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How Does Intangible Investment Affect International Productivity Comparisons? Evidence from the US and UK*

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Extended Abstract

This paper draws together two literatures. First, since at least the work of Nakamura (1999) and Corrado, Hulten and Sichel (2005, 6) there has been considerable interest in intangible asset investment and the information therein on investment, innovation and growth. Important results from these macro studies are that including intangible spending as investment raises GDP and changes the sources of growth.

Second, at the same time, there has been considerable interest in comparative labour productivity behaviour, with endless heart searching in the US about the apparent disappearance of US productivity leadership and in the UK about the failure of UK productivity to mimic US levels. In the light of the concerns of this literature, the inclusion of intangibles is a key one: if GDP levels change then the relative pattern of productivity potentially changes and if the sources of productivity change then this might shed a different light on the proximate causes of different relative performance.

This paper incorporates intangibles into National Accounts in the US and UK using the same methods and compares productivity, capital (both tangible and intangible) and total factor productivity levels between. We present results with and without the inclusion of intangibles to highlight the difference they make. We also look at comparative intangible investment across the countries and the within-country growth record with and without intangibles.

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To the best of our knowledge, this is the first paper to make a levels comparison with intangibles. Work by Hao, Manole and Van Ark (2008) has compared within-country growth due to intangibles for a range of EU countries, but has not looked at the comparison of productivity levels.

Whilst this work is macro based, we believe it would be of interest to CAED participants for the following reasons. First, it is comparative which the call for papers mentions. Second, many of the macro measures are based on micro data of interest to CAED researchers, such as occupational data of managers and designers. Third, there has been discussion at previous CAED conferences on intangibles.

At time of writing our results are very preliminary, subject to change and should not be quoted. They are as follows.

1. Without intangibles, value added per hour worked in the UK has been catching up that in the US, to a gap of around 50 log points in 2000 (i.e. $\ln(V/L)^{US} - \ln(V/L)^{UK} = 0.50$; the magnitude of the gap depends crucially on the PPPs chosen as we demonstrate, here we use Groningen PPPs; if we use PPPs used by other papers in the literature we get very similar gaps.)
2. With intangibles, GDP in both countries rises. Our main result here is that it rises by about the same in both countries, so that the gap and changes in it, look very much the same as the no intangibles case.
3. The TFP gap however does change. Without intangibles, there is a gap TFP gap of about 44 log points. But incorporating intangibles reduces that gap to about 34 log points. So accounting for intangibles is informative, at least to some extent, about the proximate causes of the productivity gap.
4. The extra information from intangibles reveals that tangible or software capital does not explain much of the productivity gap either with or without intangibles, since the UK has more or less caught up to the US in tangible and software capital per hour work. But the US employs more intangible capital in the form of innovative property and economic competencies per hour worked, reflecting in particular, leadership in scientific R&D and organisational capital.

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