

Write your name on the cover of the test booklet and nowhere else. Enclose this sheet with the booklet. The Excel file will be handed in via Moodle. Your name will only appear on a page of the file that has nothing else on it. Failure to follow these directions will cost you 1 point. The test has 100 points (to be scaled up to 170 points) and is scheduled to take 50 minutes (but you can take the full 2 hours.) Therefore, expect to spend 1 minute for every 2 points. For example, a 10-point question should take 5 minutes.

1) Suppose consumption is \$200 more than 60% of (average of this year's GDP and the previous two years' GDP minus this year's taxes). The tax rate is 1/3 of GDP. Investment is 40% of the the difference between this year's GDP and last year's GDP. Government spending is \$800. Exports are \$1000. Imports are 20% of this year's GDP.

A) (4 points) Write these equations.

B) (12 points) Solve the equations for  $Y_t$  as a function of exogenous variables and lagged values of GDP. Show all work. What is the short-run government spending multiplier? Briefly state how you found it.

C) (10 points) If GDP had been \$2000 for several years, then have Excel calculate the levels of GDP for the next 20 years. Suppose there was a permanent decrease in government spending of \$200. Use Excel to calculate the long-run government spending multiplier. (Assume long-run is 20 years for this question.)

D) (10 points) Plot the data for GDP on the Excel sheet making sure everything is labeled. What is the pattern of the graph? State how you reached that conclusion

2) (10 points) Answer EITHER Part A OR Part B.

A) Suppose the average duration of unemployment went up for three months during a boom. What is the probability that we are entering a recession? Explain how you found which column you were in.

B) Suppose the average duration of unemployment went up .7% during a month during a boom. What is the probability that we are entering a recession? Explain how you found which column you were in.

**Table 3**

**Proportions of Occurrences In Which Trends of Various DURATIONS Involved Cyclical Reversals of Business Activity**

	De creasing Trends During Cyclical Expansions								Increasing Trends During Cyclical Contractions							
	Months of Duration								Months of Duration							
Primary Leading	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Average Duration of Unemp	0.16	0.21	0.27	0.43	0.45	0.48	0.50	0.56	0.35	0.47	0.82	0.90	1.00	1.00	1.00	1.00

**Table 4**

**Proportions of Occurrences In Which Trends of Various MAGNITUDES Involved Cyclical Reversals of Business Activity**

	De creasing Trends During Cyclical Expansions								Increasing Trends During Cyclical Contractions							
	Percentage Decrease Larger Than								Percentage Increase Larger Than							
Primary Leading	0.0	0.3	0.5	1.0	3.0	5.0	10.0	20.0	0.0	0.3	0.5	1.0	3.0	5.0	10.0	20.0
Ave Duration of Unemp	0.16	0.16	0.16	0.20	0.30	0.37	0.83	0.91	0.38	0.38	0.38	0.59	0.83	1.00	1.00	1.00

3) (12 points) For EITHER *conformity* OR *smoothness*, define the term and explain why it is important for an explanatory variable to have that quality.

4) (12 points total) For TWO of the following, determine if it is leading, lagging, or roughly coincident. Also determine if it is pro-cyclical or counter-cyclical. Explain your logic.

A) New housing permits

B) Composite of short-term interest rates

C) Personal income less transfer payments

5) (14 points) Answer EITHER Part A OR Part B.

A) Given the tables in Question #2, what value would you choose for the MCD (months of cyclical dominance) for the average duration of unemployment? Explain your logic.

B) Suppose that 40% of the leading indicators say the economy will be going down and 50% say it is not changing. Suppose that 70% of the lagging indicators say the economy will be going up and the rest say it is not changing. Where do you think the economy is on the business cycle? Explain your logic.

6) (16 points) Answer EITHER Part A OR Part B.

A) Draw the SRAS/LRAS/AD diagram. Illustrate the effects of a decrease in government spending. Explain why the curve(s) moved as drawn. What happens to the GDP, price level, and unemployment rate?

B) Draw the SRAS/LRAS/AD diagram. Illustrate the effects of a decrease in the price of oil. Explain why the curve(s) moved as drawn. What happens to the GDP, price level, and unemployment rate?