Office for National Statistics
Swyddfa Ystadegau Gwladol

Price and Volume Measurement of Goods and Services Affected by Digitalisation

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(on behalf of the Digitalisation Group and Richard Heys (UK))

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Overview

- Introduction
- Excluded from the scope
- Impact on existing goods
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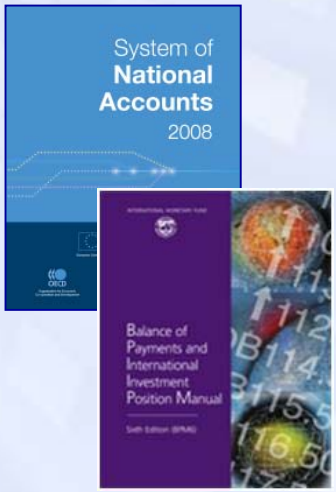
- Options
- Way forward
- Any questions?



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Introduction

- Digital assets are deemed to be intellectual property products.
- Capital services from these assets flow into the production of goods and services in the productive and household sectors leading to distinct issues around price and volume measurement.
- Paper focusses on four measurement areas:
  - Impact on prices of existing goods and services.
  - Digital intermediaries.
  - Cloud computing.
  - Digital assets directly, particularly in instances where these have no observable price (e.g. radio spectrum).
- Further issues may be brought into scope.

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Excluded from the scope

- Although important issues, three topics have not been addressed in the scope for this paper:
  - New digital products with a zero cash price at the point of delivery are excluded as a parallel team is tackling these.
  - The finance sector. Whilst this is a sector heavily digitalised and has a multitude of issues relating to measuring prices and volume (for example, FISIM), there is a parallel team looking at crypto-currencies / fintech and other financial matters who are better placed to consider these issues.
  - Resolution of the international flow of cloud computing services is deemed to be out of scope as the 'Globalisation' team are better placed to address this issue.

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Impact on existing goods

- Issues of classification
  - Is an ‘internet-enabled fridge’ the same product as a normal fridge?
- Challenges around traditional price collection and adjustment methods: ‘basket of consumers’ model where the cheapest contract which suits each consumer is selected for price quote will miss quality change. Hedonics are hard to implement as the variables as well as the values frequently change.
- Price deflation of data (bit transfer by s61 – *not* information)
- Does the value of a digital device (item of ICT hardware) change with the quality of the apps which can be downloaded onto it?

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Other areas

- Prices and volume measures of intermediaries.
- Prices and volume measurement of cloud computing - and tracking the flow of capital services to enable productivity analysis.
- Imputing the price of radio spectrum for those countries not engaged in market auctions of this asset.
- When to bring new goods into the basket to better overcome the new goods problem?

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Options (1)

- Industry 58, 59 and 60
  - Encourage development of 4-digit Service Industries' Producer Price Indices (SPPIs) or use appropriately quality-adjusted CPIs adjusted to basic prices.
- HHFCE of related products
  - Deflated with suitably quality adjusted CPIs or business-to-all SPPIs, whichever forms the highest quality.
- Industry 61 - two approaches reviewed and covered in the paper.
  - Hedonically adjusted SPPI or a data usage unit cost index.
- Digital intermediaries
  - Classification issues.
  - Numerous SUTs options laid out because of the different market creation functions served by these firms.
  - Deflators need to be developed to support these activities.
- Cloud Computing
  - Measuring volumes directly appears impossible.
  - Development of a quality adjusted deflator to apply to nominal values appears the best route forward.

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Options (2)

- Electromagnetic spectrum
  - To achieve international consistency, countries should impute values for the electromagnetic spectrum using market prices available from comparator countries to estimate a value of the asset, implemented as a re-valuation of assets. One approach is to use the net present value of future income.
- Price deflation of new digital products
  - Countries should look to target part of their price collection activity towards capturing the prices of emergent technology products.
  - These products may not yet have gained sufficient weight to normally merit inclusion in samples – will help to provide approximation of reservation prices to enable the calculation of price change in these products.
- Sourcing current price output data on new digital products
  - Countries should look to ensure their price collection methods are up to date and fully capture ‘appstores’ and other online market-maker activity which traditional price collection models may fail to capture.

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Way forward

- AEG Members to:
  - Review the work done to date.
  - Provide forward steer for the group.
- Other aspects to consider:
  - Need to ensure exclusions highlighted are addressed.
  - Adequacy and appropriateness of industry and product classifications?
  - Coverage of “digital” units, for example, self-employed.
  - Digitalisation versus digitisation.
  - Is the “quality” of the “new” service(s) received comparable?
  - Cross-border trade in services?
  - Data sharing, for example, exchange rate adjusted prices?

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Any questions?

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