ELSEVIER

Journal of Development Economics 85 (2008) 176–193

JOURNAL OF Development ECONOMICS

www.elsevier.com/locate/econbase

Foreign direct investment and technology spillovers: Theory and evidence

Zhiqiang Liu *

Department of Economics, State University of New York at Buffalo, Buffalo, NY 14260, USA

Received 19 October 2004; received in revised form 26 June 2006; accepted 2 July 2006

Abstract

Within the endogenous growth framework, we offer an explanation on how foreign direct investment (FDI) generates externalities in the form of technology transfer. We distinguish between the level and rate effects of spillovers on the productivity of domestic firms. A new insight gained from the theory is that the level and rate effects of spillovers can go in opposite directions. The negative level effect underscores the fact that technology transfer is a costly process—scarce resources must be devoted to learning. The positive rate effect indicates that technology spillovers enhance domestic firms' future productive capacity. Using a large panel of Chinese manufacturing firms, we find suggestive evidence that an increase in FDI at the four-digit industry level lowers the short-term productivity level but raises the long-term rate of productivity growth of domestic firms in the same industry. We also find that spillovers through backward and forward linkages between industries at the two-digit level have similar effects on the productivity of domestic firms, and backward linkages seem to be statistically the most important channel through which spillovers occur.
© 2006 Elsevier B.V. All rights reserved.

JEL classification: O3; F2
Keywords: Foreign direct investment; Technology spillovers; Productivity growth

1. Introduction

Attracting foreign direct investment (FDI) has become an essential part of development strategies among less developed countries (LDCs). Many offer special incentives to foreign investors, such as tax holidays, tariff reductions or exemptions, and subsidies for infrastructure.[1]

* Tel.: +1 716 645 2121; fax: +1 716 645 2127.
E-mail address: zqliu@buffalo.edu.

[1] In China, for example, foreign-invested firms are exempt from paying income tax for 2 years from the first profit-making year and are allowed a 50% tax reduction thereafter for 3 years. For an overview of FDI in China, see Liu (2002).

0304-3878/$ - see front matter © 2006 Elsevier B.V. All rights reserved.
doi:10.1016/j.jdeveco.2006.07.001

To a large extent, such policies have indeed been instrumental in accelerating FDI flows into LDCs. According to the latest World Bank report,[2] the net FDI flows into low-income countries were more than tripled between 1990 and 2001, increasing from about $2.6 billion in 1990 to $9 billion in 2001. Middle-income countries also experienced an increase in the net FDI inflows from about $21 billion to $162 billion over the same period. China stands out among middle- and low-income countries with a net FDI inflow of about $44 billion in 2001, which is more than 12 times of the 1990's $3.5 billion. Although FDI is widely believed to be beneficial to its recipient countries from financing a savings gap or balance of payments deficit to increasing exports and earning foreign currency, to increasing employment,[3] preferential policies toward FDI rest, in large part, on the assumption that FDI generates externalities in the form of technology transfer, including advanced technology, management methods, new products and new processes.

There are arguments in favor of FDI as a conduit for technology transfer. Domestic firms can learn from foreign-invested firms by observation or by establishing business relations with the latter or through labor turnover as domestic employees move from foreign to domestic firms. In an influential study, Findly (1978) suggests that the capital in foreign-invested firms play the role of a generalized promoter of technology improvement—the more chances do domestic firms have to observe the advanced technology used by foreign-invested firms, the faster does domestic technology level grow. Wang (1990) extends Findlay's model by establishing a link between FDI and the growth of domestic human capital. In his model, an increase in FDI induces more investments in human capital, which enhances the catch-up potential of the recipient country. Fosfuri et al. (2002) and Glass and Saggi (2002a) present models of technology spillovers through labor turnover. Walz (1997) suggests that the presence of foreign-invested firms in LDCs brings about knowledge spillovers to the domestic R&D sector and hence contributes to economic growth. Glass and Saggi (1998) maintain that product imitation by local firms in an LDC is possible only when a foreign-invested firm produces the product within the country. Glass and Saggi (2002b) further argue that the presence of FDI benefits domestic firms by lowering the cost of imitation.

The empirical evidence on whether FDI facilitates technology spillovers is ambiguous. Caves (1974) finds positive and significant spillovers in the Australian manufacturing sector. Rhee and Belot (1989) claim that the entry of foreign firms is largely responsible for the creation and subsequent growth of domestically owned textile firms in Mauritius and Bangladesh. However, Germidis (1977) examines a sample of 65 multinational subsidiaries in 12 developing countries and finds almost no evidence of technology transfer from foreign to local firms. Haddad and Harrison (1993) find negative spillovers associated with FDI in Morocco. In a study of Venezuelan firms, Aitken and Harrison (1999) find that FDI affects adversely the productivity of domestic firms. To explain their results, they put forward a "market-stealing" hypothesis arguing that, while FDI may promote technology transfer, foreign-invested firms gain market shares at the expense of domestic firms and force the latter to produce smaller outputs at higher average costs. As a result, the overall benefit of FDI is small. Using a panel of manufacturing industries from China, Liu (2002) shows that FDI has large and significant impacts on the productivity of manufacturing industries in the domestic

[2] World Bank, *World Development Indicators*, 2003, Washington, DC: World Bank (2003).

[3] In a survey article, de Mello (1997) claims that efficiency spillovers from foreign to domestic firms determine ultimately the impact of FDI on output growth in the recipient country. Some have questioned whether the benefits of FDI exceed its costs to the host country by pointing out potential detrimental effects of FDI, such as increasing the host country's technology dependence on foreign sources and therefore retarding innovations by domestic firms, destroying domestic firms through an intense competition and lending greater market powers to foreign firms, introducing inappropriate products, technology, and consumption patterns (see, e.g., Nafziger, 1990).

دریافت فوری ← متن کامل مقاله

ISIArticles
مرجع مقالات تخصصی ایران

✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
✓ امکان دانلود نسخه ترجمه شده مقالات
✓ پذیرش سفارش ترجمه تخصصی
✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
✓ دانلود فوری مقاله پس از پرداخت آنلاین
✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات