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Offshore production and skill upgrading by Japanese manufacturing firms

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Abstract

We investigate the influence of offshore production by Japanese multinationals on domestic skill intensity. Identifying relationships based on within variation in a panel of 1070 firms, we find that additional foreign affiliate employment in low-income countries raises skill intensity. The positive effect of FDI on domestic skill intensity, however, diminishes as investment shifts towards high-income countries. Increases in affiliate employment in low-income countries also raise a firm's reliance on finished goods purchases, suggesting that overseas employment affects domestic skill intensity because imports of final goods from foreign affiliates displace domestic production.

Keywords: Multinational enterprises; Outsourcing; Skills; Wages; Globalization

JEL classification: F2

1. Introduction

Over the past three decades, Japanese multinational enterprises (MNEs) have steadily increased their offshore manufacturing presence. They now possess substantial production capabilities abroad. *Time* magazine (April 22, 1996, p. 60) reports, 'Currently, for example, Japan imports 23 times as many television sets as

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it exports. They are all assembled in Japanese-owned factories in places like Malaysia and Thailand . . . By the year 1998, Toyota expects that 65% of the cars it sells around the world will be made outside Japan'. Over the corresponding period, Japanese firms have also increased the share of the wage bill attributable to nonproduction workers, suggesting a demand shift away from workers with low skills.

This paper investigates the relationship between the international production strategies of Japanese MNEs and skill upgrading in Japanese firms. We employ a 25-year panel data set for over 1000 Japanese manufacturing firms to investigate the effects of increases in foreign employment on the skill intensity of the domestic workforce. We use the nonproduction worker share of the wage bill and the firm-level average wage as proxies for skill intensity. The analysis explores differential effects on domestic skill intensity of investment in countries with different levels of per capita income. We also examine the electronics industry as a special case of extensive foreign production.

We develop predictions about how FDI affects skill intensity of the parent firm at home based primarily on alternative depictions of MNEs described in the series of articles written by Markusen, Venables, and co-authors.[1] Markusen and Maskus (1999, p. 1) state that horizontal MNEs 'replicate roughly the same activities in many locations'. Vertical MNEs, in contrast, 'geographically fragment production into stages, typically on the basis of factor intensities, locating skilled-labor intensive activities in skill abundant countries and so forth'. FDI may have different effects on skill intensity at home depending on the type of investment and the income level of the host country. The relationship we observe between FDI and skill intensity will indicate whether horizontal or vertical investment characterizes our data.

The paper contributes to a recent literature investigating the influence of globalization on the demand for skilled labour. Slaughter (2000) and Feenstra and Hanson (1996a,b) relate the nonproduction worker share of the wage bill of US industries to international activities. Slaughter demonstrates that the US industry data provide no support for a positive relationship between MNE activities and skill upgrading over the 1977–1994 period. Feenstra and Hanson, however, find that foreign outsourcing (defined by them as the substitution of imported inputs and finished goods for domestically produced goods) can account for 18.9–21.3% of the observed increase in the nonproduction worker share of the wage bill for their sample of 4-digit SIC industries in 1979–1990.[2] Feenstra and Hanson (1999) obtain somewhat stronger results. They use 4-digit industry data on the prices and quantities of outputs and inputs to relate estimated changes in factor prices to foreign outsourcing and the high-technology capital stock. They find that outsourc-

[1]See, for instance, Markusen (1984, 1995), Markusen and Venables (1997), Carr et al. (2001), Venables (1999), Markusen and Maskus (1999).

[2]These figures are reported in Feenstra and Hanson (1996c), the errata to the original publication.