school teacher in the Philippines: 400
- Domestic helper in Saudi Arabia and Malaysia: 400
- Police officer in the Philippines: 660
- English language teacher in Thailand: 900
- Seaman on an oil tanker: 1000
- English language teacher in Taiwan: 2100
- Nurse in Canada: *net* salary around 2500
- Other professionals in Canada and the USA: higher than 2500
- https://newsinfo.inquirer.net/2236725/cpd-warns-of-demographic-burden-amid-rise-in-unemployment

BY-NC-SA

Where do GCC foreign workers come from?

The largest groups of non-nationals living across the six GCC countries are from: **India** (9.1m), **Pakistan** (4.9m), **Bangladesh** (5.04m), **Egypt** (3.3m), and the **Philippines** (2.2m).



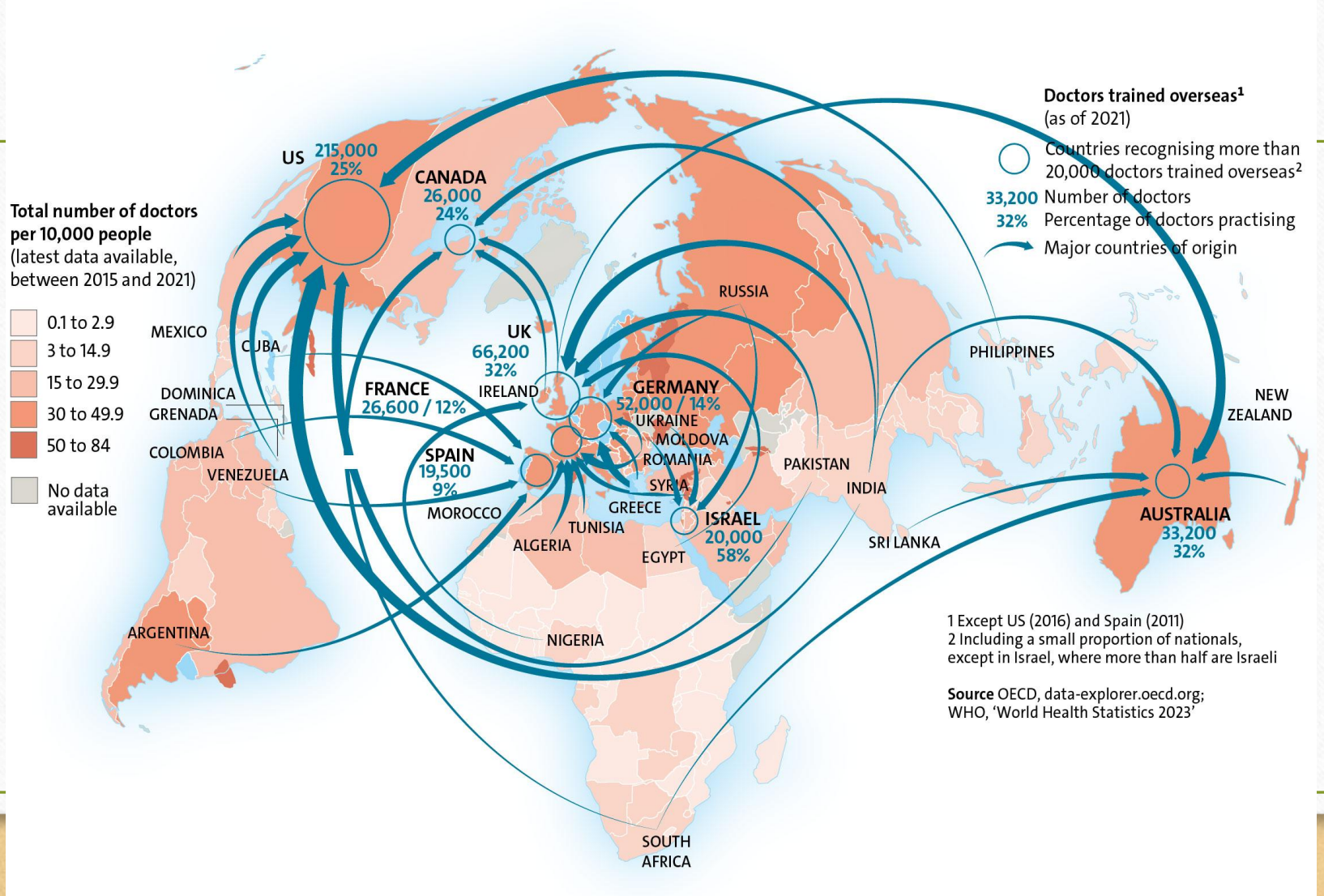
AJLABS

SOURCE: GLOBAL MEDIA INSIGHT, KUNA/KUWAIT TIMES, AL JAZEERA | MARCH 9, 2026

ALJAZEERA

2. Negative impacts

(1) Brain drain can hurt innovation in home countries



(2) Brain drain causes fiscal losses

- Highly-skilled emigrants do not pay taxes in their home country. As education is (partly) subsidized by the government, emigrants leave before they can repay their “debt” to their home country.
- Possible distortion of occupational supply; for example, too many lawyers and not enough doctors and engineers.

Source : Docquier, 2014

(3) Brain drain can also imply brain waste

- Many labour migrants from and within ASEAN member states are overqualified and do jobs below their skill level.
- For example, engineers from Myanmar work as assistant engineers or site supervisors in Singapore and Thailand
- Sending countries lose talent while receiving countries and foreign professionals fail to fully benefit from mobility.

Source : ADB, 2017

Table 3.1 Comparative overview of the challenges leading to brain drain, major emigration destinations, and the impact on development across countries in South Asia, the Middle East, and Africa (Mishra, 2006b; Policy Centre for the New South, 2021; Tanner, 2005).

Country	*Challenges Leading to Brain Drain*	*Major Emigration Destinations*	*Impact on Development*
India	Limited research funding, bureaucratic hurdles, uneven education access	North America, Europe	Loss of critical human capital, hindering innovation, and growth
Pakistan	Political instability, security concerns, limited education access	North America, Middle East, Europe	Shortages in critical sectors, hindering innovation, and growth
Bangladesh	Limited education access, political instability, inadequate funding	North America, Europe, Middle East	Shortages in critical sectors, hindering innovation, and growth
Sri Lanka	Limited career opportunities, political uncertainty, safety concerns	United States, Canada, Australia	Shortages in critical sectors, hindering innovation, and growth
Nigeria	Political instability, corruption, limited education access	United States, Canada, United Kingdom	Struggle to provide quality services, hampering development
South Africa	Political uncertainty, limited career opportunities, safety concerns	United Kingdom, Australia, Canada	Shortages in critical sectors, hindering innovation, and growth
Egypt	Limited education access, political instability, economic concerns	Gulf countries, North America, Europe	Shortages in critical sectors, hindering innovation, and growth
Kenya	Limited education access, political instability, safety concerns	United States, Canada, United Kingdom	Shortages in critical sectors, hindering innovation, and growth

https://www.routledge.com/Polycrisis-and-Economic-Development-in-the-Global-South/Adam-Rena/p/book/9781032694337

3. Positive economic impacts

Possible pathways

- Through skilled migrants' linkages with home countries, migrants can contribute to knowledge transfer and innovation
- Brain *circulation*: highly-skilled migrants could return to their home countries
- Remittances

https://www.frontiersin.org/journals/research-metrics-and-analytics/articles/10.3389/frma.2026.1898634/full

3. Positive economic impacts

Reducing the drain?

"Collaboration with home governments is essential to nurture entrepreneurial ecosystems that empower students to become creators of start-up ventures, bolstering local economies and encouraging them to *remain* within their countries."

https://journals.sagepub.com/doi/full/10.1177/21632324251352312

Or…stimulating circulation?

"The "brain drain" narrative misses the opportunities that a highly educated and dynamic diaspora can bring to Africa"

https://blogs.lse.ac.uk/africaatlse/2024/04/11/embracing-brain-circulation-is-a-huge-opportunity-for-africas-development/

The World's Top Remittance Recipients

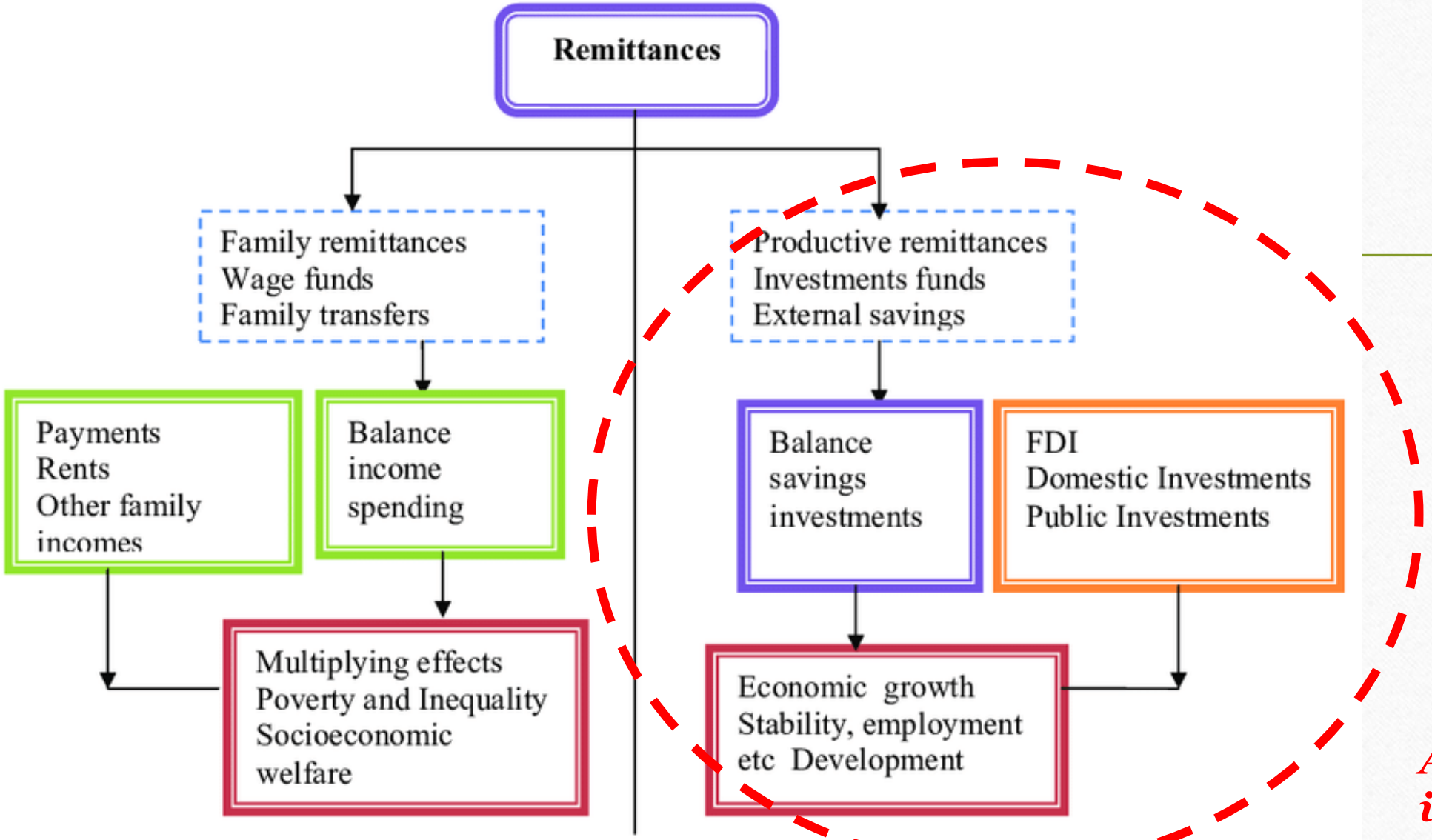
Countries receiving the most remittances among low- and middle- income nations in 2022* (in billion U.S. dollars)



* latest estimates

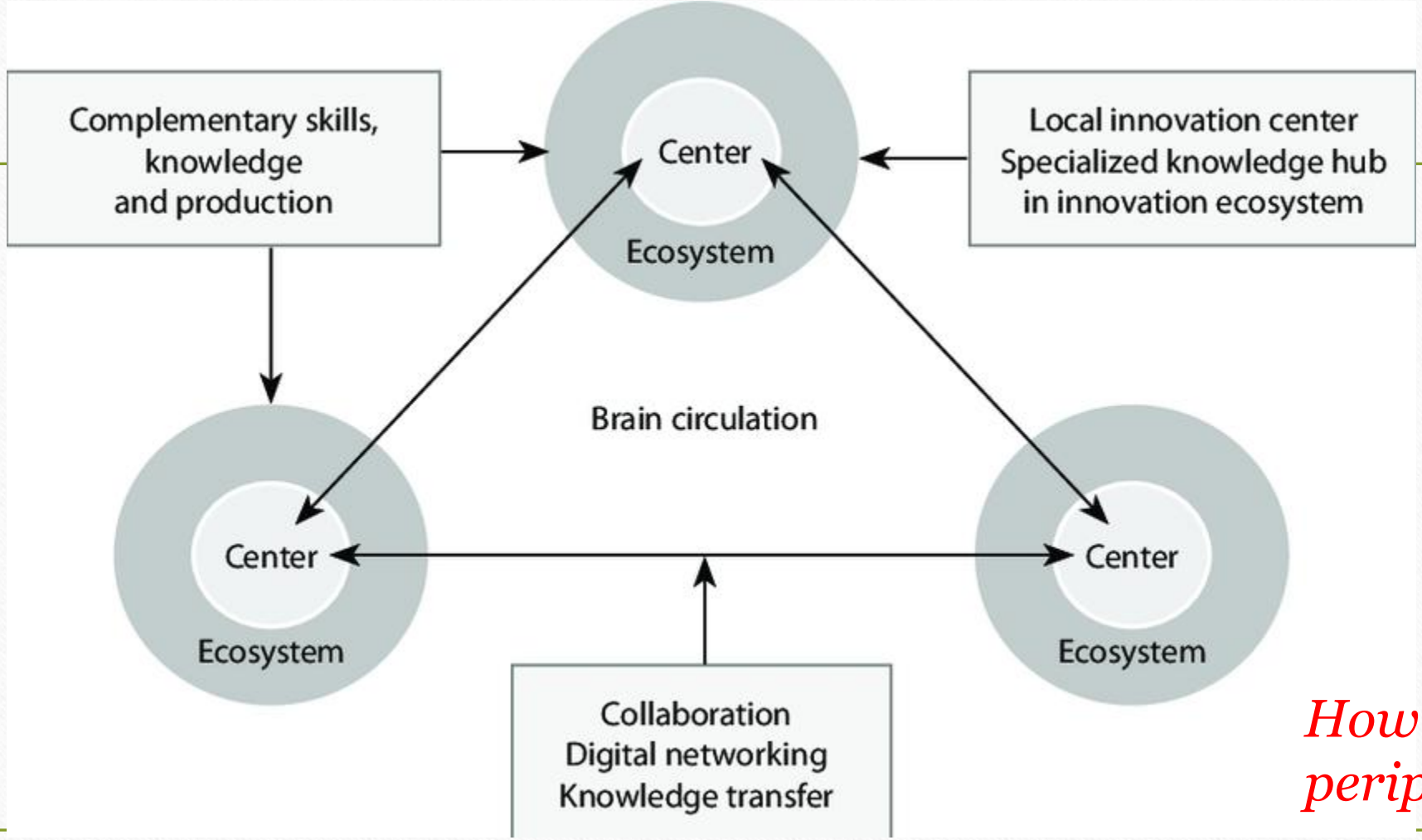
Source: Knomad via World Bank

statista

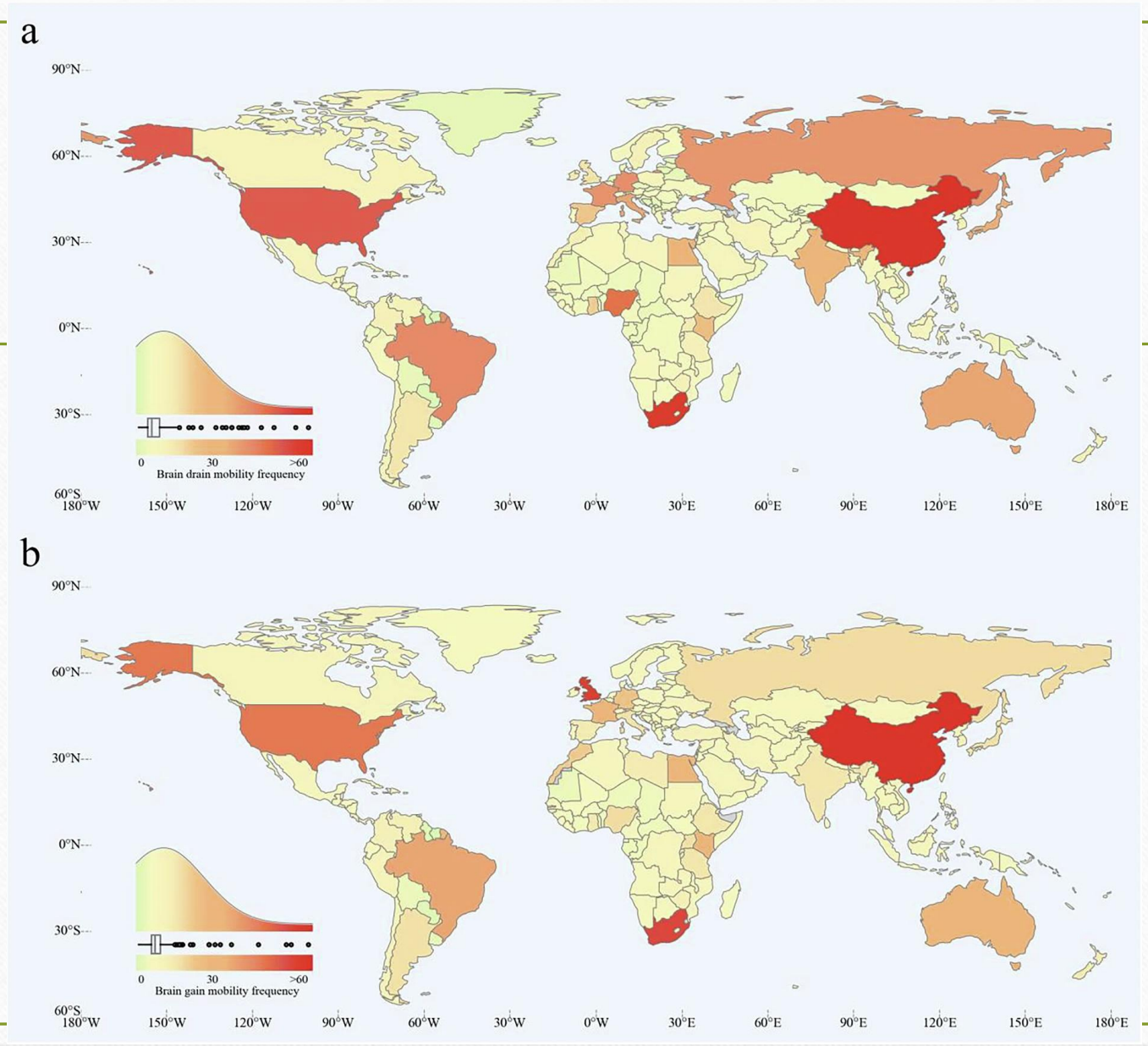


Also innovation?

Brain circulation



How about the periphery?



https://www.nature.com/articles/s41597-025-05268-2/figures/5

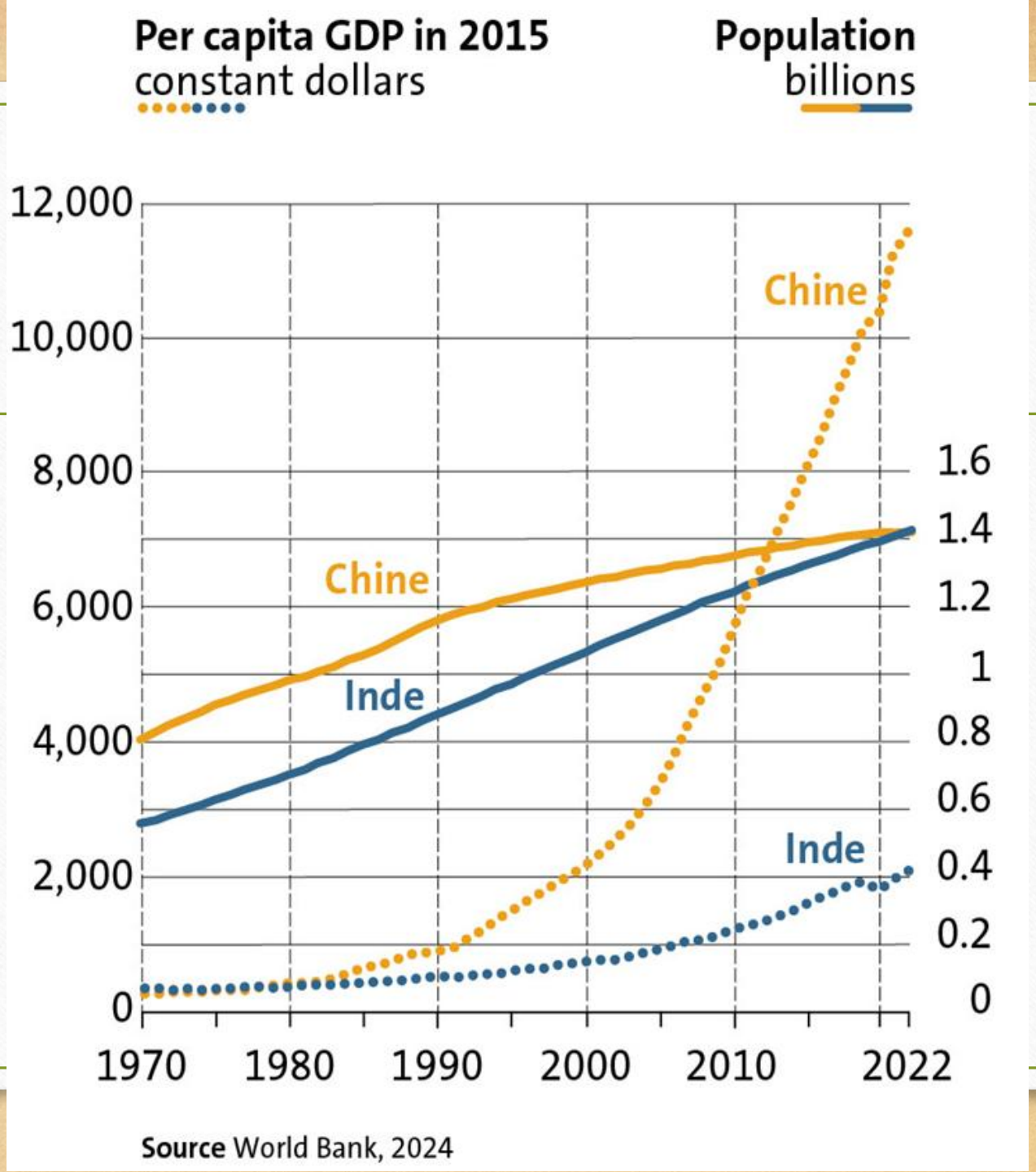
Herman et al. (2026)

"While brain circulation increasingly occurs through visiting positions, joint affiliations, and return migration, a *persistent* pattern of brain drain remains, with Global South countries losing a growing share of their scientists — and their best - performing scientists — to the Global North"

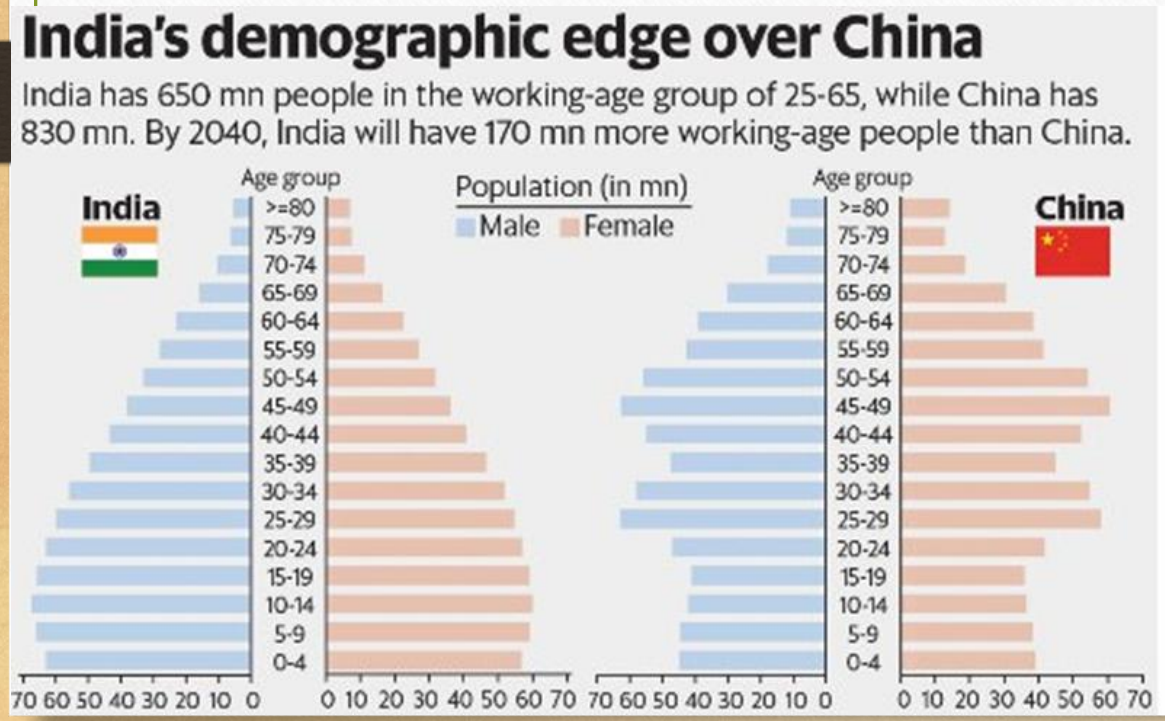
https://osf.io/preprints/osf/a7fcm_v1

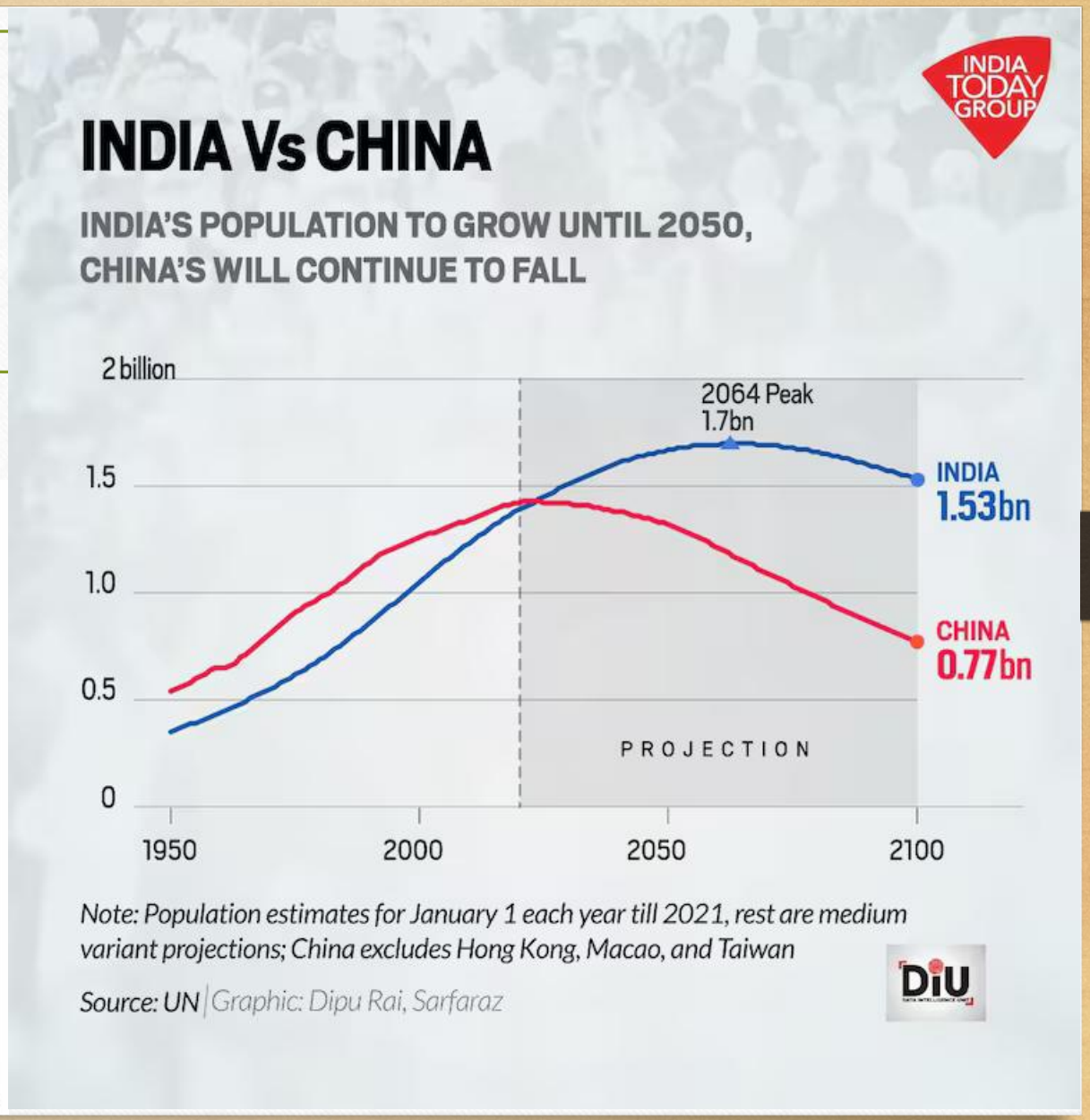
4. India

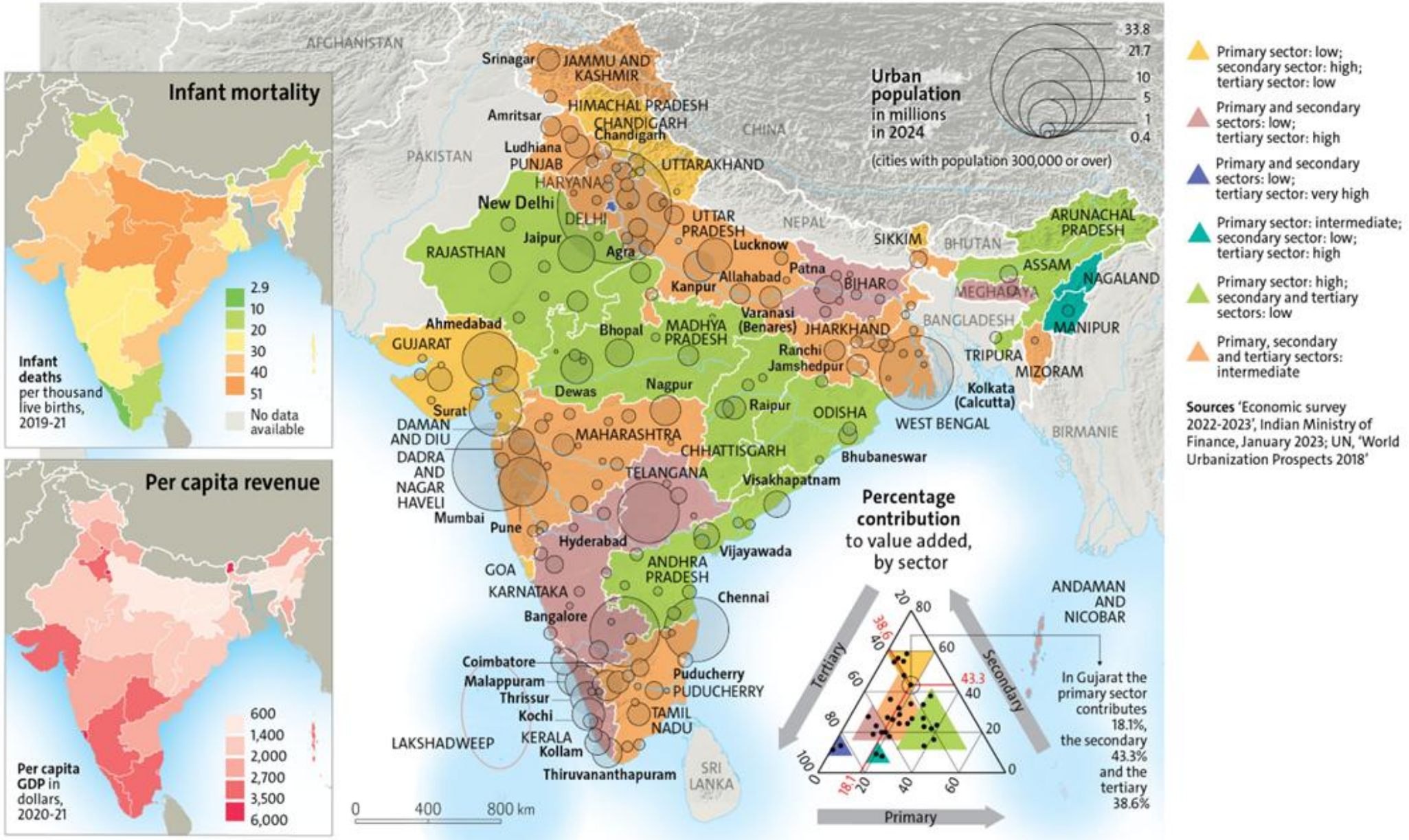
A demographic dividend or burden?



4. India


India's demographic edge over China
India has 650 mn people in the working-age group of 25-65, while China has 830 mn. By 2040, India will have 170 mn more working-age people than China.
India
Age group
Population (in mn)
Male
Female
China
>=80
75-79
70-74
65-69
60-64
55-59
50-54
45-49
40-44
35-39
30-34
25-29
20-24
15-19
10-14
5-9
0-4
70 60 50 40 30 20 10 0
0 10 20 30 40 50 60 70


INDIA TODAY GROUP
INDIA Vs CHINA
INDIA'S POPULATION TO GROW UNTIL 2050, CHINA'S WILL CONTINUE TO FALL
2 billion
1.5
1.0
0.5
0
2064 Peak
1.7bn
INDIA
1.53bn
CHINA
0.77bn
PROJECTION
1950
2000
2050
2100
Note: Population estimates for January 1 each year till 2021, rest are medium variant projections; China excludes Hong Kong, Macao, and Taiwan
Source: UN | Graphic: Dipu Rai, Sarfaraz
DiU

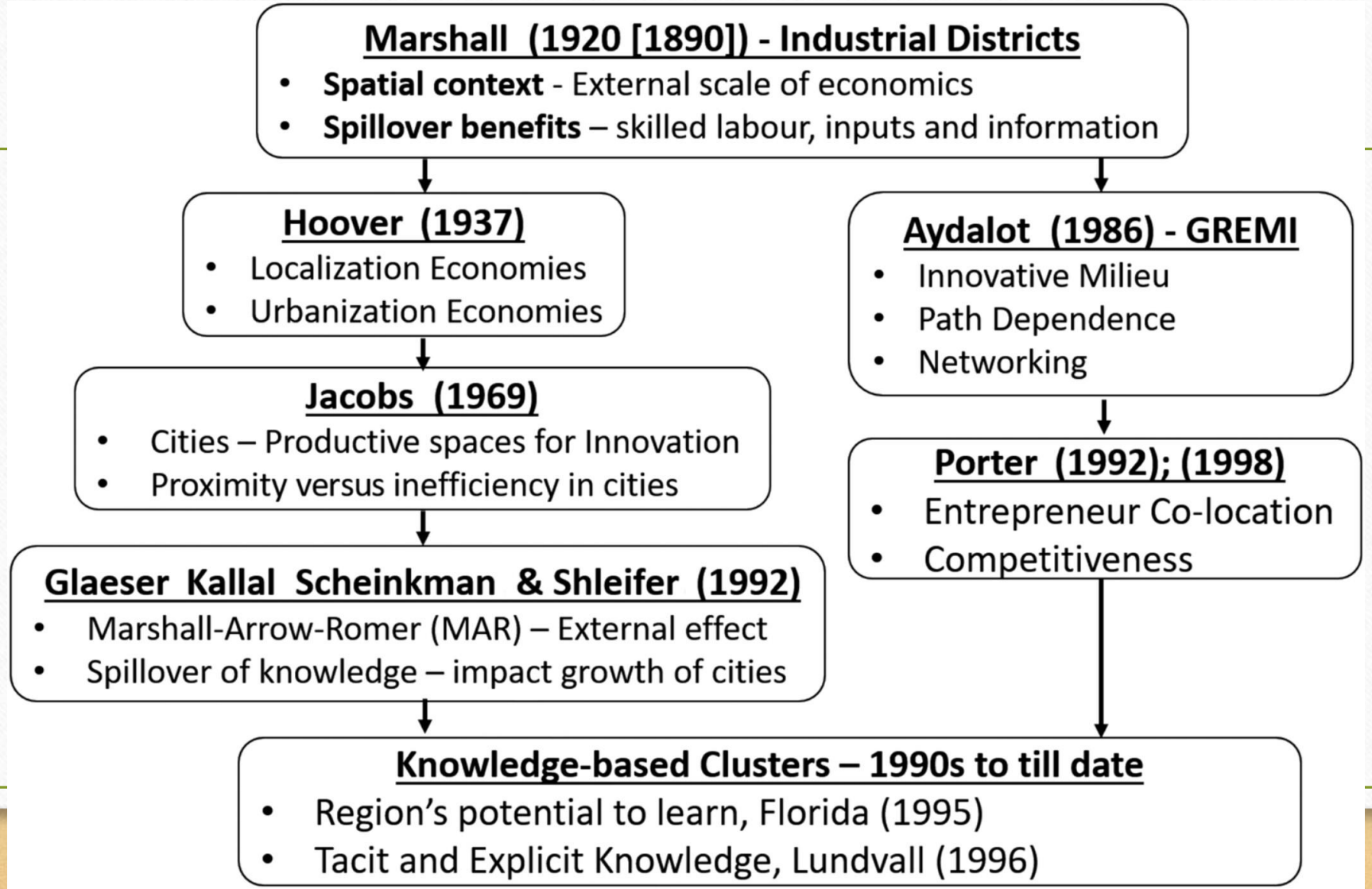

Infant mortality
Infant deaths per thousand live births, 2019-21
2.9
10
20
30
40
51
No data available
Per capita revenue
Per capita GDP in dollars, 2020-21
600
1,400
2,000
2,700
3,500
6,000
Urban population in millions in 2024
(cities with population 300,000 or over)
33.8
21.7
10
5
1
0.4
Percentage contribution to value added, by sector
Primary
Secondary
Tertiary
In Gujarat the primary sector contributes 18.1%, the secondary 43.3% and the tertiary 38.6%
Primary sector: low; secondary sector: high; tertiary sector: low
Primary and secondary sectors: low; tertiary sector: high
Primary and secondary sectors: low; tertiary sector: very high
Primary sector: intermediate; secondary sector: low; tertiary sector: high
Primary sector: high; secondary and tertiary sectors: low
Primary, secondary and tertiary sectors: intermediate
Sources 'Economic survey 2022-2023', Indian Ministry of Finance, January 2023; UN, 'World Urbanization Prospects 2018'
AFGHANISTAN
PAKISTAN
CHINA
NEPAL
BHUTAN
BANGLADESH
BIRMANIE
SRI LANKA
Srinagar
JAMMU AND KASHMIR
HIMACHAL PRADESH
Amritsar
CHANDIGARH
Chandigarh
Ludhiana
PUNJAB
UTTARAKHAND
HARYANA
New Delhi
DELHI
UTTAR PRADESH
Jaipur
RAJASTHAN
Agra
Lucknow
Patna
Allahabad
Kanpur
BIHAR
SIKKIM
ARUNACHAL PRADESH
ASSAM
NAGALAND
MEGHALAYA
MANIPUR
TRIPURA
MIZORAM
Ahmedabad
GUJARAT
Bhopal
MADHYA PRADESH
Varanasi (Benares)
JHARKHAND
Ranchi
Jamshedpur
Kolkata (Calcutta)
WEST BENGAL
ODISHA
Dewas
Nagpur
Raipur
Surat
DAMAN AND DIU
DADRA AND NAGAR HAVELI
MAHARASHTRA
CHHATTISGARH
Bhubaneswar
TELANGANA
Visakhapatnam
Mumbai
Pune
Hyderabad
Vijayawada
ANDHRA PRADESH
GOA
KARNATAKA
Chennai
Bangalore
Coimbatore
Malappuram
Thrissur
Kochi
Puducherry
PUDUCHERRY
TAMIL NADU
KERALA
Kollam
LAKSHADWEEP
Thiruvananthapuram
ANDAMAN AND NICOBAR
0
400
800 km

Top innovation clusters?

1. Shenzhen – Hong Kong – Guangzhou
2. Tokyo – Yokohama
3. San Jose - San Francisco (Silicon Valley)
4. Beijing
5. Seoul
6. Shanghai – Suzhou
7. New York City
8. London
9. Boston – Cambridge
10. Osaka – Kobe – Kyoto



Approaches to study economic geographical clustering



4. The case of Bangalore

Origins of its success

- 1909: Establishment of the Indian Institute of Science
- 1940: The Hindustan Aeronautics Limited (HAL)
- 1960: The National Aerospace Laboratories (NAL)
- 1970s : Successes in manufacturing
- 1976: Bangalore Development Authority set up
- 1985: Texas Instruments set up a factory; the first MNCs soon followed by others
- 1990s: Start-ups like Infosys and Wipro Technologies

Case study : Indian IT cluster in Bangalore

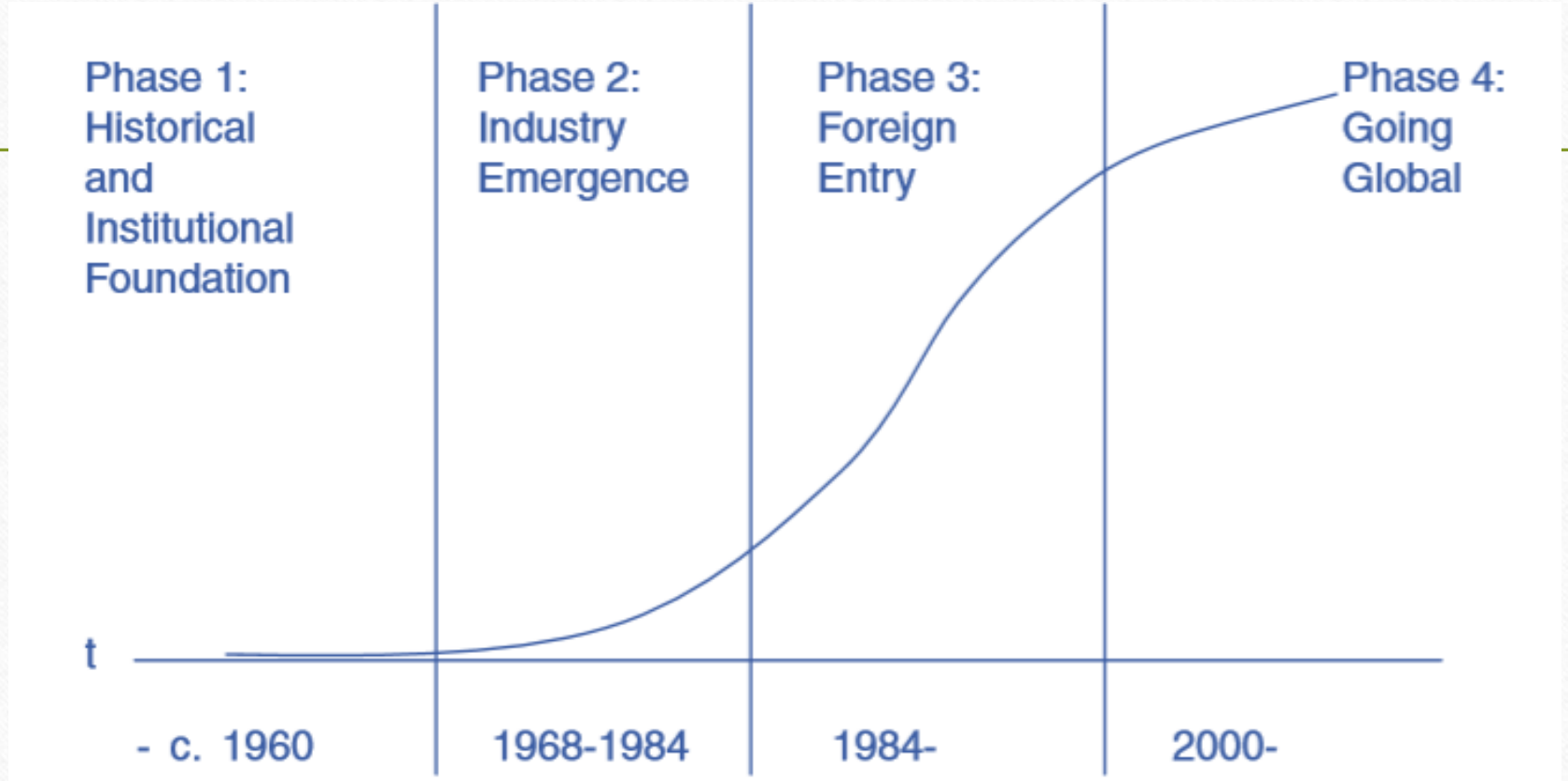
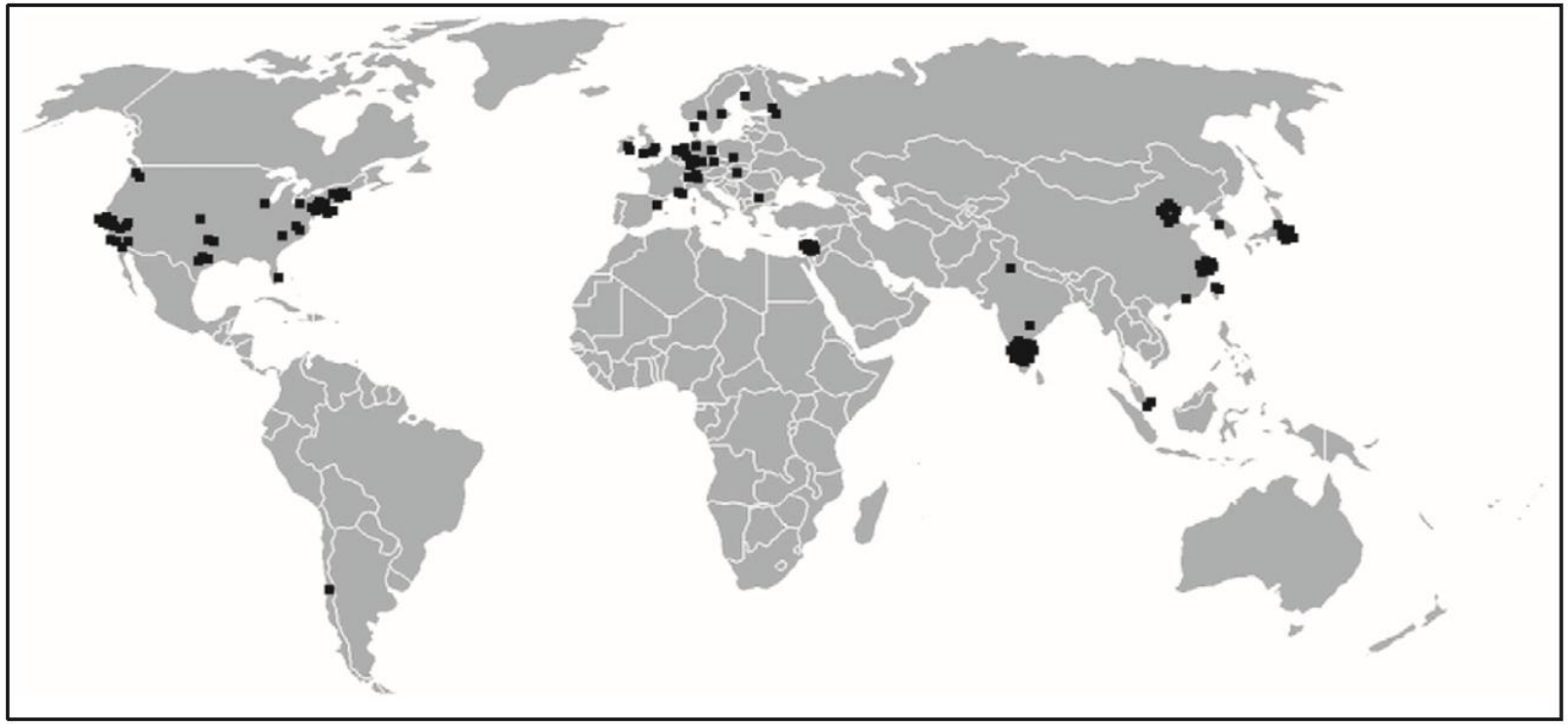


Fig. 2. Historical evolution of the Indian IT industry.

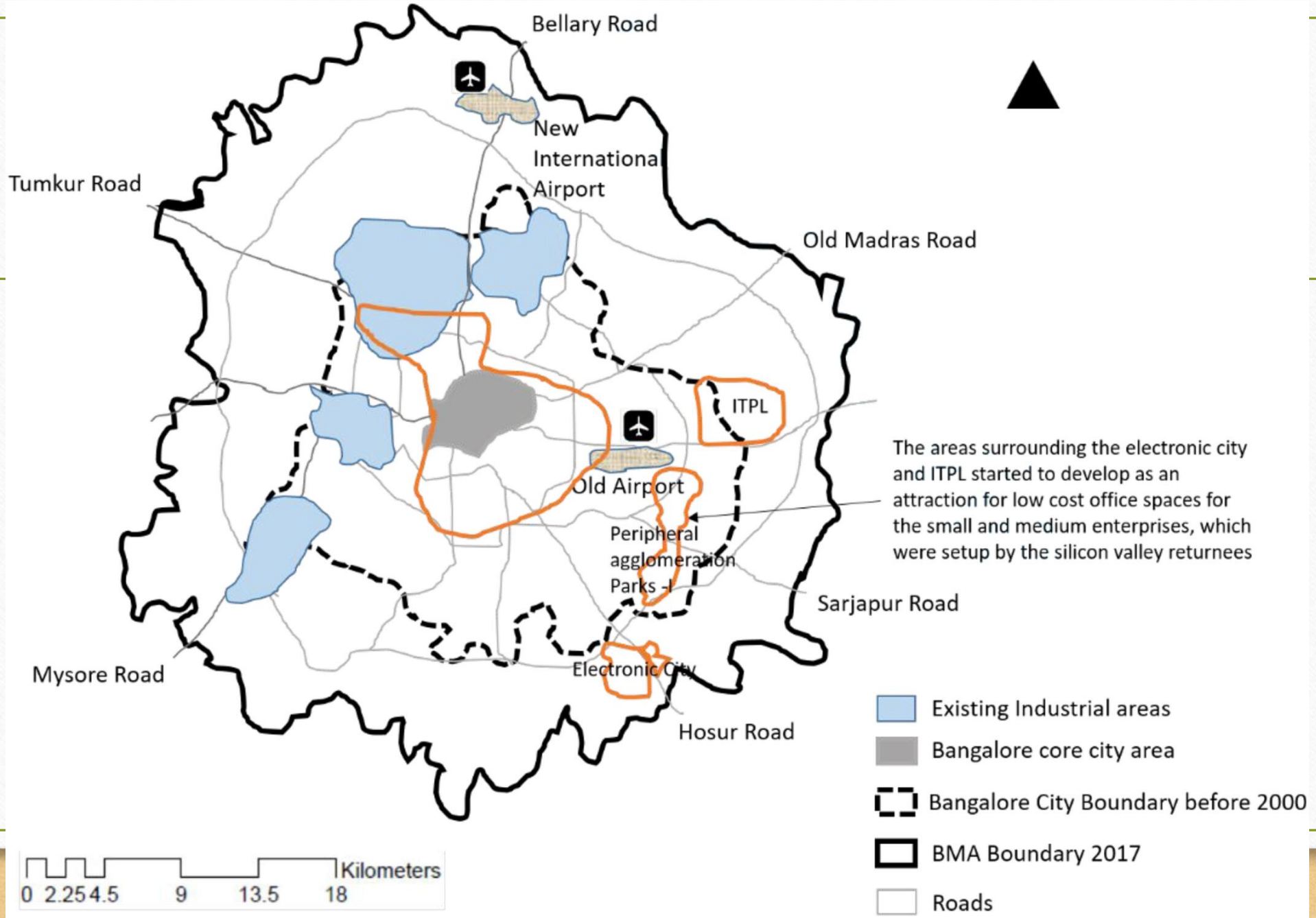
Source : Sonderegger & Taube, 2010

Bangalore plays an important role in IT global networks; already 19 MNCs R&D centers by 2010.



Source : Sonderegger & Taube, 2010

Hariharan and Biswas (2022)

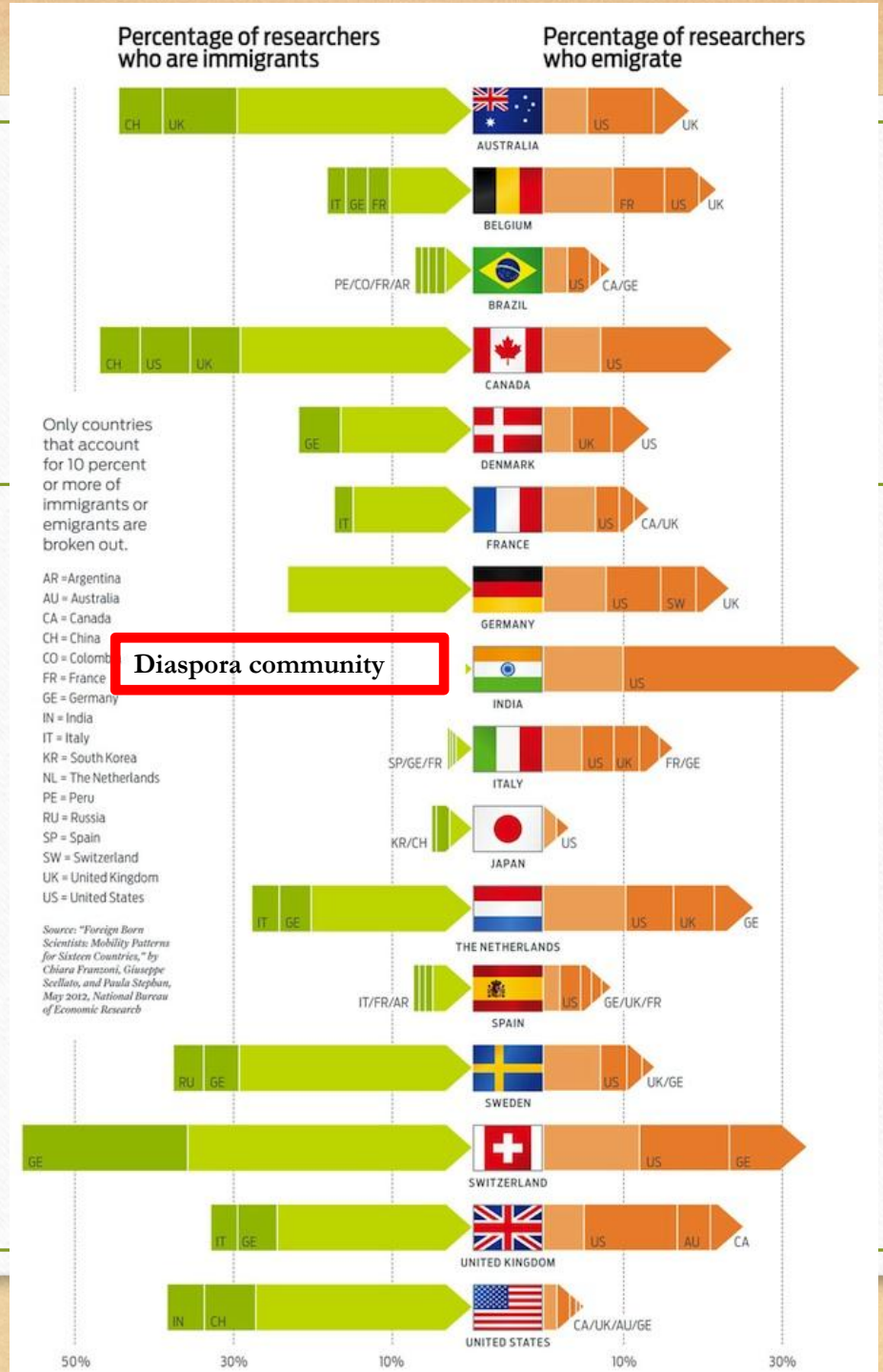


Evolving division of labour

- Skilled migrants build bridges between India and other countries.
- Globalization has enabled IT companies to hire relatively low-cost Indian labour to manage entire outsourcing operations.
- Bangalore has shifted from importing to exporting technology and has become a successful Asian innovation cluster.

Source : Sonderegger & Taube, 2010

The Indian diaspora



Diaspora community

Is it enough? How to retain returnees?

"In 2023, three professionals left for every one who returned, compared with about two departures for every returnee so far in 2026."
https://www.channelnewsasia.com/asia/india-brain-drain-tech-workers-coming-home-6391866

Millions of graduates, but where are the jobs?
https://www.channelnewsasia.com/asia/indian-graduate-unemployment-youth-led-protests-6347546



5. Debate topic 1

Pro: Argue that brain circulation is *good* for innovation in emerging Asian economies and explain why students' scholarships should be unconditional; no need to return to the home country upon graduation.

Contra: Argue that brain circulation is *not feasible* for emerging Asian economies and explain why students' scholarships should be conditional; mandatory return.

5. Debate topic 2

Read this: https://gjia.georgetown.edu/global-governance/the-united-states-china-and-ai-competition-in-africa-lessons-for-the-global-south/

Pro: We agree! Increasing brain *circulation* will create more opportunities for African countries to benefit from innovation.

Contra: We disagree! Increasing brain *drain* will continue to slow down efforts to promote innovation in African countries.