

Place your name on the back of this sheet of paper and nowhere else. Staple your answers on the front of this sheet of paper. Failure to follow these directions will cost you 10 points. Turn in the Excel file via e-mail. Place your name on an otherwise blank page of the Excel file. Your assignment will be typed, except graphs can be drawn by hand and mathematical equations can be done by hand. Failure to type it will cost you 10 points. If you use double-sided printing or print on the back of scrap paper, I will give you one additional point.

1) Suppose consumption is \$300 more than 80% of (the average income from this year and the previous three years minus this year's taxes). (Note this is not the average of the disposable income.) Investment is 30% of (this year's GDP - last year's GDP). Government spending is \$600. Exports are \$200. Imports are 10% of this year's GDP. The taxes are 20% of income.

A) (5 points) Write the equations I described above.

B) (20 points) Find the current level of GDP as a function of government spending and lagged variable(s). Show all work.

C) (5 points) Use Excel to fill in a table which will simulate GDP over a 40-year period and assuming that the previous three levels of GDP were \$1500 three years ago, \$2,000 two years ago, and \$2500 last year.

D) (15 points) Plot GDP over time, making sure everything is labeled properly.

E) (5 points) What is the pattern of GDP? Explain your logic.

2) (15 points) Suppose that  $\frac{2}{3}$  of the leading variables in an economy show the economy expanding,  $\frac{1}{3}$  of the roughly coincident variables show the economy is expanding, and none of the lagging variables show the economy is expanding. Where in the business cycle do you think the economy is? Explain your logic. A graph may be helpful.

3) (25 points) Some economists think the business cycle has not become less severe. Explain their logic. I say the economic theory says it should be less severe. Explain my logic.

4) (10 points) The definition of the business cycle includes "recurrent not periodic." What does that mean?