

This PDF is a selection from a published volume from the National Bureau of Economic Research

Volume Title: International Trade in Services and Intangibles in the Era of Globalization

Volume Author/Editor: Marshall Reinsdorf and Matthew J. Slaughter, editors

Volume Publisher: University of Chicago Press

Volume ISBN: 978-0-226-70959-8; 0-226-70959-0

Volume URL: <http://www.nber.org/books/rein09-1>

Conference Date: April 28-29, 2006

Publication Date: May 2009

Chapter Title: Comment on "Does Service Offshoring Lead to Job Losses? Evidence from the United States"

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Chapter URL: <http://www.nber.org/chapters/c12471>

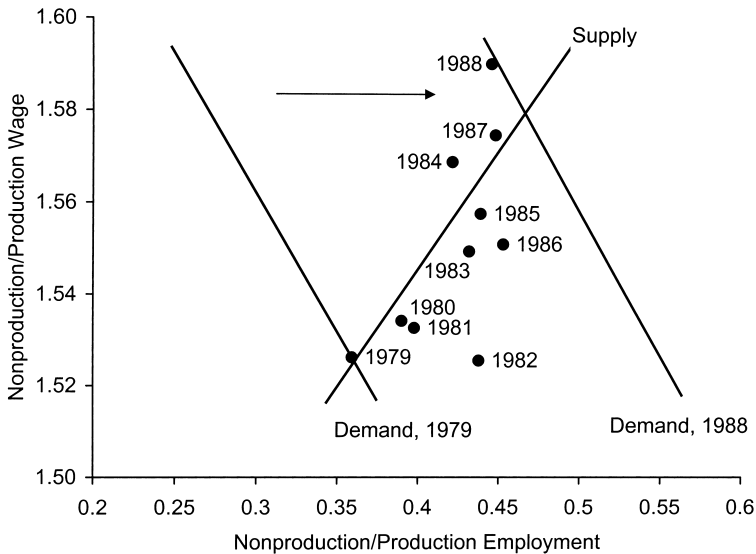
Chapter pages in book: (243 - 246)

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## Comment Robert C. Feenstra

This chapter by Mary Amiti and Shang-Jin Wei carries forward from a line of research the authors have been engaged in for several years. In Amiti and Wei (2005) they point out that a number of industrial countries—including the United States—are net *exporters* of business services, so that they should certainly benefit from this activity. In Amiti and Wei (2006), they estimate that the import of business services has enhanced productivity in those industries making the greatest use of service imports. This chapter takes the final step in estimating the employment impact of service imports for the United States.

Before commenting on the specifics of the chapter, I would like to suggest that the nature of outsourcing has changed in the United States, especially when we compare the 1980s with the 1990s. In figure 7C.1, I show the relative wage of nonproduction workers and their relative employment in U.S. manufacturing, from 1979 to 1989. The annual earnings of nonpro-



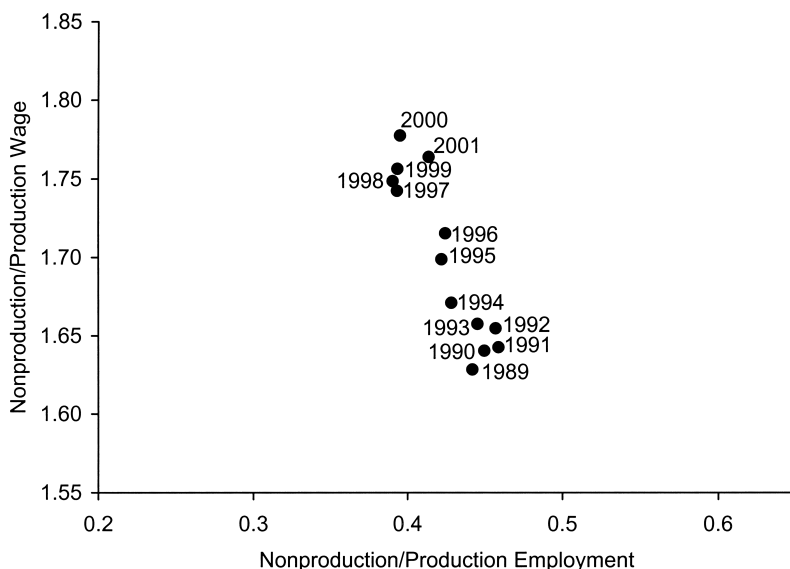
**Fig. 7C.1** Nonproduction/production workers, 1980s

Source: National Bureau of Economic Research Productivity Database updated.

duction workers relative to production workers increased steadily during this period, as did the ratio of nonproduction to production workers employed in U.S. manufacturing. The only way that this pattern can be consistent with a demand and supply diagram is if the relative demand curve for skilled labor has increased, as illustrated. There are two explanations for this shift in labor demand during the 1980s: skill-biased technological change (see Berman, Bound, and Griliches 1994; and Berman, Bound, and Machin 1998), and the foreign outsourcing of activities using less-skilled labor (Feenstra and Hanson 1999). Estimates vary as to which of these explanations is the most important, but it is safe to conclude that they both have played a role.

Figure 7C.1 is the picture that launched dozens of research studies, but it is surprising that the picture for the 1990s—shown in figure 7C.2—is not yet familiar. We see that from 1989 to 2000, there continued to be an increase in the relative wage of nonproduction/production labor in U.S. manufacturing, but in addition, there was a *decrease* in the relative employment of these workers. There are two possible explanations suggested by the literature for this shift.

First, it is possible that more-skilled workers were drawn out of manufacturing and into the service sector. Sachs and Schatz (1998) point out that services really are skill-intensive as compared to manufacturing. The characterization of service jobs as flipping hamburgers is not true on average; in fact, the jobs are more likely to be professionals. A second possibility, how-



**Fig. 7C.2 Nonproduction/production workers, 1990s**

Source: National Bureau of Economic Research Productivity Database.

ever, is that figure 7C.2 is a smoking gun for service offshoring from U.S. manufacturing. To the extent that the back-office jobs being outsourced from manufacturing use the lower-paid nonproduction workers, then the offshoring of those jobs could very well *raise the average* wage among nonproduction workers, while lowering their employment. This hypothesis puts service offshoring at the center of the policy and research debate.

Turning to the contribution by Amiti and Wei, they find that the amount of imported service inputs in the United States is small but growing. Measured as a share of total inputs purchased, imported services were 0.2 percent in 1992 (i.e., two-tenths of 1 percent of total inputs), and grew to 0.3 percent in 2000 (i.e., three-tenths of 1 percent), as shown in their table 7.1.<sup>1</sup> The fact that imported services are small does not prevent them from being important for productivity and employment. In Amiti and Wei (2006), they find that over 1992 to 2000, service outsourcing can explain between 12 and 17 percent of the total increase in productivity in U.S. manufacturing.

In this chapter, a rise in productivity potentially reduces employment, via equation (2): an increase in  $A_i$  will reduce  $L_i$ , ceteris paribus. Of course, the “all else held equal” may not apply, and as the authors explain, it is pos-

1. The columns marked % $\Delta$  in table 7.1 are confusing, since they are the percentage changes of numbers that are themselves percentages. Very slight changes in these percentages, especially those for service offshoring that only need to change in the third significant digit, are responsible for the percentage changes that are shown.

sible that *output*  $Y_i$  can increase simultaneously with increased  $A_i$  due to offshoring. This means there are two opposing effects on employment: the productivity increase that tends to reduce employment, and the rise in output that tends to increase it. To these effects I would add a third, which the authors do not consider in their model—offshoring can change the *relative* demand for unskilled/skilled labor, much as occurred for production/non-production workers during the 1980s. That effect lies outside their equations because they model a productivity increase as Hick's neutral in equations (1) through (3), whereas offshoring can actually have a factor-biased impact. Because they do not decompose labor into several skill types, it is impossible to test for this factor-biased effect, however.

Turning to their estimates, the authors find that service offshoring has no significant impact on employment when using ninety-six industries, but does have a small, negative impact on employment when using 450 industries. The authors suggest that we should not be surprised to see differences between the disaggregate and aggregate results: "Because the U.S. labor market is reasonably flexible, one does not need to aggregate sectors very much to find that this employment effect washes out." I agree with that assessment, but would add another caveat: the aggregation of labor into a single category also tends to hide the employment impact of service offshoring, if it operates differentially across skill-groups. It is entirely possible that service offshoring has the greatest effect on nonproduction workers, particularly those at the lower end of nonproduction skills, as suggested by figure 7C.2. Extending their analysis to take into account the impact on different skill groups is an important direction for further research.

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