

WEEK 10

1. During this week, we take up a question raised at the beginning of the course – the debate over the role of computers in the post 1996 revival of productivity. Buried in this debate are two related sub-questions:
 - a. How much of computers' contribution to productivity comes from productivity gains within the computer industry itself (as distinct from computers making other industries more efficient)? To what extent is this in-computer-industry contribution overstated.
 - b. Given that there is agreement that labor productivity growth accelerated in the second half of the 1990s, to what extent is the higher growth rate sustainable or is it a one time phenomenon.
2. Two articles are used to give a flavor of the debate. The Oliner-Sichel and Gordon articles are both approach the subject through growth accounting techniques, but they arrive at different conclusions. Gordon is the more pessimistic and he downplays computer contributions in two main ways. He argues that labor productivity has always been procyclical and he applies a (fairly large) adjustment that reduces the growth of labor productivity in the late 1990s. He also argues that productivity within the computer industry is mismeasured because it focuses on chip speed per dollar. While chipspeed per dollar is rising rapidly, Gordon argues that the increased speed does little good in terms of output – i.e. he can't write a paper any faster on Word XP than he could on Word 97. (There is some truth in this argument but it ignores other machine learning applications – vision, speech recognition, etc. that are instruction intensive and so can only become feasible with rapid chip speeds.)
3. The third article turned into a selection from the last two McKinsey Global Institute reports on IT and Productivity (both are available from the McKinsey Global Institute web site). These studies proceed at the industry level and so give a picture more in line with the rest of the course than the growth accounting papers which are highly aggregate.

The main sense of these papers is that the productivity gains of the late 1990s were concentrated in less than 10 of about 60 different industries (in their classification). While each of these industries used computers intensively, other industries also used computers intensively and did not see productivity gains.

This conclusion seems to put some of the Oliner-Sichel/Gordon debate into perspective. On the one hand, purchasing computers is not sufficient to guarantee productivity gains (particularly if, as expressed earlier in the course, if you can't figure out how to reorganize work to get their full benefit.) On the other hand, an aggregate finding of limited computer effects may be an average that obscures strong effects in some industries and weak effects in other industries that subsequently may learn how to get more impact out of computers.