The Effects of Foreign Direct Investment on the U.S. Economy

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As both U.S. direct investment abroad and foreign direct investment in the United States ("outbound" and "inbound" FDI, respectively) continue to grow steadily, interest in the effects of such investment on U.S. wages, employment, imports, exports, and productivity is ongoing. Both types of investment are associated with increases in international trade and with R&D expenditures. Fears that outbound FDI depresses the U.S. wage structure are not supported by available evidence, while inbound FDI creates upward pressure on wages, particularly in services. The following article is based on a recently released USITC Staff Research Study.

Overview

The role of foreign direct investment (FDI) in the U.S. economy continued to increase during the 1990s, both of U.S. direct investment abroad ("outbound" FDI) and of foreign direct investment in the United States ("inbound" FDI). Based on Commerce department data, sales of U.S. affiliates abroad reached $2.44 trillion in 1998, while sales of foreign affiliates in the United States were $1.88 trillion in the same year. While total U.S. merchandise trade (U.S. exports plus U.S. imports) grew at an annual rate of 3.6 percent per year during 1990-98, total U.S. trade of U.S. affiliates abroad grew at an annual rate of 8.6 percent, and total U.S. trade of foreign-owned affiliates in the United States grew at 6.1 percent per year. Some 32 percent of U.S. trade is now associated with outbound FDI, and 31 percent is associated with inbound FDI.[2] Foreign-owned firms in the United States account for 4.8 percent of U.S. GDP and 4.2 percent of U.S. civilian employment.

Much of the research on the subject of FDI has focused on its possible effects on employment, wages, trade, and research and development (R&D) in the United States. This article briefly surveys the current economic literature to see what evidence is available on these topics. More detailed coverage of FDI and the U.S. economy can be found in USITC Staff Research-Study 26, which contains an extensive statistical treatment of outbound investment, inbound investment, and their relationship to U.S. exports and imports, and discusses theoretical models of FDI and the empirical evidence regarding its determinants.[3]

Wages and Employment

Effects of Inbound Direct Investment

One of the foremost questions regarding FDI is what impact does it have on wages and employment in the host country. Empirical evidence on the effects of inbound direct investment on U.S. wages and employment is at present relatively more clear than the effects of outbound direct investment. Economic theory would suggest that to the extent inbound investment increases capital per worker in the United States, or brings workers in contact with new technology, it would tend to increase wages of skilled workers. In fact, foreign-owned businesses in the United States are more capital-intensive and pay higher wages than their domestically owned counterparts.[4]

[1] The views and conclusions expressed in this article are those of the author. They are not necessarily the views of the U.S. International Trade Commission as a whole or of any individual Commissioner.

[2] These figures overlap to some extent. For example, U.S. exports may be shipped from a French-owned affiliate in Ohio to a U.S.-owned affiliate in Germany, thus being associated with both outbound and inbound investment.

[3] *Examination of U.S. Inbound and Outbound Direct Investment*, Staff Research Study 26, USITC Office of Industries, Publication 3383, Jan. 2001.

[4] Bruce A. Blonigen and Matthew J. Slaughter, "Foreign-Affiliate Activity and U.S. Skill Upgrading," NBER Working Paper No. 7040 (1999).

In the case of non-manufacturing establishments, which employed 3.1 million of the 5.6 million workers employed by foreign-owned affiliates in the United States, a wage premium is associated with foreign ownership even after controlling for other statistical factors. Using matched industry-by-state data from the U.S. Department of Labor's Bureau of Labor Statistics (BLS) and Bureau of the Census for 1987 and 1992, Feliciano and Lipsey demonstrated that foreign-owned firms pay wages nearly 30 percent higher, on average, than domestically owned firms. Most of this disparity is due to differences in the industries toward which foreign-owned firms gravitate, size of establishment, and educational and gender characteristics of employees. Taking these differences into account, there is no difference between manufacturing wages in foreign- and U.S.-owned establishments in the United States, but a differential remains for non-manufacturing wages of 7 to 8 percent in favor of foreign-owned establishments.[5]

Earlier, Lipsey found that foreign-owned establishments tend to gravitate towards lower-wage U.S. states, but pay more than domestically owned firms in the same industry and state.[6] Blonigen and Figlio conducted a similar study at the county level and found that employment growth in foreign-owned firms in the local industry had an effect on wages that was seven times greater than employment growth in domestically owned firms in the same industry.[7] Further supporting these results, Aitken *et al.* note that in raw data for 1988, 1990, and 1991, value-added per employee on an industry-weighted basis was about 10 percent higher for foreign-owned establishments in the United States than for U.S. domestically owned establishments. A good portion of this difference is explained by the fact that the foreign-owned establishments are on average in more capital-intensive industries. However, even after controlling for capital intensity, compensation per worker is higher in industries in which foreign-owned establishments account for the greatest share of total industry employment. This result holds true for both foreign-owned and domestically owned establishments in these industries, suggesting that productivity and wage-enhancing effects of foreign ownership may "spill over" into U.S.-owned firms.[8] The literature also suggests that inbound investment has helped to ease some of the transitional and cyclical stresses on the U.S. economy during periods of recession.[9]

[5] Zadia Feliciano and Robert E. Lipsey, "Foreign Ownership and Wages in the United States, 1987-1992," NBER Working Paper No. 6923 (1999).

[6] Robert E. Lipsey, "Foreign-Owned Firms and U.S. Wages," NBER Working Paper No. 4927 (1994).

[7] Bruce A. Blonigen and David N. Figlio, "The Effects of Direct Foreign Investment on Local Communities," NBER Working Paper No. 7274 (1999).

[8] Brian Aitken, *et al.*, "Wages and Foreign Ownership: A Comparative Study of Mexico, Venezuela, and the United States," NBER Working Paper No. 5102 (1995).

[9] Jane S. Little, "The Effects of Foreign Direct Investment on U.S. Employment during Recession and Structural

Effects of Outbound Direct Investment

The empirical evidence on the topic of outbound FDI is mixed, in part due to the complexity of the phenomenon. The effect of outbound FDI on wages, particularly on the relative wages of domestic skilled and unskilled workers, is probably outweighed by other factors such as technological change. There are plausible economic mechanisms linking U.S. direct investment abroad (that is, outbound FDI) to either wage increases (e.g., if outbound FDI supports U.S. exports) or wage decreases (e.g., if production overseas mostly displaces U.S. production). As will become apparent, researchers using a variety of methods have been unable to concur on whether the likely effect of outbound FDI on U.S. wages is positive or negative, though the most careful estimates show relatively small effects.

It is often claimed that U.S. multinational corporations (MNCs) shift activities involving less-skilled labor to foreign locations, and that this practice causes declines in employment for less-skilled labor at U.S. parent companies. However, Baldwin, reviewing a number of studies using mainly 1980s data, states that:

> "the view of most economists seems to be that no firm conclusion is warranted about the net employment effects of direct foreign investment. Broad generalizations are difficult because of the very different employment effects one obtains from various plausible alternative assumptions about what will happen in the absence of foreign investment and what the magnitude of increased imports by the host country from the investing country will be."[10]

An early, but still useful, statement of the assumptions and projections which must be made in assessing the effect of outbound FDI on wages and employment was made by Hawkins:

1. "What would local (U.S.) production have been had foreign-affiliate production not existed?
2. Without foreign affiliates, what would U.S. exports have been?
3. [W]hat relationship ... should be used to translate production in terms of dollars into man-years of employment (or jobs)?
4. How many service, management, and staff employees would not be needed in MNCs' home offices or in their supporting service organizations if no production were carried out abroad?

[9]—*Continued*
Change," *New England Economic Review* (Nov/Dec 1986), pp. 40-48.

[10] Robert E. Baldwin, "The Effect of Trade and Foreign Direct Investment on Employment and Relative Wages," National Bureau of Economic Research (NBER) Working Paper No. 5037 (Cambridge, MA: NBER, 1995).

> "... Those who have criticized MNCs as vehicles for "runaway plants" and "exporters of jobs" have almost universally ignored items 2 and 4, and have assumed that, in item 1, most, if not all foreign production of MNCs could have been produced at home–and they often ignore the vital qualification–*without* loss of markets to foreign competitors. On the other hand, the advocates of the MNCs tend to emphasize items 3 and 4, especially the employment associated with export stimulation, and assume or conclude that little if any foreign production displaces U.S. production ... [and] that markets would have been lost to foreign competition in the relatively near future, had the foreign investment been foregone."[11]

Yet, Lipsey reports that 1989 employment by U.S. parent firms was negatively correlated with foreign affiliates' production, with a loss of about 0.8 parent employees for every million dollars in affiliate sales.[12] Kravis and Lipsey reported similar results using 1982 data.[13] However, the negative relationship between affiliate sales and parent employment occurs only in the manufacturing sector, in which the loss was estimated to be about 1.4 employees per million dollars of affiliate sales. An additional million dollars of affiliate sales in the services and petroleum sectors was associated with a gain of 1.2 employees in the parent firm.

A number of studies have noted that since the 1970s, wages of U.S. "white-collar" or "non-production" workers have grown more rapidly than wages of U.S. "blue-collar" or "production" workers, while at the same time demand for non-production workers relative to production workers has increased. Analysis has focused on the extent to which these shifts can be attributed either to technological factors that have increased the relative demand for skilled labor, or international factors such as increased imports from or outbound direct investment in low-wage countries.[14]

Feenstra and Hanson provide evidence that both increasing imports and U.S. direct investment abroad may have played a role in the increasing wage gap. They argue that shifts of capital from developed countries to developing countries will lead to rising relative wages of skilled workers in both the so-called North and the South,[15] as will neutral[16] technological change in the South.[17] The authors note that increases in the wage differential between skilled and unskilled workers occurred in both the United States and Mexico in the 1980s, at the same time as direct investment capital flowed from the United States to Mexico under the maquiladora program, providing circumstantial support for their argument.[18]

However, other evidence points to technological change, rather than trade or direct investment, as the primary factor underlying the rising premium paid to skilled workers.[19] First, if imports of unskilled labor-intensive goods were driving down the wages of unskilled workers, the prices of these goods should be falling relative to other goods.[20] In the United States, Germany, and Japan, neither wholesale prices nor import prices of unskilled labor-intensive goods have fallen. Second, the fact that both wages *and* employment of skilled workers have been growing simultaneously suggests an increase in the overall demand for skilled workers, which is easier to reconcile with technological change than with trade.

With respect to direct investment, Lawrence notes that workers in foreign affiliates of U.S. parent firms, in both developed and developing countries, fared similarly to each other as well as to U.S. workers. From 1977 to 1989, the employment share of non-production workers in the United States increased and the relative wage of non-production workers fell. While there was some increase in the share of U.S. MNCs' global employment in developing-country affiliates, the behavior of relative wages and employment shares globally is more consistent with technological change than with a

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[11] Robert G. Hawkins, "U.S. Multinational Investment in Manufacturing and Domestic Economic Performance," Occasional Paper No. 1, Feb. 1972, (Washington DC: Center for Multinational Studies), p. 20.

[12] This result was obtained from a regression in which parent firm employment was a function both of parent net sales (defined as parent sales less imports from affiliates) and affiliate net sales (defined as affiliate sales less imports of affiliates from the United States). Robert E. Lipsey, "Outward Direct Investment and the U.S. Economy," NBER Working Paper No. 4691 (1995).

[13] Irving B Kravis and Robert E. Lipsey, "The Effect of Multinational Firms' Foreign Operations on Their Domestic Employment," NBER Working Paper No. 2760 (1988).

[14] A useful series of reviews appears in the *Journal of Economic Perspectives (JEP)* symposium entitled "Income Inequality and Trade," vol 9, No. 3 (Summer 1995). This includes Richard B. Freeman, "Are Your Wages Set in Beijing?" pp. 15-32, and David J. Richardson, "Income Inequality and Trade: How to Think, What to Conclude," pp. 33-56, who present the conventional wisdom that technology has played a larger role than trade in the increasing wage gap between skilled and unskilled workers; and Adrian Wood, "How Trade Hurt Unskilled Workers," pp. 57-80, who maintains that trade has played a larger role.

[15] The North refers to developed countries, the South refers to developing countries.

[16] I.e., technological change that does not alter the employment shares of skilled and unskilled labor for given relative wages.

[17] While not emphasized by Feenstra and Hanson, *biased* technological change in favor of skilled labor taking place worldwide could also account for increasing skilled-unskilled wage gaps in both the North and the South.

[18] Robert C. Feenstra and Gordon H. Hanson, "Foreign Investment, Outsourcing and Relative Wages," NBER Working Paper No. 5121 (1995).

[19] Robert Z. Lawrence, "Trade, Multinationals, and Labor," NBER Working Paper No. 4836 (1994).

[20] This result is known in trade theory as the Stolper-Samuelson theorem.

transfer of low-skilled wages and employment from North to South.

Slaughter argues that the data on U.S. outbound direct investment in the 1980s do not support the view that increased developing-country employment by U.S. MNCs changed the structure of wages in the United States. Estimating MNCs' demand for domestic and foreign labor formally, he finds that home and foreign production labor "at best seem to be weak price substitutes and may in fact be price complements."[21] If U.S. and foreign production labor are price complements, then the availability of cheap labor in one country enhances employment in all the countries in which the firm operates.

In a paper focusing on U.S. parent firm employment, Brainard and Riker find that while there is a small amount of substitution between workers in the parent firm and foreign affiliates in developing countries, substitution among workers in different developing country affiliates is more intense. That is, in choosing to employ workers in one developing country rather than another, U.S. MNCs prefer developing countries with lower wages;[22] but the allocation of employment between U.S. and developing country locations is not much affected by wages.[23] In a companion paper, Brainard and Riker analyze firm-level data on foreign manufacturing affiliates owned by U.S. firms between 1983 and 1992. Their results indicate that within U.S. multinationals, lower wages in developing-country affiliates tends to be associated with increased employment in developed-country affiliates.[24] This means that developed and developing country labor within the same firm are complements rather than substitutes. Labor in developed country affiliates tends to substitute for labor in other developed country affiliates.[25] These results are consistent with a situation in which workers in developed and developing countries work together in performing tasks at different skill levels in a vertically integrated production process, while workers in various developed countries are working in horizontally integrated affiliates, any one of which can service a number of markets.[26]

U.S. Exports and Imports

A second major focus when examining the question of FDI is its affect on a host country's trade, its exports and imports of goods and services. In principle, U.S. trade could either increase or decrease with changes in FDI. One motive for the linkage of trade to FDI is the transfer of intermediate or semifinished inputs from one branch of a multinational firm to another branch in another country, or the shipping of finished goods from a manufacturing-oriented affiliate to a sales-oriented affiliate. Thus, if affiliate activity increases, and the ratio of affiliate sales to intra-firm trade of affiliates remains constant, then merchandise trade will increase as well. This type of relationship between affiliate sales and trade is called "complementarity." In principle, increased FDI could lead to decreased merchandise trade if affiliate sales in foreign markets displace exports from the parent which would have otherwise served those markets ("substitution"). In the aggregate, whether increases in FDI lead to increases or decreases in merchandise trade depends on whether the complementarity effect outweighs the substitution effect.

Effects of Inbound Direct Investment

Most of the available evidence suggests that inbound investment and U.S. imports are complementary; that is, foreign parent firms tend to ship intermediate goods to their U.S. affiliates, so that inbound direct investment and U.S. imports are positively correlated. Inbound investment and U.S. exports appear to be complementary as well; Leichenko and Erickson found that inbound investment in manufacturing is positively related to improvements in state-level manufacturing export performance.[27] However, recent work suggests that there is an important distinction between final and intermediate goods in characterizing inbound

[21] Matthew J. Slaughter, "Multinational Corporations, Outsourcing, and American Wage Divergence," NBER Working Paper No. 5253 (1995).

[22] Specifically, a 10-percent decline in wages in a given developing country is associated with a decline of 0.17 percent in U.S. parent firm employment, and with a much larger decline of 1.6 percent in employment in other developing-country affiliates.

[23] Lael S. Brainard and David A. Riker, "Are U.S. Multinationals Exporting U.S. Jobs?" NBER Working Paper No. 5958 (1997).

[24] Lael Brainard and David Riker, "Are U.S. Multinationals Exporting U.S. Jobs?"

[25] Specifically, a 10-percent decline in wages in developing-country affiliates is associated with a 1.9-percent increase in developed-country employment, while a 10-percent decline in wages in developed country affiliates is associated with a 1.5-percent decrease in developed country employment.

[26] Multinational corporations that maintain facilities in more than one country can be broken down into two categories: vertical and horizontal. Vertical MNCs are firms that geographically fragment production into stages, typically on the basis of factor intensities. For example, an MNC would locate unskilled labor-intensive activities in unskilled labor-abundant countries, and skilled labor-intensive activities in skilled labor-abundant countries. Horizontal MNCs are firms that produce the same goods and services in multiple countries.

[27] Robin M. Leichenko, and Rodney A. Erickson, "Foreign Direct Investment and State Export Performance," *Journal of Regional Science,* vol. 37, No. 2 (1997), pp. 307-29.

investment and exports as substitutes or complements. For example, using highly disaggregated product-level data, Blonigen finds evidence of substitution for a set of Japanese-produced final consumer goods.[28] Import demand for these goods in the United States is lower when Japanese production in the United States is higher, after taking the effects of import prices and U.S. income into account. He finds evidence for both substitution and complementarity effects between affiliate production and exports of intermediate products, specifically Japanese automobile parts.[29] Increased production of autos by Japanese affiliates in the United States is positively associated with exports of Japanese auto parts to the United States (the complementarity effect), while increased production of auto parts themselves by Japanese affiliates in the United States is negatively associated with exports of Japanese auto parts in the United States (the substitution effect).

Effects of Outbound Direct Investment

The balance of evidence indicates that U.S. exports tend to be positively associated with U.S. direct investment abroad. A major reason for this positive association is seen in the raw data alone–in 1997, nearly 24 percent of U.S. exports were exports of U.S. parent firms to their foreign affiliates. A significant amount of empirical research has been devoted to assessing the relative strength of these two effects. Blonigen reviews a large number of studies that generally find complementarity between trade and direct investment (i.e., increasing direct investment is associated with increasing trade).[30] While there is little evidence for substitution between U.S. exports and outbound FDI in the aggregate, there may well be substitution at the level of specific products, particularly consumer goods. As described above, Blonigen found the effects for Japanese foreign direct investment in the United States.

[28] E.g. microwave ovens, pianos, golf equipment, soy sauce, sake, etc. Bruce A. Blonigen, "In Search of Substitution Between Foreign Production and Exports," Working Paper, University of Oregon, 1999.

[29] E.g., automotive mirrors, engine coils, car radios, and door locks. Bruce A. Blonigen, "In Search of Substitution Between Foreign Production and Exports."

[30] Bruce A. Blonigen, "In Search of Substitution Between Foreign Production and Exports," Working Paper, University of Oregon, 1999. Several of the studies cited use country- or industry-level data: Robert E. Lipsey and Merle Y. Weiss, "Foreign Production and Exports in Manufacturing Industries," *Review of Economics and Statistics (RES)*, vol. 63, No. 4 (1981), pp. 488-494; Edward M. Graham, "The Relationship Between Trade and Foreign Direct Investment in the Manufacturing Sector," in Dennis Encarnation, ed., *Does Ownership Matter? Japanese Multinationals in East Asia* (Oxford: Oxford University Press, and Clarendon Press, 1994); and Kimberly Clausing, "Does Multinational Activity Displace Trade?" *Economic Inquiry*, vol. 38 no. 2 (2000). Others use firm-level data: Birgitta Swedenborg, *The Multinational Operations of Swedish Firms* (Stockholm: The Industrial Institute for Economic and Social Research, 1979); Robert E. Lipsey and Merle Y. Weiss, "Foreign Production and Exports of Individual Firms," *RES*, vol. 66, No. 2 (1984), pp. 304-307; Magnus Blömstrom, *et al.*, "U.S. and Swedish Direct Investment and Exports," in R.E. Baldwin, ed., *Trade Policy Issues and Empirical Analysis* (Chicago: University of Chicago Press, 1988); and Rene Belderbos and Leo Sleuwagen, "Tariff Jumping DFI and Export Substitution: Japanese Electronics Firms in Europe," *International Journal of Industrial Organization*, vol. 16, No. 5 (1998), pp. 601-638.

Research and Development

A third topic frequently raised in connection with FDI is its potential impact on research and development activities among MNCs residing in the host country, both domestic and foreign owned. There is substantial evidence that firms and industries which are heavily oriented toward R&D are more likely to engage in foreign direct investment. The ratio of R&D to sales, the average wage per employee (used as a measure of skilled-labor-intensity), and the share of managers in total employment have all been shown repeatedly to be correlated with the propensity of firms or industries to engage in FDI.[31] These results are usually interpreted as meaning that R&D causes FDI, even when the statistical tests used do not explicitly test for causation. There is relatively little direct evidence for or against the converse proposition, that U.S. firms or industries that do more investing abroad are more likely as a result to engage in R&D in the United States.

Most theories of the multinational firm suggest both that R&D may stimulate FDI, and that FDI may increase the incentives to do R&D. Fundamental to the internal logic of the multinational firm is the ability to profit from firm-specific knowledge generated at one location by employing that knowledge in a variety of locations. That is, centrally performed R&D can be used to enhance productivity or product diversity in a number of countries simultaneously; thus, R&D in a multicountry, multiplant firm can enjoy sharply increasing returns to scale. Since the returns to R&D are higher if they are exploited by means of FDI, this means both that R&D-intensive firms have greater incentives to do FDI, and that FDI-intensive firms have greater incentives to do R&D.

The theories just described are driven by the assumption that R&D is concentrated in the home country. Evidence on the geographic location of R&D within U.S. multinationals supports this assumption. Indeed, R&D is disproportionately concentrated in the U.S.-located parent operations of U.S. multinationals. In 1994, U.S. parent firms of non-bank MNCs

[31] John H. Dunning, *Multinational Enterprises and the Global Economy* (1993), chapter 6, reviews this result extensively.

performed $91.6 billion of R&D, of which $81.3 billion was self-funded, with the difference primarily accounted for by government funding. Majority-owned, non-bank foreign affiliates performed R&D costing $11.9 billion, of which $10.4 billion was funded by the affiliates. The ratio of R&D in parent firms to R&D in majority-owned affiliates was thus 7.7 to 1. This compares with ratios of 3.3 to 1 for assets and employees, 2.8 to 1 for sales and 2.4 to 1 for net income. Lipsey reported computations on earlier data consistent with this, noting that the ratio of R&D expenditures to sales in U.S. parent companies is significantly higher than that of foreign affiliates.[32]

One direct way in which the presence of affiliates stimulates U.S.-based R&D is through flows of funds internal to the firms themselves. Majority-owned foreign affiliates remitted $16.7 billion in royalties and license fees to U.S. parent firms while receiving less than $400 million of such payments from their parent firms. Thus, foreign operations provide a net subsidy to U.S.-based R&D.

[32] Robert E. Lipsey, "Outward Direct Investment and the U.S. Economy."

Conclusion

Concerns that outbound FDI leads to decreases in U.S. wages through a "giant sucking sound" mechanism appear to be misplaced based on present evidence. While inbound FDI is associated with wage increases in services, both outbound and inbound FDI stimulate U.S. trade and are associated on balance with increases in U.S. trade. The presence of outbound FDI stimulates R&D in the United States, and foreign-owned affiliates do significant amounts of R&D. On balance, free movement of investment into and out of the United States generates significant benefits for Americans.

Inbound FDI is associated with a significant amount of R&D as well. Foreign-owned affiliates in the United States performed $25.1 billion of R&D in 1998. This includes $6.0 billion in pharmaceuticals, $5.2 billion in computers and electronic products, $4.8 billion in various service industries, $2.7 billion in transportation equipment, and the rest in various branches of manufacturing, mining, and agriculture.