Old and New Data
with Old and New Positives and Negatives
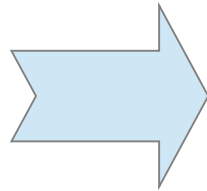
John Aston
University of Cambridge
& The Alan Turing Institute

Old and New Data

1841 Scottish Census Record
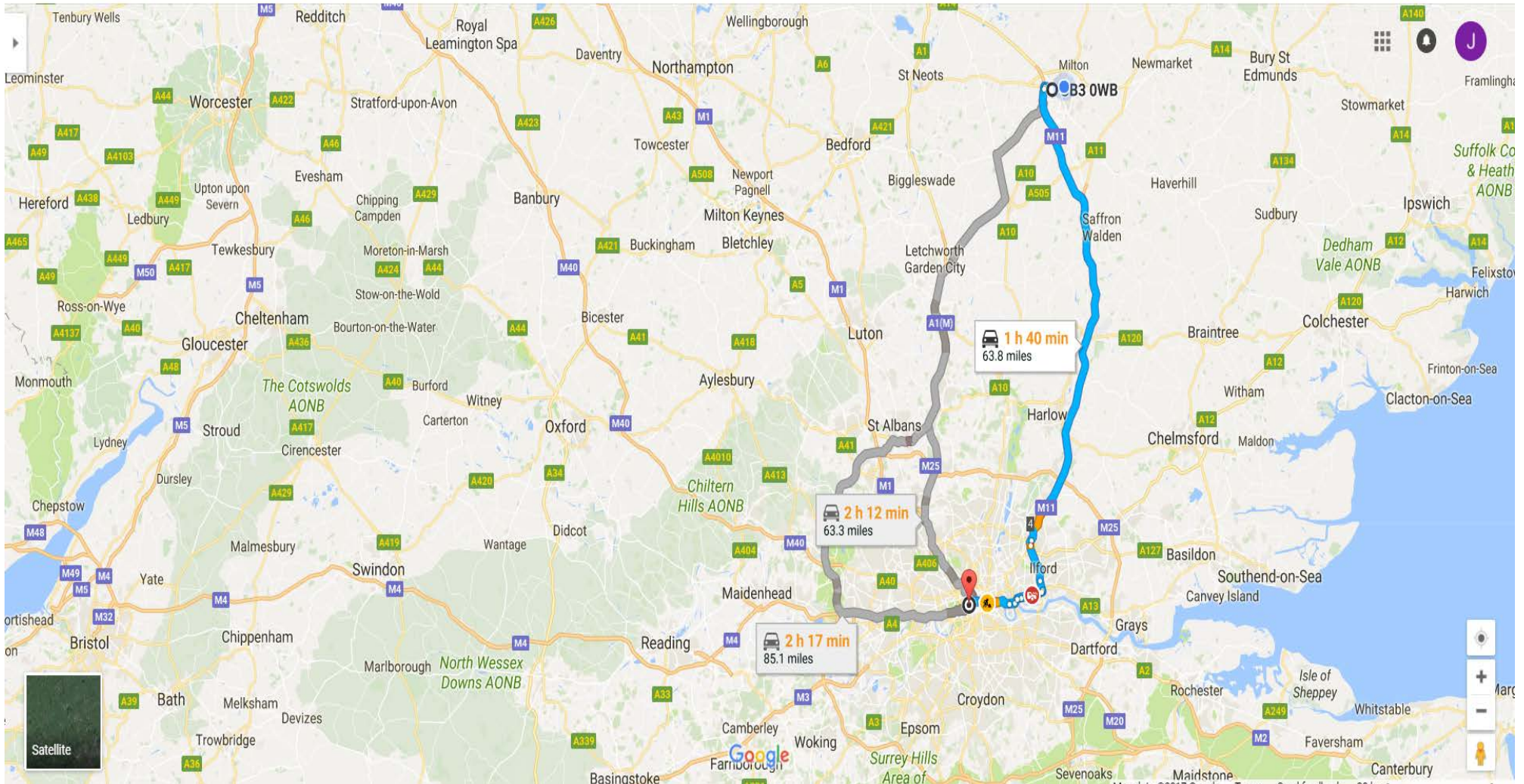(Courtesy Scottish National
Records Office)

Cambridge University's Data Centre

New Data – New Promise

New data – old issues?

Adapted from Alan Turing Institute research by Wachter et al, 2017:

- It is taken for granted that making a system more interpretable will also make it less efficient. Is this true?

- Explanations may not always be technically feasible or practical. Alternative accountability mechanisms need to be explored for these cases, including certification schemes and auditing functions.

- Similar systems should be similarly regulated, AI, Robotics, Machine Learning, Autonomous Systems...
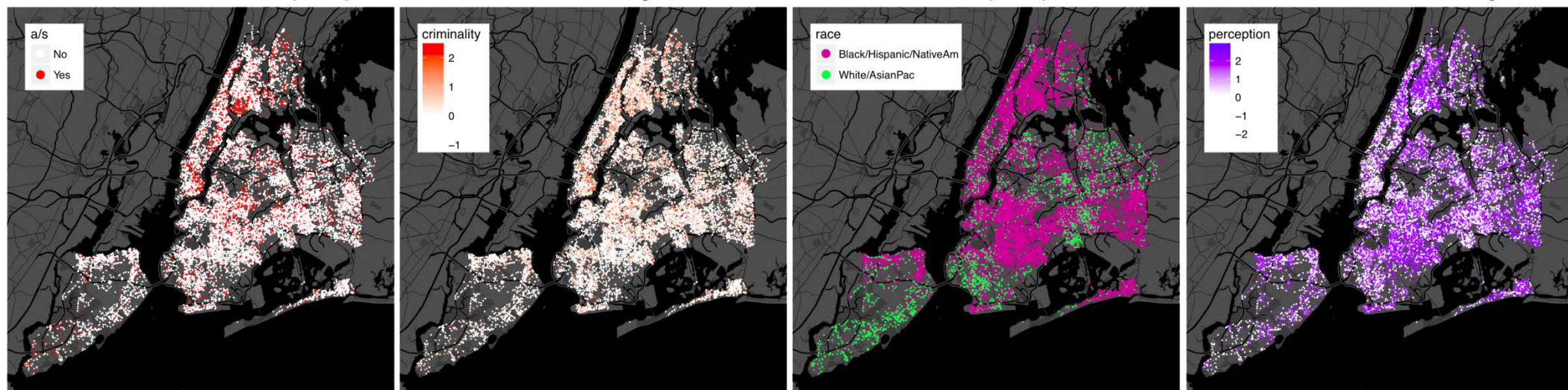
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New data – new solutions?

Understanding criminality. The above maps show the decomposition of stop and search data in New York into factors based on perceived criminality (a race dependent variable) and latent criminality (a race neutral measure).

Research by Alan Turing Institute
(Kusner et al, 2017)

New and Old Data

Independent Review of
UK Economic Statistics

Professor Sir Charles Bean

March 2016

Bean Review into Economic Statistics addressed the burgeoning need for data integration
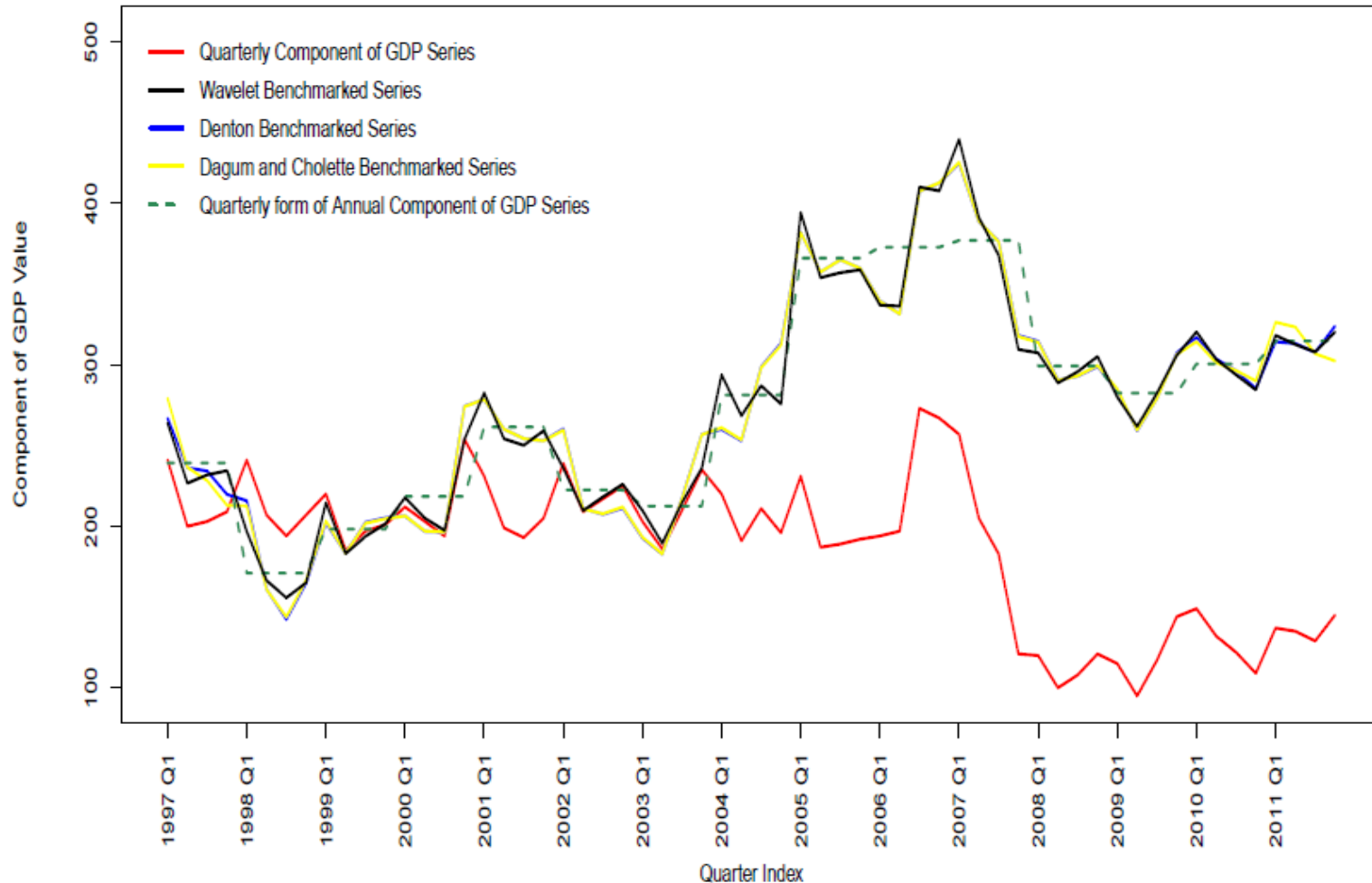
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New and Old Data – Old Issues

Different Benchmarking Methods Applied to Component of UK GDP Data

From Sayal et al, 2017
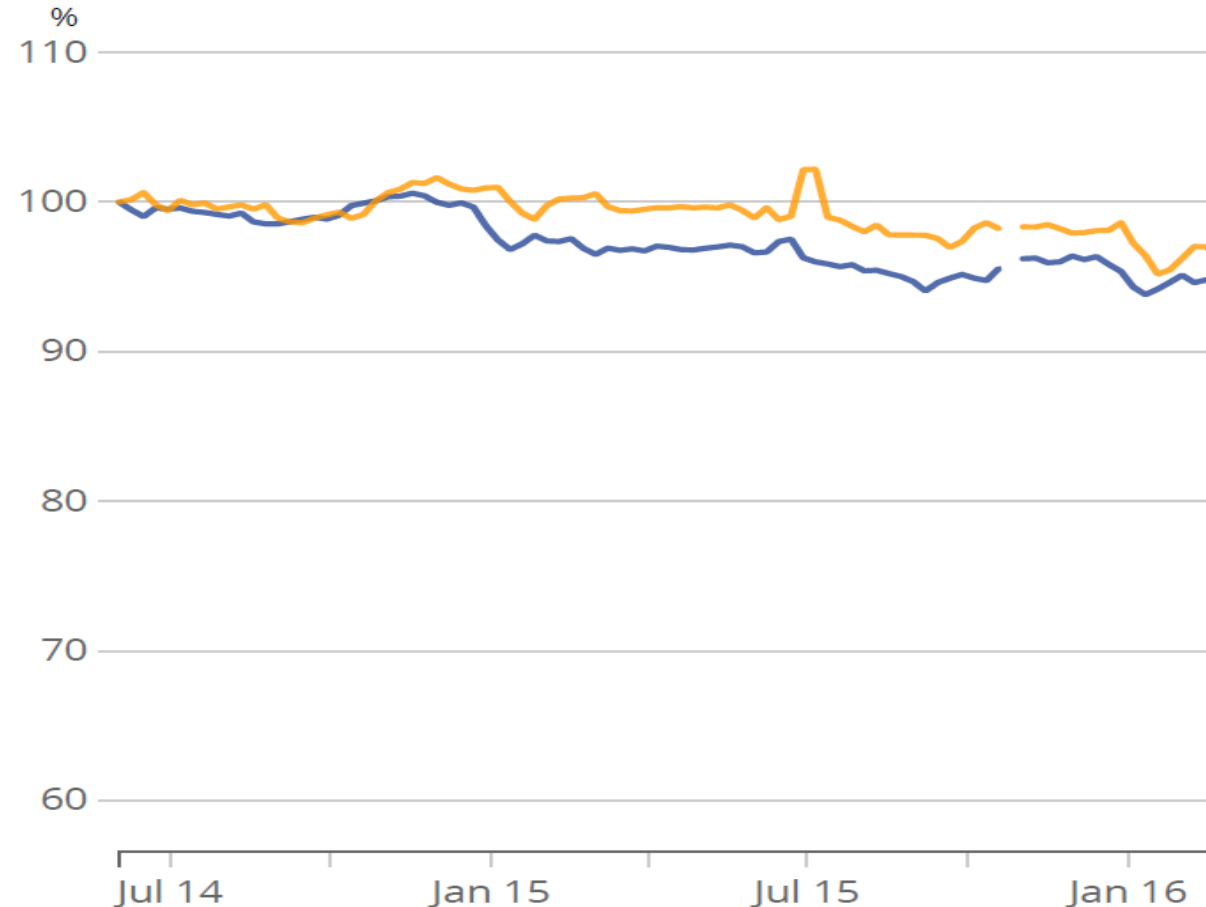
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New and Old Data – New Promise

From ONS, Research indices using web
scraped price data: May 2016 update

A Few Refs

- Wachter et al (2017) Transparent, explainable, and accountable AI for robotics, *Science Robotics,* 2:eaan6080

- Kusner et al (2017) Counterfactual Fairness, *arXiv,* 1703.06856

- Bean (2017) Independent Review of UK Economic Statistics

- Sayal et al (2017), An introduction to Wavelet Benchmarking with Seasonal Adjustment, *JRSSA,* 180: 863–889

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