

Dickey Fuller Test

$$y_t = \rho y_{t-1} + \epsilon_t$$

$\rho = 1?$

$$y_t - y_{t-1} = \rho y_{t-1} - y_{t-1} + \epsilon_t$$
$$\Delta y_t = (\rho - 1) y_{t-1} + \epsilon_t$$

$$\text{If } \rho = 1, \rho - 1 = 0$$

$$H_0: \rho - 1 = 0$$

$$H_a: (\rho - 1) \neq 0$$