

Capital stock approximation using firm level panel data – A modified perpetual inventory approach

Abstract

Many recent studies exploring conditional factor demand or factor substitution issues use firm level panel data. A considerable number of establishment panels contain no direct information on the capital input, necessary for production or cost function estimation. Incorrect measurement of capital leads to biased estimates and casts doubt on any inference on output elasticities or input substitution properties. The perpetual inventory approach, commonly used for long panels, is a method that attenuates these problems. In this paper a modified perpetual inventory approach is proposed. This method provides more reliable measures for capital input when short firm panels are used and no direct information on capital input is available. The empirical results based on a replication study of Addison et al. (2006) support the conclusion that modified perpetual inventory is superior to previous attempts in particular when fixed effects estimation techniques are used. The method thus makes a considerable number of recently established firm panels accessible to more sophisticated production function or factor demand analyses.