

Abstract for “Service Lives of R&D Assets”

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Changes in the 2008 System of National Accounts expand the asset boundary to include the results of Research and Development (R&D). Aside from the challenges of valuing the R&D itself, this change also challenges National Statistical Institutions with estimating the useful lives of these new R&D assets so that depreciation and stocks of R&D capital can be estimated.

There are a number of different approaches that can be used to estimate assets' service lives; this research analyses the results of new questions on R&D lives added to the UK Business, Government, and Non-Profit R&D surveys in 2012/13, comparing them with insights from analysis of patent renewals data to give a direct comparison of these two methods for the same country. Furthermore, the different methods that can be applied to these sources to estimate service lives are considered and, in particular, Kaplan-Meier survival analysis is used to improve the patent analysis while Monte-Carlo methods are used to assess estimates' statistical robustness.

The research finds that, given the various methods that can be applied to these datasets, a broad range of different estimates of average and maximum service life can be found. The impact of these different lives on R&D stock estimates is illustrated and the strengths and limitations of the different sources and methods are discussed. It is concluded that, while variations in R&D service lives between countries should indeed be a determinant of differences in national R&D stocks (alongside variations in GFCF of R&D), considerable artificial variation in service life estimates may be caused by the choice of data sources and methods with which they are estimated.