Who Creates Jobs and When: How Firms Respond to Business Cycles and Credit Conditions

Teresa Fort, University of Maryland
John C. Haltiwanger, University of Maryland
Ron S. Jarmin, US Census Bureau
Javier Miranda, US Census Bureau

Atlanta Fed
October 2010

This report is released to inform interested parties of ongoing research and to encourage discussion of work in progress. The views expressed are those of the authors and not necessarily those of the U.S. Census Bureau.
Background

• Debate on who creates jobs rages on:
  “One economic adage is that small businesses generate the bulk of all U.S. jobs. It’s a rule of thumb often cited by politicians. The problem is: the truism may not be entirely true. The age of the firm—not its size—matters more.” - Kathleen Madigan, WSJ 9/10/2010

• Much of what we know is from the cross-section

• Research looking at dynamics in response to shocks is limited but necessary to inform policy. See current crisis!

• Which firms create/destroy jobs in response to business cycle and financial shocks?
Relative Job Creation and Destruction
Job Creation and Destruction

![Bar chart showing job creation and destruction by firm age categories.](chart.png)
Job Creation and Destruction Rates: Time Series
Job Creation and Destruction: Levels by Firm Size and Firm Age
Literature

• Job creation/destruction

• Business dynamics and financial and business cycle shocks

• Small business finance

• Large business finance
  Philippon (2008), Gilchrist, Yankov and Zakrajsek (2008), Mueller (2009)…
Our Contribution

• We use rich microdata covering the whole economy and multiple recessions to:
  • Examine dynamics of startups, young, small and large firm job creation and destruction
  • Examine their sensitivity in response to both business cycle and financial shocks in the same framework
  • Measure both firm size and firm age effects (young firms are small but small firms are not necessarily young)
Data: Measuring shocks

- **Business cycle measure**
  - Unemployment Rate (BLS CPS March 12 emp)

- **Financial Shocks**
  Large and small/young resort to different financial mechanisms
  - Credit Card Rates (FRB consumer credit data)
  - Housing Prices (FHFA)
  - Corporate Spread (ML High Yield-Moody’s AAA)

- **Caveat:** We are not identifying exogenous shocks at this point.
Different Shocks and Timing
Different Shocks and Timing
Data: The LBD

- Census confidential files from BR
  - Coverage 1976-2008(9)
  - CBP Universe
  - Establishment level with firm characteristics
  - Focus on both business and employment dynamics

- Unique Features
  - Long Time Series
  - Firm and Establishment Age
  - Interactions with Firm and Establishment Size
The LBD: Continued

- **Statistics**
  - Establishment Births, Deaths and Continuers
  - Job creation
    - From births and expansions
  - Job destruction
    - From deaths and contractions
  - Excess Job Reallocation

- **By categories**
  - Firm Age
  - Firm Size
  - Industrial Sector
Methodology

- Employment-weighted regressions
- Establishment-level with firm characteristics
- Non-parametric Firm Size and Firm Age
  - Yields within cell employment-weighted means by firm size and age classes
- Three specifications:
  - Size or Age but not both, one cyclical variable
  - Size + Age, all cyclical variables
  - Size + Age, all cyclical variables, industry*year
- With Size+Age, use conditional distributions of other characteristic
Regression Model (for Size+age, all cyclical variables)

\[ y_{it} = \beta_1 S_{s(it)} + \beta_2 A_{a(it)} + \beta_3 X_t + \]
\[ + \beta_4 X_t S_{s(it)} + \beta_5 X_t A_{a(it)} + \beta_6 I_z(i) + \epsilon_{it} \quad (1) \]

Where
\begin{itemize}
  \item \( y_{it} \) is the net job creation of establishment at time
  \item \( S_{s(it)} \) is the matrix of size dummies associated with plant at time
  \item \( A_{a(it)} \) is the vector of a firm age dummies associated with plant at time
  \item \( X_t \) is a matrix of time varying business cycle and Financial market characteristics
  \item \( I_z(i) \) is a matrix of time varying business cycle and Financial market characteristics interacted with size dummies
  \item \( \epsilon_{it} \) is a matrix of time varying business cycle and Financial market characteristics interacted with age dummies
  \item \( I_z(i) \) is the matrix of industry dummies
  \item \( \epsilon_{it} \) is the statistical residual of the net job creation experienced by plant at time
\end{itemize}
Business Cycle

[Graph showing business cycle with different categories on the x-axis and various lines representing different data points on the y-axis.]
Corporate Spread
Summary

• Very preliminary at this point but find
  – Differential response to impulses from firms of different size and age
  – Type of impulse matters
  – Young/Small firms sensitive to housing prices and credit card rates
  – Large firms very cyclically sensitive to aggregate conditions
  – Medium size firms relatively sensitive to corporate credit spreads
Summary

- Next steps:
  - Apparent that important to look at different impulses and examine size/age patterns separately
  - Need to put more structure on analysis for identification (e.g., panel VAR?).