

Abstract for “Intangible Capital and Industry Productivity Growth: Measurement Methods and Policy Challenges”

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The measurement of intangible investment has become a fundamental challenge both in the sources of growth literature as well as for national accountants since the seminal work of Corrado, Hulten and Sichel (2005) who estimated business intangible investment in the U.S.. At the moment, the biggest effort to measure intangible investment in an harmonized framework focused on the development of a methodology to estimate intangible capital for the aggregate business sector for the European countries and the US (INTAN-Invest; Coinvest; INNODRIVE). Other country estimates are available for Japan and Korea (Fukao *et al.* (2009) Pyo *et al* (2012)).

As overall business intangible investment is large and growing in advanced countries (Corrado *et al* 2013) the development of harmonized methods and measures of intangible capital at the industry level is essential for a deeper understanding of economic growth and to design macroeconomic policies aimed at stimulating sustained growth, competitiveness and sustainable development. A key policy issue is that investment in many intangible assets, such as R&D, design and new business processes may produce spillovers in the economic system thus stimulating economic growth. In this respect, industry measures of intangible capital are a crucial element to investigate the diffusion mechanisms of innovation across sectors and to define better economic policies.

Very recently, a few studies started to look at intangible investment at the industry level, for example Chun *et al.* (2012) and Miyagawa and Hisa (2013) measure intangible investment for 108 Japanese industries (JIP industry classification) while O’Mahoney *et al.* (2012) produce measures of intangible assets by 1-digit NACE industries for 14 EU countries (FP7 project INDICSER). In this paper we provide a contribution in this respect. We first analyze theoretical and conceptual issues related to the capitalization of intangibles at the industry level and we illustrate the INTAN-Invest methodology to estimate intangible capital expenditure at the sectoral level. We develop harmonized measures of intangible investment across countries and market sectors taking into account the consistency with National Account principles and with the INTAN-Invest business sector estimates of intangible capital (Corrado *et al.*, 2012). New with this work will be improved INTAN-Invest measures that (1) better capture industry-level investments on own-account, (1) incorporate research on industry-level depreciation rates for R&D, and (3) improve the aggregate and industry representation of brand equity capital and brand investments. Then we provide descriptive evidence about the industry dynamics of intangible expenditure by each asset type across countries and we look at the role of intangible capital as a source of growth across 12 EU countries and the US in eight industries, over the period 1995-2010. Finally we evaluate how economic policy settings can be readjusted to favor intangible investment and to stimulate efficient reallocation of resources to new sources of growth.

References

- Corrado, C., Hulten, C. and D. Sichel (2005). Measuring Capital and Technology: An Expanded Framework. In: Corrado, C., Haltiwanger, J. and D. Sichel (eds.), *Measuring Capital in the New Economy*, National Bureau of Economic Research Studies in Income and Wealth 65, 11-45. Chicago: The University Chicago Press.
- Corrado, C.; Haskel, J; Jona-Lasinio, C. and M. Iommi (2012). “Intangible Capital and Growth Strategies for Advanced Economies: Measurement and Comparative Results”, www.INTAN-Invest.net
- Corrado, C., Haskel, J., Jona-Lasinio, C., and Iommi, M, (2013). 'Innovation and intangible investment in Europe, Japan and the US,' Working Papers 11139, Imperial College, London, Imperial College Business School and forthcoming in *Oxford Review of Economic Policy*.
- Chun H., Fukao K., Hisa S., Miyagawa T.,(2012). 'Measurement of Intangible Investments by Industry and Its Role in Productivity Improvement Utilizing Comparative Studies between Japan and Korea,' Discussion papers 12037, Research Institute of Economy, Trade and Industry (RIETI).
- Fukao K., Miyagawa T., Mukai K., & Shinoda Y., Tonogi K. (2009), 'Intangible Investment In Japan: Measurement And Contribution To Economic Growth,' *Review of Income and Wealth*, International Association for Research in Income and Wealth, vol. 55(3), pages 717-736, 09.
- Miyagawa, Tsutomu and Shoichi Hisa (2013). “Estimates of Intangible Investment by Industry and Productivity Growth in Japan.” *The Japanese Economic Review* 64:1 (March), 42-72.
- O’Mahony, M., Niebel T., Saam M., “Estimating intangible capital by industry”, INDICSER Discussion Paper 33.