

# The Effective Life and Value of Capital<sup>1</sup>

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## Abstract

We use the Tobin  $q$  value to derive the effective life of an investment determined by various factors including technological progress; we obtain four interesting results. First, anticipation of an imminent technological innovation or economic boom may postpone planned investment; investment cycle volatility increases when future expectations are positive. Second, given a continuous investment opportunity, investment inflow is accompanied by “scrapping” or depreciation; the depreciation rate and value of capital stock can be estimated using the book value; this reveals effective investments. Third, we show that the Perpetual Inventory Method (PIM) can be used to obtain the relationship between the price change of an investment and the depreciation rate, estimated using monetary information. Fourth, we apply the above methods to estimate sectoral depreciation rates in China, and obtain values close to those of the U.S.A.

JEL: D21, D24, E01, E22

Keywords: effective life, depreciation rate, investment, technological progress, value of capital, national wealth

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