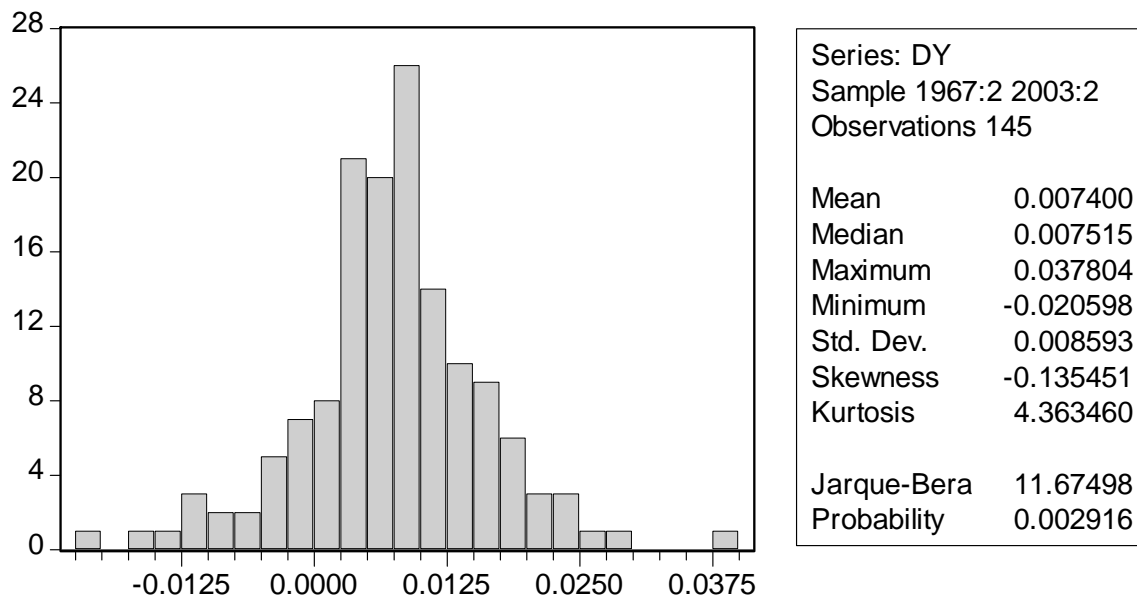


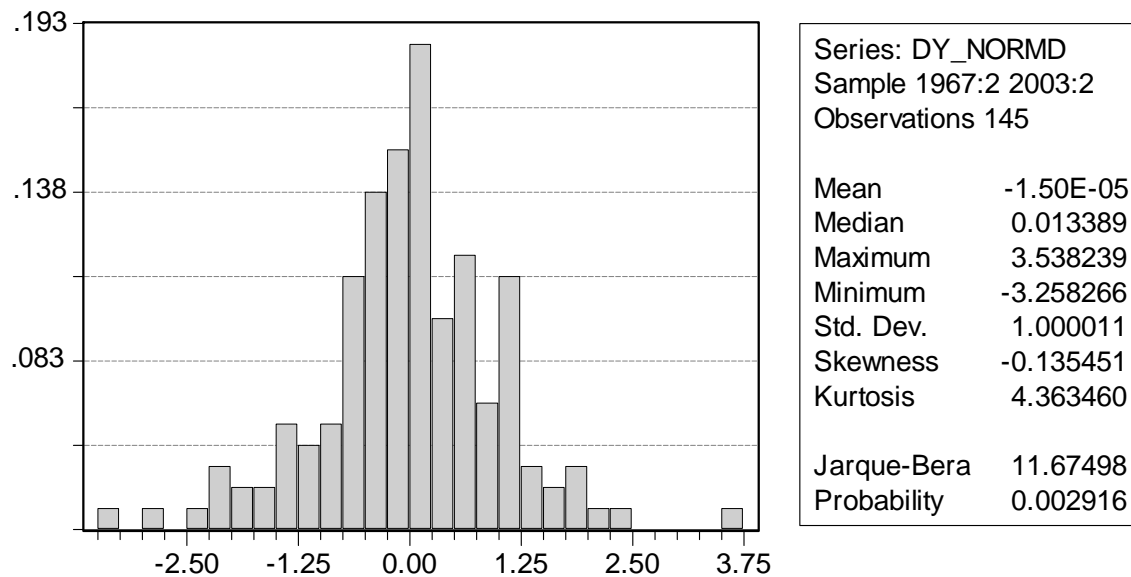
**Handout for Lecture of 13 October**  
**Assessing Normality**

Figure 1: Quarterly change in real US GDP, 1967q2-2003q2



To convert to z-statistic, subtract off mean of 0.007400, and divide by standard deviation of 0.008593.

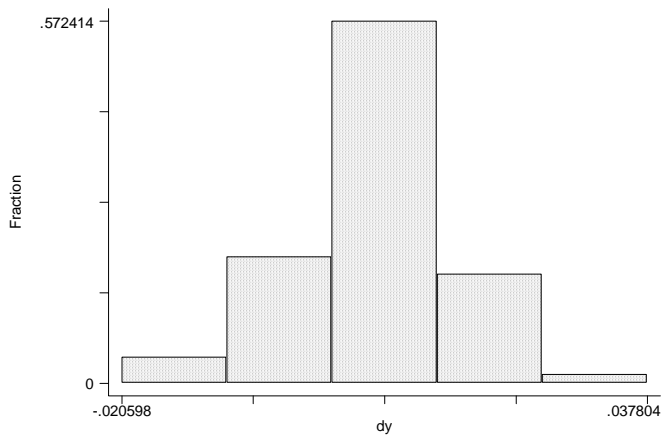
Normalized US GDP, converted to z-statistic, w/ relative frequency on vertical axis



Note: 70.5% of observations fall within  $\pm 1$  of 0; 93.2% fall within  $\pm 2$  of 0. Compare against Standard Normal.

# Steps to Determine if a Variable is Normally Distributed

## 1. Plot Histogram of dy



## 2. Calculate proportions of observations within 1 and 2 standard deviations of mean.

variable	mean	sd	p25	p75
dy	.0073999	.0085931	.0031137	.012258

70.5% of observations fall within  $\pm 1$  of 0; 93.2% fall within  $\pm 2$  of 0. Compare against Normal distribution that has 68% and 95%, respectively.

## 3. $IQR/s \approx 1.3$ ?

$$IQR/s = (.012258 - .0031137) / .0085931 = 1.0641$$

## 4. Construct a Normal Probability Plot

