

Definitions

FDI is an institutional form of inter-firm co-operation and/or of expansion of the scale and location of a firms' operation.

FDI could be made in the form of equity investment (mergers & acquisitions, joint-ventures and equity investment in the development of new productive capacities); or in the form of quasi-investment (licensing, international subcontracting, provision of services and technology to a specific production process, etc).

Growth equations and the role of FDI

Economic growth is determined by the efficient combination of a set of inputs and technology (techniques of production and marketing, knowledge, and marketing, managerial and organizational skills) through a growth equation:

$$y = k^\alpha l_u^\beta l_s^\delta t^\phi$$

where subscripts u and s refer to unskilled and skilled

subscripts refer to elasticities of output with respect to the repective factor

y, k, l and t refer to output, capital, labour and technology

$$y = \frac{\Delta Y}{Y}, k = \frac{\Delta K}{K}, l = \frac{\Delta L}{L}, t = \frac{\Delta T}{T}$$

FDI affects growth to the extent that it affects capital accumulation and the supply of skilled labour and technology.

$$\frac{y}{fdi} = \alpha \frac{k}{fdi} \delta \frac{l_s}{fdi} \phi \frac{t}{fdi}$$

$$fdi = \frac{\Delta FDI}{FDI}$$

FDI affects capital accumulation to the extent that it affects the supply of domestic and foreign capital. The net effect of FDI on capital accumulation depends on whether FDI substitutes for (crowds out), or is complementary with (crowds in) domestic capital:

$$K = K_d + K_w$$

$$k = k_d + k_w$$

$$\frac{k}{fdi} = \eta k_w + \sigma \frac{k_d}{fdi}$$

where η and σ refer to foreign and domestic capital share of total capital.

If FDI crowds out domestic capital, then:

$$\frac{k}{fdi} < \eta k_w, \text{ because } \sigma \text{ has a negative sign.}$$

This can be the case when FDI displaces domestic business from the market (for example, through competition or mergers and acquisitions), or borrows in the domestic economy and therefore crowds out credit to domestic firms. It could also be the case of a FDI financed project that repatriates, through profits and dividends, more foreign exchange than it supplies, even if the project is financially viable. In this case, FDI slows down capital accumulation.

If FDI crowds in domestic capital, then:

$$\frac{k}{fdi} > \eta k_w, \text{ because } \sigma \text{ has a positive sign.}$$

This can be the case of investment complementarity, development of supply and demand linkages between the foreign firm and domestic firms, spillovers of technology, or when the size of rents and other pecuniary effects extracted from FDI are large enough to increase significantly the availability of scarce resources [for example, savings (wages and tax revenue) and foreign exchange (either because of successful import substitution, or because of successful export orientation)]. In this case, FDI accelerates capital accumulation beyond the direct value of FDI itself.

It may also happen that FDI is neutral with respect to domestic capital, in the sense that it has no effect (positive or crowding in, or negative or crowding out) upon it. Then:

$$\frac{k}{fdi} \equiv \eta k_w, \text{ because } \sigma \text{ is zero.}$$

This might be the case of an industry that develops no linkages to the domestic economy at all, technological, pecuniary or any other. Although some activities have more crowding in or crowding out potential than others, it is not very often that an economic activity has no impact whatsoever on other economic activities.

From the point of view of economic growth, intuitively the ideal situation is when FDI crowds in domestic investment. FDI impact on growth is ambiguous when it has no effect on domestic investment, and is negative when it crowds out domestic investment.

However, the relationship between FDI and domestic investment has, so far, been only discussed from the point of view of accumulation of more capital, this is whether FDI increases or not the total stock of capital.

Other things being equal, any change in the stock of capital is translated into the growth of the economy by the marginal productivity of capital (v). If v is constant, other things being equal the economy grows by vk as the stock of capital increases by k . In this case, crowding in and neutral FDI generate economic growth, whereas crowding out FDI reduces economic growth.

However, v may not be (and it is unlikely to be) constant. It may either diminish if technology does not improve, or increase if technology improves (technology being a compound, to a large extent intangible, factor that incorporates the techniques of production and marketing and the associated institutions and knowledge and capabilities, such as managerial,

organisational, marketing and labour skills, financial arrangements and capabilities, innovation systems, trade regimes, etc).

Thus, the growth impact of FDI-led capital accumulation is not only associated with the quantitative change in the stock of capital, but also with the effect of the change on the productivity of capital and labour. In other words, the increase in the quantity of inputs matter, but the quality of inputs and the way the “inputs” interact in the production process matter even more.

The quality of inputs effect is partly captured by the supply of skilled labour and technology in the growth equation. Therefore, the whole contribution of FDI to economic growth can be re-written as:

$$\frac{y}{fdi} = \alpha \left[(\eta k_w) + \left(\sigma \frac{k_d}{fdi} \right) \right] \left(\delta \frac{l_s}{fdi} \right) \left(\phi \frac{t}{fdi} \right)$$

where $\alpha \left[(\eta k_w) + \left(\sigma \frac{k_d}{fdi} \right) \right]$ is the total contribution of the change in capital stock to economic growth.

According to this specification of the FDI-led growth equation, FDI contributes to growth through supplying more quality inputs, capital and skilled labour, and through spillovers on investment, technological and knowledge capabilities.

Also, the equation should call attention to the fact the effect of FDI on growth is short-term (and ambiguous) under diminishing returns to investment; and permanent and positive under constant and increasing returns to investment. As the returns on capital will diminish if capital investment increases and other factors remain constant, the long-term prospects of FDI-led growth depend on the FDI impact on the quality factors (technology and skilled labour) that prevent the return of capital from diminishing as capital investment increases.

Critique of the growth equation (my critique)

Nonetheless, this equation continues to be mis-specified because it treats capital, labour and technology as if they were three different and independent “inputs” that can be added in some complex combination. The reasons for the mis-specification are two. First, neither of these aspects of the production process is a passive component that can easily be absorbed nor transformed through a production process upon which they have no influence at all. Capital and labour form part of a technical and social relationship that shapes and is shaped by the organisation of the production process. Thus, they cannot adequately be described as “inputs”. Second, the dynamic, technical and social relationship between labour and capital is not captured by the growth equation, because the equation treats these aspects of production as “independent” from each other, and the combination between them as a process by which they follow some technically given ratio that is more or less efficient.

Thus, according to the specification of the growth equation, the aim of production is efficiency, and the managerial responsibility is to combine the “independent” “inputs” so as to achieve such economically given, technically constrained and socially neutral efficiency.

Results of the study

Although FDI is expected to boost long-term growth in the recipient economy via technological upgrading and knowledge spillovers, the study shows that the extent to which FDI is growth-enhancing depends on the degree of complementarity and substitution between FDI and domestic investment.

If complementarity is high, FDI is growth enhancing in the sense that it takes advantage of investment opportunities that would otherwise not be taken (because of entrepreneurial and/or capital constraints), creates new opportunities and generates spillovers through linkages with the domestic economy and through communication. However, if the degree of substitution is low, domestic firms are less capable of absorbing technology-intensive spillovers and improvements.

The degree of substitution is high in developed economies, so that the absorption of new technologies is more efficient. However, the growth impact of FDI (through the transfer of knowledge and increase in the capital stock via investments that embody new technologies) seems to be higher in follower economies because: (i) of the catch-up effect; and (ii) the additions to capital and knowledge are more dependent on FDI.

Hence, the actual growth-enhancing impact of FDI is ambiguous.