Comment

MARC J. MELITZ

In parallel to the trade and growth debate, a related research agenda has analyzed the cross-country linkages between foreign direct investment (FDI) and development. The two chapters by Blonigen and Wang and Carkovic and Levine offer new insights into this momentous debate. At first glance, these chapters could be summarized as reaching opposite conclusions concerning the impact of FDI on development. However, I will argue that the main findings in both chapters can be reconciled into a unified assessment of the cross-country links between FDI and development.

Before turning to the potential impact of FDI on development, Blonigen and Wang analyze the cross-country determinants of FDI. They focus on the fundamental differences in the processes governing the location and effects of FDI between developed and developing countries. As they report in some initial descriptive statistics, almost all of the world's FDI originates from parent companies in developed countries (with a minor exception for some FDI flows between countries in Southeast Asia). Most of this investment is also located in other developed countries. Such investments are predominantly driven by foreign market access and classified as "horizontal" FDI: the entire manufacturing process (but not necessarily the distribution/retailing of the good) is reproduced in a foreign location in proximity to major foreign markets. However, a substantial and growing amount of FDI now also flows to developing countries. Some of this investment undoubtedly also reflects horizontal FDI in the big (and growing) developing markets. Yet, another form

Marc J. Melitz is associate professor of economics at Harvard University and researcher at the National Bureau of Economic Research and the Centre for Economic Policy Research.

of "vertical" FDI is also prominent in developing countries: such investment reflects the breakup of the production chain into processes with different factor intensities. The unskilled labor–intensive production processes are then located in low-wage (hence, developing) countries. These foreign-owned production facilities often import intermediate inputs from their parents and reexport most—in some cases all—of their output.

Given the fundamental differences between horizontal and vertical FDI, it is, therefore, natural to expect these different types of FDI to be attracted by different country characteristics and then engender different consequences for the local economy. Blonigen and Wang show that this is indeed the case. Given their availability, data on US outward and inward FDI are commonly used for cross-country studies. Among such data, only the US outward FDI to developing countries would capture a substantial proportion of vertical FDI. Blonigen and Wang show that this distinction is important when analyzing the determinants of US outward FDI. In particular, theoretical models predict that a country's level of development (and hence its relative skill abundance) will have opposite effects on its ability to attract horizontal and vertical FDI: Lower skill abundance (entailing lower labor costs for unskilled labor–intensive processes) would attract vertical FDI but simultaneously make horizontal (market access–seeking) FDI less attractive. These predictions are confirmed by Blonigen and Wang: US outward FDI to developed countries (predominantly horizontal FDI) is strongly attracted to countries with higher skill abundance.[1] However, this effect is reversed for US outward FDI to developing countries—although this overall effect is not statistically significant.

In any event, Blonigen and Wang clearly show that a country's skill abundance has a very different impact on the FDI pattern of US firms in developing countries relative to developed countries. This difference is both economically and statistically significant. Furthermore, the overall insignificant effect of skill abundance on FDI location for developing countries can be attributed to the combined measurement of both horizontal and vertical FDI (which respond in opposite ways to skill abundance) in some developing countries. This effect is confirmed by Yeaple (2003), whose study finds that US outward FDI in unskilled labor–intensive sectors (most likely to represent vertical FDI) is significantly higher in less skill abundant countries. However, these countries also attract significantly less US FDI in skilled labor–intensive sectors (most likely to represent horizontal FDI).

The effect of a country's skill abundance on its acquisition of US outward vertical FDI has also been more directly substantiated in a recent

1. To conform to some previous work, Blonigen and Wang use a measure of skill difference with the United States as their independent variable. It should be noted that, when US outward FDI is separated from US inward FDI (as is the case here), the effect of this variable is identical to one measuring the negative of the recipient country's skill abundance measure: the effect of US skill abundance is subsumed in the regression constant.

study by Hanson, Mataloni, and Slaughter (2003). They use a much more direct gauge of vertical FDI, measured as the share of a US affiliate's cost spent on imported (from the US) intermediate inputs for further processing. They find that such a measure significantly responds to differences in the wages of unskilled workers across countries: countries with lower unskilled wages attract disproportionately more of this vertical FDI. More importantly, for the subsequent analysis of FDI and economic growth, Hanson, Mataloni, and Slaughter (2003) also find that this measure of vertical FDI strongly and significantly responds to lower trade barriers: vertical FDI increases with the presence of export processing zones, lower trade costs (by sector), and proximity to the United States (the location of the parent company). This confirms the prediction of theoretical models of vertical FDI: trade is a needed complement for this type of FDI, as intermediate inputs are imported by the affiliate and the processed product must then be reexported. In contrast, horizontal FDI mainly serves as a substitute for trade: affiliate production and sales replace export sales from the parent's domestic production facilities.

Turning to the effect of FDI on growth, Blonigen and Wang investigate the cross-country relationship between decade averages of total FDI inflows and per capita GDP growth. Since they have data for only two decades (the 1970s and 1980s), they cannot control for unobserved country characteristics that are correlated with inward FDI (a fixed-effects specification). Therefore, they investigate the effects of observed country characteristics, controlling for those unobserved characteristics that are uncorrelated with FDI (the random-effects specification). Blonigen and Wang find that a country's level of development and education are very important controls: inward FDI has a statistically significant effect on growth only for those developing countries above a certain education level. This clearly demonstrates a correlation—among developing countries with higher education levels—between FDI levels and economic growth.

As with the trade and growth debate, a nagging question over causation persists. In particular, could some unobserved country characteristics be driving both FDI flows and growth? Carkovic and Levine address this issue by using a longer time series (35 years from 1960 to 1995 averaged over 5-year intervals) and new panel data estimation techniques. Their Generalized Method of Moments (GMM) estimation controls for such unobserved country characteristics (including those correlated with FDI inflows) as well as the endogeneity of other regressors (in particular, the use of initial per capita GDP as a control). Their baseline results, including controls for initial per capita GDP, skill abundance, inflation, and government size confirm the findings of Blonigen and Wang: the significant correlation between FDI and growth persists after controlling for unobserved country characteristics. Put differently, within countries, above (historical) average levels of FDI are significantly correlated with above average growth rates. Carkovic and Levine reach negative conclusions about the link between

FDI and growth based upon the results including controls for trade openness (either directly or via the black market premium) and domestic financial credit. Carkovic and Levine then show that the independent effect of FDI is no longer significant. Although these subsequent results impose some strong qualifications on the relationship between FDI and growth, I disagree with the authors' final assessment on the absence of such a link.

As I previously noted, vertical FDI and trade are necessary complements and are thus jointly determined by a country's overall policy toward international trade and investment (as well as other country-specific factors). Changes in the latter would then move both vertical FDI and trade in the same direction. Carkovic and Levine's results suggest that such joint changes in both FDI and trade are significantly correlated with growth. Thus, increases in FDI that are associated with increases in trade (as theory predicts should be the case for vertical FDI in developing countries) lead to higher growth rates. In this qualified interpretation, the link between FDI and growth remains present. Nevertheless, this interpretation should be applied cautiously: as Carkovic and Levine point out, there is no evidence that increases in FDI alone (not associated with increases in trade) lead to higher growth rates. How should one interpret such independent changes in FDI, especially in developing countries, and why do they not contribute separately to economic growth?

Moran's chapter in this volume provides some illuminating answers by carefully studying different policies toward foreign investment in developing countries. He documents how certain countries (in certain sectors and time periods) bundle FDI policies with restrictive and burdensome regulations concerning affiliate ownership (e.g., forbidding majority ownership, and imposing joint ventures), domestic content requirements, onerous (rent shifting) taxes, and import barriers. These policies are often designed for import substitution, where the foreign-owned plant is restricted to serve the protected domestic market. Moran further documents how these restrictive policies hinder or even preclude the integration of the foreign-owned affiliate into the parent's international sourcing network, leading to substantial performance penalties (e.g., smaller plant size, worse efficiency and quality, lower investment) relative to foreign affiliates in developing countries with more liberal policies toward FDI. It is therefore not surprising to expect these different policies to substantially affect or even reverse the links between FDI and growth. In addition, these liberal investment policies also lead to joint increases in FDI and trade, as the affiliates integrated into their parent's network import intermediates from, and reexport back to, this network. However, increases in FDI in countries with restrictive investment policies will not be associated with increases in trade—and may even be linked with decreases in trade as imports are substituted with affiliate production.

Naturally, more formal econometric evidence is needed to confirm that such overly restrictive investment policies are behind the subaverage per-

formance of developing countries that attract FDI without concurrently increasing their trade levels. At the same time, the evidence presented by Carkovic and Levine still supports—but does not confirm—the view that increases in vertical FDI associated with increases in trade (which supports the foreign affiliate's integration into the parent's international network) are linked to higher growth rates. As with the trade and growth literature, the evidence on these links between FDI and development leaves enough room for some fairly different interpretations. Blonigen and Wang contribute to this literature by showing how developing countries attract different types of multinational activity than developed countries, and that this multinational activity is correlated with higher growth rates in developing countries that attain certain education threshold levels. Carkovic and Levine further contribute to this debate by showing that this correlation is not driven by unobserved country characteristics. Nevertheless, they also show that independent increases in FDI inflows are not likely to enhance growth. Countries experiencing concurrent increases in FDI, trade, and domestic credit are the most likely to enjoy the largest growth-enhancing benefits. Identifying the right mix of policies that generate such changes remains a crucial—and hotly debated—area for further research.

References

Hanson, Gordon H., Raymond J. Mataloni, and Matthew J. Slaughter. 2003. *Vertical Production Networks in Multinational Firms.* NBER Working Paper 9723. Cambridge, MA: National Bureau of Economic Research.

Yeaple, Stephen R. 2003. The Role of Skill Endowments in the Structure of US Outward Foreign Direct Investment. *Review of Economics and Statistics* 85, no. 3 (August): 726–34.