Barreto, Spring 2014, DePauw University

NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Econ 390: Macro Topics

# Final Exam: The Keynesian Model and Short Run Fluctuations

*20 questions worth 5 points each.*

Open the Excel workbook Exam3S2014.xls. It is the only file you are allowed to have open. Do not cheat. If you have any questions, raise your hand and I will help you. I am using DyKnow to monitor you.

**Immediately Save As to your I drive folder.** You don’t have to change

the name of the file, but it has to be in your I drive folder so I can access it.

**Charting and Other Basics (4 questions)**

1. I used FRED to download gdpc1 in column A and unrate in column C of the *Chart* sheet. For the unemployment rate, I got the change from one time period to the next and for Real GDP, I got the compounded annual percentage change. Create a scatter plot of %RealGDP = f(U).

Note: the axes matter—put the change in unrate on the x axis.

**Save your workbook now.**

1. Add a trendline to the scatter plot and display the equation. Below, explain what this equation and scatter plot tells you about the relationship between unemployment and real GDP.
2. As usual in the last part of the course, we downloaded Real GDP instead of Real GDP *per person*, as we took great pains to do in the first part of the course. Why are we ignoring population now? Add a graph to help you explain why population mattered before and does not matter now.
3. Below your chart, enter a formula in a cell that computes the average compounded annual percentage change in Real GDP. In a text box, answer this question: Can we conclude that the US economy did spectacularly well over this time period since average growth in Real GDP is much greater than 2%, the magic number for excellent growth for a developed economy? Why or why not?

**Mechanics of the Keynesian Model (8 questions)**

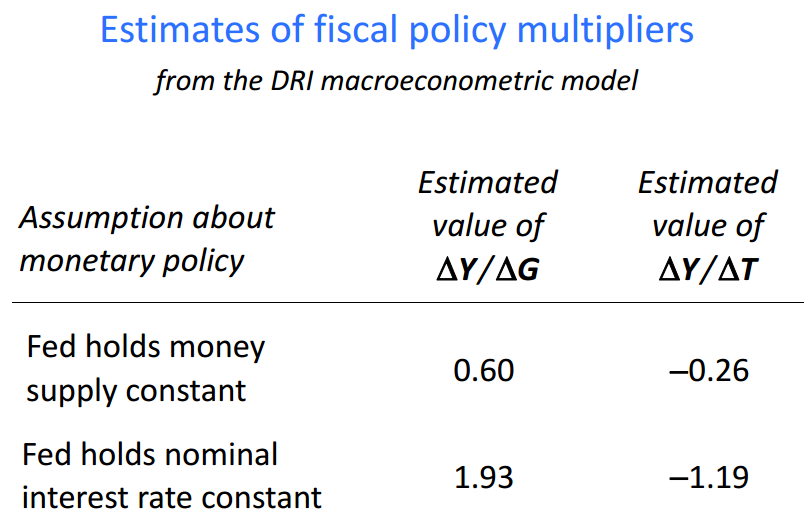
1. Multipliers are a critical part of Keynesian macroeconomics. What exactly is a multiplier? Describe what it tells us and how it can be used.
2. Copy the *ISLMCS* sheet and rename it *2*. Increase G to $4 trillion and note that the G multiplier is 3.33. Now, click the  button and increase the L\_Y\_slope to 0.4 (from 0.2). Now click the  button and increase G to $4 trillion again. Note that the G multiplier falls to 2.5. Explain in a text box why the G multiplier has decreased as the L\_Y\_slope has increased, explicitly referring to the term *crowding out*.

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1. In your answer to question 2, you shifted money demand in the money market. Did it shift right or up? Explain why.
2. Copy the *ISLMCS* sheet and rename it *4*. Make investment demand extremely elastic. It is easy to see that IS becomes very flat, but what happens to AD?

“Bert,” you say, “you forgot to show AD below ISLM.” No, I didn’t forget. I want you to derive the AD curve in this situation and figure out whether it is flat or steep. Show your work below. You may use your *4* sheet to help you puzzle out what is going on. Please explain your procedure and logic below.

Use the table below to answer questions 5, 6, 7, and 8:



Source: <http://gatton.uky.edu/faculty/kim/ECO402/Ch%2011%20%20lecture.pdf> visited 6 May 2014.

1. Copy the *ISLMCS* sheet and rename it *5*. What can you do to the model in Excel to produce a G multiplier of roughly 0.6? In a text box on the sheet, briefly describe your procedure in answering this question.

Note: Remember that the  button can be used to set the base set of parameters.

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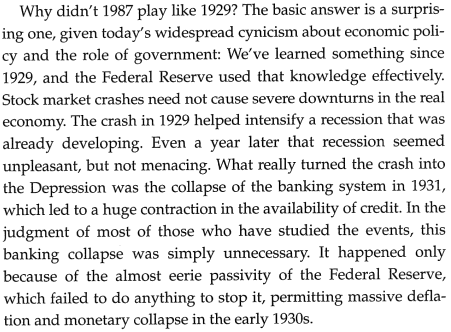
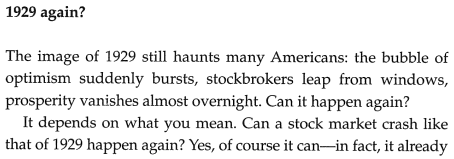
1. Copy the *ISLMCS* sheet and rename it *6*. From the initial equilibrium position ($17 trillion and 2.8%), suppose we apply a $1 trillion increase in G. The Fed can either do nothing (the first row in the table above) or it can change the money supply to hold the interest rate constant (the second row). In your sheet, increase G by $1 trillion and note that the G multiplier is 3.33 and then use Solver to find the value of the money supply needed to maintain the interest rate constant at 2.8%. (I will check your Solver dialog box to make sure you used Solver.) In a text box on the sheet, put the value of this “G & Ms combined” multiplier.

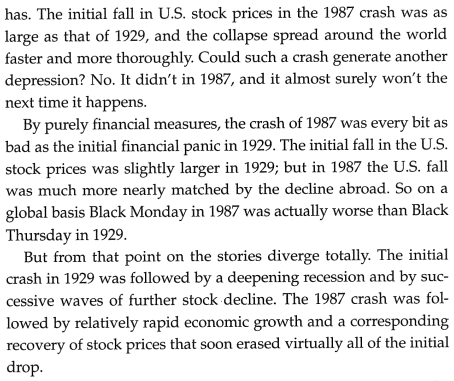
**Save your workbook now.**

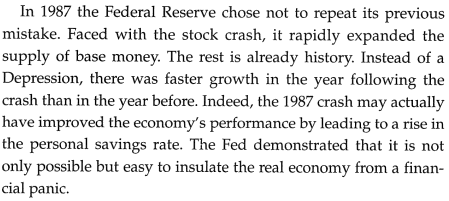
1. The table and your Excel work in question 6 show that if the Fed attempts to hold interest rates constant in the face of a fiscal stimulus, the value of Y/G rises. Explain below why this happens.
2. The tax multiplier is smaller (in absolute value) than the G multiplier in the table above. Is this some kind of law of Keynesian models or can the tax multiplier ever be bigger than the G multiplier? Explain.

**Applying the ISLMADAS Model (8 questions)**

Carefully read the excerpt below. Note the date when it was written, 1997.

Paul Krugman, *The Age of Diminished Expectations* (1997, 3rd. ed), pp. 213-215:





October 19, 1987

Let’s interpret individual pieces of the excerpt via the ISLMADAS model.

1. When the stock market crashes, how is it reflected in the ISLMADAS model? Why?
2. Why would “the almost eerie passivity of the Federal Reserve” during the Great Depression produce “massive deflation”? Draw a single graph that supports your answer.
3. Krugman states that, in 1987, the Fed “rapidly expanded the supply of base money,” but he doesn’t provide any graphs to show how this rescued the economy. Use the graphs provided below to explain how monetary policy worked in this case. Start the economy already sliding into recession from the stock market crash and label everything carefully. I am looking for correct shifting and placement of all curves. Please indicate with the parentheses style what is going on. For example, a G increase (which does *not* apply in this case) would shift IS from IS(G0, T0) to IS(G1, T0). Draw arrows (correctly up/down or right/left) to indicate shifts.

Money Market

ISLM

ADAS

1. Proceed to the *FedFunds* sheet. I used FRED to get the federal funds rate (this will be our measure of the interest rate in the ISLMADAS model you drew above). Does the fed funds data support Krugman’s claim that the Fed took swift, decisive action during the October 1987 stock market crash? Why or why not?

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1. Using just the ISLM model (i.e., P is fixed), if the Fed increased the money supply and we had an asset market equilibration process, does the graph below show how we would reach the new equilibrium? Explain.

r

Y

LM

LM’

IS

1. Suppose that after the October crash, the SRAS became very steep as shown below. The Fed is obviously going to have trouble stimulating AD to get to Yf, but what is happening in the ISLM graph when the Fed increases the money supply? Draw what is happening to IS and LM on the right and explain what is going on.

SRAS

Y

P

Yf

LRAS

AD

Y0

1. Focusing on just the ADAS graph, if the Lucas critique had been operating in 1987, then how and why would the economy not have recovered?

Note: It makes sense to start the analysis supposing that the economy is in recession and the Fed announces a policy of stimulating AD by lowering interest rates.

1. It would be interesting to know if Krugman regrets the last sentence, but for this exam, let’s focus on why it wasn’t easy to insulate the real economy from a financial panic in 2008. I am not looking for wild speculation on your part, but an answer that shows you know something about what the Fed did during the Great Recession and why it did not work like in 1987.

**Before you turn in your exam, make sure your Excel file has these sheet tabs:** 

**Save your workbook now and turn in your exam.**