Valuing Free Digital Platforms in a National Accounting Framework

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She/her or They/them

Agenda

1. Introducing free digital products to a National Accounting framework
2. Conceptual issues
3. A taxonomy for free digital products
4. Differing approaches and their effects on accounts
5. Final issues

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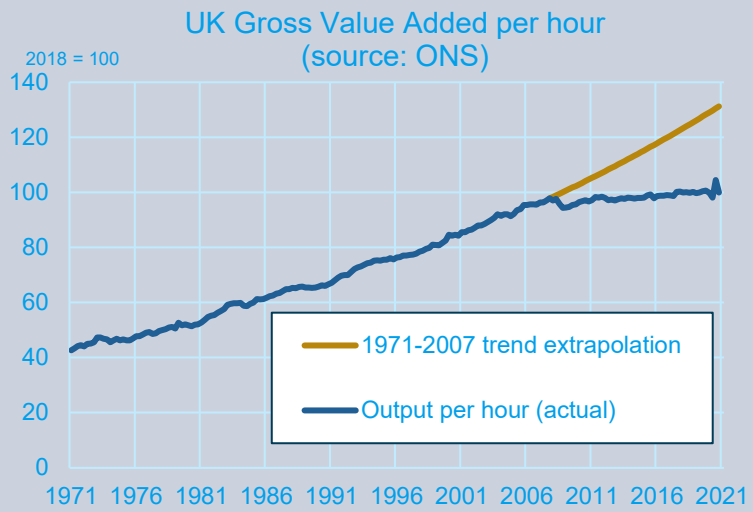
Why are we interested in free digital products?

Productivity Puzzle	Broader Economic Welfare	Role in digital economy
 Is slowdown in UK productivity growth due to growth shifting from within to outside the National Accounts Production Boundary?	**ONS Time-Use Survey, Sep-Oct 2020: Average time spent per day on:** • 9.8 mins: Browsing Internet • 7 mins: Checking or using social media **Coyle and Nyugen (2020), usage rates of selected digital products among online population in May 2020:** Youtube: 82% Facebook: 79% Wikipedia: 68% **Bucknall, Christie, Heys, and Taylor (2021, forthcoming):** Expanding National Accounts production and asset boundaries to produce broader measures of economic welfare	**Bean Review (2016):** 'data is effectively becoming another factor of production, analogous to physical and intangible capital. [It] ..creates significant value for the world economy, enhancing the productivity and competitiveness of market and non-market producers and creating substantial consumer surplus.'

Why might we want to include free digital products in a measure of the economy?

Approach being considered:

Incorporating free digital products into a National Accounting framework (e.g. through satellite account)

Note:

While this approach will maximise comparability with National Accounts, it comes with normal caveats of the use of National Accounts concepts (e.g. GDP) as measure of Economic Welfare, as they **exclude consumer surplus, externalities,** etc.

Why might we want to include free digital products in a measure of the economy?

We can better change, manage, and encourage what we can measure.

To the extent that free digital products are a potential avenue for **improving people's quality of life**, measuring them in as consistent a fashion as possible to the rest of the economy should yield the most useful data.

What are free digital products?

Start with a **broad definition** of free digital products for us to work from in unwinding the implications of their inclusion in a National Accounting framework:

> Products which are digital in nature (including digital technologies, digital infrastructure, digital services and data) or which are delivered through digital means, and are received free at the point of use by the majority of their consumers

What are free digital products?

Some important points to note about this definition:

- '**Consumers**' can be **households**, but could also be **businesses** (in the form of intermediate consumption) or **government**
- Similarly, the products can be **produced** by multiple sectors of the economy – including **households** and **government**

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Conceptual Issues

1. Bundling vs. Barter

Bundling: Free products are financed indirectly by a corresponding paid-for product, the sales of which the free product helps promote

- In which case the value of the ‘free’ product is already included in (current price) GDP within the paid-for product’s margin

Barter: Free products are exchanged via non-monetary means for another product, e.g. data. Barters are legitimate transactions within the System of National Accounts, and their monetary value should be imputed

- In which case the value of ‘free’ products is currently excluded from GDP

This paper explores a **barter approach** – not necessarily arguing this should be applied within National Accounts, but that exploring the approach could yield **economically insightful results**

Conceptual Issues

2. Ownership

Does the household exchange something (e.g. data) for which the HH can meet the criteria for economic ownership, and can that ownership be transferred?

3. Delimiting Data and Observable Phenomenon

A useful distinction is often drawn between

- **Observable Phenomenon** – a real-world phenomenon (e.g. the amount of rain which fell in Brixton yesterday), which is **non-produced**, and
- **Data** – the recording of real-world phenomenon (e.g. a measurement of the amount of rain which fell in Brixton yesterday), which (may be) **produced**

However, when actions directly take place through a digital medium, is it possible to **distinguish** between an act and its recording into data? (e.g. is there a distinction between creating a tweet and creating the text data which makes up the tweet?)

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A taxonomy for free digital products

Direct

- Advertisement funded (e.g. Buzzfeed website)
- Freemium (e.g. Headspace app)
- Perfectly free (e.g. personal website)

Included in National Accounts, no change need
Included in National Accounts, change needed
Not included in National Accounts

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Direct

- Advertisement funded (e.g. Buzzfeed website)
- Freemium (e.g. Headspace app)
- Perfectly free (e.g. personal website)

Digital Platform

- Advertisement-funded platform (e.g. Youtube)
- Donation funded platform (e.g. Wikipedia)

Included in National Accounts, no change need
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A taxonomy for free digital products

Direct

- Advertisement funded (e.g. Buzzfeed website)
- Freemium (e.g. Headspace app)
- Perfectly free (e.g. personal website)

Digital Platform

- Advertisement-funded platform (e.g. Youtube)
    1. Perfectly free (e.g. my personal funny cat video)
    2. Advert funded business-to-consumer content (make-up tutorial featuring product placement)
    3. Alternate funding business-to-consumer content (Patreon funded movie review)
- Donation funded platform (e.g. Wikipedia)
    1. Perfectly free (e.g. users editing wikipedia)
    2. Advert funded business-to-consumer content
    3. Alternate funding business-to-consumer content

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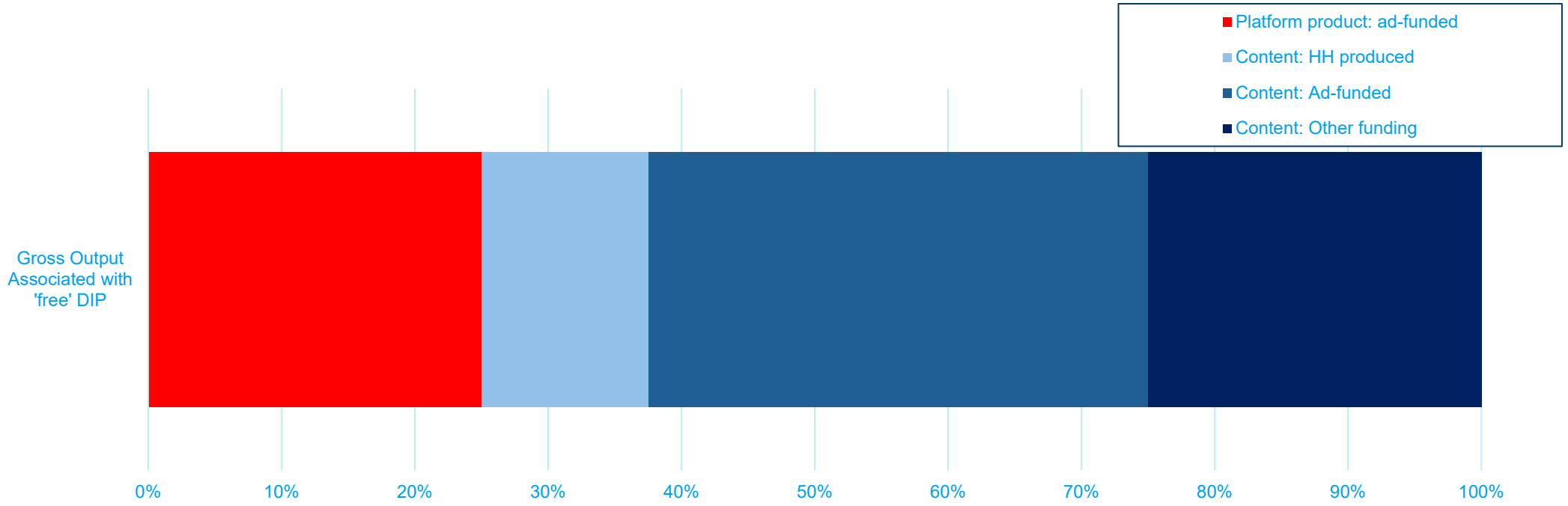
Gross output associated with ad-funded digital platforms



* For illustrative purposes only

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Differing Approaches

	Feedback Services
Transaction	HH produces “Feedback services” – creating observable phenomenon of how they use the digital product provided by the business
Valuation	Sum of costs for digital product production
What does household do?	Uses digital product as intermediate consumption for household production of ‘feedback services’
What does business do?	Creates data asset
Value Added	+
Household final expenditure	0
Household income	0

Adapted from work by Richard Heys and Cliodhna Taylor (ONS) and Dylan Rassier (BEA)

Differing Approaches

	Feedback Services	Right to Observe
Transaction	HH produces “Feedback services” – creating observable phenomenon of how they use the digital product provided by the business	HH sells a licence (a ‘right to observe’) for the business to observe their observable phenomenon in exchange for a digital product
Valuation	Sum of costs for digital product production	
What does household do?	Uses digital product as intermediate consumption for household production of ‘feedback services’	Consumes digital product (final consumption)
What does business do?	Creates data asset	
Value Added	+	+
Household final expenditure	0	+
Household income	0	+

Adapted from work by Richard Heys and Cliodhna Taylor (ONS) and Dylan Rassier (BEA)

Differing Approaches

	Feedback Services	Right to Observe: Final Consumption	Right to Observe: Intermediate Consumption
Transaction	HH produces "Feedback services" – creating observable phenomenon of how they use the digital product provided by the business	HH sells a licence (a 'right to observe') for the business to observe their observable phenomenon in exchange for a digital product	
Valuation	Sum of costs for digital product production		
What does household do?	Uses digital product as intermediate consumption for household production of 'feedback services'	Consumes digital product (final consumption)	Uses digital product as intermediate consumption for general household production
What does business do?	Creates data asset		
Value Added	+	+	0
Household final expenditure	0	+	+
Household income	0	+	+

Adapted from work by Richard Heys and Cliodhna Taylor (ONS) and Dylan Rassier (BEA)

Differing Approaches

Observation 1: Implications of approach for the 'barter'

In Nakamura et al. (2017), a barter was imputed for the exchange of a **"viewership service"** for free goods and services (including free digital services)

- A criticism of this approach is that the **voluntary nature** of the viewership service (e.g. the option to brew tea during a TV ad break) weakens the argument that this is actually a transaction

In contrast, the approaches proposed here focus on the novel aspect of modern free *digital* services – that by using the free digital service, the user explicitly or implicitly agrees *to some extent* to the **recording into data of their observable phenomenon**

Differing Approaches

Observation 2: The role of data and live services

- In these approaches, the **production of data** – both of the personal attributes of the user, as well as information about how the service is used – is central
- These data are used directly (to sell more targeted adds) or indirectly (to improve the service and thereby attract more ad-viewing) to increase revenue
- Therefore this approach hinges on the incorporation of data into a National Accounting framework

Differing Approaches

Observation 3: Production boundaries

Whether or not we're interested in accounting for **household production of services** (which are excluded from core National Accounts) plays a key role in which approaches are viable, as well as how much of the potential value associated with free digital platforms (i.e. content created by households) is deemed out of scope

Differing Approaches

Observation 4: Welfare

While incorporating free digital services all affect some measure of economic ‘welfare’, *which* are affected depends on the particular conceptualisation

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Final Issues

Ownership and Open Source (inc. Assets)

It would make sense to include the development of open source software by households and businesses within a such a framework

This presents additional challenges – particularly around ownership

Robbins et al (2019) found the development of packages for open source programming languages R and python alone could be costed at over $3 billion, and over open source software hosted on the federal government's code.gov could be costed at over $1bn

Final Issues

Government

Following similar logic presented here, some free digital products created by the government could be included (where provision is contingent on data being shared)