Big Data: ideas, desafios y oportunidades para la economia

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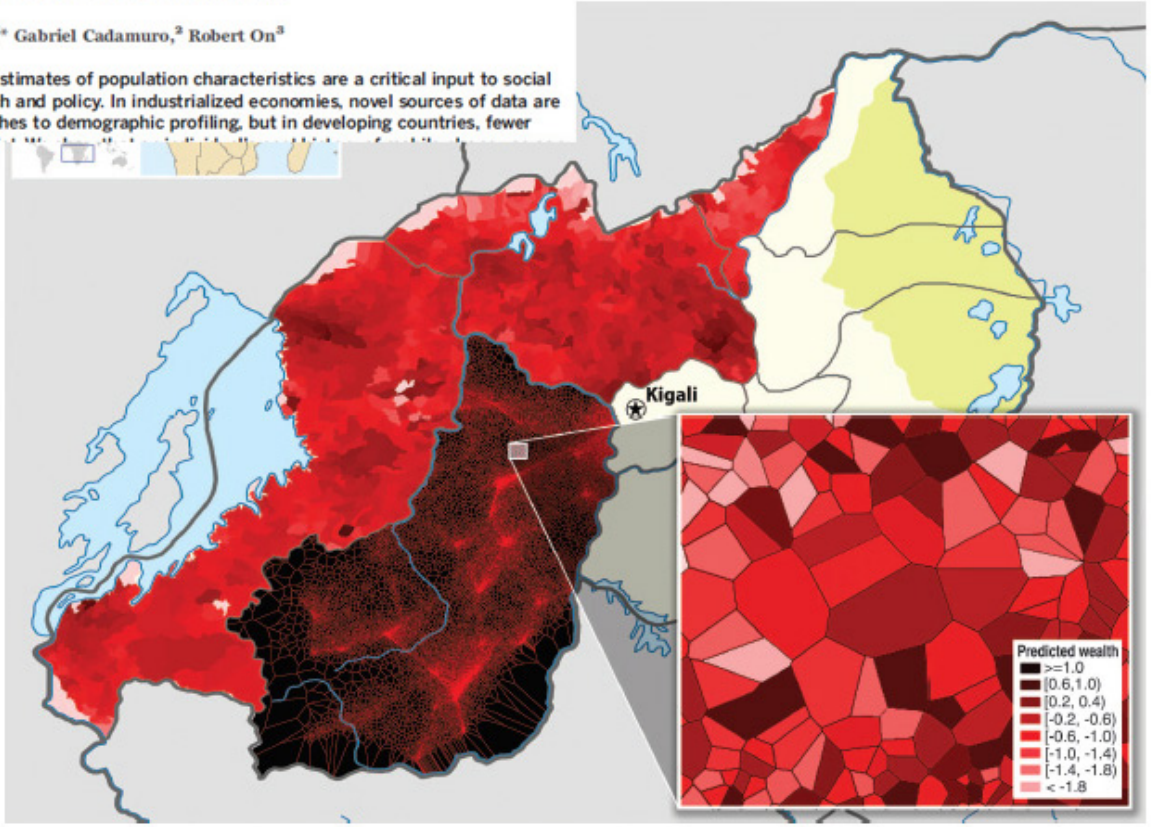
Pobreza en Rwanda (predecir)

ECONOMICS

Predicting poverty and wealth from mobile phone metadata

Joshua Blumenstock,[1*] Gabriel Cadamuro,[2] Robert On[3]

Accurate and timely estimates of population characteristics are a critical input to social and economic research and policy. In industrialized economies, novel sources of data are enabling new approaches to demographic profiling, but in developing countries, fewer



Precios en Argentina (medir)

Contents lists available at SciVerse ScienceDirect

Journal of Monetary Economics

journal homepage: www.elsevier.com/locate/jme

Online and official price indexes: Measuring Argentina's inflation

Alberto Cavallo*

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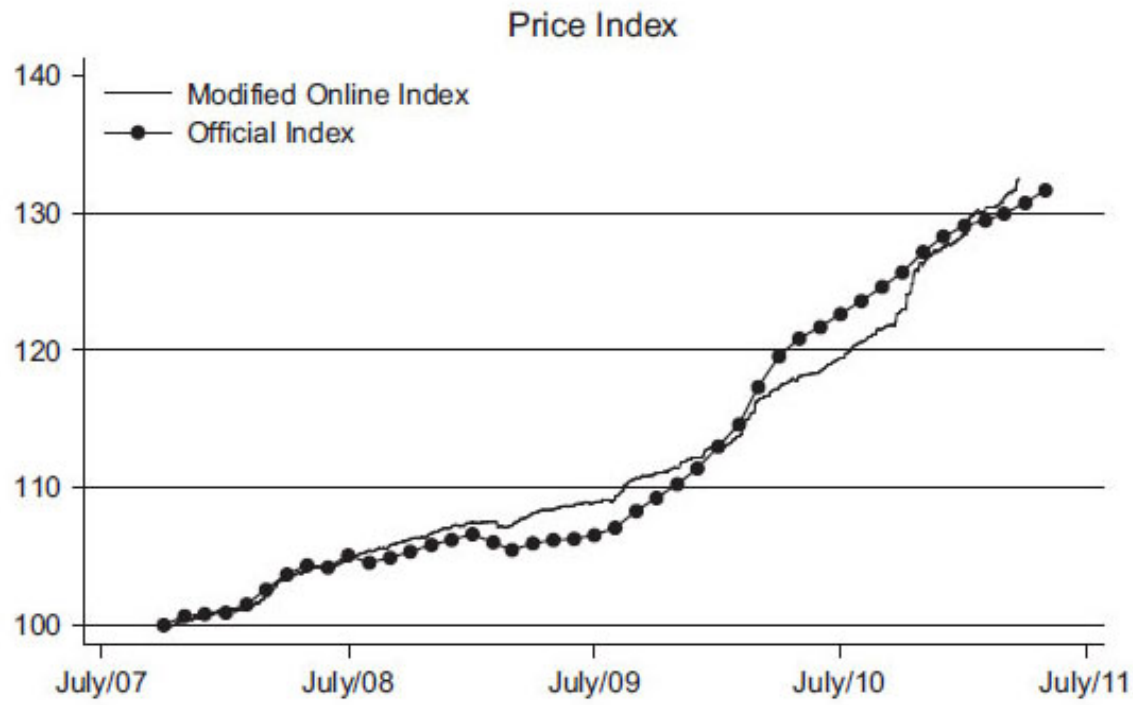


Impuesto a las ventas en EEUU (efecto causal)

Sales Taxes and Internet Commerce

Liran Einav

Dan Knoepfle

Jonathan Levin

Neel Sundaresan

AMERICAN ECONOMIC REVIEW
VOL. 104, NO. 1, JANUARY 2014
(pp. 1-26)

Small vs. Big data

Small data (estadistica clasica)

- Como extraer lo maximo de pocos datos?
- Solucion: estructruar los datos (muestreo)
- Enfoque: muestreo complejo que aproxima el muestreo al azar (lento y caro).

Big Data

- Muchos datos (Volumen)
- Muchos datos no estructurados (Variedad)
- Muchos datos no estructurados e immediatos (Velocidad)
- 'Condicionalmente baratos'.

Machine learning vs estadistica/econometria

$$Y = f(X) + u$$

Estadistica clasica

- Interes en $f(.)$. Efecto causal
- Modelo? Teoria, experimento.
- Probabilidades (error estandar, tests)

Machine learning

- Interes en Y: predecir, clasificar, medir.
- Modelo? No hay modelo. Lo aprendemos.
- Estimacion puntual (no inferencia).

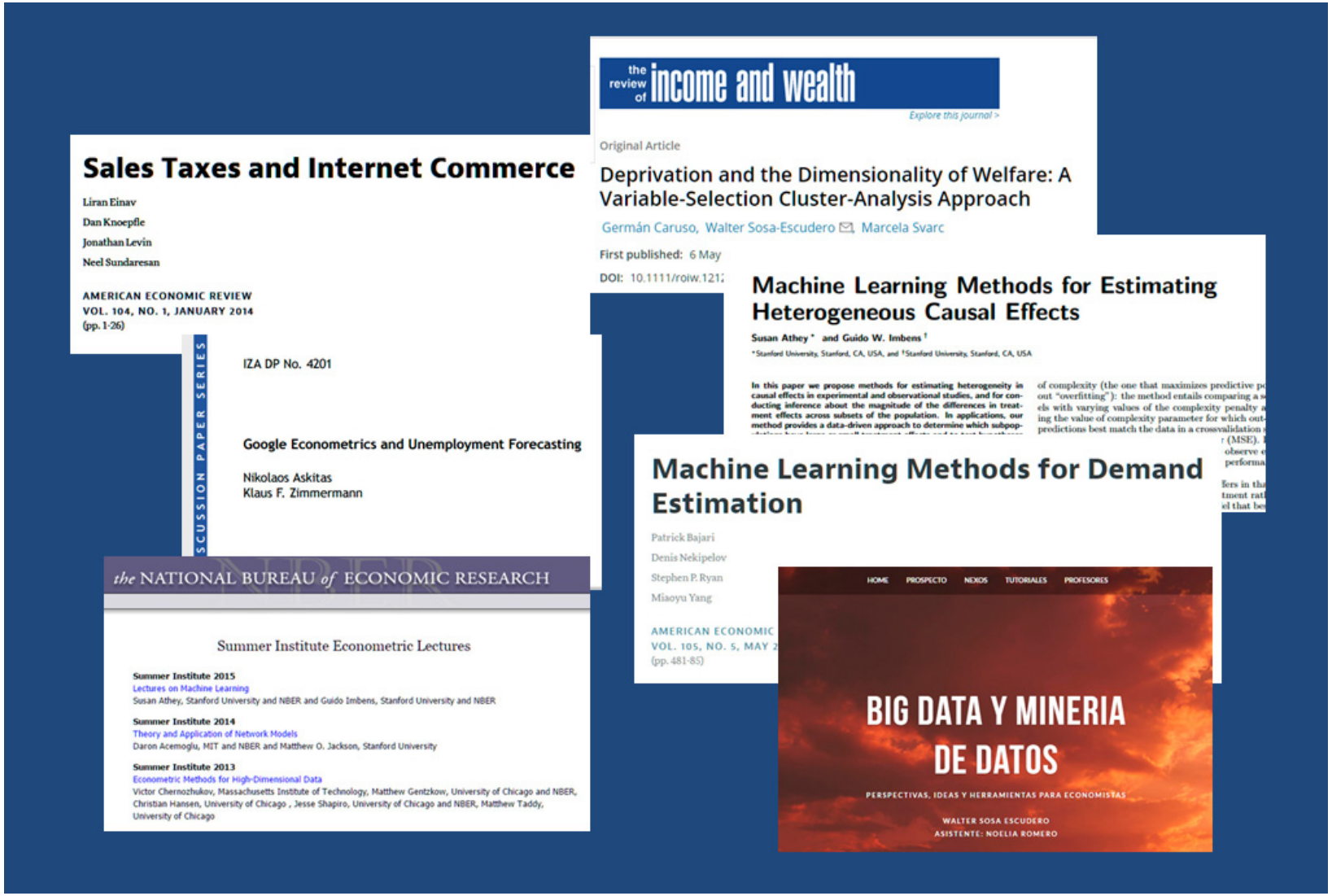
Letra chica

- Dependencias (realmente tenemos big data?. Trump effect)
- Choice based sampling.
- Contrafactuales nunca se observan (podemos tener *todos* los datos?).
- Falacia de la correlacion.
- Transparencia / privacidad.
- Comunicabilidad. Caja negra (deep learning, forests, etc.)
- Consenso social/politico.

Oportunidades

- More data: Big data no es solo muchos sino mas datos (pocos o muchos).
- Identificar la complejidad. Maldicion de la dimensionalidad.
- Rapido (crucial para la politica). Goggle Flu Trends. Price scrapping.
- Oportunidad para diseñar experimentos causales.
- Complementa a las estadisticas oficiales (no reemplaza).
- Cobertura (Rwanda). Rural vs. urbano, etc..

Nexos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Referencias

- Survey I: Varian, H. R., 2014, Big data: New tricks for econometrics, Journal of Economic Perspectives, 28(2), 3-27.
- Survey II: Einav, L., and Levin, J., 2014, Economics in the age of big data. Science, 346(6210).
- Simple book: James, G., Witten, D., Hastie, T., and Tibshirani, R. (2013). An introduction to statistical learning (Vol. 6). New York: Springer.
- Book: Murphy, K., 2012, Machine Learning: a Probabilistic Perspective, , MIT Press, Cambridge.
- Predictive: Blumenstock, J., Cadamuro, G., and On, R., 2015, Predicting poverty and wealth from mobile phone metadata. Science, 350(6264), 1073-1076.

- Measurement: Cavallo, A. and Rigobon, R. 2016, The Billion Prices Project: Using Online Prices for Measurement and Research, Journal of Economic Perspectives, Vol. 30, 2, pp.151-78.
- Causal: Athey, S., and G. Imbens (2015), Machine Learning Methods for Estimating Heterogeneous Causal Effects, NBER working paper.
- Policy: Kleinberg, J., Ludwig, J., Mullainathan, S., and Obermeyer, Z., 2015, Prediction policy problems. The American Economic Review, 105(5), 491-495.
- Econometrics: Belloni, A., V. Chernozhukov, and C. Hansen, 2014, High-Dimensional Methods and Inference on Structural and Treatment Effects, Journal of Economic Perspectives, 28(2): 29-50.