Rutgers University
Department of Economics
Econ 322 Section B6
Summer 2017
Final Project

Due date: 12:00 Noon July 6, 2017

Instructions: You must upload your project to the SAKAI site by 12 noon, Thursday July 6, 2017. Any projects received after the deadline will not be accepted and you will receive a 0 for the project.

All answers must be written in complete sentences. Eviews output can be included but only as either a table or a figure. Refer to the output in your answers. Projects that only include Eviews (or other package) output without any explanation will not receive any credit.

You **MUST NOT** work with anyone on this project. This project needs to be your own work. Do not discuss this project with any of your classmates.

Data: *House prices in Baton Rouge, LA and Stockton, CA*

In this project you will critique and improve upon a regression study that aims to analyze the differences in house prices two cities in the US. The first city is Baton Rouge, Louisiana and the second city is Stockton, California. The data can be found in the Excel spreadsheet titled houseprices.xls. This spreadsheet contains 1000 observations on 6 variables:

- sale price (**price**),
- house size in square feet (**sqft**),
- the number of bedrooms (**bedrooms**),
- the number of bathrooms (**baths**),
- the age of the house in years (**age**).
- There is also a 6th variable which is a binary variable that takes the value of 0 if the house was sold in Baton Rouge and the value 1 if the house was sold in Stockton. (**stockton**)

Regression Analysis

You are a newly hired research assistant at RLJ Consulting Services and on your first day at work your boss asks you to review a research study done by your recently fired predecessor. The aim of the project was to determine where houses were more valuable; Stockton, CA or Baton Rouge, LA. Your predecessor decided that the best approach to answering this question was to test whether the mean house price in Stockton was larger than the mean house price in Baton Rouge. You predecessor had taken an econometrics class and realized that this is equivalent to estimating the following regression:

$$price_i = \beta_0 + \beta_1 Stockton_i + \varepsilon_i$$

using the ordinary least squares estimator with homoscedastic errors. The results of this regression are reported in Table 1 below:

Table 1: Regression Results

Dependent Variable: PRICE
Method: Least Squares
Sample: 1 1000
Included observations: 1000

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	163402.1	4582.788	35.65561	0.0000
STOCKTON	-52885.88	6824.039	-7.749938	0.0000

R-squared	0.056766	Mean dependent var	139550.6
Adjusted R-squared	0.055821	S.D. dependent var	110506.7
S.E. of regression	107378.1	Akaike info criterion	26.00810
Sum squared resid	1.15E+13	Schwarz criterion	26.01791
Log likelihood	-13002.05	Hannan-Quinn criter.	26.01183
F-statistic	60.06155	Durbin-Watson stat	1.530284
Prob(F-statistic)	0.000000		

The results suggest that Stockton house prices are, on average, \$52,885.88 lower than Baton Rouge, LA and the 95% confidence interval for the difference in means is

$$\left[-\$66{,}276.99,\ -\$39{,}494.77\right]$$

Your boss, Dr Snow, saw these results and said that these results do not make sense given that house prices in California are high relative to the rest of the country.

Your task is to redo this analysis and, this time, get it right! (In the words of Dr Snow)

Final Project

You task is to redo the empirical analysis above and report to your boss your results. Your report will contain three components:

1. An executive summary outlining your results (Max 250 words)
2. A technical summary describing what you did and your reasoning.
3. A technical appendix with any computer output you obtained in the process.

The executive summary should be written in a way that is understandable by a "lay-person", that is someone who has not taken econometrics but has taken a college level statistics class.

The technical summary should be written as a report in full sentences. All results should be reported in tables or figures and referred to from the body of the technical summary.

The technical appendix can include any raw output you use in your analysis.

Final Comments

I will grade your final project based on the following criteria:

- your critique of the original analysis.
- your modelling of the data in your analysis.
- your justifications for the approach you took in your analysis.
- your ability to explain what you did and why you did it.
- your ability to explain the outcome of your analysis in a non-technical way.

Note: You do not need to worry about regressor endogeneity in this analysis. You do not have any instruments and so there is no need to discuss this issue.