



**College of Business Administration**  
**Department of Economics**  
**Aggregate Economic Conditions & Analysis**  
**Lecturer: O. Mikhail**  
**ECO 6206-0001**  
**Spring 2003**

---

## **Assignment VIII**

Use your web browser to visit the following link:

<http://www.bea.gov/bea/dn/nipaweb/NIPATableIndex.htm>

Locate and extract ANNUAL data (for all years) for the following series

- 1) Gross Domestic Product [billions of dollars]
- 2) Changes in Net Stock of Produced Assets [billions of dollars]
- 3) Hours Worked by Full-Time and Part-Time Employees [Millions of hours]

Assume that the capital share in income ( $\alpha$ ) is 0.3 and the production function exhibits constant returns to scale.

1) Use your data to construct a table showing the annual percentage changes in L, K and Y, and then use the accounting equation to impute the annual change in total factor productivity.

2) Calculate the Solow residuals for every year and graph them. Can you point to the period of productivity slowdown.

3) Now fill in the average annual growth rates in the following table,

Years	Y	K	L	Z
1950-1960				
1960-1970				
1970-1980				
1980-1990				
1990-2000				

SHOW how you computed the average annual growth rates.

4) Let  $\beta = (1-\alpha)(\delta+n)$  measures the speed of convergence. The interpretation of  $\beta$  is as follows:  $\zeta$  . 100 % of the divergence between  $k(t)$  and  $k_{stst}$  is eliminated after a time interval of  $t_\zeta$  :

$$t_\zeta = -(1/\beta) \log(1-\zeta)$$

Hence the half-life of the divergence ( $\zeta=1/2$ ) equals  $t_{1/2} = \log 2/\beta = 0.693/\beta$

Now, let  $n = 0.03$ ,  $\alpha = 1/3$ , and  $\delta = 0.05$ . Compute the estimated half-life transition speed.