

# The Financing and Performance of Young Firms

J. David Brown, U.S. Census Bureau

Steven J. Davis, University of Chicago

John C. Haltiwanger, University of Maryland

Lucia Foster, U.S. Census Bureau

John Sabelhaus, Brookings Institution

Laura Yi Zhao, Bank of Canada

ASSA Meetings

January 9, 2022

# Disclaimers

Any opinions and conclusions expressed herein are those of the authors and do not represent the views of the U.S. Census Bureau, nor the views of the Brookings Institution or its funders, or of the Bank of Canada.

The Census Bureau Disclosure Review Board has cleared the statistics in this presentation for public dissemination (CBDRB-FY22-CES014-008).

# Abstract

Young firms (fewer than 72 months since first paid employee) exhibit strong up or out dynamics and account for a disproportionate share of newly created jobs in the U.S. economy. We integrate multiple Census micro datasets to develop new evidence on the owner characteristics of several hundred thousand young firms, their financing, and their performance:

1. From 2002 to 2016, the share of young firms owned by women rose from 15 to 22 percent, the share owned by non-white or Hispanic persons rose from 10 to 22 percent, and the share owned by persons under 35 fell from 10 to 7 percent.
2. Bank loans, home equity loans, credit cards, and outside investors all play significant roles in the financing of young firms.
3. Reliance on bank loans and home equity loans by young firms fell sharply after the 2008-09 financial crisis.
4. Young firms owned by women and those owned by non-white and Hispanic persons are less likely to survive and grow.
5. Startups with young owners are less likely to survive but more likely to grow rapidly.

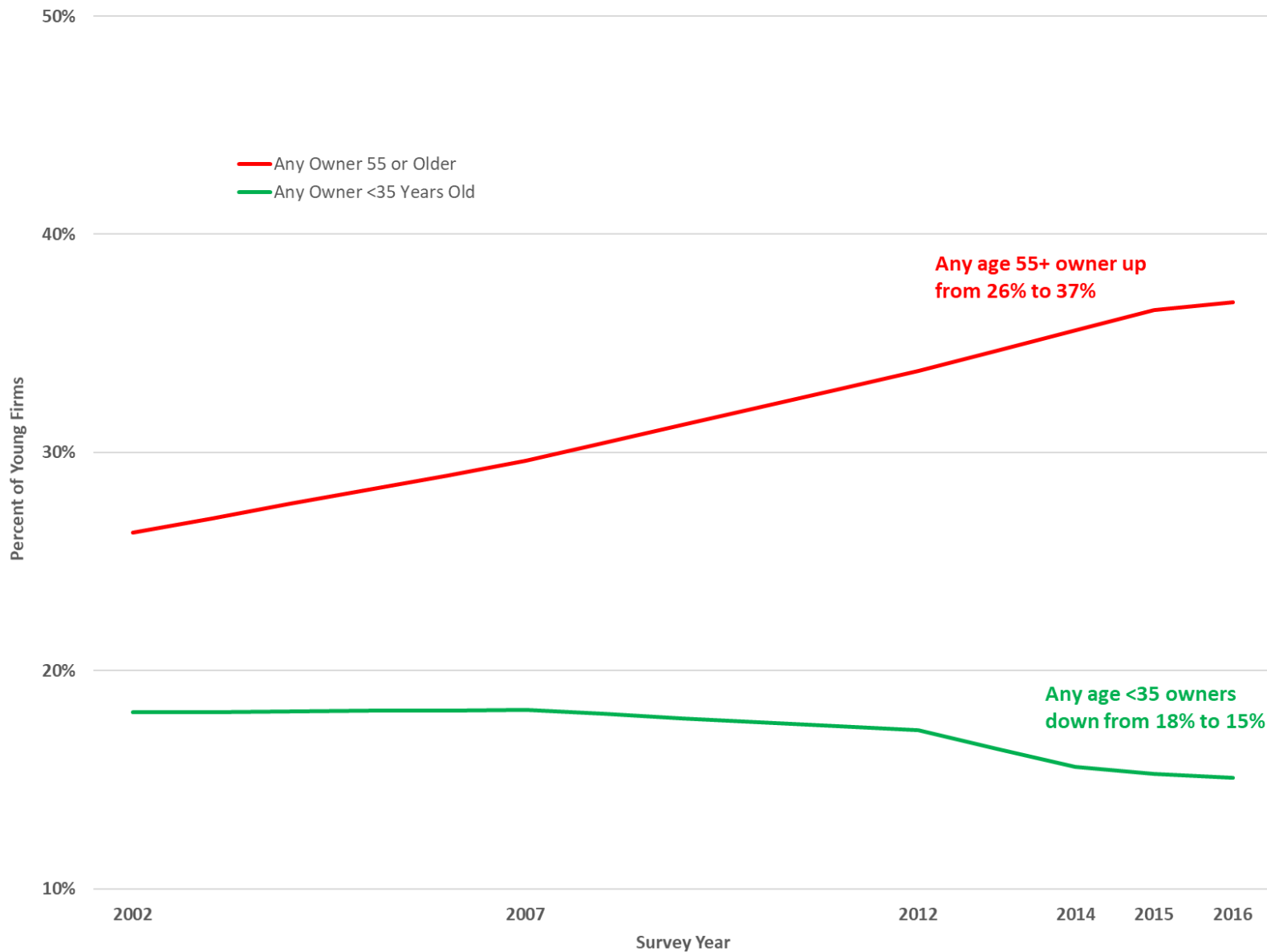
# Overview

- Young firms exhibit rich up or out dynamics – high growth firms disproportionately important (Brown et. al., 2019; Decker et. al., 2016)
- Young firms and economic activity:
  - Young firms account for a falling share of activity since the late 1980s (Davis and Haltiwanger, 2019; Guzman and Stern, 2020)
  - Adverse financial conditions contributed to dramatic declines in young-firm activity during the Great Recession
- Limited understanding of the mechanisms underlying the sensitivity of young firms to financial conditions
- We take steps towards improving our understanding by integrating SBO/ASE data from 2002-2016 on owner characteristics and financing with LBD

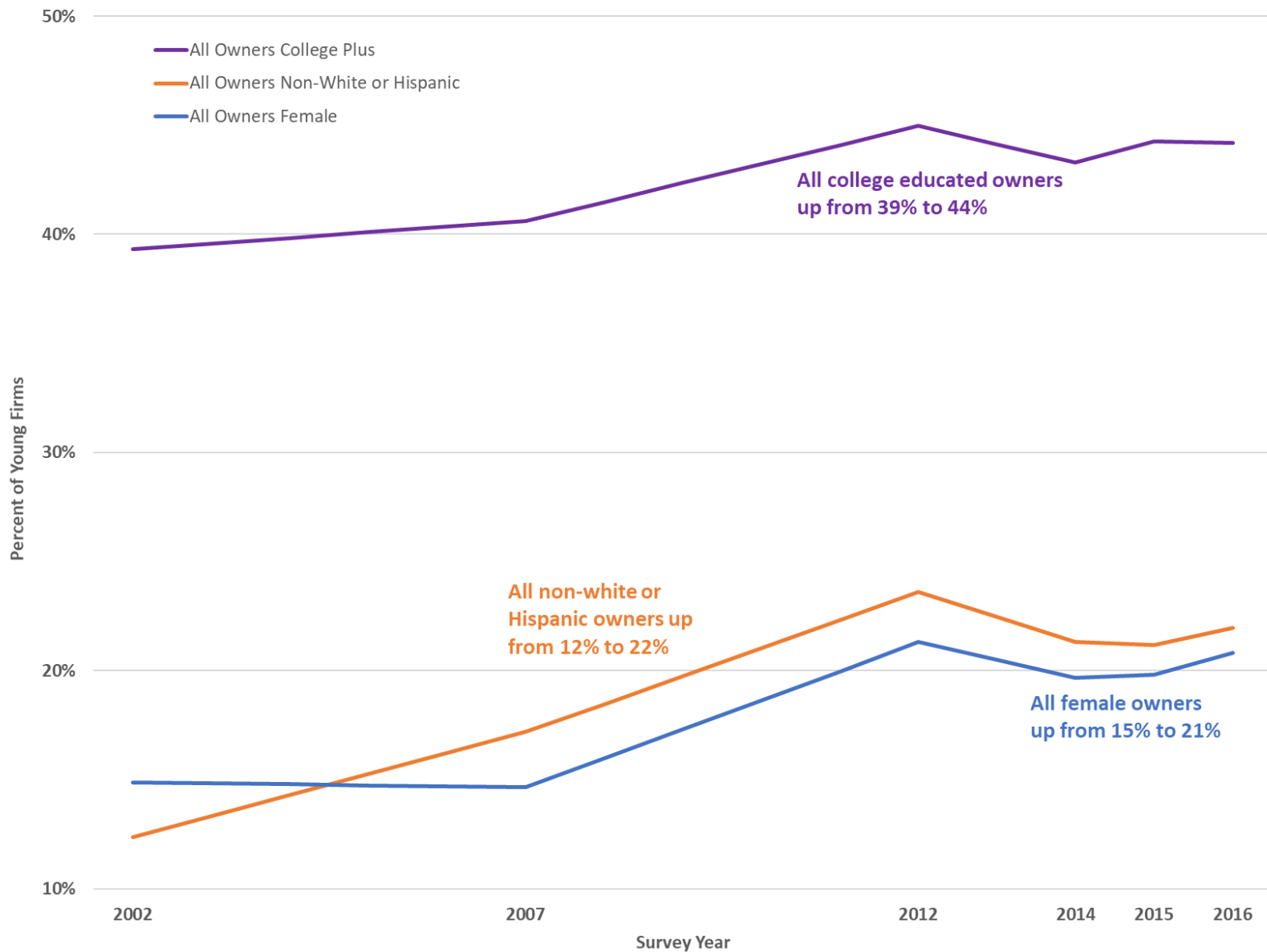
# Business Finance Surveys

- Our data sources are:
  - Survey of Business Owners 2002, 2007, 2012, Annual Survey of Entrepreneurs, 2014, 2015, 2016 ([Foster and Norman, 2017](#))
    - Provides information about owner characteristics such as age, education, gender, race/ethnicity, immigration status
    - Sources of financing (bank loans, credit cards, home equity, outside investor) and Startup capital amounts
  - Longitudinal Business Database (1976-2018)
    - Firm size distribution
    - Post entry dynamics (survival and growth)
- Sample sizes vary by year, total several hundred thousand
- Other SBO/LBD links ([Brown et. al., 2019](#); [Lastrapes, Schmutte, Watson, 2020](#); [Kerr, Kerr, Nanda, 2019](#))
- **Today – basic facts**

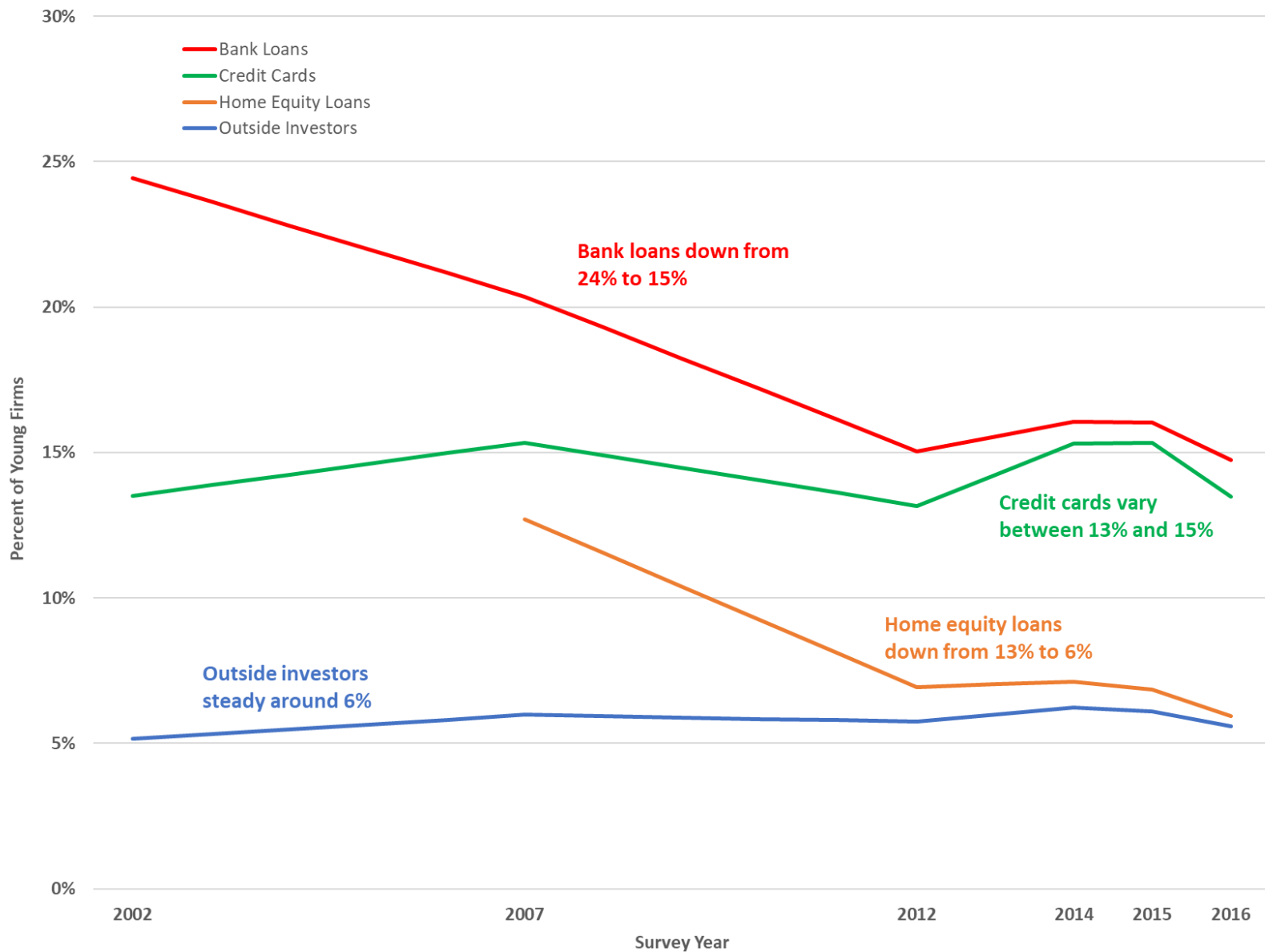
Characteristics of Young Firm Owners, 2002 to 2016



Characteristics of Young Firm Owners, 2002 to 2016



Incidence of Selected Young Firm Start Up Capital Sources, 2002 to 2016



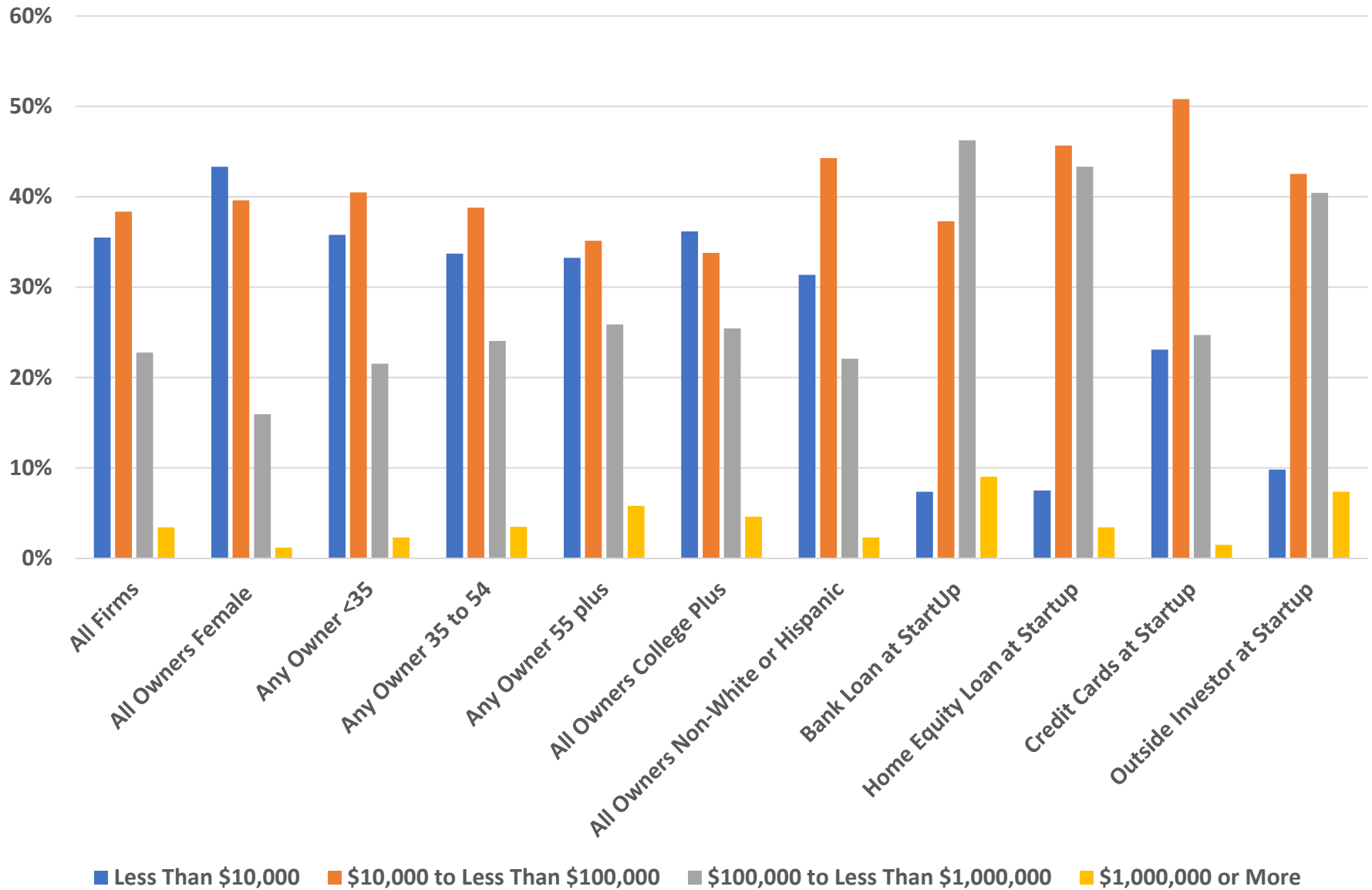


**Table 6. Distribution of Startup Capital Amounts by Firm Size, Young Firms, 2007-2016 Pooled (Percent)**

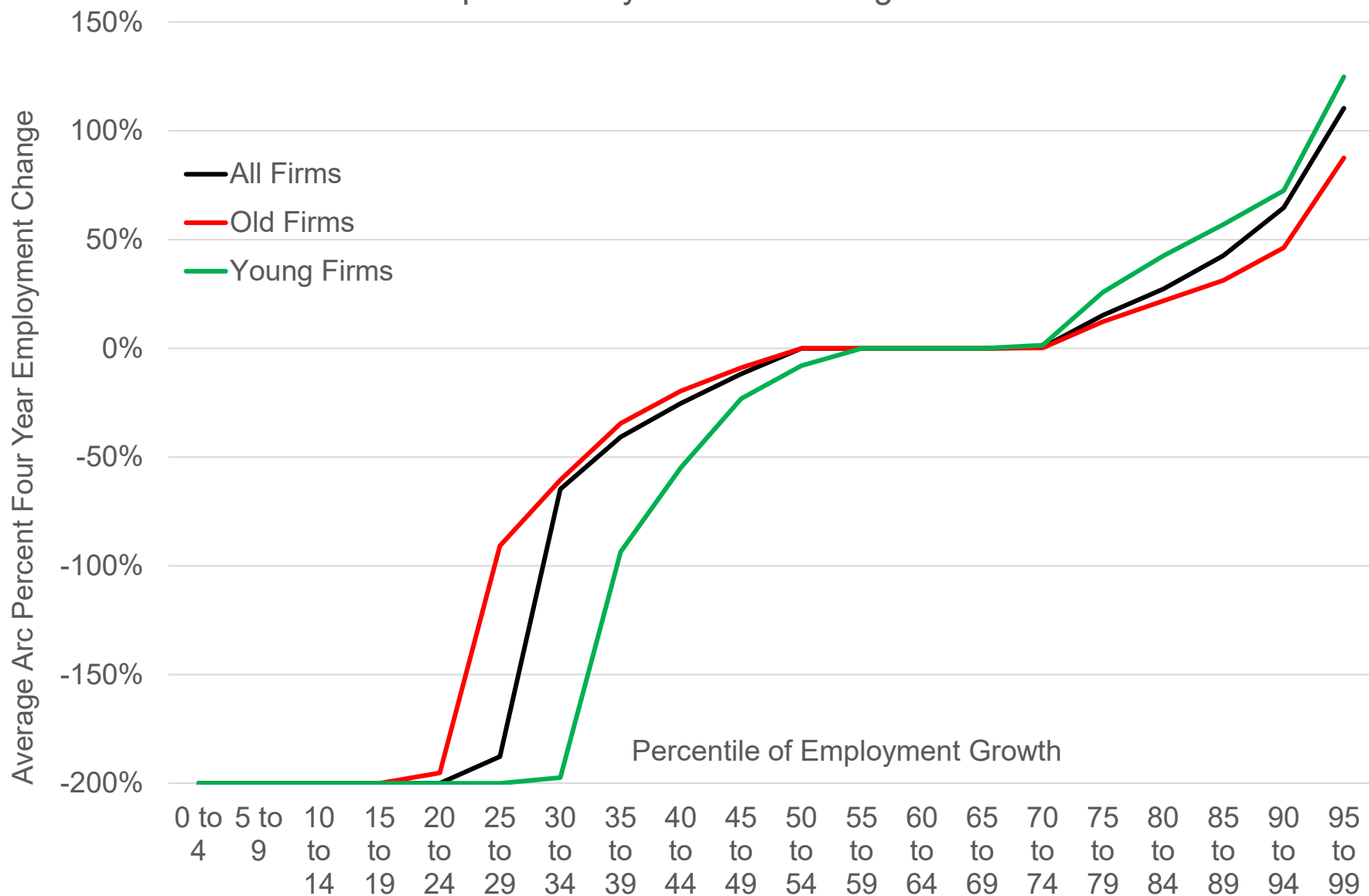
| <b>Firm Age and Size</b> | <b>Less Than \$10,000</b> | <b>\$10,000 to Less Than \$100,000</b> | <b>\$100,000 to Less Than \$1,000,000</b> | <b>\$1,000,000 or More</b> |
|--------------------------|---------------------------|--|---|----------------------------|
| <b>1 Employee</b>        | 52.3                      | 35.9                                   | 10.8                                      | 1.0                        |
| <b>2-4 Employees</b>     | 34.7                      | 43.5                                   | 20.1                                      | 1.7                        |
| <b>5-19 Employees</b>    | 20.9                      | 38.4                                   | 36.3                                      | 4.5                        |
| <b>20-99 Employees</b>   | 16.3                      | 23.6                                   | 42.5                                      | 17.7                       |
| <b>100+ Employees</b>    | 21.3                      | 18.9                                   | 30.3                                      | 29.5                       |
| <b>All Firms</b>         | 35.5                      | 38.4                                   | 22.8                                      | 3.4                        |

**Not unexpectedly, smaller firms at startup report lower startup capital**

## Startup Capital by Owner Characteristics, Young Firms



# Up or Out Dynamics of Young Firms



# Startups with Young Owners Are More Likely to Exit and Experience Slow Growth but also More Likely to Exhibit High Growth



# Young Firms with Female or Non-White or Hispanic Owners Are Less Likely to Survive and Grow

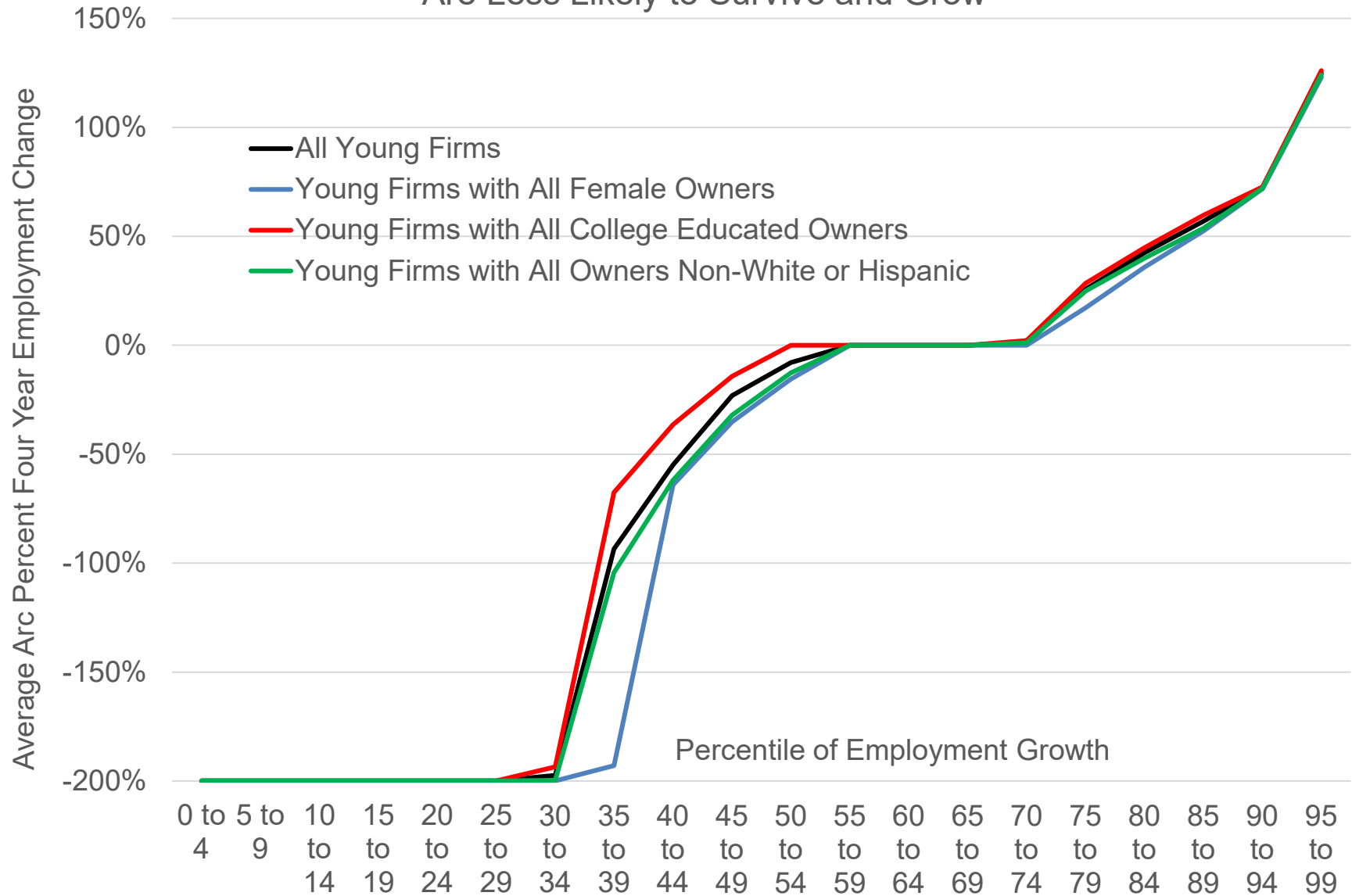


Table 8. Linear Models for the Probability that Young Firms Are in the Top Employment Growth Quartile

|   | (1)                  | (2)                  | (3)                  | (4)                  |
|---|----------------------|----------------------|----------------------|----------------------|
| Independent Variables                                   |                      |                      |                      |                      |
| Any Owner Younger than 35                               | 5.560***<br>(0.256)  | 5.514***<br>(0.254)  | 5.294***<br>(0.255)  | 5.285***<br>(0.254)  |
| Any Owner 55 or Older                                   | -5.042***<br>(0.190) | -5.375***<br>(0.190) | -5.206***<br>(0.190) | -5.019***<br>(0.191) |
| All Owners College Educated or Higher                   | 1.227***<br>(0.180)  | 1.128***<br>(0.180)  | 1.128***<br>(0.180)  | 0.877***<br>(0.198)  |
| All Owners Female                                       | -3.127***<br>(0.231) | -2.103***<br>(0.231) | -2.265***<br>(0.231) | -2.562***<br>(0.236) |
| All Owners Non-White or Hispanic                        | -1.053***<br>(0.228) | -1.464***<br>(0.227) | -1.547***<br>(0.227) | -1.718***<br>(0.230) |
| Firm Had Bank Loan at Start Up                          |                      | 1.303***<br>(0.258)  | 1.543***<br>(0.258)  | 1.178***<br>(0.259)  |
| Firm Had Home Equity Loan at Start Up                   |                      | 0.211<br>(0.328)     | 0.273<br>(0.327)     | 0.264<br>(0.326)     |
| Firm Used Credit Cards to Finance Start Up              |                      | 1.834***<br>(0.262)  | 1.703***<br>(0.262)  | 1.580***<br>(0.262)  |
| Firm Had Outside Investor at Start Up                   |                      | 2.024***<br>(0.395)  | 2.078***<br>(0.394)  | 2.117***<br>(0.394)  |
| Firm Start Up Capital Between \$10,000 and \$100,000    |                      | 7.020***<br>(0.210)  | 7.200***<br>(0.212)  | 7.312***<br>(0.215)  |
| Firm Start Up Capital Between \$100,000 and \$1,000,000 |                      | 9.760***<br>(0.260)  | 10.42***<br>(0.271)  | 10.64***<br>(0.278)  |
| Firm Start Up Capital \$1,000,000 or More               |                      | 9.336***<br>(0.500)  | 10.66***<br>(0.522)  | 11.52***<br>(0.526)  |
| Additional Controls                                     |                      |                      |                      |                      |
| Year Dummies  | Yes                  | Yes                  | Yes                  | Yes                  |
| Interacted Employment Size and Age Class Dummies        |                      |                      | Yes                  | Yes                  |
| Two Digit NAICS Industry Dummies                        |                      |                      |                      | Yes                  |
| Observations  | 329,000              |                      |                      |                      |
| R-Squared   | 0.013                | 0.024                | 0.026                | 0.030                |
| Robust standard errors in parentheses                   |                      |                      |                      |                      |
| *** p<0.01, ** p<0.05, * p<0.1                          |                      |                      |                      |                      |

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|---|----------------------|----------------------|----------------------|----------------------|
| <b>Independent Variables</b>                            |                      |                      |                      |                      |
| Any Owner Younger than 35                               | 5.560***<br>(0.256)  | 5.514***<br>(0.254)  | 5.294***<br>(0.255)  | 5.285***<br>(0.254)  |
| Any Owner 55 or Older                                   | -5.042***<br>(0.190) | -5.375***<br>(0.190) | -5.206***<br>(0.190) | -5.019***<br>(0.191) |
| All Owners College Educated or Higher                   | 1.227***<br>(0.180)  | 1.128***<br>(0.180)  | 1.128***<br>(0.180)  | 0.877***<br>(0.198)  |
| All Owners Female                                       | -3.127***<br>(0.231) | -2.103***<br>(0.231) | -2.265***<br>(0.231) | -2.562***<br>(0.236) |
| All Owners Non-White or Hispanic                        | -1.053***<br>(0.228) | -1.464***<br>(0.227) | -1.547***<br>(0.227) | -1.718***<br>(0.230) |
| Firm Had Bank Loan at Start Up                          |                      | 1.303***<br>(0.258)  | 1.543***<br>(0.258)  | 1.178***<br>(0.259)  |
| Firm Had Home Equity Loan at Start Up                   |                      | 0.211<br>(0.328)     | 0.273<br>(0.327)     | 0.264<br>(0.326)     |
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| Firm Start Up Capital Between \$100,000 and \$1,000,000 |                      | 9.760***<br>(0.260)  | 10.42***<br>(0.271)  | 10.64***<br>(0.278)  |
| Firm Start Up Capital \$1,000,000 or More               |                      | 9.336***<br>(0.500)  | 10.66***<br>(0.522)  | 11.52***<br>(0.526)  |
| <b>Additional Controls</b>                              |                      |                      |                      |                      |
| Year Dummies  | Yes                  | Yes                  | Yes                  | Yes                  |
| Interacted Employment Size and Age Class Dummies        |                      |                      | Yes                  | Yes                  |
| Two Digit NAICS Industry Dummies                        |                      |                      |                      | Yes                  |
| <b>Observations</b>                                     |                      |                      |                      |                      |
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Robust standard errors in parentheses

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# Summary

- Survival and growth of young firms:
  - Higher growth when business owners are: College educated, Age<35, and have Credit Card Financing, Bank Loan Financing, Outside Financing or Large Startup Capital
    - Age<35 owners also more likely to fail
  - Lower with business owners: Females, Non-white Hispanic
- Home equity and bank loan financing declines post Great Recession
- Over 2002-16: Age<35 business owners decline, age 55+, female, and minority owners increase
- Future Steps: Financing and Dynamism Diminished? Causal inference. Add more recent data from the Annual Business Survey.

# Additional Slides

**Table 1. Owner Demographics by Survey Year (Percent)**

|   |             | <b>2002</b> | <b>SBO<br/>2007</b> | <b>2012</b> | <b>2014</b> | <b>ASE<br/>2015</b> | <b>2016</b> |
|---|-------------|-------------|---------------------|-------------|-------------|---------------------|-------------|
| <b>All Owners Female</b>                |             |             |                     |             |             |                     |             |
|   | All Firms   | 12.4        | 12.1                | 17.2        | 15.0        | 15.2                | 15.9        |
|   | Young Firms | 14.9        | 14.7                | 21.3        | 19.7        | 19.8                | 20.8        |
|   | Old Firms   | 11.0        | 10.6                | 15.5        | 13.2        | 13.4                | 13.9        |
| <b>Any Owner &lt;35</b>                 |             |             |                     |             |             |                     |             |
|   | All Firms   | 9.5         | 9.5                 | 8.2         | 7.1         | 7.0                 | 6.9         |
|   | Young Firms | 18.1        | 18.2                | 17.3        | 15.6        | 15.3                | 15.1        |
|   | Old Firms   | 4.8         | 4.7                 | 4.4         | 3.7         | 3.6                 | 3.5         |
| <b>Any Owner 35 to 54</b>               |             |             |                     |             |             |                     |             |
|   | All Firms   | 66.2        | 63.1                | 55.7        | 52.5        | 51.3                | 50.3        |
|   | Young Firms | 71.9        | 70.3                | 65.1        | 64.0        | 63.5                | 62.7        |
|   | Old Firms   | 63.0        | 59.1                | 51.8        | 48.0        | 46.4                | 45.0        |
| <b>Any Owner 55 plus</b>                |             |             |                     |             |             |                     |             |
|   | All Firms   | 40.7        | 45.8                | 52.4        | 54.9        | 56.5                | 57.4        |
|   | Young Firms | 26.3        | 29.6                | 33.7        | 35.6        | 36.5                | 36.9        |
|   | Old Firms   | 48.4        | 54.7                | 60.1        | 62.7        | 64.7                | 65.9        |
| <b>All Owners College Plus</b>          |             |             |                     |             |             |                     |             |
|   | All Firms   | 40.1        | 40.8                | 44.1        | 43.4        | 44.0                | 43.7        |
|   | Young Firms | 39.3        | 40.6                | 45.0        | 43.3        | 44.3                | 44.2        |
|   | Old Firms   | 40.5        | 40.9                | 43.7        | 43.5        | 43.9                | 43.5        |
| <b>All Owners Non-White or Hispanic</b> |             |             |                     |             |             |                     |             |
|   | All Firms   | 9.5         | 12.9                | 17.4        | 15.0        | 15.3                | 15.8        |
|   | Young Firms | 12.4        | 17.2                | 23.6        | 21.3        | 21.2                | 22.0        |
|   | Old Firms   | 7.9         | 10.6                | 14.8        | 12.5        | 12.8                | 13.2        |
| <b>Any Owner Immigrant</b>              |             |             |                     |             |             |                     |             |
|   | All Firms   |             | 16.8                | 18.6        | 16.4        | 16.9                | 16.6        |
|   | Young Firms |             | 21.3                | 24.6        | 21.6        | 22.3                | 21.9        |
|   | Old Firms   |             | 14.3                | 16.2        | 14.3        | 14.7                | 14.4        |

**Table 2a. Business Financing Variables by Survey Year (Percent)**

|  | <b>SBO</b>  |             |             | <b>ASE</b>  |             |             |
|--|-------------|-------------|-------------|-------------|-------------|-------------|
|  | <b>2002</b> | <b>2007</b> | <b>2012</b> | <b>2014</b> | <b>2015</b> | <b>2016</b> |
| <b>Incidence of Bank Loans at Startup</b>        |             |             |             |             |             |             |
| All Firms  | 25.3        | 21.2        | 18.0        | 20.0        | 19.7        | 18.4        |
| Young Firms                                      | 24.4        | 20.4        | 15.1        | 16.1        | 16.0        | 14.8        |
| Old Firms  | 25.8        | 21.6        | 19.3        | 21.6        | 21.2        | 19.9        |
| <b>Incidence of Home Equity Loans at Startup</b> |             |             |             |             |             |             |
| All Firms  |             | 8.6         | 6.7         | 7.8         | 7.6         | 6.8         |
| Young Firms                                      |             | 12.7        | 6.9         | 7.1         | 6.9         | 6.0         |
| Old Firms  |             | 6.3         | 6.6         | 8.0         | 7.8         | 7.1         |
| <b>Incidence of Credit Cards at Startup</b>      |             |             |             |             |             |             |
| All Firms  | 9.0         | 10.4        | 10.1        | 12.4        | 12.4        | 11.1        |
| Young Firms                                      | 13.5        | 15.3        | 13.2        | 15.3        | 15.3        | 13.5        |
| Old Firms  | 6.6         | 7.6         | 8.8         | 11.3        | 11.2        | 10.1        |
| <b>Incidence of Outside Investor at Startup</b>  |             |             |             |             |             |             |
| All Firms  | 4.5         | 5.7         | 5.2         | 5.9         | 5.7         | 5.2         |
| Young Firms                                      | 5.2         | 6.0         | 5.8         | 6.2         | 6.1         | 5.6         |
| Old Firms  | 4.2         | 5.6         | 4.9         | 5.8         | 5.6         | 5.0         |

**Table 2b. Additional Business Finance Variables by Survey Year (Percent)**

|   |             | <b>SBO</b>  |             |             | <b>ASE</b>  |             |
|---|-------------|-------------|-------------|-------------|-------------|-------------|
|   | <b>2002</b> | <b>2007</b> | <b>2012</b> | <b>2014</b> | <b>2015</b> | <b>2016</b> |
| <b>Startup Capital \$10,000 to &lt;\$100,000</b>    |             |             |             |             |             |             |
| All Firms   |             | 36.4        | 37.5        | 39.3        | 39.0        | 38.1        |
| Young Firms   |             | 36.3        | 37.6        | 40.3        | 39.7        | 38.4        |
| Old Firms   |             | 36.5        | 37.5        | 38.8        | 38.7        | 38.1        |
| <b>Startup Capital \$100,000 to &lt;\$1,000,000</b> |             |             |             |             |             |             |
| All Firms   |             | 21.7        | 20.6        | 21.7        | 21.9        | 21.5        |
| Young Firms   |             | 25.3        | 22.0        | 21.8        | 22.2        | 21.7        |
| Old Firms   |             | 19.5        | 20.0        | 21.6        | 21.8        | 21.4        |
| <b>Startup Capital \$1,000,000 plus</b>             |             |             |             |             |             |             |
| All Firms   |             | 3.0         | 2.9         | 3.0         | 3.1         | 3.0         |
| Young Firms   |             | 3.7         | 3.2         | 3.3         | 3.4         | 3.3         |
| Old Firms   |             | 2.6         | 2.8         | 2.8         | 2.9         | 2.9         |

**Table 3. Firm Size Distribution by Survey Year (Percent)**

|                        |             | <b>SBO</b>  |             |             | <b>ASE</b>  |             |             |
|------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
|                        |             | <b>2002</b> | <b>2007</b> | <b>2012</b> | <b>2014</b> | <b>2015</b> | <b>2016</b> |
| <b>1 Employee</b>      |             |             |             |             |             |             |             |
|                        | All Firms   | 20.8        | 23.1        | 23.5        | 23.5        | 23.5        | 23.7        |
|                        | Young Firms | 26.6        | 29.6        | 30.1        | 30.6        | 30.8        | 31.2        |
|                        | Old Firms   | 17.6        | 19.5        | 20.7        | 20.7        | 20.6        | 20.7        |
| <b>2-4 Employees</b>   |             |             |             |             |             |             |             |
|                        | All Firms   | 34.1        | 32.6        | 33.3        | 33.3        | 33.1        | 32.8        |
|                        | Young Firms | 36.7        | 34.3        | 35.1        | 35.5        | 35.3        | 35.1        |
|                        | Old Firms   | 32.6        | 31.7        | 32.5        | 32.5        | 32.2        | 31.9        |
| <b>5-19 Employees</b>  |             |             |             |             |             |             |             |
|                        | All Firms   | 32.9        | 32.2        | 31.5        | 31.5        | 31.5        | 31.5        |
|                        | Young Firms | 28.2        | 27.2        | 26.3        | 26.2        | 26.1        | 26.1        |
|                        | Old Firms   | 35.4        | 34.9        | 33.6        | 33.6        | 33.7        | 33.8        |
| <b>20-99 Employees</b> |             |             |             |             |             |             |             |
|                        | All Firms   | 10.3        | 10.1        | 9.8         | 9.7         | 9.8         | 10.0        |
|                        | Young Firms | 7.3         | 7.5         | 7.2         | 6.5         | 6.6         | 6.6         |
|                        | Old Firms   | 11.9        | 11.6        | 10.9        | 11.0        | 11.2        | 11.3        |
| <b>100+ Employees</b>  |             |             |             |             |             |             |             |
|                        | All Firms   | 2.0         | 2.0         | 2.0         | 1.9         | 2.0         | 2.0         |
|                        | Young Firms | 1.3         | 1.4         | 1.3         | 1.2         | 1.2         | 1.1         |
|                        | Old Firms   | 2.4         | 2.4         | 2.3         | 2.3         | 2.3         | 2.4         |



**Table 4A. Distribution of StartUp Capital Amounts by Owner Characteristics and Startup Funding Sources, 2007-2016  
Pooled (Percent)**

| <b>Firm Age and Size</b>                  | <b>All Firms</b> | <b>All Owners<br/>Female</b> | <b>Any Owner<br/>&lt;35</b> | <b>Any Owner<br/>35 to 54</b> | <b>Any Owner<br/>55 plus</b> | <b>All Owners<br/>College<br/>Plus</b> | <b>All Owners<br/>Non-White<br/>or Hispanic</b> |
|---|------------------|------------------------------|-----------------------------|-------------------------------|------------------------------|--|---|
| <b>All Firms</b>                          |                  |                              |                             |                               |                              |  |   |
| <b>Less Than \$10,000</b>                 | 37.5             | 43.8                         | 35.3                        | 34.9                          | 37.8                         | 36.7                                   | 31.2  |
| <b>\$10,000 to Less Than \$100,000</b>    | 38.1             | 38.7                         | 39.1                        | 38.2                          | 37.0                         | 35.3                                   | 43.1  |
| <b>\$100,000 to Less Than \$1,000,000</b> | 21.5             | 16.3                         | 22.6                        | 23.6                          | 21.5                         | 24.1                                   | 23.4  |
| <b>\$1,000,000 or More</b>                | 3.0              | 1.3                          | 2.9                         | 3.3                           | 3.7                          | 3.9                                    | 2.4   |
| <b>Young Firms</b>                        |                  |                              |                             |                               |                              |  |   |
| <b>Less Than \$10,000</b>                 | 35.5             | 43.3                         | 35.8                        | 33.7                          | 33.2                         | 36.2                                   | 31.4  |
| <b>\$10,000 to Less Than \$100,000</b>    | 38.4             | 39.6                         | 40.5                        | 38.8                          | 35.1                         | 33.8                                   | 44.3  |
| <b>\$100,000 to Less Than \$1,000,000</b> | 22.8             | 15.9                         | 21.5                        | 24.0                          | 25.9                         | 25.4                                   | 22.1  |
| <b>\$1,000,000 or More</b>                | 3.4              | 1.2                          | 2.3                         | 3.5                           | 5.8                          | 4.6                                    | 2.3   |
| <b>Old Firms</b>                          |                  |                              |                             |                               |                              |  |   |
| <b>Less Than \$10,000</b>                 | 38.4             | 44.1                         | 34.4                        | 35.6                          | 39.0                         | 36.9                                   | 31.1  |
| <b>\$10,000 to Less Than \$100,000</b>    | 37.9             | 38.1                         | 36.7                        | 37.8                          | 37.5                         | 36.0                                   | 42.1  |
| <b>\$100,000 to Less Than \$1,000,000</b> | 20.9             | 16.5                         | 24.7                        | 23.4                          | 20.4                         | 23.5                                   | 24.4  |
| <b>\$1,000,000 or More</b>                | 2.8              | 1.3                          | 4.3                         | 3.2                           | 3.1                          | 3.6                                    | 2.4   |

**Table 4B. Distribution of Startup Capital Amounts by Owner Characteristics and Startup Funding Sources, 2007-2016 Pooled (Percent)**

| <b>Firm Age and Size</b>                  | <b>All Firms</b> | <b>Bank Loan<br/>at StartUp</b> | <b>Home<br/>Equity<br/>Loan at<br/>Startup</b> | <b>Credit<br/>Cards at<br/>Startup</b> | <b>Outside<br/>Investor at<br/>Startup</b> |
|---|------------------|---------------------------------|--|--|--|
| <b>All Firms</b>                          |                  |                                 |  |  |  |
| <b>Less Than \$10,000</b>                 | 37.5             | 9.4                             | 8.5  | 24.9                                   | 11.4                                       |
| <b>\$10,000 to Less Than \$100,000</b>    | 38.1             | 40.8                            | 47.2   | 49.6                                   | 42.5                                       |
| <b>\$100,000 to Less Than \$1,000,000</b> | 21.5             | 42.5                            | 41.0   | 24.1                                   | 39.5                                       |
| <b>\$1,000,000 or More</b>                | 3.0              | 7.3                             | 3.4  | 1.6                                    | 6.7  |
| <b>Young Firms</b>                        |                  |                                 |  |  |  |
| <b>Less Than \$10,000</b>                 | 35.5             | 7.4                             | 7.5  | 23.1                                   | 9.8  |
| <b>\$10,000 to Less Than \$100,000</b>    | 38.4             | 37.3                            | 45.7   | 50.8                                   | 42.5                                       |
| <b>\$100,000 to Less Than \$1,000,000</b> | 22.8             | 46.2                            | 43.3   | 24.7                                   | 40.4                                       |
| <b>\$1,000,000 or More</b>                | 3.4              | 9.0                             | 3.4  | 1.5                                    | 7.4  |
| <b>Old Firms</b>                          |                  |                                 |  |  |  |
| <b>Less Than \$10,000</b>                 | 38.4             | 10.2                            | 9.0  | 26.0                                   | 12.2                                       |
| <b>\$10,000 to Less Than \$100,000</b>    | 37.9             | 42.1                            | 48.0   | 48.8                                   | 42.4                                       |
| <b>\$100,000 to Less Than \$1,000,000</b> | 20.9             | 41.1                            | 39.7   | 23.6                                   | 39.1                                       |
| <b>\$1,000,000 or More</b>                | 2.8              | 6.6                             | 3.3  | 1.6                                    | 6.3  |

**Table 5A. Owner Characteristics and Financing Sources by Firm Size, 2007-2016  
Pooled (Percent)**

| <b>Firm Age and Size</b> | <b>All Firms</b> | <b>All Owners Female</b> | <b>Any Owner &lt;35</b> | <b>Any Owner 35 to 54</b> | <b>Any Owner 55 plus</b> | <b>All Owners College Plus</b> | <b>All Owners Non-White or Hispanic</b> |
|--------------------------|------------------|--------------------------|-------------------------|---------------------------|--------------------------|--------------------------------|---|
| <b>All Firms</b>         |                  |                          |                         |                           |                          |                                |   |
| <b>1 Employee</b>        | 23.5             | 19.8                     | 7.8                     | 50.5                      | 49.3                     | 44.8                           | 15.8                                    |
| <b>2-4 Employees</b>     | 33.0             | 15.7                     | 8.1                     | 53.2                      | 51.4                     | 40.4                           | 17.6                                    |
| <b>5-19 Employees</b>    | 31.6             | 13.3                     | 7.7                     | 57.2                      | 54.2                     | 42.6                           | 14.3                                    |
| <b>20-99 Employees</b>   | 9.9              | 9.0                      | 6.9                     | 60.5                      | 62.6                     | 47.3                           | 10.4                                    |
| <b>100+ Employees</b>    | 2.0              | 7.7                      | 5.7                     | 56.7                      | 71.5                     | 59.8                           | 9.2                                     |
| <b>All Firms</b>         |                  | 15.1                     | 7.8                     | 54.6                      | 53.3                     | 43.2                           | 15.3                                    |
| <b>Young Firms</b>       |                  |                          |                         |                           |                          |                                |   |
| <b>1 Employee</b>        | 30.4             | 23.1                     | 15.5                    | 61.5                      | 32.1                     | 46.0                           | 20.1                                    |
| <b>2-4 Employees</b>     | 35.0             | 19.4                     | 17.5                    | 65.5                      | 31.9                     | 40.0                           | 23.8                                    |
| <b>5-19 Employees</b>    | 26.4             | 16.9                     | 17.2                    | 68.5                      | 35.1                     | 42.2                           | 20.3                                    |
| <b>20-99 Employees</b>   | 6.9              | 9.6                      | 13.2                    | 70.0                      | 46.9                     | 49.4                           | 13.5                                    |
| <b>100+ Employees</b>    | 1.2              | 6.6                      | 7.9                     | 65.0                      | 59.8                     | 62.4                           | 10.2                                    |
| <b>All Firms</b>         |                  | 19.0                     | 16.4                    | 65.4                      | 34.2                     | 43.3                           | 20.9                                    |
| <b>Old Firms</b>         |                  |                          |                         |                           |                          |                                |   |
| <b>1 Employee</b>        | 20.4             | 17.6                     | 2.9                     | 43.4                      | 60.5                     | 44.0                           | 12.9                                    |
| <b>2-4 Employees</b>     | 32.1             | 14.0                     | 3.7                     | 47.4                      | 60.8                     | 40.5                           | 14.7                                    |
| <b>5-19 Employees</b>    | 33.9             | 12.0                     | 4.5                     | 53.4                      | 60.7                     | 42.7                           | 12.3                                    |
| <b>20-99 Employees</b>   | 11.2             | 8.8                      | 5.2                     | 57.9                      | 66.9                     | 46.7                           | 9.6                                     |
| <b>100+ Employees</b>    | 2.3              | 7.9                      | 5.2                     | 54.7                      | 74.2                     | 59.4                           | 8.9                                     |
| <b>All Firms</b>         |                  | 13.3                     | 4.0                     | 49.9                      | 61.7                     | 43.1                           | 12.8                                    |

**Table 5B. Owner Characteristics and Financing Sources by Firm Size, 2007-2016 Pooled (Percent)**

| <b>Firm Age and Size</b> | <b>All Firms</b> | <b>Bank Loan at Startup</b> | <b>Home Equity Loan at Startup</b> | <b>Credit Cards at Startup</b> | <b>Outside Investor at Startup</b> |
|--------------------------|------------------|-----------------------------|------------------------------------|--------------------------------|------------------------------------|
| <b>All Firms</b>         |                  |                             |                                    |                                |                                    |
| 1 Employee               | 23.5             | 11.5                        | 5.8                                | 11.9                           | 3.4                                |
| 2-4 Employees            | 33.0             | 17.4                        | 7.5                                | 12.5                           | 5.1                                |
| 5-19 Employees           | 31.6             | 24.9                        | 8.8                                | 11.0                           | 6.8                                |
| 20-99 Employees          | 9.9              | 27.0                        | 7.8                                | 7.8                            | 7.5                                |
| 100+ Employees           | 2.0              | 23.8                        | 5.1                                | 4.6                            | 6.9                                |
| <i>All Firms</i>         |                  | 19.5                        | 7.5                                | 11.3                           | 5.6                                |
| <b>Young Firms</b>       |                  |                             |                                    |                                |                                    |
| 1 Employee               | 30.4             | 9.9                         | 6.2                                | 14.2                           | 3.8                                |
| 2-4 Employees            | 35.0             | 14.9                        | 8.4                                | 16.0                           | 5.8                                |
| 5-19 Employees           | 26.4             | 23.4                        | 10.1                               | 14.7                           | 7.8                                |
| 20-99 Employees          | 6.9              | 28.3                        | 8.7                                | 9.9                            | 8.4                                |
| 100+ Employees           | 1.2              | 24.7                        | 5.3                                | 5.1                            | 7.7                                |
| <i>All Firms</i>         |                  | 16.7                        | 8.2                                | 14.6                           | 5.9                                |
| <b>Old Firms</b>         |                  |                             |                                    |                                |                                    |
| 1 Employee               | 20.4             | 12.6                        | 5.5                                | 10.4                           | 3.2                                |
| 2-4 Employees            | 32.1             | 18.6                        | 7.1                                | 10.8                           | 4.8                                |
| 5-19 Employees           | 33.9             | 25.5                        | 8.3                                | 9.8                            | 6.5                                |
| 20-99 Employees          | 11.2             | 26.7                        | 7.6                                | 7.2                            | 7.3                                |
| 100+ Employees           | 2.3              | 23.6                        | 5.1                                | 4.5                            | 6.7                                |
| <i>All Firms</i>         |                  | 20.7                        | 7.2                                | 9.8                            | 5.4                                |

**Table 6. Distribution of Startup Capital Amounts by Firm Size, All Firms, 2007-2016 Pooled (Percent)**

| Firm Age and Size  | \$10,000<br>Less Than \$10,000 |                                 |                                    |                     |
|--------------------|--------------------------------|---------------------------------|------------------------------------|---------------------|
|                    | Less Than \$10,000             | \$10,000 to Less Than \$100,000 | \$100,000 to Less Than \$1,000,000 | \$1,000,000 or More |
| <b>All Firms</b>   |                                |                                 |                                    |                     |
| 1 Employee         | 54.6                           | 35.0                            | 9.6                                | 0.8                 |
| 2-4 Employees      | 38.8                           | 42.3                            | 17.7                               | 1.3                 |
| 5-19 Employees     | 26.4                           | 39.2                            | 31.1                               | 3.3                 |
| 20-99 Employees    | 22.4                           | 28.7                            | 36.8                               | 12.1                |
| 100+ Employees     | 25.5                           | 22.8                            | 28.4                               | 23.3                |
| <i>All Firms</i>   | 37.5                           | 38.1                            | 21.5                               | 3.0                 |
| <b>Young Firms</b> |                                |                                 |                                    |                     |
| 1 Employee         | 52.3                           | 35.9                            | 10.8                               | 1.0                 |
| 2-4 Employees      | 34.7                           | 43.5                            | 20.1                               | 1.7                 |
| 5-19 Employees     | 20.9                           | 38.4                            | 36.3                               | 4.5                 |
| 20-99 Employees    | 16.3                           | 23.6                            | 42.5                               | 17.7                |
| 100+ Employees     | 21.3                           | 18.9                            | 30.3                               | 29.5                |
| <i>All Firms</i>   | 35.5                           | 38.4                            | 22.8                               | 3.4                 |
| <b>Old Firms</b>   |                                |                                 |                                    |                     |
| 1 Employee         | 56.2                           | 34.4                            | 8.8                                | 0.7                 |
| 2-4 Employees      | 40.8                           | 41.6                            | 16.5                               | 1.1                 |
| 5-19 Employees     | 28.5                           | 39.5                            | 29.2                               | 2.8                 |
| 20-99 Employees    | 24.3                           | 30.2                            | 35.2                               | 10.4                |
| 100+ Employees     | 26.6                           | 23.8                            | 27.9                               | 21.7                |
| <i>All Firms</i>   | 38.4                           | 37.9                            | 20.9                               | 2.8                 |

**Table 7A. Average Arc Four Year Percent Employment Change, by Vintile (Bottom Half)**

|  | Percentiles of Arc Employment Change Distribution |        |          |          |          |          |          |          |          |          |
|--|---|--------|----------|----------|----------|----------|----------|----------|----------|----------|
|  | 0 to 4  | 5 to 9 | 10 to 14 | 15 to 19 | 20 to 24 | 25 to 29 | 30 to 34 | 35 to 39 | 40 to 44 | 45 to 49 |
| <b>Linked Surveys (2002 to 2016)</b>   |   |        |          |          |          |          |          |          |          |          |
| All                                    | -200  | -200   | -200     | -200     | -200     | -188     | -65      | -41      | -25      | -12      |
| Old                                    | -200  | -200   | -200     | -200     | -195     | -91      | -61      | -34      | -20      | -9       |
| Young                                  | -200  | -200   | -200     | -200     | -200     | -200     | -197     | -93      | -55      | -23      |
| Young Any Owner LT 35                  | -200  | -200   | -200     | -200     | -200     | -200     | -200     | -192     | -62      | -28      |
| Young Any Owner 55 Plus                | -200  | -200   | -200     | -200     | -200     | -200     | -199     | -98      | -61      | -31      |
| Young All Owners Female                | -200  | -200   | -200     | -200     | -200     | -200     | -200     | -193     | -64      | -35      |
| Young All Owners College Plus          | -200  | -200   | -200     | -200     | -200     | -200     | -194     | -68      | -36      | -14      |
| Young All Owners Non White or Hispanic | -200  | -200   | -200     | -200     | -200     | -200     | -200     | -104     | -62      | -32      |

**Table 7B. Average Arc Percent Four Year Employment Change, by Vintile (Top Half)**

|  | Percentiles of Arc Employment Change Distribution |          |          |          |          |          |          |          |          |          |
|--|---|----------|----------|----------|----------|----------|----------|----------|----------|----------|
|  | 50 to 54  | 55 to 59 | 60 to 64 | 65 to 69 | 70 to 74 | 75 to 79 | 80 to 84 | 85 to 89 | 90 to 94 | 95 to 99 |
| <b>Linked Surveys (2002 to 2016)</b>   |   |          |          |          |          |          |          |          |          |          |
| All                                    | 0   | 0        | 0        | 0        | 0        | 15       | 27       | 43       | 65       | 110      |
| Old                                    | 0   | 0        | 0        | 0        | 0        | 12       | 22       | 31       | 46       | 88       |
| Young                                  | -8  | 0        | 0        | 0        | 1        | 26       | 43       | 57       | 73       | 125      |
| Young Any Owner LT 35                  | -7  | 0        | 0        | 2        | 26       | 41       | 54       | 69       | 99       | 143      |
| Young Any Owner 55 Plus                | -12   | 0        | 0        | 0        | 0        | 16       | 30       | 47       | 71       | 121      |
| Young All Owners Female                | -15   | 0        | 0        | 0        | 0        | 17       | 36       | 53       | 72       | 123      |
| Young All Owners College Plus          | 0   | 0        | 0        | 0        | 2        | 28       | 45       | 60       | 73       | 126      |
| Young All Owners Non White or Hispanic | -13   | 0        | 0        | 0        | 1        | 25       | 40       | 54       | 72       | 124      |

# References

- Brown, J. David, John S. Earle, Mee Jung Kim, and Kyung Min Lee. 2019. “Start-ups, Job Creation, and Founder Characteristics,” *Industrial and Corporate Change*, 1–36. doi: 10.1093/icc/dtz030.
- Davis, Steven J., and John C. Haltiwanger. 2019. “Dynamism Diminished: The Role of Housing Markets and Credit Constraints,” NBER Working Paper 25466. (January)
- Decker, Ryan A., John Haltiwanger, Ron S. Jarmin, and Javier Miranda. 2016. “Where has all the skewness gone? The decline in high-growth (young) firms in the U.S.” *European Economic Review*, 86:4–23.
- Foster, Lucia, and Patrice Norman. 2017. “The Annual Survey of Entrepreneurs,” *Journal of Economic and Social Measurement*, (2017) 42:199–224. DOI 10.3233/JEM-180446.
- Guzman, Jorge, and Scott Stern. 2020. “The State of American Entrepreneurship: New Estimates of the Quantity and Quality of Entrepreneurship for 32 US States, 1988–2014,” *American Economic Journal: Economic Policy*, 12(4): 212–243, <https://doi.org/10.1257/pol.20170498>.
- Kerr, Sari Pekkala, William R. Kerr, and Ramana Nanda. 2019. “House Prices, Home Equity and Entrepreneurship: Evidence from U.S. Census Micro Data,” Harvard University, Harvard Business School Working Paper 15-069. (June)
- Lastrapes, William D., Ian Schmutte, and Thor Watson. 2020. “Home Equity Lending, Credit Constraints and Small Business in the US,” US Bureau of the Census, Center for Economic Studies Working Paper CES-20-32. (October)