

# New Technologies and the Structure of Work

Katharine G. Abraham  
University of Maryland, IZA and NBER

Conference on Technology-Enabled Disruption: Implications  
for Business, Labor Markets and Monetary Policy

Dallas, Texas

May 22, 2019

# Overview

- Recent technological innovations one of factors contributing to ongoing changes in structure of work
  - Focus on contract work (contract workers and contract firms)
  - “Gig economy,” jobs mediated through online platforms
    - Modest in scale but experiencing rapid growth
  - “Fissuring” of the workplace (Weil 2014)
- Interested in two questions
  - What can we say about recent changes in work structure (hard) and the role of technology in driving those changes (harder)?
  - What issues do these changes raise for policy?

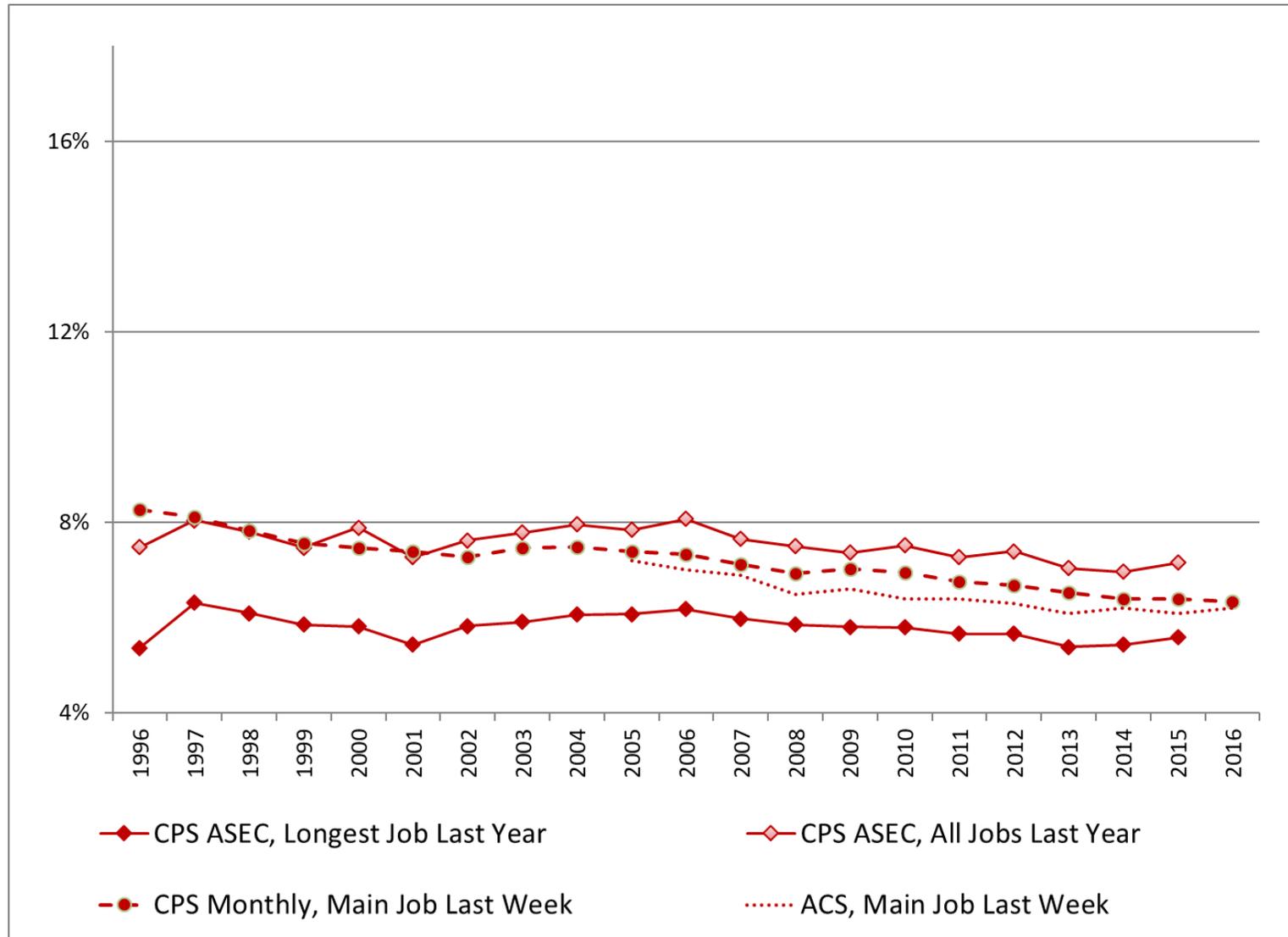
# Multiple influences on how work is structured

- Many reasons for firms to contract out
  - Greater flexibility to adjust wages
  - Shed legal responsibilities that a firm has for its employees
  - Buffer fluctuations in demand
  - Take advantage of specialized expertise
- New technologies that lower transaction costs may change firm decisions about contracting out versus producing in-house
  - Search and information costs, bargaining and decision costs, policing and enforcement costs all may be affected
- Contract work may be either better or worse for workers
  - Concerns have focused on contracting as a means for firms to lower wages, shifting of risks from firms to workers
  - According to BLS data, four of five of people who are independent contractors on their main job say they prefer it to a different arrangement
  - Contract work may supplement earnings from a primary job

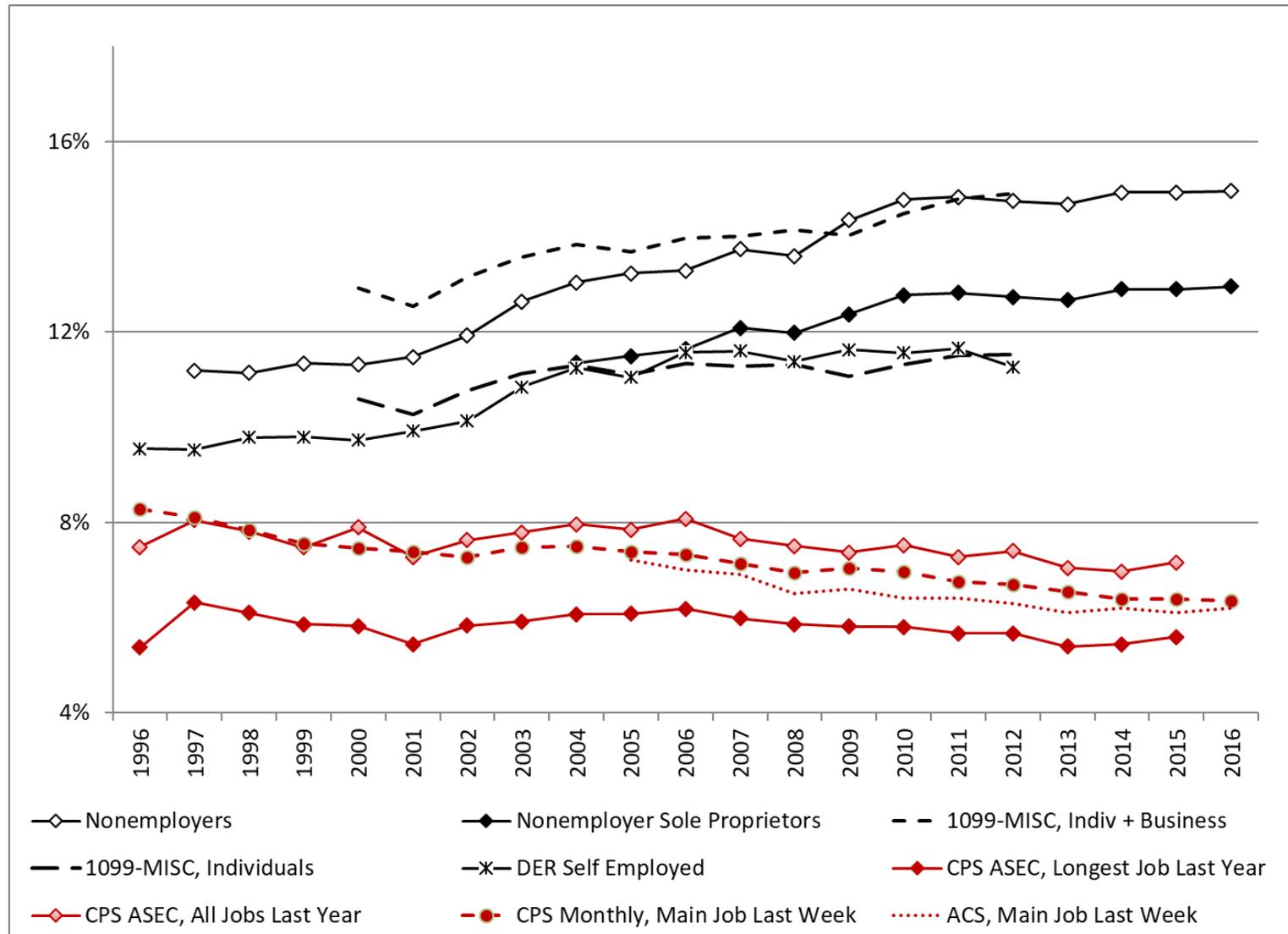
# What do data tell us about contract work?

- Household surveys such as CPS not well-suited for tracking contract work
  - Surveys appear to miss or mischaracterize some non-employee work (Abraham and Amaya 2018; Abraham, Hershbein and Houseman 2019)
  - Surveys not designed to measure workplace “fissuring”
- Administrative data complement household survey data
  - Show growth in prevalence of contract work (unincorporated self-employment) that household survey data do not capture
  - “Gig employment” only part of the story
    - Ridesharing has experienced stunning growth (Uber, Lyft) , but to date have not seen similar evidence of growth in gig employment in other industries
- Business data provide evidence consistent with increased fragmentation or fissuring

# Self-employment levels and trends



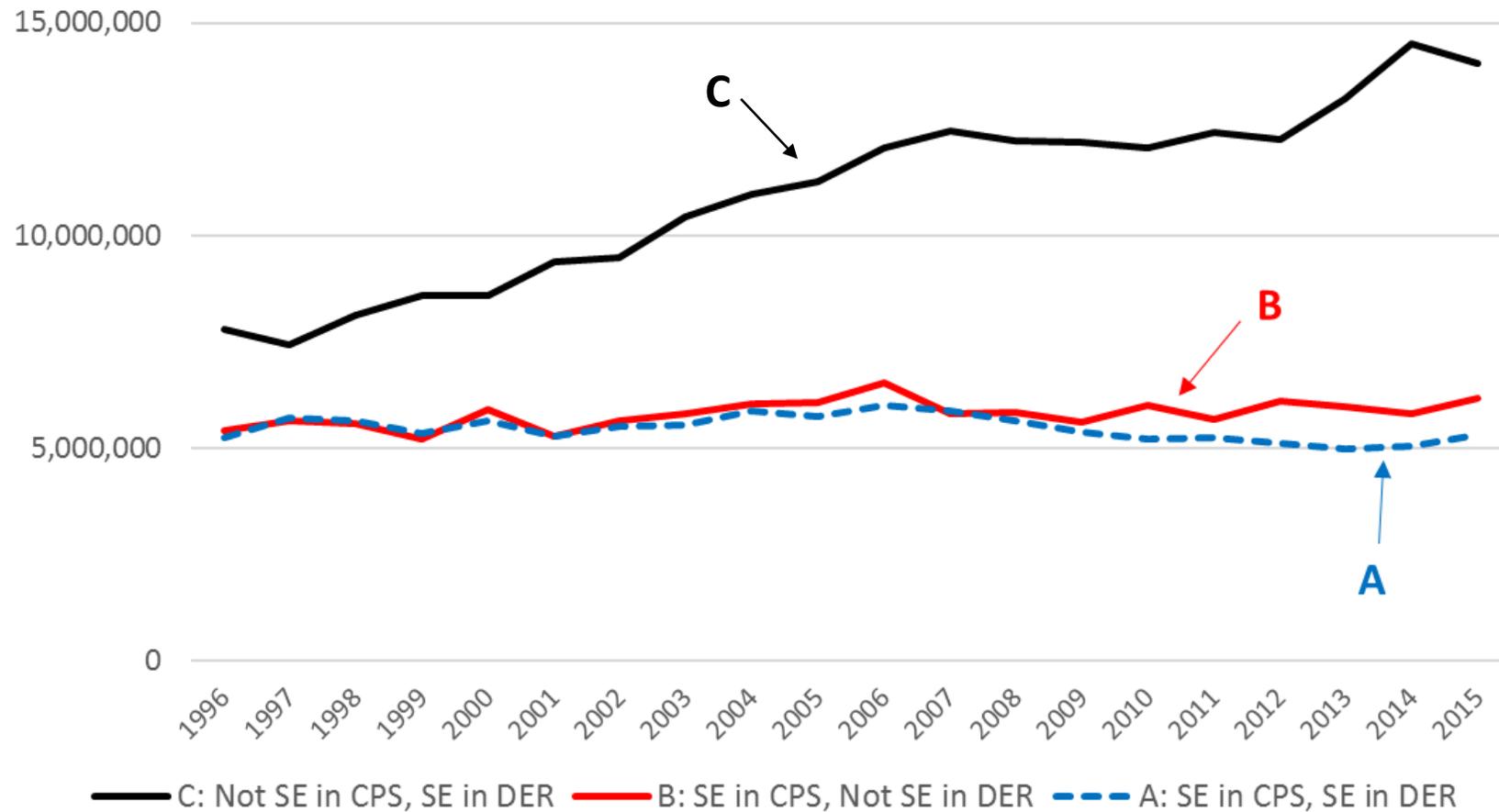
# Self-employment levels and trends



# Prevalence of self-employment earnings in CPS-ASEC versus Schedule SE tax data

- Survey data: Annual CPS Social and Economic Supplement (CPS-ASEC)
  - Count those with any reported net self-employment income
- Tax data: Detailed Earnings Record (DER)
  - DER includes information from all W-2s and Schedule SE's
  - Schedule SE should be filed if person has \$433 or more in gross self-employment earnings
- Have linked data for 1996-2015 period

# Self-employment in CPS-ASEC and DER, 1996-2015

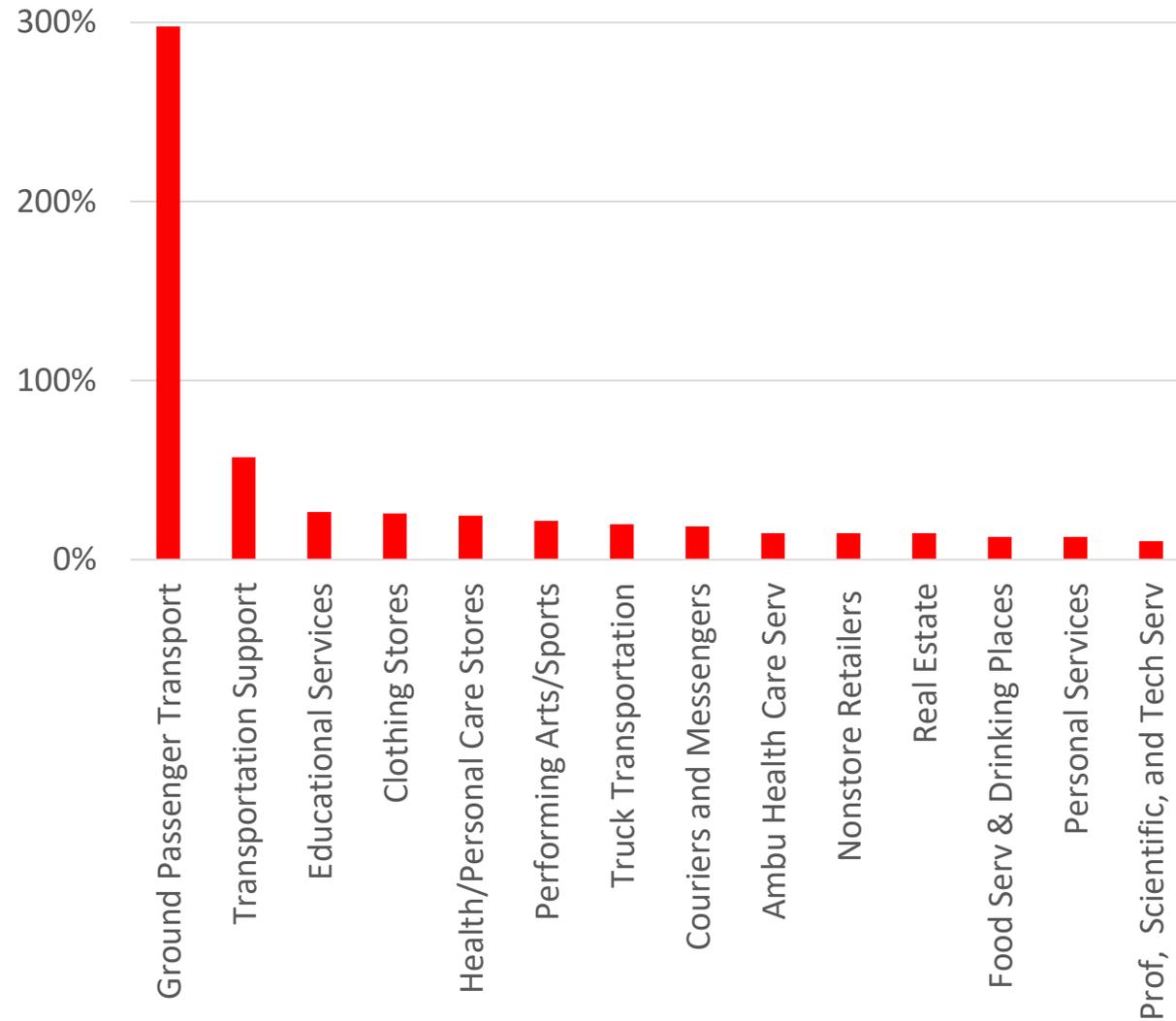


Source: Abraham, Haltiwanger, Sandusky and Spletzer (2018a, updated)

# Census Nonemployer Statistics

- Nonemployers defined as businesses that have no paid employment or payroll, are subject to federal income taxes, and have receipts of \$1,000 or more (\$1 or more for the Construction sector)
- Most nonemployers are self-employed individuals operating unincorporated businesses (will focus on this group)
- Nonemployer statistics originate from Schedule C filings to the Internal Revenue Service

# Percent growth in number of nonemployers, 2010-2016



Published data for 15 3-digit industries with 2010 employment > 100,000 and 2010-2016 growth > 10%

Ground Passenger Transportation (NAICS 485) has largest growth: 298%

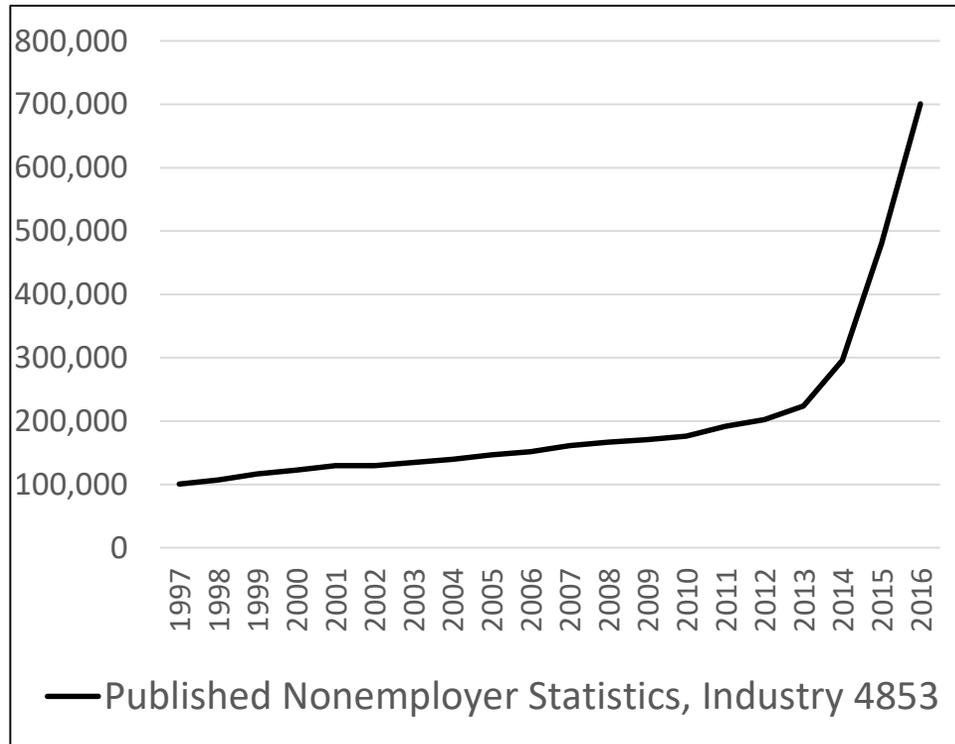
--Almost all Taxi and Limousine Service (NAICS 4853)

No other industry growth above 60%

Few of the other high growth industries are what we think of as "gig" (educational services, clothing stores, ...)

Source: Abraham, Haltiwanger, Sandusky, and Spletzer (2019)

# Growth of nonemployers in Ground Passenger Transportation



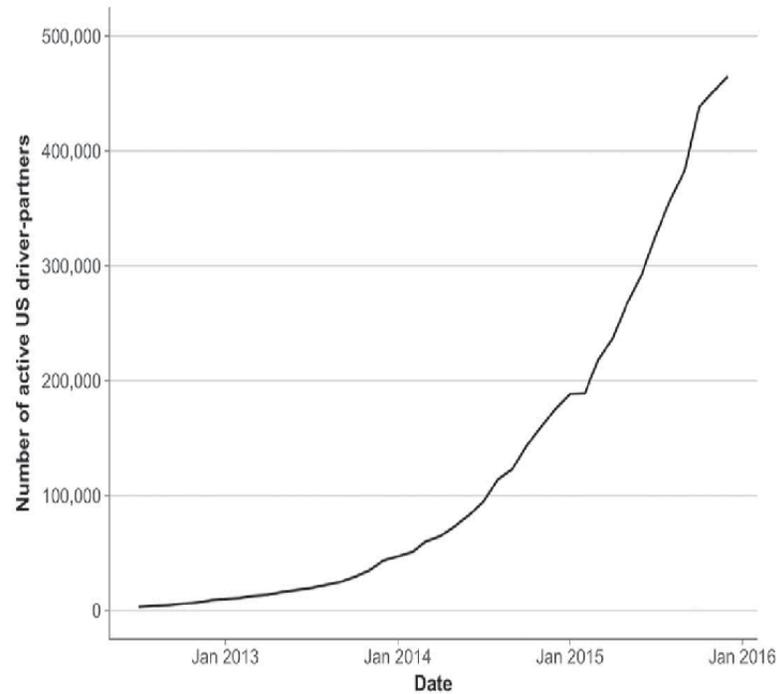
- Rapid growth in nonemployers in ground passenger transportation (NAICS 485)
  - Most of this growth is 4853 “Taxi and Limousine Services”
  - Growth accelerated as ridesharing apps were introduced

Source: Abraham, Haltiwanger, Sandusky, and Spletzer (2019)

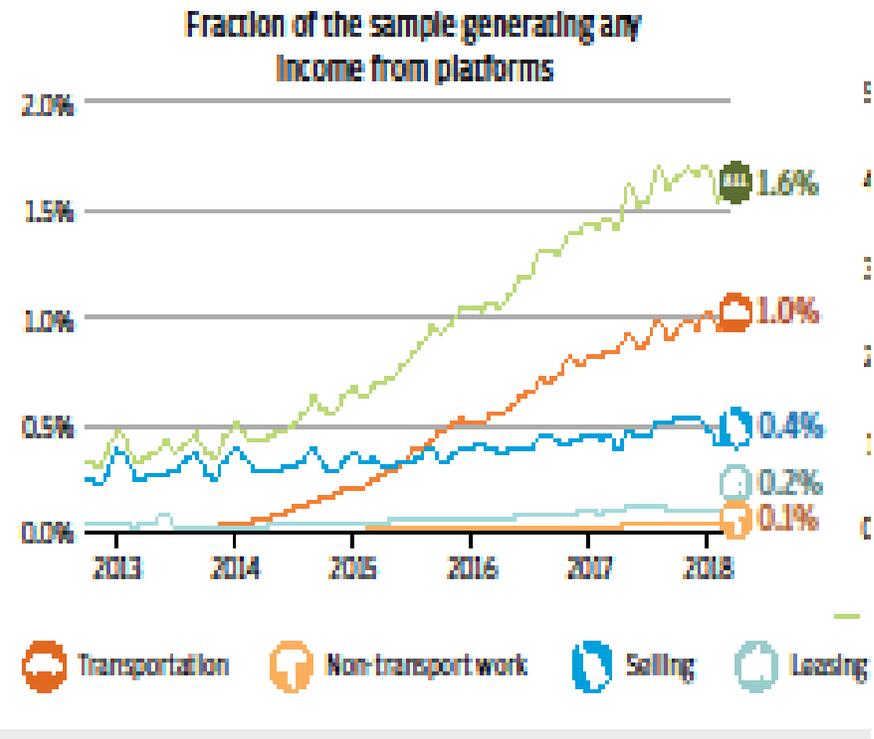
# Growth of ridesharing industry seen in multiple data sources

Hall & Krueger (ILRR 2018)

Figure 1. Number of Active Driver-Partners in United States Each Month

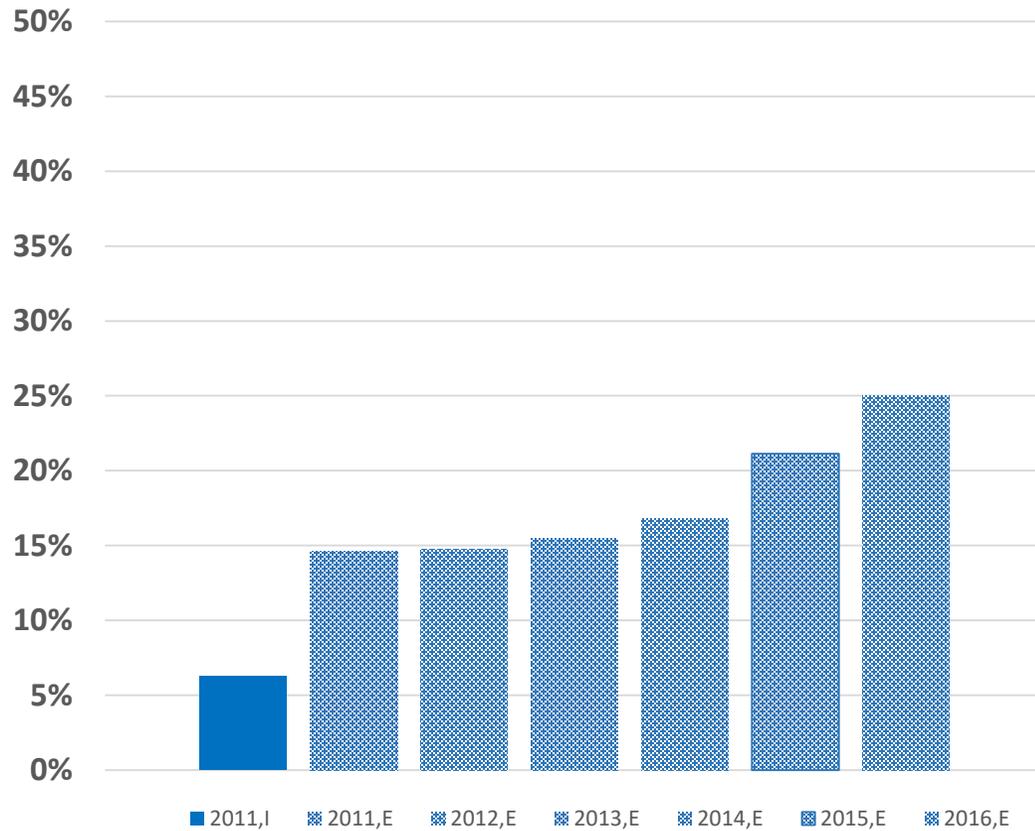


JPMorgan Chase Institute (2018)

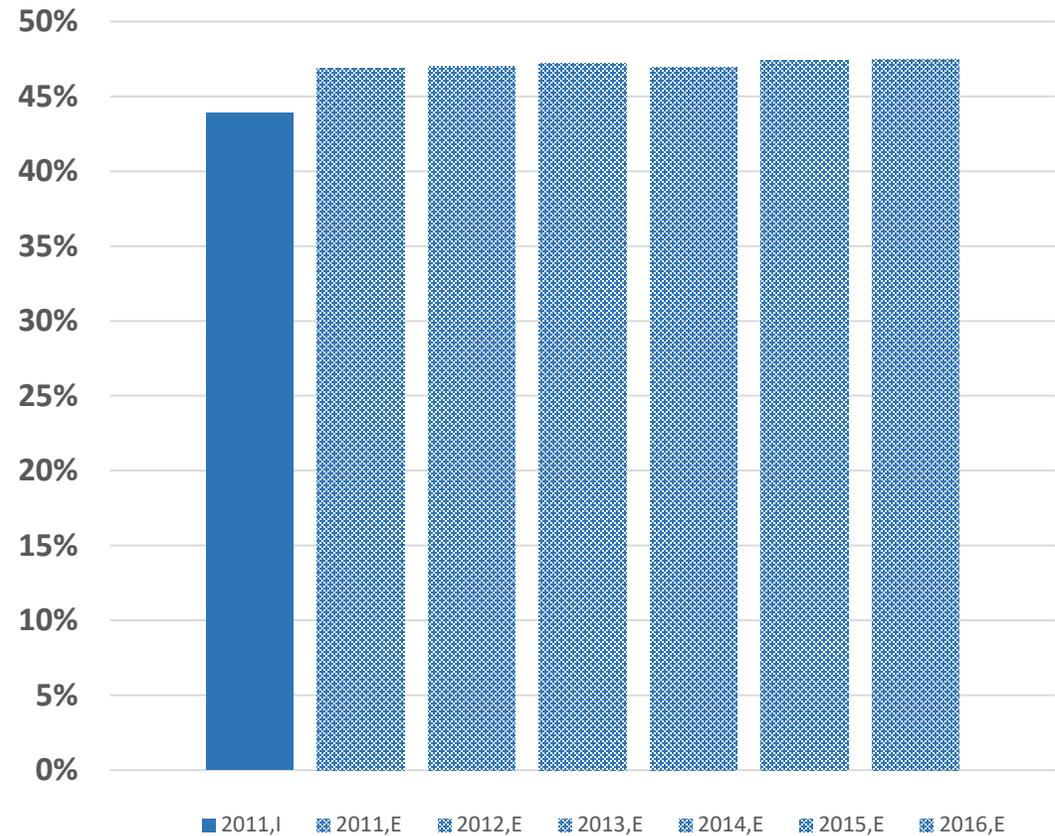


# Percent female, nonemployers in NAICS 4853 and other industries, 2011 incumbents and 2011-2016 entrants

## NAICS 4853



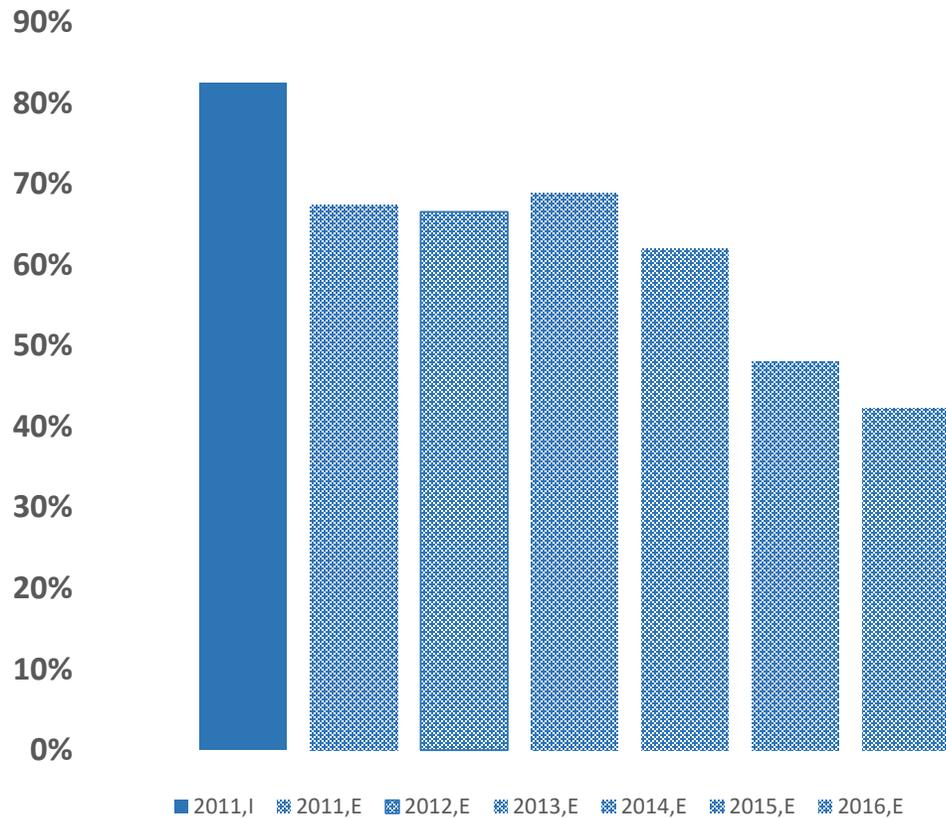
## Other industries



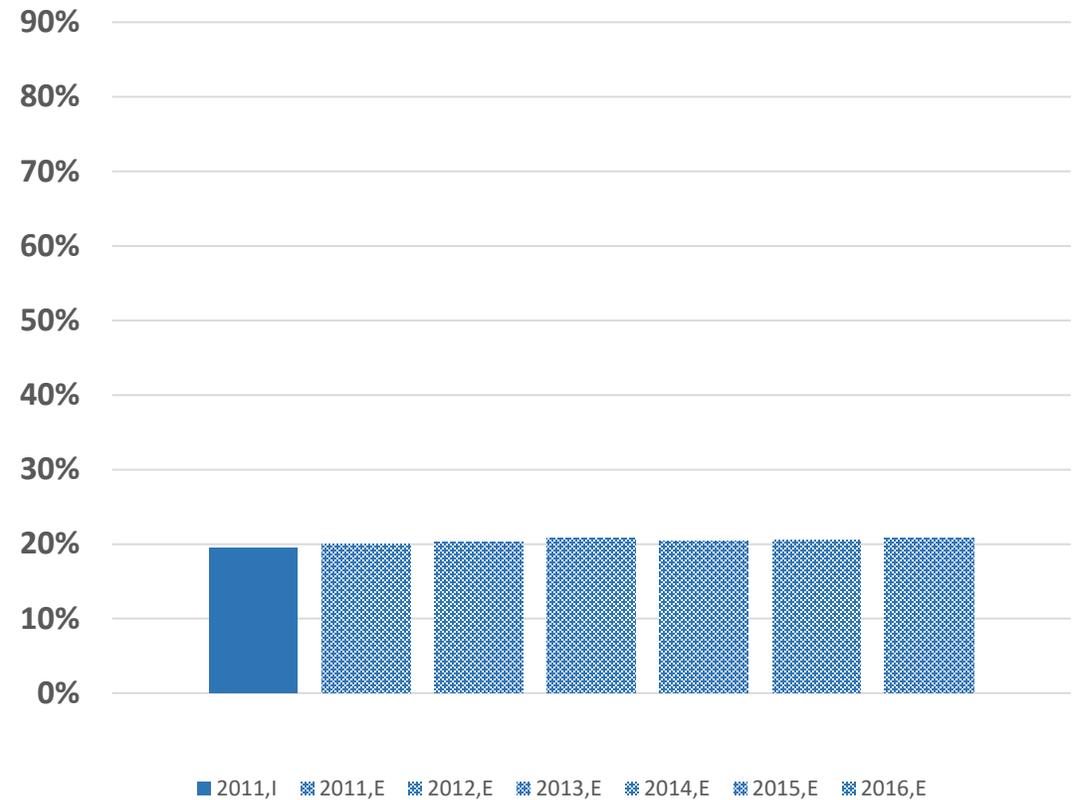
Source: Abraham, Haltiwanger, Sandusky, and Spletzer (2018b)

# Percent nonwhite, nonemployers in NAICS 4853 and other industries, 2011 incumbents and 2011-2016 entrants

## NAICS 4853



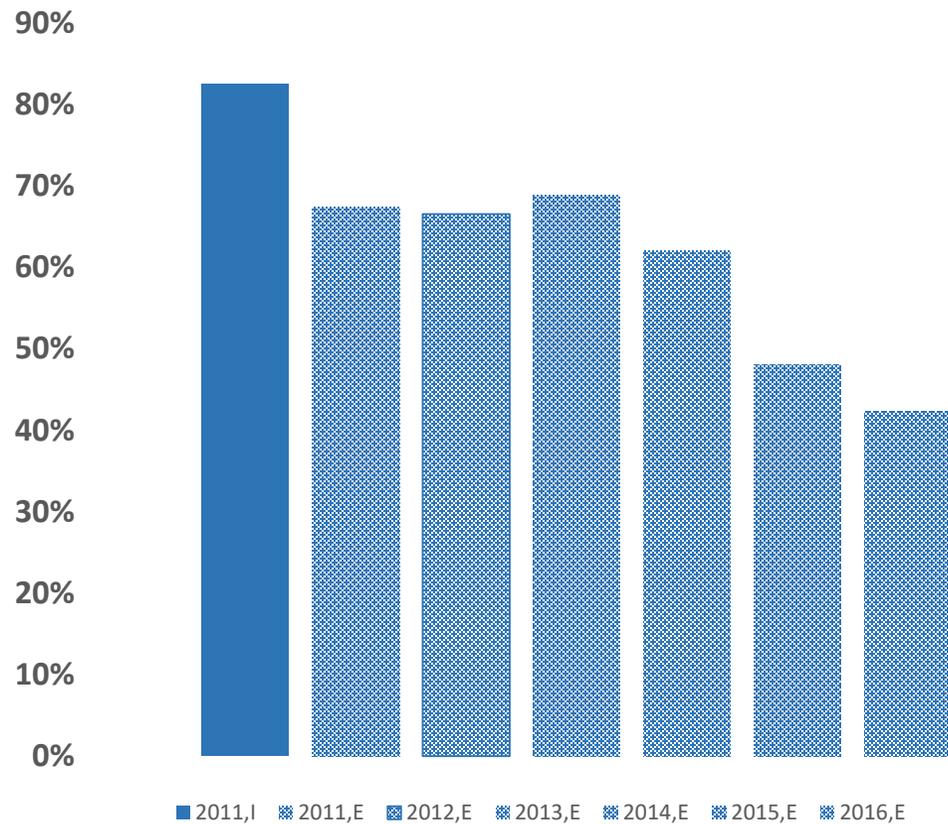
## Other industries



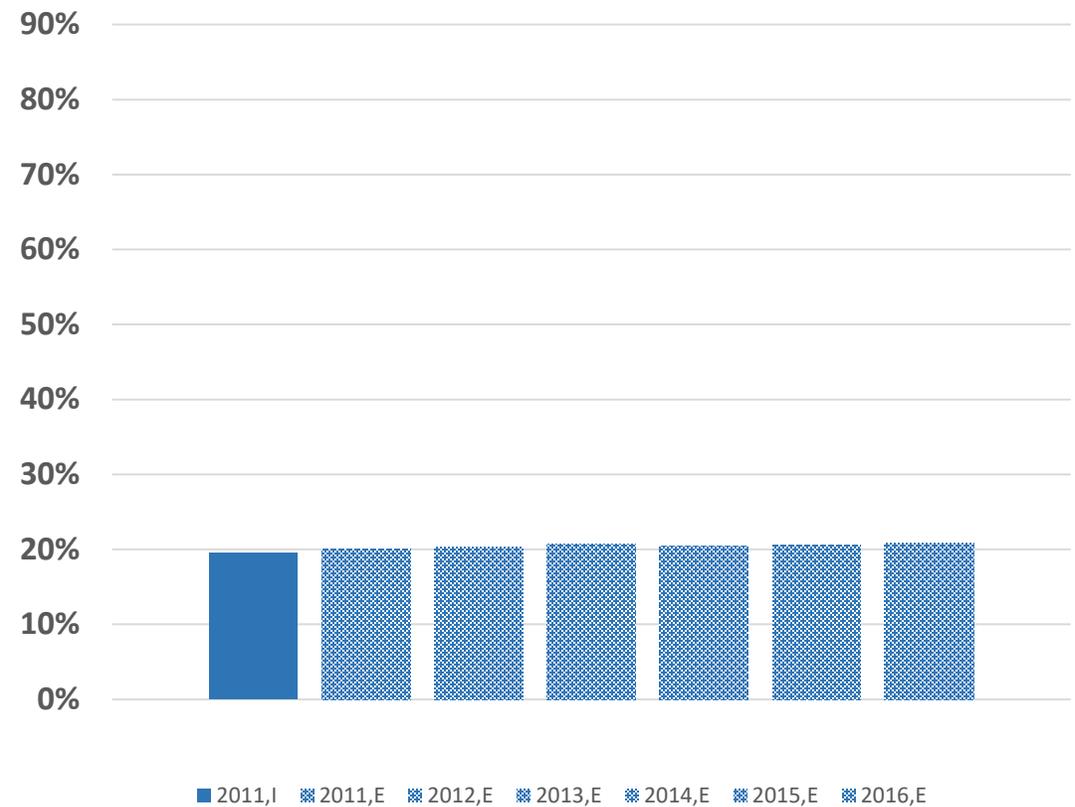
Source: Abraham, Haltiwanger, Sandusky, and Spletzer (2018b)

# Percent foreign born, nonemployers in NAICS 4853 and other industries, 2011 incumbents and 2011-2016 entrants

## NAICS 4853



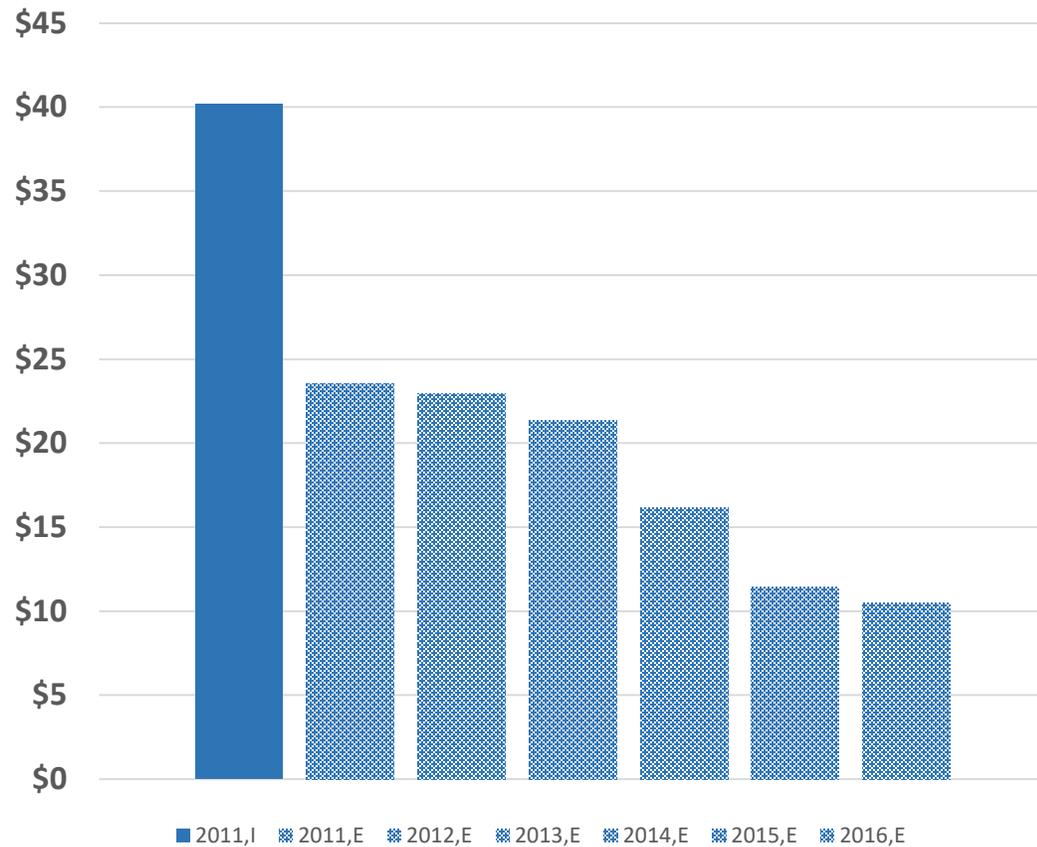
## Other industries



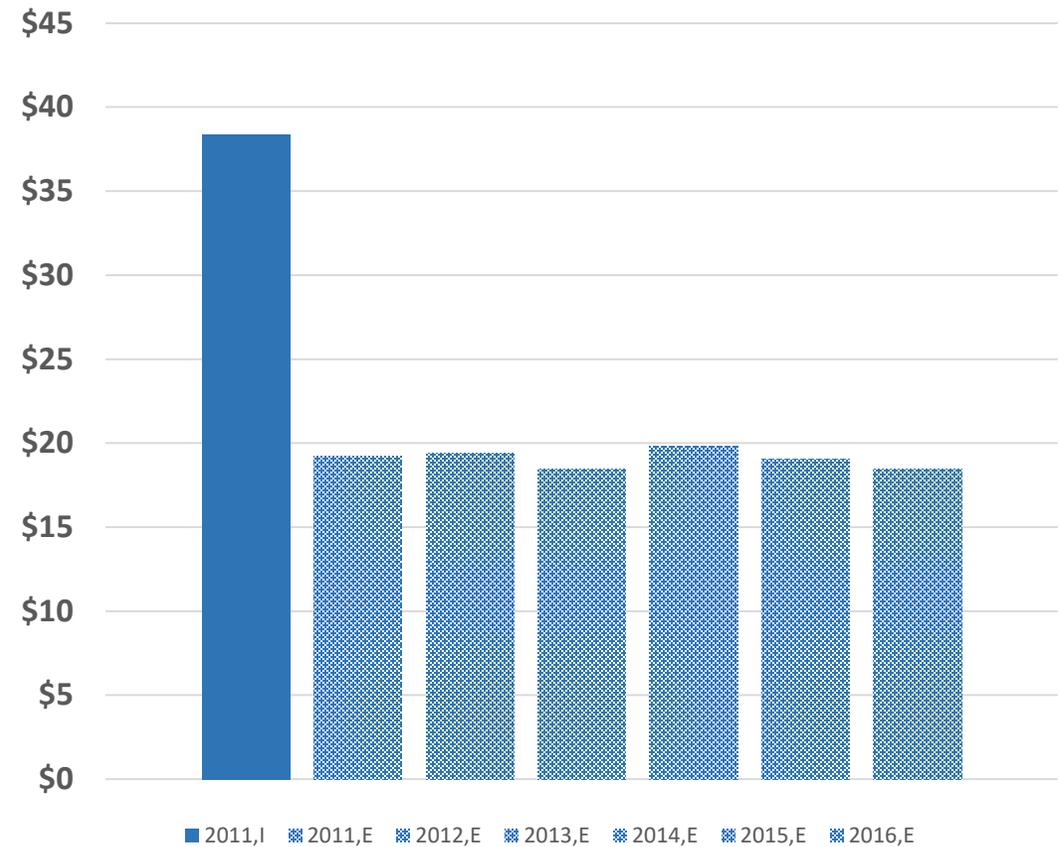
Source: Abraham, Haltiwanger, Sandusky, and Spletzer (2018b)

# Mean gross receipts (2016 \$000s), nonemployers in NAICS 4853 and other industries, 2011 incumbents and 2011-2016 entrants

## NAICS 4853



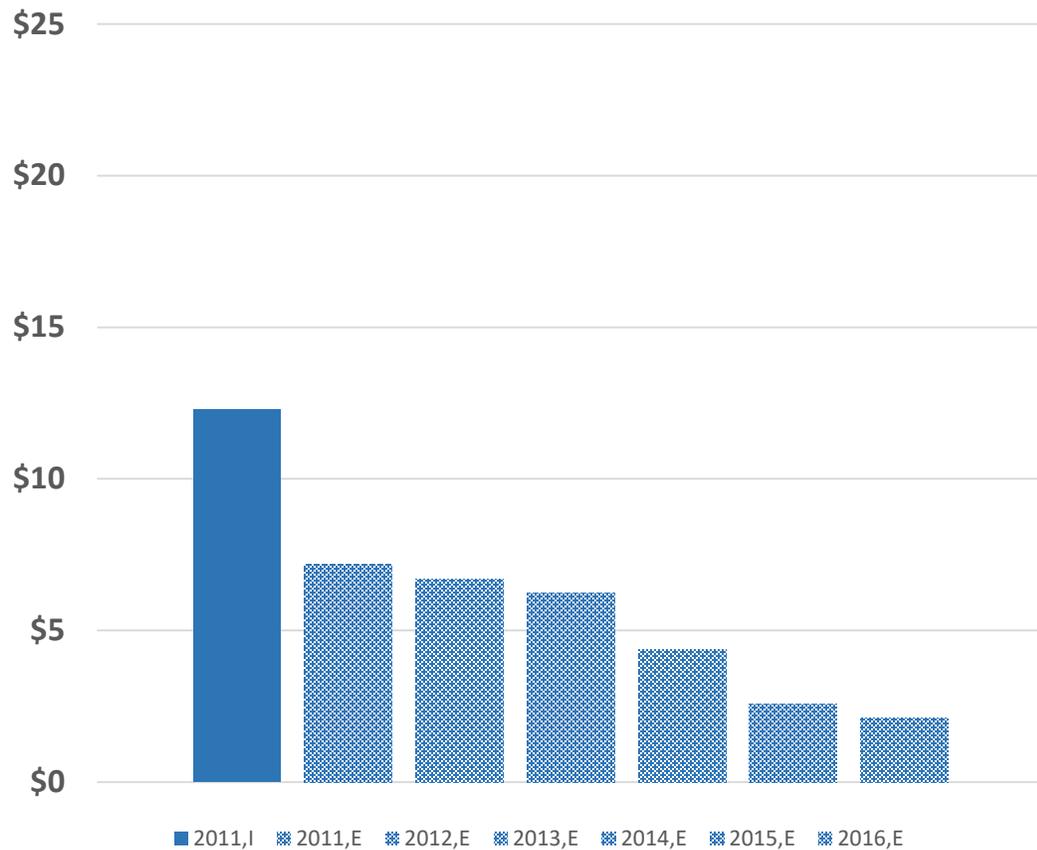
## Other industries



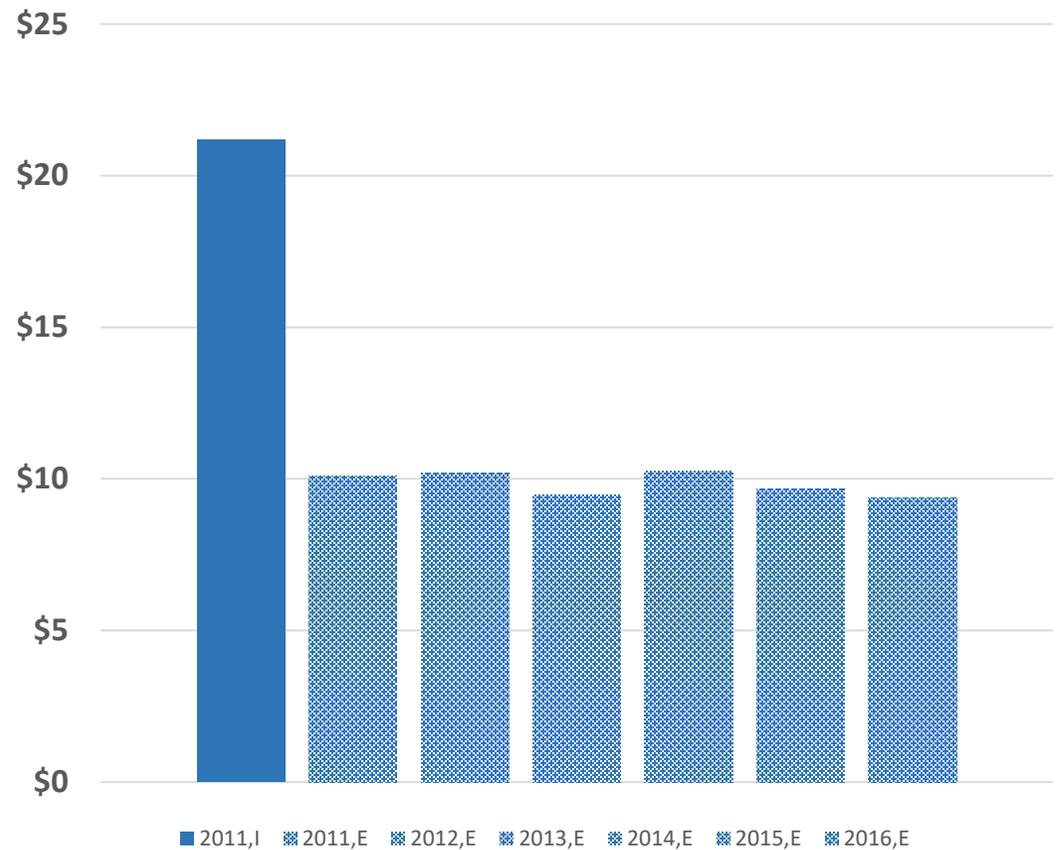
Source: Abraham, Haltiwanger, Sandusky, and Spletzer (2018b)

# Mean net receipts (2016 \$000's), nonemployers in NAICS 4853 and other industries, 2011 incumbents and 2011-2016 entrants

## NAICS 4853



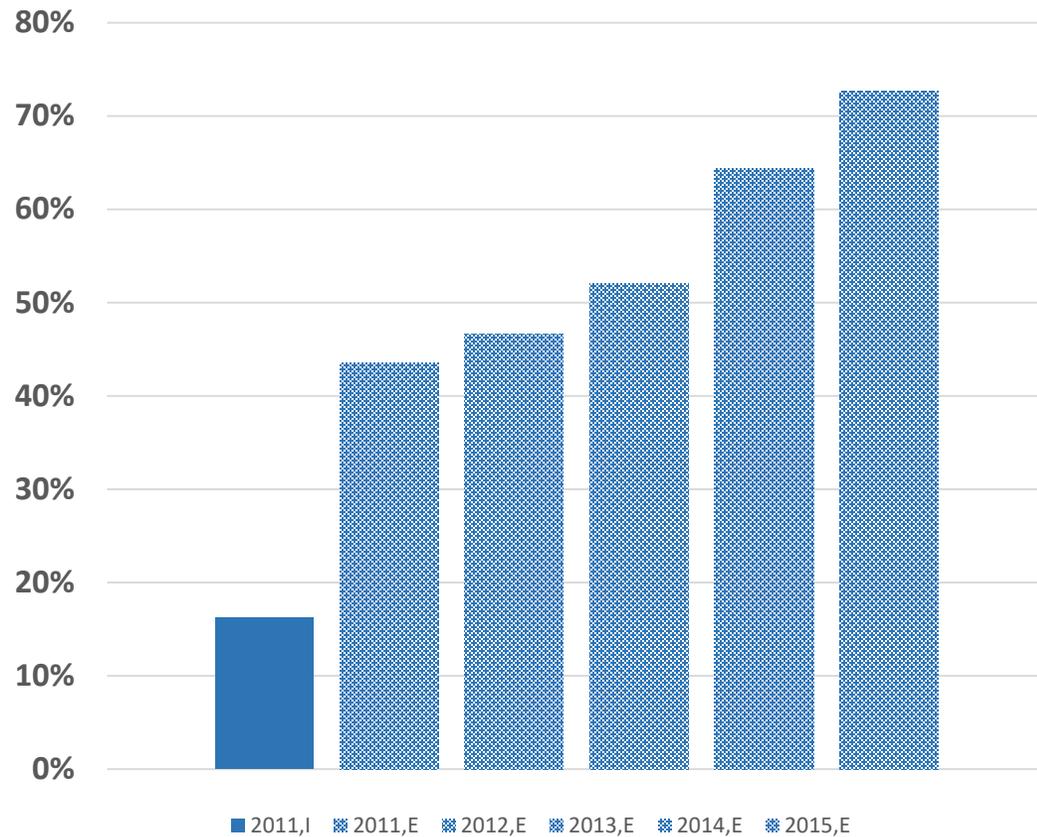
## Other industries



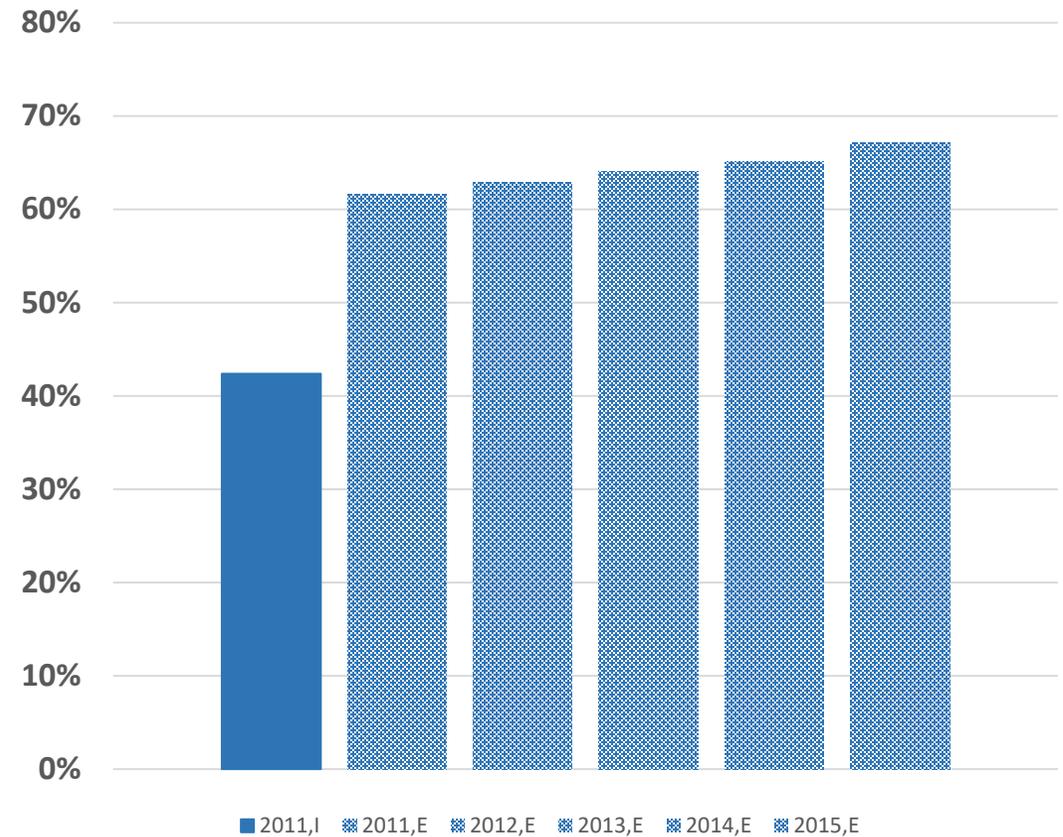
Source: Abraham, Haltiwanger, Sandusky, and Spletzer (2018b)

# Percent with W&S income, nonemployers in NAICS 4853 and other industries, 2011 incumbents and 2011-2016 entrants

## NAICS 4853



## Other industries



Source: Abraham, Haltiwanger, Sandusky, and Spletzer (2018b)

# Effects of Uber entry on local labor markets

- How have incumbent drivers (taxi drivers) been affected?
  - Analysis of nonemployer data shows entry of Uber into a local labor market increases the rate at which incumbent drivers exit, lowers the earnings of those who stay (Abraham, Haltiwanger, Sandusky and Spletzer, work in process)
- How does option to work as a rideshare driver rather than (less flexibly) as a traditional taxi driver affect workers' choices?
  - Multiple studies have found rideshare work (and gig work more generally) helps workers to smooth fluctuations in income from other sources (Farrell and Greig 2016, Koustas 2018)
  - Following entry of Uber into local labor market, sharp increase in probability that workers displaced through a mass layoff enter the taxi and limousine industry (Abraham, Haltiwanger, Sandusky and Spletzer 2018b)

# Evidence on fragmentation and fissuring

- In manufacturing, adoption of computer-aided design and computer-aided manufacturing technologies associated with an increase in contracting out for manufacturing services (Fort 2017)
  - Effects stronger in industries in which production specifications are easier to codify electronically
- Sophisticated logistical and monitoring systems appear to have facilitated fissuring in the retail, hotel, trucking and other sectors (Weil 2014)
  - Companies may offer wages and benefits to their own employees that are quite different from those offered to the employees of subsidiary companies, but absent supporting technology would be more difficult to outsource
- Between 2000 and 2011, establishments became more segregated by occupation (Handwerker and Spletzer 2015)
  - Except at the very top of the occupational distribution, workers in establishments that are more occupationally concentrated have lower earnings

# Issues for policy

- Labor market laws and regulations designed for a world in which most workers have an employer
  - Independent contractors do not enjoy same legal and social insurance protections as employees (e.g., laws prohibiting discrimination in employment, unemployment insurance, workers' compensation)
- In a fissured workplace, a worker may have an employer (the contract firm), but there are other issues
  - Responsibility for ensuring safe working conditions may be diffuse
  - Independent contractors and contract firm employees do not have access to same internal job ladders as workers in the past
    - Example: Janitor working for Kodak in the early 1980s versus janitor working as contract employee at Amazon today

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