Issues in Productivity Performance, U. S. vs. Europe

Technical Panel on Assumptions and Methods, Social Security Advisory Board
Washington, D.C., April 11, 2003
Why is European Experience Relevant?

• In projecting U. S. forward for 75 years, there could be a tendency to put excessive weight on the experience of the past seven years

• Looking at Europe, or OECD more generally, provides a wider range of experience and of possibilities
Comparing Europe and the U. S., Initial Cautions

• Depends on time periods
  – Part of the U. S. Experience in 1995-2000 was in the context of an unsustainable environment for macro growth and IT investment.
Verdict Depends on Time Period

Table 1


<table>
<thead>
<tr>
<th></th>
<th>United States</th>
<th>European Union</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Economy</td>
<td>1.1</td>
<td>2.2</td>
</tr>
<tr>
<td>ICT Producing Industries</td>
<td>6.1</td>
<td>6.5</td>
</tr>
<tr>
<td>ICT Using Industries</td>
<td>1.4</td>
<td>4.2</td>
</tr>
<tr>
<td>Non-ICT Industries</td>
<td>0.4</td>
<td>0.4</td>
</tr>
</tbody>
</table>

Source: van Ark et. Al. (2002, Table 5).
Convergence Predicts Europe Should Grow Faster

- Distinction between Output per Capita (YpC) and Productivity (YpH)
- Much of Europe has caught up in YpH but not in YpC
- Illustrated by OECD: European Union YpC at 68%, YpH at 93%
- Not much convergence left for YpH
Why the Discrepancy between YpH and YpC?

• Roughly equal proportions
  – Lower Hours per Employee
  – Lower Employment per Capita

• Hours per Employee?
  – Vacations, voluntary or partly political?

• Employment per Capita
  – Higher Unemployment Rate
  – Lower Labor-Force Participation
Aggregation in U. S., Lack of Aggregation in Europe

- Puzzle is not failure in Europe, it’s heterogeneity in Europe
- If you disaggregated the U. S., you’d find similar differences:
  - Silicon Valley = Ireland + Finland
  - New England = Denmark + Sweden
  - Austin Texas = Australia
  - Heartland = France or Germany
Further Distinctions: GDP vs. NFPB Output, Employment vs. Hours

- Standard U. S. Productivity Data: NFPB Output per hour
- Many international comparisons: GDP per Employee
- OECD Figure 1.2
ICT Penetration vs. MFP Acceleration

• Handout Charts Figures 8 & 9
  – Very loose correlation
  – Good guys: N America, Nordic, Ireland, Australasia (what do they have in common, cold weather so they stay inside a lot playing with their computers?)
  – Weather must be important: Spain and Italy are always at the bottom
U. S. Scores Because of Shares

- Some countries (Finland, Japan, Korea) strong in ICT mfg but not in services
- U. S. has large shares across the board, ICT mfg, telecom svcs, ICT svcs
Another Distinction among Sources of Growth

- Human capital, disembodied technical change, embodied technical change

- OECD Table 1.3
  - U. S. Fully adjusted MFP 0.75 for 1995-2000
  - Better than Germany/France/Italy/UK
  - Worse than Canada/Australia/Finland
Disaggregated Analysis

- Van Ark, return to Table 1
- Big difference lies in ICT using industries
- This is where retailing comes in
- Other sources of difference in retailing between U. S. and Europe
Verdict Depends on Time Period

Table 1

<table>
<thead>
<tr>
<th>Industry Group</th>
<th>United States</th>
<th>European Union</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Economy</td>
<td>1.1  2.2  1.7</td>
<td>2.4  1.5  2.0</td>
</tr>
<tr>
<td>ICT Producing Industries</td>
<td>6.1  6.5  6.3</td>
<td>6.0  8.5  7.3</td>
</tr>
<tr>
<td>ICT Using Industries</td>
<td>1.4  4.2  2.8</td>
<td>1.9  1.3  1.6</td>
</tr>
<tr>
<td>Non-ICT Industries</td>
<td>0.4  0.4  0.4</td>
<td>2.4  1.0  1.7</td>
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Source: van Ark et. Al. (2002, Table 5).
It’s not just new start-ups

• The biggest difference in ICT use is the performance of U. S. retailing
  – Big firms, Wal-Mart and Home Depot
  – Role of Weak Land-use protection
  – Role of Product regulations, esp. shop-closing regulations in Europe
Further Studies of the Differences in ICT Payoff

• Computer and internet use have a bigger payoff in U. S. than in Germany

• But maybe there’s a left-out variable called “x-efficiency”
  – Makes firms more efficient
  – Makes firms buy a lot of computers
  – Wal-Mart vs. K-Mart
Broader Issues

• U. S. “Experimentation”

• Combines:
  – Private Research Universities (Silicon Valley and Boston)
  – Venture Capital
  – Patent System
ICT Effects on Productivity Growth: the 3 Channels

• #1, conventional: capital deepening
• #2, conventional: faster MFP growth in the production of computers
• #3, more novel, “ICT as an instrument for innovative activity”
  – But the ICT is available everywhere, why is all the biotech industry in SF, Boston, and San Diego?