

FOREIGN DIRECT INVESTMENT AND ECONOMIC GROWTH

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Abstract: How does foreign direct investment triggered by foreign economic growth affect domestic economic activity? Estimates produced using foreign GDP growth rates for changes in foreign activity indicate that 10% greater foreign capital investment is associated with 2.2% greater domestic investment, and that 10% greater foreign employee compensation is associated with 4.0% greater domestic employee compensation. Changes in foreign and domestic sales, assets, and numbers of employees are likewise positively associated.

Key words: foreign direct investment, economic growth, multinational firms

There is considerable debate over the likely domestic effects of rapid foreign economic growth.¹ While this issue is typically framed in the context of the effects of free trade, the globalization of production raises the issue of how multinational firms respond to changing patterns of economic growth, especially as production gravitates to large, growing markets. In particular, flows of foreign direct investment (FDI) to rapidly growing foreign markets generate fears that such investment displaces domestic employment, capital investment, and tax revenue. An alternative perspective suggests that growing foreign investment may instead increase levels of domestic activity by improving the profitability and competitiveness of domestic operations as firms expand globally. Very little empirical evidence is currently available with which to distinguish these views.

The fact that foreign and domestic operations are jointly determined makes this evidence difficult to interpret. Investment and desired output are functions of many variables that influence firm profitability, some of which are inevitably omitted from any empirical analysis, and these omissions may themselves induce positive or negative correlations between foreign and domestic activities. For example, the discovery of a new drug by a pharmaceutical company may be manifest in coincident positive growth of activity both abroad and at home. Alternatively, shifting consumer sentiments might make a consumer products company's wares appear less attractive at home and more attractive abroad, with resulting effects on sales and investment in the two locations.

Since the locations of foreign investments differ significantly between firms, it is possible to construct firm-specific weighted averages of foreign GDP growth. These firm-specific foreign economic growth rates can be used to generate predicted growth rates of foreign activity that are then employed to explain changes in domestic activity. This empirical procedure effectively compares two firms, one whose foreign investments in 1982 were, for example, concentrated in Britain, and another whose foreign investments were concentrated in France. As the British economy subsequently grew more rapidly than the French economy, the firm with British operations should

exhibit more rapid growth of foreign investment than would the firm with French operations. If the domestic activities of the firm with British operations grow at different rates than the domestic activities of the firm with French operations, it may then be appropriate to interpret the difference as reflecting the impact of changes in foreign operations.

Weighted foreign economic growth rates are strong predictors of subsequent foreign investment by firms. Foreign growth rates predict increases in foreign investment by firms with foreign operations that are focused on serving host country markets and by firms with foreign operations that are export oriented. This finding suggests that using foreign economic growth rates as an instrument is relevant not only for studying foreign investment focused on serving host country markets but also for studying foreign investment more generally.

Second stage equations based on predictions that use foreign economic growth rates to instrument for changes in foreign activity imply that 10 percent greater foreign capital investment triggers 2.2 percent of additional domestic capital investment, and that 10 percent greater foreign employee compensation is associated with 4.0 percent greater domestic employee compensation. There are similar positive relationships between foreign and domestic changes in sales, assets, and numbers of employees.

The positive association between changes in foreign and domestic activities persists in supplemental specifications designed to address alternative interpretations of the main results. The use of weighted foreign economic growth rates as instruments for changes in foreign investment has the potential to produce misleading results if the foreign investments of firms planning rapid expansion of domestic investment are disproportionately attracted to economies expected to grow rapidly. To address this possibility, the residuals from regressing foreign GDP growth against lagged GDP growth can be used instead of actual GDP growth in explaining foreign investment; this substitution produces very similar results. Another possibility is that industry-specific shocks might be responsible for the correlation of foreign and domestic investment growth rates; reassuringly, the inclusion of industry-period constants again changes the results very little. If firms export to, and invest in, the same countries, foreign economic growth rates might stimulate domestic economic activity directly. This can be controlled for by including an additional variable equal to export-weighted foreign economic growth, which again does not alter the results. Finally, there are circumstances in which real exchange rate movements that are correlated with economic growth rates might independently influence both foreign and domestic activity, but replicating the analysis with controls for firm-specific changes in foreign exchange rates yields similar answers.

There are several channels through which foreign activities can influence the scope of domestic operations, including cases in which foreign production requires inputs of tangible or intellectual property produced in the home country. The same instrumental variables method used to identify the effect of foreign investment on domestic investment can also be used to identify the effect of foreign investment on other types of domestic activity. The estimates indicate that greater foreign activity is associated with higher exports from U.S. Parent companies to their foreign affiliates and is also associated with greater domestic R&D spending.

The nature of the instrumental variables procedure makes it possible to analyze only firms with prior foreign investments, since the geographic distribution of these investments, interacted with GDP growth rates, predicts changes in foreign operations.

Hence this procedure does not measure the impact on domestic activities of establishing foreign operations for the first time. Furthermore, the analysis is inherently partial equilibrium in nature, comparing changes in one firm against changes in another at the same time. Aggregate foreign economic growth is likely to influence factor prices and output prices in a way that might indirectly affect levels of domestic economic activities, which the cross-sectional evidence cannot incorporate. The empirical work in this paper considers reactions by individual firms to changes in their own foreign operations, providing an important part, though not all, of the evidence necessary to evaluate the impact of growth-driven FDI on total U.S. domestic economic activity.

Foreign Economic Growth and the Operations of Multinationals Firms

The effect of foreign economic growth on the foreign and domestic operations of multinational firms turns on production and cost considerations that might take any of a number of forms. One possibility is that a multinational firm's total worldwide production level is approximately fixed, being determined by resource limits, capacity constraints, or market competition. Given that foreign and domestic factors of production are conditional substitutes, any additional foreign production then necessarily reduces domestic production, hence foreign and domestic investment levels will be negatively correlated. Alternatively, the level of total production might not be fixed, but it instead may be responsive to profit opportunities that are influenced by economic growth rates. In such a framework it is possible that growth-driven FDI raises the return to domestic production, stimulating domestic factor demand and domestic output. Firms might, for example, find that foreign operations provide valuable intermediate inputs at low cost, or that foreign affiliates serve as ready buyers of tangible and intangible property produced in the United States.

In order to consider the role of foreign economic growth, economic growth rates in foreign countries are used as instruments for changes in levels of foreign investment. Rapid economic growth is associated with high investment levels by local firms, presumably reflecting that marginal q , the ratio of the market value of capital to its replacement cost, is unusually high.

U.S. multinational firms with local operations are subject to many of the same market influences as are local firms, and therefore these firms are likely to expand their own investments when aggregate q is high.

This empirical strategy takes a firm's initial distribution of activity among foreign countries to be exogenous from the standpoint of subsequent changes in domestic business activity. Foreign economies grow at different rates, and with them grow levels of economic activity by U.S.-owned affiliates. The first stages of the regressions use the fact that firms differ in their initial distributions of foreign economic activity to predict different growth rates of subsequent activity, based on differences in the average GDP growth rates of the countries in which their activities were initially concentrated. These predicted growth rates then become the independent variables in second stage equations used to explain changes in domestic business operations.

In order to serve as a valid instrument it is necessary that the average GDP growth rate of foreign countries in which a firm invests affects its domestic operations only by influencing the level and character of its foreign operations. This restriction cannot be directly tested, but reasonable specifications of production processes within multinational firms imply that by far the most likely channel by which foreign economic prosperity affects firms with local operations is by affecting local operations.

Three scenarios in which the instrument would be invalid are worth noting; these are considered in the empirical tests below. First, parent firms that are trying to grow quickly may invest in countries that are expected to grow quickly in the future. This scenario implies that only the unanticipated component of foreign economic growth would be a valid instrument. Second, industrial activity might be concentrated in certain countries, and domestic and foreign operations might experience common shocks. For example, if most of the foreign operations of electronic component manufacturing parents were located in Taiwan, a productivity shock to the industry could be associated with high growth in Taiwan while the productivity shock also has a direct effect on the growth of parent firms in the industry. The resulting possible misattribution of cause and effect can be largely prevented by including fixed effects that are specific to individual industries and time periods. Third, firms might export to the same foreign countries in which they invest, in which case foreign economic growth might stimulate exports and thereby domestic operations directly. This consideration suggests that it is useful to control for export-driven changes in domestic activity by including an independent variable equal to export-weighted foreign economic growth.

It is also possible that foreign investment by U.S. firms affects local GDP growth rates, making foreign GDP growth rates inadmissible as instruments in explaining foreign investment.

This effect is, however, likely to be very small in magnitude except for a certain number of small countries, principally tax havens, that draw disproportionate volumes of U.S. investment. Since the empirical work presented in the paper uses average foreign GDP growth rates weighted by investment levels, this consideration is very unlikely to contaminate the estimated results.

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