

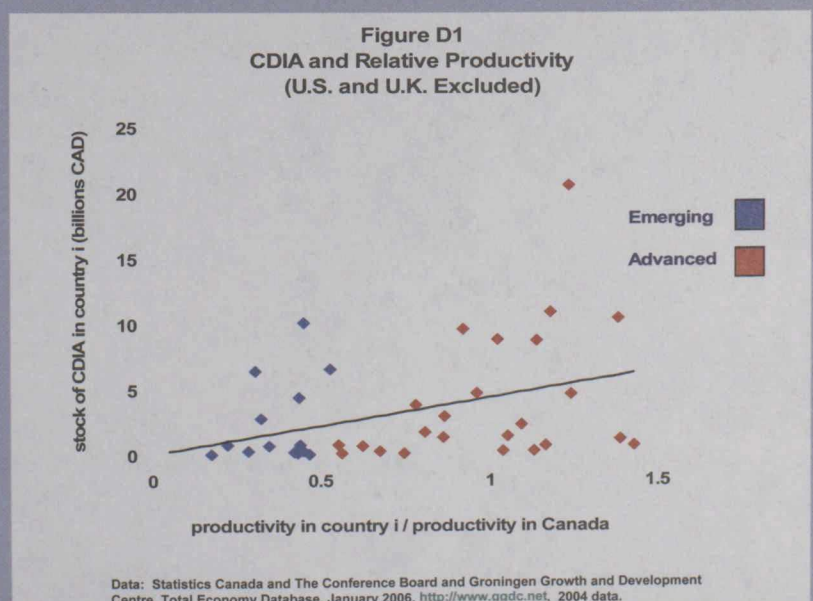


BOX D: CANADIAN DIRECT INVESTMENT ABROAD: WHAT ROLE DO DIFFERENCES IN TECHNOLOGY PLAY IN VERTICAL AND HORIZONTAL DIRECT INVESTMENT?

Canada's economy depends heavily on international trade, with imports and exports equivalent to 72 per cent of Canada's Gross Domestic Product (GDP) as of 2005. But trade is far from the only international connection of importance. Foreign direct investment, both inward and outward, also contributes to Canadian prosperity. Inward direct investment brings with it new technologies, capital, and ways of doing and organizing economic activity, while outward direct investment is essential for increasing Canadian integration into global supply chains and expanding export potential. This paper focuses on Canadian Direct Investment Abroad (CDIA) which, equivalent to 34 per cent of GDP in 2004, plays a substantial role in the well-being of the Canadian economy. The question posed is: how do differences in technology levels between countries affect the location of Canadian direct investment? Do Canadian firms seek out and capitalize on differences in resource endowments such as skilled labour, or do they seek to expand horizontally into foreign markets? Does having technology levels that are closer to Canada's amplify or dampen these motives to engage in direct investment in a given country?

Direct investment can be split broadly into two types: vertical and horizontal. Vertical direct investment occurs when a firm fragments its production process internationally, locating different segments of that production process across different countries. This encompasses the labour-seeking, resource-extracting, and component-outsourcing types of foreign direct investment. Horizontal direct investment, on the other hand, occurs when a firm engages in the same production process in different countries; this covers the market-seeking and differentiated products motives. Vertical direct investment decisions are motivated by a desire to exploit the respective comparative advantages of different countries. These sort of investments allow firms to arrange their production based on where it is most efficient to locate each piece of the process. Horizontal direct investment, on the other hand, is motivated by impediments to the movement of goods and services, such as tariff barriers or high transportation costs, which create incentives to duplicate production abroad. But what role do technology differences between countries play in horizontal and vertical direct investment decisions? This section investigates the Canadian case.

Unsurprisingly, the U.S. is far above any other country as the most important location for CDIA; the U.K., as well, is home to a substantial amount of CDIA. However, due to these high quantities of CDIA in the U.S. and U.K., it is difficult to see how CDIA is distributed in the other countries when those countries are included in a graph. Therefore, the U.S. and U.K. are omitted in Figure D1, which plots CDIA against productivity in the foreign country relative to that in Canada. Productivity is used as a proxy for countries' technology levels relative to Canada's.¹ In this graph, a spray pattern moving from left to right is visible. This indicates a positive relationship, as shown by the trend line, between CDIA and technology level, with higher technology levels associated with



¹ As described later in the paper, labour productivity, measured by output per hour, is used as a proxy for technology as described in Ihrig, Jane (2005), "The Influence of Technology on Foreign Direct Investment," *American Economic Association Papers and Proceedings*, Vol. 95, No. 2: 309-313.