

Instructions

Due Week 13 · Friday, November 20

Prof. Jack Reilly

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Complete the following problems and upload your answers as a PDF file to **Blackboard**. Upload your `.do` file as well.

The Organization for Economic Co-Operation and Development collects data on main economic indicators (MEIs) for many countries. The dataset `MEIS.dta` provides values for three MEIs for 19 countries.

Questions

1. Make a scatterplot with sales as the response variable and permits issued for new dwellings as the explanatory variable, including the regression line in the plot. Describe the relationship. Are there any outliers or influential observations?
2. Find the least-squares regression for the same relationship. Paste the output from Stata into your document.
3. Interpret the slope of the line in the context of this exercise.
4. What is the t-ratio and p-value for the slope of the line? What hypotheses are being tested, and what is the proper interpretation for these numbers?
5. Interpret the intercept of the line in the context of this exercise. Explain whether or not this interpretation is useful in explaining the relationship between these two variables.
6. What is the t-ratio and p-value for the intercept term? What hypotheses are being tested, and what is the proper interpretation for these numbers? Explain whether or not this interpretation is useful in explaining the relationship between these two variables.
7. What is the predicted value of sales for a country that has an index of 117.8 for dwelling permits?
8. Canada has an index of 117.8 for dwelling permits. Find the residual for this country.
9. What percent of the variation in sales is explained by dwelling permits?

10. Create a new dummy variable that assumes a value of 1 if a country is located in Europe (Belgium, Czech Republic, Estonia, Finland, France, Germany, Greece, Hungary, Luxembourg, Netherlands, Norway, Poland, Slovenia, Spain) and 0 otherwise (Australia, Canada, Chile, Israel, Korea). Name this variable Europe.
11. Create a box plot comparing production levels (variable `production`) between European and non-European countries.
12. What can you tell from the plot?
13. Conduct a t-test to assess whether production is higher in European countries than in non-European countries. What is the p-value for this difference? Interpret the results.
14. Run a regression to assess whether production is higher in European countries than in non-European countries. What are the slope and intercept coefficients? What are the p-values for this difference? Interpret the results. Do they provide any different information than the t-test conducted in question 13?