

Problem Set: Basic Facts and Statistical Analysis of Job Creation and Destruction

Using the quarterly job creation and destruction rates for U.S. Manufacturing for the period 1972-1988 (available on the Haltiwanger website in ASCII datasets), conduct the following exercises (note for 4-digit do only 1972-86):

1. For each 4-digit industry, 2-digit industry, size class and age class, compute the average job creation and destruction rates. Generate summary statistics (e.g., mean, std deviation, min and max) that characterize the distribution of job flows rates across these sectoral (where sectors are defined by industry, size or age) characteristics. Identify by name/characteristic the sectors that are at the max and the min of the distribution. Discuss any patterns you observe.
2. Compute the variance ratio of the time series variance of job destruction relative to the time series variance of job creation. Generate summary statistics that characterize the distribution of such variance ratios across these sectoral characteristics. Identify the sectors that are at the max and the min of these variance ratio distributions. Discuss any patterns you observe.
3. Generate scatter plots for each sectoral definition (e.g., 4-digit industry) that relate:
 - a. The average rate of reallocation and the average net employment growth rate of the sector.
 - b. The average rate of reallocation and the variance ratio of the sector.
 - c. The average growth rate of the sector and the variance ratio of the sector.
 - d. Discuss any patterns that you observe.
4. For the size classes and the 2-digit industries with the minimum and maximum variance ratios (4 sectoral classes all together – min/max for size class and min/max for 2-digit industry), conduct the following statistical analysis based upon Davis and Haltiwanger (American Economic Review, 1999):
 - a. Estimate a 2-variable VAR in job creation and destruction using seasonal dummies and 4 lags.
 - b. Compute the contribution of aggregate and reallocation shocks to the 4-step ahead forecast error variance under alternative identification assumptions:
 - i. Aggregate shocks have no contemporaneous impact on job reallocation.
 - ii. Reallocation shocks have no contemporaneous impact on net growth.
 - c. Discuss your results. How are your results related to your findings on basic facts in steps 1-4? Discuss.
 - d. Discuss whether a Mortensen-Pissarides model could account for your findings.