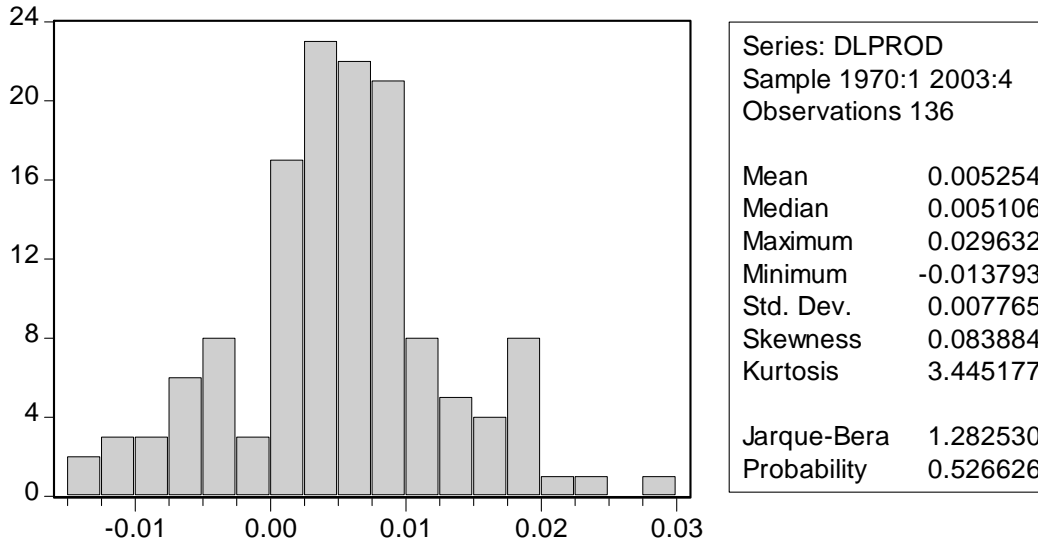


### Problem Set 3

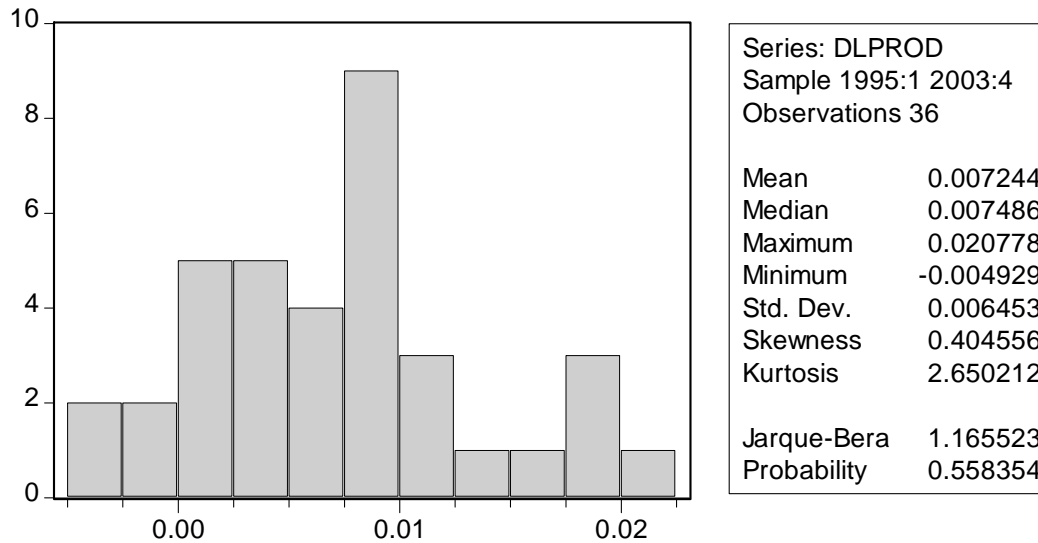
This problem set is due in lecture on **Monday, March 29th**. No late problem sets will be accepted. **Be sure to show your work** (that is, do not use a spreadsheet or statistical program to generate your answers), and to write your name, ID number, as well as the name of your Teaching Assistant, on your problem set.

From the textbook:

- 5.50
- 5.70
  
- 6.34
- 6.10
- 6.22
- 6.26
  
- 7.4
- 7.26
- 7.88
- 7.58
- Y.1 Find  $t_0$  given that  $P(t > t_0) = A$ 
  - a.  $A = 0.10$ , 12 d.f.
  - b.  $A = 0.01$ , 25 d.f.
  - c.  $A = 0.05$ , 16 d.f.
- Y.2 A random sample of  $n = 500$  observations from a binomial population produced  $x = 140$  successes. Find a 95% confidence interval for  $p$ , and interpret the interval.
  
- 8.8
- 8.18
  
- Y.3. Below are summary statistics and a histogram labor productivity growth rates (quarter-on-quarter) over the 1970q1-2003q4 period, calculated as  $\ln(x_t) - \ln(x_{t-1})$



- What is the 99% confidence interval for quarterly productivity growth?
- During the late 1990's there was discussion of a New Economy, characterized by accelerated GDP growth. Over the 1995q1-2003q4 period, the growth rate was 0.7244% quarter on quarter, with standard deviation of 0.6453%.



Conduct a hypothesis test that 1995q1-2003q4 growth rate was different from the of 0.4538% quarter on quarter growth rate prevailing during the 1970q1-1994q4 period.

State your assumptions.

- If you expressed the growth rates in annualized terms (here by multiplying the quarter-on-quarter growth rates by 4), would that change your answers?