

The Data Economy:

more questions than answers

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Data is the new oil!
^ NOT

2007

Smartphones

- Touchscreen display
- Batteries
- Specialised chips
- Operating system

Wireless networks

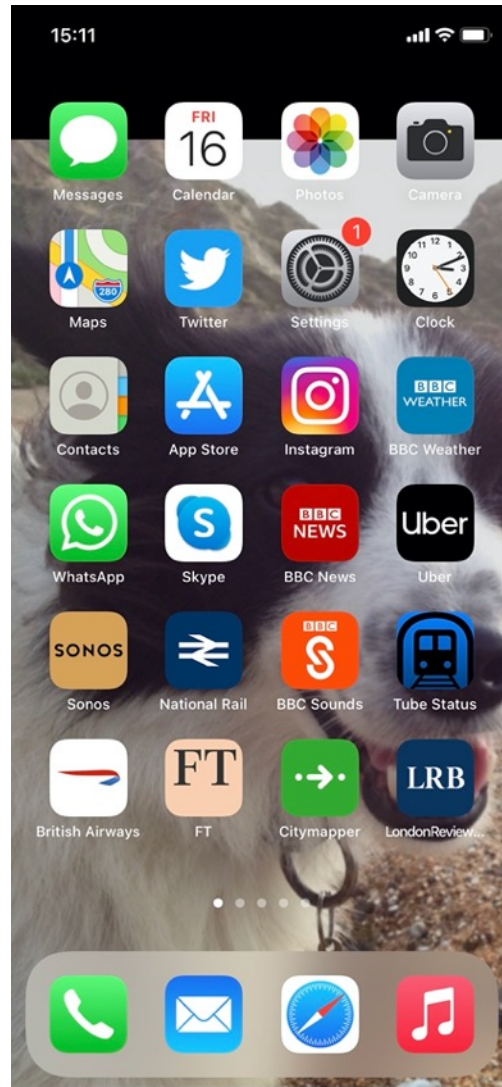
- Wifi/3G & 4G/Bluetooth
- Compression
- Speed
- Latency
- Spectrum auctions

Apps

- Software algorithms
- Market design
- Business models

Data

- GPS
- Other reference data
- Tracking data
- User generated data



What determines the value of data?

Economic lens	Contextual lens
Positive and negative externalities	Provenance
Non-rival, excludable	Data type
Increasing/decreasing returns	Data subject/sensitivity
Depreciation	Generality (reference data)
Fixed and marginal costs	Accuracy
Complementary investments	Interoperability/accessibility

Coyle et al 2020

https://www.bennettinstitute.cam.ac.uk/media/uploads/files/Value_of_data_Policy_Implications_Report_26_Feb_ok4noWn.pdf

- ‘Market solutions’ are **inefficient**
- Social and private value diverge & some valuable uses non-monetizable → **open data?**
- Value lies in **use** → skills important (people move less than data); communications, not data centres; heterogeneous use values
- Information needs **tacit knowledge** to be used; complementary investments
- **Relational** character → solutions cannot all be individual; danger of foreclosing valuable uses

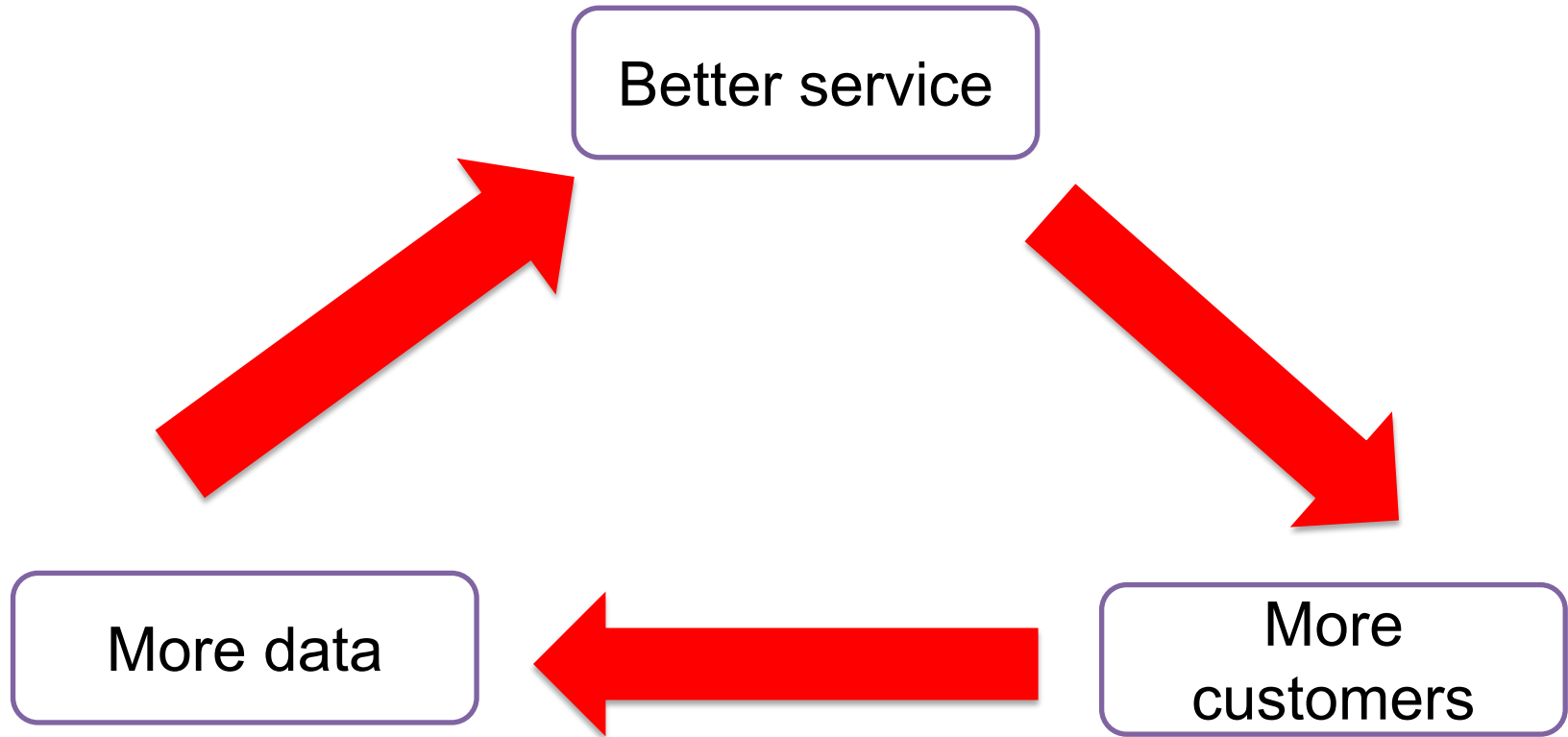
My questions:

- Anti-trust: how to remedy data as source of market power?
- Macro: is it possible to estimate scale of macro data phenomena?
- How can the data economy contribute to social welfare (not just private value)?

Market power & competition

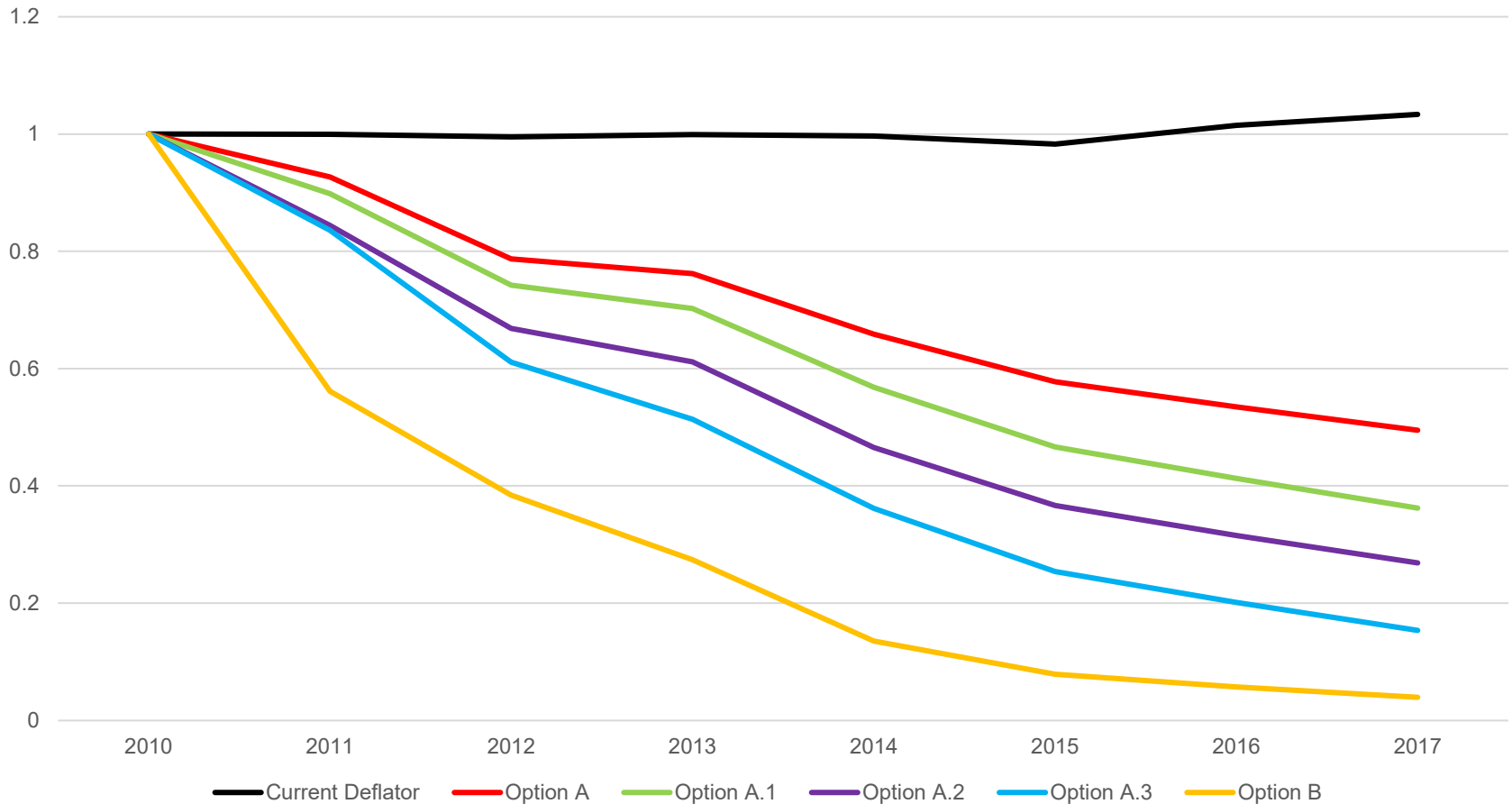
Scale & network effects → winner-takes-all

The data loop



Macro effects

Are all bytes equal?



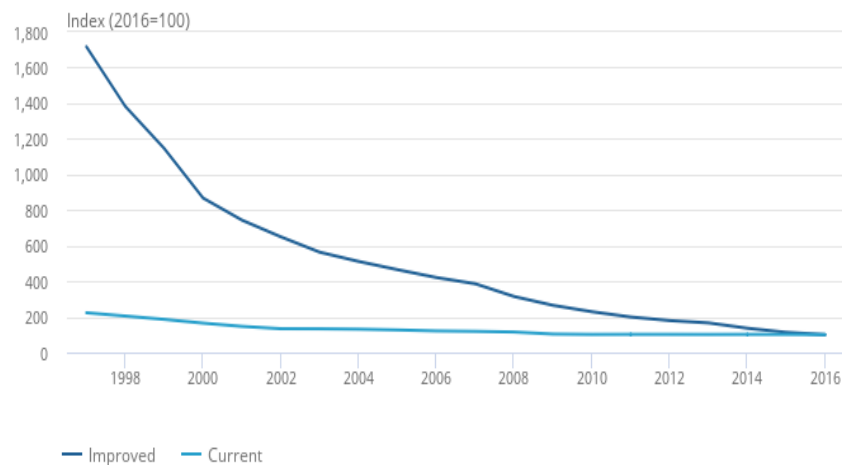
Abdirahman, M., Coyle, D., Heys, R. & Stewart, W. (2020). A Comparison of Deflators for Telecommunications Services Output. *Economie et Statistique*



Reduced price of a byte

Figure 1: Improved telecommunication services deflator has a stronger price decline

Current and improved telecommunication services deflator, 1997 to 2016



Source: Office for National Statistics

Figure 1: The implementation of an improved telecommunication services output deflator has had some impact on volume GVA estimates at the headline level

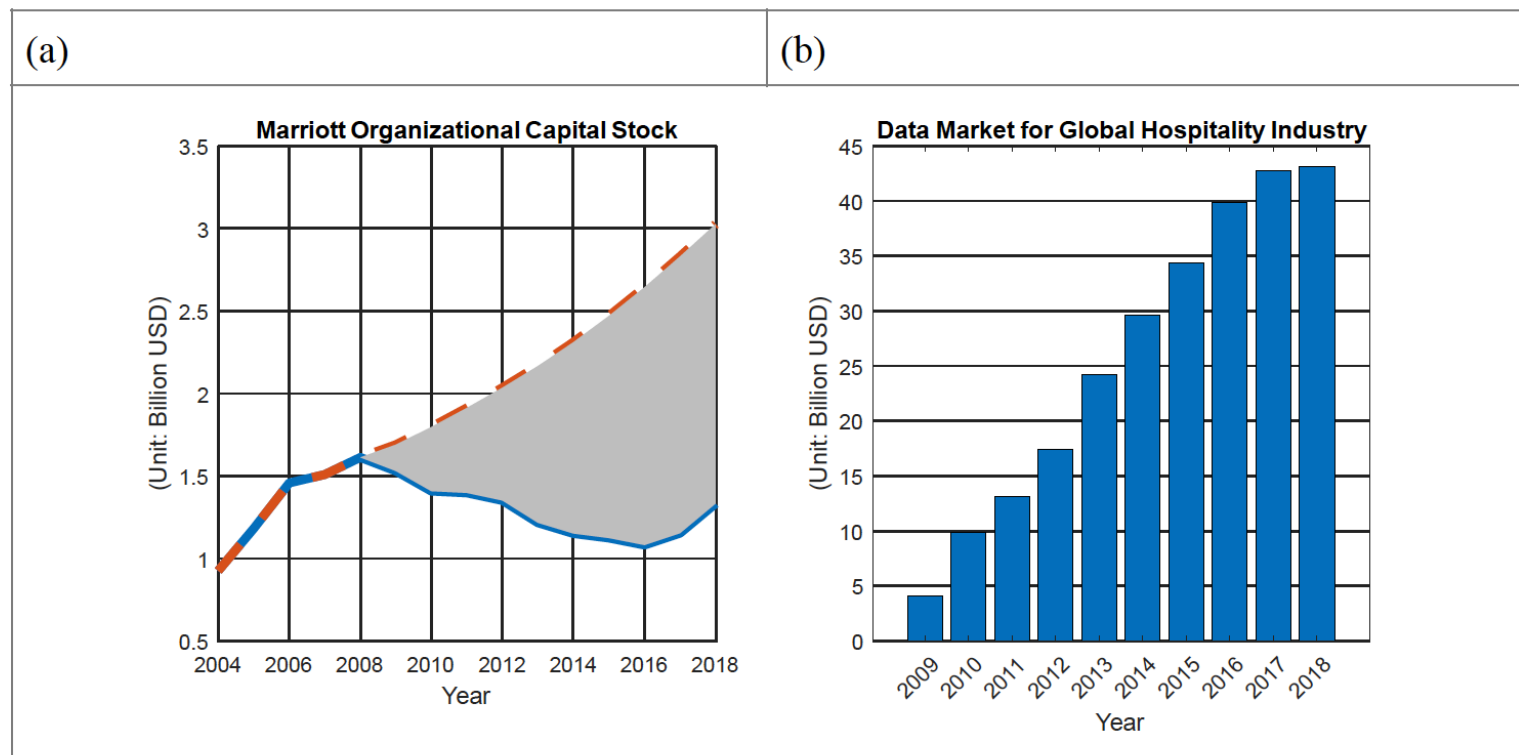
Annual volume gross value added (GVA) growth, 1998 to 2018



Source: Office for National Statistics - Using experimental double deflation estimates to produce GDP

Global market values

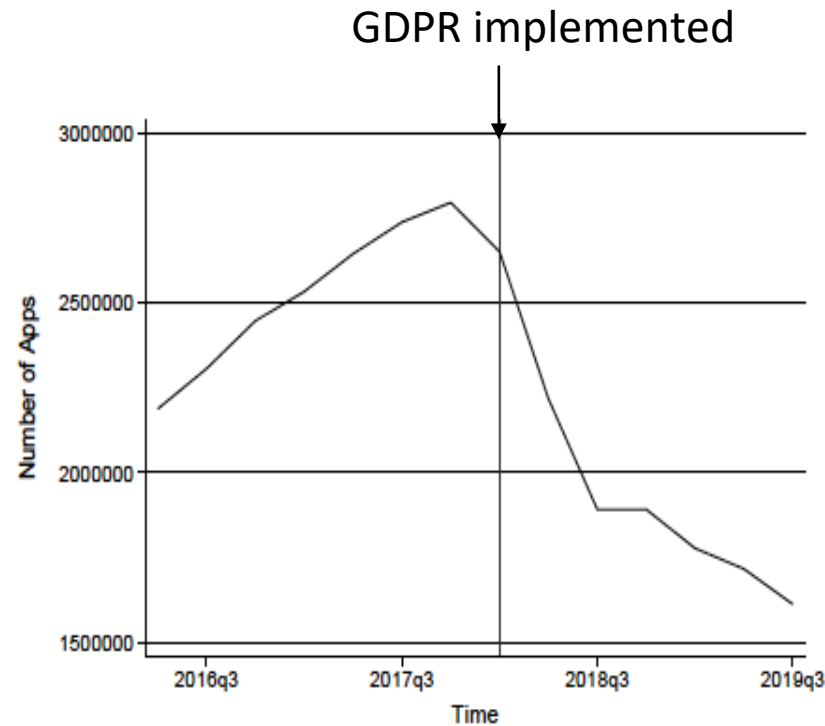
Figure 4: Marriott's organizational capital stock and the estimated data market size of the global hospitality industry



Whose value?



“Accentuate the positive, eliminate the negative.....”



Janssen, Kessler, Kummer &
Waldfogel working paper 2021

Figure 3: Apps Available and GDPR

Positive externalities



Tentative conclusions

- Much of growing economic literature treats 'data' too generically
- Value to a single organization is a subset of 'social' data value
- 'Personal' and 'ownership' not useful concepts: 'private', 'purpose' and 'access'
- There are some obvious trade-offs for policy
- Empirics will be needed to evaluate social welfare: pilot work

The Value of Data: Policy Implications

https://www.bennettinstitute.cam.ac.uk/media/uploads/files/Value_of_data_Policy_Implications_Report_26_Feb_ok4noWn.pdf

Unlocking Digital Competition

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/785547/unlocking_digital_competition_furman_review_web.pdf

A Comparison of Deflators for Telecommunications Output

<https://www.insee.fr/en/statistiques/4770156?sommaire=4770271>

<https://www.ons.gov.uk/economy/nationalaccounts/uksectoraccounts/articles/producinganalternativeapproachtogdpusingexperimentaldoubledeflationestimates/2020-11-02>

Telecom Deflators: A Story of Revenue and Volume Weights

<https://www.escoe.ac.uk/publications/telecoms-deflators-a-story-of-volume-and-revenue-weights/>

Coyle & Diepeveen, The Social Value of Data, under submission, please request

Coyle & Li, The Data Economy: Market Size and Global Trade, ESCoE working paper forthcoming, please request