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WIPO WORLD INTELLECTUAL PROPERTY ORGANIZATION

Global INTAN-Invest: Better Data for Better Policy

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McDonough School of Business
Georgetown University

ESCoE Conference – Kings College, London
May 21-23, 2025

Global INTAN-Invest: A quick summary

- Global INTAN-Invest is a project sponsored by the World Intellectual Property Organization (WIPO) based at LUISS Business School, LUISS University, Rome.
- The project develops timely (quarterly), cross-country estimates of intangible investment
  - Uses the framework of Corrado, Hulten, and Sichel (2005, 2009) with baseline estimates from EUKLEMS & INTANProd
  - Consistent with country national accounts
- Key activity/goal is to expand the geographic coverage of intangible investment and sponsor use of the data in policy-driven innovation and productivity analysis
- A team effort between WIPO staff and the researchers that developed the 2023 version of EUKLEMS & INTANProd (Bontadini, Corrado, Haskel, Iommi, and Jona-Lasinio).
- See https://global-intaninvest.luiss.it/ for public use data, flagship publication and documentation.

Topics

- Project goals and governance, policy relevance and measurement capacity building
- Overview of approach, display some results
- Challenges in expanding coverage to middle income countries

Goals and policy relevance of the project

Develop quarterly cross-country estimates of intangible investments and productivity

Expand the coverage of intangible investment to middle- and lower-income countries

Up-to-date macroeconomic data are essential for assessing the short-term effects of economic shocks and formulating policy measures to mitigate their long-term consequences

In emerging and developing economies, innovation is broadly acknowledged as a critical catalyst for economic growth, with innovation policies playing a vital role in their strategic and planning designs.

Empower as many countries as possible to generate data independently, through technical capacity-building efforts worldwide.

Extending the geographic coverage of intangibles estimates is a notable advancement in innovation and productivity analysis

Project organization

Steering committee

Technical advisory board

- ✓ Bishawanath Goldar (Institute for Economic Growth, India)
- ✓ Tsutomu Miyagawa (Gakushuin University and Research Institute of Economy, Trade and Industry – RIETI, Japan)
- ✓ Mary O'Mahony (King's College, UK)
- ✓ Bart van Ark (University of Manchester, UK)
- ✓ Rodrigo Ventura (Instituto Nacional da Propriedade Industrial – INPI, Brazil)

Main Outreach Activities

(a) Annual Conference at LUISS Business School

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WIPO – Luiss Business School
2nd Global INTAN-Invest Conference

Intangible Assets in the Global Economy
Better Data for Better Policy

5-6 May 2025, Rome
Villa Blanc, via Nomentana, 216 – Roma

5 MAY

09:00 **Coffee and registration**

09:30 **Welcome**
Paolo Boccardelli, Rector, Luiss University
Raffaele Oriani, Dean, Luiss Business School and Full Professor of Corporate Finance, Luiss University
Marco Aleman, Assistant Director General, Intellectual Property and Innovation Ecosystems Sector (IES), World Intellectual Property Organization (WIPO)

09:45 **Introduction**
Cecilia Jona-Lasinio, Full Professor of Applied Economics, Luiss Business School
Carsten Fink, Chief Economist, Department for Economics and Data Analytics (DEDA), IES, WIPO

09:55 **Opening remarks by Guest of Honour**
Pier Carlo Padoan, Chairman of the Board of Directors, UniCredit Group

10:10 **Keynote: "AI-powered innovation and growth through investment in intangible assets"**
Keynote speaker: Jonathan Haskel, Professor of Economics, Imperial College Business School, Imperial College London

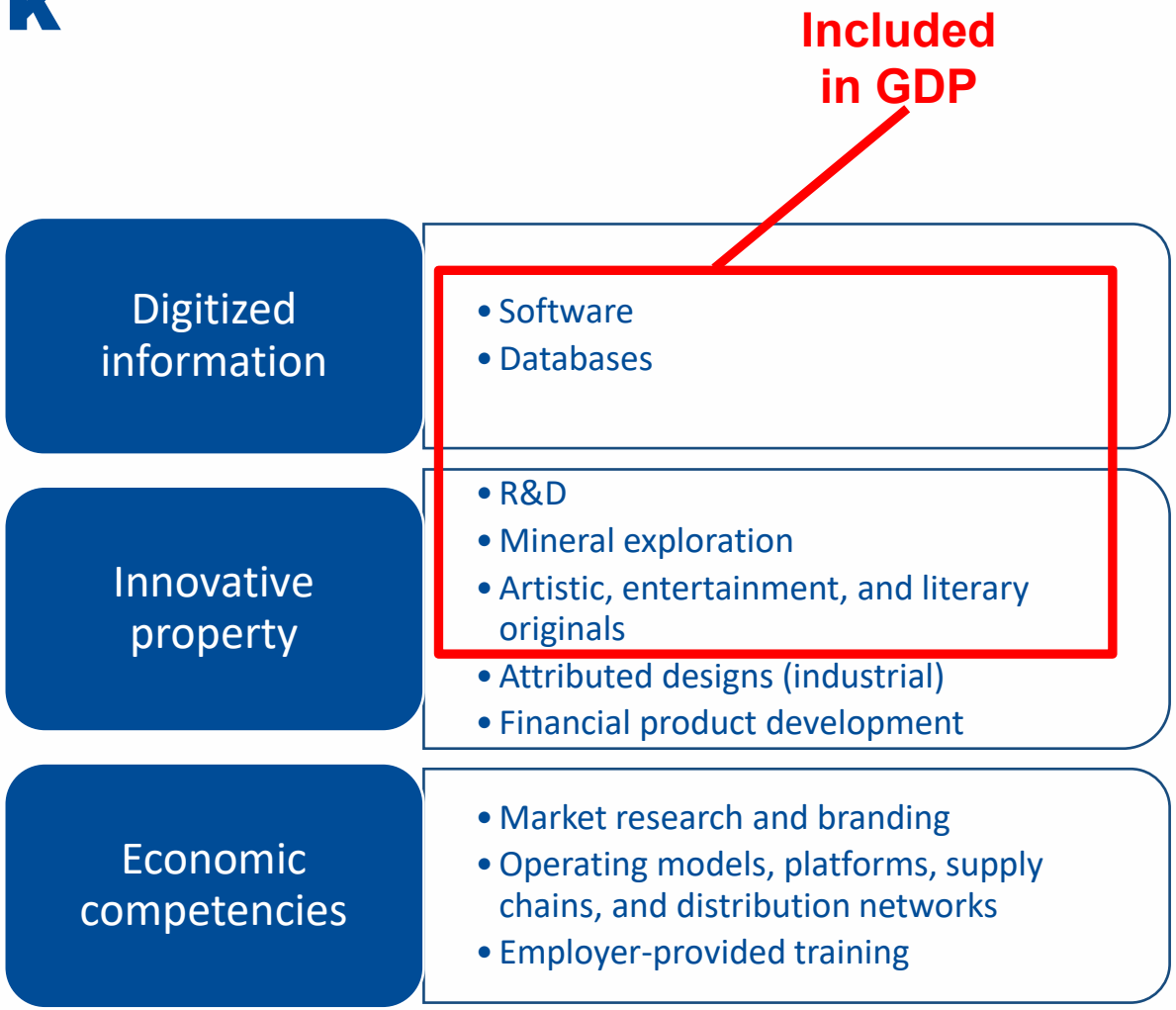
(b) Annual WIPO "Highlights" Publication

Overview of Approach and Some Results

Note: Back-up slides report summaries of estimation strategies, annual and quarterly.

The intangibles framework

- ✓ The approach of Corrado, Hulten, and Sichel (2005, 2009) expands the range of spending by firms that should be viewed as an investment.
- ✓ It applies a fundamental economic criterion that defines investment: outlays expected to yield a return in a future period.
- ✓ Many intangible assets relevant for analyzing modern companies are not included in GDP.
- ✓ Existing efforts include:
  - ✓ INTAN-Invest
  - ✓ EUKLEMS & INTANProd
    - ✓ Focused on annual industry-level estimates
    - ✓ EU, US, UK and Japan



Source: Adaptation of Corrado, Hulten, and Sichel (2005, 2009)

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Global INTAN-INVEST: main characteristics

PILLARS

- ✓ Official statistics as the main data sources
- ✓ Consistency with official national accounts
- ✓ Bottom-up approach – total investment the sum of investment by asset
- ✓ Quality checks
- ✓ Detailed and exhaustive documentation describing estimation methods

FEATURES

- ✓ Comparability across countries and over time
- ✓ Data internally coherent
- ✓ Any difference with official national accounts can be explained and quantified
- ✓ Updatable and replicable
- ✓ Not a standalone product – it can be integrated and used together with all the other variables in the domain of national accounts and with other macroeconomic statistics

https://global-intaninvest.luiss.it/

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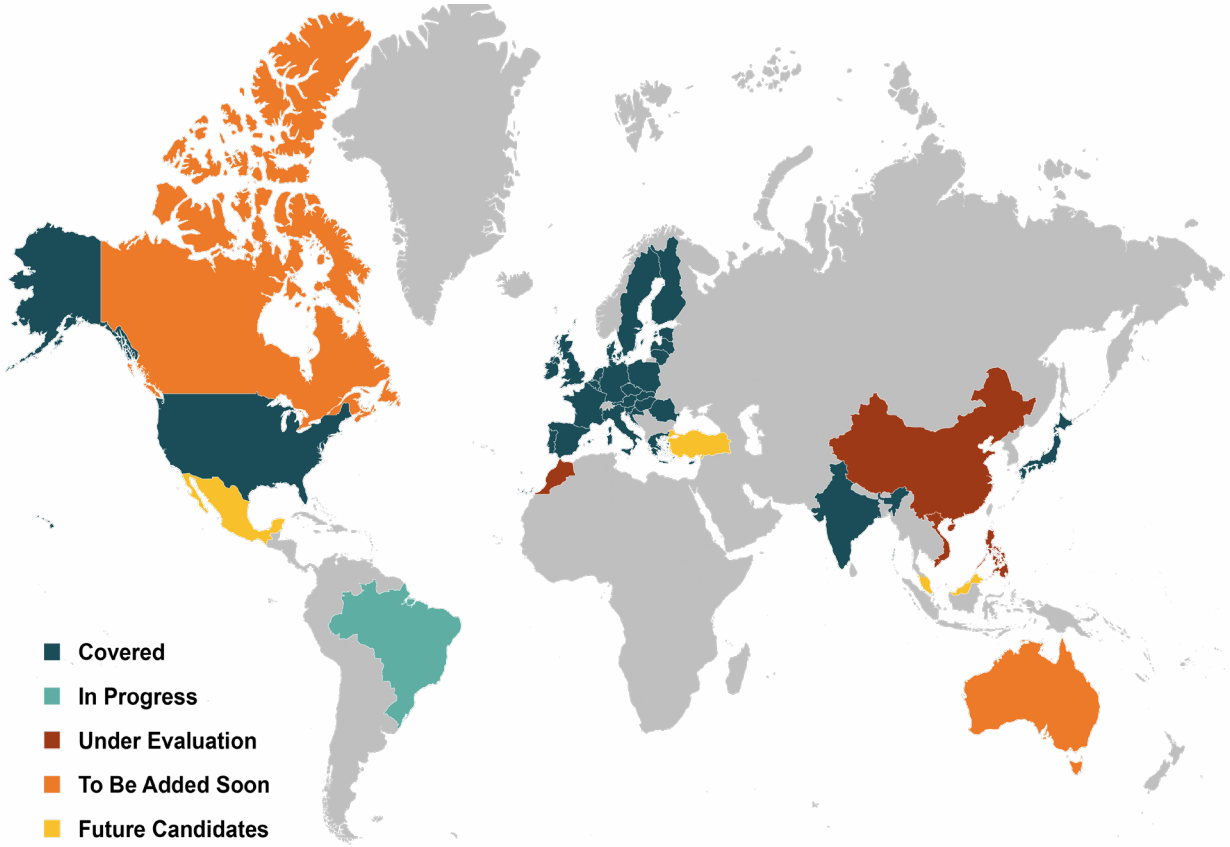
Global INTAN Invest: Coverage and Future Developments



✓ The first release, in June 2024, covers annual and quarterly estimates of intangible investment for the total economy, spanning from 1995 to 2023.

✓ **Annual estimates** currently cover 31 countries, including 27 EU economies, India*, Japan, the UK & the US.

✓ The 2025 data release will include Brazil and update of India to 2022.

✓ Chinese data are under evaluation as well as, the Philippines, Republic of Korea and Singapore.

✓ Canada and Australia to be included soon

✓ **Quarterly estimates** refer to 27 EU economies, the UK and the US

✓ The 2025 quarterly data release will include Japan

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Intangible Investment More Resilient than Tangible in Times of Crisis

Intangible Investment Share of GDP Increased in Most of the Countries Mainly Driven by Investment in Software and Brands

Intangible investment as a share of GDP (%), 1995 versus 2023

Compound annual growth rate (%), 2011–2021

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Intangible vs Tangible Investment Trends in India

Constant prices, 2011=100

- ✓ **Intangibles are outpacing the tangibles mainly driven by national accounts components (Software)**

Intangible and Tangible Shares of GDP

(2019)

- ✓ **Intangible investment in 2019 made up over 10 percent of India's GDP,**
- ✓ **…which is comparable to the EU-22 average (about 10 percent) and higher than in Japan (about 9 percent).**

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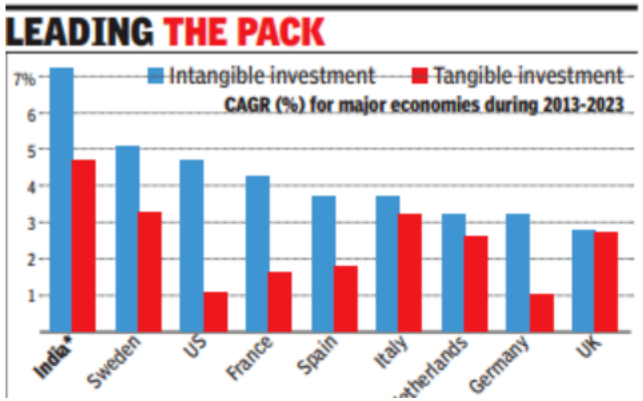
First time intangible data available for India.

THE TIMES OF INDIA

India sees fastest growth in intangible investment

TNN | Aug 10, 2024, 05.42 AM IST

NEW DELHI: India has witnessed the fastest growth in intangible investments over a nine-year period (2011-2020), surpassing major economies like the US, France, Germany & the UK, indicating high level of value creation by companies.In terms of absolute levels of intangible investments for 2020 (latest year for which data is available), India ranks 14th among a sample of 26 advanced economies, trailing Denmark and ahead of Finland and Portugal, the World Intangible Investment Report said.



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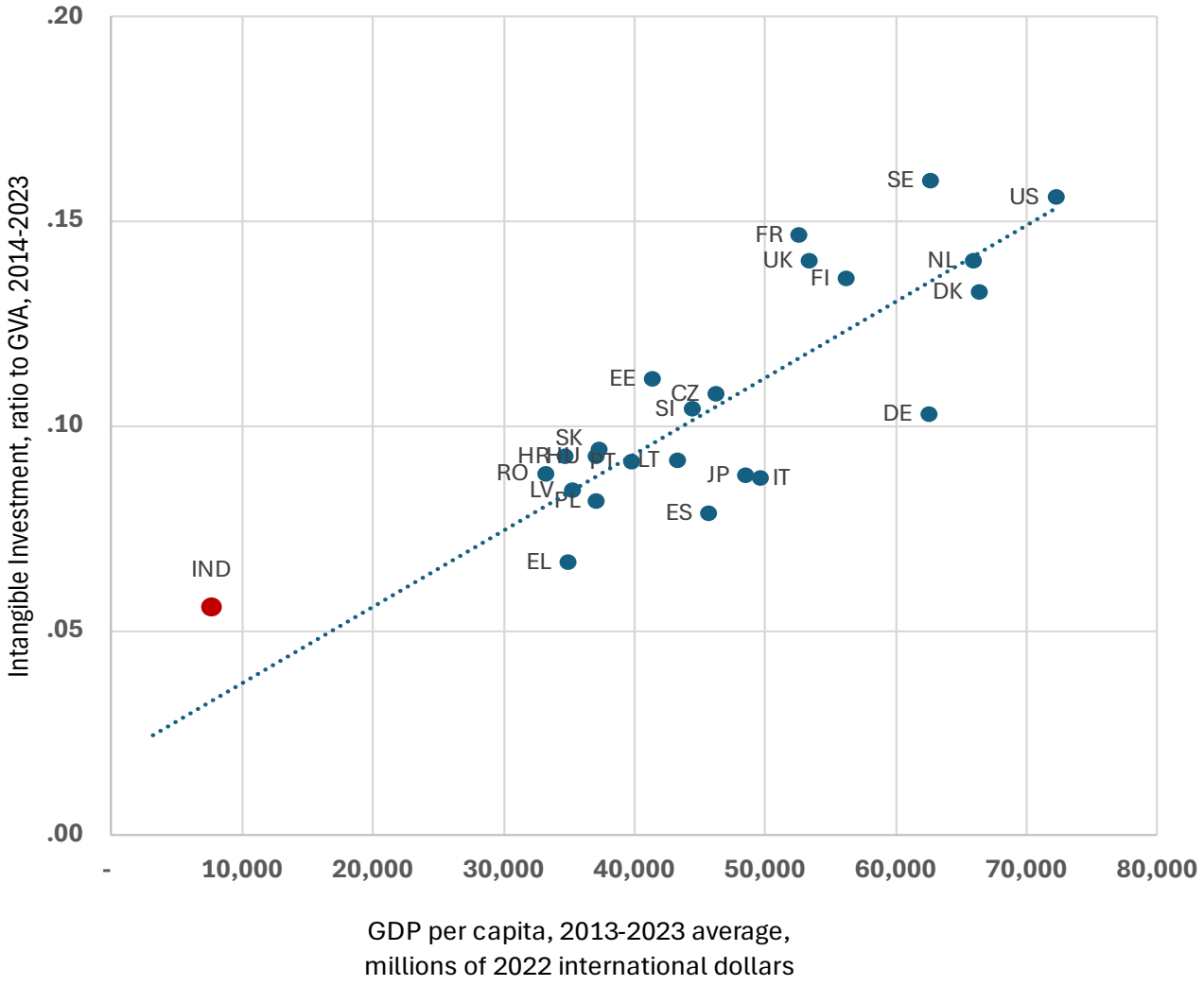
Intangible Investment Rate and GDP per Capita

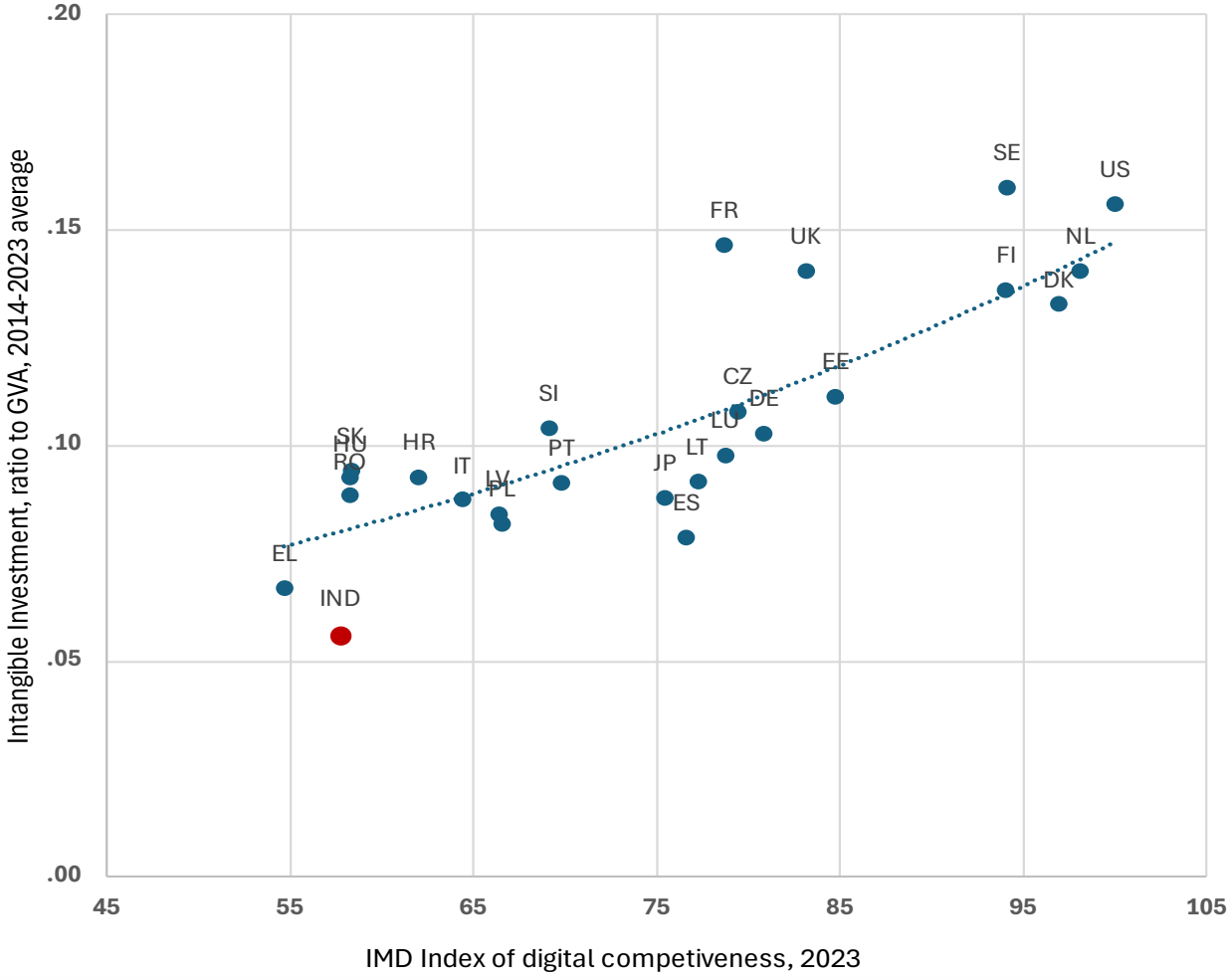


Intangible investment intensity (Intangibles share of total investment) and the level of PPP-adjusted labor productivity are similarly correlated.

➔India's strong showing likely due to its software industry sector.

Note. Intangible investment and GVA cover all NACE activities. Data for India are through 2021.
Sources. Intangible investment and GVA, EU KLEMS & INTANProd (2023) and Global INTANInvest (2024).
Real GDP per capita in 2022 international dollars, Total Economy Database (The Conference Board, 2023).

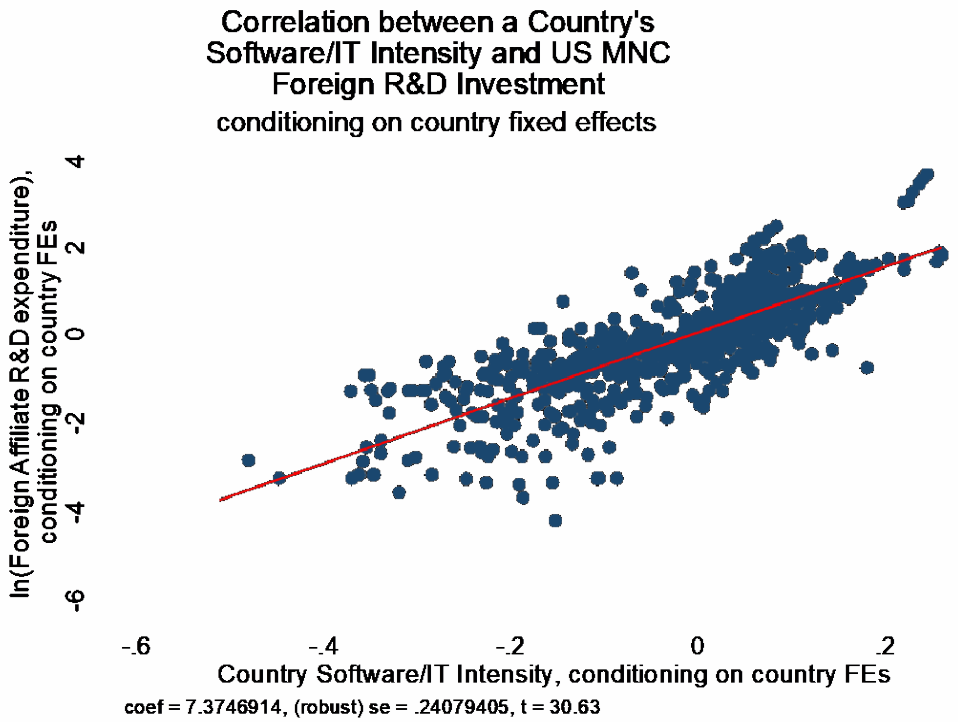
Intangible investment intensity and digital competitiveness



IMD index aims to reflect the that digital Nations require a mix of infrastructure and regulation, plus digital talent and future readiness.

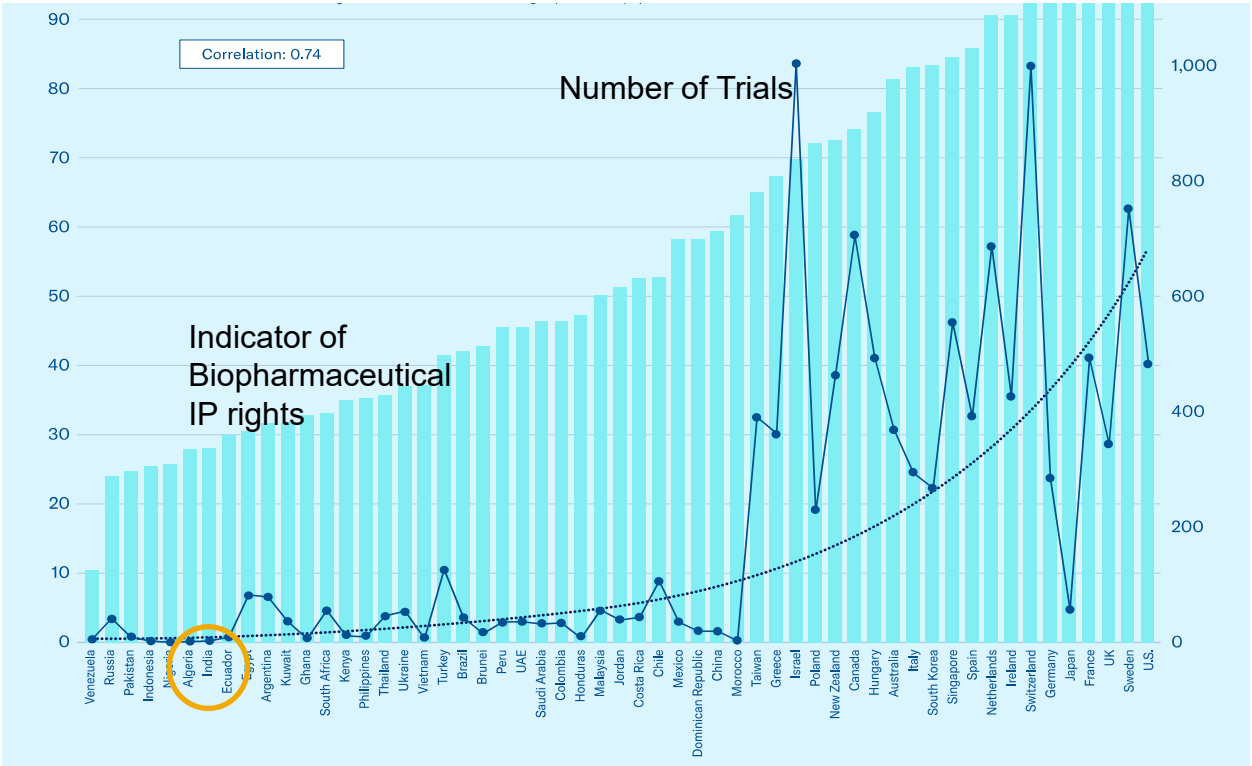
Note. Intangible investment and GVA cover all NACE activities. Data for India are through 2021.
Sources. Intangible investment and GVA, EU KLEMS & INTANProd (2023) and Global INTANInvest (2024). IMD index, IMD 2023 World Competitive Rankings at www.imd.org (accessed March 14, 2024).

Conditions affecting FDI in R&D: Software dynamism and IP rights



Note. A country's software/IT intensity is measured using patent data.
Source: Branstetter, Glennon, and Jensen (2018). "The IT Revolution and Globalization of R&D." NBER working paper #24707

Association between Index of Life Sciences-related Indicator of IP rights and Number of Clinical Trials per million population.



Source: International IP Index, 2023 Edition. Figure 30 in Statistical Annex. US Chamber of Commerce, Global Innovation Policy Center. Available at www.uschamber.com/ipindex

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Challenges in expanding coverage to middle income countries

Formal and informal sectors

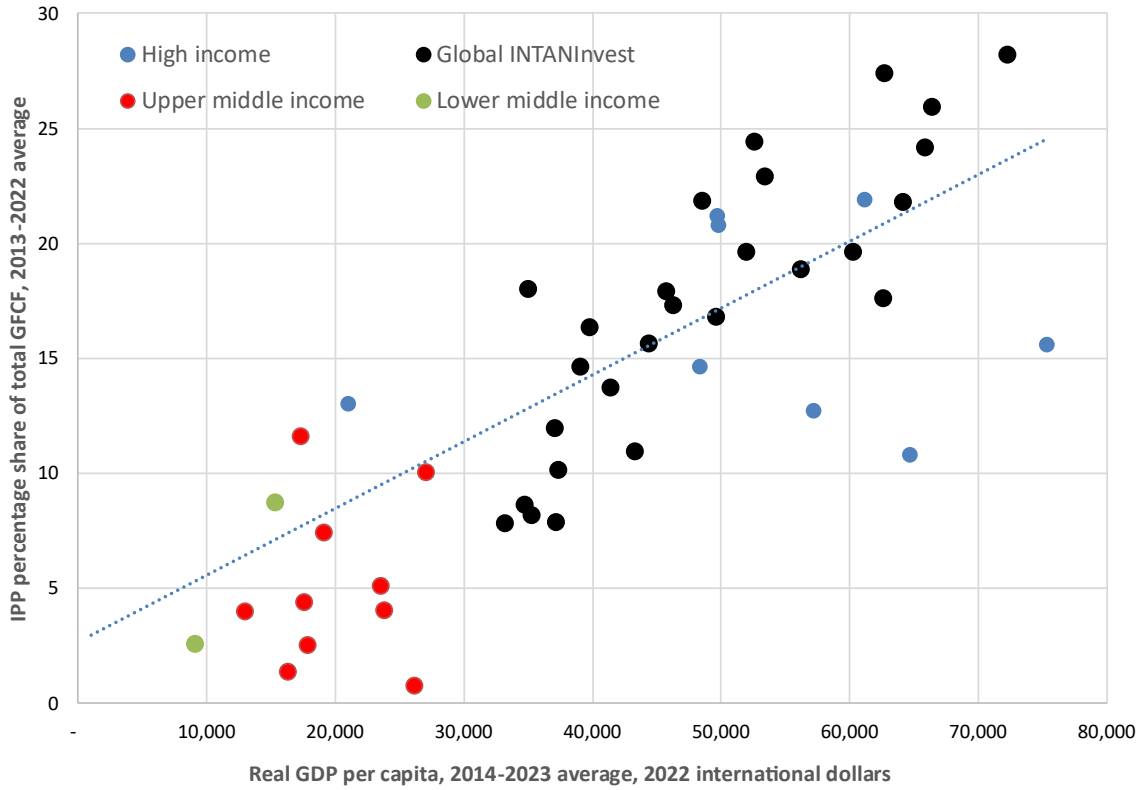
Infosys Headquarters,
Bangalore

Textile workers

Countries who include IPP investment in GDP

- A global scan of national accounting practices found:
- 51 countries have consistently reported, **annua**l data on IPP investment
- We have 28 in Global INTANInvest on a **quarterly** basis already
- Of the remaining 23, 11 also report quarterly data:
  - -- Argentina
  - -- Australia
  - -- Canada
  - -- Columbia
  - -- Costa Rica
  - -- Korea
  - -- Mexico
  - -- Norway
  - -- New Zealand
  - -- Philippines
  - -- Singapore
  - -- Taiwan
- Scans of SUTs and GFCF detail **reporting** revealed less availability for than that for IPP investment data.

IPP investment intensity (IPP to GFCF ratio), 51 countries



Note: Global INTANInvest covers high income countries. Blue fitted line uses high income countries only. Classification is from the World Bank (2024).

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Concluding remarks

- Despite the importance of intangible investment in driving innovation, productivity and economic growth, our understanding of its size, composition and impact remains limited owing to measurement challenges.
  - ✓ Many intangible asset types, such as attributed designs and organizational structure, are not recognized as an investments under national accounting frameworks, with the result that about 60 percent of investment in intangible assets goes unmeasured
- Patterns of growth depend upon where you look, and the inclusion of intangibles can significantly affect how growth and innovation is perceived.
  - ✓ To understand modern firms and the performance of dynamic, innovative economies, intangible capital needs to be included in the analysis
  - ✓ The CHS framework for measuring intangible assets and including them in productivity analysis has been widely used in productivity studies, and its use in WIPO's endeavor to expand global innovation analysis is already yielding fruitful insights.

Thank you

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Back up slides follow

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Estimation strategy for annual data

Estimation Strategy for Annual Data

- **Official national accounts** for Software, R&D and OIPP
- **Expenditure** approach for non-NA intangibles
- **Use tables** for the purchased components
  - Intermediate consumption in products like management consultancy services, advertising and market research services, and design.
- **LFS**, SES for EU countries, RAIS for Brazil, for the own-account component
  - Employment and wages for the relevant occupation
  - Ideally four digits ISCO, minimum three digits

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Issues Specific for Emerging Economies

- **Missing data** in national accounts
- Country-specific and **highly aggregated** classifications
- Large time-series fluctuations
- Own-account and the **informal sector**
  - Do informal firms hire occupations associated with intangible production?
  - If so, do intangibles-related workers actually produce intangible assets?
    - India LFS
      - Small firms hire relatively less intangible-related professionals than larger ones
      - About 20 percent of intangible-related occupations work in firms with less than 10 employees

Estimation strategy for quarterly data

Quarterly Indicators for Benchmarking

- Purchased brand, design and organizational capital
  - Quarterly service **turnover index** (US Census data)
- Own account brand, design, organizational capital and new financial products
  - Volume indicator: **time-use adjusted quarterly employment** from CPS (LFS for EU) for relevant occupations (not available for most recent years)
  - Price Indicator: **Investment deflator** (PPI Industry Data from BLS)
- Training (to be implemented)
  - Volume indicator: Information on **participation in training from quarterly LFS for EU**
  - Price Indicator: Investment deflator or training costs