

Intangible Assets and Innovation

— Research Agenda from a Policy Perspective —

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Policy Questions Concerning Intangible Investment

1. How large is the contribution of intangible assets to macroeconomic growth and industry growth?

⇒ The quantitative impacts of intangible investments have been uncovered through recent excellent studies. [Corrado, et al. (2009), Fukao, et al. (2009), etc.]

2. How important are intangible assets for measures of firm performance such as productivity?

⇒ Recent studies using firm-level surveys point to a positive relationship between management practices and productivity. [Bloom and Van Reenen (2007), Miyagawa et al. (2010), etc.]

3. Are there market failures in intangible investments?

4. What type of policy is effective in encouraging intangible investments?

⇒ Many studies on R&D have been conducted. Various market failures have been identified. The effectiveness of policy measures including R&D tax credits have been evaluated empirically.

⇒ *However, we have very limited knowledge for other types of intangible investments.*

The New Growth Strategy

“ *The New Growth Strategy* (June, 2010) proposed policy measures related to intangible investments as part of national strategic projects.

R&D

- . öWe will aim to increase public- and private-sector research and development investment to over 4% of GDP by fiscal 2020.ö
- . öWe will establish a science, technology and innovation system designed to increase basic research capabilities.ö

ICT

- . öIn order to improve productivity in today's service industry, it is essential to carry out operational process reforms through the use of information and communications technology.ö

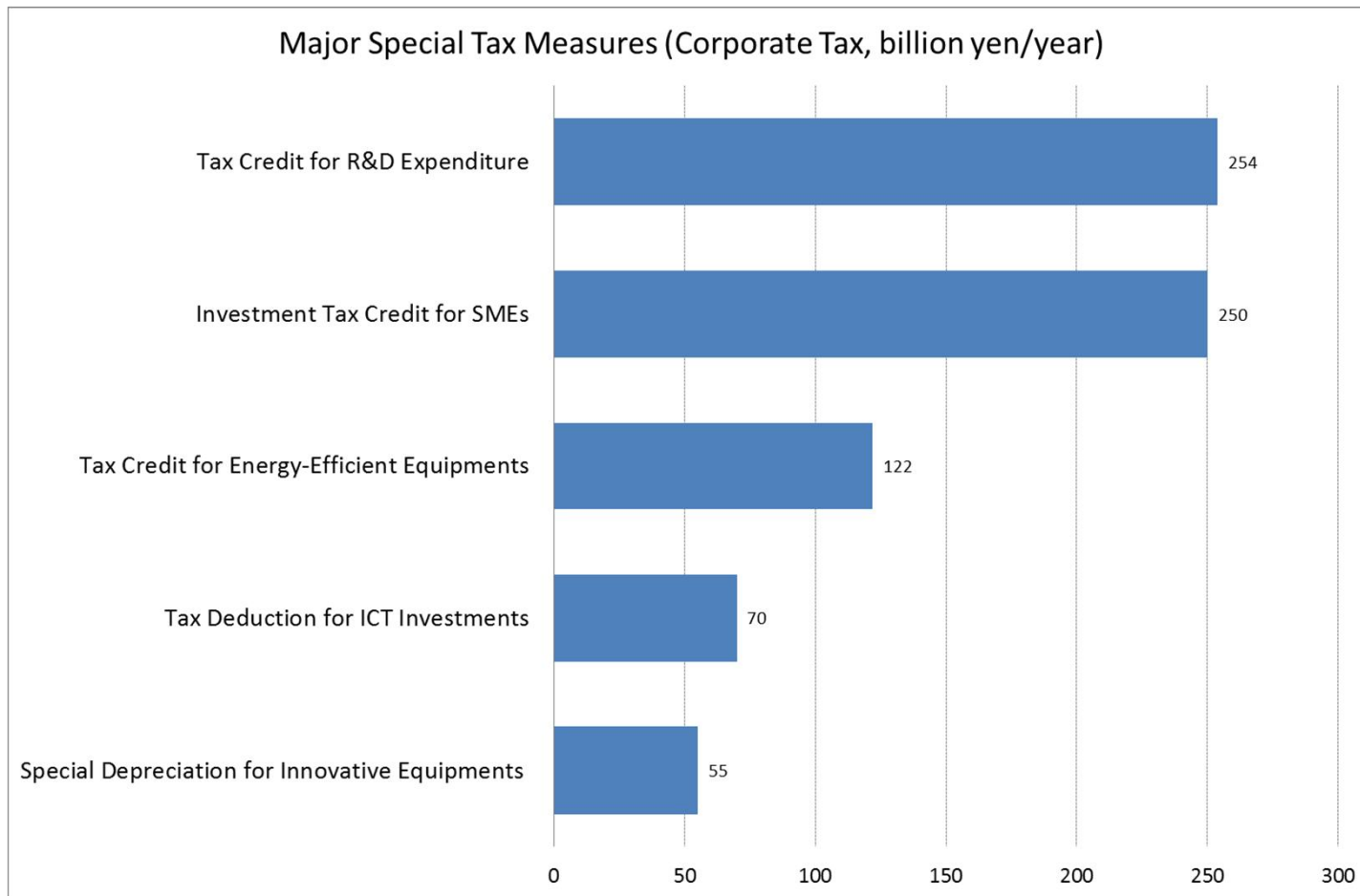
“Cool Japan”

- . öThe potential of the öCool Japanö movement, represented by Japanese fashion, content, designs, foods, tradition, culture, tourism, and music, has not yet led to growth. In the future, it will be a key to Japan's growth to make use of such soft-power and provide products and services incorporating the attractiveness of these materials.ö

“ *The Strategy for Rebirth of Japan* (December, 2011) decided to implement the New Growth Strategy.

Special Tax Measures in Japan

- In Japan, special tax measures (tax credits, accelerated depreciation, etc.) for investments are concentrated on 1) equipment investment, 2) R&D expenditure, and 3) IT investment.
- Policy measures for other types of intangible investments (organizational capital, human capital) are very limited.



R&D Expenditure by Industry (2010)

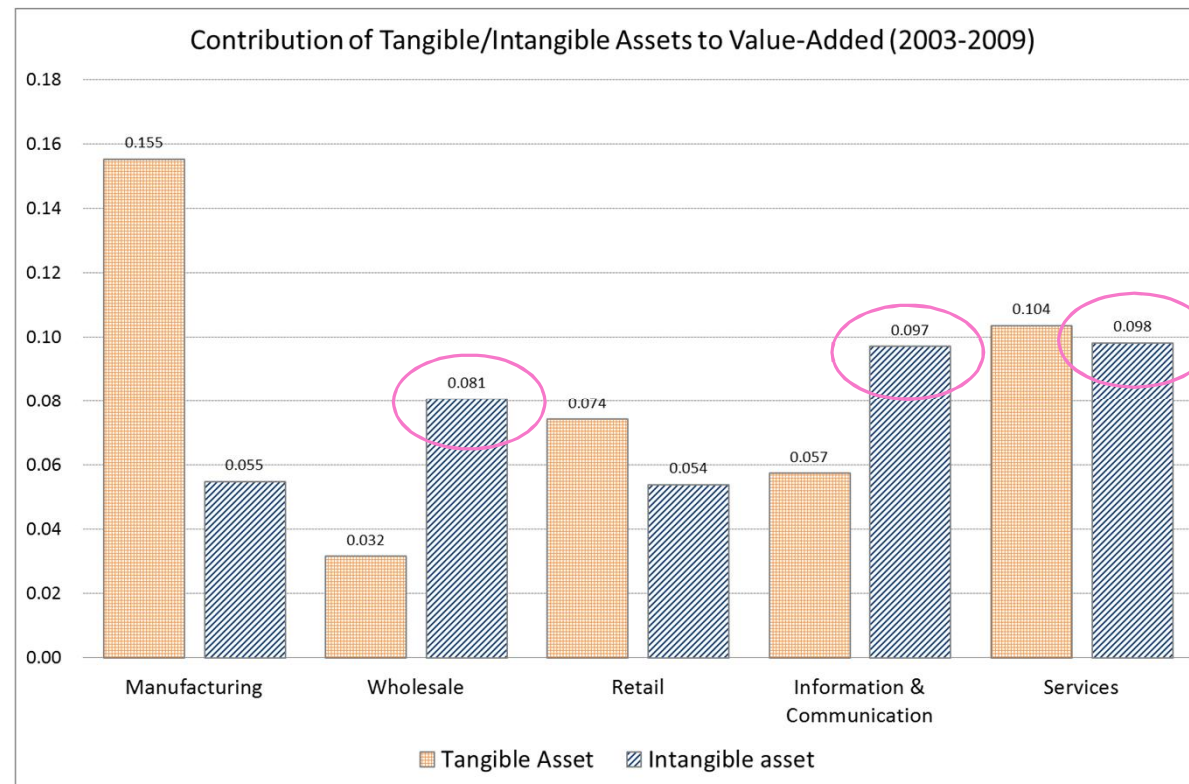
▪ In Japan, about 92% of R&D investments are conducted by manufacturing firms. Policy incentives for R&D investment are ineffective for ordinary non-manufacturing firms.

Industry	billion yen	(%)
Agriculture, Forestry, Fishery	4	0.0%
Mining	3	0.0%
Construction	117	0.9%
Manufacturing	11,740	91.9%
Electricity, Gas, Water Supply	142	1.1%
Information and Communication	521	4.1%
Transportation	50	0.4%
Wholesale	48	0.4%
Finance	3	0.0%
Professional and Technical Services	147	1.1%
Services, N.E.C.	4	0.0%

(Source) Survey of Research and Development (2011).

Contribution of Tangible/Intangible Assets to Firm Output

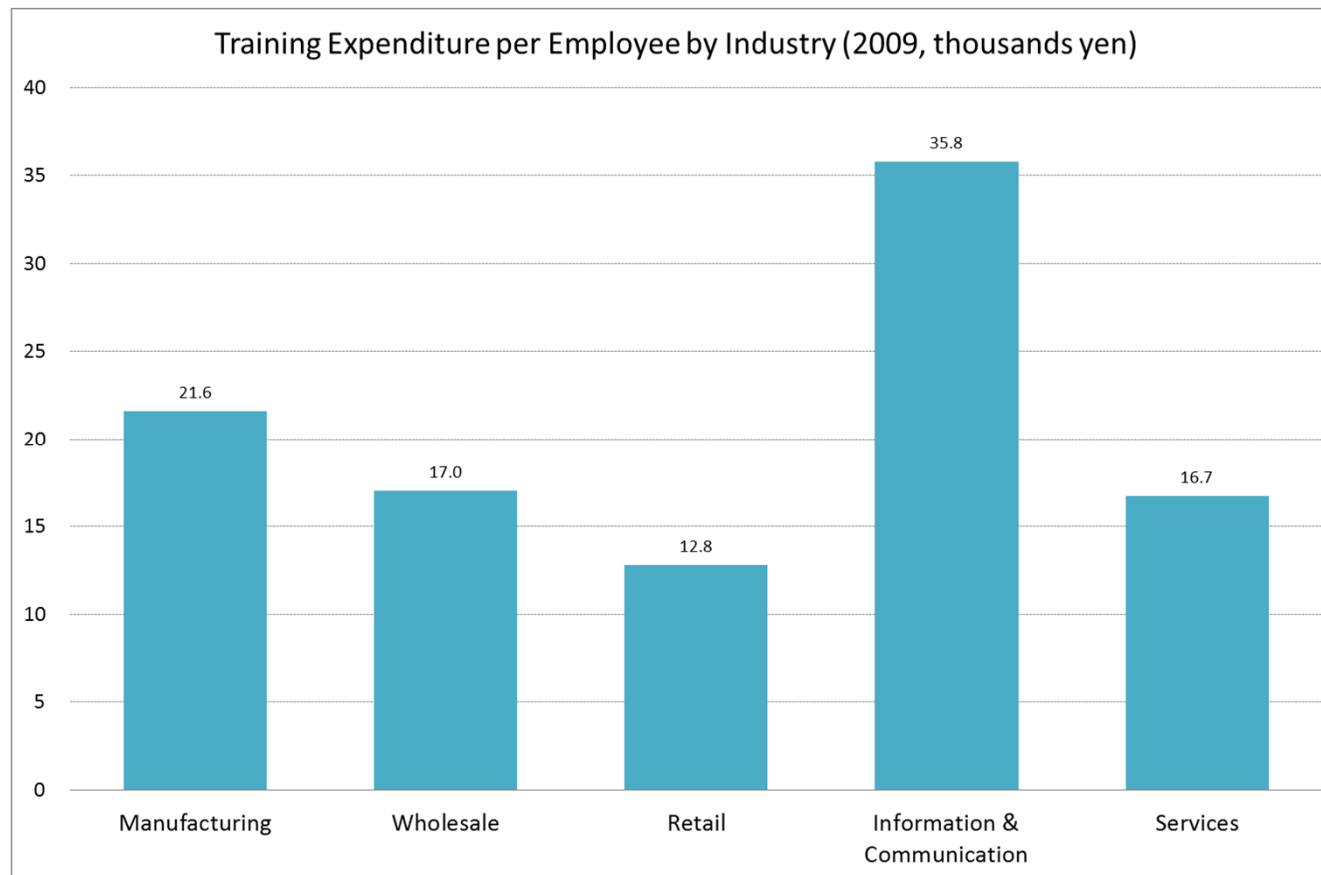
- According to Japanese firm-level accounting data, the contribution of intangible assets to firms' value-added is larger for wholesale, I&C, and service firms than for manufacturing firms. This suggests that intangible investment is important in order to enhance the performance of firms operating in the service sector.
- Of course, it should be noted that accounting data are insufficient to capture the various intangible assets defined by Corrado et al. (2009).



(Note) Value-added production functions are estimated by using firm-level data (2003-2009). Total working hours, tangible fixed assets, and intangible fixed assets are used as independent variables.

Human Capital Investment by Japanese Firms

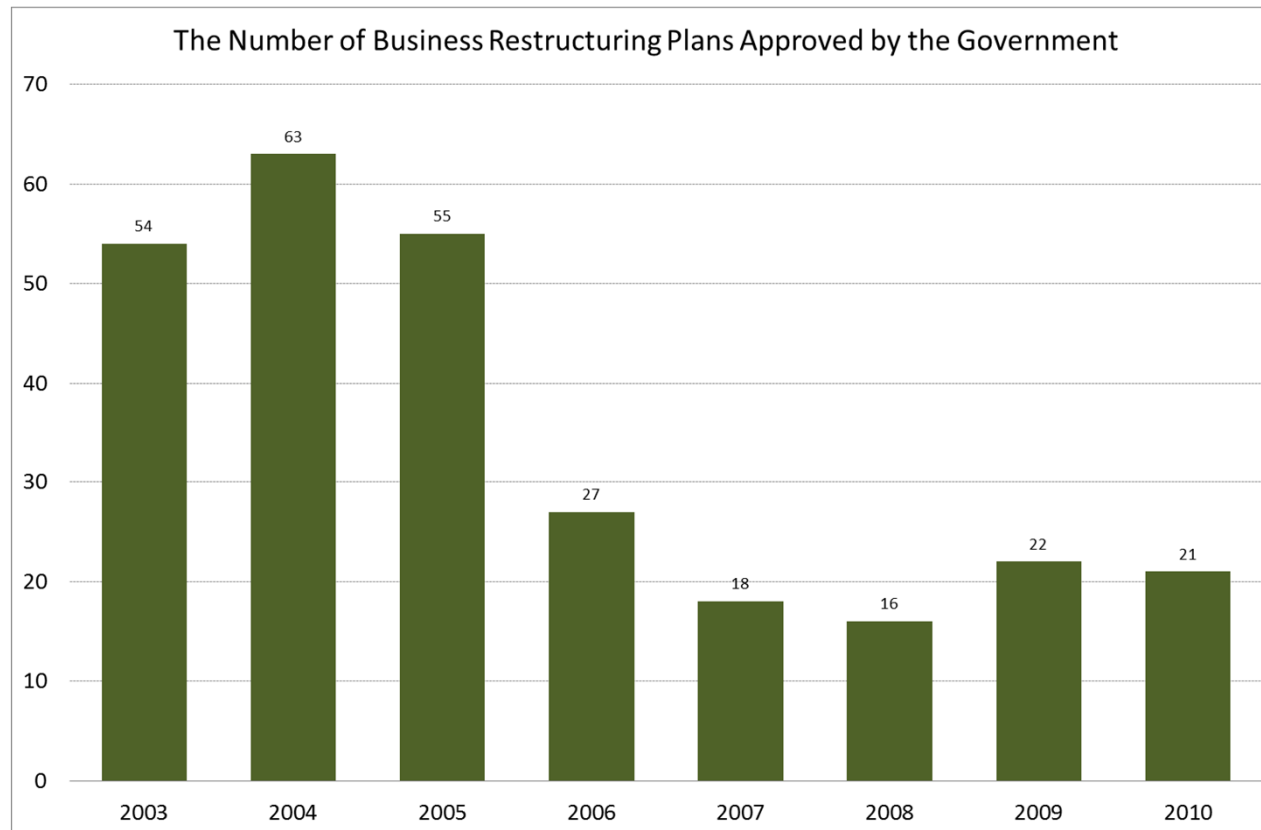
- Investment in human capital is relatively large in the information and communication industry. Service industries are not so different from manufacturing industry in training expenditure per employee.
- In Japan, there is a tax credit for training expenditures by SMEs, but the size is very limited.



(Source) Calculated from the Basic Survey of Japanese Business Structure and Activities (2010).

The Law on Special Measures for Industrial Revitalization

- “ The Law on Special Measures for Industrial Revitalization, enacted in 1999, aims to support the reorganization of private firms.
- “ Firms whose business restructuring plans have been approved by the Government (METI) can use various policy measures including tax reduction, public guarantee of debt, and simplified procedures of corporate law.
- “ This Law has the potential to promote intangible investment in organizational reforms, but the effect of this Law has not yet been studied empirically.



Future Research Agenda

“ There are three important research topics in order to develop effective policy measures for intangible investments.

1. Empirical investigation of the determinants of intangible investments

2. Analyses on the existence and the magnitude of “market failures” in intangible investments

“ Capital market imperfection (information asymmetry)

“ Spillover effects from intangible assets, etc.

3. Analyses of the effects of actual policies on intangible investments

“ Tax policy, subsidy, intellectual property rights, regulations, etc.

⇒ The New National Innovation Survey in Japan, the UK Investment in Intangible Assets Survey, etc.

“ As policies and institutions differ by country, international cooperation is helpful to deepen our understanding and to find out effective policy tools.

⇒ the OECD New Sources of Growth Project

(Appendix) RIETI's current research projects related to intangible assets and/or innovation

- “ Study on Intangible Assets in Japan (Miyagawa FF)
- “ East Asian Industrial Productivity Project (Fukao FF)
- “ Research on Measuring Productivity in the Service Industries and Identifying the Driving Factors for Productivity Growth (Kwon FF)

- “ Economic Analysis of Human Resource Allocation Mechanisms Within the Firm: Insider econometrics using HR data (Kawaguchi FF)
- “ Reform of Labor Market Institutions (Tsuru SF)

- “ Research on Innovation Process and its Institutional Infrastructure Based on Micro Data (Nagaoka FF)
- “ Empirical Studies on the International Comparison of Open Innovation (Motohashi FF)
- “ Basic Research for a New Industrial Policy (Ohashi FF)

⇒ <http://www.rieti.go.jp/en/projects/program/index.html>