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Comment Raymond J. Mataloni Jr.

One of the often cited benefits of foreign direct investment is to raise labor productivity by combining the multinational firms' capital and proprietary assets (such as advanced technologies or management and marketing techniques) with the skill and effort of the national labor force. Rising labor productivity may occur in home as well as host countries and is widely regarded to be of central importance in improving the standard of living in both developed and less-developed countries. With regard to less-developed countries, Surjit Bhalla observed succinctly that, to alleviate poverty, per capita economic "growth is sufficient, period" (Loungani 2002).

In this chapter, Corrado, Lengermann, and Slifman demonstrate just how important multinational firms have been in advancing one country's economic growth. Through careful analysis involving creative combinations and adjustments of various data sets from the Bureau of Economic Analysis (BEA), they find some remarkable patterns underlying U.S. productivity growth. During the 1980s and 1990s, the labor productivity of U.S. operations of nonfinancial multinational firms grew twice as fast as that of other nonfinancial U.S. corporations. The authors also find the contribution of multinationals to have been especially strong in the late 1990s, when these firms accounted for *all* of the acceleration in labor productivity of nonfinancial U.S. corporations.¹ While a number of firm-level studies have demonstrated the productivity-enhancing effects of foreign direct investment, few other studies have quantified these effects at a national level.

Through a number of adjustments and extensions, the authors significantly increased the analytical value of the underlying source data. These adjustments and extensions are clever and reveal a high degree of familiarity with the source data. Although they require the use of assumptions and therefore undoubtedly lack some precision, the assumptions are reasonable and the resulting estimates can support the broad macroeconomic analysis in the chapter.

The authors' estimates of the labor productivity of the multinational sector are based on data on the value added and employment of U.S. parent companies of U.S. multinational companies and of U.S. affiliates of foreign multinational companies. Because there is some overlap between U.S. parent companies and U.S. affiliates in the BEA data, the authors had to remove the overlap by attributing the value added of those firms that were in both data sets to only one of the two groups of firms—U.S. affiliates. The

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1. This does not imply that only multinational firms had accelerated growth in labor productivity, because some firms undoubtedly had a deceleration in labor productivity growth.

overlap consists of U.S. affiliates that, in turn, own a foreign affiliate; a common example is a foreign-owned U.S. manufacturer that owns a factory in Canada or Mexico. The authors used special BEA industry-level tabulations of value added of firms belonging to both groups to make the adjustment.

A second extension of the BEA source data was the production of the first comprehensive time series estimates of the value added of U.S. parents and U.S. affiliates classified by line of business. The BEA's estimates of the value added of these firms are classified by the main industry of the enterprise (company), rather than by the individual lines of business within the enterprise. For diversified firms, classification by industry of enterprise may not always be indicative of the scope of the underlying activities of the firms. In order to create estimates classified on a line-of-business basis, the authors reclassified the BEA value added data based on related line-of-business data collected in the BEA surveys. The resulting estimates were classified in a manner consistent with the value added estimates for all U.S. firms.

The authors' third extension of the BEA source data was to place the industrial classification of U.S. parents, U.S. affiliates, and other U.S. firms on a Standard Industrial Classification (SIC) basis for the entire period covered by the study. Beginning with 1997 data for U.S. affiliates and 1999 data for U.S. parent companies, BEA's data on multinational U.S. firms are classified by the North American Industry Classification System (NAICS) rather than according to the SIC. The authors converted the NAICS-based data to a SIC basis by developing a concordance between the NAICS and SIC codes.

A fourth extension of the BEA source data was to remove the effects of price inflation from the estimates of value added of U.S. parents and U.S. affiliates. As noted by the authors, BEA has produced estimates of the real value added of foreign affiliates of U.S. companies but this has not yet been done for U.S. parents or U.S. affiliates. The authors developed their estimates of real value added using industry-level deflators for all U.S. business establishments from BEA's Industry Economic Accounts.

A final step was to estimate the number of hours worked by the employees of U.S. parents and U.S. affiliates. The authors produced these estimates by applying the average number of hours worked, by industry, from BEA's National Income and Product Accounts, to data on the number of employees of U.S. parents and U.S. affiliates. Using this estimate of hours worked as the denominator and the estimate of real value added as the numerator, the authors constructed their estimates of labor productivity. The resulting estimates represent the first such labor productivity estimates for U.S. parent companies and the first such time-series estimates for U.S. affiliates of foreign companies.

The estimation of real value added and labor input created through these

extensions of the source data allowed the authors to generate industry-level productivity estimates for multinational U.S. firms and to compare them to similar estimates for domestically oriented firms. One important contribution of this research is the authors' ability to distinguish patterns that reflect industry-specific conditions from patterns associated with multinationality. For example, the authors are able to attribute the fact that the multinational sector was disproportionately affected by the 2001 recession to the industry mix of the firms.

A possible extension of the authors' research would be to explore some of the factors underlying the patterns they have identified in the labor productivity estimates. One way to approach this question would be to calculate a broader measure of productivity, such as total factor productivity, in order to isolate the effect of increased output per unit of labor input from the effect of increased capital input per worker. Another approach would be to try to correlate some of the firm characteristics that are expected to influence productivity with firms' actual productivity growth. The authors identify several possible influences, such as international fragmentation of the production chain, the transfer of knowledge between domestic and foreign units of multinational companies, and increased capital spending—particularly for information technology equipment. This research could be supported by BEA's firm-level data on the operations of U.S. multinational companies and of U.S. affiliates of foreign companies. The data include, for example, measures of cross-border trade between U.S. parent companies and their foreign affiliates and between U.S. affiliates and their foreign parent companies, measures of R&D conducted by U.S. parents and foreign affiliates, and measures of capital spending by U.S. multinational companies and by U.S. affiliates of foreign companies.

I would like to end by noting recent steps that the BEA has taken to maintain and expand its estimates of value added of U.S. parent companies and of U.S. affiliates of foreign companies in order to facilitate this type of research, and other recent BEA steps to support studies of the sources of U.S. productivity growth. Last fall, the Bureau updated its annual enterprise-level estimates of the value added of multinational U.S. firms. The BEA, in conjunction with the Census Bureau, will also soon be releasing establishment-level estimates of the value added of U.S. affiliates in manufacturing for 2002 based on a link to the plant-level data collected by the U.S. Census Bureau.² In addition to updating and expanding its data on value added of multinational U.S. firms, BEA has taken other steps to support research on the sources of U.S. productivity growth. Recent initiatives

2. Establishment-level estimates of the value added of U.S. affiliates have been previously published for the years 1988 to 1992, and for 1997. For details about these publications, see the section "Establishment from BEA-Census Link" of the International Investment Division Product Guide, which is available on the BEA website (www.bea.gov) under "International," "About International."

have been focused on improving the measurement of investment in intangible assets and on understanding the effect of this type of investment on U.S. economic growth. One major initiative is the recently updated R&D satellite account for the United States (see Okubo et al. [2006]). Later this year, the BEA will update these estimates and will present options for adding an international dimension to the satellite account using BEA data on the operations of U.S. multinational firms. A related initiative is the Bureau's R&D Link Project, in conjunction with the National Science Foundation and the U.S. Bureau of the Census. It will involve matching the BEA data for U.S. parent companies and U.S. affiliates with R&D data for all U.S. companies collected by the Census Bureau.³

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3. A plan of action for this project is available on the BEA website at www.bea.gov/bea/di/FinalReportPublic.pdf.