National Innovation Policies: What Countries Do Best, And How They Can Improve

Entrepreneurial Mobilization for Innovation

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About ITIF

- The world's leading science and technology policy think tank.
- Supports policies driving global, innovation-based economic growth.
- Focuses on a host of issues at the intersection of technology innovation and public policy across several sectors:
  - Innovation and competitiveness
  - ICT and data
  - Telecommunications
  - Trade and globalization
  - Manufacturing, life sciences, agricultural biotech, and energy


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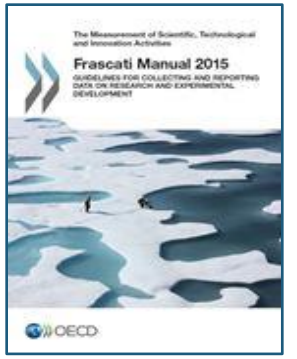
What Is Innovation and Why Does It Matter?

- The improvement of existing products, processes, services, and business or organizational models.



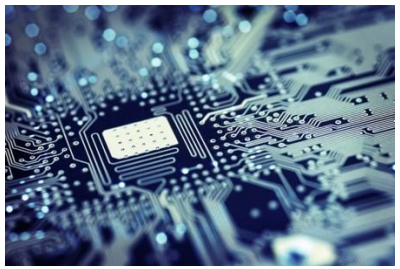
- The transformation of existing conditions into preferred ones.

- Accounts for 90% of the variation in income per worker across nations.



Innovation Industries Share Three Distinct Characteristics

1. They compete by inventing next-generation products or services.
2. They are characterized by very high initial fixed costs (e.g., R&D and design), but low marginal costs.
3. They fundamentally embody and depend on intellectual property.







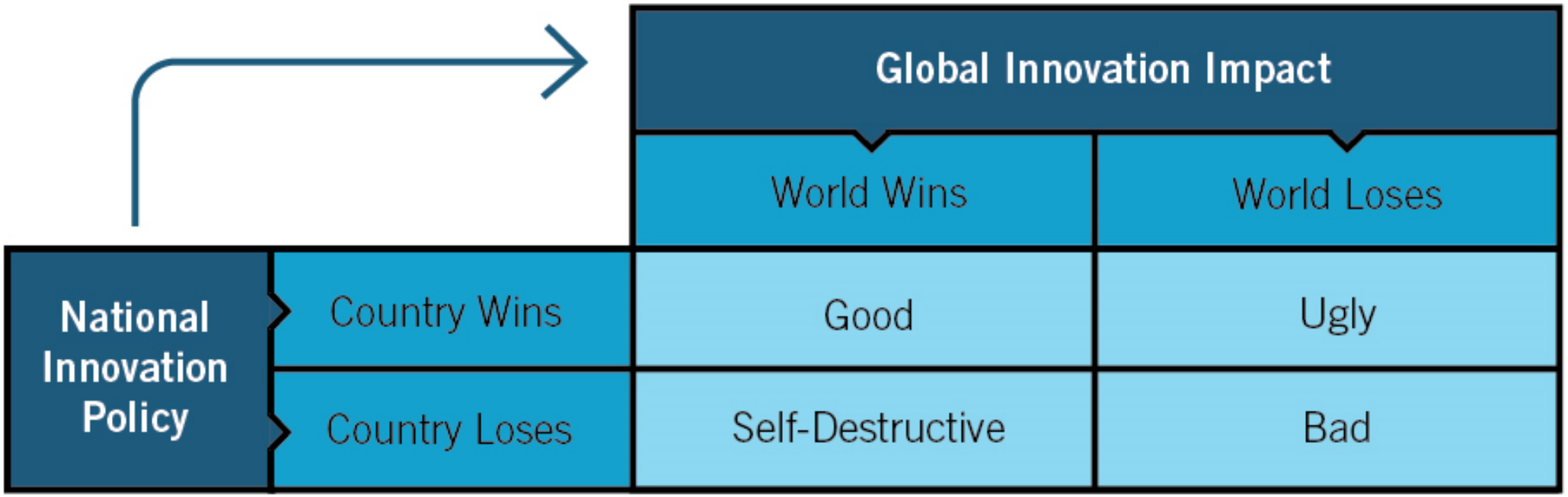
Necessary Conditions for Global Innovation to Flourish

1. Access to large markets (e.g., economies of scale).
2. No excess, non-market-based competition (e.g., subsidies).
3. No forced localization requirements that unnecessarily fragment global production systems.
4. Protection of intellectual property rights.
5. Open cross-border data flows.



Source: Robert D. Atkinson, "Designing a Global Trading System to Maximize Innovation"

How Nations' Policies Impact Global Innovation



Source: Stephen J. Ezell and Robert D. Atkinson, "The Good, The Bad, and The Ugly of Innovation Policy"

The Global Trade and Innovation Policy Alliance (GTIPA)



http://www.gtipa.org



GTIPA Comparative National Innovation Policies Assessment



Argentina
Bangladesh
Canada
Chile
China
Colombia
European Union
Germany
France
Ghana
Honduras
India
Italy
Korea
Malaysia
Mexico
Pakistan
Philippines
Poland
South Africa
Sweden
Taiwan
United Kingdom
United States

Source: Global Trade and Innovation Policy Alliance, "National Innovation Policies: What Countries Do Best and How They Can Improve"

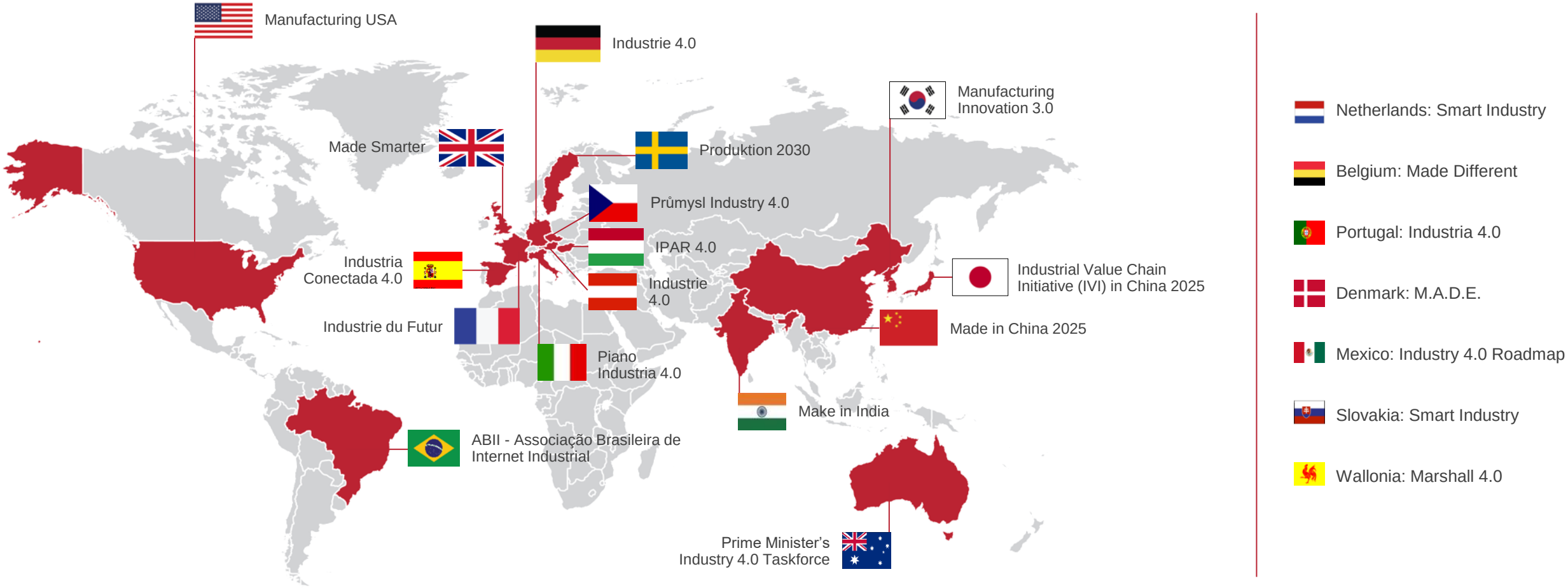
Formalized National Innovation Agendas

- Launching National Innovation Foundations
- Launching National Innovation Strategies

Countries with a National Innovation Foundation		
Argentina	Hungary	Poland
Australia	Iceland	Portugal
Austria	India	Russia
Belgium	Indonesia	Singapore
Brazil	Ireland	Slovak Republic
Bulgaria	Israel	Slovenia
Canada	Japan	South Africa
Chile	Kenya	Spain
China	Korea	Sweden
Colombia	Lithuania	Switzerland
Czech Republic	Malaysia	Taiwan
Denmark	Mexico	Thailand
Estonia	Netherlands	Turkey
Finland	New Zealand	United Kingdom
France	Norway	Vietnam
Germany	Peru	
Hong Kong	Philippines	

Source: ITIF, "Contributors and Detractors: Ranking Countries' Contribution to Global Innovation"

Manufacturing Digitalization Becoming a Priority Worldwide



Courtesy: Dave Vasko, Rockwell Automation

Top 5 Things Countries' "Industry 4.0" Policies Are Doing

1. **Recognizing that effective public/private partnerships are critical if countries, and even states, are to take advantage of the digital manufacturing revolution.**
2. Developing "Digital Manufacturing Maturity Indices" and providing "Self-Benchmarking Assessment Tools" (including cybersecurity) for SMEs.
3. Inventorying and describing discrete, specific manufacturing digitalization use cases and processes. (E.g., Germany has documented over 300 specific use cases/sample instantiations of SME manufacturing digitalization).
4. Launching "pilot fabs" that demonstrate smart manufacturing techniques on active production lines. (Germany/Austria/Japan/Korea/U.S./Iowa)
5. Providing financial support ($ and tax credits) for manufacturing digitalization and helping industry address manufacturing workforce challenges.

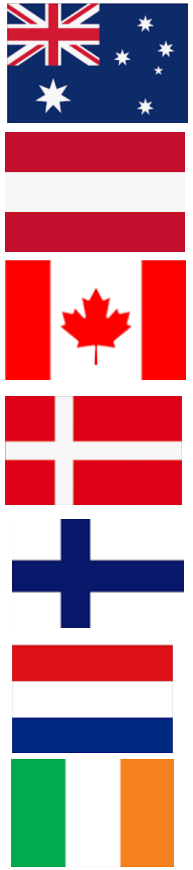
Countries Increasingly Using Innovation Vouchers

- Grants provided to SMEs enabling them to purchase services from universities/research institutions to stimulate innovation.
- Used for R&D assistance, technology feasibility assessments, overcoming specific product development hurdles, product prototyping, lab validation, field testing, etc.
- $25-$50K grants typical in United States; in Europe €10-€25K grants more common.



Innovation Vouchers: The Practitioners

International



- Australia
- Austria
- Canada (Alberta)
- Denmark
- Finland
- Holland
- Ireland

International



- Latvia
- Lithuania
- Poland
- Serbia
- Sweden
- Switzerland
- United Kingdom

United States



- Connecticut
- Indiana
- New Mexico
- New York
- Rhode Island
- Tennessee
- U.S. DoE EERE

Turning Universities Into Engines of Innovation

Countries are trying to turn universities into engines of innovation.

- ✓ Introducing "Bayh-Dole Act" legislation. (Conferring IP rights).
- ✓ Developing university entrepreneurship rankings.
- ✓ Allocating university R&D funding, in part, based on performance and ability to attract industry investment.
- ✓ Increasing *permeability*: Take faculty members' commercial experiences into account in tenure decisions; allow faculty to suspend tenure to pursue commercialization opportunities.
- ✓ Allowing students to also take entrepreneurial leave.

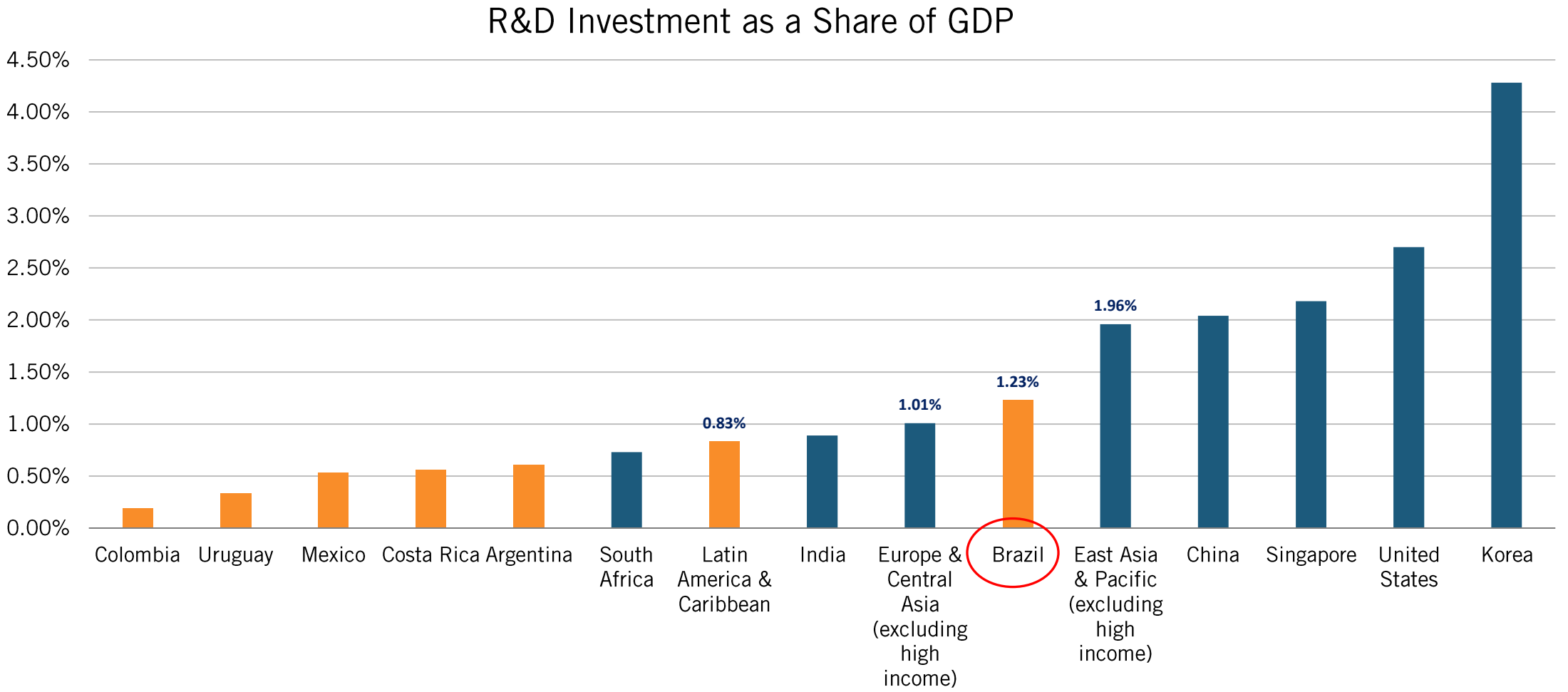


Increasing Industry-Funded University Research

Average Industry Income Per Academic (US$ Thousands)

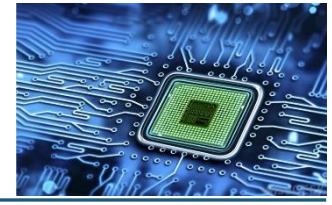


Increasing National R&D Intensity

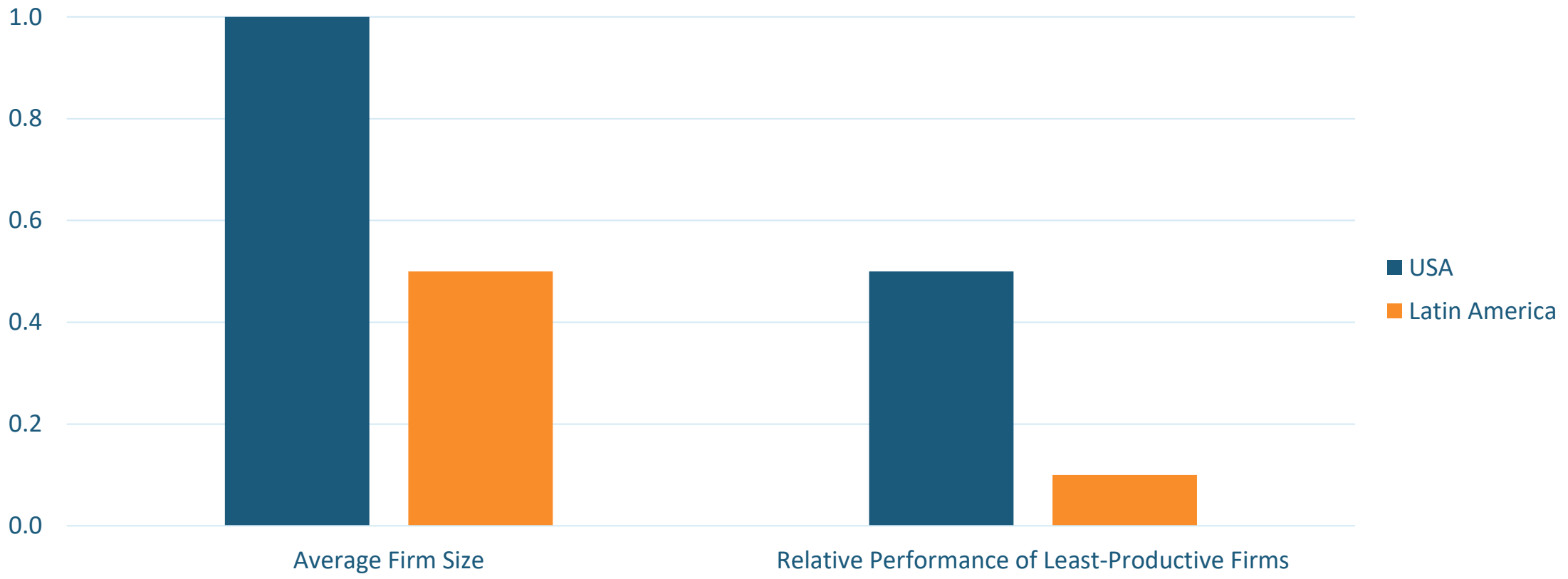


Focusing on Digital Empowerment; Not Digital Protection

- ✓ Lowering tariffs and taxes on productivity-boosting ICT goods.
- ✓ Joining the WTO's Information Technology Agreement (ITA).
- ✓ Eschewing "data localization" policies.
- ✓ Promoting cross-border data flows and interoperable privacy regimes.
- ✓ Focusing on digital infrastructure deployment and skills development.
- ✓ Introducing regulatory sandboxes for innovative digital industries like fintech.



Bolstering Firm-Level Productivity, Especially of SMEs



Source: Grazzi, Pietrobelli, and Szirmai, *Firm Innovation and Productivity in Latin America*, Inter-American Development Bank, 2016; and Hugo Hopenhayn, 2016.

Other Notable Aspects of Countries' Innovation Policies

1. Enacting innovative tax policies: Patent boxes/collaborative R&D credits.
2. Entering into trade agreements to expand market access opportunities for exporters.
3. Strengthening intellectual property rights.

Source: Global Trade and Innovation Policy Alliance, "National Innovation Policies: What Countries Do Best and How They Can Improve"

Obrigado!

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