

GSI's Name \_\_\_\_\_

Your Name \_\_\_\_\_

Section Number (or Day/Time) \_\_\_\_\_

Department of Economics  
University of California  
Berkeley

Spring 2015  
Economics 113  
Professor Olney

## **Problem Set #2** (10 points possible)

**Due: in lecture, Thursday, March 19, no later than 11:10 a.m.**

### **Read these guidelines / rules:**

Bring your problem set to lecture and turn it in at the beginning of class. Problem sets are late after 11:10. Late problem sets lose 5 points and are not eligible for extra credit. No problem sets accepted after 5 p.m. Friday March 20.

**Staple this sheet to the top of your answers.** You'll need to attach your answers. Some of the work below requires cutting and pasting from Excel, so we think it will be easiest if you simply type the entire assignment. But you must sign below & attach this sheet to your problem set answers.

Your answers must be your own. Some of you know Excel better than others. So we think there are definite benefits to working on this problem set in groups. But once your group is done, you must answer the questions on your own. Your group cannot compose one set of answers and then share those answers. If you all write down the same thing, every group member's score=0.

**IMPORTANT:** Everyone must read and initial the statement in red below or your work will receive a score of 0.

**Please list the names of folks you worked with on PS2 (or write "no one"):**

**and then initial this statement:**

**"I confirm that my submitted answers were written independently and were not written collaboratively by a group."**

**<your initials>** \_\_\_\_\_

Go to the homepage of the *Historical Statistics of the United States* (HSUS). To be sure you can access HSUS as a UCB student, search for the resource on the "Databases" tab of the UCB Library website, or use the link on the course website.

Using the **contents** tab, go to Chapter Cb: Business Fluctuations and Cycles. Under **Tables**, choose "The Great Depression." You should now see Series Cb35-76. Click "Download Tables in Excel" to get a zip file with the 7 tables in this section in Excel format.

Open Series Cb35-44. You can insert a row in which you type easier-to-read names for each series. The series names are easiest to see from the pdf version of each table, which are accessible from pdf links in brackets at the end of each line. (I am having trouble accessing the pdf versions in Firefox but it works fine in Chrome.)

Series Cb35 - Cb37 give three measures of output: "Producer Goods Output," "Consumer Goods Output," and "Consumer Goods Output Excl Autos." Each series is an index. That means the values are not actual production amounts. The scholars who assembled the data began with actual amounts. They then divided each monthly value by the average value for 1923:1 - 1925:12 (January 1923 - December 1925), and multiplied by 100. That's what "1923-1925=100" means.

1. (1 point) What is the time frequency of the data: annual, quarterly, monthly, weekly, or daily? (3 answers each for each of the next 4 questions): Leading into the Great Depression, when did each of the three measures of output achieve its peak value? What was that maximum value? In what month did each of the three measures hit its minimum value? What was that minimum value?
2. (1 point) For each of the three measures of output, what is the total percentage decline in output from its peak to its trough? Express your answer as a percentage (-20%), not a decimal (-0.20). Round to nearest tenth (-20.3%). Write down the formula you used to calculate your answers.

***There's a lot more on the back!***

- 3a. (2 points) Prepare one graph that contains all three measures of output from 1919:1 to 1938:12. When your graph is done, copy and paste it into your paper. Be sure you follow these guidelines.
- Your horizontal axis should show the years. Format your axis so that your interval between labels is 24.
  - You should have a title on your graph. The title should tell the reader what's in the graph & the time period.
  - There should be a legend that shows which line is which. The titles in the legend should be "Producer Goods," "Consumer Goods," and "Consumer Goods Excl Autos."
- 3b. (2 points) Below your graph, write one paragraph in which you describe the patterns you see in the data.
4. (2 points) Write down the formula you will use to calculate the average annual rate of change between two dates. Use "t" to stand for the amount of time in years between the two dates.

For each of the three series, calculate the average annual rate of change of output over these time periods:

1933:3 - 1934:3	
1933:3 - 1935:3	1934:3 - 1935:3
1933:3 - 1936:3	1935:3 - 1936:3
1933:3 - 1937:3	1936:3 - 1937:3
1933:3 - 1938:3	1937:3 - 1938:3

Present your answers in a table. The column headings should be the names of each of the three measures of output. The row headings should be these nine time periods. The entry in each cell should be the average annual rate of change of output for that time period & measure of output.

5. (1 point) If you wanted to present data that supported an argument that the recovery from the Great Depression was astoundingly rapid, which of the values in your table in #4 would you cite? Why?
6. (1 point) If instead you wanted to present data that supported an argument that recovery from the Great Depression proceeded unevenly, which of the values in your table in #4 would you cite? Why?

### Extra credit for 5 points

(extra credit points will be added to your midterm 1 score)

7. From Table Cb45-51, copy and paste Series Cb45 "Number Employed, Not Seasonally Adjusted" into your original worksheet. From Table Cb64-70, copy and paste Series Cb64 "Money Supply Total" into that same worksheet.

If you don't have Stata, you can do simple regressions in Excel. Install the "analysis tool pak" add-in. (If you need help, google "Load or unload add-in programs.") Now go to the "data" tab of Excel. At the far right you should see the "data analysis" icon. Click on the icon and you'll be offered a number of analysis tools. Choose the "regression" tool.

Regress Producer Goods Output (Cb35, the Y variable) on Employment (Cb45, the X variable), using the data from 1919:1 to 1938:12. **Copy and paste** the regression output table into your paper. **Put a title** above the output table.

**Highlight** the number in the table that tells you the relationship between output and employment is statistically significant.

Does the statistical significance of the relationship between output and employment tell you anything about what caused changes in the total amount of producer output produced? **Explain.**

Now, regress Producer Goods Output (Cb35, the Y variable) on money supply (Cb64, the X variable), using the data from 1919:1 to 1938:12. **Copy and paste** the regression output table into your paper. **Put a title** above the output table.

**Highlight** the number in the table that tells you the relationship between output and money supply is statistically significant.

Does the statistical significance of the relationship between output and money supply tell you anything about what caused changes in the total amount of producer output produced? **Explain.**