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Exchange rates and investment good prices: A cross-industry comparison

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Abstract

This paper presents estimates of the impact of exchange rate movements on the industry-level price of investment goods using a panel of OECD countries. An exchange rate depreciation (appreciation) causes a significant rise (fall) in the prices of the investment goods used by most industries, but the magnitude of this effect differs greatly across sectors. A currency depreciation causes a stronger increase in the price of investment goods used by industries that produce high-technology products and employ a larger proportion of imported capital. Hence, movements in the exchange rate may affect the level and distribution of investment across sectors.

JEL classification: F3; F4; E22

Keywords: Exchange rate; Investment; Prices; Pass-through

1. Introduction

Empirical evidence suggests that investment has important consequences for growth and productivity. De Long and Summers (1991) show that investment in machinery and equipment is associated with faster growth while Jones (1994) finds a negative relationship between economic growth and the relative price of machinery. A related strand of research shows that countries with a higher share of imported machinery experience higher growth (Mazumdar, 2001).

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This may be because imports of machinery facilitate the international transmission of technical innovations or lead to increased export competitiveness (Coe et al., 1997; Xu and Wang, 1999; Mody and Yilmaz, 2002). It is not uncommon for governments to encourage investment through tax breaks and other incentive programs. Although exchange rate policy is not typically considered to be an investment incentive program, currency valuation changes can affect the profitability of investment by, for example, altering the prices of imported investment goods.

Given the large exchange rate movements experienced by many countries,[1] if exchange rate changes have a significant impact on investment good prices and, thereby, on investment and capital imports, they may ultimately affect productivity and growth. This study estimates the magnitude of the impact of exchange rate movements on the prices of the investment goods used by individual sectors and sub-sectors of manufacturing and non-manufacturing industries.[2] The use of disaggregated data allows sector-level effects to be identified and gives a broader perspective on the impact of the exchange rate on investment good prices than would an analysis that employs aggregate data or data for manufacturing only.[3] As the data set consists of a panel of OECD countries, more observations are available for each sector than would be available in a single-country study. In addition, as noted by Frankel and Rose (1996), the use of a panel makes it possible to take advantage of the cross-country variation in exchange rates.

The results described below indicate that movements in the exchange rate have a significant effect on the price of investment goods at the aggregate level as well as in many individual sectors, but the magnitude of this effect differs widely across sectors. Unsurprisingly, the exchange rate has the smallest impact on the prices of the investment goods used by sectors in which a relatively large proportion of capital is typically in the form of non-traded building structures – industries such as restaurants, hotels, real estate services and social and personal services. The sectors that exhibit the greatest impact of exchange rate changes on investment good prices generally employ a large proportion of capital in the form of machinery and equipment, a form of capital that tends to be tradable. Industries of this type include manufacturing, transport and communications. A key implication of these results is that monetary and fiscal policies that alter the exchange rate may affect both the level of investment and the sectoral distribution of investment, and could act as a (perhaps unintended) industrial strategy.

To our knowledge, the impact of the exchange rate on the prices of investment goods has not been examined previously. A related literature examines the impact of exchange rate movements on import good prices or the aggregate price level, but does not explicitly examine the prices of investment goods.[4] Another strand of the literature investigates the impact of exchange rate movements on investment and productivity growth. Using data for individual countries, Campa and Goldberg (1999) and Nucci and Pozzolo (2001), for example, find that exchange rate changes have a significant effect on the growth rate of investment in manufacturing.[5] The results reported in Campa and Goldberg (1999) imply that a 10% currency depreciation leads to a 1–2% decline in US investment. Given the relatively small size of their sample,

[1] For example, relative to the US dollar, the average annual percentage change (in absolute value) of OECD country currencies was 10.5% from 1981 to 2001. See the OECD *Bilateral Trade Database*.

[2] Data limitations preclude a sector-level analysis of the prices of *imported* investment goods only.

[3] Although manufacturing is generally a large contributor to GDP, it still accounts for less than a third of non-government GDP in each of the countries included in the data set employed here. See the OECD's *National Accounts*.

[4] See Mann (1986), Feenstra (1989), Knetter (1989), Marston (1990), Feenstra et al. (1996), Swift (2001), Takagi and Yoshida (2001), Campa and Goldberg (2002), Gagnon and Ihrig (2001), and Uctum (2003).

[5] Also, see Goldberg (1993), Campa and Goldberg (1995) and Bell and Campa (1997).