

IARIW-ESCoE Conference

“Measuring Intangible Assets and Their Contribution to Growth”

Depreciation and the Contribution of Intangibles

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Over the last twenty years a concerted effort has been made to understand the importance of accumulation of intangible capital as a source of economic growth. Haskel and Westlake (2018) noted, that in the United Kingdom in 2014, intangible investment amounted to 11% of GDP while tangible investment was only 10% of GDP. While, looking at an average of advanced economies they find that broadening the scope of capital has little effect on GDP growth rates, the identification of intangible capital assets and gross investment in these assets certainly has the effect of raising the level of GDP and thus giving the impression that incomes are higher than previously thought. Similarly, the identification of new capital assets typically increases growth accounting estimates of the contribution of capital services to GDP.

These calculations, while correct as far as they go, are however, misleading. Intangible assets are typically thought to have rapid depreciation rates and a failure to take account of this means that the contribution of accumulation of intangible capital to growth in the net product and thus to rising real national income is likely to be exaggerated. More generally, the national accounts show a rising share of depreciation in GDP indicating that an increasing proportion of GDP is needed simply to maintain the capital stock and reducing the amount of output available to support consumption or accumulation of new capital.

In growth accounting analysis the contribution of the capital stock, whether tangible or intangible, to GDP is normally measured using an index of capital services. The services provided by each type of capital are assumed to be proportional to its marginal product. This is measured by the rate of return on capital gross of depreciation and is higher for capital goods like computer software which depreciate rapidly than for those which depreciate slowly. Thus rapidly depreciating capital goods provide a relatively high volume of capital services and may appear to be an important motor behind growth in GDP.

In this paper, instead of constructing a single index of gross capital services, we construct distinct indices of depreciation services and net capital services. Growth in gross capital services is shown to be measured by weighted sum of the growth in the two indices, with the weights given by the shares of depreciation and net return to capital in the overall gross return to capital. We similarly show that growth in gross output can be decomposed into the growth in net output plus the growth in depreciation services. The weights are the shares of net output and depreciation in gross output. This makes it possible either to look at the contribution of the two forms of capital to gross output or to identify the contribution of net capital services to net output, with, by definition, depreciation services not making any contribution.

The data on intangible assets used for our calculations are taken from the INTANInvest platform, which presents cross country estimates of investment at current and constant prices. This is combined with data on tangible assets from recent and past versions of EU KLEMS. We will present estimates for the total market economy for four countries, The UK, the US, France and Germany for the period 1995 to 2017.

Haskel J. and S. Westlake. (2018). *Capitalism without Capital*. Princeton University Press. Princeton.