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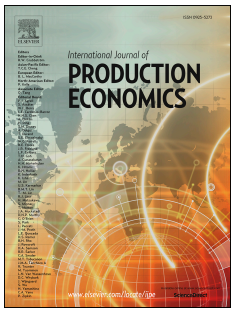

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PII: S0925-5273(18)30198-1

DOI: 10.1016/j.ijpe.2018.05.004

Reference: PROECO 7033

To appear in: *International Journal of Production Economics*

Received Date: 14 March 2017

Revised Date: 23 April 2018

Accepted Date: 2 May 2018

Please cite this article as: Jennergren, L.P., Note on the linear and annuity class of depreciation methods, *International Journal of Production Economics* (2018), doi: 10.1016/j.ijpe.2018.05.004.

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A Note on the Linear and Annuity Class of Depreciation Methods

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Abstract

Depreciation methods are used for allocating acquisition costs of long-lived assets to individual years that benefit from those assets, e. g., in connection with product pricing and regulation of public utilities. The following depreciation methods are sometimes mentioned together in the literature: Nominal linear, real linear, nominal annuity, and real annuity. All are shown to be special cases of one generic formula. For that reason, they are referred to collectively as the linear and annuity class of depreciation methods. The members of this class are ranked (to the extent possible) by their book values. Such a ranking indicates the relative depreciation rates of the class members, and also relative savings due to tax-deductible depreciation. Two applications of members of the linear and annuity class are discussed, to product pricing in classical equilibrium theory, and to incentives for undertaking an investment project. The essential insight from this note is that it is meaningful to group the members of the linear and annuity class into one well-defined class of depreciation methods.

Keywords: depreciation, nominal, real, linear, annuity, book value, capital service cost, depreciation rate, accelerated depreciation, incentives
JEL Classification: M41

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