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Revaluing the capital stock of international production

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Abstract

The objective of the paper is to report on the effect of revaluing foreign direct investment (FDI) at replacement values as a means of estimating the importance of international production. A perpetual inventory model is used to revalue FDI stocks to constant and current values. The empirical results show the extent of the revaluation of inward and outward FDI stocks of the US, the UK, Germany, and Japan. Meaningful comparisons across countries require the translation of FDI stocks in a common currency and at constant prices and exchange rates. Such comparisons reveal that compared to other macroeconomic indicators, FDI has been undervalued.

JEL classification: F21; F23; N10

Keywords: International production; Multinational enterprises; Capital stock; Perpetual inventory model; Country study

1. Introduction

While the valuation of capital stock is a common exercise as part of the national accounts of a country, the valuation of foreign direct investment (FDI) stocks has received limited attention in empirical research. FDI stocks, located in many different countries are important, since they represent part of the "national" capital stock on the basis of ownership of a country's productive assets across the world. Furthermore, capital stock—on the national and international level—is an

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important measure of (i) potential output, (ii) for estimations of future income under the assumption of constant capital coefficients, and (iii) factor substitution and productivity in investment and production functions. There is now considerable interest in productivity comparisons between foreign-owned and domestically owned firms (see e.g. Baldwin, Lipsey, & Richardson, 1998). The degree of multinationality of a country's production is determined by the extent of outward international production by domestically owned firms, and inward international production located in the country in question by foreign-owned firms. In the absence of direct measures, international production is normally measured at a national level by outward and inward FDI stocks. For a number of reasons, published series of inward and outward FDI stock data are a very imperfect measure of international production, inter alia the publication of FDI data at historical values, the lack of important information on FDI stocks such as the absence of a distinction of structures and machinery, about divestments and survival rates as well as problems related to the international nature of FDI stocks (exchange-rate movements, etc.). In particular, these problems prevent meaningful comparisons of FDI stocks either between different countries or in relation to domestic capital stocks or other indicators of the national accounts.

Unfortunately, the existing practice of reporting FDI stocks on a historical cost basis (i.e. book values) is unsatisfactory, because it leads to an underestimation and does not take into account the age distribution of stocks, thus making accurate international comparisons of FDI stocks almost impossible (see e.g. Bellak, 1998, 1999; Cantwell, 1984, 1992; Cantwell & Bellak, 1998).

This paper introduces a method for the revaluation of FDI stocks. Net outward and inward FDI stock may be valued at historic cost (i.e. book values), or at replacement (or market) cost at constant or current prices in common or local currency. Since the expression "market-cost" is also used when FDI is revalued by *stock*-market prices, we prefer the term, current cost. Book values reflect the firm's tangible assets at historical values as reported in the balance sheet. The main difficulty in the revaluation of FDI stocks arises from the fact that price-changes (stemming from changes of asset-prices as well as exchange rates) affect the value of investment flows, which in turn alters the stocks. Earlier approaches to international comparisons of FDI stocks ignored price movements and revalued historical values at current exchange rates, regardless of the age structure of the original investments. In contrast, we take into account price movements and by the same procedure adjust year by year backwards through time for exchange-rate changes, thus making more meaningful international comparisons of historically accumulated stocks.

We examine the empirical significance of these effects. Based on our earlier work, we present some new results on constant and current (replacement) values of the inward and outward FDI stocks of Japan, Germany, the US and the UK. The objective of the paper is to improve upon existing methodology in order to shed new light on the significance of production organized by multinational enterprises (MNEs) and to provide new insights into the extent of globalization.