



RIETI BBL
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JAPAN'S GROWTH STRATEGY – WHAT CAN BE LEARNED FROM INTERNATIONAL GOOD PRACTICES?

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Outline

- Japan's productivity performance

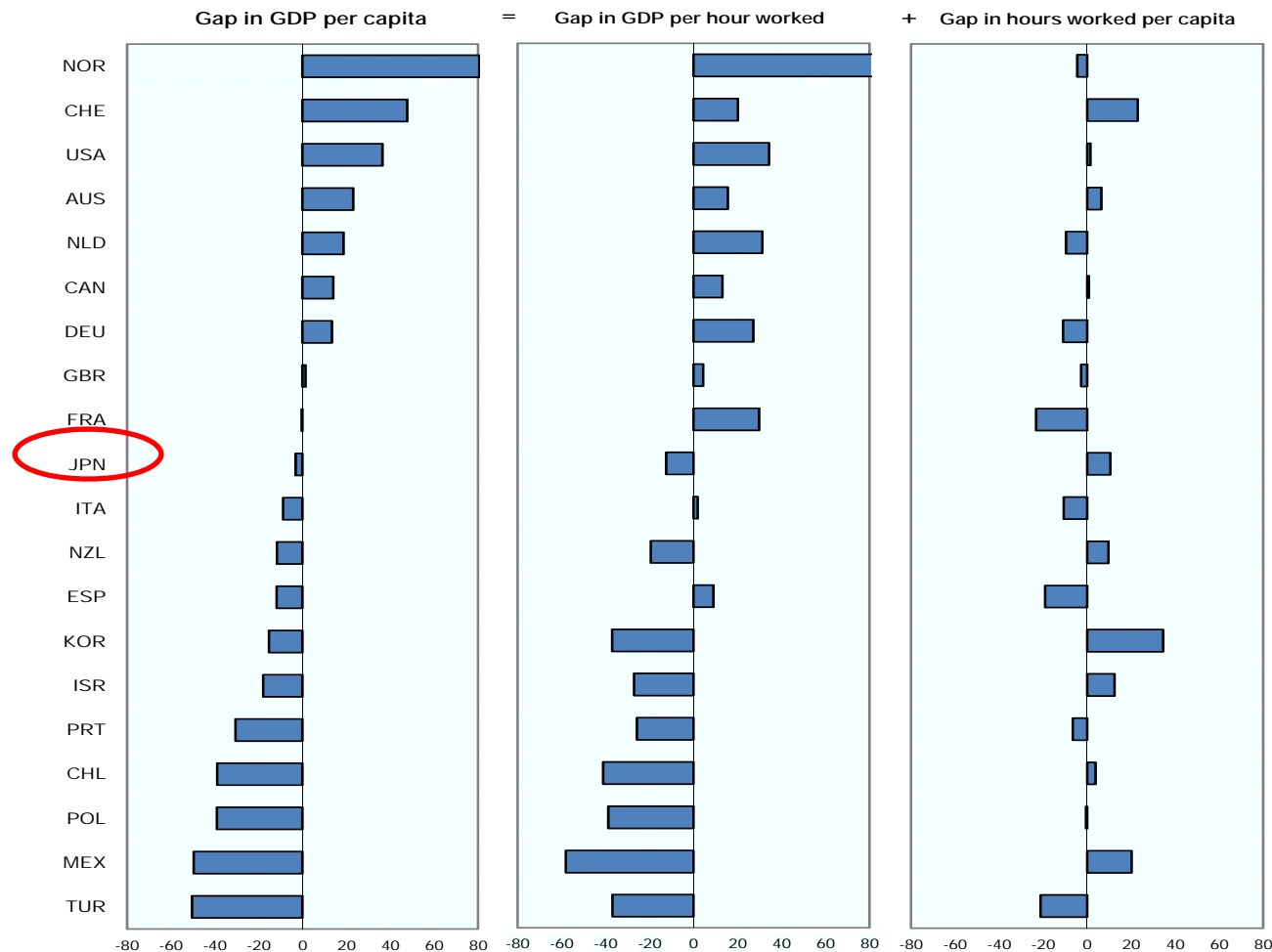
- Some important drivers of productivity
 - Globalisation - Engagement in global value chains
 - Investment in knowledge, upgrading and competitiveness
 - The role of entrepreneurship
 - Other key drivers: human resources, science, innovation and ICT

- Conclusions



Japan's income gap is primarily due to low productivity levels ..

Differences in GDP per capita levels compared with OECD average, 2012

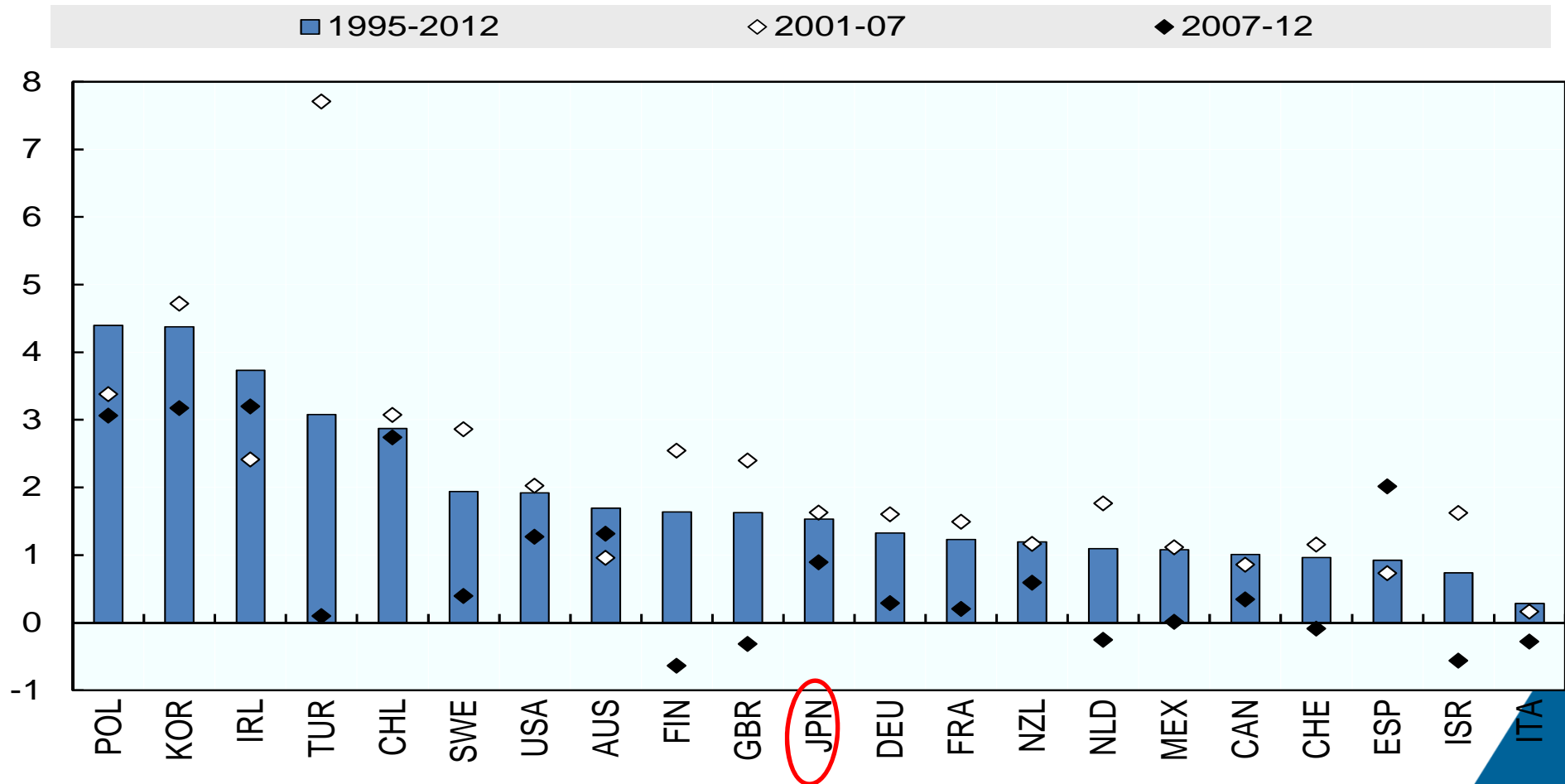


Source: OECD Compendium of Productivity Indicators 2013, <http://dx.doi.org/10.1787.888932936522>



... that have grown only little in recent years

Growth in GDP per hour worked, total economy, annual percentage change



Source: OECD Compendium of Productivity Indicators 2013, <http://dx.doi.org/10.1787.888932936522>



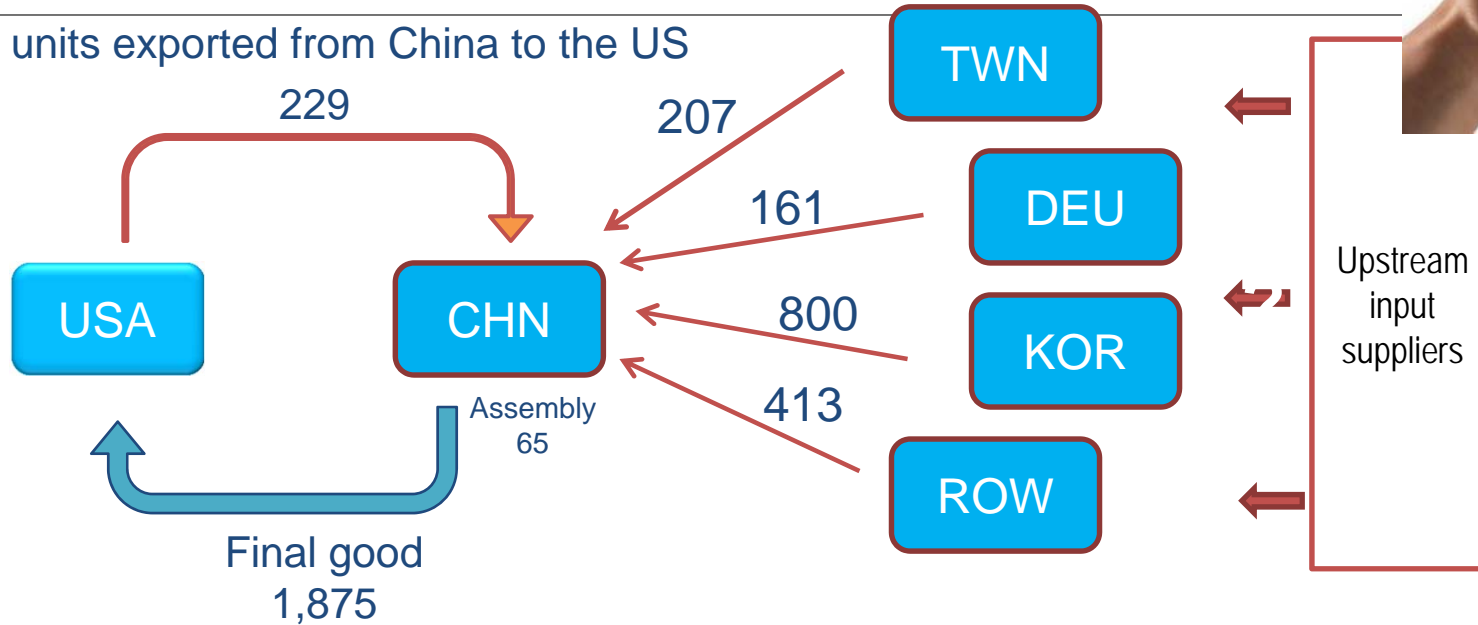
Japan's positioning in global value chains



Global Value Chains and Measuring Trade in Value Added: the iPhone



10 million units exported from China to the US



US trade balance	CHN	TWN	DEU	KOR	ROW	World
Gross	-1,646	0	0	0	0	-1,646
Value added	-65	-207	-161	-800	-413	-1,646

The analysis takes only into account the direct suppliers of the Chinese assembler



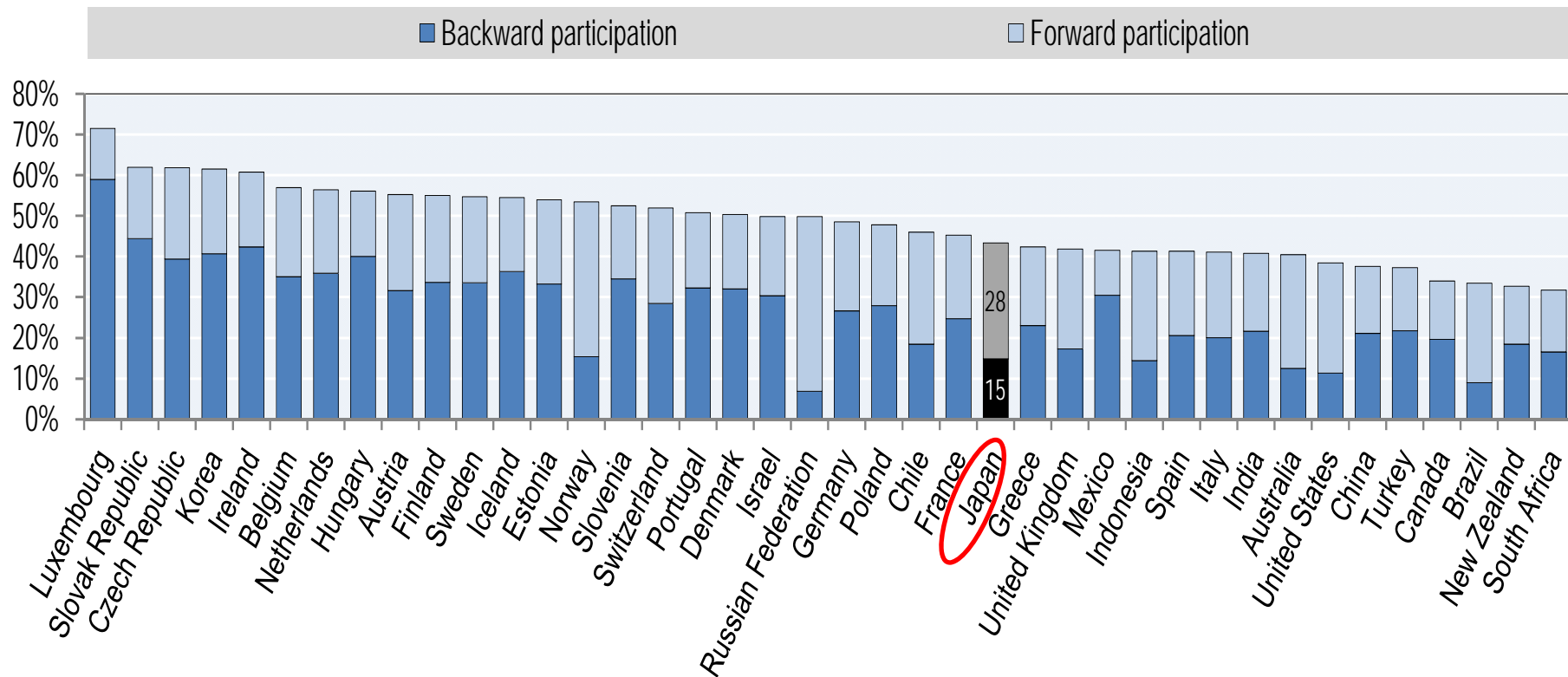
OECD-WTO database on Trade in Value Added

- **Global Input-Output Model: national IO tables linked by bilateral trade statistics**
- **Based on official statistics**
- **Large and growing coverage**
 - 57 countries (all OECD, BRIICS, SE Asia)
 - > 95% of GDP, > 90% of world trade
 - China; distinction between processing and non-processing trade
- **First release (of results) on 16 January 2013 – second release at OECD Ministerial Meeting (May 2013)**
- **Trade flows in value added and applied indicators**
- **Further work: employment and skills, income, firm heterogeneity...**



Japan is a strong participant in GVCs ...

For a large economy, Japan is a strong participant in global value chains, 2009 ...

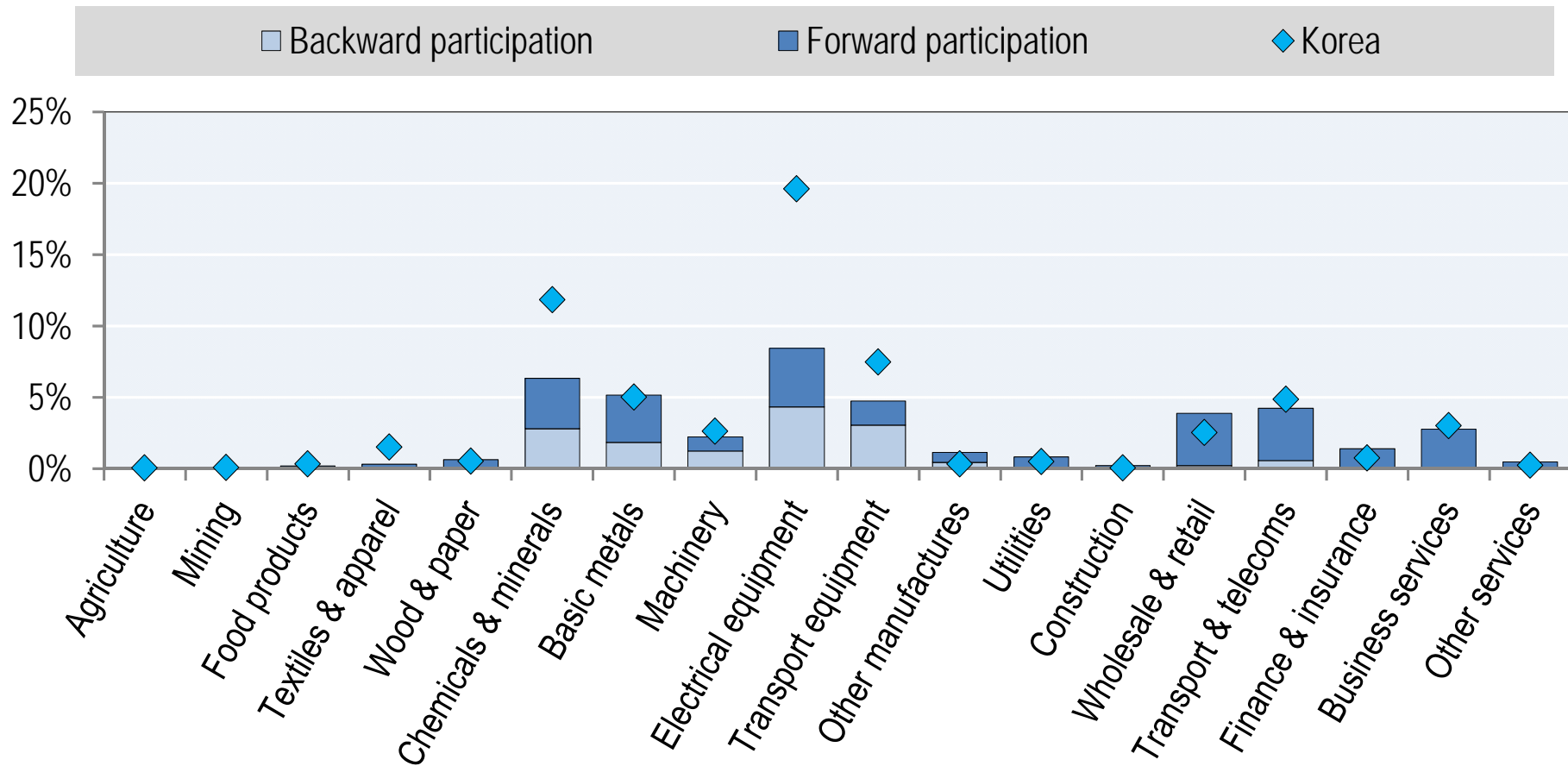


Source: OECD-WTO, Trade in Value Added database, www.oecd.org/trade/valueadded



.. in particular in some sectors

... in particular in heavy and high-tech manufacturing, 2009

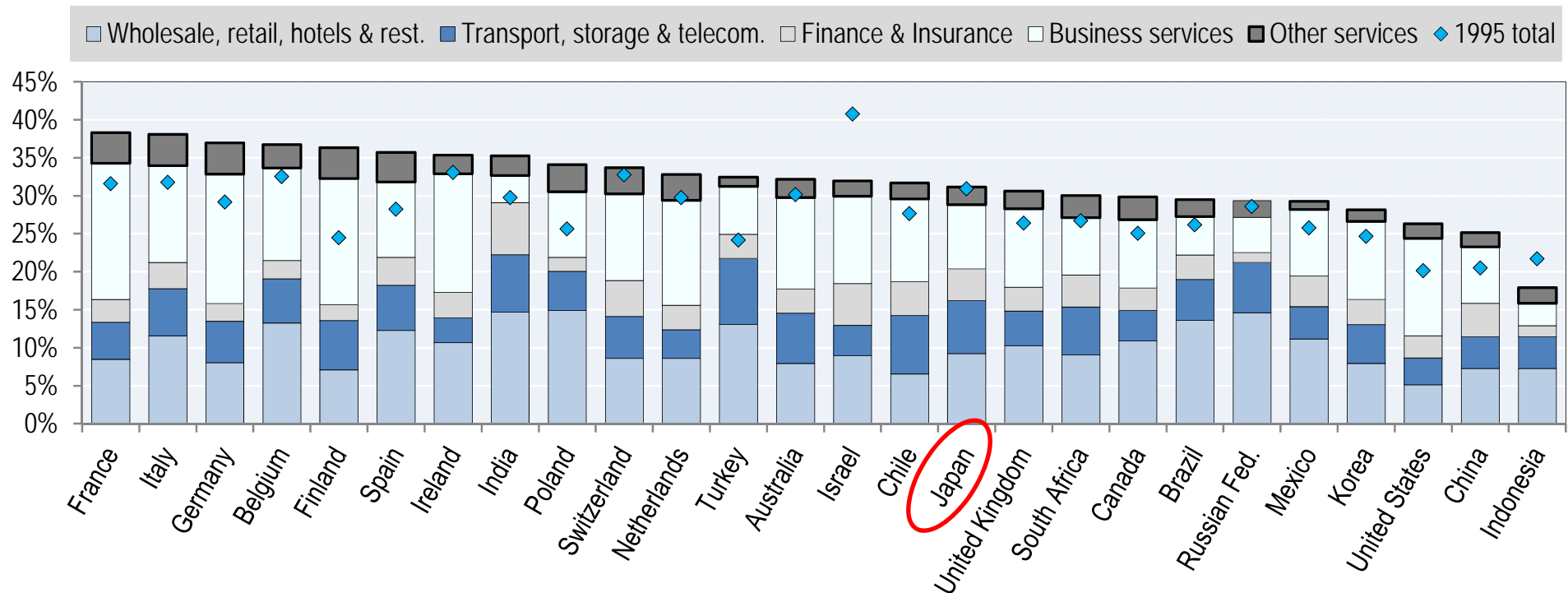


Source: OECD-WTO, Trade in Value Added database, www.oecd.org/trade/valueadded



... though value creation through services is lagging ...

A growing share of value creation in trade is due to services, especially business services (Services value added embodied in manufacturing exports, 1995 and 2009)

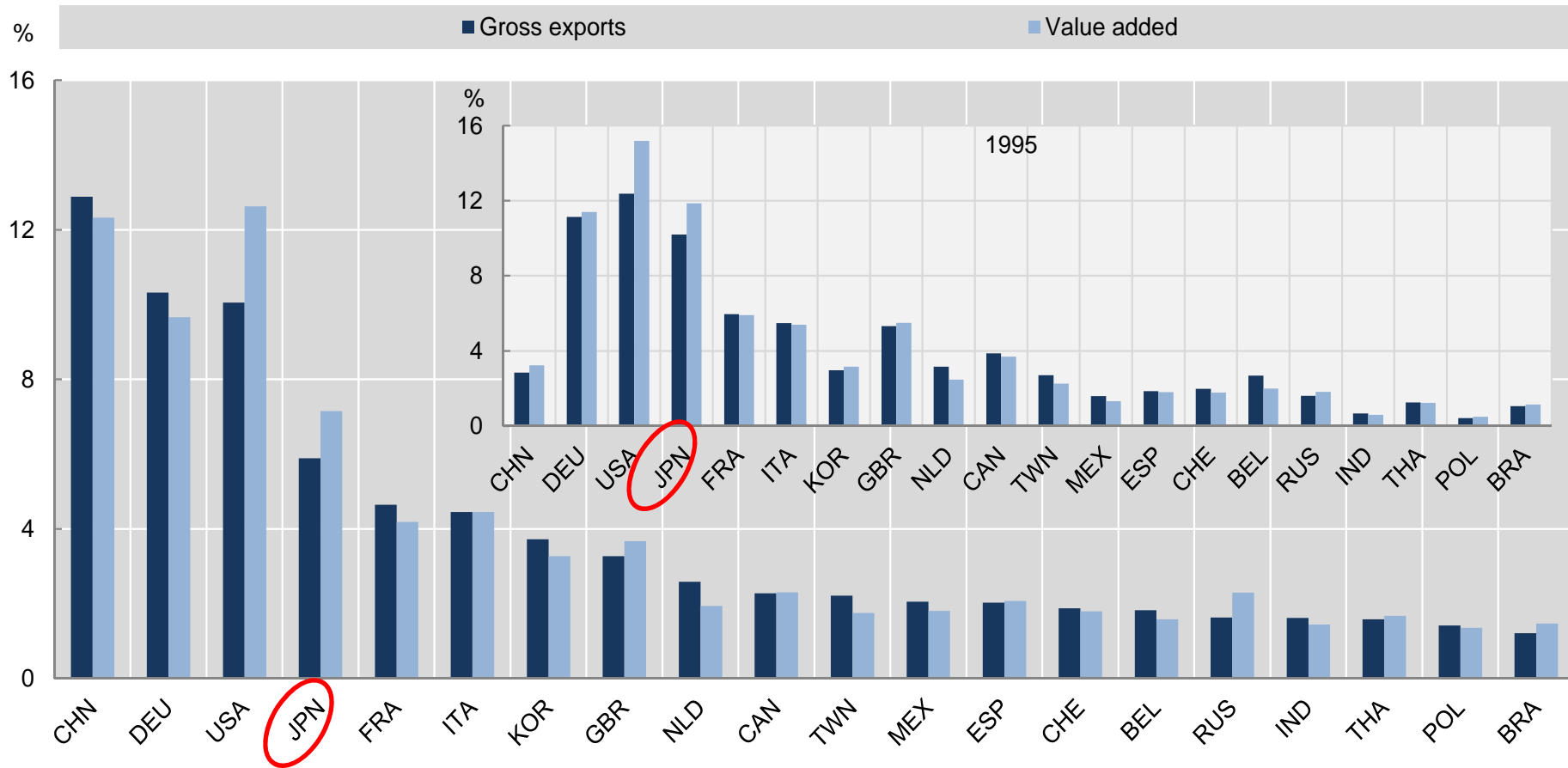


Source: OECD-WTO, Trade in Value Added database, www.oecd.org/trade/valueadded



... and Japan has lost ground as a manufacturing exporter, also in value added terms

Percentage shares of total world manufacturing goods, 1995 and 2009



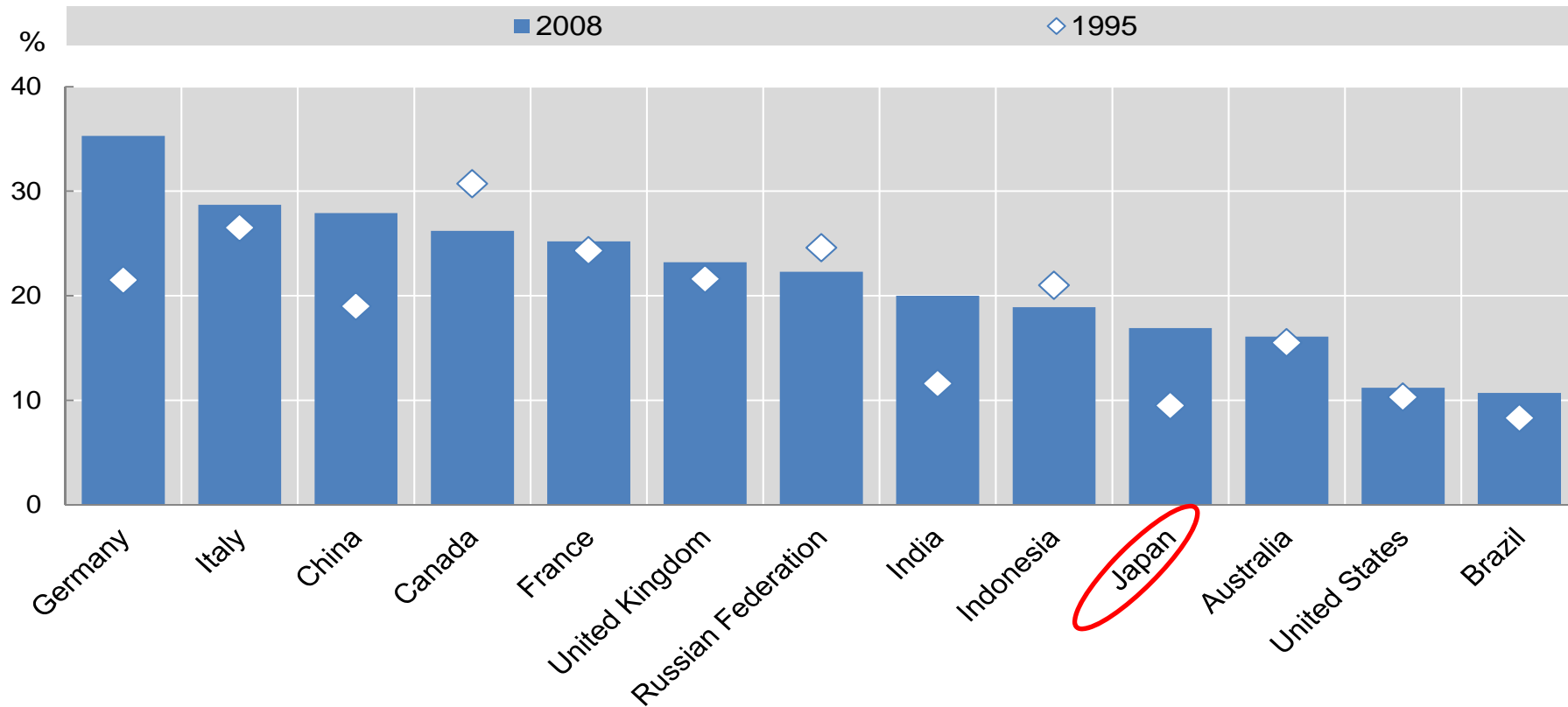
Source: OECD-WTO, Trade in Value Added (TiVA) database, May 2013.



Employment in Japan has benefited from engagement in GVCs ...

Jobs in the business sector sustained by foreign final demand, 1995 and 2008

As a percentage of total business sector employment



Source: OECD Science, Technology and Industry Scoreboard 2013.

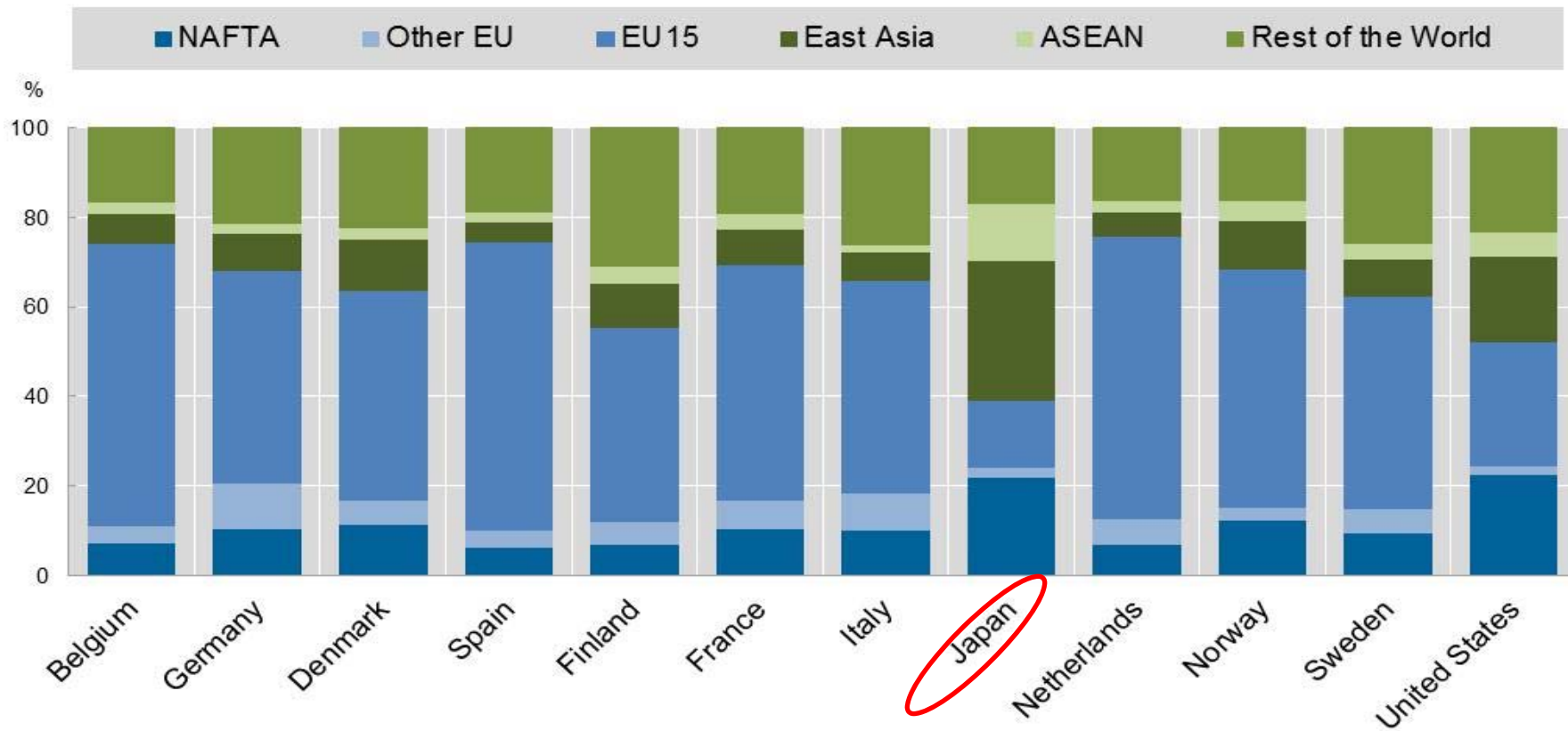
<http://dx.doi.org/10.1787/888932904469>



... with demand from many regions affecting jobs in Japan

Jobs sustained by foreign final demand, by region of demand, 2008

As a percentage of total jobs embodied in foreign final demand



Source: OECD Science, Technology and Industry Scoreboard 2013.

<http://dx.doi.org/10.1787/888932904507>



GVCs: what they mean for policy

- **Trade and investment:**

- GVCS depend on the easy/smooth **circulation of productive resources**
- No more mercantilism: GVCs are about **imports and exports**;
- **Barriers to import = tax on exports**
- **Trade facilitation + efficient services**

- **Competitiveness:**

- Competitiveness is about activities instead of industries: in GVCs, **what you do (the value you create) matters more than what you sell.**
- Competitiveness depends on **exports and imports**; offshoring and outsourcing can reinforce competitiveness.
- The **manufacturing** of goods remains core in GVCs but is increasingly dependent on efficient **services that enable customisation to demand.**

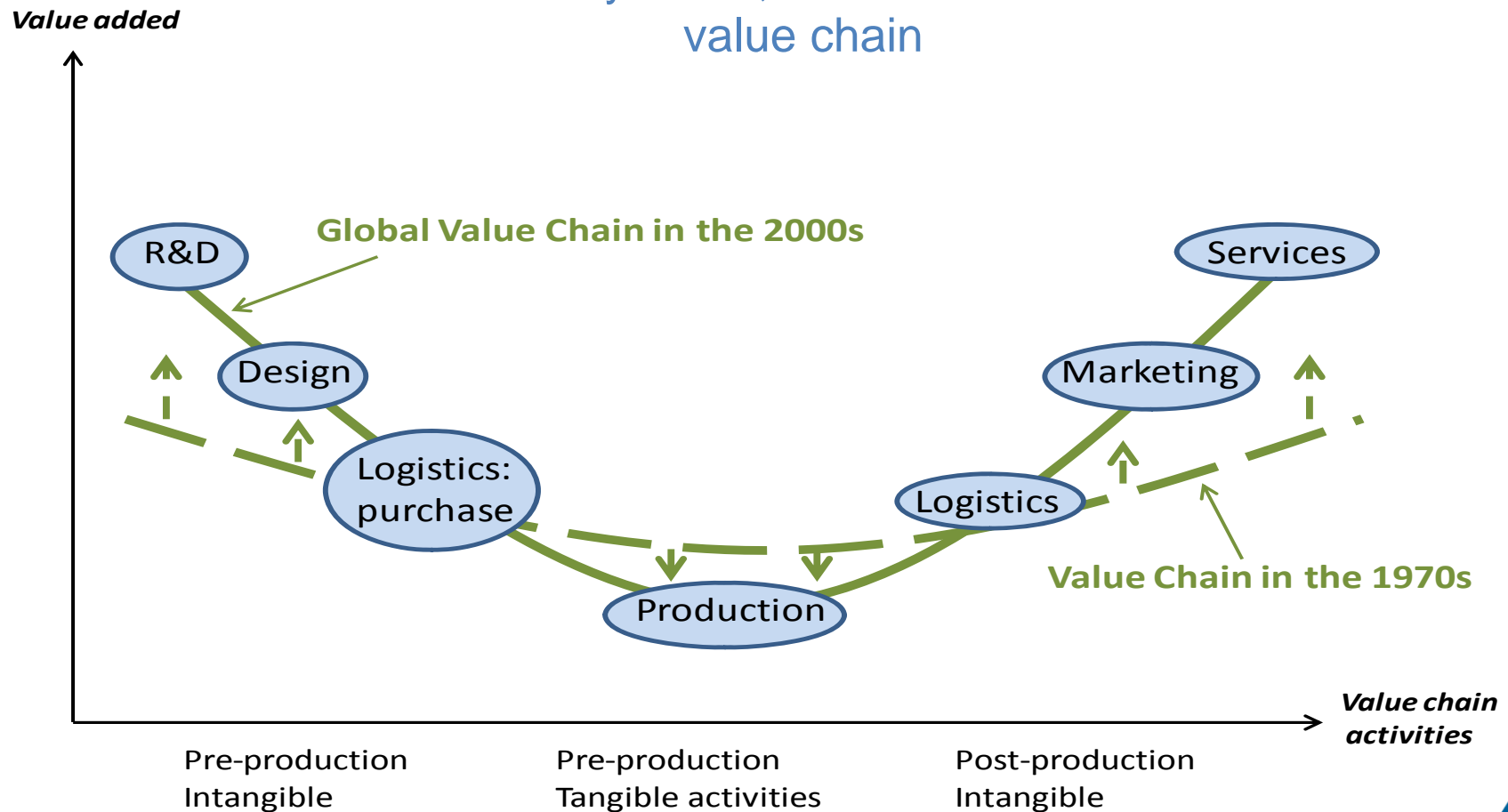


The role of innovation for upgrading in global value chains



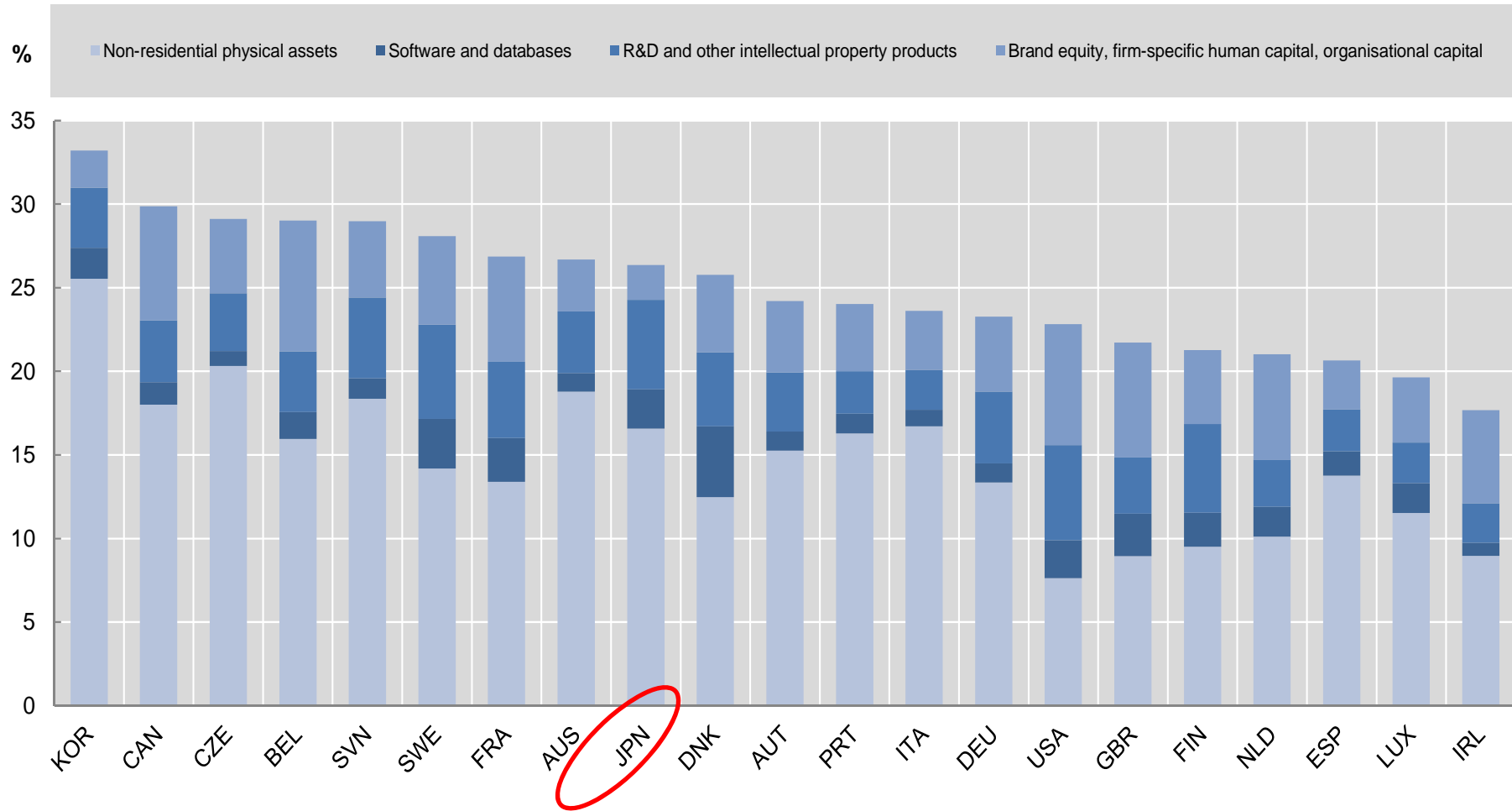
Value creation in global value chains is often linked to knowledge and services ..

The smiley curve; value creation in the value chain





.. and investment in knowledge-based capital now accounts for close to half of all business investment in several OECD countries



Source: OECD calculations based on INTAN-Invest, Eurostat and multiple national sources.



What is knowledge-based capital (KBC) ?

Computerised information

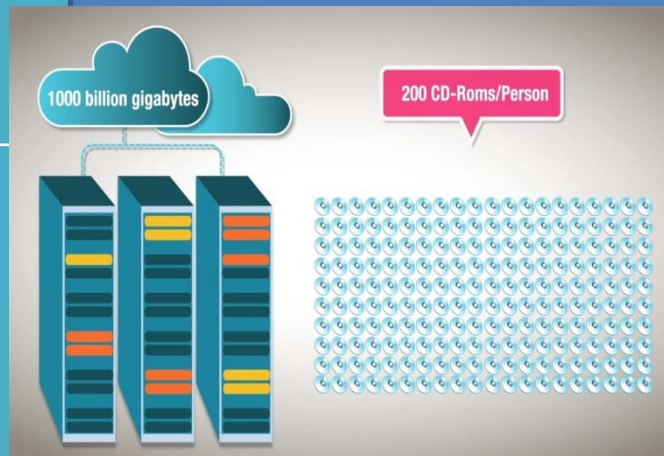
Innovative property

Economic competencies

>> What is knowledge-based capital (KBC) ?

Computerised information

Software and databases



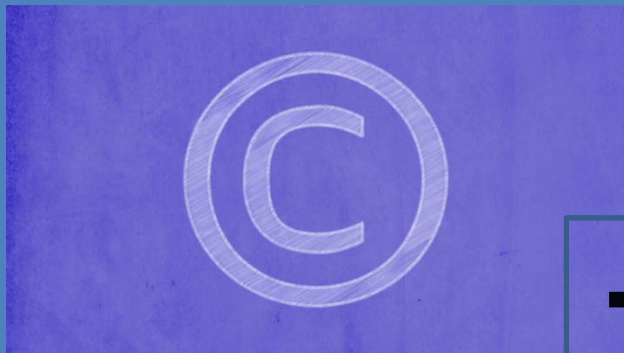


What is knowledge-based capital (KBC) ?

Computerised information

Innovative property

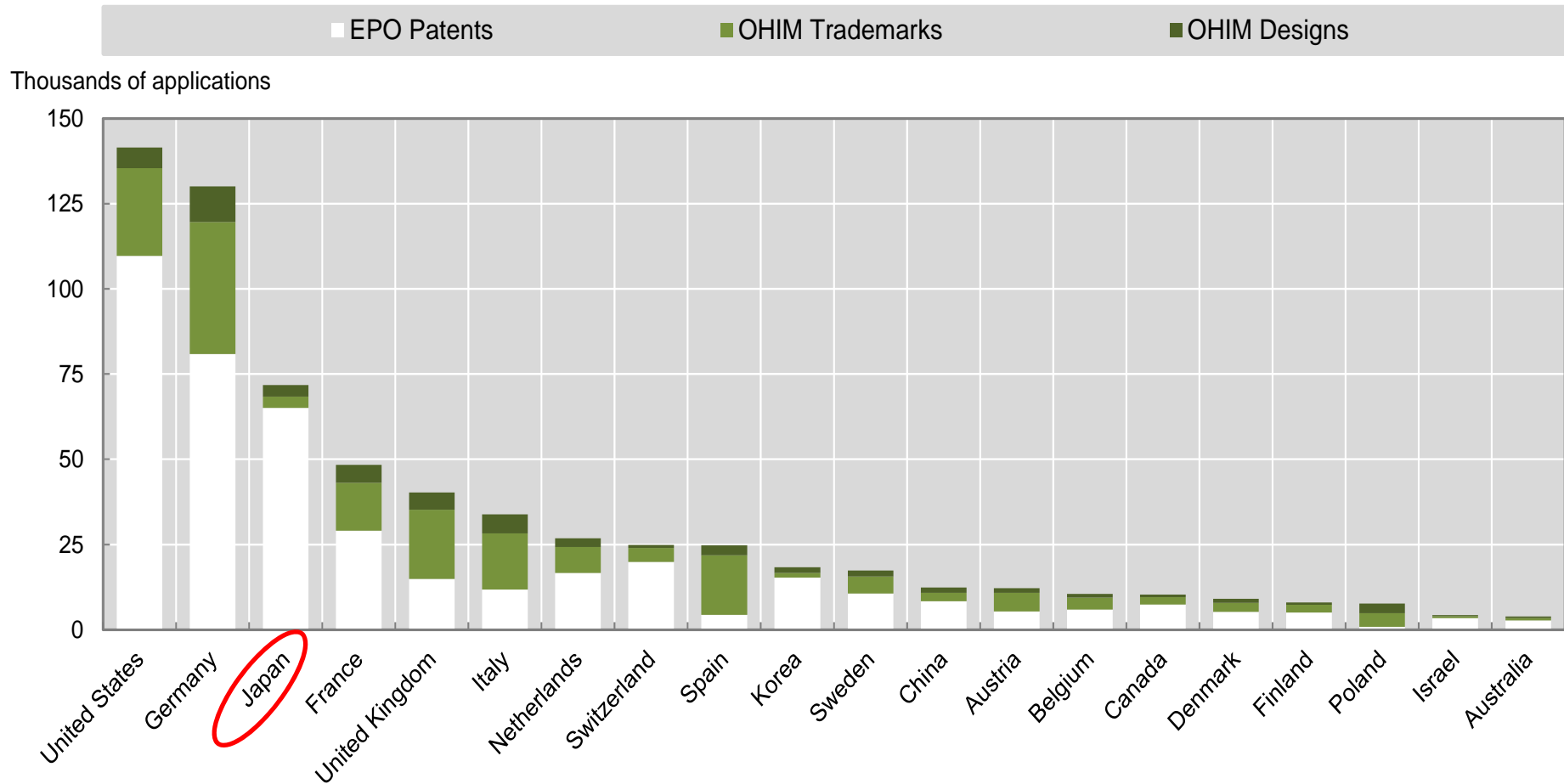
Copyrights, patents, trademarks, designs



T M



Japan is a strong performer in IP, though mainly in patents (IP bundle of top applicants, 2010-2012)

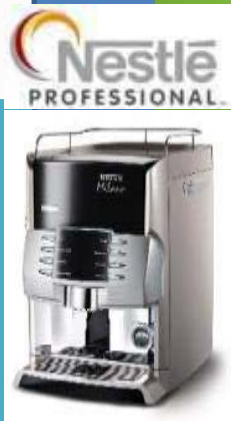


Statlink 2: <http://dx.doi.org/10.1787/888932892575>

Source: OECD (2013), *OECD Science, Technology and Industry Scoreboard 2013: Innovation for Growth*, OECD Publishing, www.oecd.org/sti/scoreboard.htm.

»» What is knowledge-based capital (KBC) ?

(brand equity, firm-specific human capital, business networks, organisational know-how that increases enterprise efficiency, etc.)



Economic competencies



Knowledge based capital – adding value to production and enabling differentiation



Source: IMD (2000) Innovation and Renovation: The Nespresso Story, IMD046, 03/2003. © Nespresso



Retaining value in GVCs: knowledge-based capital and the role of “sticky” factors

- Policies that can make value ‘stick’ to a location (or country), e.g.:
 - Quality of institutional and policy frameworks
 - A sound business environment, adapted to the growing importance of investment in knowledge, i.e. beyond R&D
 - Sufficient public investment in skills, research, infrastructure – possibly with some strategic choices
 - Strong domestic capabilities, including a strong SME supplier base
 - Links between stages of the value chain, e.g. R&D, design, production, services, etc. – enabling the co-location of activities
 - Efficient support for innovation and entrepreneurship
 - The social fabric of society (ability to change)
 - Services, but with a strong link to manufacturing

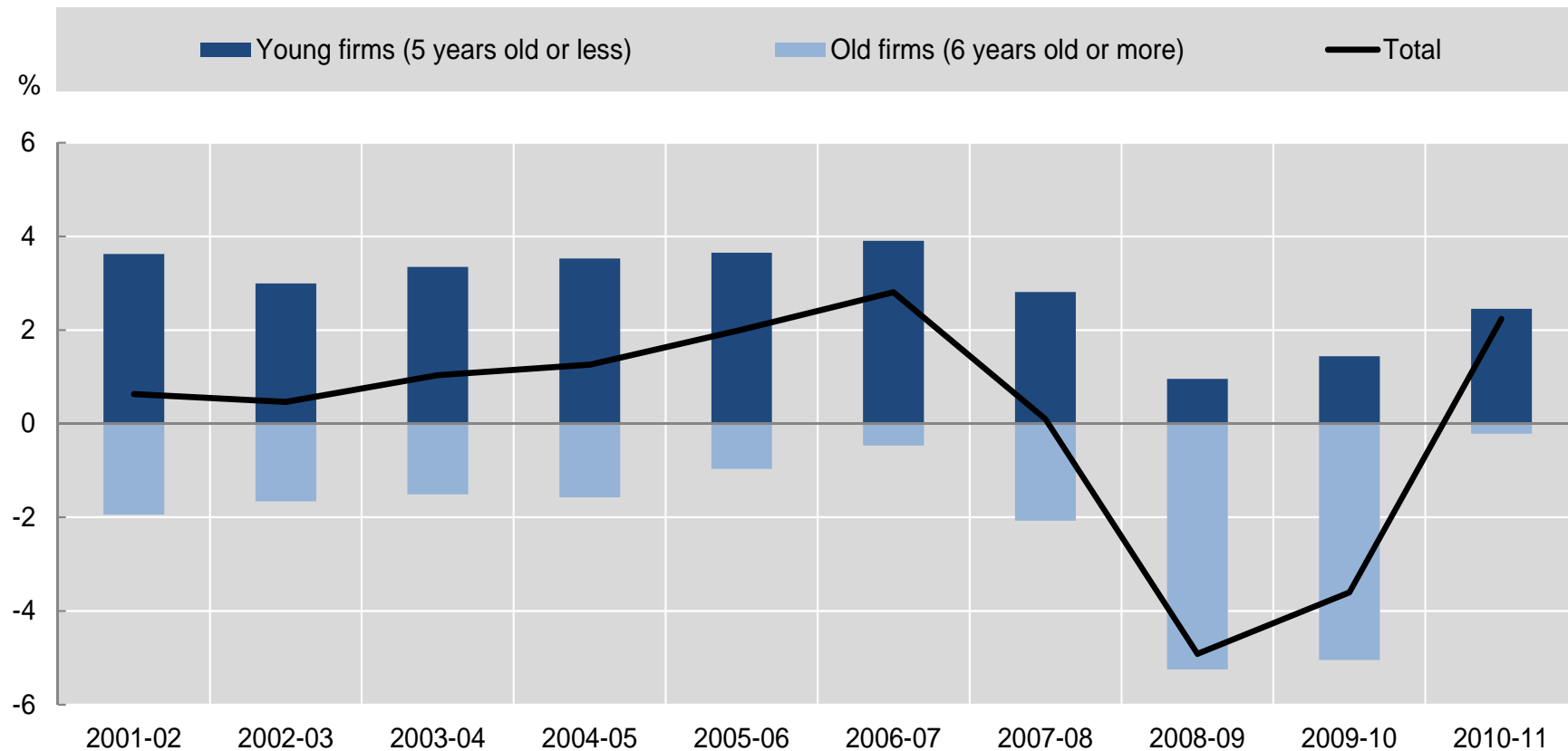


Entrepreneurship - How does Japan compare?



Where are the new opportunities coming from? Young firms ...

The contribution of firms to job creation, average over 15 countries, 2001-2011



Source: OECD Science, Technology and Industry Scoreboard 2013.
<http://dx.doi.org/10.1787/888932889383>



... independent of their size ...

Average over 15 countries, 2001-2011



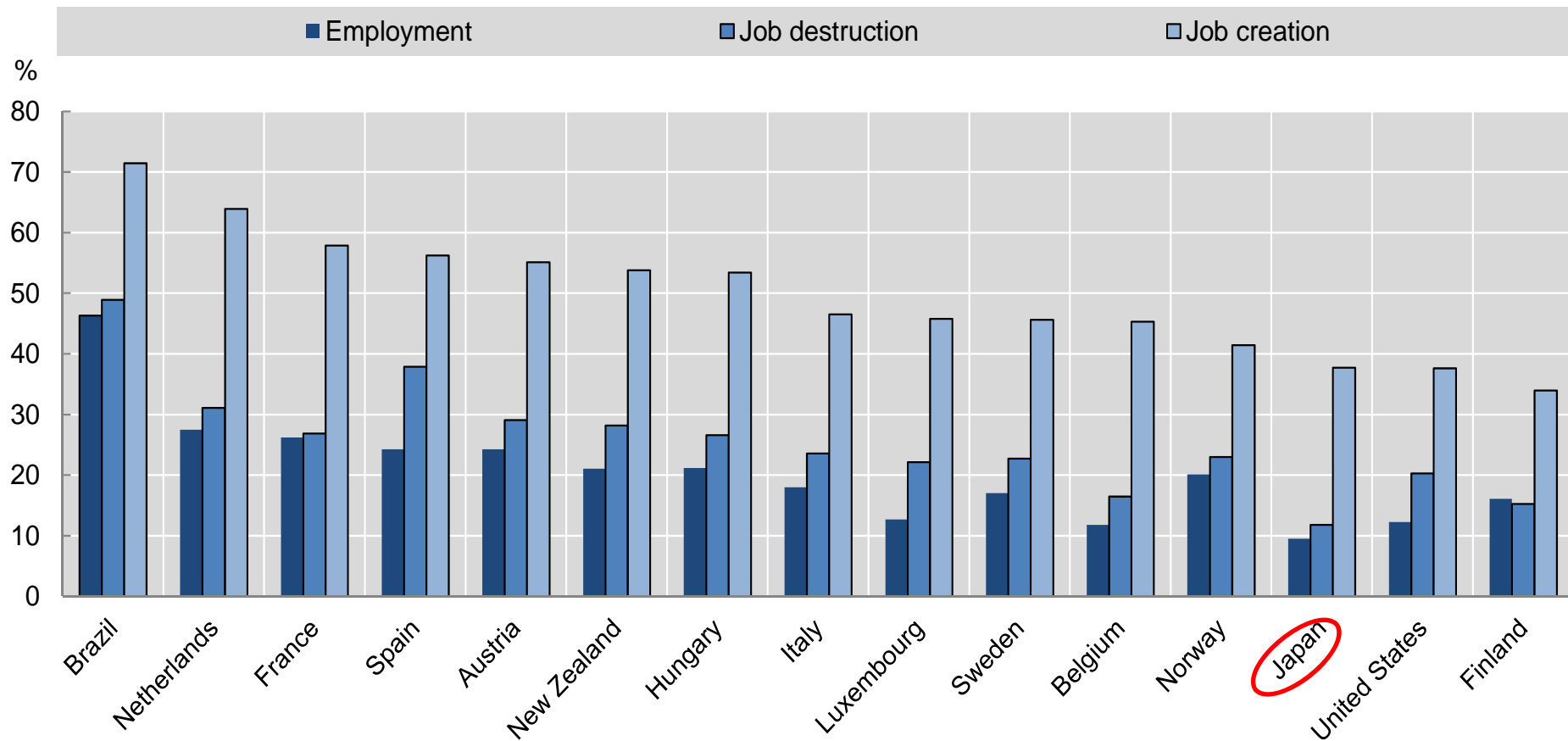
Source: *OECD Science, Technology and Industry Scoreboard 2013*.
<http://dx.doi.org/10.1787/888932889402>



... and across most countries

Employment, job creation and job destruction in young firms, 2001-11

Percentage shares, non-financial business sector (firms of 5 years old or less)

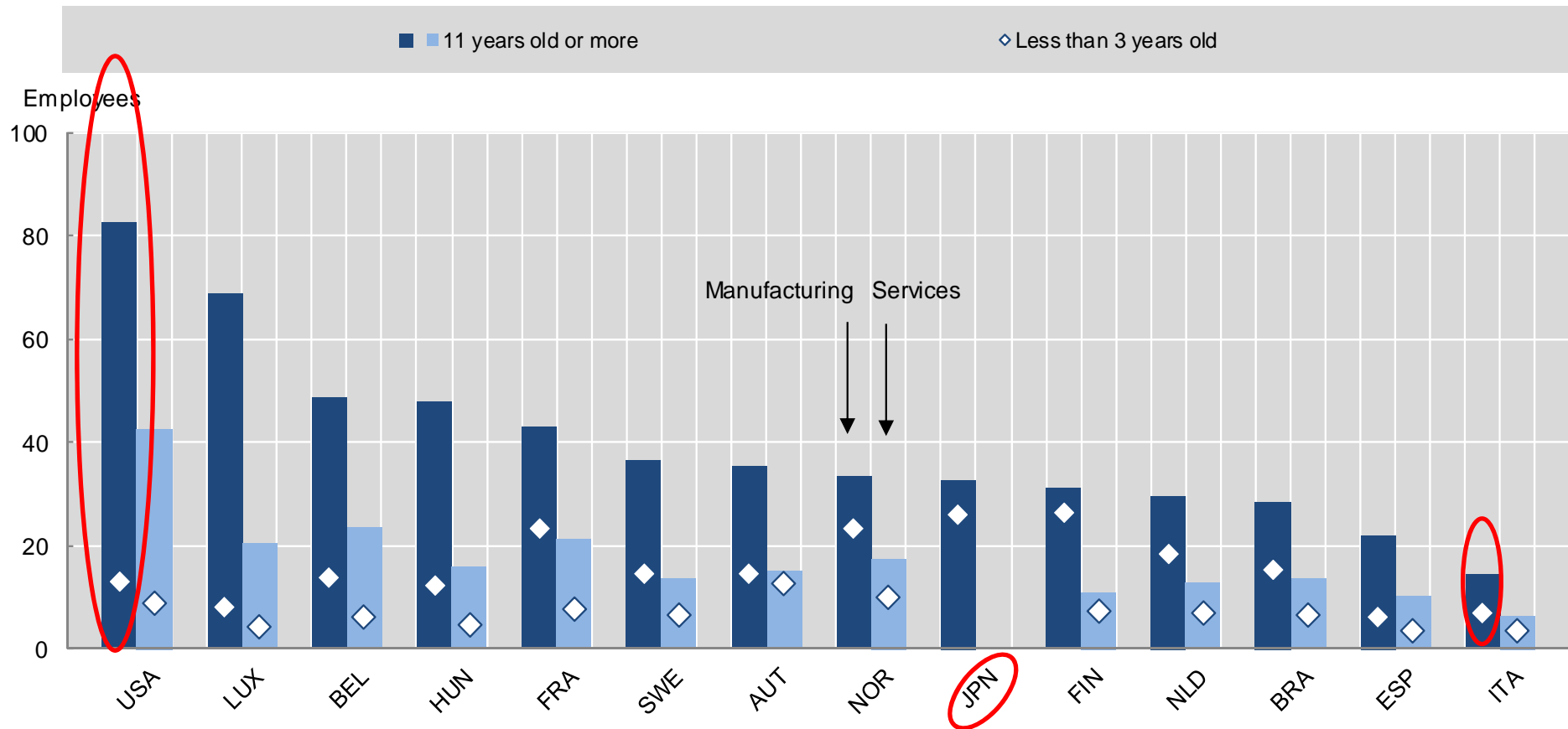


Source: OECD Science, Technology and Industry Scoreboard 2013.
<http://dx.doi.org/10.1787/888932892917>



But growth of young firms is a challenge in many OECD countries

Average size of firms less than 3 years old and 11 years old or more, 2001-2010



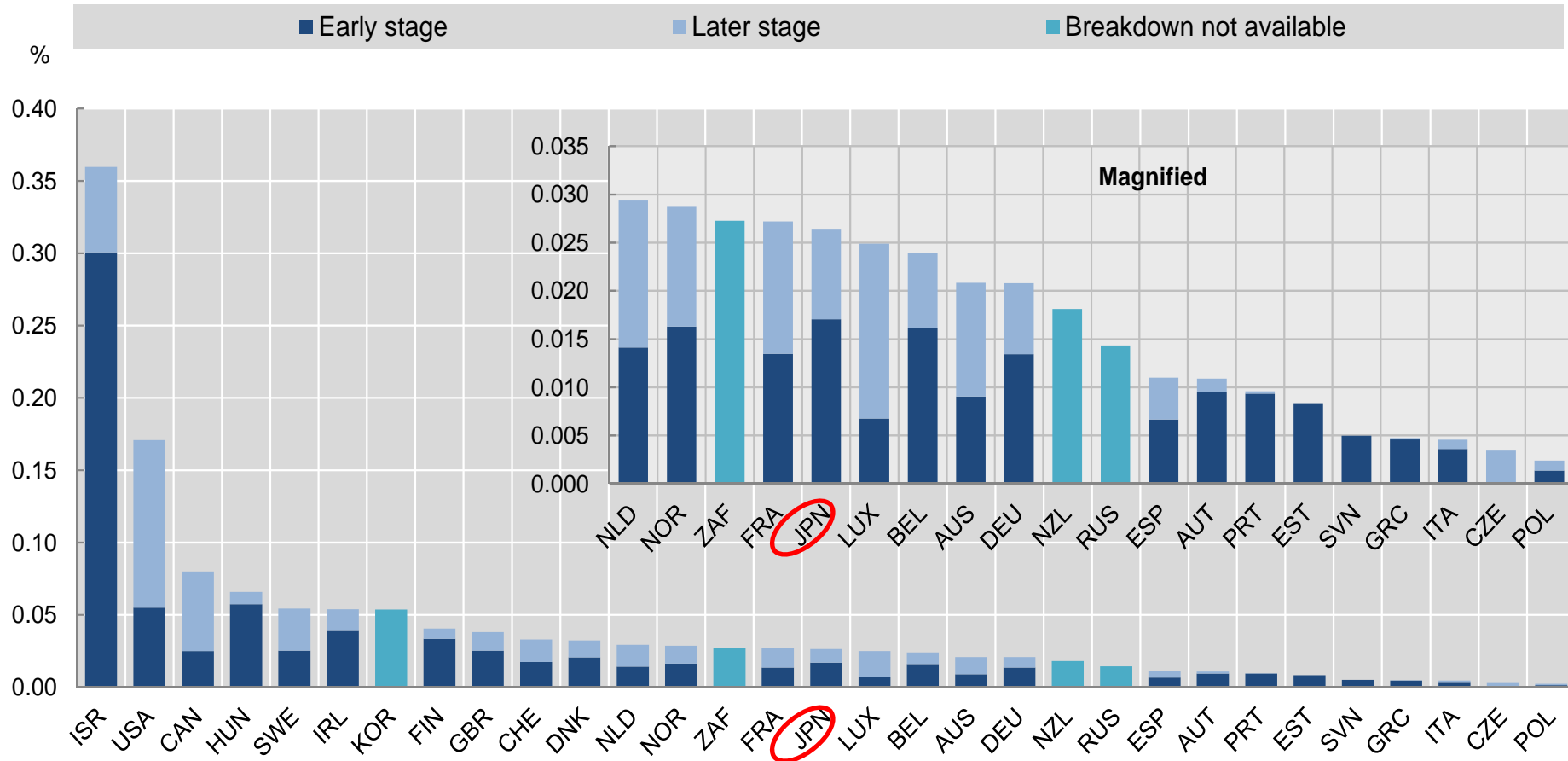
Source: OECD Science, Technology and Industry Scoreboard 2013.

<http://dx.doi.org/10.1787/888932904279>



Investment in risk capital is a challenge ...

(Venture capital investment, 2012, as a percentage of GDP)

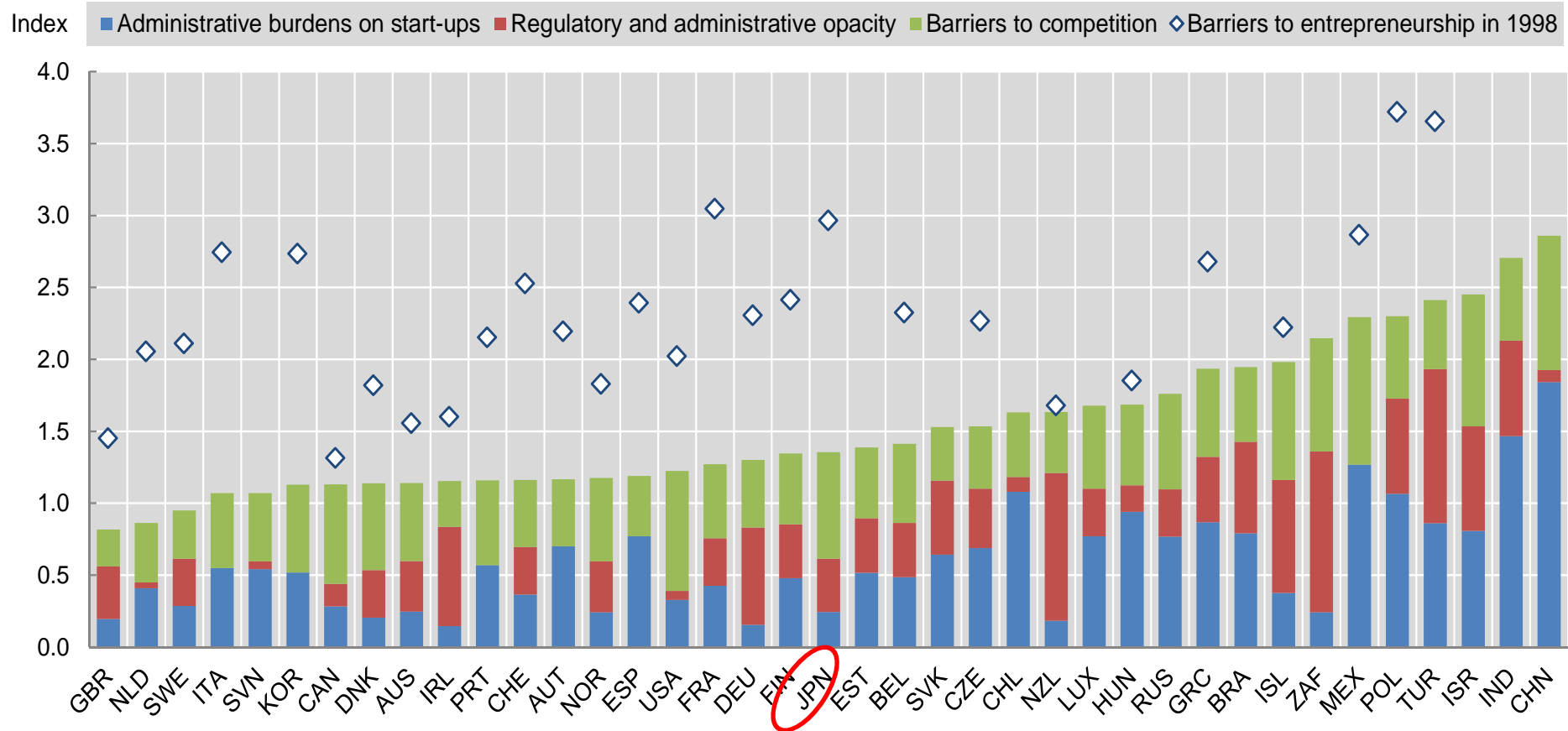


Source: OECD, Entrepreneurship at a Glance 2013, <http://dx.doi.org/10.1787/888932892993>



... and regulation could be further improved

Scale of 0 to 6 from least to most restrictive



Source: OECD, Product Market Regulation Database, www.oecd.org/economy/pmr, June 2013



Policies to enable entrepreneurship

- **Allow for experimentation:** Reduce barriers to the entry (e.g. administrative regulation), growth (e.g. size-specific regulations), and exit/failure of firms (e.g. penalising bankruptcy legislation).
- **Level the playing field for new and innovative firms:** Some policies may end up favouring incumbents and MNEs, that often also have greater influence on policy making.
- **Strengthen the innovation system for young and innovative firms,** e.g. through enhanced access to (risk) capital, network development, mentoring of entrepreneurs, skills development, further improvement in technology transfer from universities and PROs, etc.
- **Policies for SMEs are not the same as policies for young firms.**



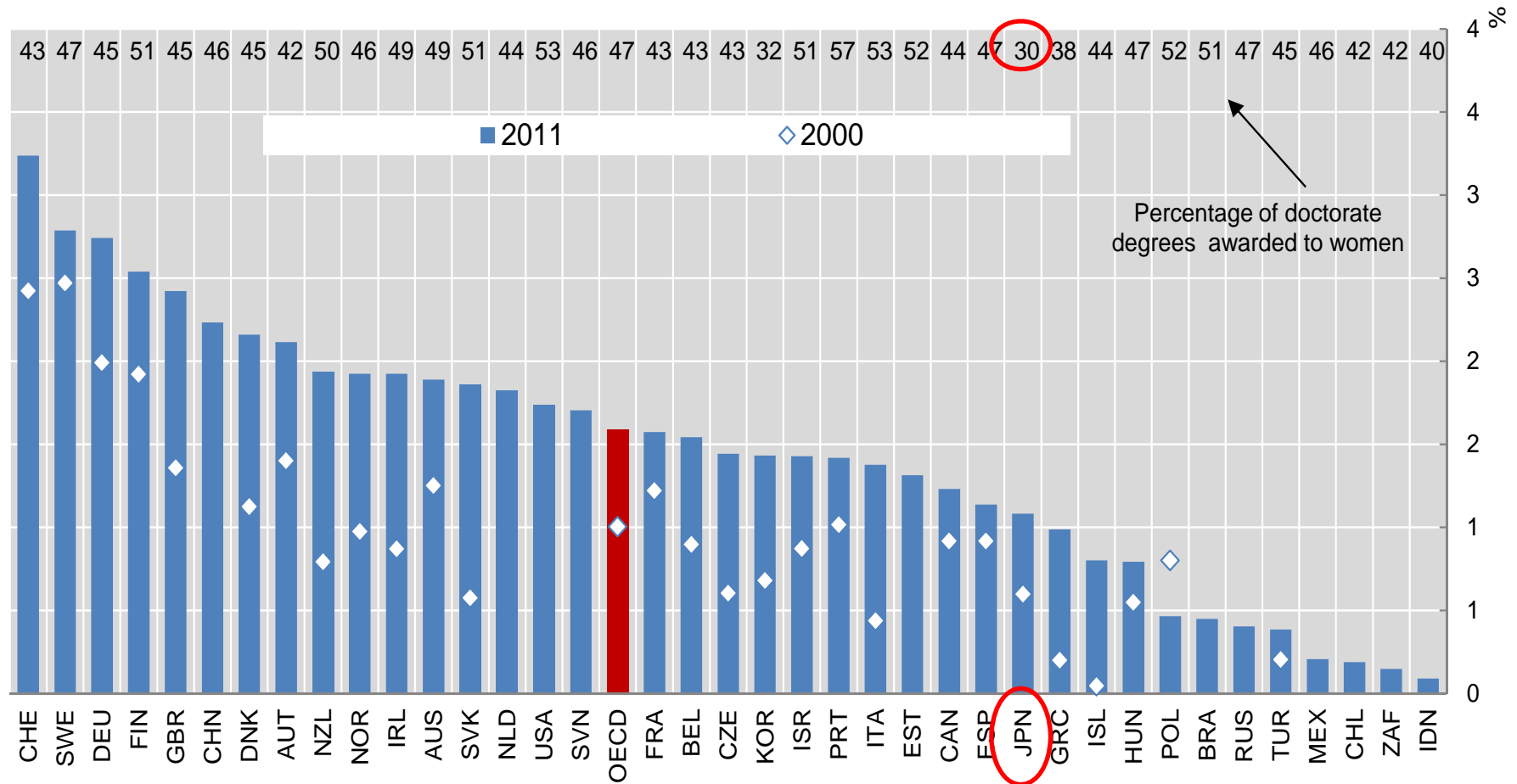
How does Japan compare on some key drivers of growth – human resources, science, innovation and ICT?



Human resources are a concern ...

Graduation rates at doctoral level, 2000 and 2011

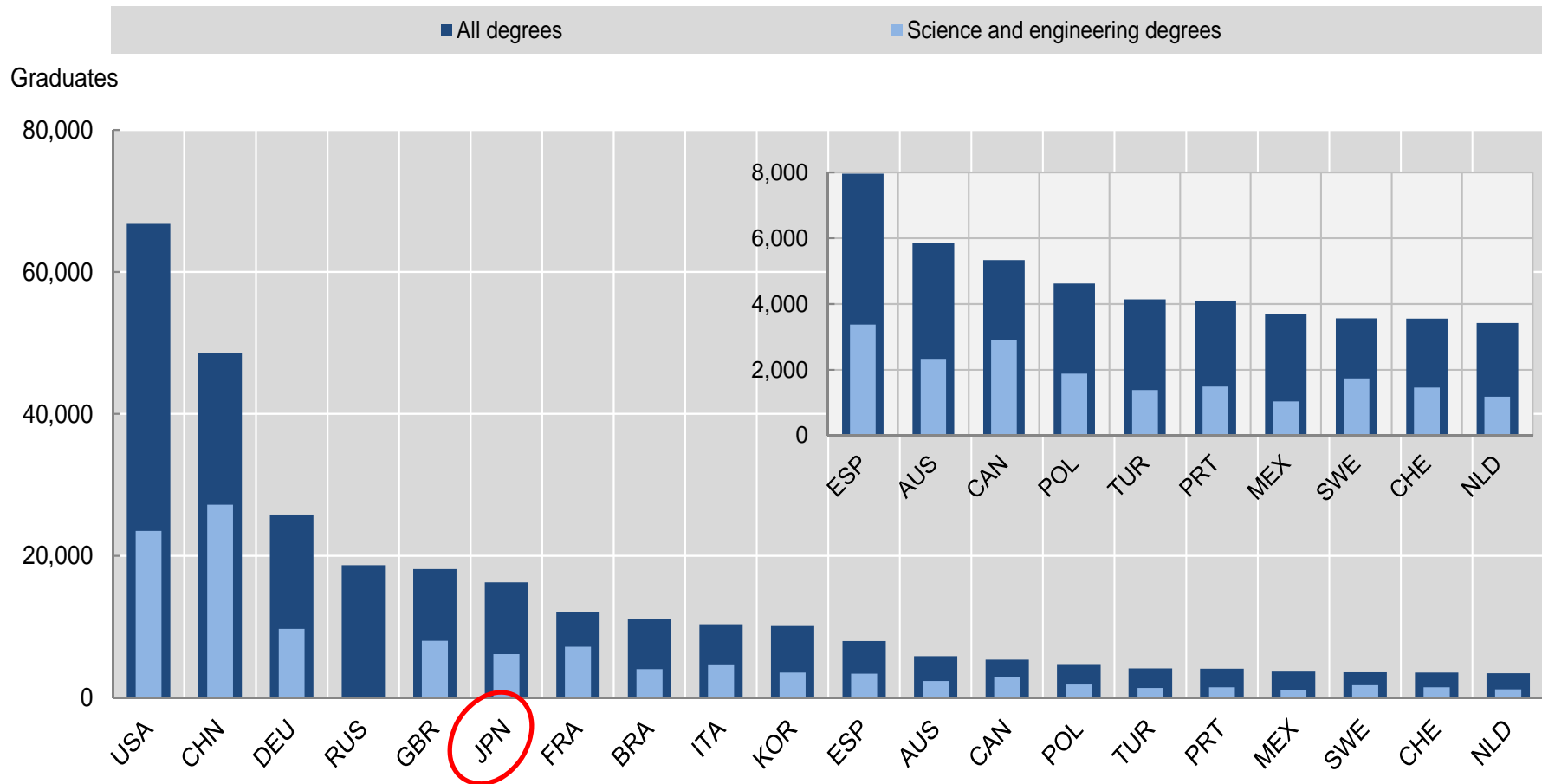
As a percentage of the population in the reference cohort





... and the number of new doctorates may not be sufficient ...

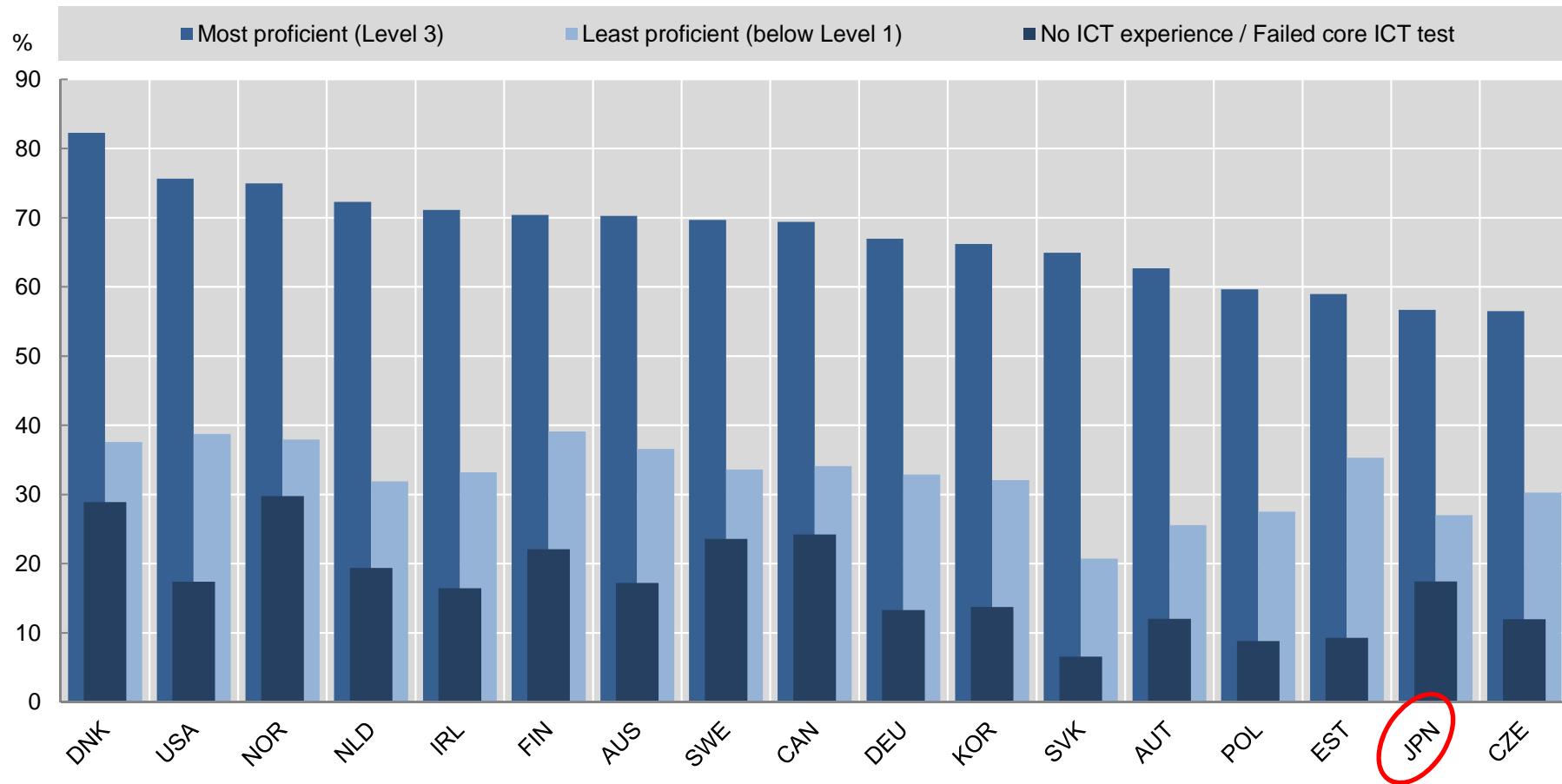
New doctorates in science and engineering, 2007-2011
Countries with largest number of average annual counts





... and education and training are a challenge in many OECD countries

Participation in job-related education and training by level of problem solving in technology-rich environments, 2012 (as % of adult population at relevant level)

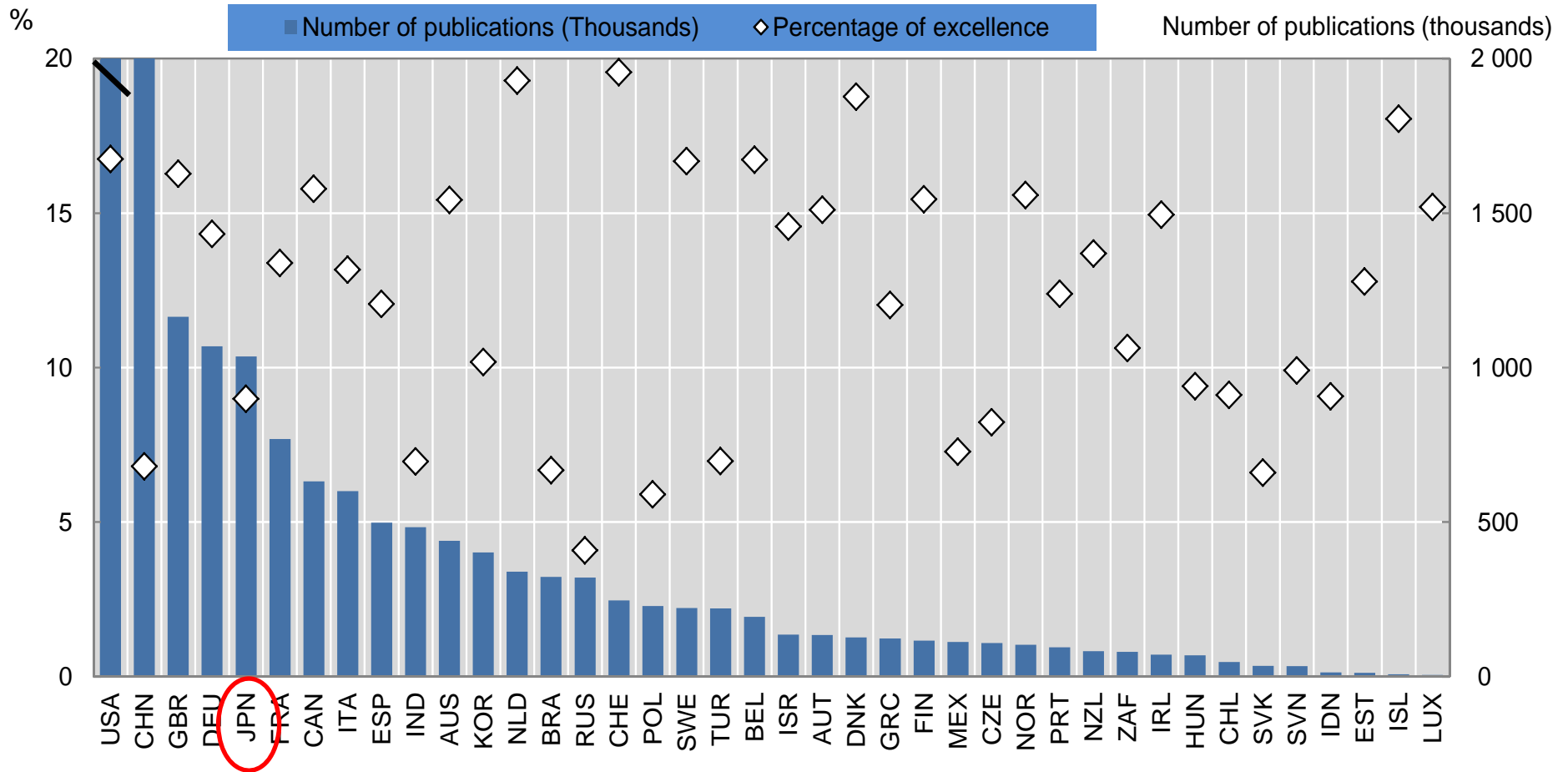


Source: OECD, Survey of Adult Skills Database, PIAAC, April 2013



The quality of science could be improved ...

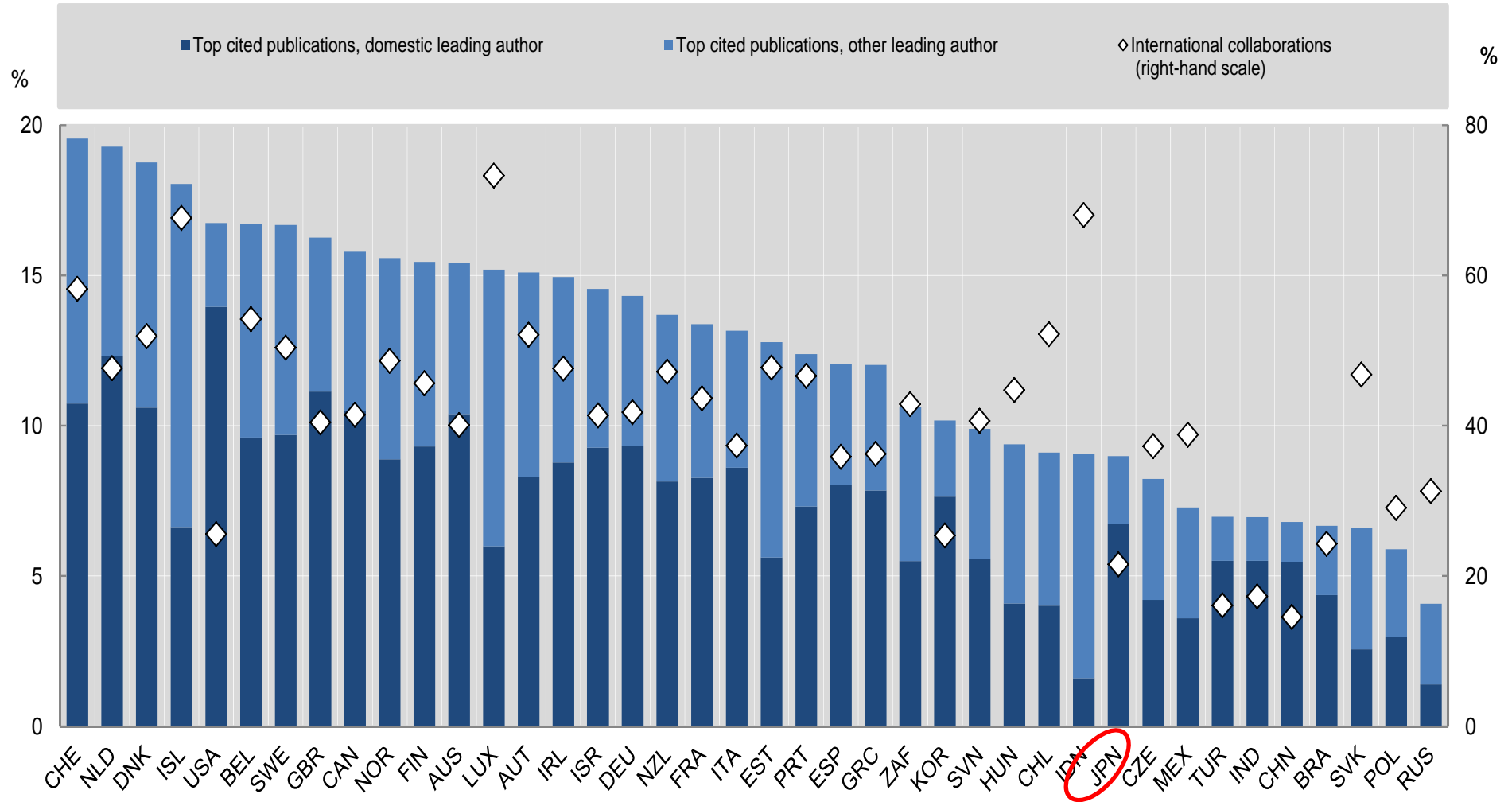
Quantity and quality of scientific production, 2003-2011
 Number of documents and percentage of world's top-cited





... with international cooperation low ...

Quality of scientific production and international collaboration, 2003-2011 (as a percentage of scientific publications)

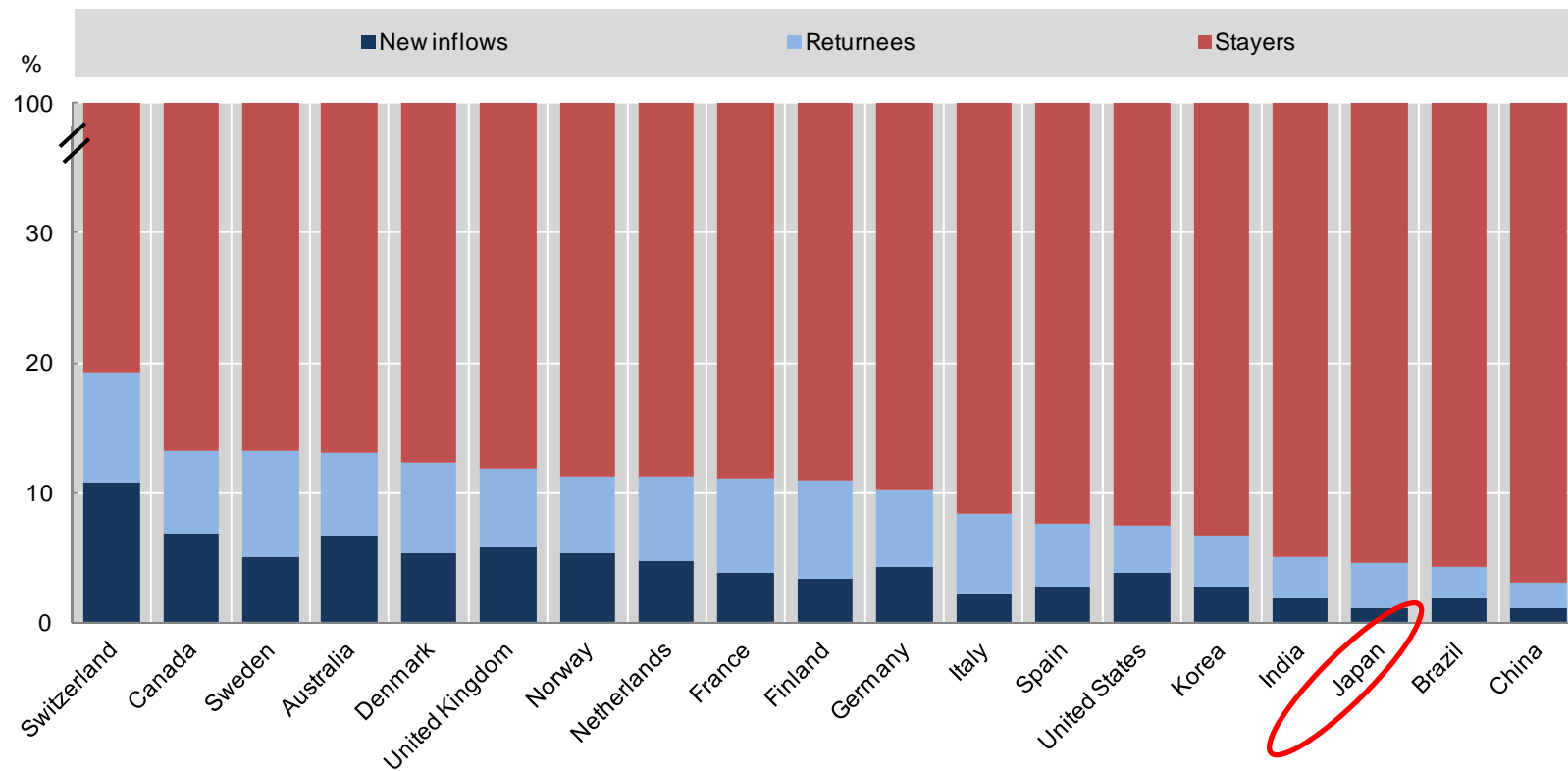




... and international mobility lower than in other advanced economies;

International mobility of scientific authors, 1996-2011

As a percentage of authors with two or more publications, by last reported affiliation



Source: OECD Science, Technology and Industry Scoreboard 2013.
<http://dx.doi.org/10.1787/888932891530>



... increasing it could help enhance the impact of research

Impact of scientific authors, by category of mobility, 1996-2011 Based on the median source-normalized impact per paper (SNIP)

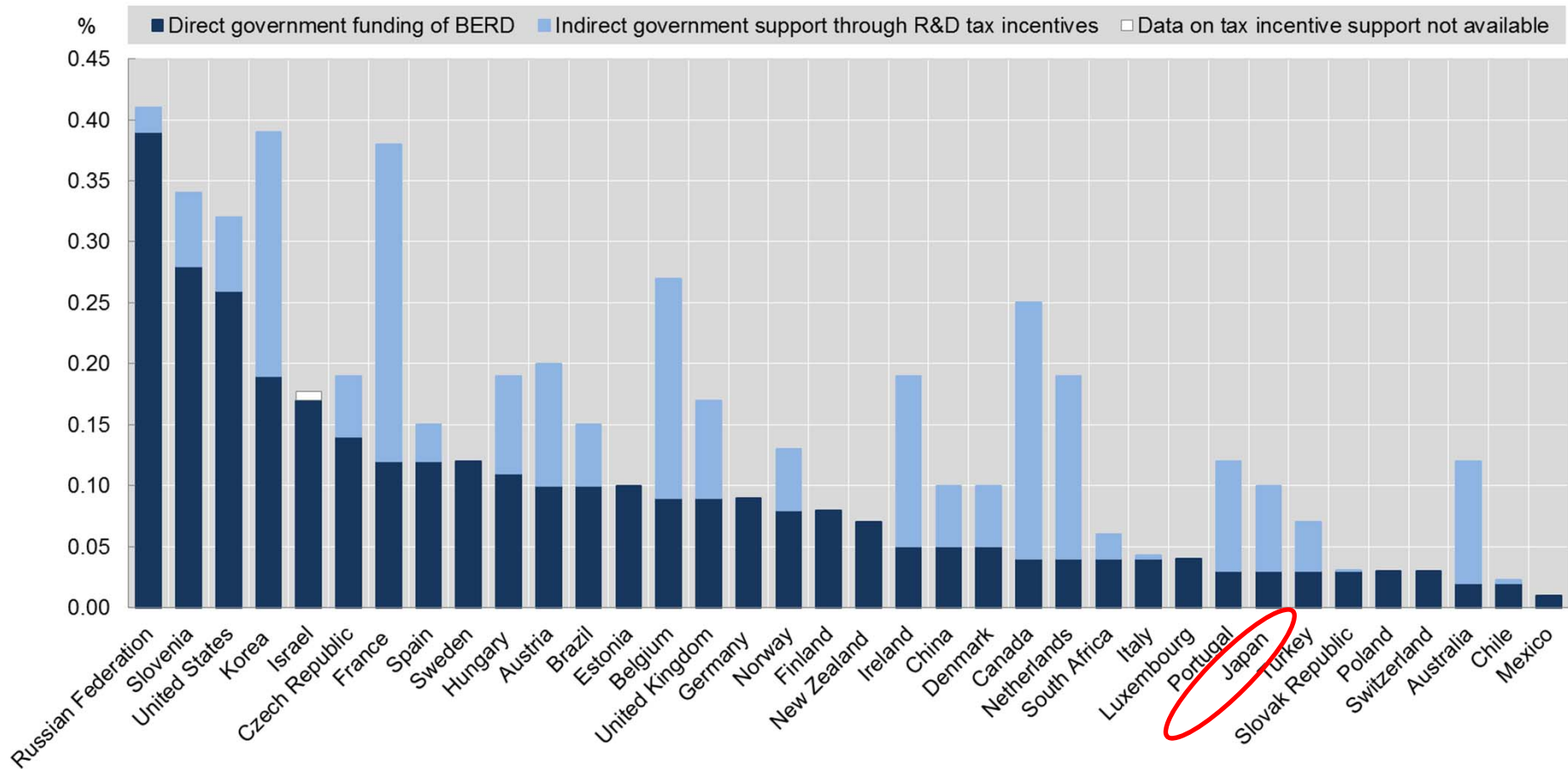


Source: OECD Science, Technology and Industry Scoreboard 2013.
<http://dx.doi.org/10.1787/888932891549>



Support for business R&D is relatively modest ...

As a percentage of GDP, 2011

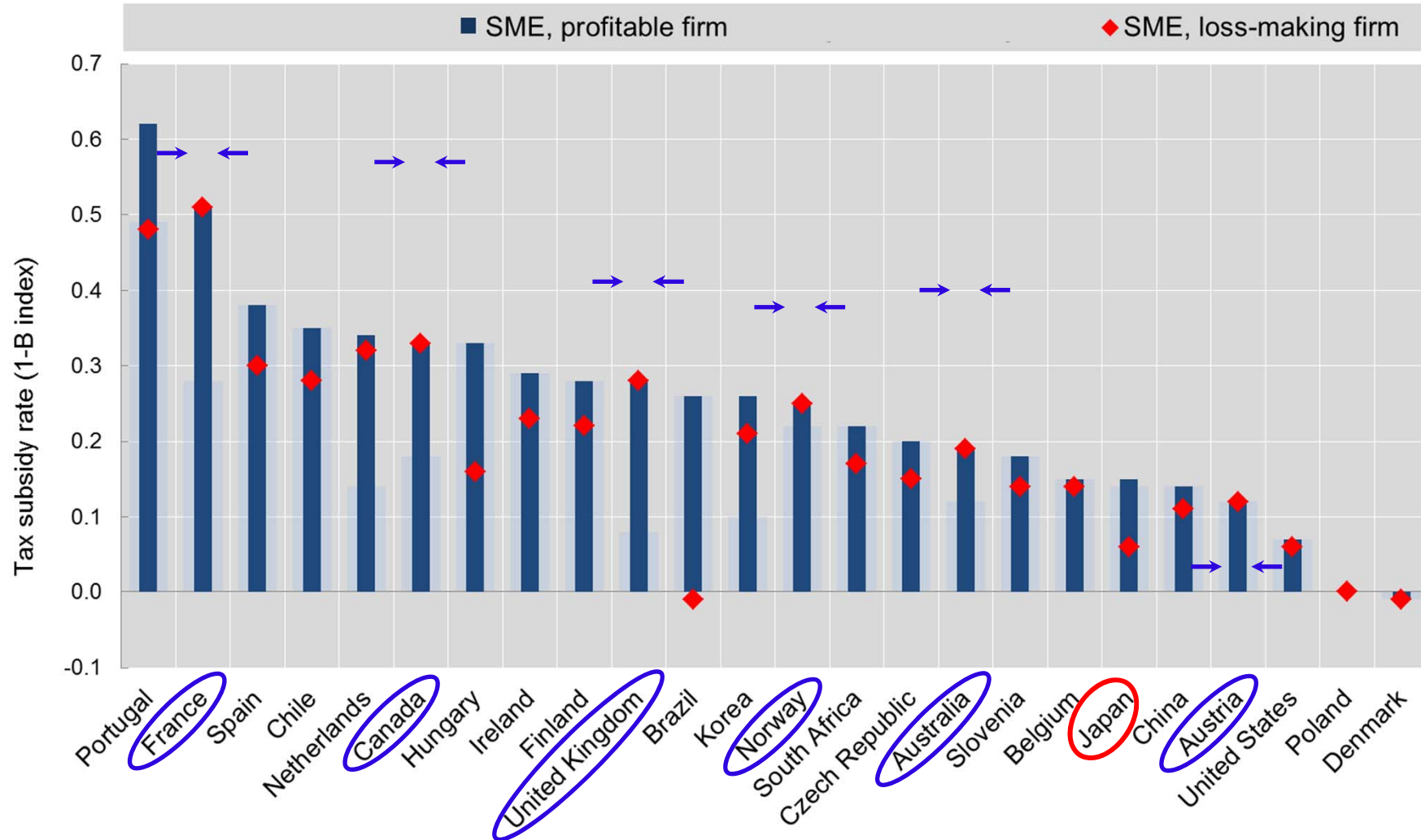


Source: OECD Science, Technology and Industry Scoreboard 2013.
<http://dx.doi.org/10.1787/888932891112>



... the R&D tax credit could be better adapted to young firms ..

Implied tax subsidy on R&D expenditures, 2013



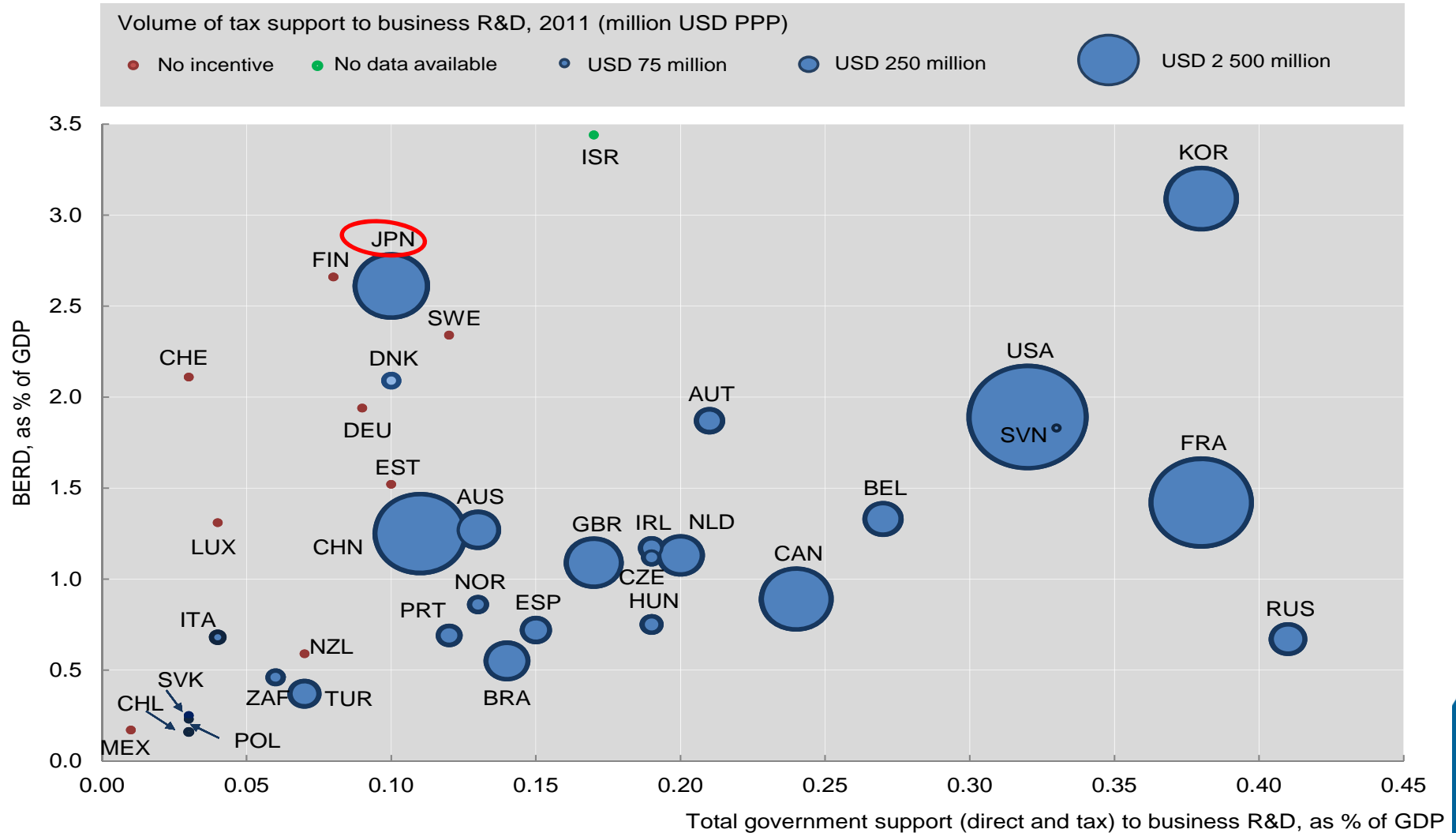
Source: OECD Science, Technology and Industry Scoreboard 2013.

<http://dx.doi.org/10.1787/888932891150>



... Japan is a strong investor in business R&D ...

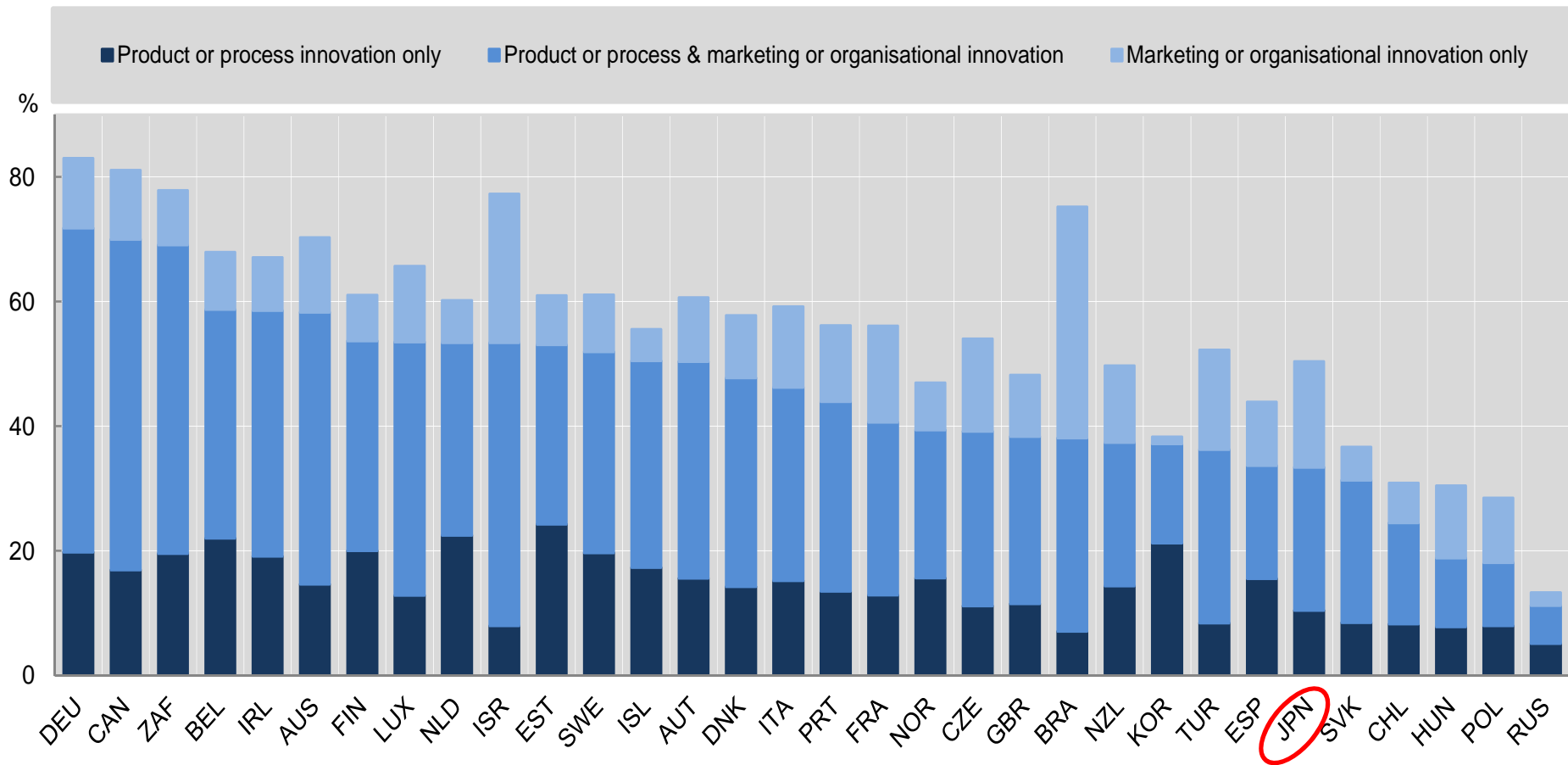
(R&D intensity and support, as a percentage of GDP, 2011)





... but scores relatively low in innovation surveys ...

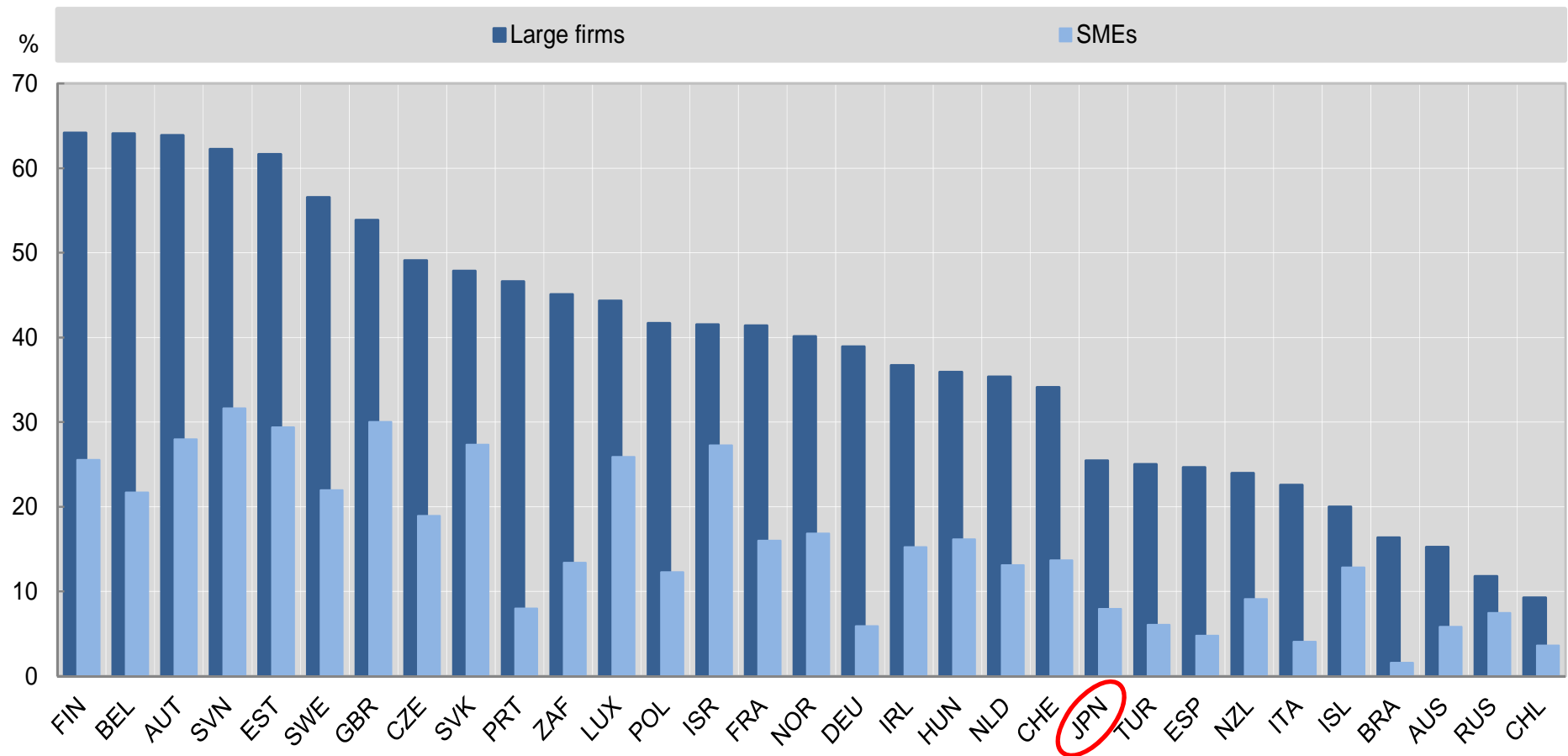
(Innovation in the manufacturing sector, as a percentage of all manufacturing firms, 2008-10)





... and international collaboration is low ...

(firms engaged in international collaboration, 2008-10, as % of product and/or process innovative firms)

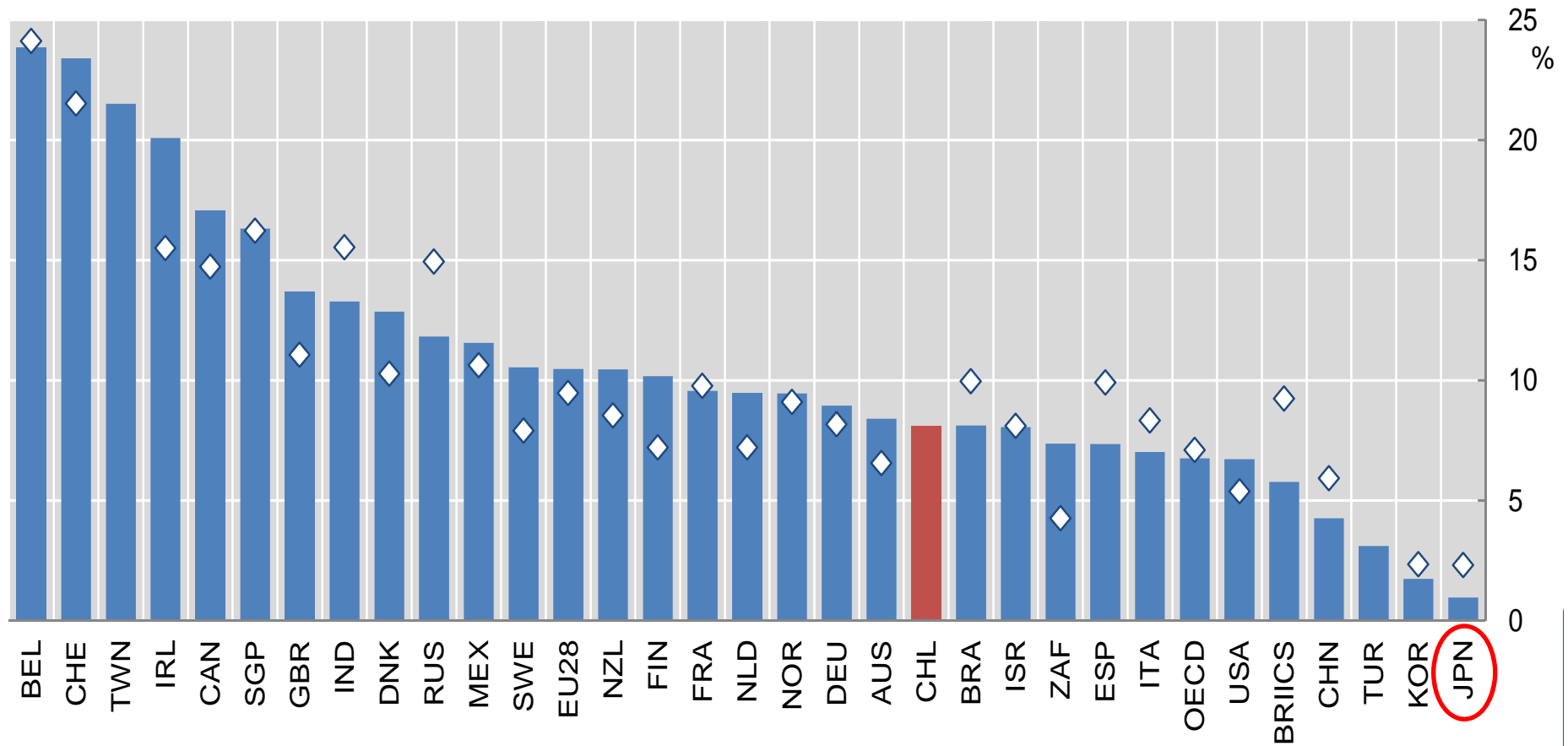




... and almost completely absent in patenting

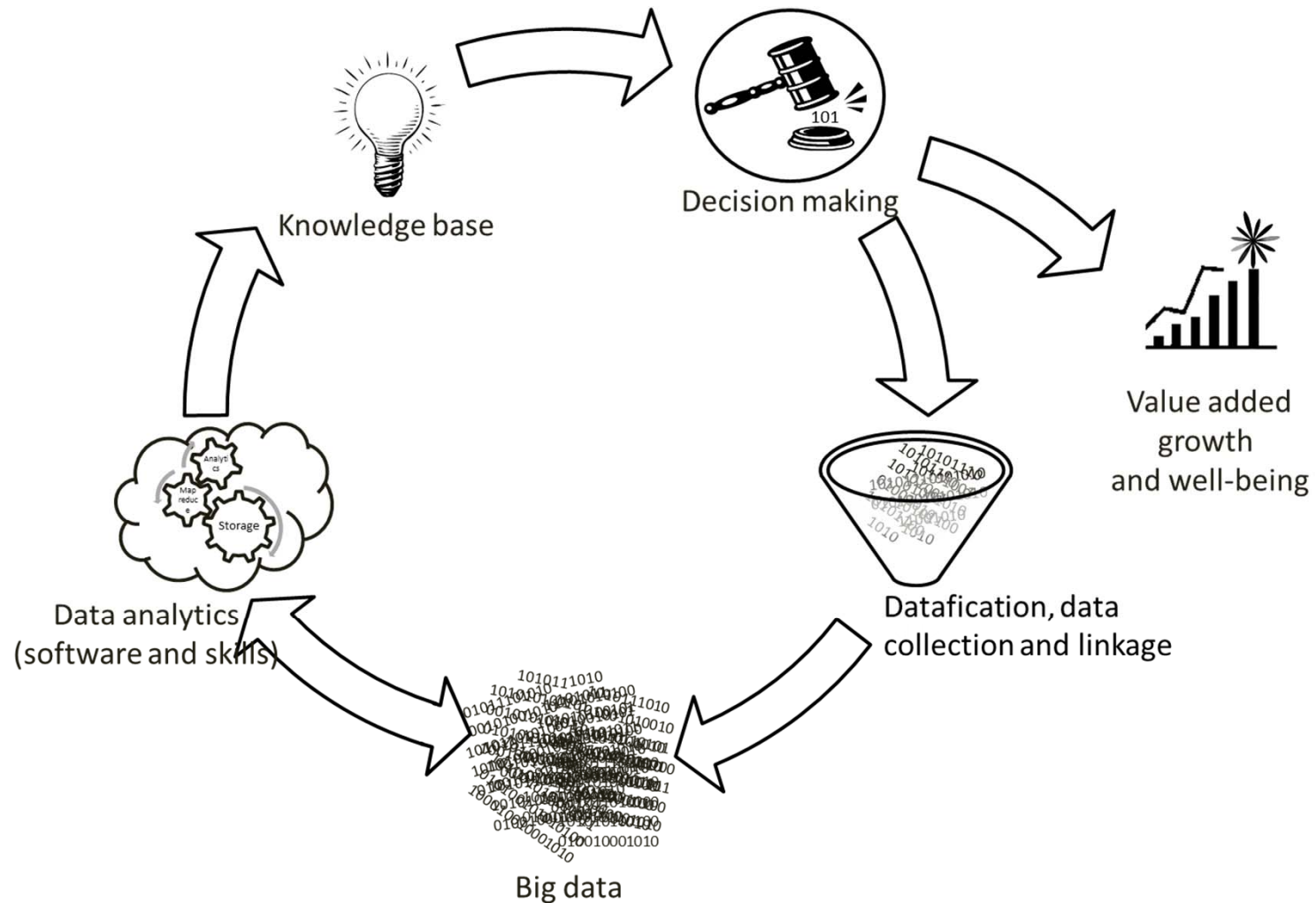
International co-inventions in patents, 1999-2001 and 2009-11

As % of the economy's total patents





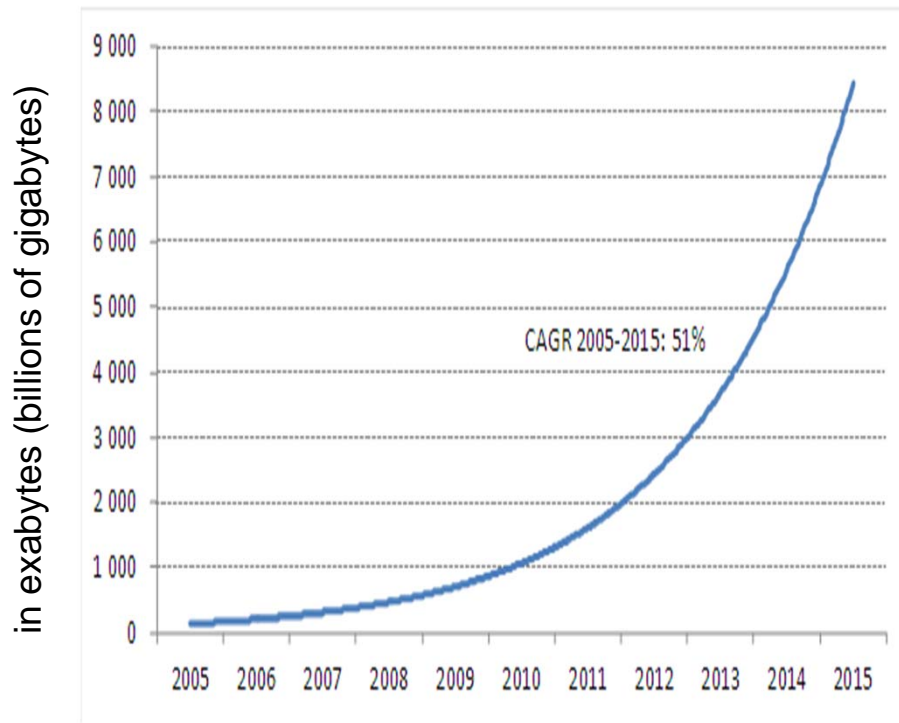
Big data is offering new opportunities for growth ...





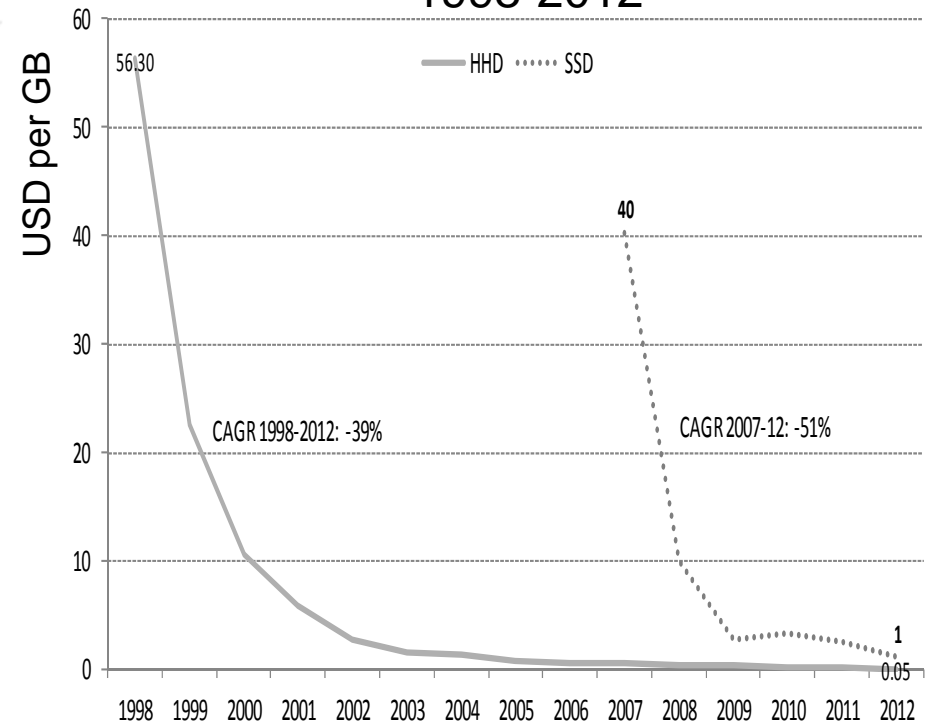
... as costs of data are falling ...

Estimated worldwide data storage



Source: OECD based on IDC Digital Universe research project.

Average data storage cost for consumers, 1998-2012

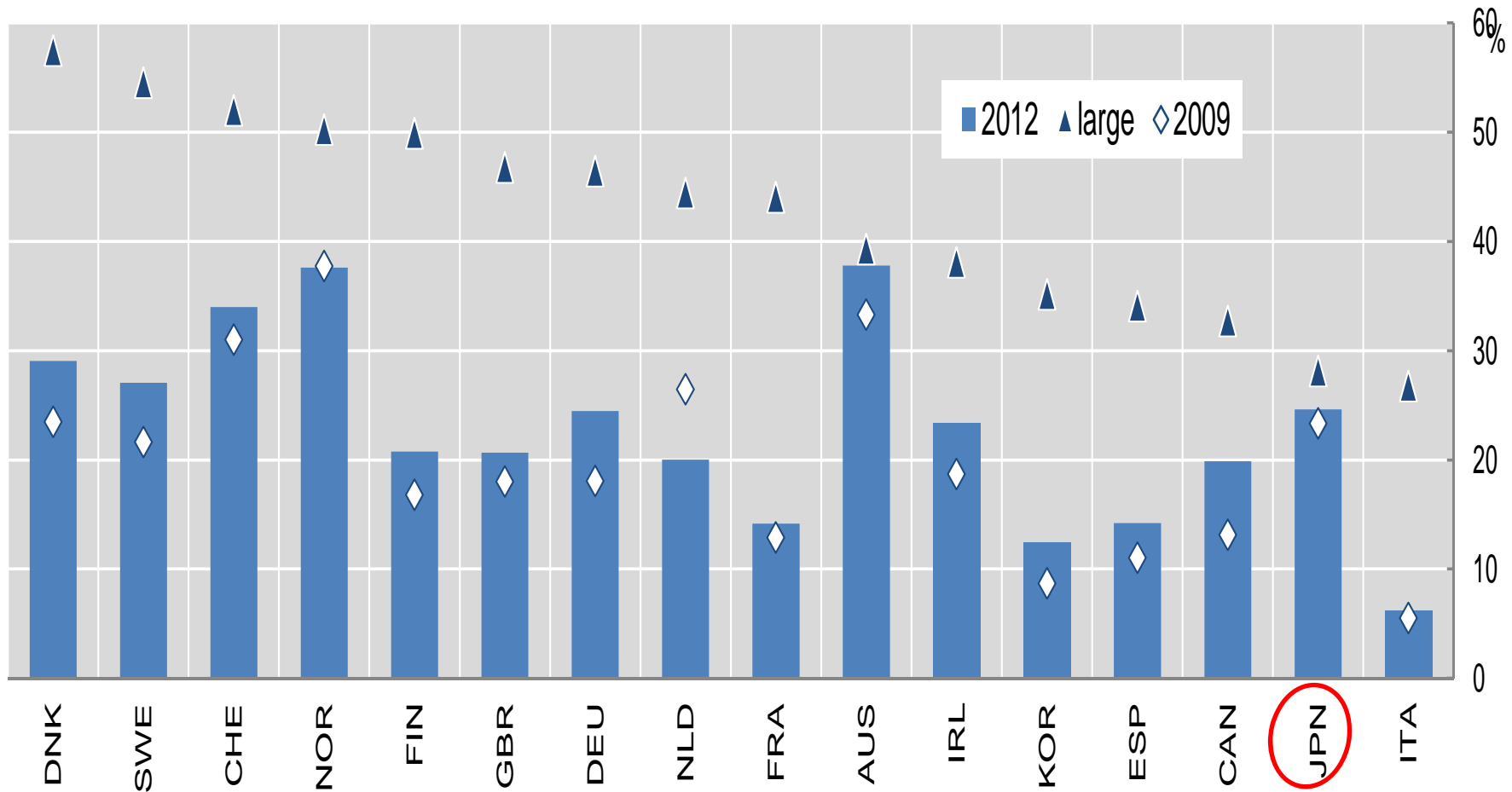


Source: OECD based on Pingdom (2011)



... but Japanese firms are not yet as active in ICT than firms in other OECD countries ...

Enterprises selling on-line, 2009 and 2012, as % of enterprises in the same size category)



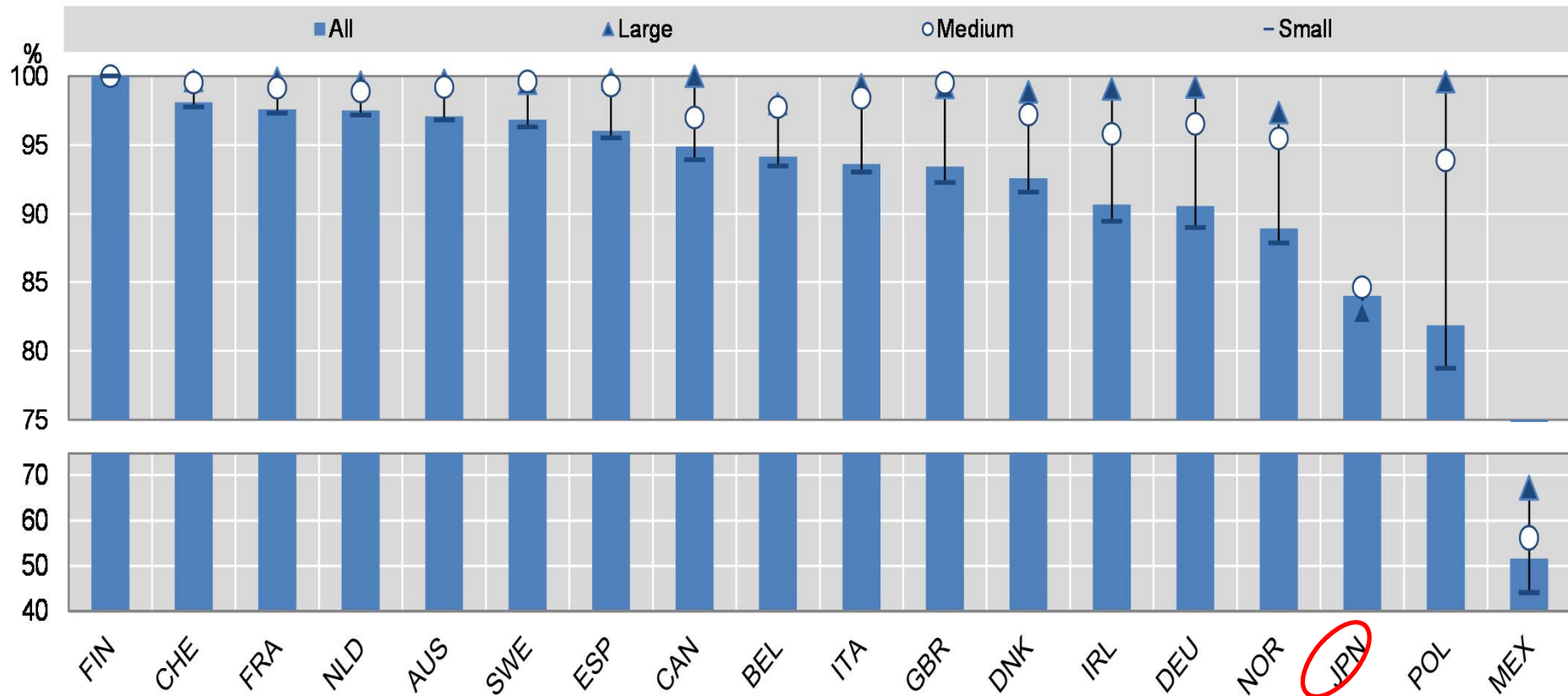
Source: OECD, STI Scoreboard 2013, <http://dx.doi.org/10.1787/888932893430>





... , not yet as well connected to broadband ...

Enterprises with broadband connection, by employment size, 2012
Fixed and mobile connections, as % of all enterprises



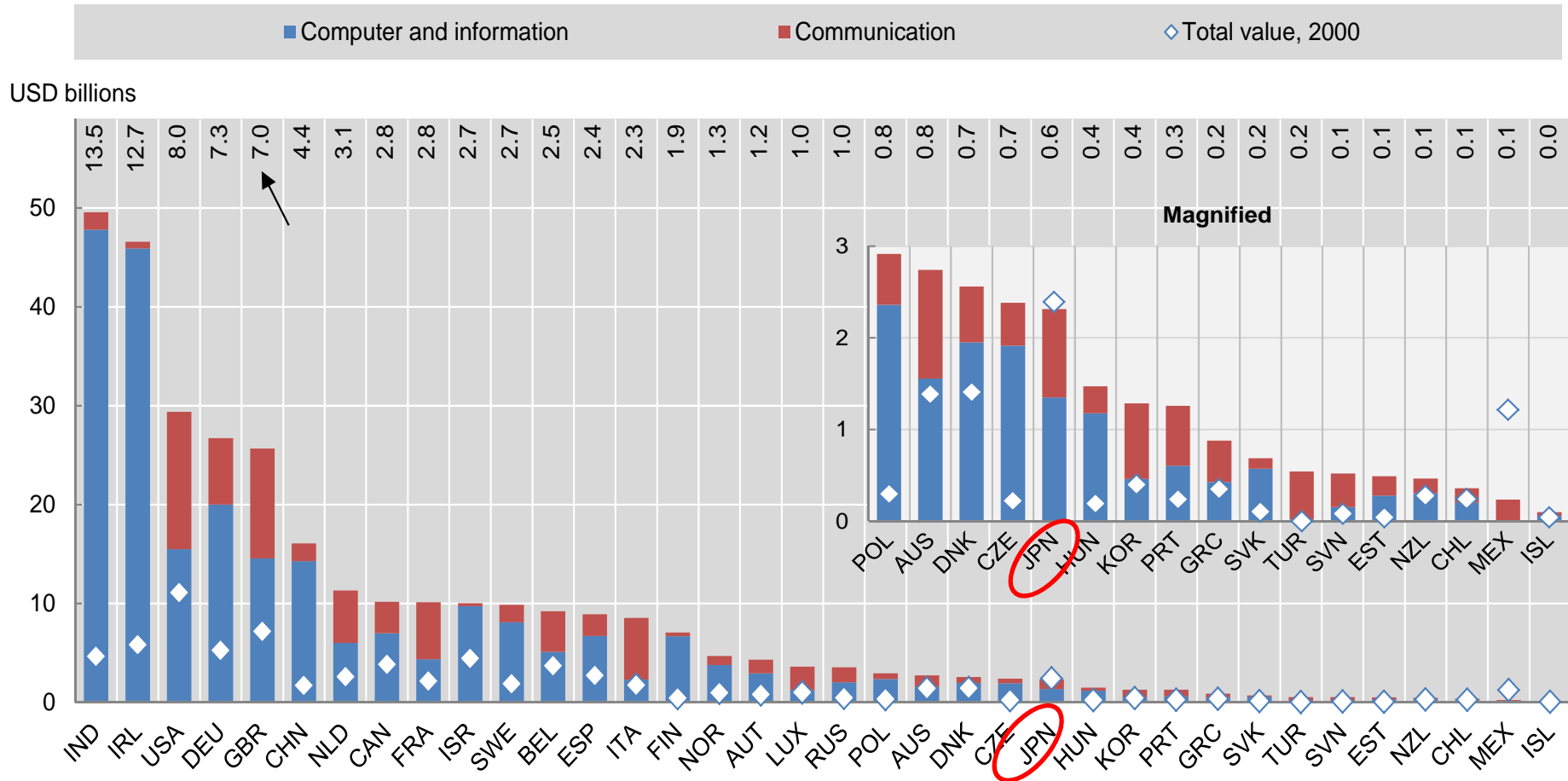
Source: OECD, STI Scoreboard 2013, <http://dx.doi.org/10.1787/888932892176>



... and Japan has little presence in ICT services

OECD and major exporters of ICT services, 2000 and 2012

Billions of USD and percentages of total world exports of ICT services



Source: OECD, STI Scoreboard 2013.



Drivers of growth

- **Human resources:**
 - A major concern for the future, with low participation of women and rapid ageing
- **Science:**
 - Strong public investment, but quality could be further improved
 - Little international mobility of scientists, little international cooperation
- **Innovation:**
 - Strong investment in R&D – but will need to be turned into growth
 - Support for business R&D: some redesign?
 - Lack of internationalisation of innovation, little cooperation
- **ICT:**
 - Big data recognised as future driver
 - But Japanese firms don't use ICT yet to its full potential
 - Strong in hardware, but little presence in services



In sum: some key issues for Japan

- **Global Value Chains:**
 - Performance has deteriorated, services content is relatively low and has not increased in recent years
 - GVCs are highly dynamic – preparing for their future evolution
- **Entrepreneurship:**
 - Risk capital and regulation
 - Some strong SMEs – but a sufficiently strong role of young firms and sufficient structural change to develop new areas of strength?
- **Innovation and investment in knowledge:**
 - Reflect on necessary policies for full range of investments in knowledge
 - Human resources a major concern
 - Scientific research could be strengthened
 - Lack of internationalisation
 - ICT – services and applications are lagging



Relevant OECD work



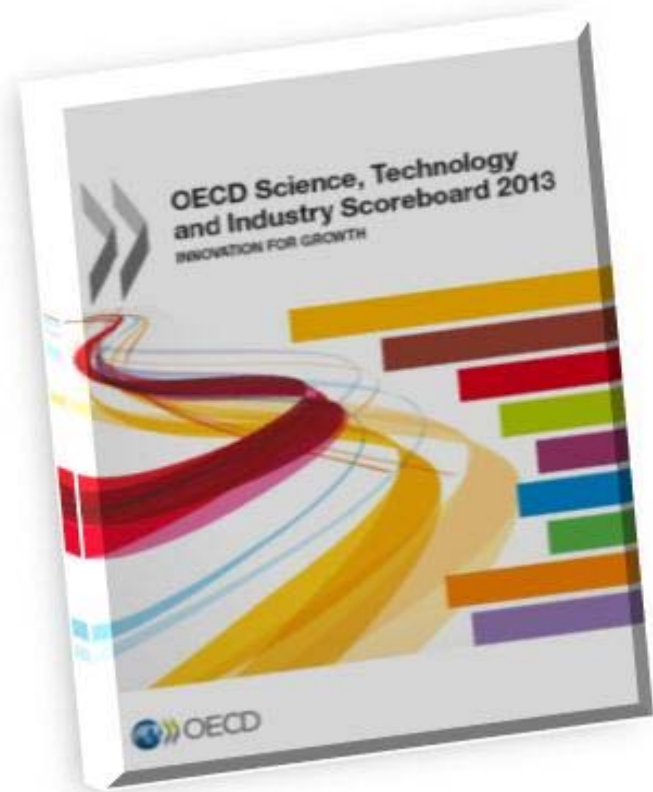
Tiny urls:
oe.cd/tiva
oe.cd/gvc



Tiny url:
oe.cd/kbc



Thank you



Contact:

dirk.pilat@oecd.org

For more data:

www.oecd.org/sti/scoreboard

