Intangibles and the Japanese Economy

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Information and Knowledge for All:
Towards an Inclusive Innovation

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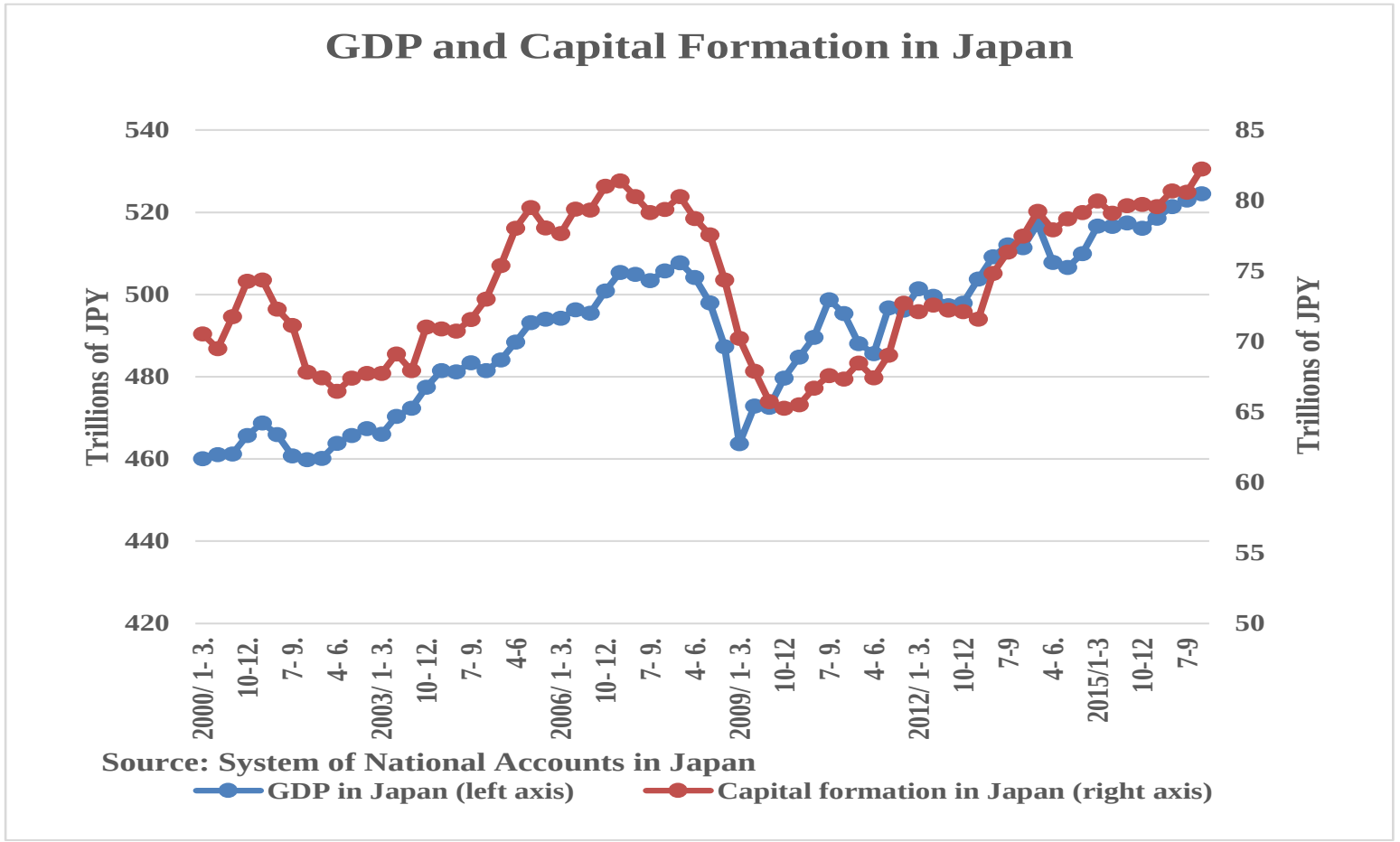
iC 13
Intellectual Capital for Communities In the Knowledge Economy

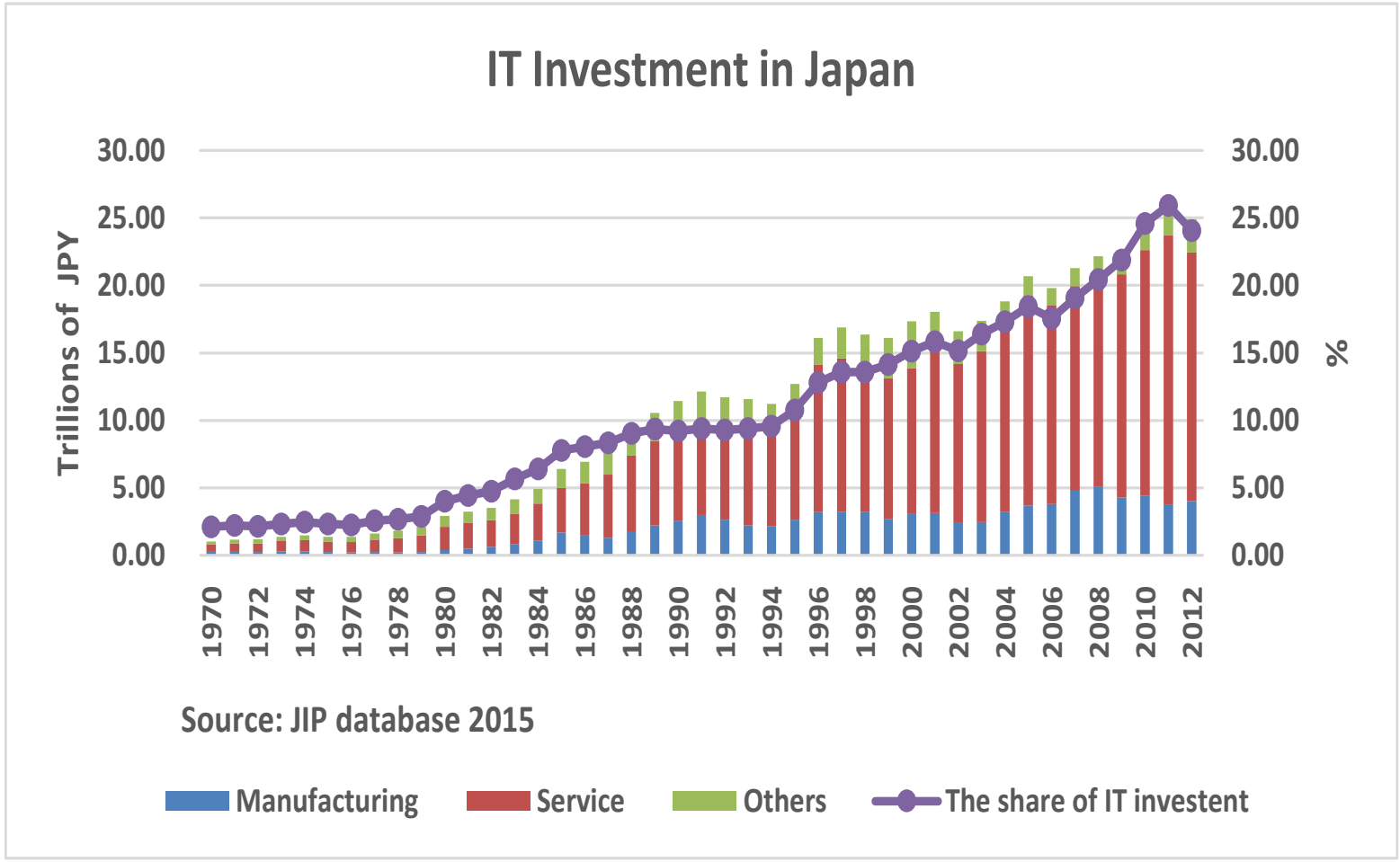
Intangibles and the Japanese Economy
1. The Japanese Economy after the Global Financial Crisis

- **Abenomics, which was started from 2013, has led to the recovery from the recession that arose as a result of the Global Financial Crisis.**
- Capital formation is a key driver of the recovery. In the period of Abenomics, the private capital formation grew at 3.3%.


GDP and Capital Formation in Japan
Trillions of JPY
Trillions of JPY
540
520
500
480
460
440
420
85
80
75
70
65
60
55
50
2000/ 1- 3.
10-12.
7- 9.
4- 6.
2003/ 1- 3.
10- 12.
7- 9.
4-6
2006/ 1- 3.
10- 12.
7- 9.
4- 6.
2009/ 1- 3.
10-12
7- 9.
4- 6.
2012/ 1- 3.
10-12
7-9
4- 6.
2015/1-3
10-12
7-9
Source: System of National Accounts in Japan
GDP in Japan (left axis)
Capital formation in Japan (right axis)

Intangibles and the Japanese Economy
2. IT Investment in Japan

- **The IT investment (computer equipment, communication equipment, and software) has played a crucial role in the Japanese capital formation.**
- **The amount of IT investment in Japan is about 25 trillions of JPY in 2012. 75% of IT investment is conducted in the service sector.**
- **It has grown up at 8% per year since 1970. After the IT revolution, the growth rate of IT investment is 4%.**
- **Then, the share of IT investment in the total capital formation has increased and reached to 25%.**


IT Investment in Japan
Trillions of JPY
%
30.00
25.00
20.00
15.00
10.00
5.00
0.00
1970
1972
1974
1976
1978
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
Source: JIP database 2015
Manufacturing
Service
Others
The share of IT investent

Intangibles and the Japanese Economy
3. Intangibles in Japan –international perspective-

- **Despite accumulation in IT capital, the Japanese potential economic growth rate is not high.**
- **Although we would require more capital accumulation to raise potential economic growth, we cannot expect to see narrowly defined capital accumulation such as buildings and machineries due to their low profit rates.**
- **Having only tangible assets will not contribute to generating profits in the digital economy. As the OECD suggested in its report in 2013, we accumulate intangible assets as well as tangible assets to improve productivity and to enhance economic growth.**

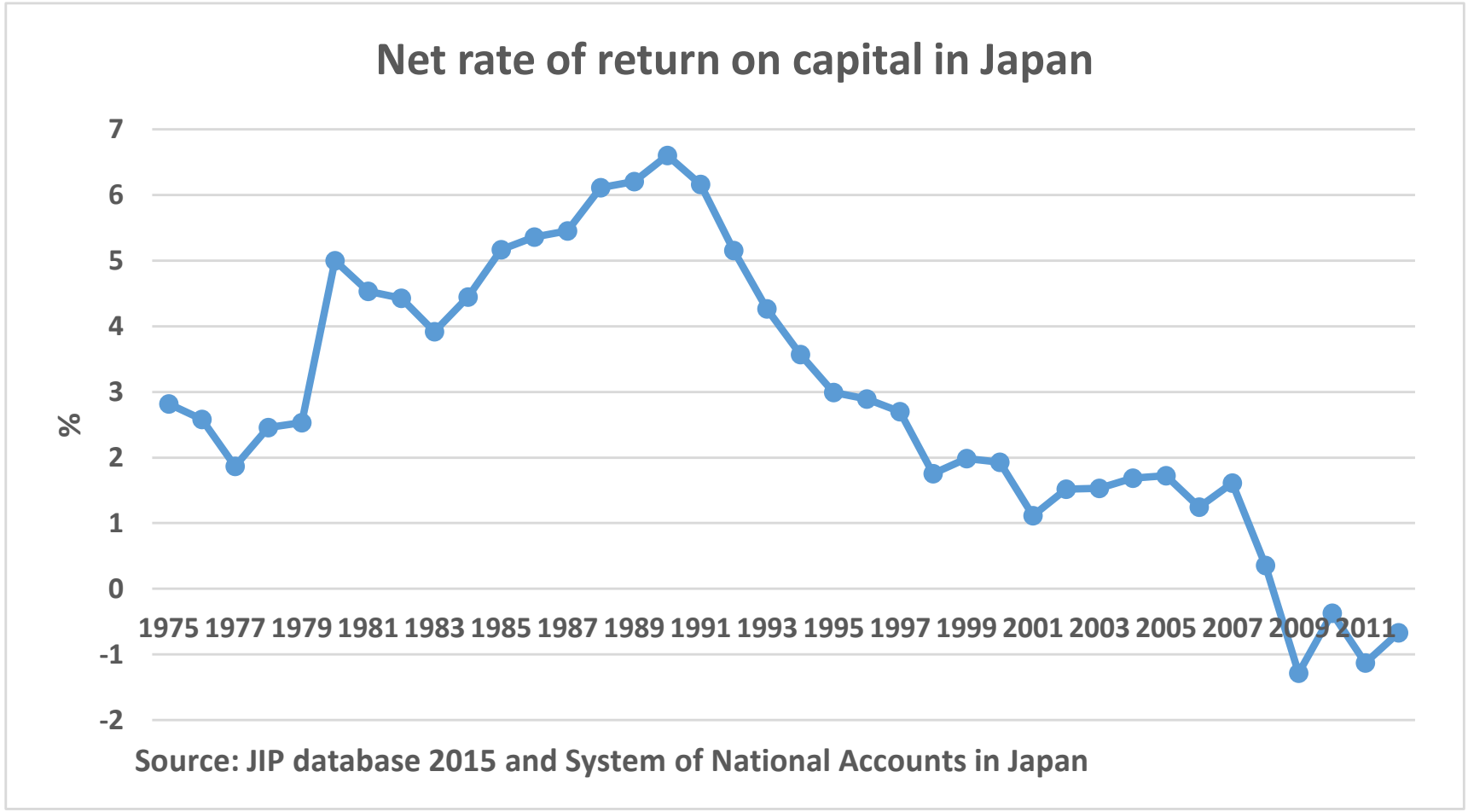
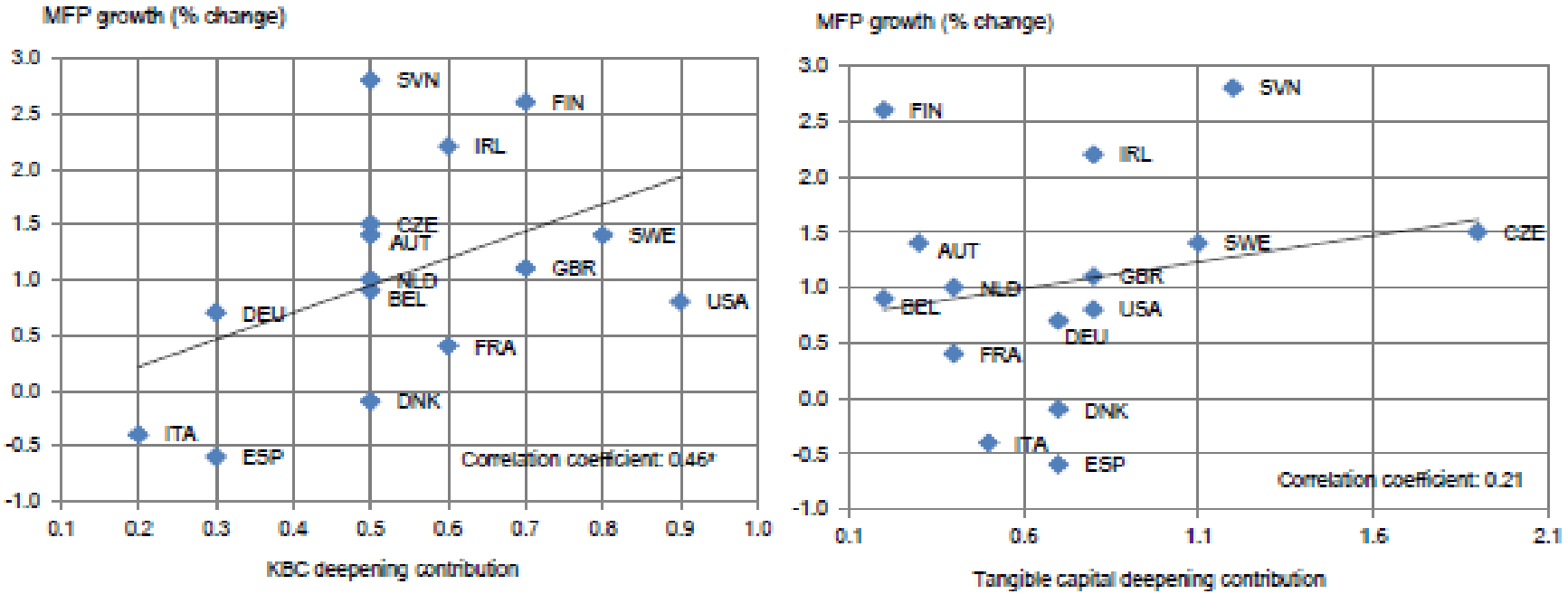

Net rate of return on capital in Japan
%
7
6
5
4
3
2
1
0
-1
-2
1975 1977 1979 1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009 2011
Source: JIP database 2015 and System of National Accounts in Japan

Figure 8. Knowledge-based capital and spillover effects

Selected OECD countries, 1995-2007



Note: Labour productivity growth can be broken down into the contribution of capital deepening and the contribution of MFP. The charts plot the contributions of KBC and tangible capital deepening to labour productivity growth against the growth of MFP. The correlations are robust to individually dropping outliers, such as the Czech Republic, Finland and Slovenia. The MFP estimates differ from conventional growth accounting exercises in that they are based on a value-added series that capitalises all of the forms of KBC outlined in Table 1.

* Denotes statistical significance at the 10% level.

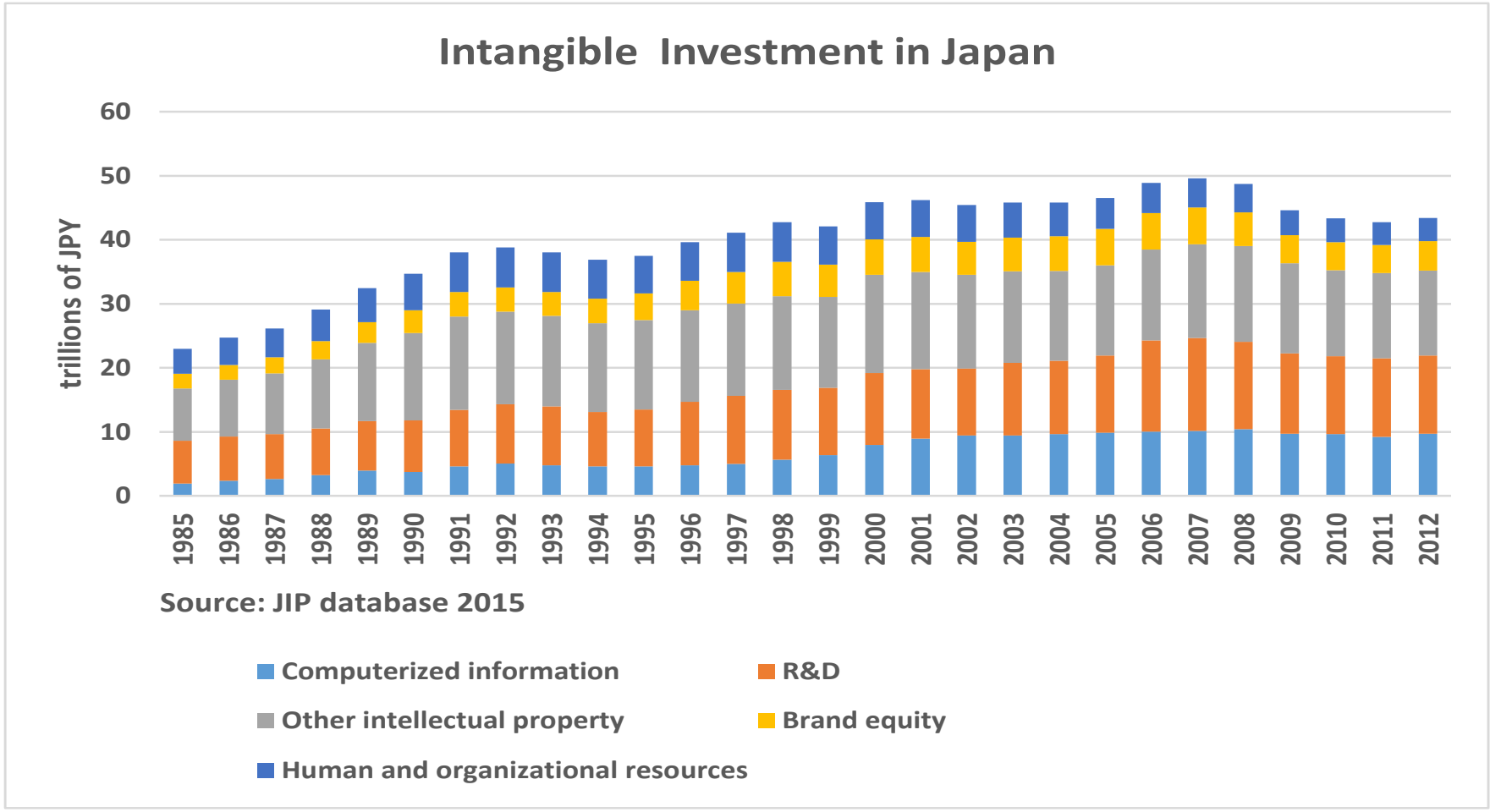
Source: Corrado, C.A., Haskel, J., Jona-Lasinio, C. and Iommi, M. (2012), Intangible Capital and Growth in Advanced Economies: Measurement Methods and Comparative Results, INTAN-Invest Mimeo.

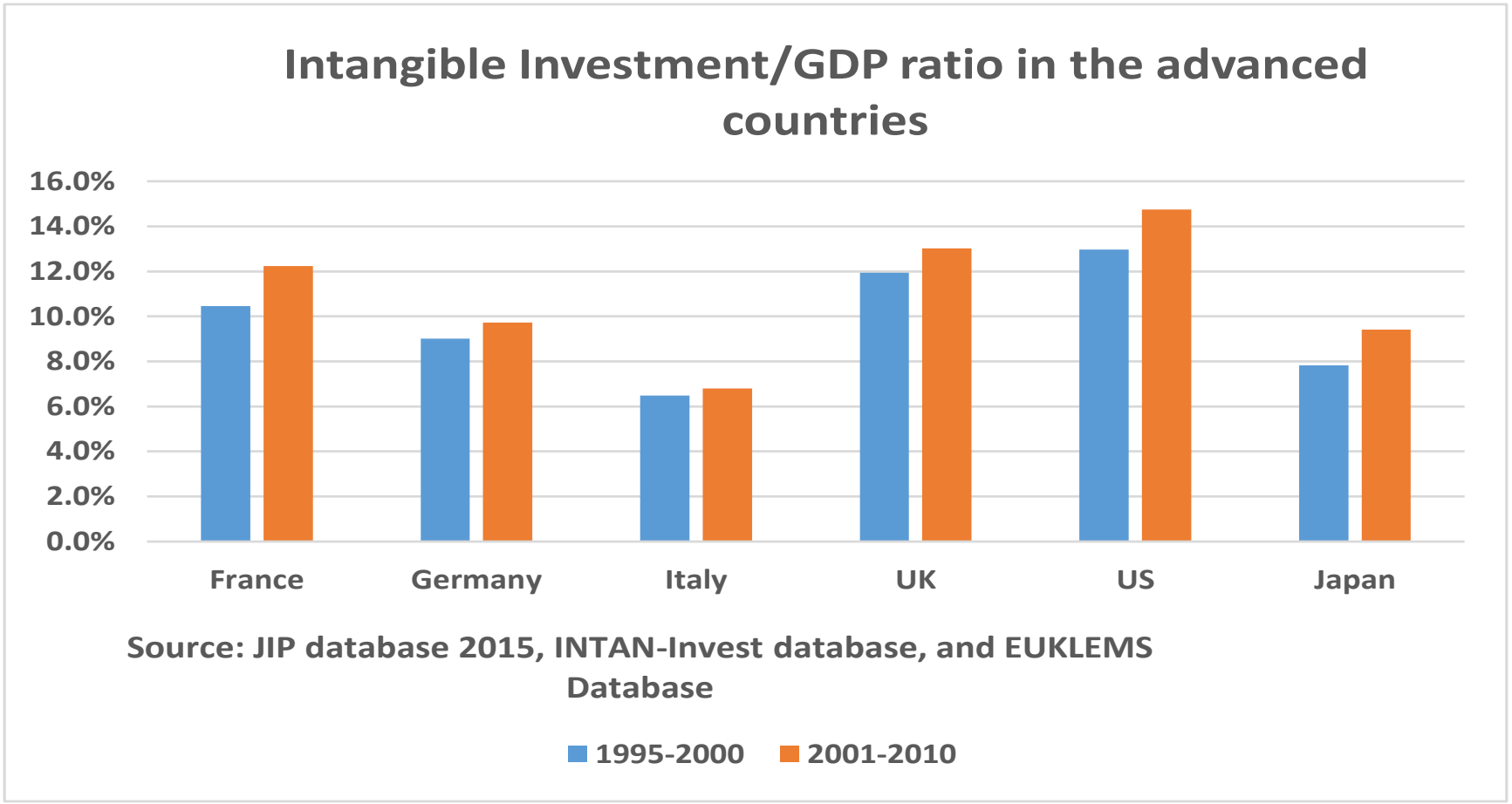
Intangibles and the Japanese Economy
3. Intangibles in Japan –international perspective-

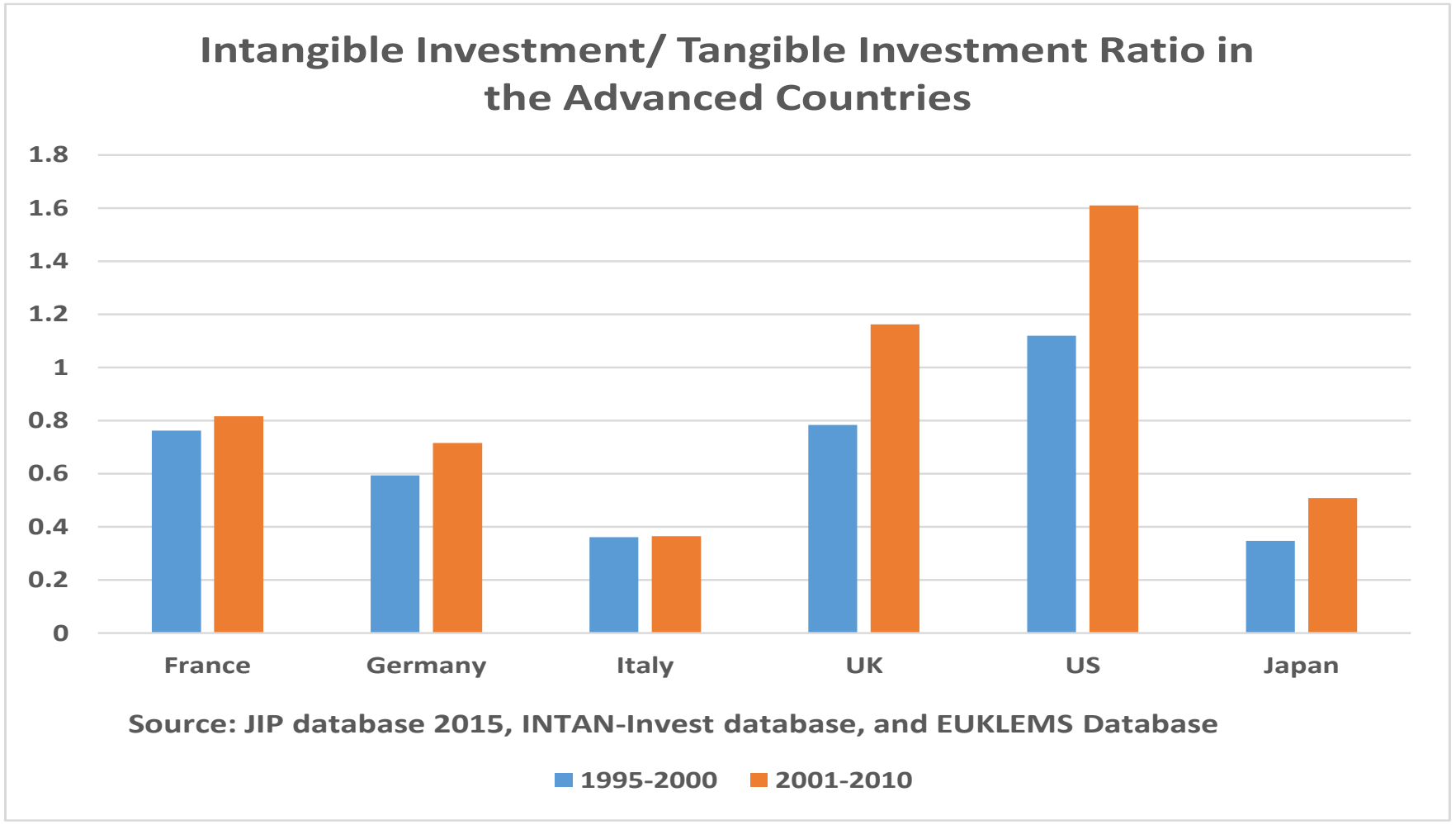
- The National Accounts in their 2008 version count some intangibles in GDP.
- However, there are other intangibles for productivity improvement that are counted in GDP.
- Japanese intangible investment following the classification by Corrado, Hulten and Sichel amounts to about 40 trillions of JPY in the 2010s.
- However, its ratios to GDP and tangible investment are lower than other advanced countries except Italy.

Classification of intangibles

2008SNA	Corrado, Hulten, and Sichel
1. Computer software and database	1. Computerized information
	Computer software
	Database
2. Mineral exploitation	2. Innovative property
	Mineral exploitation
3. Research and development	Scientific research and development
4. Artistuic originals	Artistic originals
5. Other intellectual properties	Design and nonscientific research and development
	3.Economic competencies
	Brand equity
	Firm-specific human resources
	Orginzational structure


Intangible Investment in Japan
trillions of JPY
60
50
40
30
20
10
0
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
Source: JIP database 2015
Computerized information
R&D
Other intellectual property
Brand equity
Human and organizational resources


Intangible Investment/GDP ratio in the advanced countries
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
France
Germany
Italy
UK
US
Japan
Source: JIP database 2015, INTAN-Invest database, and EUKLEMS Database
1995-2000
2001-2010

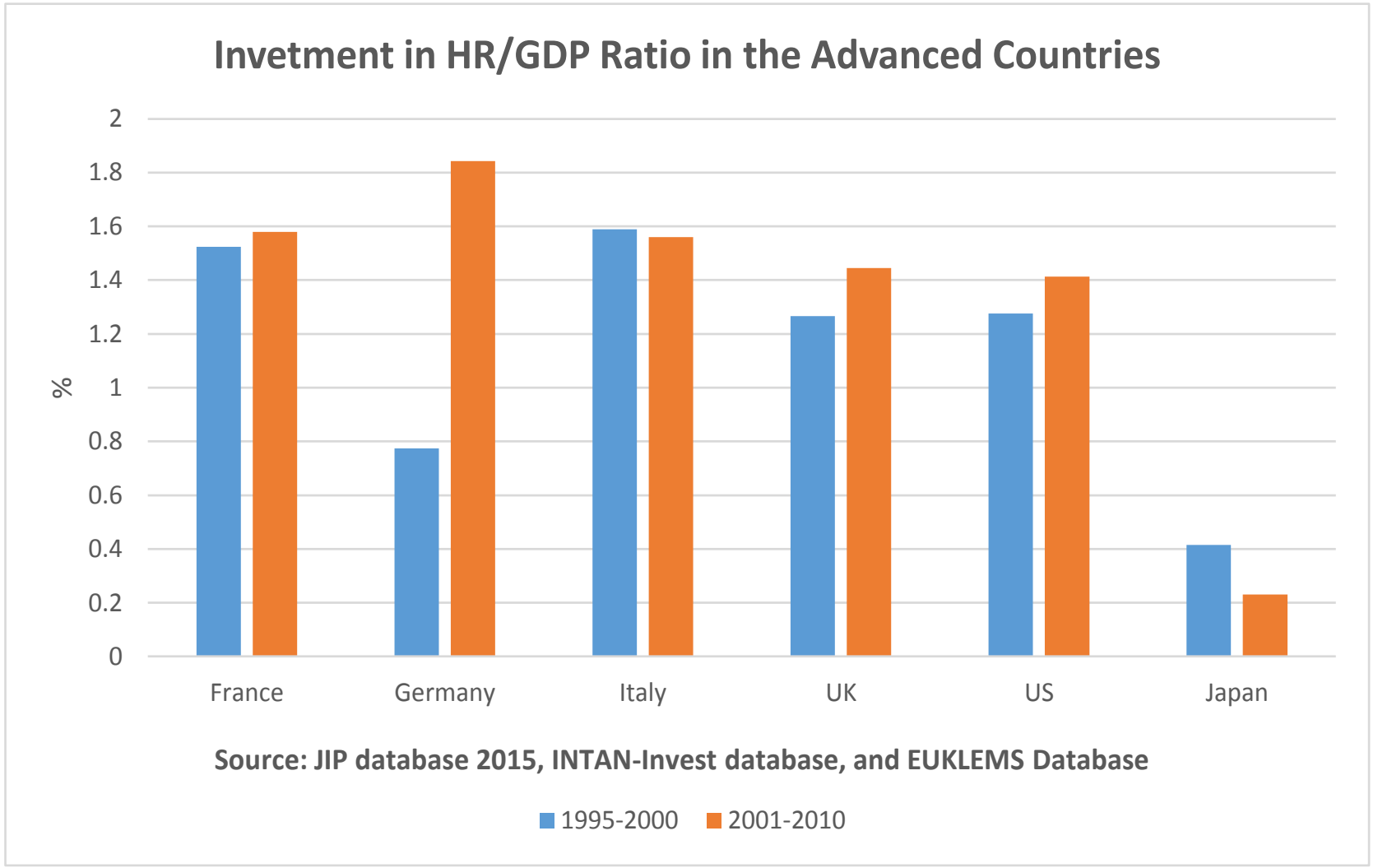

Intangible Investment/ Tangible Investment Ratio in the Advanced Countries
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
France
Germany
Italy
UK
US
Japan
Source: JIP database 2015, INTAN-Invest database, and EUKLEMS Database
1995-2000
2001-2010

Intangibles and the Japanese Economy
3. Intangibles in Japan –international perspective- (contd.)

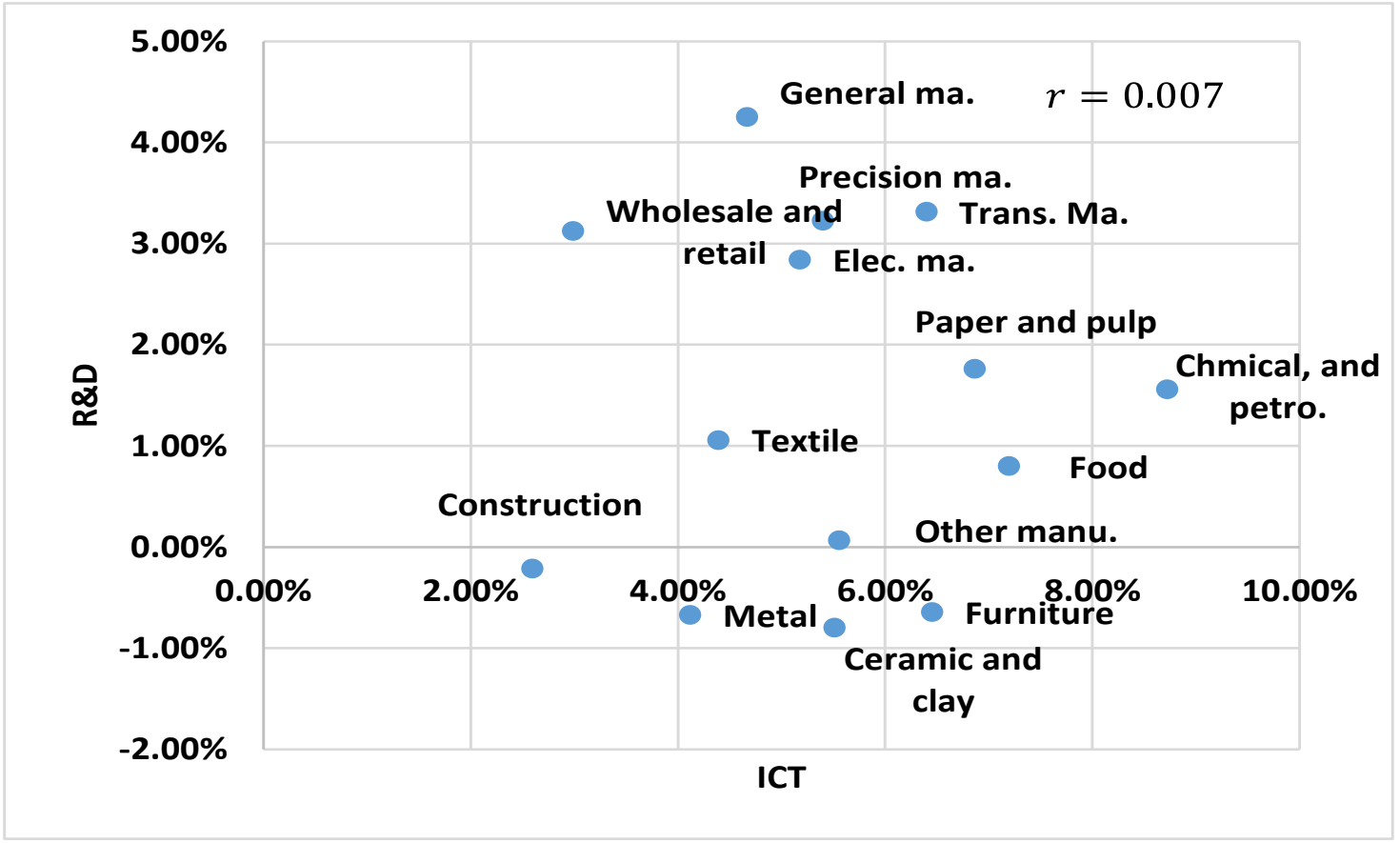
- **Crucial issues in intangibles in Japan**

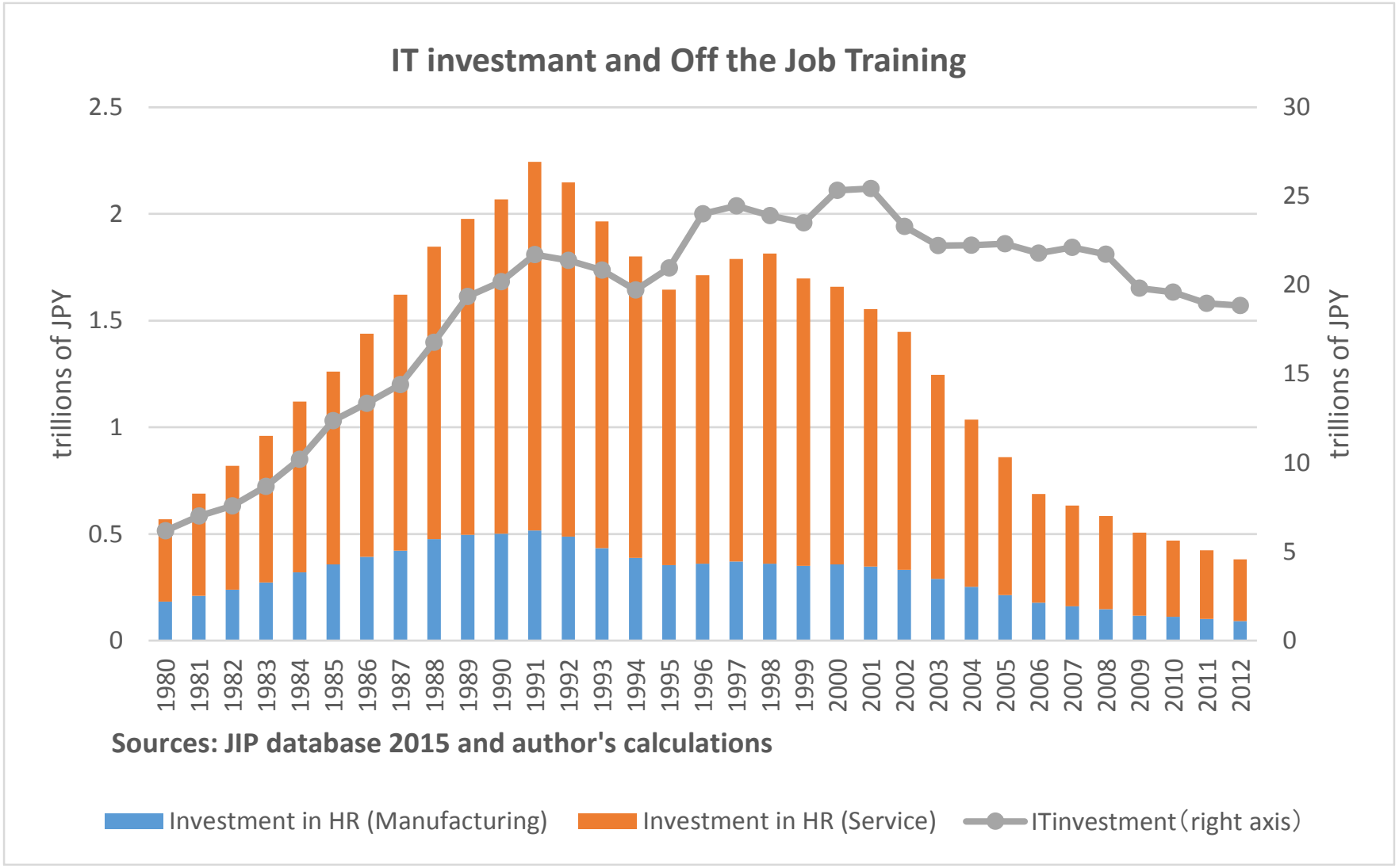
(1) Low investment in human resources←(i) Japanese firms have invested in human resources mainly through on the job training (estimated about 6% of GDP), (ii) restructuring after the Japanese financial crisis in 1997

(2) Lack of complementarities among intangibles (IT and R&D, IT and HR)→Miyagawa and Takizawa (2017) show that complementarities among intangibles increase profit rate.


Invetment in HR/GDP Ratio in the Advanced Countries
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
%
France
Germany
Italy
UK
US
Japan
Source: JIP database 2015, INTAN-Invest database, and EUKLEMS Database
1995-2000
2001-2010

Growth in IT investment and R&D investment in Japan

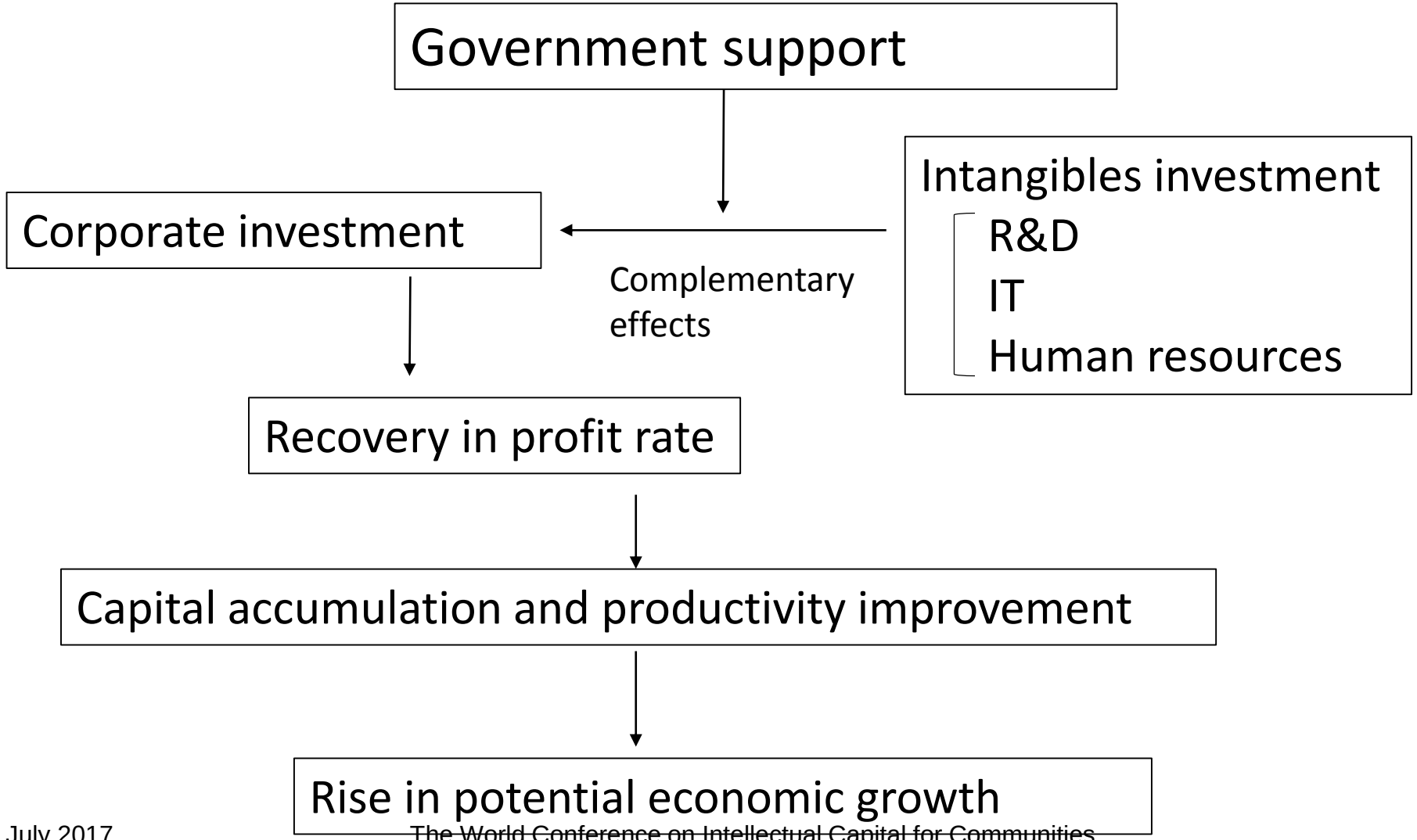



IT investmant and Off the Job Training
trillions of JPY
trillions of JPY
2.5
2
1.5
1
0.5
0
30
25
20
15
10
5
0
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
Sources: JIP database 2015 and author's calculations
Investment in HR (Manufacturing)
Investment in HR (Service)
ITinvestment（right axis）

Intangibles and the Japanese Economy
4. New Strategy in the Information and Digital Economy in Japan

- **The Japanese government understands that easing monetary and fiscal policies do not result in increasing potential growth in Japan.**
- **PM Abe, when he addressed the new policy agenda published in June, emphasized the process of productivity improvement through investment in human resources,.**
- **The Japanese government should adopt more aggressive policies to raise potential growth through more effective use of IT. (for example, e-government, Fintech, etc.)**

Revitalization Process Using Intangibles in Japan



Thank you very much for your attention!