Big Data: Does the Solow paradox apply?

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The Solow paradox in the Big Data context

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“You can see the computer age Big Data everywhere but in the productivity statistics”

Productivity growth in the U.S. and in the Euro zone (in %)
The economics of Big Data: a supply-driven shock

Data is the new oil of the century

- New businesses, new products
- But it looks as if there was no impact on GDP

- Productivity in enterprises using Big Data technologies should increase...
- ...So need for patience at aggregate level, just like for ICTs?
The two sides of Big Data

The development of models & applications
- Based on various sources and a large volume of data
- Using powerful & rapid machines

The use of black boxes
- By end-users
- With no control on the quality or appropriateness of the data used or on the processing they go through
Some microeconomic and measurement issues (1)

Impact on GDP vs consumer surplus

✓ One source of the current paradox: many digital products are provided “freely”, improving consumers’ welfare. The resources involved in their making are recorded in GDP, whereas consumers’ welfare is not.

✓ Another source: on top of raising revenue, through advertising or the sale of products, Big Data is about the acquisition of personal data, produced in large part ‘freely’ by consumers.

➢ Is this model sustainable? Probably yes: personal information becomes particularly valuable when it can be compared.

➢ In any case, 1/ The welfare increase could be assessed through the development of a Satellite Account; 2/Public policies aim at raising social welfare.
Some microeconomic and measurement issues (2)

Impact on employment and labour force composition

- Downstream, capital-labour substitution at the expense of high-skilled labour force
- But upstream, need for high-skilled labour force for the development of new software
- So probably capital-labour substitution but impact on labour force composition and thus productivity is more ambiguous.