

What May Be Driving Growth In the “Gig Economy?”

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U.S. Census Bureau

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Disclaimer

Any opinions and conclusions expressed herein are those of the authors and do not necessarily represent the views of the U.S. Census Bureau.

All results have been reviewed to ensure that no confidential information is disclosed (DRB Bypass #'s CBDRB-2018-CDAR-041, -068, -076, DRB-B0098-CDAR-20180626, and DRB-B0045-CED-20190425).

Why all the interest in the “Gig Economy?”

Why so much interest?

- Introduction and rapid growth of digital marketplaces
 - Matching buyers and sellers of products (Etsy, Ebay)
 - Matching service providers and seekers (VRBO, Airbnb, TaskRabbit, Upwork, Uber and Lyft)
- Short duration employment opportunities facilitated by the internet, mediated through these online platforms
- Is new technology producing an accelerated pace of change in the organization of work?

Why So Much Interest?

Popular perception of dramatic growth in number of workers with no long-term connection to a particular business (“gig workers”)

Important for Workers

- workers have more labor market flexibility
- may bear more risk in terms of health insurance coverage, retirement savings, legal rights and protections

Ability to Track Workforce

Gig jobs may not be captured by traditional workforce measures. Growth in gig work may correspond to increasing inaccuracy of size and growth of workforce and productive inputs of businesses.

Big Questions: How Big is the Gig Economy?

- 1) How many workers participate in the gig economy?
- 2) How many jobs?
- 3) How has this changed over time?
- 4) Is gig employment large enough to matter for measures of employment?
- 5) Do we get the same answers from household survey data, business data and tax data?

Big Questions: Who Participates, How, and Why?

1. Traits of gig workers

- 1) Age
- 2) Education
- 3) specific locations and sectors

2. How do workers use gig jobs?

- 1) Primary or secondary source of earnings?
- 2) Stopgap following job loss?
- 3) Attracted by new opportunity?
- 4) Income smoothing?

Big Questions: Impact on Other Workers and Sectors?

1. Is there an impact on other workers already present in an industry/location before gig jobs introduced?
2. Do we observe an impact on earnings of these workers if they remain employed?

Defining and Measuring Gig Employment

Contributing Works

- **“The Rise of the Gig Economy: Fact or Fiction?”**

(Katharine Abraham, John Haltiwanger, Kristin Sandusky, and James Spletzer). *American Economic Review Papers and Proceedings*, Vol 109, May 2019, (pp. 357-61).

<https://www.aeaweb.org/articles?id=10.1257/pandp.20191039>.

- **“Measuring the Gig Economy: Current Knowledge and Open Issues”** (Katharine Abraham, John Haltiwanger, Kristin Sandusky, and James Spletzer). Forthcoming, NBER-CRIW conference volume *Measuring and Accounting for Innovation in the 21st Century*. Working paper available as NBER WP #24950.

Defining Gig Employment

Borrowed from the music industry, a “gig” refers to a job with no long-term connection to a particular business. Gig workers:

- are employed on a particular task or for a defined time.
- have no implicit or explicit contract for a continuing work relationship
- they are a subset of contingent workers and can include:

Freelancers

Day laborers

Some contract workers

Measuring Gig Employment

- **Data from specific companies:**
 - Issue: limited if any information about placing this labor market activity into the broader context of an individual's activities
- **Transactions level data (deposits into financial accounts)**
 - Issues: questions about representativeness, no data on expenses, and may be missing some transactions
- **Survey Data**
 - CPS Contingent Worker Supplement (CWS) was asked in 1995, 1997, 1999, 2001, 2005, & 2017, so missing important years when gig employment has been increasing
 - CWS primarily asks about main jobs, so misses secondary work
- **Tax Data**
 - 1099-misc, 1040 schedule C, 1040 schedule SE
 - Annual reference frame
 - Some income may not be reported to tax authorities

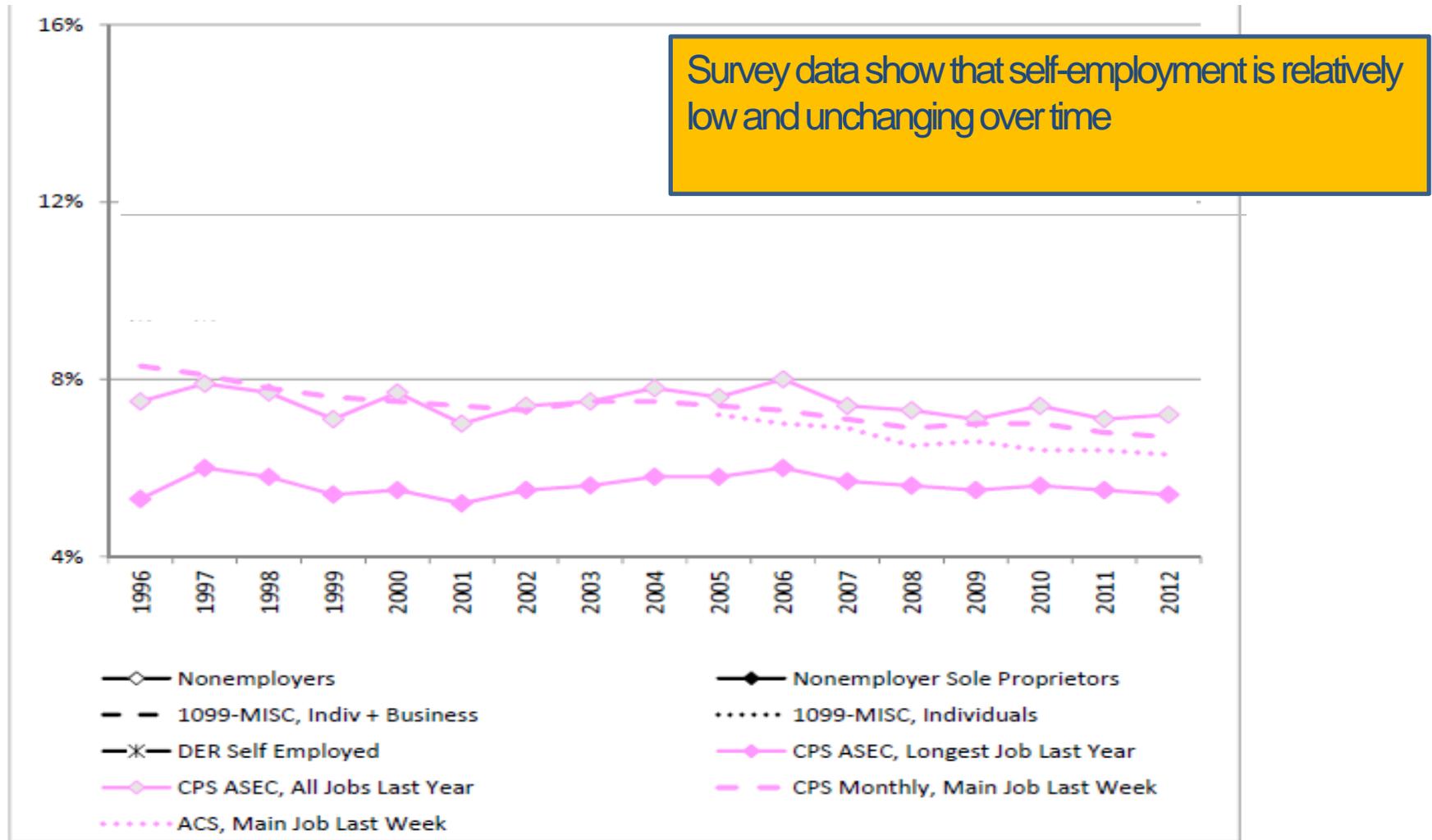
Casting a Wider Net: Unincorporated Self-employment

Gig workers are a subset of the unincorporated self-employed

- Measured in household surveys
- Should in theory file a Schedule C and possibly Schedule SE

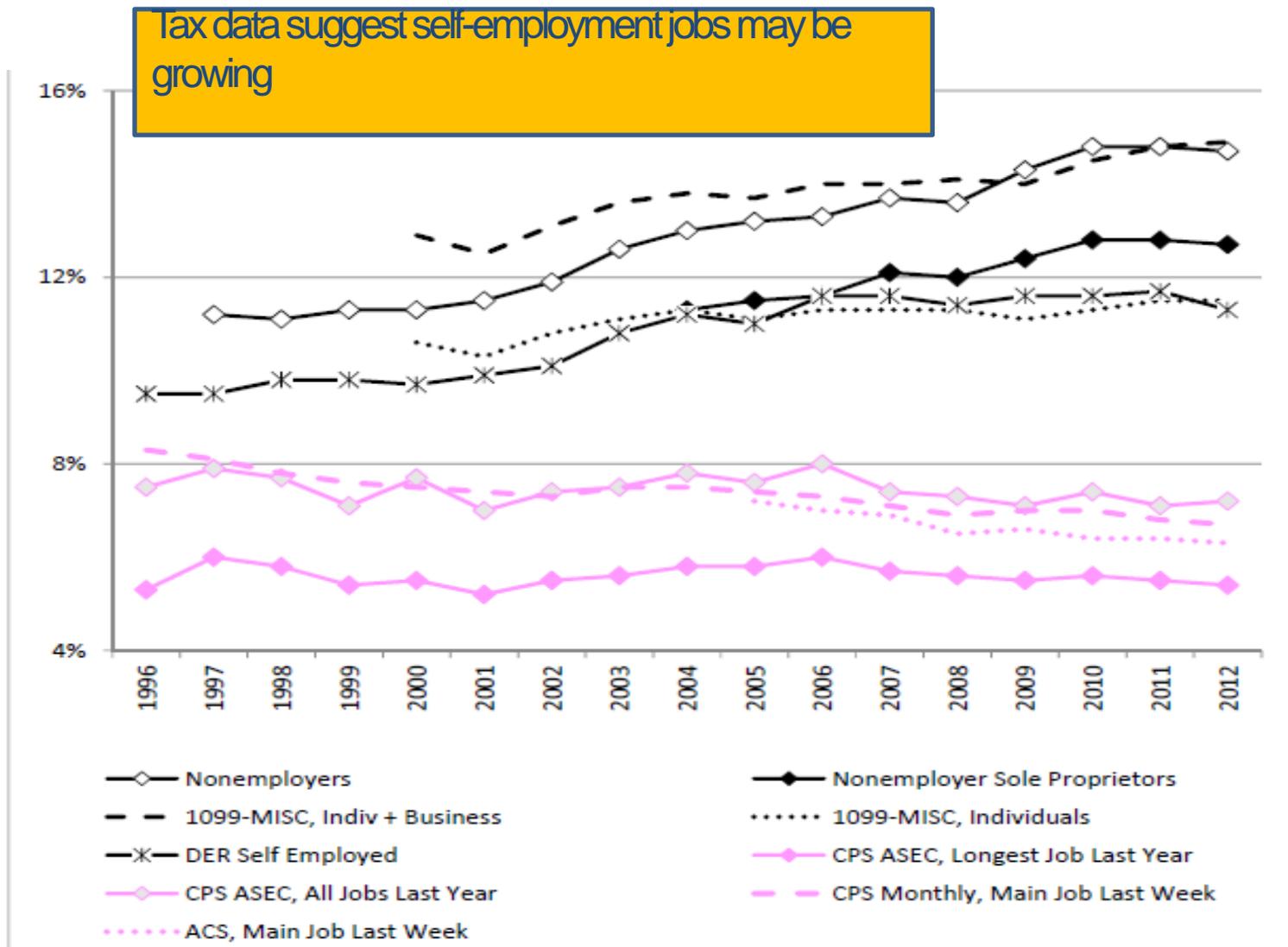
Trends in unincorporated self-employment from both household surveys and tax data are a first place to look for trends in gig employment

Self-employment Rates: Survey Data



Source: Abraham, Haltiwanger, Sandusky, and Spletzer (2017)

Self-employment Rates: Survey vs Tax Data



Source: Abraham, Haltiwanger, Sandusky, and Spletzer (2017)

Exploring Divergence between Survey and Tax Data on Self-employment

- The best way to understand discrepancies between household survey data and administrative tax data is to compare information from the two sources for the same set of people.
- Growing group of survey respondents who file taxes for self-employment activity not captured in survey. This group contains:
 1. **Missing Secondary Job:** Primary job is Wage and salary in both survey and tax data, do not report secondary SE job to survey,
 2. **Misclassified jobs:** Wage and salary on survey, self-employed in tax data,
 3. **Report no employment** on survey

Using Tax Data to Shed Light on Gig Employment

Census Nonemployer Statistics

- Nonemployers are:
 - businesses that have no paid employment or payroll,
 - are subject to federal income taxes,
 - have receipts of \$1,000 or more (\$1 or more for the Construction sector)
- Most are self-employed individuals operating sole proprietorships
- Nonemployer statistics originate from Schedule C filings to the Internal Revenue Service

Schedule C

**SCHEDULE C
(Form 1040)**

Department of the Treasury
Internal Revenue Service (99)

Profit or Loss From Business
(Sole Proprietorship)

▶ Go to www.irs.gov/ScheduleC for instructions and the latest information.
▶ Attach to Form 1040, 1040NR, or 1041; partnerships generally must file Form 1065.

OMB No. 1545-0074

2017
Attachment
Sequence No. **09**

Name of proprietor		Social security number (SSN)	
A	Principal business or profession, including product or service (see instructions)	B	Enter code from instructions ▶
C	Business name. If no separate business name, leave blank.	D	Employer ID number (EIN) (see instr.)
E	Business address (including suite or room no.) ▶ City, town or post office, state, and ZIP code		
F	Accounting method: (1) <input type="checkbox"/> Cash (2) <input type="checkbox"/> Accrual (3) <input type="checkbox"/> Other (specify) ▶		
G	Did you "materially participate" in the operation of this business during 2017? If "No," see instructions for limit on losses		<input type="checkbox"/> Yes <input type="checkbox"/> No
H	If you started or acquired this business during 2017, check here		<input type="checkbox"/>
I	Did you make any payments in 2017 that would require you to file Form(s) 1099? (see instructions)		<input type="checkbox"/> Yes <input type="checkbox"/> No
J	If "Yes," did you or will you file required Forms 1099?		<input type="checkbox"/> Yes <input type="checkbox"/> No

Part I Income

1	Gross receipts or sales. See instructions for line 1 and check the box if this income was reported to you on Form W-2 and the "Statutory employee" box on that form was checked	<input type="checkbox"/>	1		
2	Returns and allowances		2		
3	Subtract line 2 from line 1		3		
4	Cost of goods sold (from line 42)		4		
5	Gross profit. Subtract line 4 from line 3		5		
6	Other income, including federal and state gasoline or fuel tax credit or refund (see instructions)		6		
7	Gross income. Add lines 5 and 6		7		

Part II Expenses. Enter expenses for business use of your home only on line 30.

8	Advertising	8		18	Office expense (see instructions)	18	
9	Car and truck expenses (see			19	Pension and profit-sharing plans	19	

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Schedule C Industry Codes

Principal Business or Professional Activity Codes		<p>six-digit codes are based on the North American Industry Classification System (NAICS).</p> <p>Select the category that best describes your primary business activity (for example, Real Estate). Then select the activity that best identifies the principal source of your sales or receipts (for example, real</p>	<p>estate agent). Now find the six-digit code assigned to this activity (for example, 531210, the code for offices of real estate agents and brokers) and enter it on Schedule C or C-EZ, line B.</p> <p>Note. If your principal source of income is from farming activities, you should file Schedule F.</p>
<p>Accommodation, Food Services, & Drinking Places</p> <p>Accommodation</p> <p>721310 Rooming & boarding houses, dormitories, & workers' camps</p> <p>721210 R.V. (recreational vehicle) parks & recreational camps</p> <p>721100 Traveler accommodation (including hotels, motels, & bed & breakfast inns)</p> <p>Food Services & Drinking Places</p> <p>722514 Cafeterias & buffets</p> <p>722410 Drinking places (alcoholic beverages)</p> <p>722511 Full-service restaurants</p> <p>722513 Limited-service restaurants</p> <p>722515 Snack & non-alcoholic beverage bars</p> <p>722300 Special food services (including food service contractors & caterers)</p>	<p>gining, soil preparation, planting, & cultivating)</p> <p>115310 Support activities for forestry</p> <p>Arts, Entertainment, & Recreation</p> <p>Amusement, Gambling, & Recreation Industries</p> <p>713100 Amusement parks & arcades</p> <p>713200 Gambling industries</p> <p>713900 Other amusement & recreation services (including golf courses, skiing facilities, marinas, fitness centers, bowling centers, skating rinks, miniature golf courses)</p> <p>Museums, Historical Sites, & Similar Institutions</p> <p>712100 Museums, historical sites, & similar institutions</p> <p>Performing Arts, Spectator Sports, & Related Industries</p> <p>711410 Agents & managers for artists, athletes, entertainers, & other public figures</p> <p>711510 Independent artists, writers, & performers</p> <p>711100 Performing arts companies</p> <p>711300 Promoters of performing arts, sports, & similar events</p> <p>711210 Spectator sports (including professional sports clubs & racetrack operations)</p>	<p>Educational Services</p> <p>611000 Educational services (including schools, colleges, & universities)</p> <p>Finance & Insurance</p> <p>Credit Intermediation & Related Activities</p> <p>522100 Depository credit intermediation (including commercial banking, savings institutions, & credit unions)</p> <p>522200 Nondepository credit intermediation (including sales financing & consumer lending)</p> <p>522300 Activities related to credit intermediation (including loan brokers)</p> <p>Insurance Agents, Brokers, & Related Activities</p> <p>524210 Insurance agencies & brokerages</p> <p>524290 Other insurance related activities</p> <p>Securities, Commodity Contracts, & Other Financial Investments & Related Activities</p> <p>523140 Commodity contracts brokers</p> <p>523130 Commodity contracts dealers</p> <p>523110 Investment bankers & securities dealers</p> <p>523210 Securities & commodity</p>	<p>Broadcasting (except Internet) & Telecommunications</p> <p>515000 Broadcasting (except Internet)</p> <p>517000 Telecommunications & Internet service providers</p> <p>Data Processing Services</p> <p>518210 Data processing, hosting, & related services</p> <p>519100 Other information services (including news syndicates & libraries, Internet publishing & broadcasting)</p> <p>Motion Picture & Sound Recording</p> <p>512100 Motion picture & video industries (except video rental)</p> <p>512200 Sound recording industries</p> <p>Manufacturing</p> <p>315000 Apparel mfg.</p> <p>312000 Beverage & tobacco product mfg.</p> <p>334000 Computer & electronic product mfg.</p> <p>335000 Electrical equipment, appliance, & component mfg.</p> <p>332000 Fabricated metal product mfg.</p> <p>337000 Furniture & related product mfg.</p> <p>333000 Machinery mfg.</p> <p>339110 Medical equipment & supplies mfg.</p> <p>322000 Paper mfg.</p>
<p>Administrative & Support and Waste Management & Remediation Services</p> <p>Administrative & Support Services</p> <p>561430 Business service centers (including private mail centers & copy shops)</p> <p>561740 Carpet & upholstery cleaning services</p>			

Census Nonemployer Statistics

Nonemployer Statistics (NES) - Internet Explorer
https://www.census.gov/programs-surveys/nonemployer-statistics.html

U.S. Department of Commerce | Blogs | Index A-Z | Glossary | FAQs

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Nonemployer Statistics (NES)

About this Program

Data

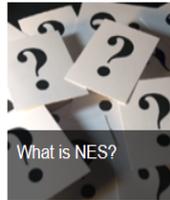
Guidance for Data Users

Library

News & Updates

Technical Documentation

NES is an annual series that provides subnational economic data for businesses that have no paid employees and are subject to federal income tax. This series includes the number of businesses and total receipts by industry.



What is NES?



Where can I find NES data?



Visualizations



Latest

News Updates Data



2016 County Business Patterns Shows Overall Growth in Employment

April 19, 2018

Construction led all sectors in the largest rate of employment growth with an increase of 5.0 percent from 2015 to 2016, according to new economic statistics.



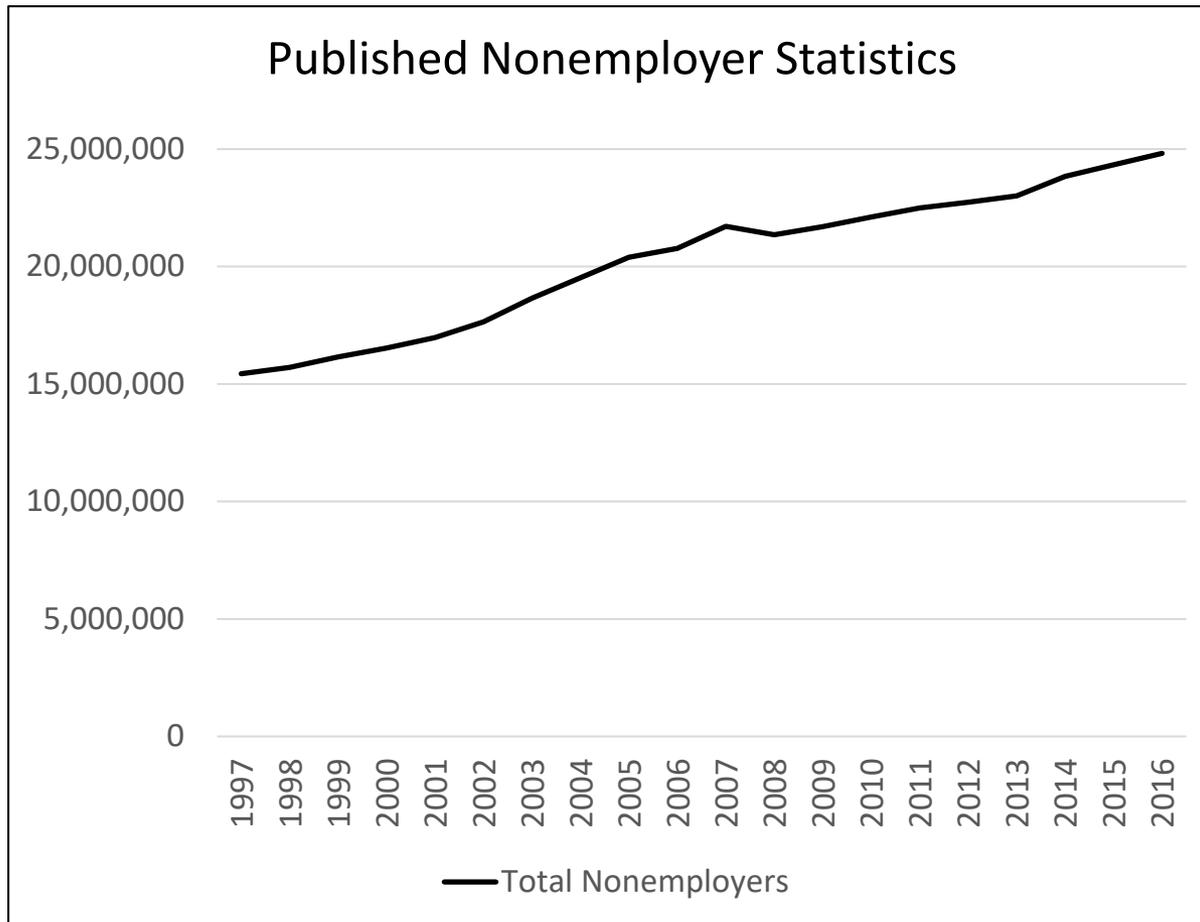
Transit and Ground Passenger Transportation Increased in 2015

May 25, 2017

Is this page helpful? X

Yes No

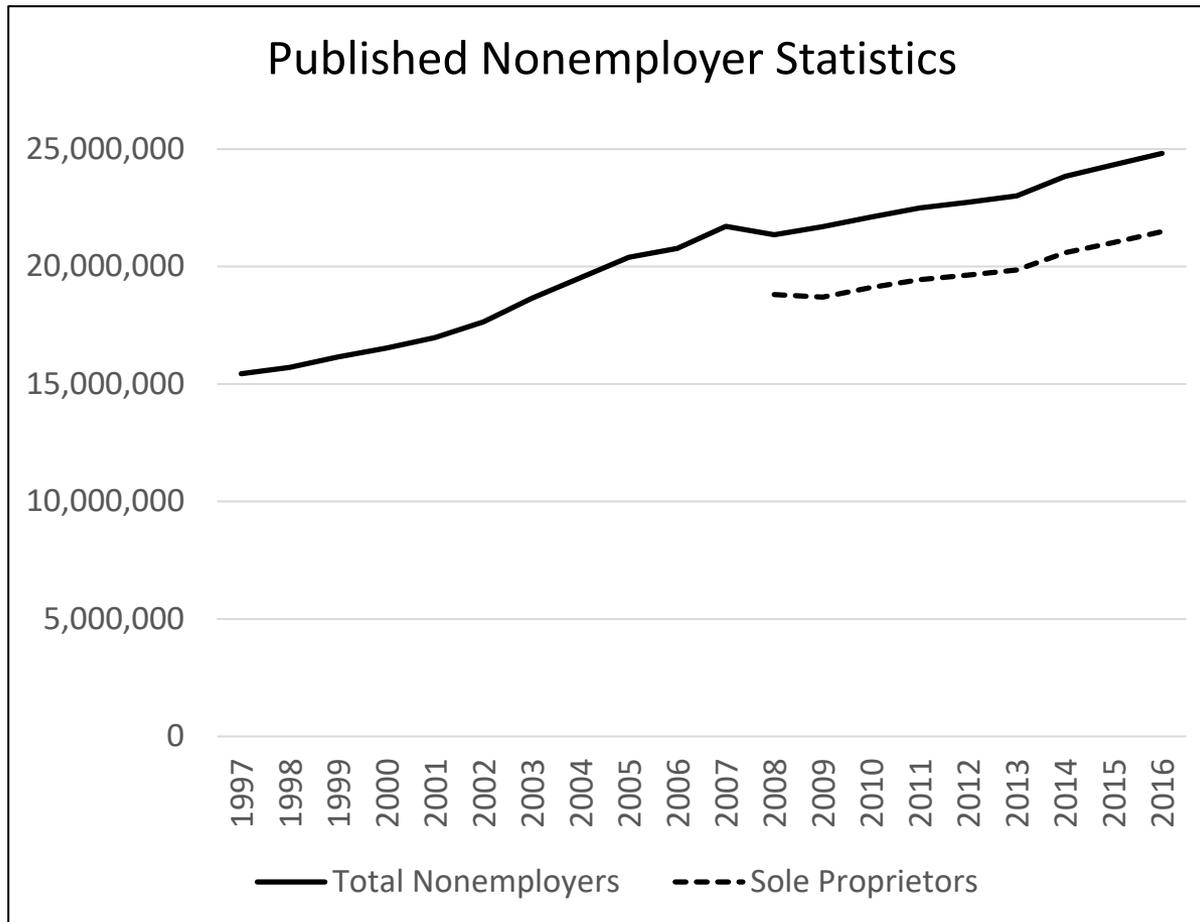
Published Nonemployer Statistics



Nonemployers have grown at a 2.6% average annual rate, 1997-2015

For comparison:
CES total nonfarm employment has grown at a 0.8% average annual rate, 1997-2015

Published Nonemployer Statistics



Nonemployer data are published by Legal Form of Organization since 2008

- Corporations
- S-Corporations
- Sole Proprietors
- Partnerships

We can replicate the sole proprietor statistics with our microdata, 2010-2016

Published Nonemployer Statistics: Ridesharing Industry

We focus on self-employment in industry 4853 “Taxi and Limousine Services”

An industry where development of new technologies has lowered the barriers to entry

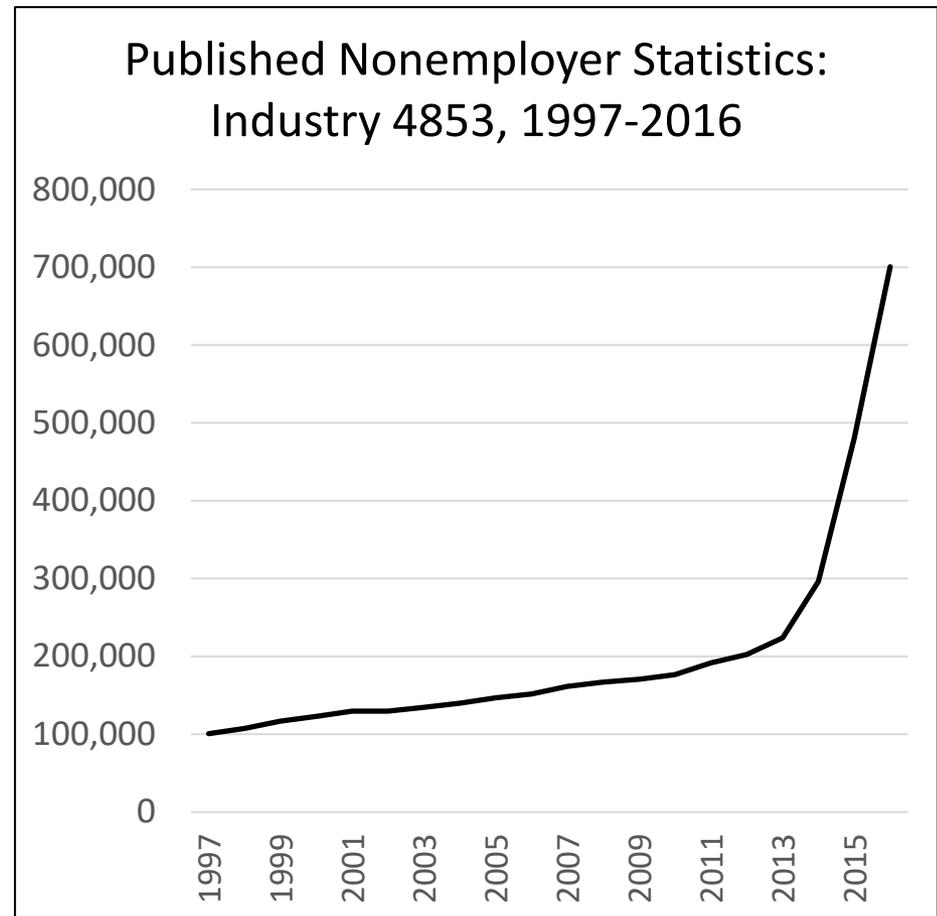
Substantial recent growth:

2013: ↑ 21,494 (11%)

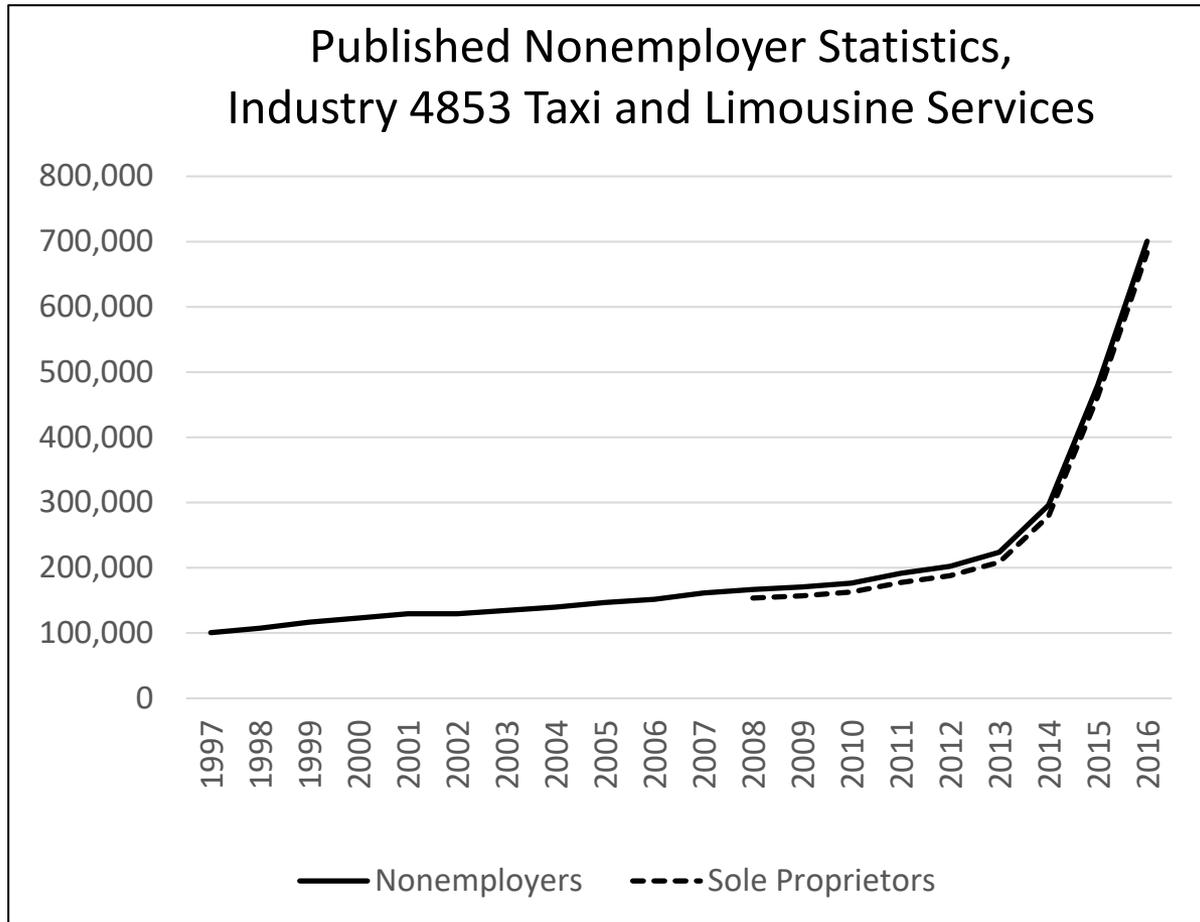
2014: ↑ 72,305 (32%)

2015: ↑ 184,185 (62%)

2016: ↑ 220,261 (46%)



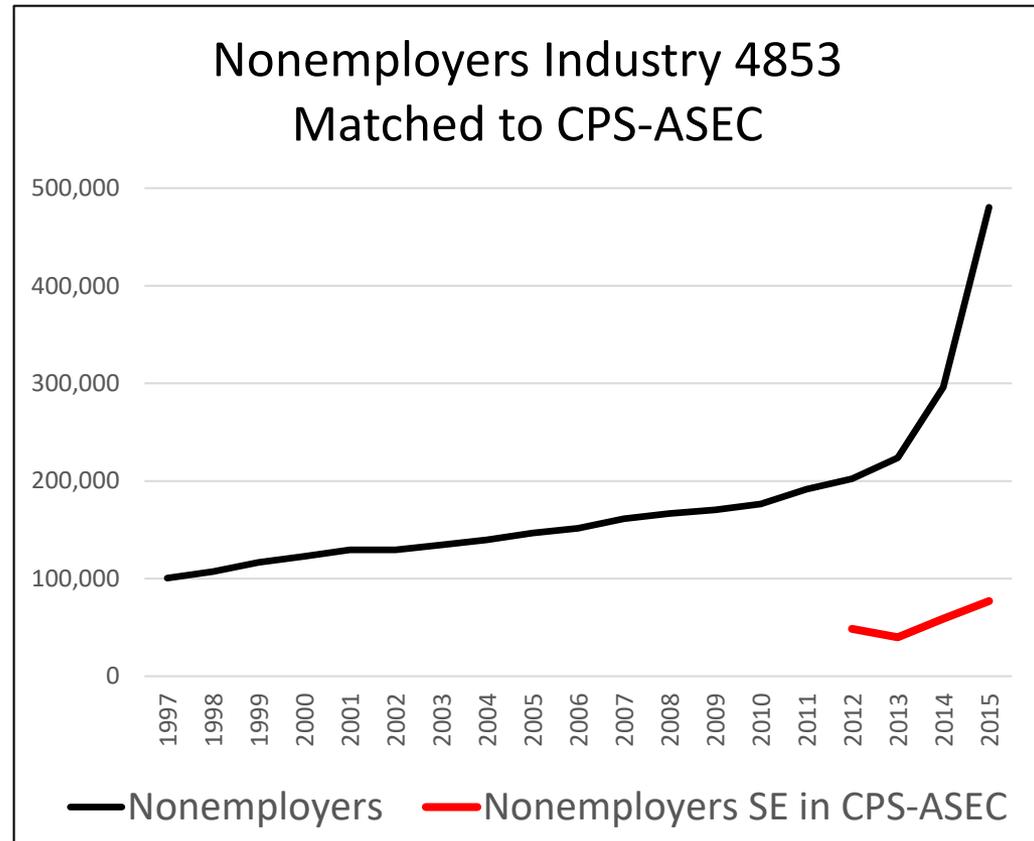
Published Nonemployer Statistics: Ridesharing Industry



In industry 4853 (taxi drivers), almost all nonemployers are sole-proprietors

Do Rideshare Drivers Identify as Self-Employed on Survey?

We are able to link the 2012-2015 ridesharing nonemployers to their responses in the CPS-ASEC



	Non-employers	Nonemployers SE in CPS-ASEC	Ratio
2012	194,000	48,500	25%
2013	219,000	40,000	18%
2014	320,000	59,000	18%
2015	489,000	77,000	16%

Why are we focused on Industry 4853?

Industry 4853 is unique in exhibiting phenomenal growth

Table below is industries that are large (2M+) or have large growth (100K+)

NAICS	Level 2016	Level 2016	Growth 2012-2016	Growth 2012-2016	
230	2,471,026	10.0%	124,228	5.3%	Construction
485	869,052	3.5%	621,116	250.5%	Ground Passenger Transportation
531	2,595,577	10.5%	287,464	12.5%	Real Estate
541	3,441,179	13.9%	228,977	7.1%	Professional, Scientific, Tech Services
561	2,064,328	8.3%	80,894	4.1%	Administrative and Support Services
611	717,924	2.9%	114,469	19.0%	Educational Services
711	1,221,596	4.9%	146,990	13.7%	Performing Arts, Spectator Sports, ...
812	2,720,918	11.0%	160,955	6.3%	Personal and Laundry Service
Total	24,813,048	100.0%	2,077,133	9.1%	

Using Published Nonemployer Statistics to Explore Impact of Gig Economy in an Industry/Location

- Track number of nonemployers and total receipts in a particular industry and location (state, county, MSA, CSA)
- Track growth or declines in these numbers over time
- Add to wage and salary employment for a county and industry group to get a measure of total jobs
- Track share of total jobs that are not wage and salary jobs

Learning More about Gig Economy Through Data Integration:

Rideshare Driver Example

Contributing Work

“Driving the Gig Economy”

(Katharine Abraham, John Haltiwanger, Kristin Sandusky, and James Spletzer). July 2018 version presented at NBER Summer Institute, available at http://papers.nber.org/conf_papers/f110357/f110357.pdf.

What can we learn from data integration?

We add value by linking nonemployer sole proprietors in NAICS 4853 in years 2010-2016:

- To demographics (age, gender, race and ethnicity, foreign-born, education . . .)
- To wage and salary earnings from the Longitudinal Employer-Household Dynamics Data (LEHD, all states + DC)

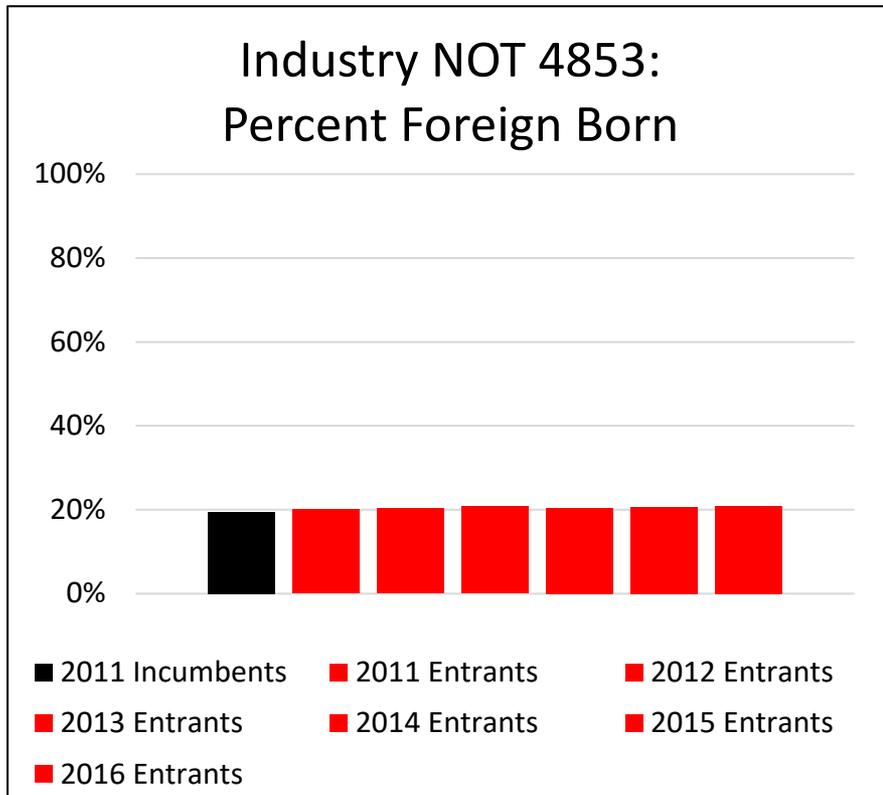
We link the 2010-2016 Nonemployer microdata across time

- Define entrants and incumbents
- Define annual earnings growth from both self-employment and wage and salary employment

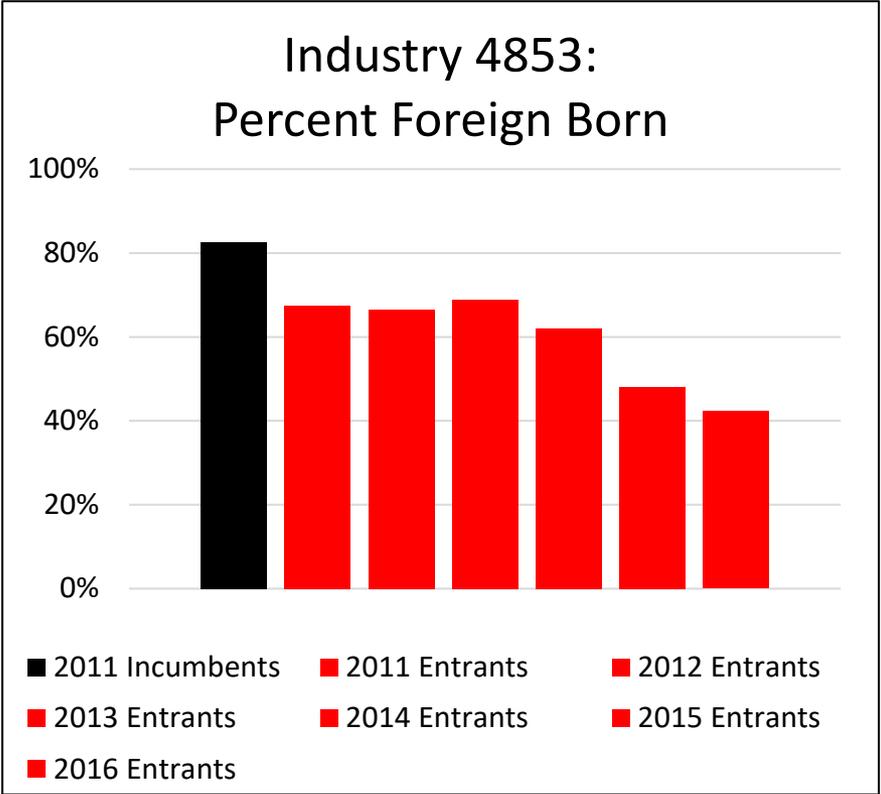
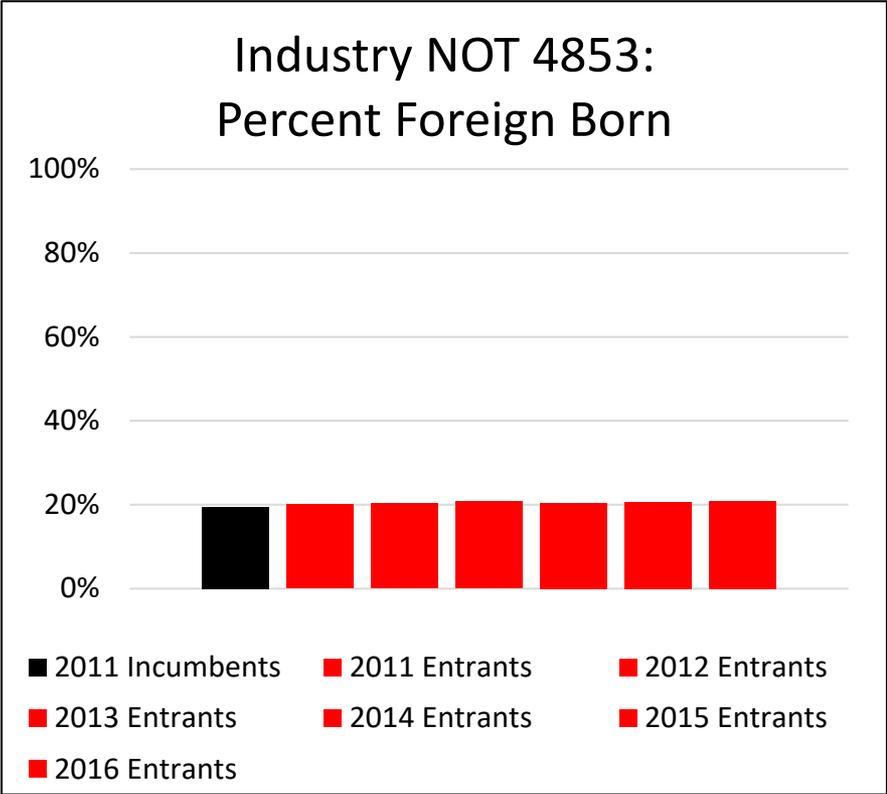
Rideshare Example:

Who is entering sector 4853?

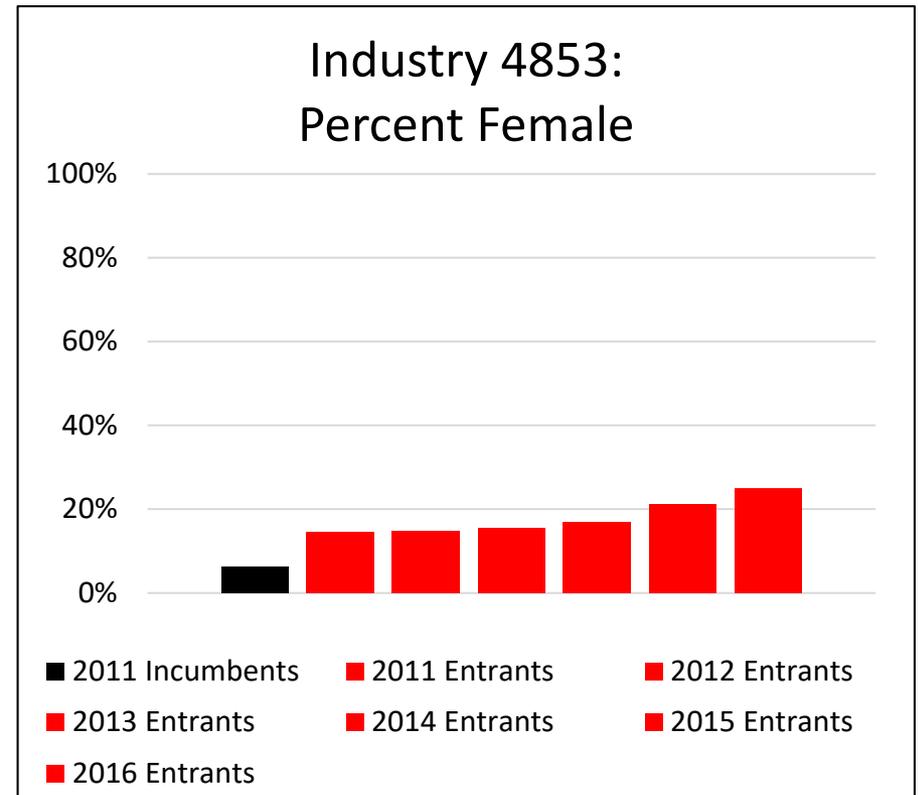
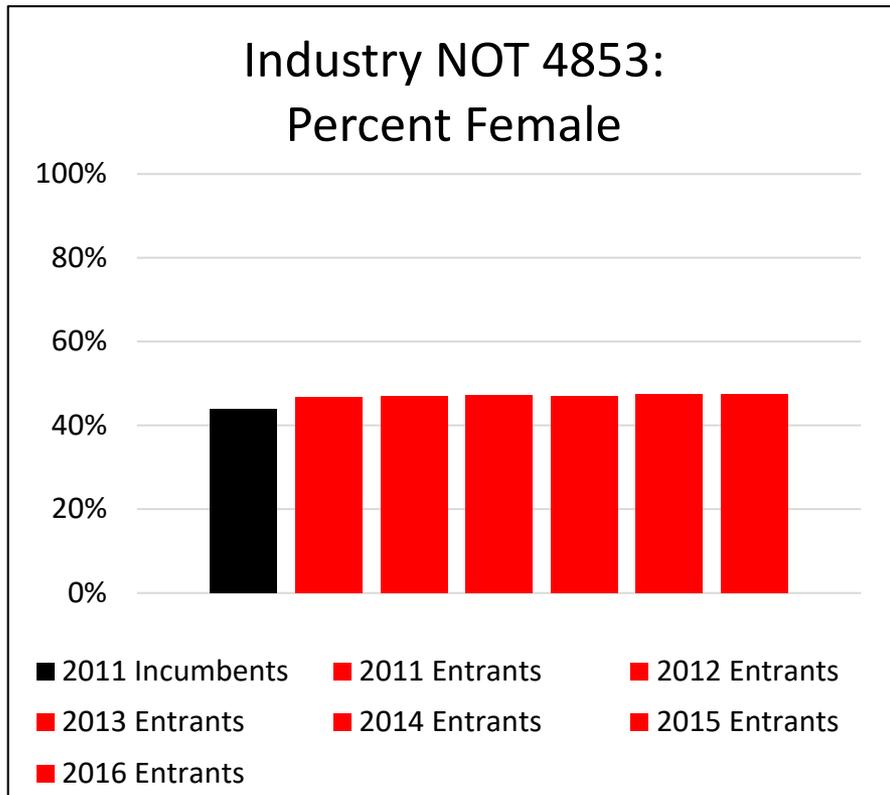
Nonemployer Descriptive Statistics



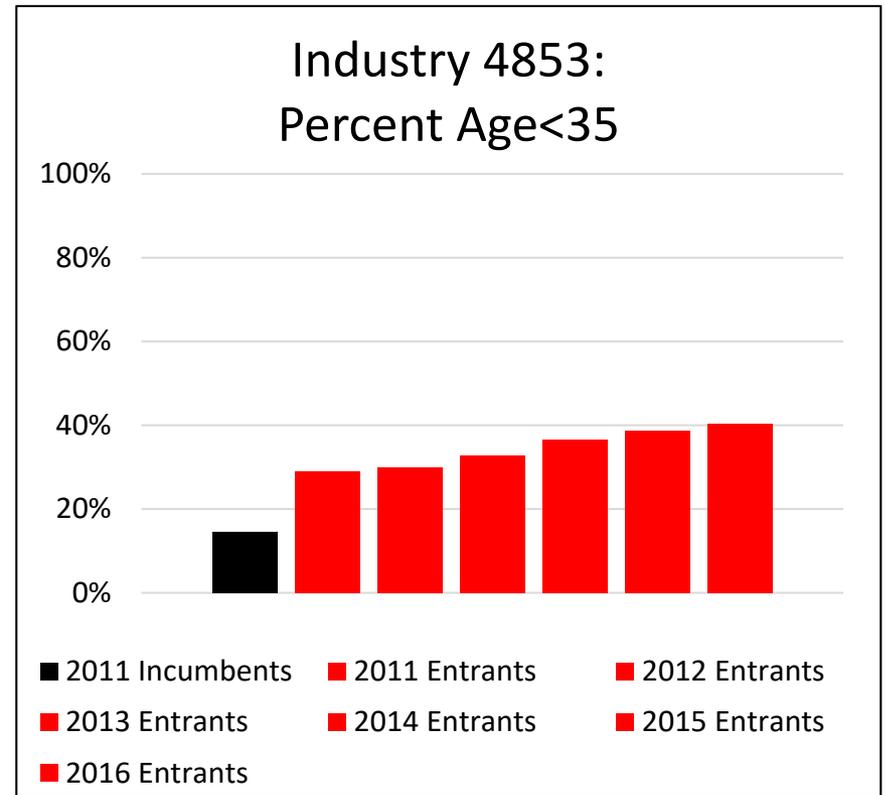
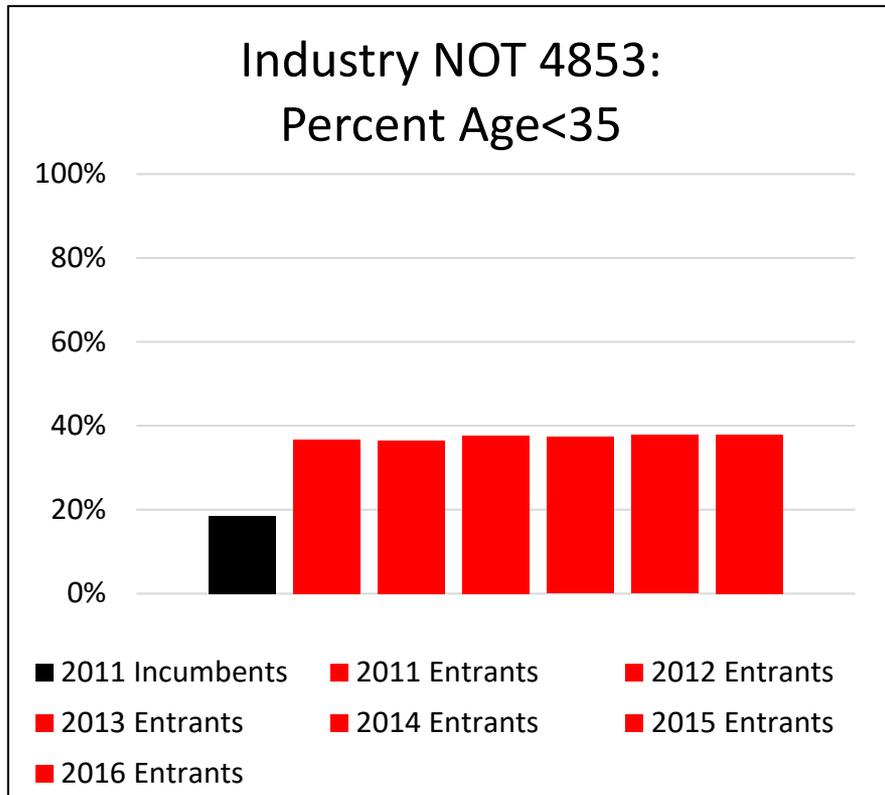
Industry becoming composed of lower percentage foreign born over time



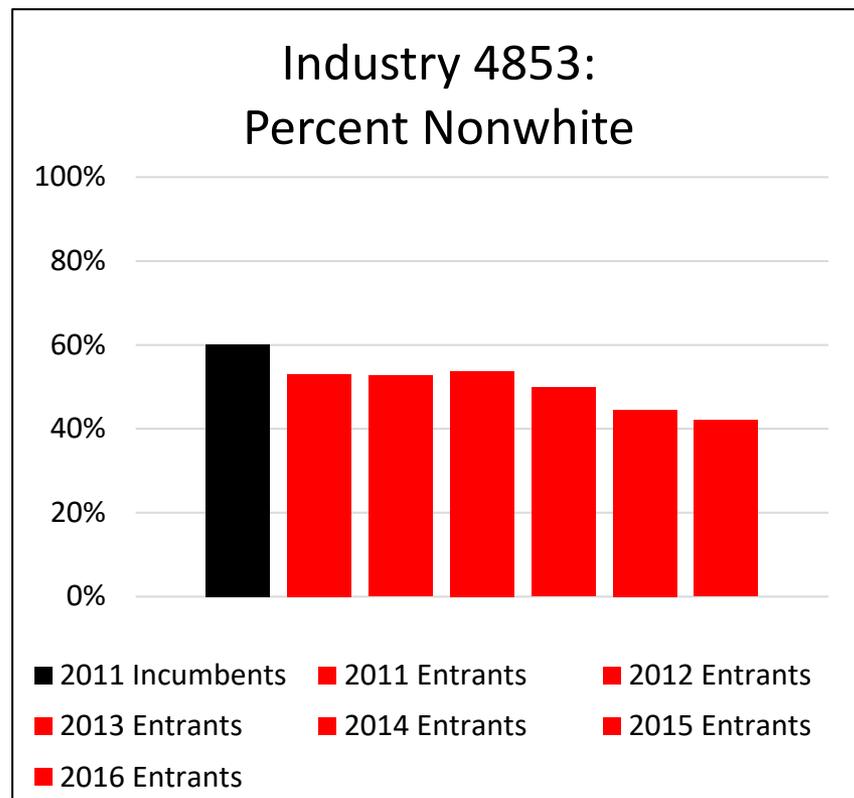
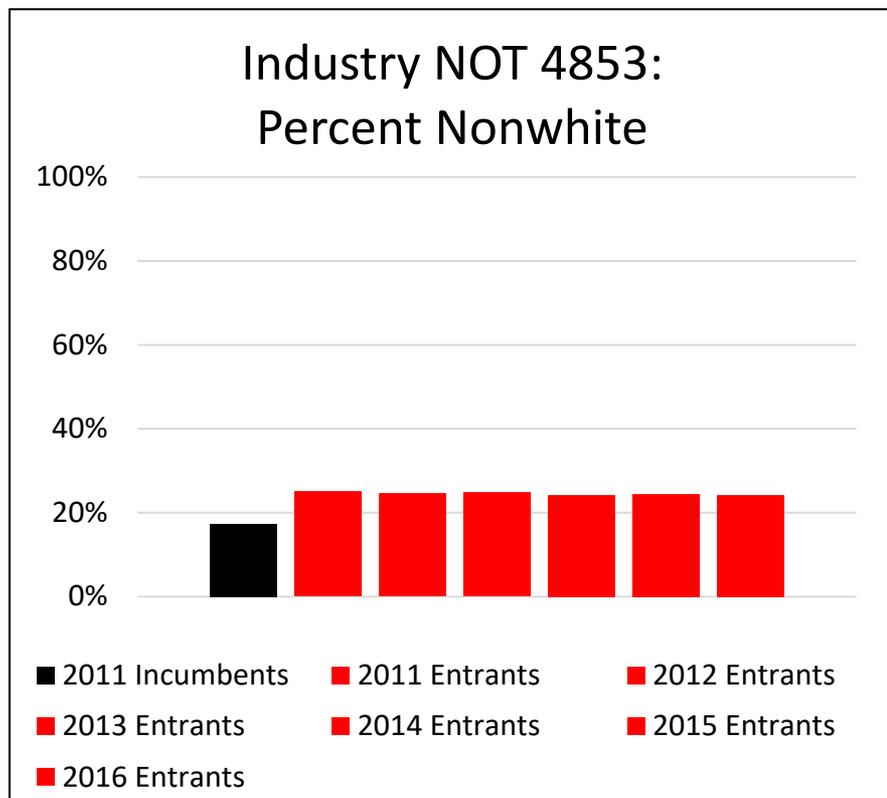
Industry composed of increasing share female over time



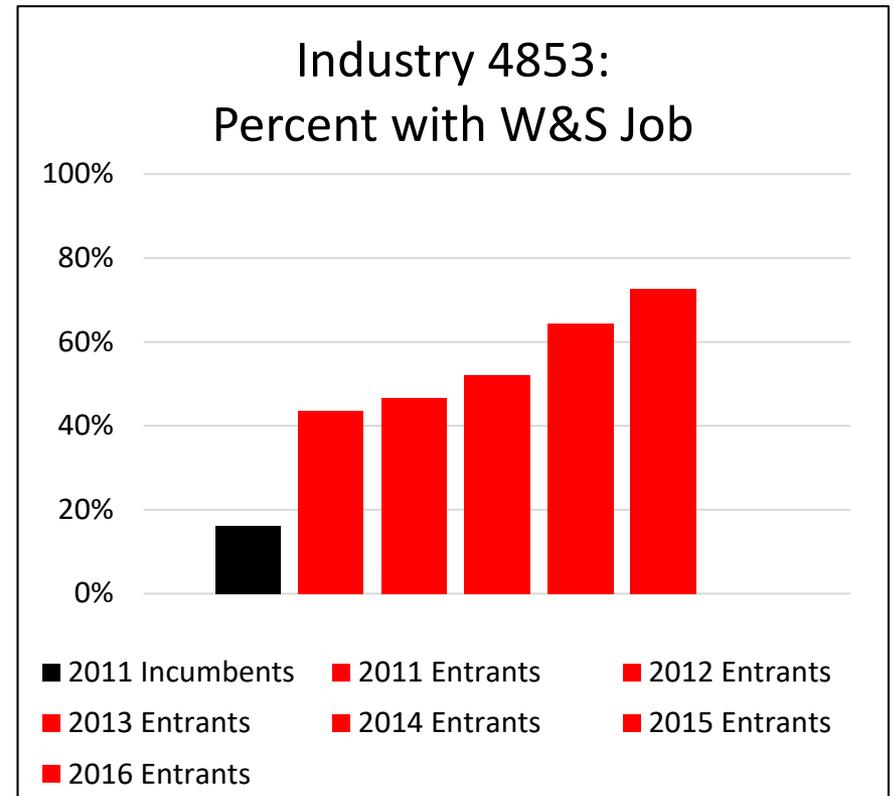
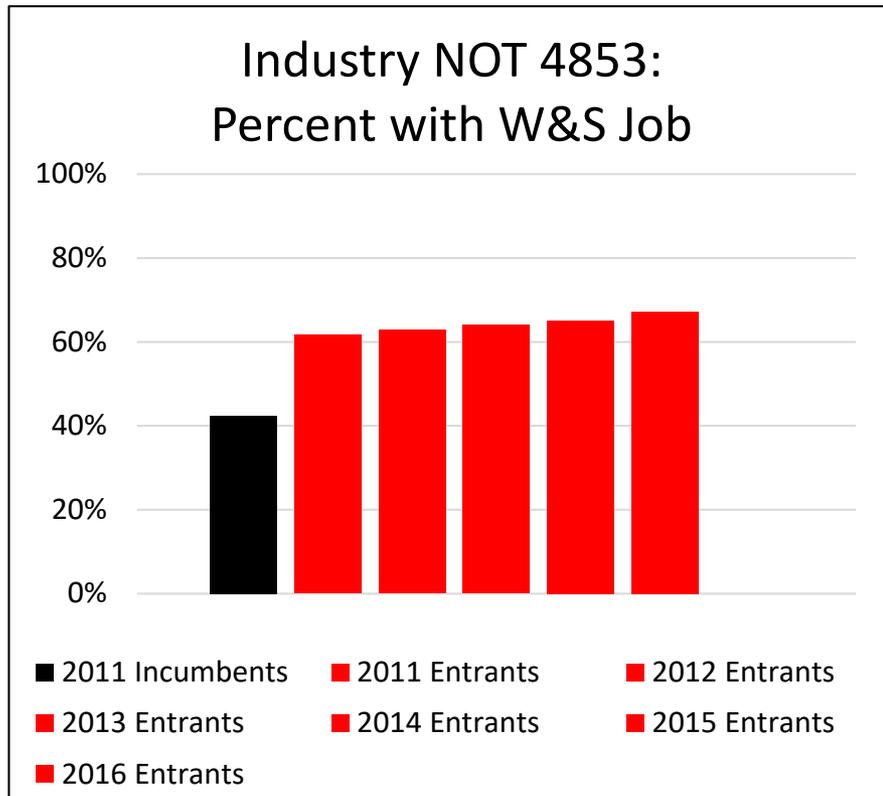
Industry becoming younger over time



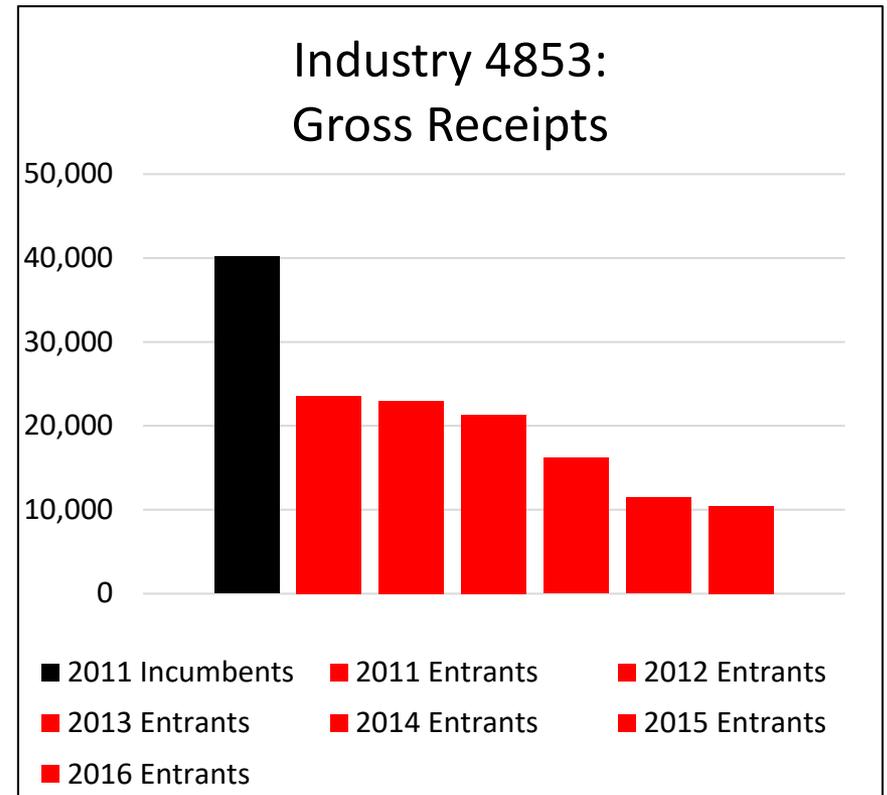
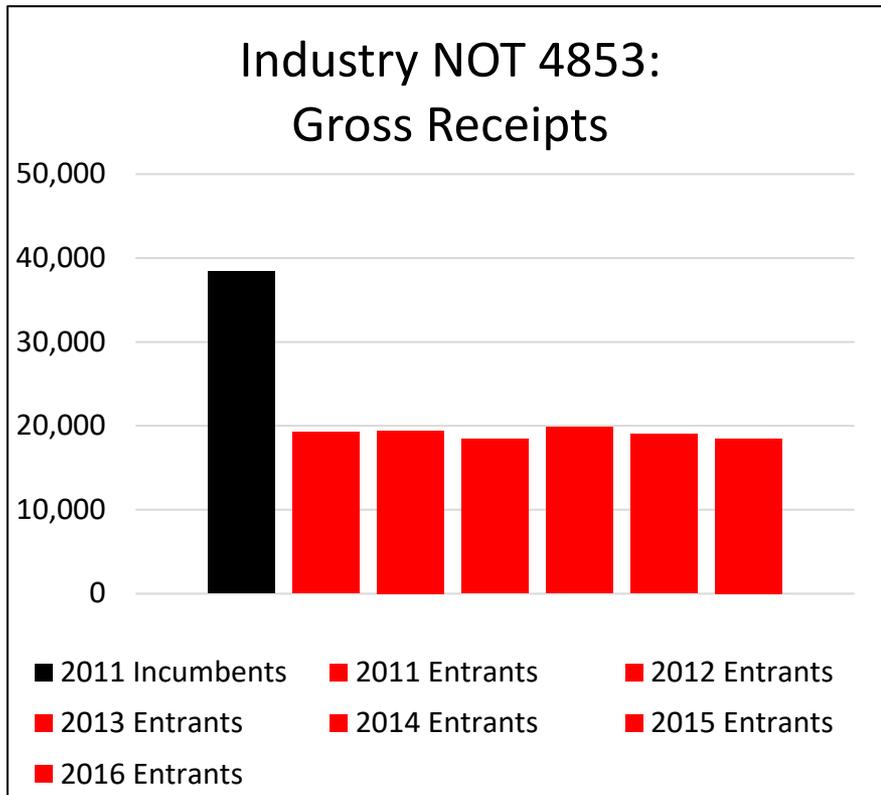
Industry becoming less non-white over time



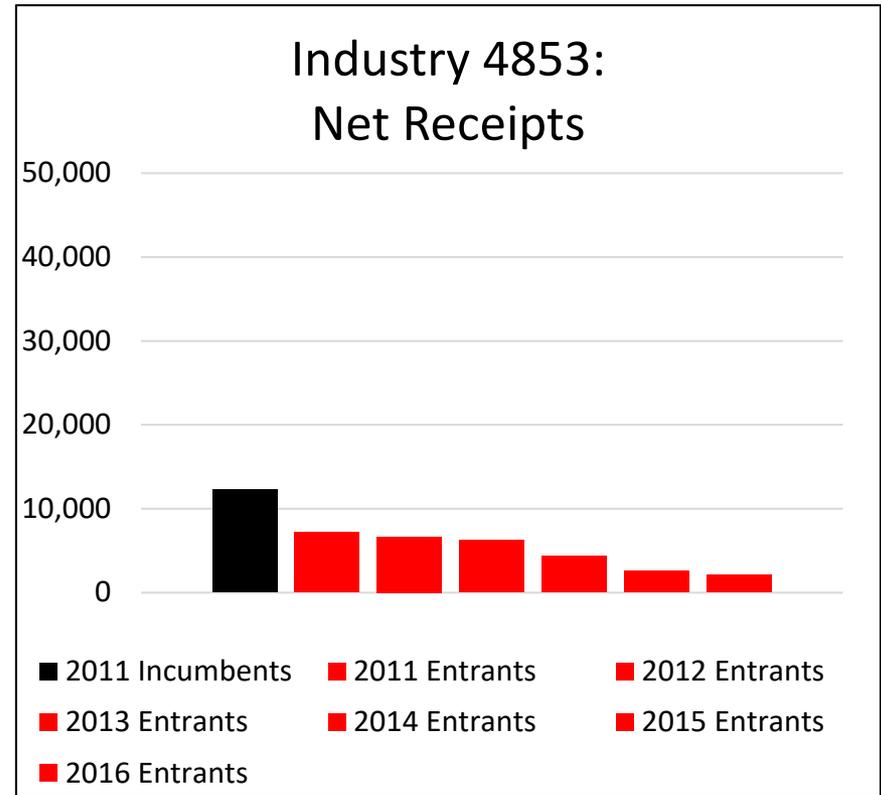
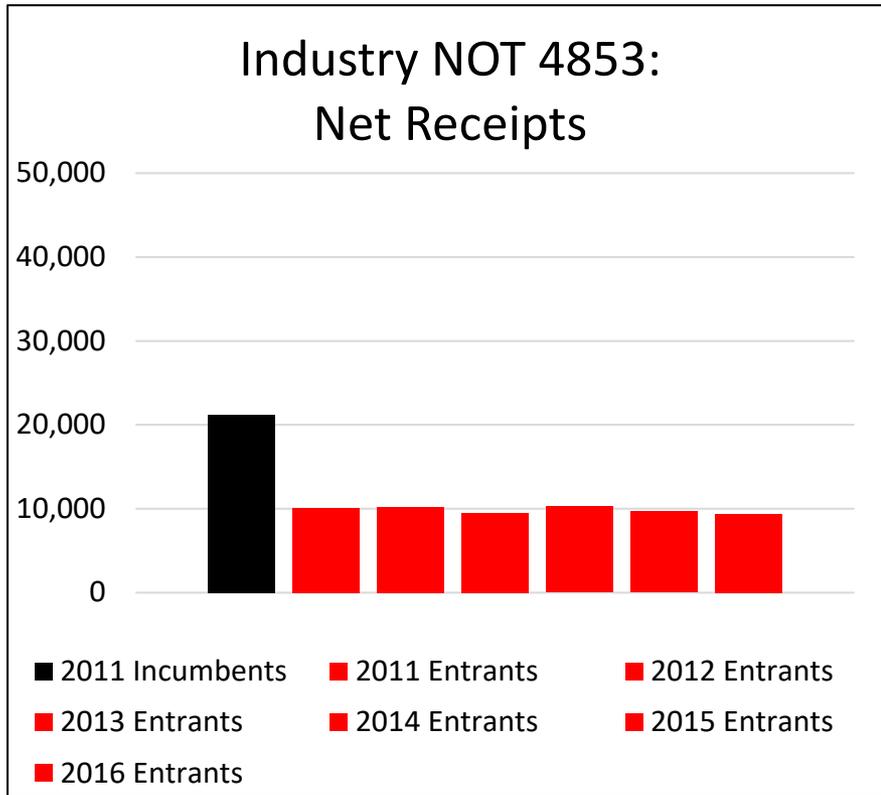
Entrants increasingly likely to combine self-employment with wage and salary work



Gross receipts for new entrants falling over time



Net Receipts for new entrants falling over time



Taking Stock

Introduction of online ridesharing platforms has lowered cost of entry to self-employment and has led to significant changes in the Taxi and Limousine Services industry

- Characteristics of ridesharing industry different from other Nonemployer industries
- Characteristics of new drivers different from those of traditional taxi drivers
- New drivers much more likely to have wage and salary work

Rideshare Entry: A Closer Look

What Drives Entry?

“Pull” vs “Push” factors

Rideshare Entry

Participants may be “pushed” into self-employment by economic setbacks or maybe be “pulled” in by opportunity.

- Does displacement “push” laid-off workers into self-employment?
 - Use LEHD UI wage records to measure displacement from a job – a separation from a firm where there was a mass displacement
- Does the availability of ridesharing “pull” in potential drivers?
 - Lowering of barriers to entry into NAICS 4853
 - Proxied by date that ride sharing platform companies entered CBSA where a person lives

What is a CBSA?

A **core-based statistical area (CBSA)** is a U.S. geographic area that consists of one or more counties (or equivalents) anchored by an urban center of at least 10,000 people plus adjacent counties that are socioeconomically tied to the urban center by commuting.

Approx. 935 CBSAs.

Rideshare Entry, Displacement, and Rideshare Opportunities

- Rich (anonymized) data allow us to explore factors that lead people to become a nonemployer sole proprietor in NAICS 4853
- Do “push” and “pull” factors increase the likelihood someone becomes a rideshare driver?

Push: = 1 if individual was part of a mass layoff last year

Pull: = Number of years Uber has been in CBSA

- We hold constant traits of worker and CBSA of residence.

Challenge: creating the sample of “eligible to enter”

Rideshare Entry: Who Is Eligible to Enter?

All US residents who are:

- old enough to drive in 2010-2015
- not currently NAICS 4853 nonemployers
- approx. 1.75 billion observations

Findings

Both displacement and number of years that Uber has been in the CBSA lead to increased likelihood that a person will enter industry 4853 self-employment

Does Expansion of Rideshare Opportunities Impact Incumbent Taxi Drivers?

- Does Uber entry increase exit of incumbent taxi drivers?
- Does Uber entry decrease earnings of incumbent taxi drivers?
- Sample: Nonemployers in industry 4853 in 2010, followed until 2016

Findings

Number of years that Uber has been in the CBSA leads to increased probability of exit and lower earnings growth conditional on no exit

Summing Up

- Explored why the gig economy has received so much attention
- Identified traits of gig job and where to look for them in data-among self-employed
- Demonstrated survey and administrative data present very different pictures of the size and growth of the self-employed population
- Provided an introduction to Census Nonemployer Statistics and demonstrated how they may be used *by anyone* to characterize the self-employed in a particular industry and location.

Summing Up (continued)

- Linked nonemployer microdata over time and combined with traits of workers and other jobs they hold.
- Used the data to show how the introduction of online ridesharing platforms has led to significant changes in the Taxi and Limousine Services industry
- Introduced data on US resident population to take a closer look at what drives entry and how rideshare presence impacts incumbent taxi drivers.

Summing Up (continued)

Findings:

- push and pull factors both play a role in decision to become a rideshare driver
- Introduction of rideshare does impact employment and earnings of incumbent taxi drivers
- Demonstrate that administrative data can, at relatively low cost and without sacrificing representativeness, be used to gain insight into the gig economy.

Next Steps...

- A lot of research using restricted access microdata.
- Designing public-use statistics from these research efforts just beginning.
- Data products from the Local Employment Dynamics program (Quarterly Workforce Indicators, Job-to-Job Flows) may serve as models.
- Input welcome!

Thank you.
Questions and comments
appreciated.

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