



Figure 7. Total shipments and value-added of U.S. Manufacturing firms (2000 = 1)  
(Source: U.S. Census Bureau)

value-added was 1.97 trillion dollars.

We see that the two series do not always move in step. Total sales (value of shipments) is more procyclical than value-added, where sales overtake value-added from below in 2005, but then fall much more in 2009. The ratio of total shipments to value-added for the manufacturing sector lies in the range of 2.0 to 2.4. The ratio rises strongly in the period before the crisis but crashes in 2009, consistent with the basic picture given by our model in Figure 6.

### 3 Production Chains with Offshoring

We now develop our model of offshoring by changing some key features of the benchmark model above.

First, in line with the intuition that the degree of “roundaboutness” of production will not be easily changed in the short run, we fix the production chain length. Instead, the choice of the firm is to decide whether to perform a particular task at home or send it offshore to a destination where the task