

Big Data and Social Science: An Example

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Today's Presentation

- ▶ Original Idea of “Creative Destruction”
- ▶ Big Data Opportunity
- ▶ New Findings on “Creative Destruction”
- ▶ Future Opportunities

Original Idea of “Creative Destruction”

The opening up of new markets, foreign or domestic, and the organizational development from the craft shop and factory to such concerns as U.S. Steel illustrate the process of industrial mutation that incessantly revolutionizes the economic structure from within, incessantly destroying the old one, incessantly creating a new one. This process of Creative Destruction is the essential fact about capitalism.

Schumpeter, Joseph A. (1942)

Original Idea of “Creative Destruction”

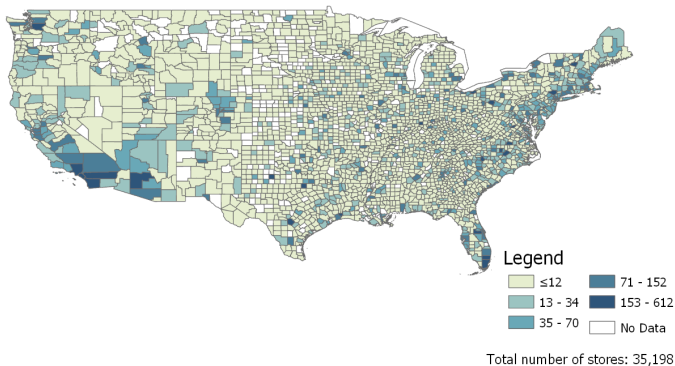
- ▶ Challenge: there hasn't been reliable data at large scale on product entry and exit.
- ▶ We overcome this by retail scanner data generated by point-of-sale systems.

Big Data Opportunity

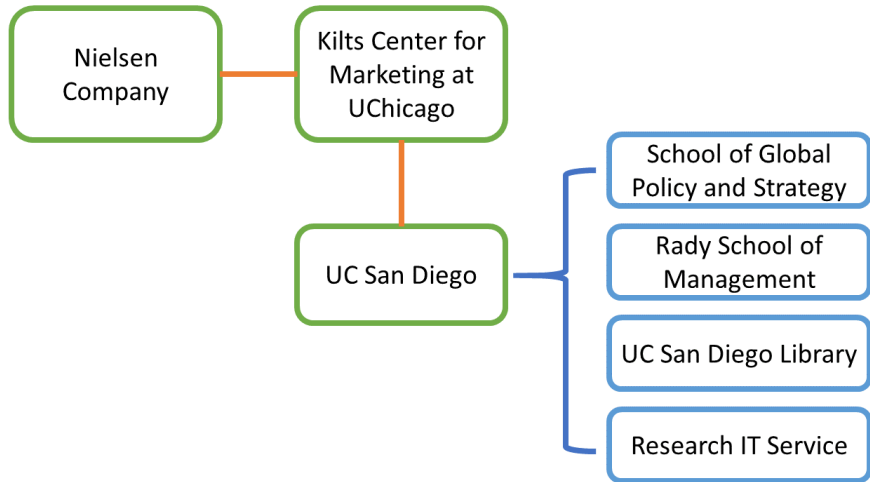
- ▶ Retail Scanner Data, 2006-2016
- ▶ Scanner Data from more than 35,000 participating grocery, drug, mass merchandiser, and other stores
- ▶ Weekly product data for 2.6 million UPCs including food, nonfood grocery items, health and beauty aids, and select general merchandise

Big Data Opportunity

Nielsen Retail Scanner Stores 2016



Big Data Opportunity



Big Data Opportunity

Researcher(s) own analyses calculated (or derived) based in part on data from The Nielsen Company (US), LLC and marketing databases provided through the Nielsen Datasets at the Kilts Center for Marketing Data Center at The University of Chicago Booth School of Business.

The conclusions drawn from the Nielsen data are those of the researcher(s) and do not reflect the views of Nielsen. Nielsen is not responsible for, had no role in, and was not involved in analyzing and preparing the results reported herein.

Big Data Opportunity

Example of a 6-digit Company Prefix



Example of a 9-digit Company Prefix



Note: This figure shows examples of a 6-digit and a 9-digit firm prefix. The source is the GS1-US website (<http://www.gs1-us.info/company-prefix>).

Big Data Opportunity



Source: Logoblink.com

New Findings on “Creative Destruction”

- ▶ Every quarter, around 4 percent of products are newly created and 4 percent of products are destroyed.
- ▶ Most creation and destruction of products occurs within the boundaries of the firm.
- ▶ Product creation and destruction are strongly pro-cyclical and declined by around 30 percent during the Great Recession.

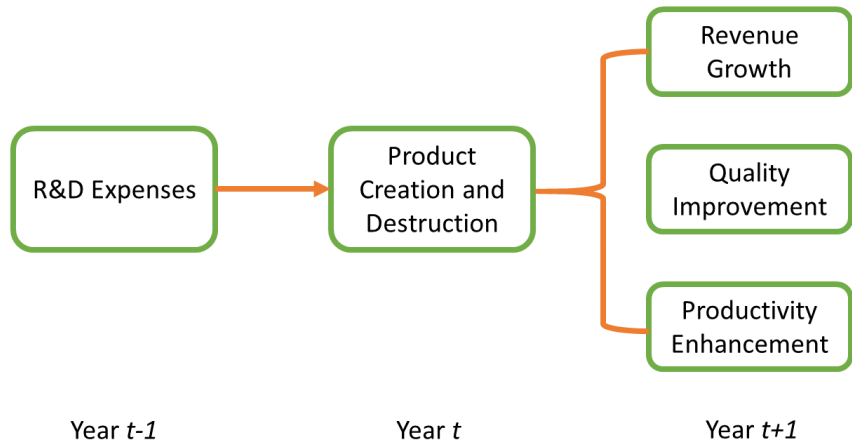
Argente, Lee and Moreira (2018)

New Findings on “Creative Destruction”

<i>quarterly averages</i>	2007-2013	(1) 2007	(2) 2010	(3) 2013	(2)/(1)-1	(3)/(2)-1
Creation+Destruction	0.080	0.094	0.068	0.082	-28%	21%
Creation	0.045	0.052	0.038	0.050	-28%	32%
Destruction	0.035	0.042	0.030	0.032	-29%	7%

Argente, Lee and Moreira (2018)

New Findings on “Creative Destruction”



Argente, Lee and Moreira (2018)

Future Opportunities

- ▶ Three Datasets available to researchers in UC San Diego:
 - ▶ Retail Scanner Data
 - ▶ Consumer Panel Data
 - ▶ 40,000-60,000 active panelists
 - ▶ Household demographic, geographic, and product ownership variables are included
 - ▶ Ad Intel Data
 - ▶ Advertising occurrences for a variety of media types across the United States
 - ▶ National TV, Local TV, Radio, Magazine, Newspaper, FSI Coupon, Outdoor, Internet, Cinema
- ▶ More information available at UC San Diego Library

Future Opportunities

- ▶ On going research:
 - ▶ Cost-of-Living Index by Income Groups
 - ▶ Life Cycle of Products
 - ▶ High-Skill Immigration and Creative Destruction
- ▶ PhD students in the lab:
 - ▶ common working space on the server provided by Research IT
 - ▶ bi-weekly reading group on the use of high-frequency product-level data