

### Abstract

Numerous studies on production and cost, the sources of productivity and studies on endogenous growth have recognized the pivotal role of the physical capital stock. Also there is a clear recognition by economists and policy makers that knowledge capital approximated by R&D capital is crucial for productivity growth and the transformation of the industrial structure of an economy. Critical to these contributions of physical and R&D capital is the measurement of the stocks of physical and R&D capital, which in turn requires measuring their depreciation rates. In this paper we have specified a model of factor demand that allows for estimating the depreciation rate of both physical and R&D capital jointly with the other model parameters. The model was estimated for the U.S. total manufacturing sector. Our estimate for the depreciation rate of physical capital is 0.059 and that for R&D capital is 0.12. Only gross investment data are needed to estimate the model parameters and the depreciation rates, and to generate consistent series for the stocks of physical and R&D capital.

Keywords: Capital, R&D, Depreciation Rates