



Irving Fisher Committee on
Central Bank Statistics

BANK FOR INTERNATIONAL SETTLEMENTS

Ninth IFC Conference on "Are post-crisis statistical initiatives completed?"

Basel, 30-31 August 2018

Globalisation and digitalisation¹

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¹ This presentation was prepared for the meeting. The views expressed are those of the author and do not necessarily reflect the views of the BIS, the IFC or the central banks and other institutions represented at the meeting.



GLOBALISATION AND DIGITALISATION

9th Biennial IFC Conference “Are post-crisis statistical initiatives completed?”

BIS, Basel, August 30 – 31, 2018

Peter van de Ven (OECD)



Introduction

- **Currently two most prominent topics on the agenda of the System of National Accounts:**
 - **Globalisation**
 - **Digitalisation**
- **A combination of measurement issues and conceptual challenges**





Globalisation: What Are the Main Problems?





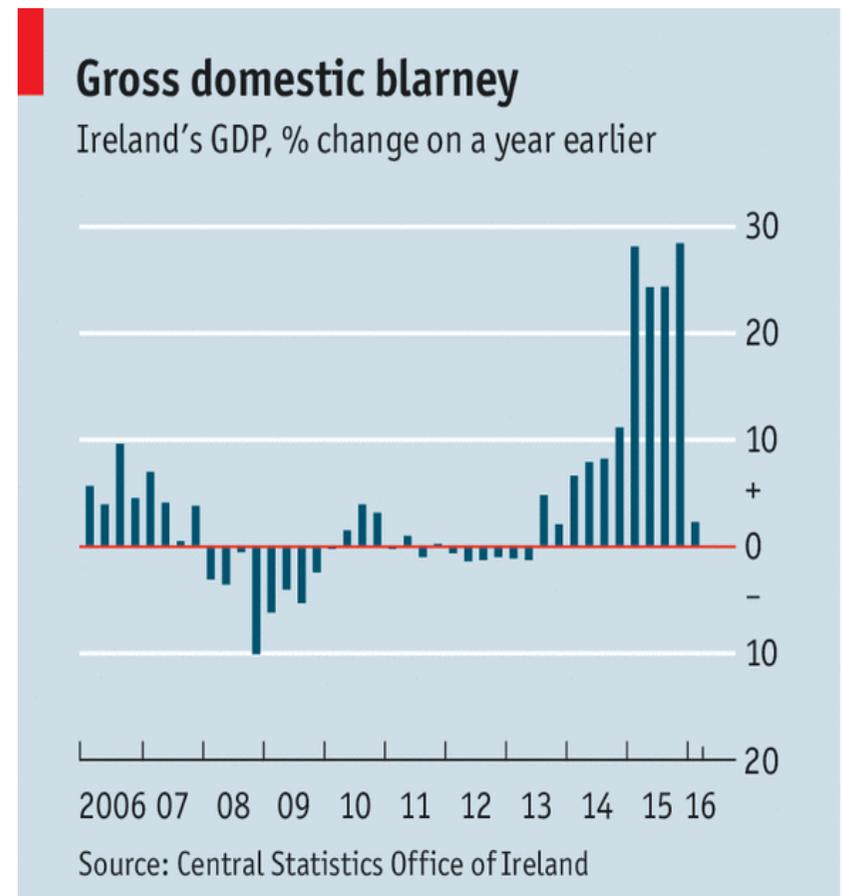
Have They Gone Mad?

Irish GDP up by 26.3% in 2015!

“Ireland’s Economists Left Speechless by 26% Growth Figure” (Bloomberg)

“Why GDP growth of 26% a year is mad” (Economist)

“It’s complete bullshit, it’s Alice in Wonderland economics” Colm McCarthy, University College Dublin)



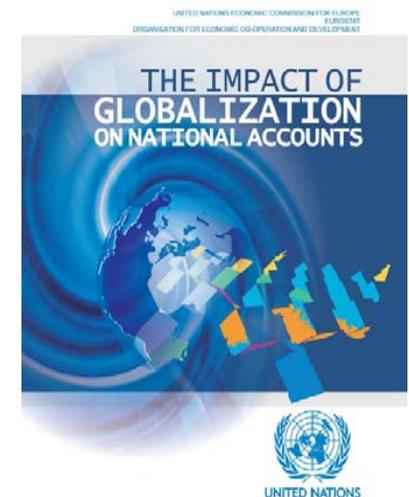


Global production versus national statistics

- **Global production arrangements** between firms and within MNEs
- **Quickly evolving, even minor organisational rearrangements can have significant impact**
- **Statistical complications have long been recognised** and discussed:
 - Goods for processing/merchandising
 - Transfer pricing
 - Special Purpose Entities
 - Relocations/reorganisations
 - Asymmetries in trade data
- **Clear friction between national statistics based on residency and global behavior of MNEs** (also in the area of monitoring risks and vulnerabilities)



www.oecd.org/trade/valueadded





Adding IPPs and digitalisation

- Challenges exacerbated when **globalisation meets IPPs and digitalisation**
- **IPPs have no physical and local constraints => relatively easy to relocate from one country to another**
- Impact can be large, especially in small economies
- **Is GDP still valid** as a measure of domestic production? For **designing** monetary, fiscal and structural **policies?**



Handbook
on Deriving
Capital Measures
of Intellectual
Property Products



Ratio of Profit-type Return to Compensation of Employees

All countries	0.840
Canada	0.848
Europe	0.579
Ireland	6.639
Netherlands	0.878
Switzerland	1.614
Latin America and Other Western Hemisphere	1.555
Central & South America	0.978
Other Western Hemisphere	11.709
Barbados	34.967
Bermuda	36.062
United Kingdom Islands, Caribbean ¹	8.833
Western Hemisphere, n.e.c. ²	6.347
Middle East	1.837
Other Middle East ³	9.403
Asia Pacific	1.178
Hong Kong	0.953
Singapore	2.978

Source: Robert E. Lipsey: Measuring the Location of Production in a World of intangible Productive Assets, FDI, and Intra-Firm Trade (NBER Working Paper 14121)

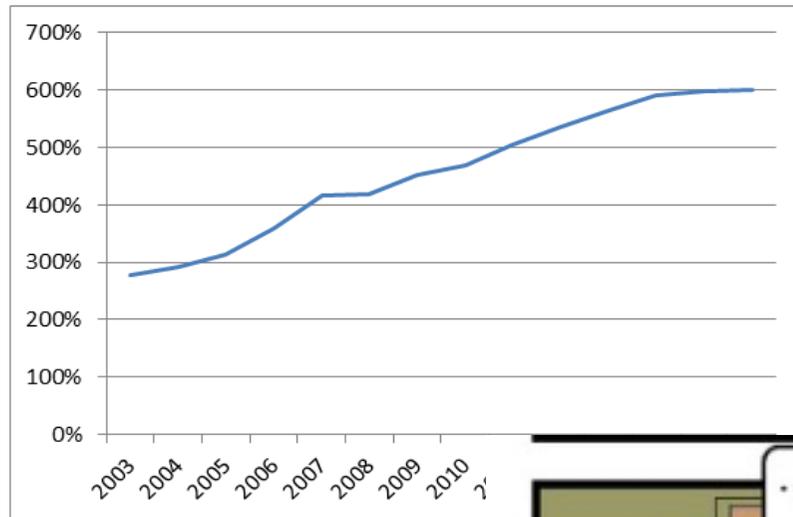




Special Purpose Entities in the Netherlands

Balance sheet totals of "special financial institutions" in NL, 2003 – 2016

Chart Area
% of GDP



Source: De Nederlandsche Bank (2018)



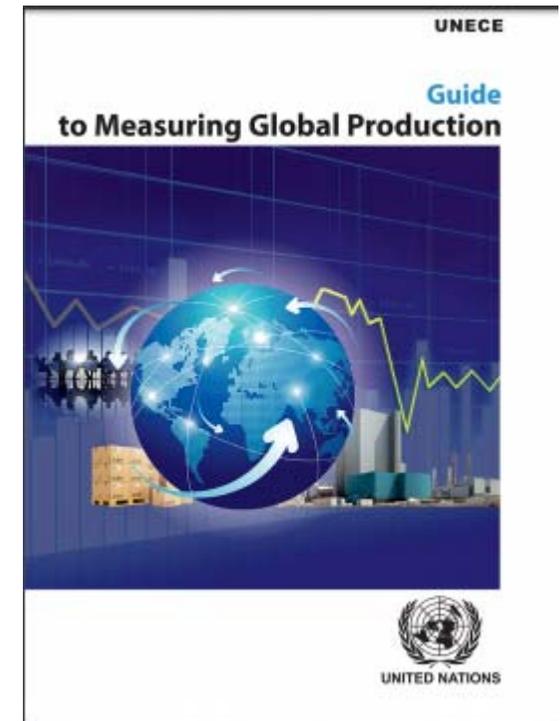


**Globalisation:
Solutions within the Current
International Standards**



Improved accounting

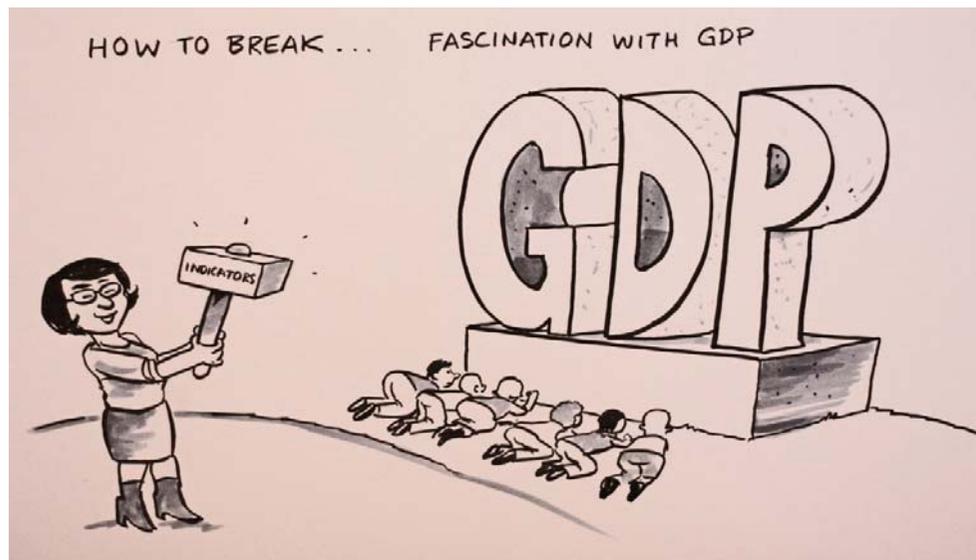
- **Better accounting for global production arrangements**
- **Improving consistency at national level** (e.g. by establishing Large Case Units)
- **Improving international consistency of recording MNE-activities** (EuroGroups Register, Early Warning System, etc.)





Emphasising existing complementary indicators, ...

- **National Accounts \neq GDP**
- The System of National Accounts is a framework from which a **variety of indicators** can be derived
- **Some indicators** such as NNI and Household Disposable Income **hardly/not affected** by e.g. relocations
- Better use and communication needed





..., including greater granularity, ...

- **Proposed additional breakdowns** in supply and use tables and/or in institutional sector accounts:
 - **By type of ownership:**
 - Public corporations
 - National private corporations, not part of domestic MNE
 - **National private corporations, part of domestic MNEs**
 - **Foreign-controlled corporations**
 - **Of which: Special Purpose Entities (SPEs)** (Note: may only be relevant for some countries)
 - By type of firm:
 - Factoryless producers, merchanters, contract manufacturers, processors
 - By business function?





..., and possibly defining additional indicators and datasets

- **Additional indicators:**
 - **GNI*** (= GNI minus retained earnings of re-domiciled firms minus depreciation of categories of foreign-owned domestic capital assets (such as IP capital assets))
 - **Contributions of inputs to (growth of) GDP** (e.g. separating value added from IPPs and other movable assets, from labour and other assets)
- **Creating global datasets on multinational enterprises**, to better monitor and understand economic behaviour





Globalisation: Challenges with and Implication for the Current International Standards





Main characteristics of IPPs

- **No physical or local constraints**
- **Often no direct link to the production process** (e.g. basic research)
- **Often no direct link between today's stock of assets and today's production of goods and services**
- **Often concern the whole value chain, not a particular part of the process** (e.g. product and process innovations)
- Once produced, they are usually **easily scalable**
- ...





Who owns the IPPs?

Figure 4.1
Decision tree for determining economic ownership of an IPP observed in global production (1)

Control/ownership of unit	Production of the IPP	Type of producer	Income and expenditure related to the IPP	Decision about economic ownership of the IPP	Related decisions
1.1. The unit produced the IPP	1.1.1. The unit is a main producer of other (non-IPP) goods and services and is required to use the IPP in its production process.	1.1.1.1. The unit is a main producer of other (non-IPP) goods and services and is required to use the IPP in its production process.	1.1.1.1. The unit may, or may not, receive funding from the parent as compensation for IPP development costs but this aspect is not decisive.	Attribute by default economic ownership of the IPP to this unit.	The IPP is by convention recorded on the balance sheet of this unit even when other member units of the MNE may benefit from the IPP.
		1.1.1.2. The unit does not receive income from royalties or licences to use but either receives compensation for IPP development from the parent or only the IPP proceeds to the parent.	1.1.1.2. The unit does not receive income from royalties or licences to use, or does not receive any compensation for IPP development from the parent, so it can be assumed that it is expected to obtain income from royalties and licences to use in the near future.	Do not attribute economic ownership to the unit. This unit serves as a shell and IPP proceeds for the benefit of the MNE as a whole.	Do not record the IPP as fixed capital formation of the unit. Instead record the developed IPP as an asset to the (developed) MNE parent. Reported sales of IPP outputs may show up in international trade in services statistics.
		1.1.1.3. The unit is a main IPP producer.	1.1.1.3. The unit receives income from royalties or licences to use, or does not receive any compensation for IPP development from the parent, so it can be assumed that it is expected to obtain income from royalties and licences to use in the near future.	Attribute economic ownership to the unit. The unit functions as a dedicated IPP producer with income from units outside the MNE from the IPPs produced.	The IPP is recorded as fixed capital formation of the unit.
1.2. The unit is part of a multinational enterprise (MNE)	1.2.1. The unit is a main producer of other (non-IPP) goods and services and may use the IPP in production.	1.2.1.1. The unit is a main producer of other (non-IPP) goods and services and may use the IPP in production.	1.2.1.1. The unit pays royalties or licences to use.	The unit does not own the IPP.	Do not record the IPP as fixed capital formation of the unit. IPP related payments to foreign suppliers are recorded as input of IPP services (for royalties).
		1.2.1.2. The unit is a main producer of other (non-IPP) goods and services and may use the IPP in production.	1.2.1.2. The unit purchased the IPP original for use in production.	Attribute economic ownership of the IPP to the unit.	The IPP is fixed capital formation of the unit. If purchased from abroad register an import of the IPP (original).
1.2. The unit did not produce the IPP	1.2.2. The unit is not a producer of other (non-IPP) goods and services. Its main output is IPP related.	1.2.2.1. No IPP related payments are being observed. IPP use may be indirectly observed based on the nature of the production process (with usually high IPP requirements) and above average returns to capital.	1.2.2.1. No IPP related payments are being observed. IPP use may be indirectly observed based on the nature of the production process (with usually high IPP requirements) and above average returns to capital.	The MNE parent is expected to be the exclusive owner and supplier of the IPPs used in production.	Conceptually, an imported IPP service flow should be recorded. But this is not an easy task (and not without risk) as the nature and use of these flows are principally unknown. Such imputations of imports/exports should preferably be the outcome of a concerted action in which all national statistical institutes (NSIs) involved join efforts in filling in the IPP flows between the units of an MNE.
		1.2.2. The unit is not a producer of other (non-IPP) goods and services. Its main output is IPP related.	1.2.2. Purchase of the IPP from the parent and income from royalties and licences to use may, or may not, be observed.	1.2.2. Purchase of the IPP from the parent and income from royalties and licences to use may, or may not, be observed.	The unit is assumed to have purchased the IPP (original) from the parent and to possess (on behalf of the parent) income from royalties or licences to use the IPP. Attribute economic ownership of the IPP to the unit. The unit is considered an IPP holding SPE, according to services to the MNE parent.

- 2008 SNA makes **distinction between economic (*risks and rewards*) and legal ownership**
- But, despite best efforts, **guidance on identifying economic ownership arguably falls short**

1.2.2. The unit is not a producer of other (non-IPP) goods and services. Its main output is IPP related.

1.2.2. Purchase of the IPP from the parent and income from royalties and licences to use may, or may not, be observed.

The unit is assumed to have purchased the IPP (original) from the parent and to receive (on behalf of the parent) income from royalties or licences to use the IPP. Attribute economic ownership of the IPP to the unit. The unit is considered an IPP holding SPE providing its services to the MNE parent.

It is recommended to classify the fixed capital formation, income and expenditure related to these IPP holding SPEs separately to allow analysis excluding "brass plate" units, also because the transactions carried by these units are not necessarily at arm's length.





Way Forward?

- **More prescriptive guidance on economic ownership**
- **As a default option, to always consider, conceptually, the parent as the economic owner, ...**
- ... meaning that current measures of **(distributed and reinvested) earnings would shift from GNI to GDP** in the parent economy
- Note: In current national accounts, payments for services and property income often blurred





Consolidating SPEs

- SPEs are typically **pass-through types of units**, often set up to minimize global tax burden
- **No economic substance; often brass plates**
- Currently treated as separate institutional units, because associated corporation is located in another country
- If not located in another country, they would **not be considered as separate institutional units** and would be consolidated
- Assigning e.g. ownership of IPPs to these units is matter of legality or practicality
- **Consolidate SPEs with the ultimate owner?**





A panacea or a sticking plaster? Who is the ultimate parent?

- **Centre of economic decisions** = location from where decisions are made on:
 - global arrangements of production
 - R&D and other corporate investments
 - corporate finance
 - appointment at senior management level
 - etc.
- **Location of board of directors**
- ...
- Corporate inversion by setting up a holding type of SPE to minimise tax burden would thus not affect centre of economic decisions





“In between dream and act there are hindering laws and practical issues” *

- **Solutions require extensive exchange of individual enterprise information at the international level**
 - **Top-down approach** (e.g. BEPS-data, or alternative/additional collection of data on MNEs at the international level)
 - **Bottom-up approach** (monitoring and analysis of MNEs primarily based on collection of data on the national level)
- But ... we already have **major problems in arriving at consistency at the national and international level**
- **Need for enhancing (the possibilities for) international co-operation and co-ordination**

* Quote from the poem “The Marriage” by Willem Elsschot





Digitalisation: What Are the Main Problems?





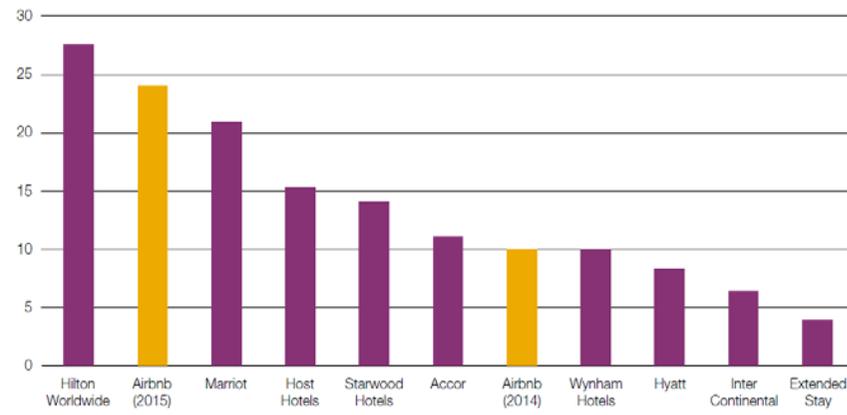
Background

Increased prevalence of 'new' transformative (digital) technologies

But ...

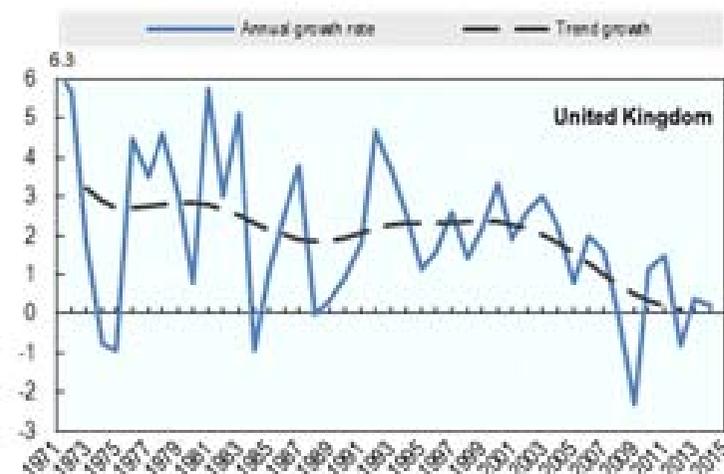
... declining productivity

Market capitalisation of Airbnb (£ Billions)



Source: Davidson, L., (2015). 'Airbnb boss calls the UK the "centre of the sharing economy",' The Telegraph.

Trend labour productivity growth





Very present in the public debate

Charles Hulten:
“Valuing the Net and the wide range of applications... is challenging.... and their omission or undervaluation surely affects GDP.”

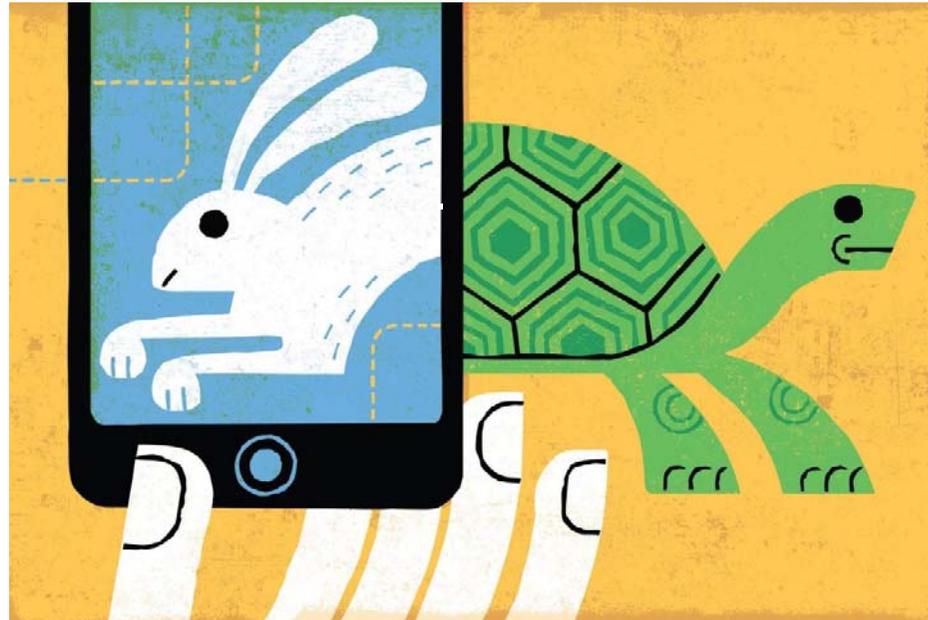
Charles Bean:
“statistics have failed to keep pace with the impact of digital technology”

Diane Coyle: *The pace of change in OECD countries is making the existing statistical framework decreasingly appropriate for measuring the economy*

THE WALL STREET JOURNAL.

Silicon Valley Doesn't Believe U.S. Productivity

The U.S. Underestimates Growth



FINANCIAL TIMES

The internet and the productivity slump

ComputerWeekly.com

Why we're measuring the digital economy in the wrong way

The Economist

Some optimists argue instead that the problem is one of measurement. Technological progress often raises productivity in ways that statistical agencies struggle to detect

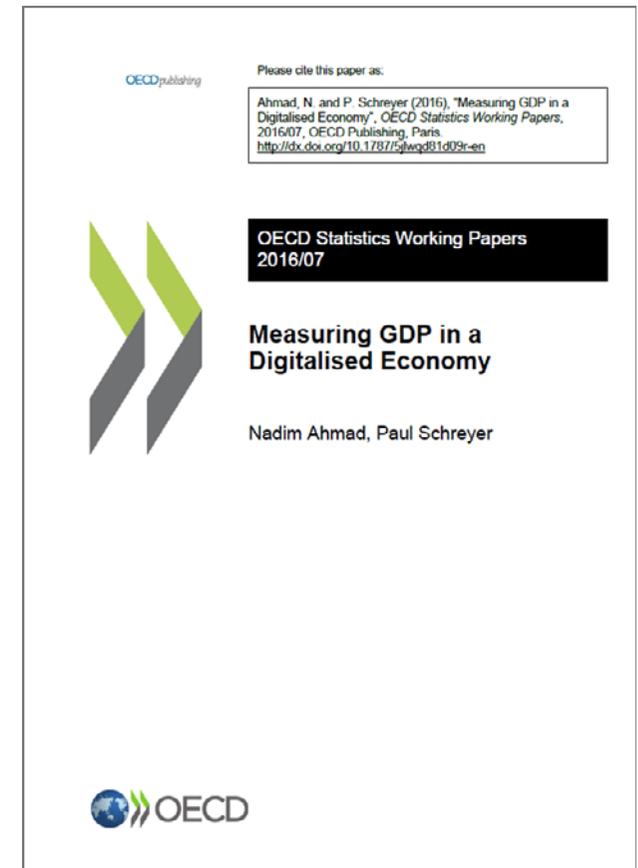


The ill-defined nature of the issue has not helped

There is often confusion between:

- **Conceptual** vs. **Empirical** issues
- **Production** vs. **Consumer Surplus** vs. **Welfare**
- **Volumes** vs. **prices**

Recent OECD paper reviews these issues more systematically





Digitalisation: Some examples of new products and services





New forms of intermediation

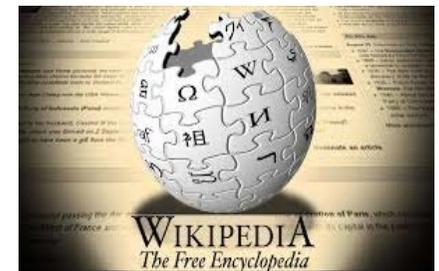
- **Digital platforms** provide intermediation services for supply and demand
- **Not new**, but more **pervasive** and **provided differently**:
 - Taxi reservation service => *Uber*
 - Travel agent => *Booking.com*
 - Hilton online reservations => *Airbnb*
 - Banks => *Peer-to-peer lending and crowdfunding*
 - Payment services => *PayPal, Adyen*
- **No conceptual issues, but possible measurement issues** (e.g., occasional self-employed, intermediary may be located in the rest of world)





Consumers as producers

- Internet access by households has led to **blurring between household production for market purposes, own account production, consumption, leisure:**
 - Own booking of hotels, or flights by households
 - Self-service at supermarkets
 - On-line banking
- In common: movement **from dedicated market producers out of market**
- Furthermore, households generate **free assets:** Wikipedia, Linux
- Not captured in GDP
- **Old problem of dealing with unpaid household activities => Further elaboration in satellite account**





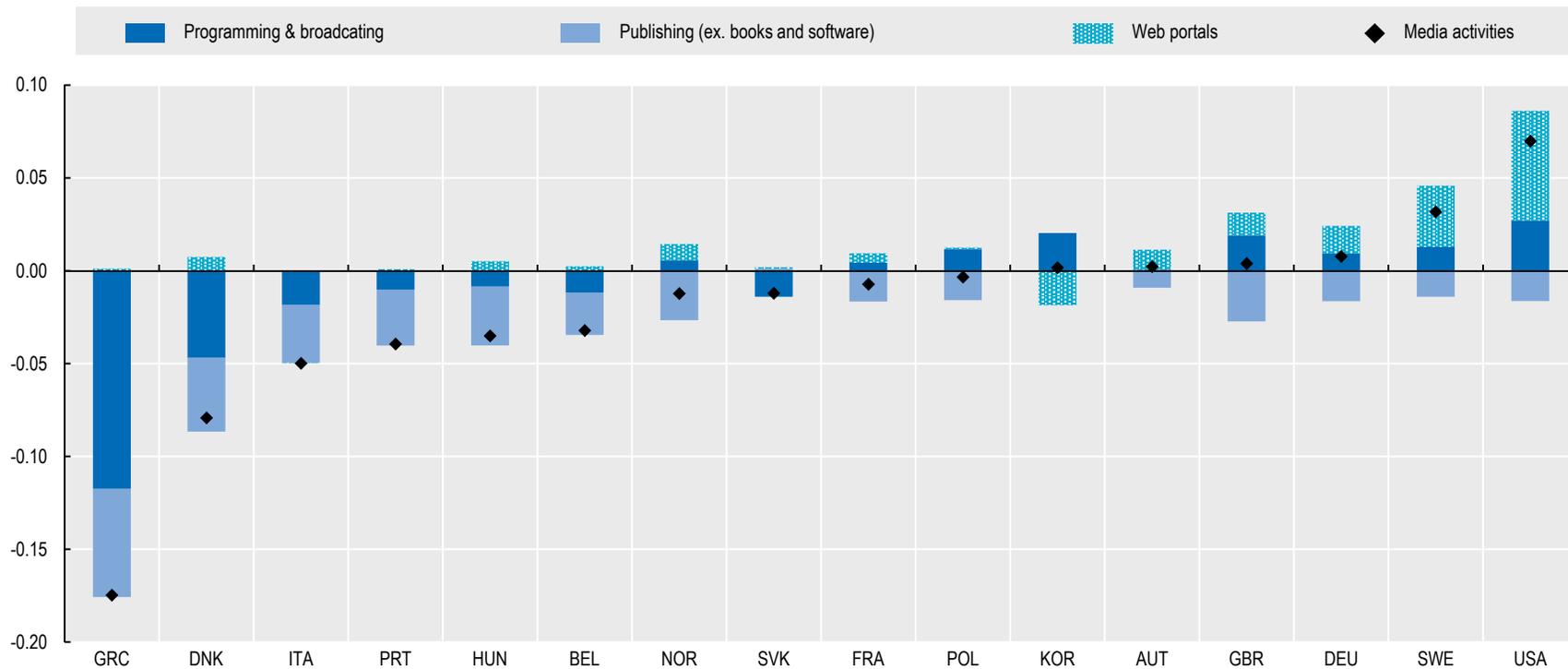
Free and subsidised consumer products

- **Free apps, search capacity** by Google, etc., **social networking** through Facebook, Tencent, etc.
- Financing via **advertisements** or **data**
- Frequently cited as **output that goes unnoticed** despite contribution to consumer welfare
- Some debate about **imputation of additional output and value added** of “information services”
- **Again old problem (e.g. broadcast television and radio) =>**
Further elaboration in a satellite account





Impact of free media activities on GDP growth, 2009-2013



Average 2009-2013, percentage points

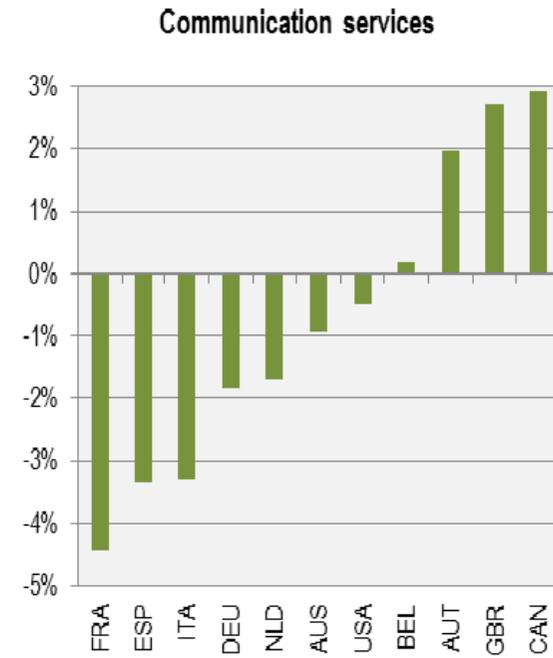
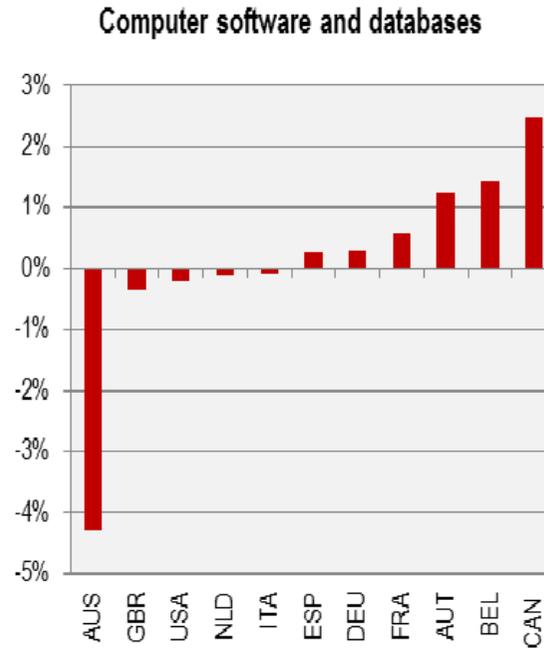
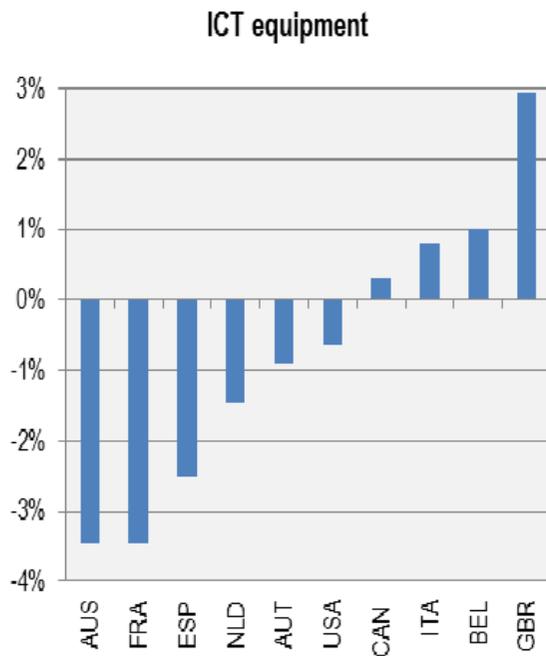
Notes: Data for BEL, KOR and POL refer to 2012-2013, for FRA, GRC to 2010-2013 and for the USA to 2011-2013.

Source: OECD calculations based on data from OECD SDBS database, OECD Annual National Accounts database and US Census Bureau data. The GDP deflator was used for deflation purposes.



Volume and price measurement

Average annual growth rate in percentage, 2010-2015 (or latest available year)



Notes: Data reported for Spain for ICT equipment and Computer software and database correspond to the period 2010-2014. Data reported for Austria for Communication services correspond to the period 2011-2015.

Source: OECD National Accounts Statistics, OECD Productivity Database, OECD Prices and Purchasing Power Parities database, Australian Bureau of Statistics, U.S. Bureau of Economic Analyses and Statistics Canada, February 2017





Potential impact on GDP growth

Average annual growth rate in percentage, 2010-2015 (or latest available year)

Country	GDP growth, unadjusted	Adjusted GDP growth minus Unadjusted GDP growth		
		Scenario I: M=0	Scenario II: FD=0	Scenario III: FD and M from SUT
Australia	2.761%	0.023%	-0.001%	0.022%
Austria	1.047%	0.294%	-0.103%	0.191%
Belgium	0.996%	0.400%	-0.184%	0.216%
Canada	2.148%	0.286%	-0.093%	0.194%
France	0.943%	0.157%	-0.034%	0.123%
Germany	1.572%	0.122%	-0.044%	0.077%
Italy	-0.641%	0.200%	-0.091%	0.109%
Netherlands	0.748%	0.367%	-0.118%	0.250%
Spain	-0.235%	0.176%	-0.058%	0.117%
UK	1.978%	0.365%	-0.193%	0.172%
US	2.072%	0.208%	-0.046%	0.162%

Notes: Using lower bound price indices; Data reported for Austria (communications) correspond to 2011-2015 and Spain (ICT goods and software) correspond to 2010-2014.

Source: OECD calculations based on OECD National Accounts Statistics, OECD Prices and Purchasing Power Parities database, OECD Supply and Use Tables database, Australian Bureau of Statistics (ABS), Bureau of Economic Analysis (BEA), Statistics Canada, Office for National Statistics (UK), February 2017





Digitalisation: Main conclusions and way forward





Conclusions

- **Good measurement is key in a digital economy**, but mismeasurement unlikely to explain productivity and growth slowdown
- **Conceptually, national accounts appear up to the task, but ...**
- **... measurement in some areas may require improvement, especially in the area of volumes and prices**
- GDP is a measure of (market) production, not an indicator of welfare





Way forward

- OECD's project **“Going Digital”**
- **Planned work** of the Advisory Group on Measuring GDP in a Digitalised Economy:
 - Further work on assessing the **effects of possible bias in price indices** on measured productivity and growth
 - Further work on assessing the impact of **“free goods and services”**
 - Further work on **the role of data, including its recording**
 - **Developing and compiling a satellite account for the digital economy**
 - **Developing indicators to monitor the digital economy**





Final considerations





Final considerations

- **Lots of critique and renewed debate on the adequacy of the core framework of national accounts**
- **Challenging issues** on the table, in addition to issues like the measurement of well-being, sustainability, (financial) risks and vulnerabilities, etc.
- **Lots of fun!**
- **No time to retire soon!**

LIVING TOGETHER
AFTER **RETIREMENT**
OR: There's a spouse in the house



35 cartoons from Graham Harrop



Thank you for your attention!

