**Econ 270**

**Lab 7: Difference in Differences**

**To submit on BBLearn:**

**A dofile** with all the commands that you ran.  
Please include comments in your code whenever possible to show what you are doing.  
 The name of the file should be your Group Number followed by the class and lab number.  
 **Ex: ‘Group\_1\_ECON\_270\_Lab\_1.do’**

**Group Number: \_\_\_\_\_\_\_**

**Group Members:**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
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Questions

1. Load in the dataset given to you on BBLearn titled **hospdd.dta**
2. Describe the 5 variables in the dataset and what they each mean. Which variable is the binary variable? What does one observation (i.e., each row) represent?  
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3. Create a treatment variable called **treat** and equate it to the variable procedure.
4. Which month was the the new procedure (i.e., the treatment) adopted?  
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5. Let’s now sort the data so that when we browse the dataset we can see each hospital sorted chronologically by the months. Further we are going to assign all hospitals that adopted the new procedure to the treatment group. Combining this run the command:

bysort hospital (month): replace treat = treat[\_N]

1. What does the treat variable represent? Label the treat variable to indicate what 0 and 1 represents.   
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2. Now let’s generate an indicator variable to find out when the treatment starts. Create a variable named **post** and assign an initial value of 0 to it.
3. Replace the value of the variable post to be equal to 1 if the month is greater than 3.
4. Similar to question 6, explain the meaning of the variable **post** and label it to indicate what 0 and 1 represents.   
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5. Let’s now take a look at the difference in differences table. Run the command:

table treat post, c(mean satis)   
Interpret the 4 values you get.   
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1. To graph the effects of the procedure, we have to collapse the data so that we have monthly data. Preserve the dataset and then collapse the mean patient satisfaction score by the treatment variable and the month variable.
2. Browse the dataset and explain the meaning of an observation.  
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3. Create a twoway line graph for the variables **satis** and **month** for bith the treatment and control groups.  
   Hint: If you are unsure type in “help graph twoway” and this will give you more guidance
4. To the command you used in 13, add the option **legend(label(1 Control) label(2 Treatment))** at the end to label the two lines in the graph. Attach a screenshot of your graph.
5. Restore the dataset.

Now let’s do a formal regression analysis.

1. Collapse the mean of the variables **satis, treat,** and **post** by the variables **hospital** and **month**.   
   Note: the unit of observation is the hospital-month. We have 46 hospitals, 18 treated over 7 months. We create that dataset by averaging over patients.
2. Run the command: xtset hospital month  
   (This just tells Stata that the dataset in question is a panel dataset (here: a cross section of hospitals seen over several months).
3. Finally, let’s run the regression. Use the command: reg satis i.treat i.post i.treat#i.post  
   What is the regression equation here?  
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4. Interpret each coefficient.   
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5. Looking at the significance level of the coefficients and under the assumption of parallel trends, did the treatment have causal effects? Was it positive or negative?  
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6. Save and submit the dofile.