

## Offshore Profit Shifting and Domestic Productivity Measurement

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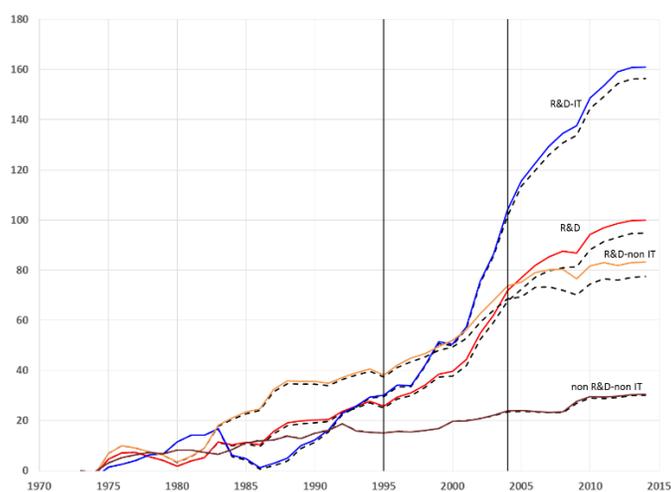
As documented in Fernald (2014), U.S. labor productivity growth has slowed considerably, falling from 2.2 percent per year in 2000–04 to 0.63 percent per year in 2004–07. This slowdown took place primarily in sectors that either produce or use information technology (IT) services. At about the same time, U.S. multinational enterprises (MNEs) were accumulating considerable overseas earnings that were not being repatriated to the United States, distorting the return to intangible investments made in the United States. In this paper we ask: To what extent is the mismeasurement of MNE production responsible for the measured slowdown in productivity growth?

For several reasons (including cross-country tax rate differences) U.S. MNEs may find it optimal to book production and earnings in their foreign affiliates in ways that are disproportionate to the real production carried out in those affiliates. The footloose nature of intangible capital exacerbates this problem. The greater the role played by intangible capital — e.g., blueprints, brand recognition, or organizational knowledge — in the production processes of MNEs, the greater is the potential for mismeasurement. Our goal is to adjust measured production in MNEs for any mismeasurement introduced by intangible capital in order to reduce the gap between the location to which production is attributed and the location of the underlying factors of production.

To correct for this mismeasurement, we use confidential MNE survey data collected by the Bureau of Economic Analysis to construct apportionment factors that distribute total transactions in income on FDI among the parent and affiliates in the MNE. We consider both labor compensation and sales to unaffiliated parties as apportionment factors, as these variables are most likely to identify the real production taking place in each location. We then use these adjusted measures of output to measure productivity in the United States. Since U.S. MNEs disproportionately hold earnings abroad, our adjustment increases measures of output in the United State, increasing measured productivity.

Our preliminary results show that adjusting for the overseas production shifting of U.S. MNEs has a significant impact on measured productivity, particularly in IT-related industries that are research-and-development intensive — the industries that Fernald (2014) finds most responsible for the aggregate productivity slowdown. In the R&D intensive industries, our adjustment adds 5.1 percentage points to cumulative labor productivity growth in 1973–2014, and in IT-related R&D intensive industries, the cumulative gain in labor productivity is 4.5 percentage points (figure 1). Notably, most of our adjustment happens after 2004, the period in which unadjusted productivity slows down.

Figure 1: Cumulative growth in U.S. labor productivity.



Notes: Dashed lines are unadjusted labor productivity. Solid lines are labor productivity with formulary adjustment for MNE production. *R&D* is the set of industries that are R&D intensive, *R&D-IT* is the set of R&D intensive IT industries, *R&D-non IT* is the set of R&D intensive industries that are not IT industries, and *non R&D-non IT* is the set of industries that are not R&D intensive and not in the IT sector.