

# The Business Register and the Business Dynamics Statistics Program

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U.S. Department of Commerce  
Economics and Statistics Administration  
U.S. CENSUS BUREAU  
census.gov

# Overview

- Motivation
- Core Data: The Business Register
- How to build and maintain research files
- Public use products
- Current research
- Data gaps and extensions

# Understanding a Dynamic Economy

- Firms are heterogeneous responding differently to different types of shocks
  - Need large datasets capturing more dynamic parts of the economy (small and young not just large)
  - If interest in changes then also need higher frequency data
  - We also need longitudinal data
- Economies experience underlying secular trends as well as business cycles
  - Need long time series to disentangle effects
- Significant variation across industries and geographies
  - Need detailed industry and geography

SOLUTION:

# The Business Dynamics Statistics Program

# Core Data: The Business Register (BR)

## The Census Bureau's Business Master List

- Universe coverage of employers in the U.S. with Internal Revenue Service (IRS) filings
  - Transaction list of administrative records (income, payroll)
  - Enhanced with Census Collections to provide detail
- Origin and Use
  - Enumeration list for census and frame for surveys
  - Central storage of admin data for statistical products
  - Source data for Census products
- Structure:
  - Annual snapshots back to 1974, Single/Multi unit files (not linked)
- Statistical Units:
  - Employer (the admin unit), establishments and firms

# Core Data: The Business Register (BR)

## The Census Bureau's Business Master List

- Data in the BR
  - Industry
  - Geography (down to latitude/longitude now)
  - Employment
  - Payroll
  - Legal form of organization (LFO)
  - Sales
  - Company Name and Address...

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  - Legal form of organization (LFO)
  - (Sales)
  - Company Name and Address...

\*\*\*\*\* BY ESTABLISHMENT AND FIRM

# Building Research Files: The Longitudinal Business Database (LBD)

- Data often require substantial value added to be utilized for research and product development.
  - Very complex files (multiple statistical units)
  - Changes in units/variables
  - Longitudinal breaks in firm/establishment identifiers
  - Mistimed births and deaths
  - Inconsistent industry/geography codes
  - Incomplete sales. Also outliers
- **Solution: The LBD**
  - Constructed by economists at the Center for Economic Studies
  - Strong ties and collaboration with outside academics
  - Relatively low cost



# Longitudinal Business Database (LBD)

- Universe database of US non-farm private sector employer businesses
  - Long time series 1976-2013
  - High quality longitudinal linkages
  - Complete sectoral coverage
  - Detailed geography and industry
- Basic backbone to which other business data can be linked
  - Other Census data
  - Administrative Data
- Firm and establishment characteristics
  - Firm size and firm age. Age is critical to understanding firm growth dynamics, entrepreneurial activity and job creation
- Confidential
  - Accessible through the Federal System of Research Data Centers (FSRDC)
- The LBD today is
  - One of the most requested datasets in the FSRDC
  - Primary tool for vibrant literature that guides development of public use products
  - FSRDC critical to this

# LBD: Public Use Products

- Business Dynamics Statistics (BDS)
  - Basic data by firm size and age across sectors, states, MSAs and time.  
<http://www.census.gov/ces/dataproducts/bds>
  - Data visualizations available  
<http://www.census.gov/ces/dataproducts/bds/visualizations.html>
- Synthetic LBD (v2) – public use microdata
  - Developed in collaboration with Duke University and the National Institute of Statistical Sciences (NISS)
  - Deployed via the Cornell Virtual RDC  
<http://www.vrdc.cornell.edu/news/data/lbd-synthetic-data/information> at  
<http://www.census.gov/ces/dataproducts/synlbd/index.html>

**Table 1 Number of Firms by Firm Size and Firm Age, U.S. Private Sector, 2013 (Panel A – CURRENT YEAR SIZE)**

Firm Age	2013 Firm Size											
	a) 1 to 4	b) 5 to 9	c) 10 to 19	d) 20 to 49	e) 50 to 99	f) 100 to 249	g) 250 to 499	h) 500 to 999	i) 1000 to 2499	j) 2500 to 4999	k) 5000 to 9999	l) 10000+
a) 0	355,011	31,080	13,010	5,638	1,027	429	107	36	14	1		
b) 1	217,449	54,247	26,133	13,599	3,041	1,070	247	83	41	12	9	21
c) 2	173,496	51,306	26,086	13,921	3,370	1,340	271	112	43	19	10	12
d) 3	140,548	45,079	23,735	13,049	3,230	1,441	348	131	68	16	10	14
e) 4	130,793	43,260	23,662	13,120	3,319	1,241	274	108	65	19	7	13
f) 5	135,293	45,235	25,007	13,866	3,664	1,433	349	124	67	16	6	10
g) 6 to 10	546,116	199,064	110,005	61,245	16,174	7,266	1,782	733	351	92	51	72
h) 11 to 15	353,738	142,930	84,220	50,448	14,850	7,213	1,832	852	497	136	67	63
i) 16 to 20	251,419	108,143	64,028	37,752	10,372	4,838	1,211	587	371	107	52	64
j) 21 to 25	180,104	83,867	50,730	31,836	9,462	4,916	1,431	671	439	157	68	79
k) 26+	246,885	132,359	84,321	59,284	21,004	13,151	4,507	2,177	1,381	540	256	213
l) Left Censored	115,564	84,202	67,216	59,587	26,031	19,513	7,030	3,974	2,752	1,172	714	796
m) ALL	2,846,416	1,020,772	598,153	373,345	115,544	63,851	19,389	9,588	6,089	2,287	1,250	1,357

Source: U.S. Census Bureau, Business Dynamics Statistics at <http://www.census.gov/ces/dataproducts/bds>

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Source: U.S. Census Bureau, Business Dynamics Statistics at <http://www.census.gov/ces/dataproducts/bds>

**Table 2 Employment by Firm Size and Firm Age, U.S. Private Sector, 2013 (Panel A – CURRENT YEAR SIZE)**

Firm Age	2013 Firm Size											
	a) 1 to 4	b) 5 to 9	c) 10 to 19	d) 20 to 49	e) 50 to 99	f) 100 to 249	g) 250 to 499	h) 500 to 999	i) 1000 to 2499	j) 2500 to 4999	k) 5000 to 9999	l) 10000+
a) 0	829,995	379,003	335,265	320,825	136,366	126,305	74,571	47,220	D	D		
b) 1	433,349	361,965	366,996	424,149	211,656	160,675	83,748	47,219	46,581	22,187	194	2,212
c) 2	350,159	334,768	356,879	423,378	234,487	202,085	91,840	73,528	58,132	32,261	10,796	492
d) 3	283,086	291,584	321,268	397,755	224,475	220,685	115,190	85,568	80,633	32,633	20,504	39,156
e) 4	262,761	278,557	318,876	395,752	229,644	186,701	92,884	71,176	D	D	D	D
f) 5	271,735	291,324	335,414	418,420	252,607	214,312	116,327	81,374	63,702	23,580	D	D
g) 6 to 10	1,107,250	1,271,565	1,465,158	1,834,680	1,113,452	1,085,282	589,537	466,961	386,384	213,503	176,641	114,994
h) 11 to 15	731,798	909,307	1,117,169	1,513,340	1,022,186	1,092,557	616,177	534,177	633,548	374,007	209,665	352,101
i) 16 to 20	528,265	685,334	847,520	1,123,580	709,841	729,716	414,034	372,899	457,602	290,657	261,034	569,101
j) 21 to 25	385,283	532,286	670,636	951,505	650,022	744,825	488,236	431,566	580,982	428,118	339,652	1,343,539
k) 26+	546,959	838,787	1,117,431	1,789,877	1,452,904	2,018,917	1,527,167	1,456,594	1,929,580	1,672,649	1,475,484	4,508,156
l) Left Censored	268,272	540,444	899,279	1,832,284	1,817,895	3,006,281	2,402,023	2,672,493	3,973,055	3,590,850	4,046,669	25,624,456
m) ALL	5,998,912	6,714,924	8,151,891	11,425,545	8,055,535	9,788,341	6,611,734	6,340,775	8,321,486	6,738,218	6,559,020	32,556,671

Source: U.S. Census Bureau, Business Dynamics Statistics at <http://www.census.gov/ces/dataproducts/bds>

**Table 3 Net Job Creation by Firm Size and Firm Age, U.S. Private Sector, 2013 (Panel A – CURRENT YEAR SIZE)**

Firm Age	2013 Firm Size											
	a) 1 to 4	b) 5 to 9	c) 10 to 19	d) 20 to 49	e) 50 to 99	f) 100 to 249	g) 250 to 499	h) 500 to 999	i) 1000 to 2499	j) 2500 to 4999	k) 5000 to 9999	l) 10000+
a) 0	829,995	379,003	335,265	320,825	136,366	126,305	74,571	47,220	D	D		
b) 1	-133,900	5,543	6,167	3,107	-25,541	-31,240	10,015	2,251	-587	6,262	-114	698
c) 2	-64,038	-11,262	1,484	3,709	4,901	6,279	2,389	-414	-3,323	4,276	-2,323	-157
d) 3	-46,455	-14,329	3,656	1,502	6,285	5,499	2,176	4,880	7,602	2,883	286	3,055
e) 4	-40,013	-12,693	-5,320	1,747	7,408	6,959	5,630	2,796	7,907	D	D	1,179
f) 5	-36,421	-12,742	-6,558	1,713	4,740	3,154	1,651	8,469	D	-2,673	D	-381
g) 6 to 10	-131,557	-58,008	-31,015	-16,127	5,313	10,462	17,151	15,658	21,932	17,831	20,336	10,463
h) 11 to 15	-78,900	-42,166	-28,686	-26,332	1,081	9,606	18,002	5,217	15,341	1,794	3,839	3,057
i) 16 to 20	-57,194	-32,731	-20,878	-15,682	-5,202	8,623	19,373	7,184	-10,191	1,010	4,254	29,633
j) 21 to 25	-42,741	-25,253	-20,207	-14,124	928	12,008	12,158	4,414	615	-25,026	6,138	79,203
k) 26+	-66,043	-45,161	-35,387	-32,966	9,311	41,510	44,794	45,395	48,959	52,181	40,186	173,126
l) Left Censored	-36,892	-34,032	-37,986	-45,161	-9,256	41,533	49,335	44,069	100,452	96,784	119,118	486,066
m) ALL	95,781	84,023	153,223	182,211	136,334	240,698	257,245	187,139	228,340	210,386	185,661	785,942

Firms  
31%  
57%

Activity  
51%

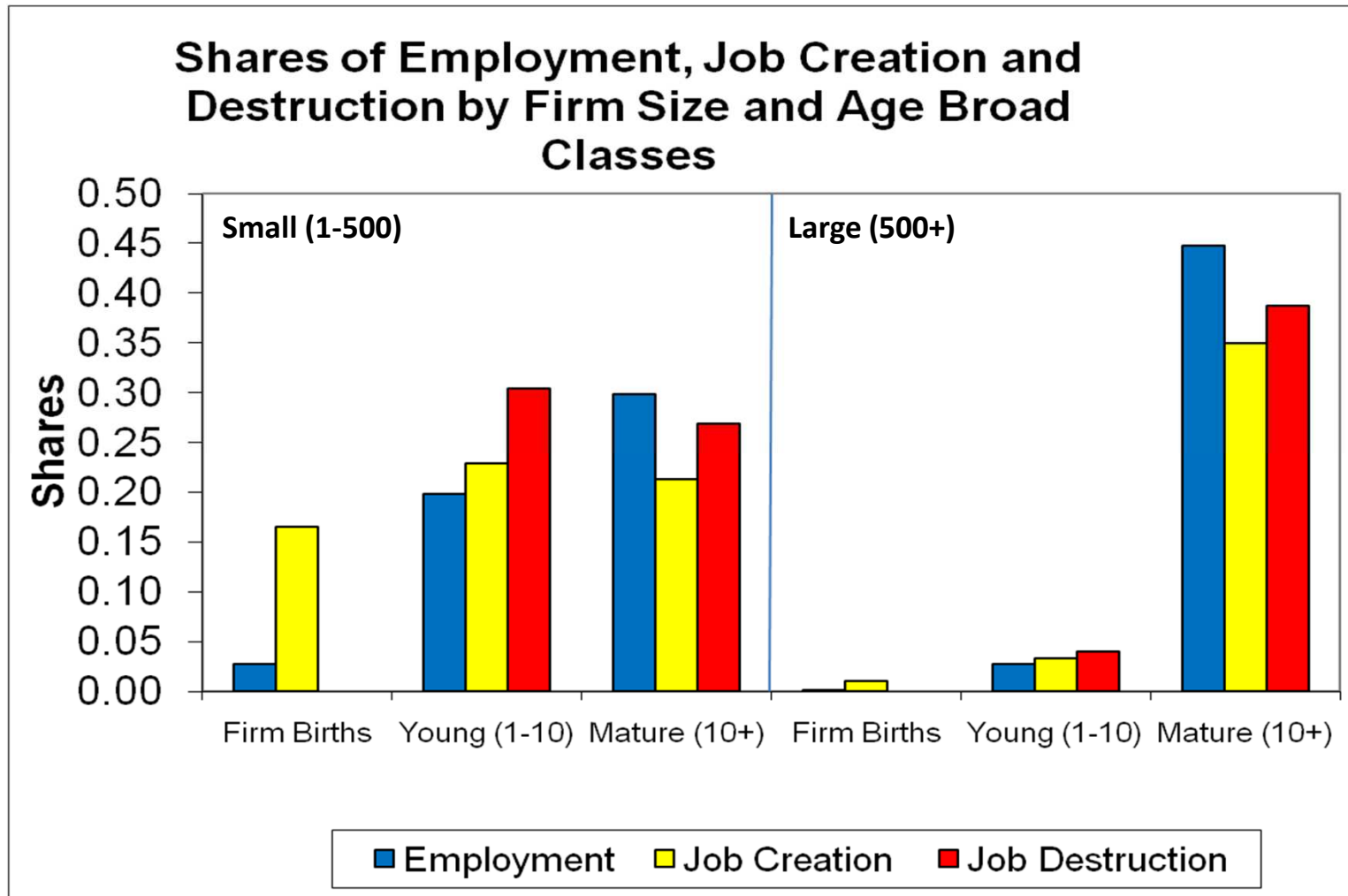
Source: U.S. Census Bureau, Business Dynamics Statistics at <https://www.census.gov/ces/dataproducts/bds>

# Some Applications

# Understanding Job Creation: Who Creates Job?



# LBD: Large vs Small vs Young



# High Growth/Declining Firms

90th and 10th Percentiles of Net Employment Growth Rates for Surviving U.S. Private Sector Firms by Firm Age (2003-05)

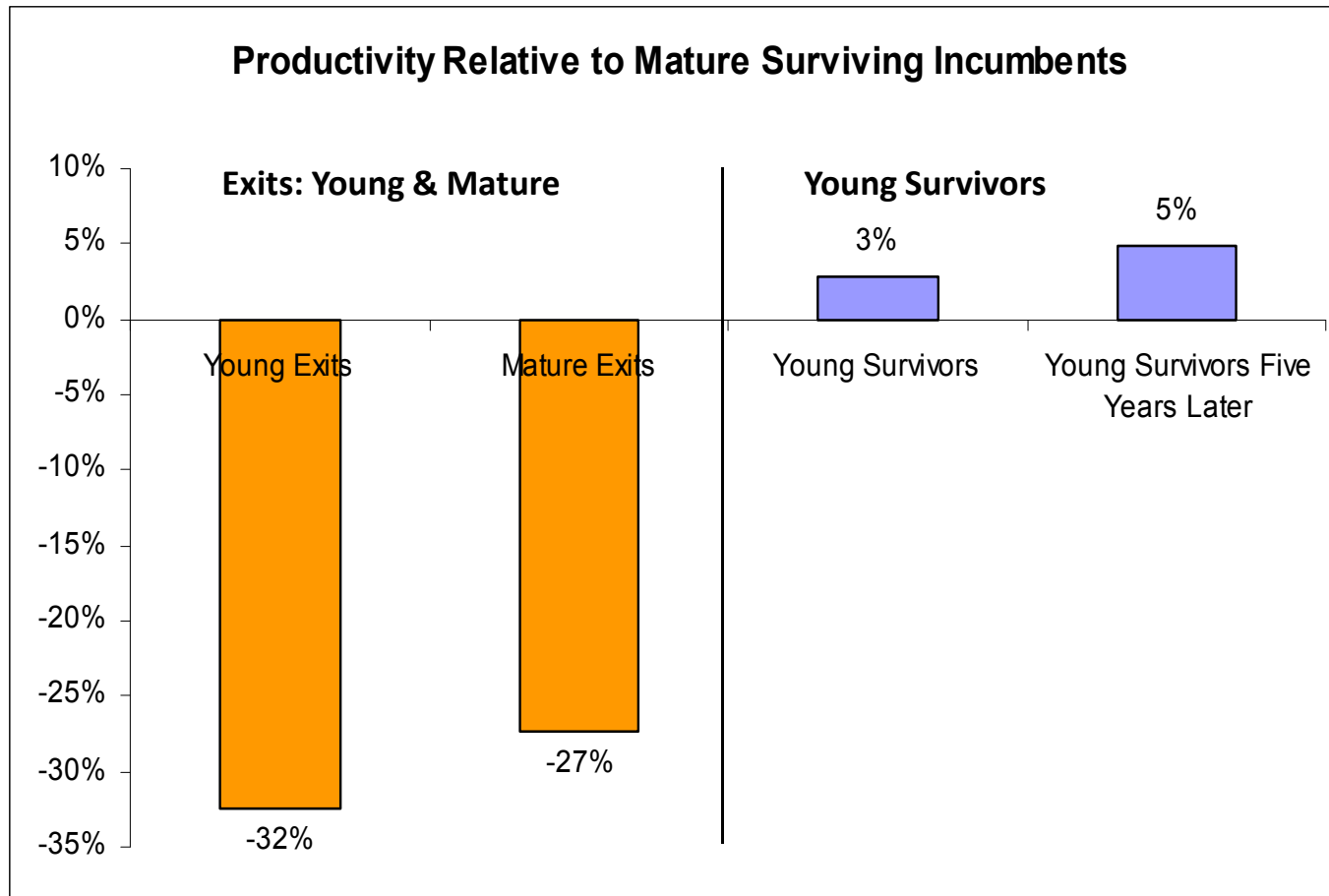


69% Of Creation Accounted For by Establishments With Annual Growth Rates > 30 percent

71% Of Destruction Accounted For by Establishments With Annual Growth Rates < -30 percent

# Understanding Creative Destruction and Productivity Growth

# Census Data: Productivity Growth



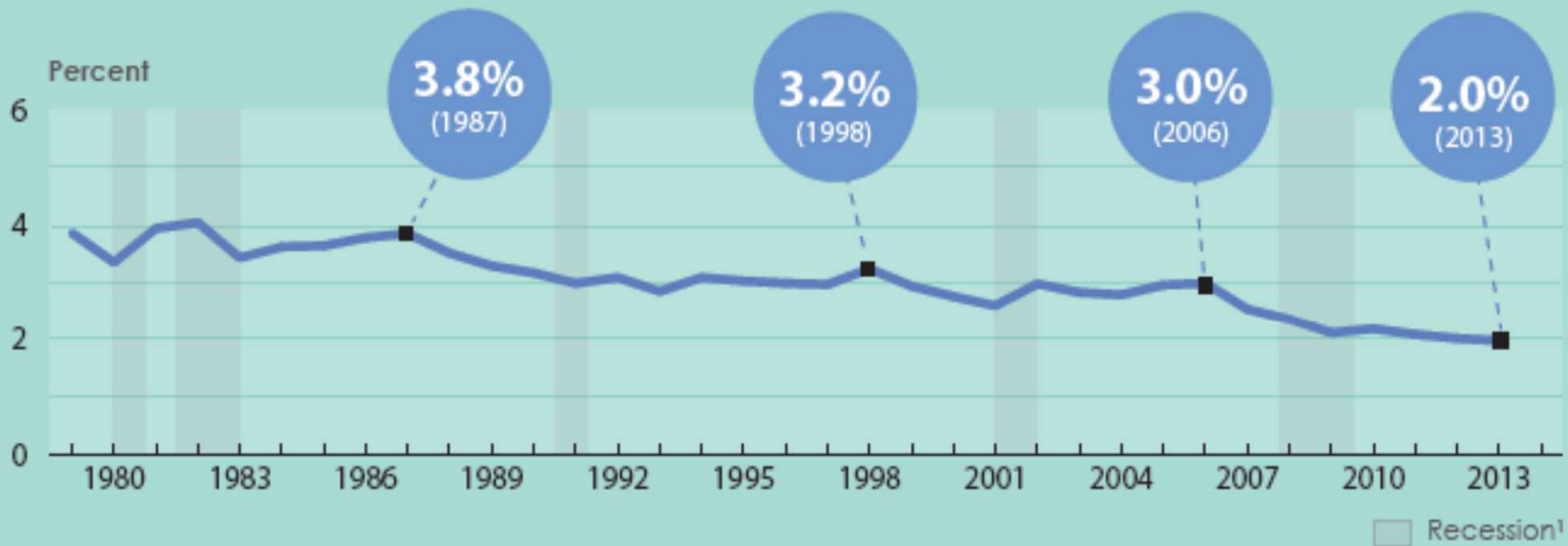
# Understanding Trends and Cycles

# Job Creation from Startups

## Job Creation from Startups not yet Recovered

### Job Creation from Startups as a Share of Private Non-Farm Employment, by Year

Startups' contribution to total number of jobs remains at a historic low in 2013. Startups were hit hard in the Great Recession (2008–2009) and have not yet recovered.



## Recovery by the Oldest Firms Continued in 2013

### Net Job Creation at Startups and Firms 26 Years and Older: 2006-2013

Net job creation by the oldest firms (those 26 years and older) increased in 2013 reaching prerecession levels with 1.0 million net new jobs created. In contrast, startups' contribution to net job creation in 2013 was 2.3 million, well below its prerecession peak of 3.5 million jobs in 2006.



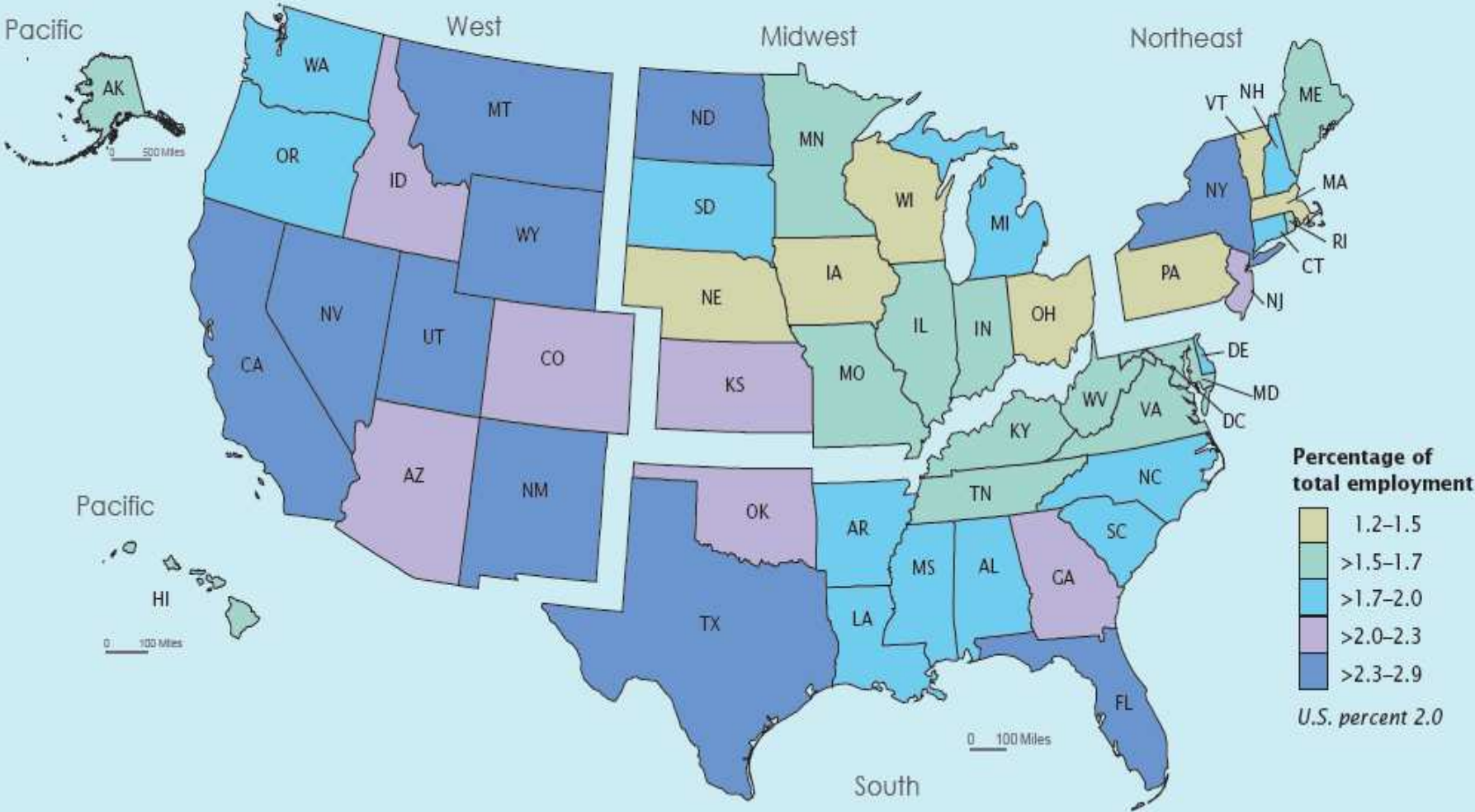
# Understanding Entrepreneurial Activity Across States



# Startups' Contribution to State Employment in 2013

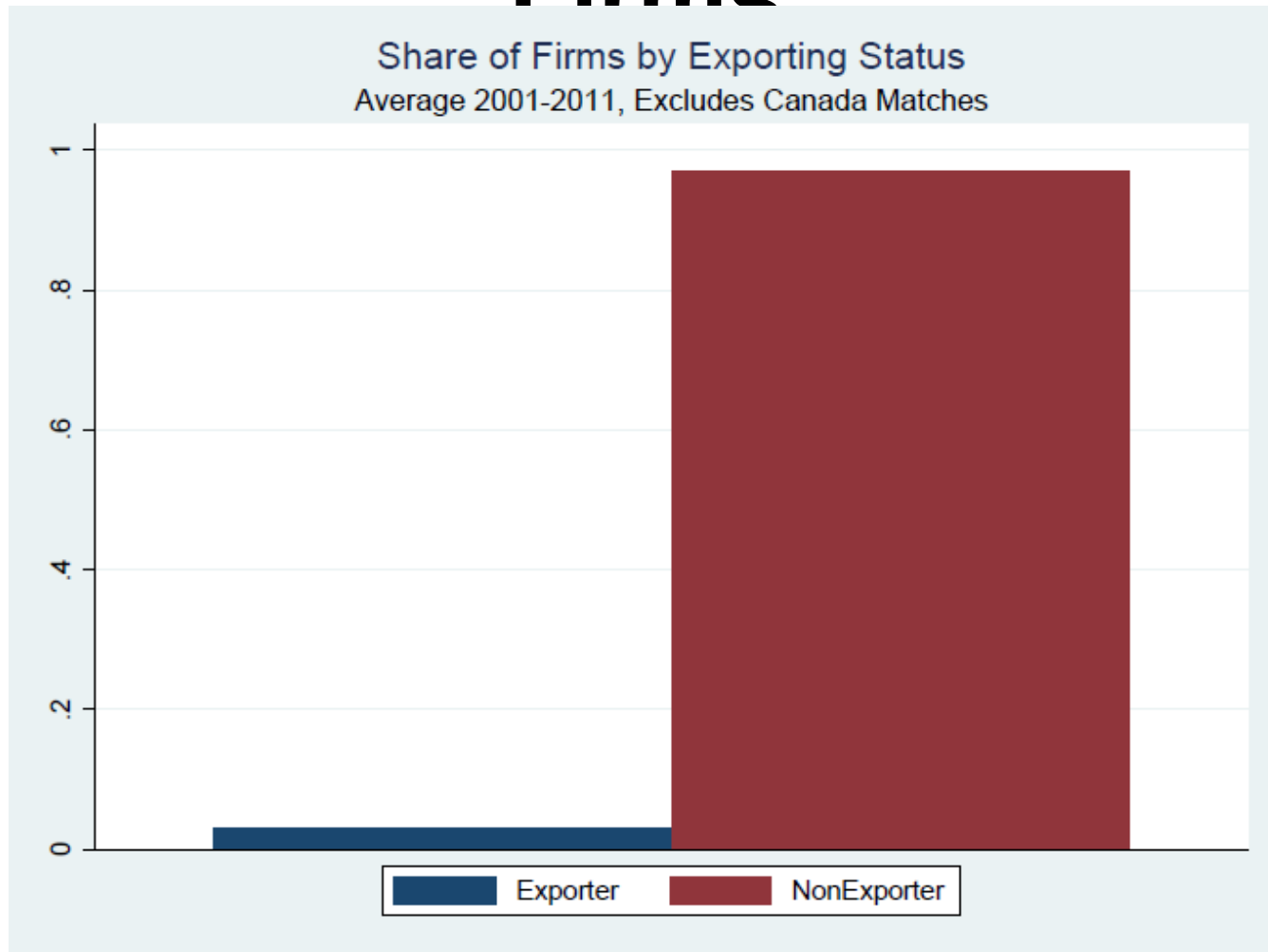
Employment in startups as a percentage of total state employment

In 2013 most states in the West experienced above average job creation rates from startups, exceeding the 2.0 percent U.S. average. Most states in the Midwest experienced below average job creation rates from startups.

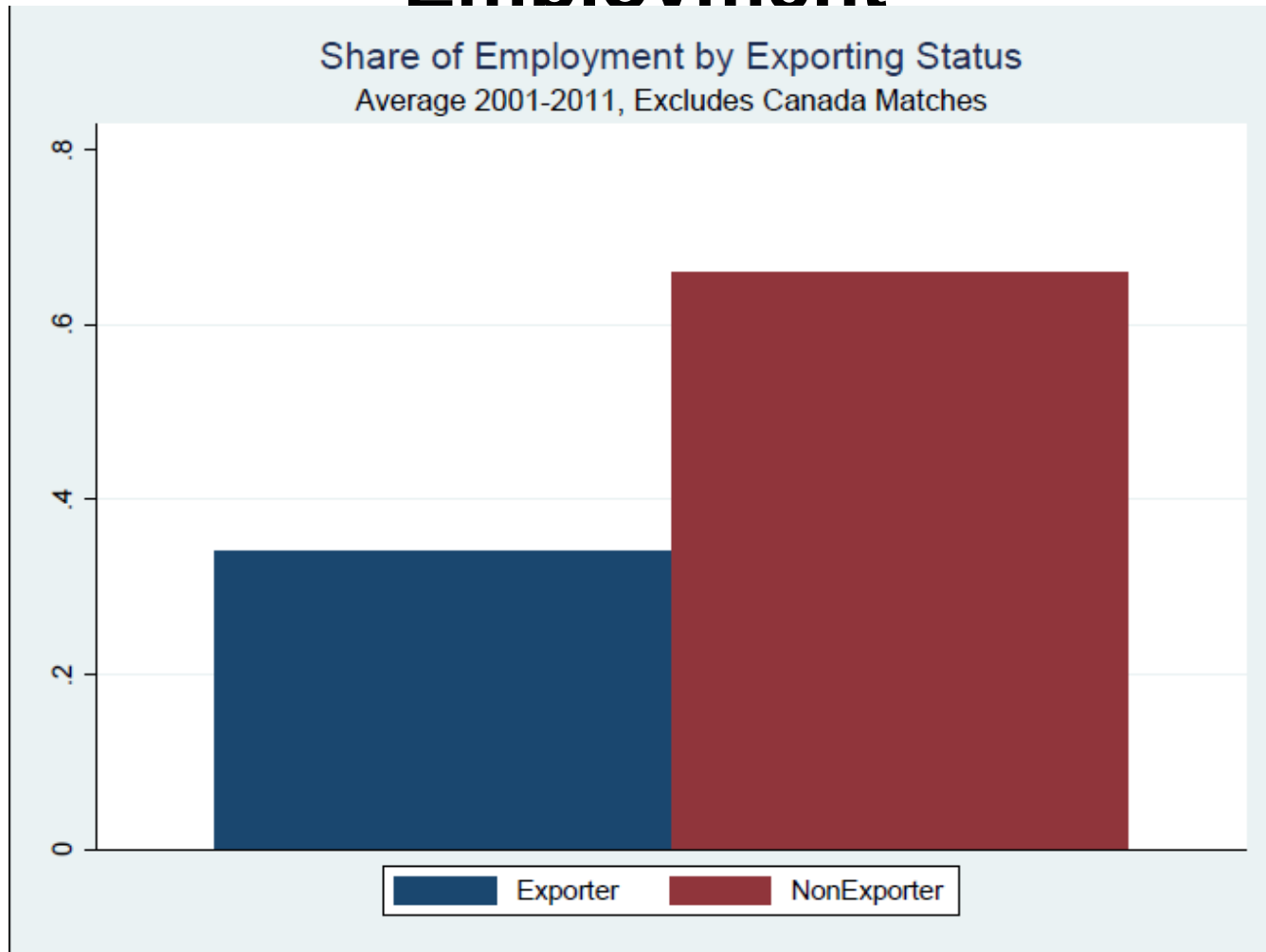


# Understanding Trading Firms

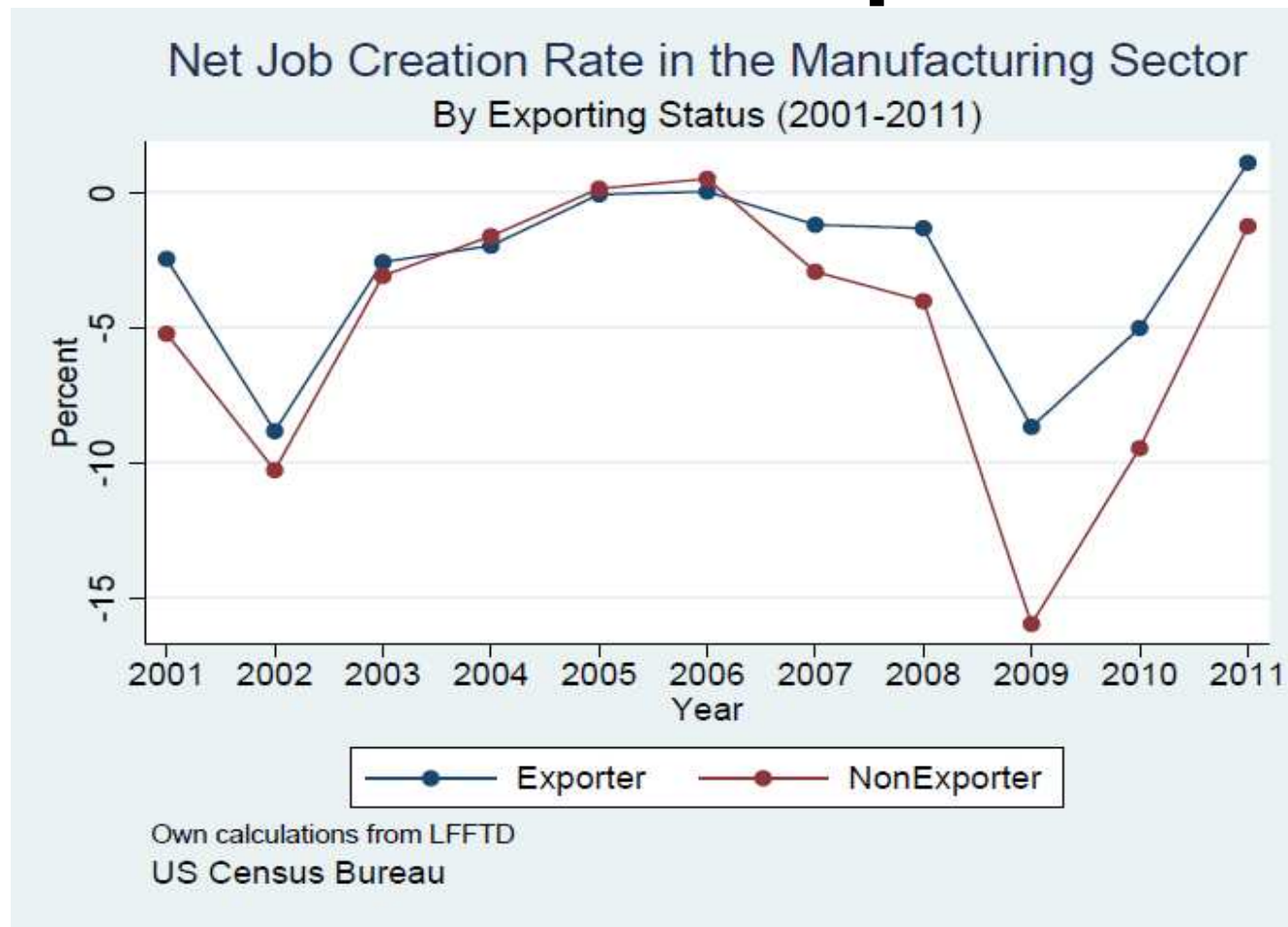
# Exporters vs Non Exporters: Firms



# Exporters vs Non Exporters: Employment

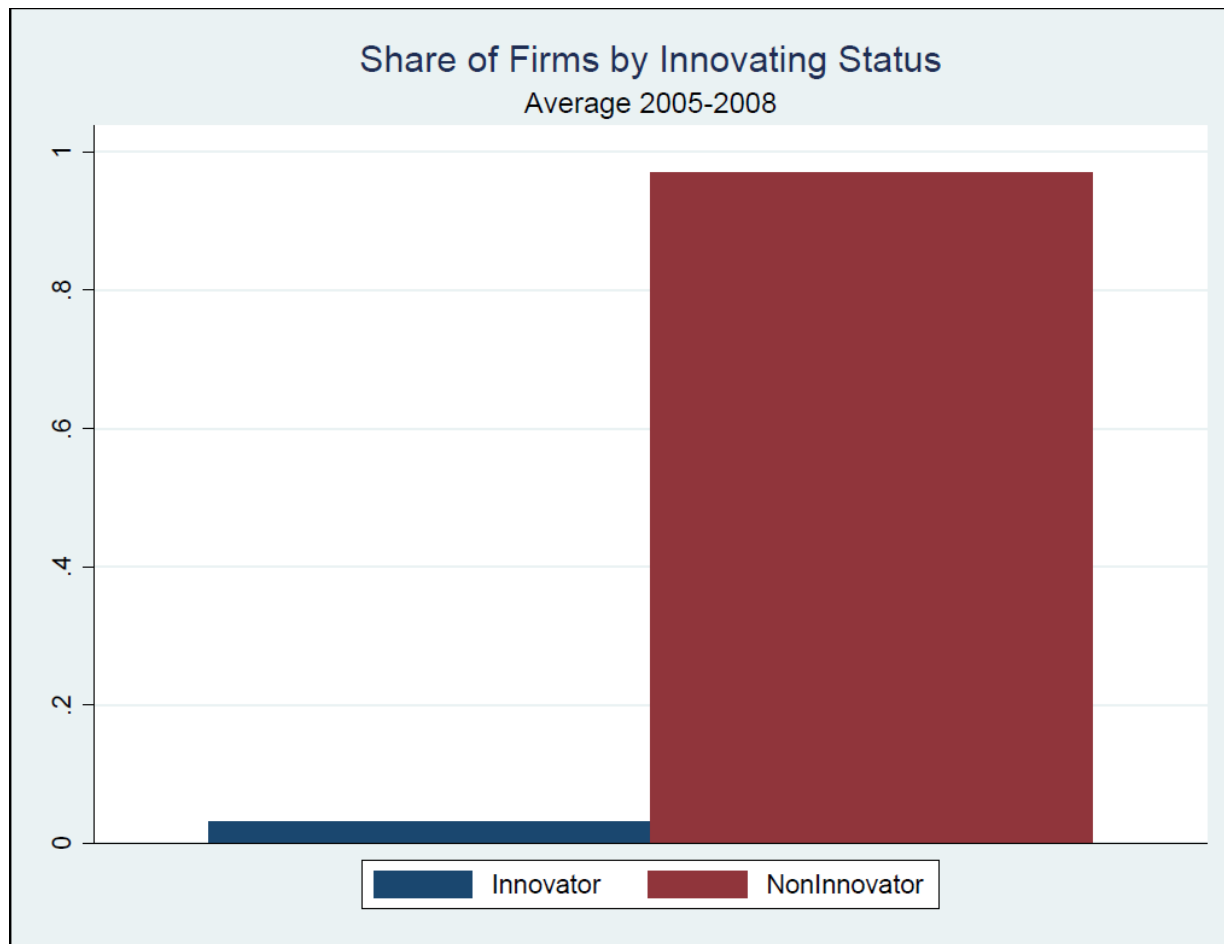


# U.S. Manufacturing: Net Job Creation Exporters/Non

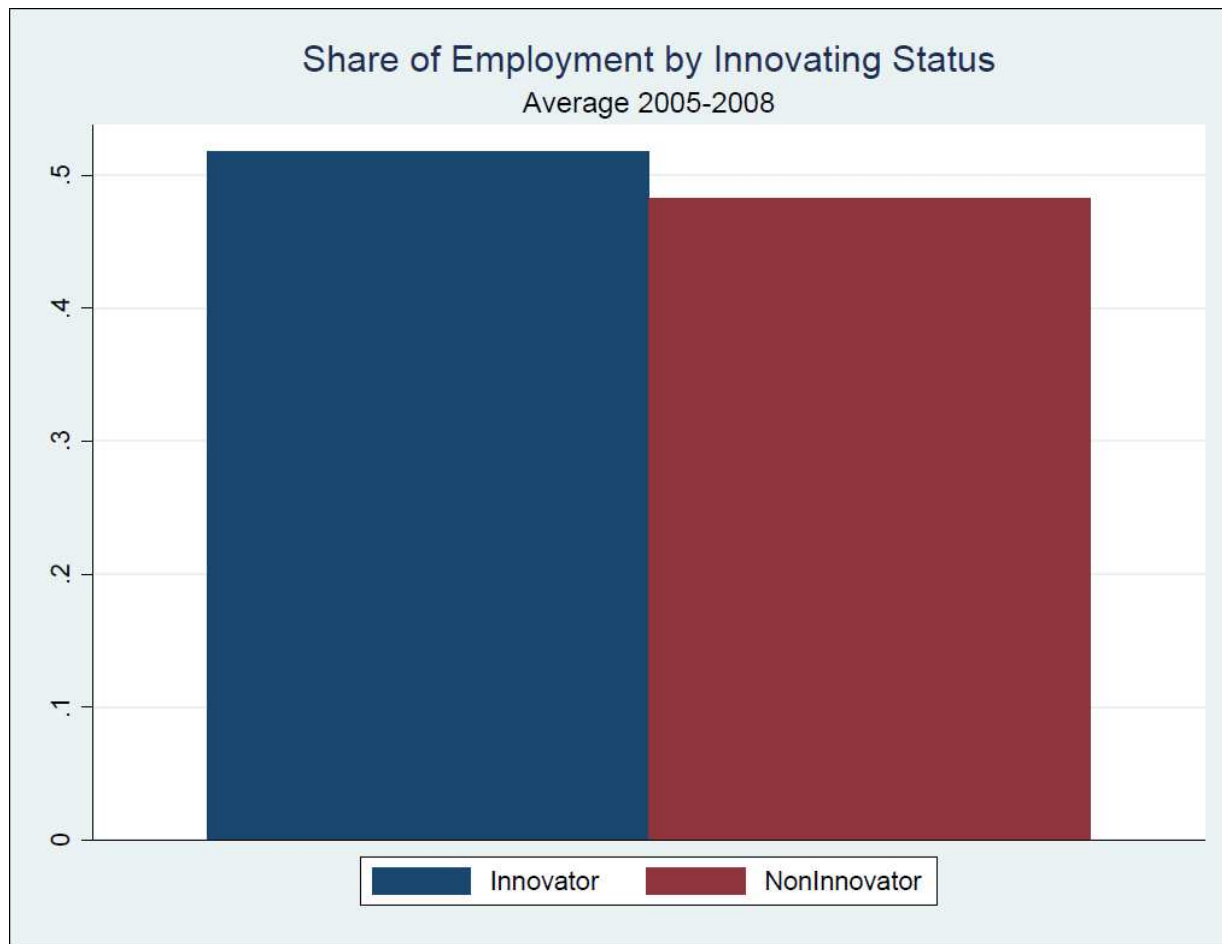


# Understanding Innovation

# U.S. Economy: Innovators/Non

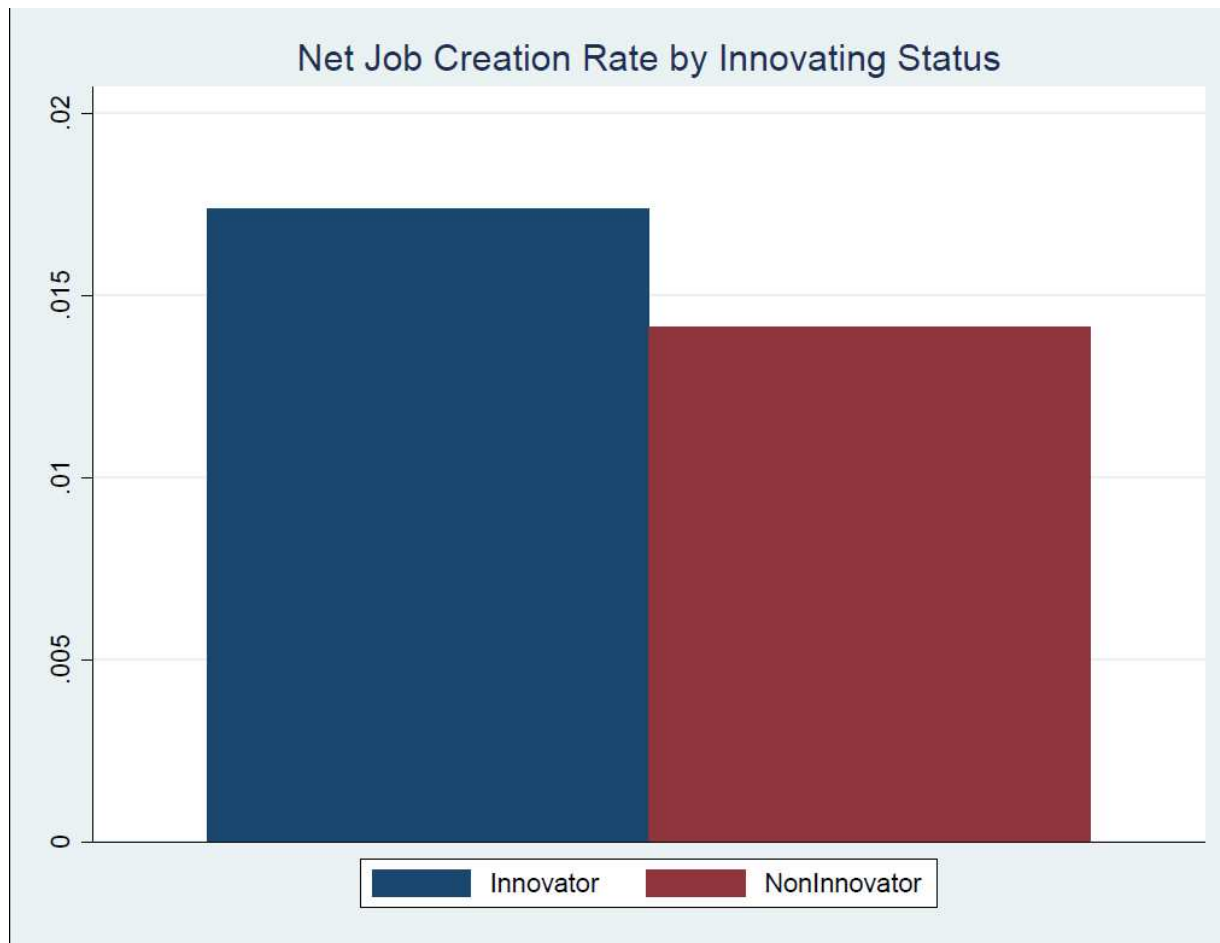


# U.S. Economy: Innovators/Non





# Net Job Creation Rate: Innovators/Non



# Filling Data Gaps: The Business Dynamics Statistics Program

- Enhances the LBD to fill missing data gaps
  - Timeliness
  - Small area statistics
  - Imports/exports
  - Innovative activities of firms
    - Patents and Trademarks
  - Characteristics of business owners
  - Enterprise Demography Statistics
    - Examines firm demography events and impact on employment through: Firm births and deaths, establishment. acquisitions, divestitures, greenfield entry, exit.

# Summary

- Very rich data by itself and when linked to other products
- A NAS study “Understanding Business Dynamics” discusses the importance of these data for accurate and timely measurement of critical economic and social concepts

U.S. Census Bureau:

Measuring America—People, Places, and Our Economy

Helping you make informed decisions!

# More information about LBD and BDS can be found at

*Center for Economic Studies*

<http://www.census.gov/ces>

You can email me at  
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