

ECO 307: Introductory Econometrics
Instructor: Dr. James Murray
In-class Exercise: Introductory Statistics
Fall 2015

Your Name: _____

Learning Objective: (LO 1) Estimate and interpret confidence intervals and hypotheses tests using univariate and bivariate statistical methods to describe characteristics of one or two populations.

Directions: The questions on the following page use the dataset `eurointernet.csv` on the class website. The dataset includes annual data for 32 European countries on 1995 real GDP per capita, whether or not the country was an original OECD member, and the percentage of individuals in the population that have used the Internet to purchase items for personal usage within the last three months for each year from 2008 to 2010.

For all hypothesis tests, show in your answer explicitly every step of a hypothesis test.

Group Work Terms and Conditions: Work in groups of up to four people and answer the following questions. All papers will be collected, but only one member's paper will be randomly selected and graded and all members of the group will receive the same grade.

By signing below, you agree that the following work represents the efforts of everyone in the group, and you are willing to accept as your own grade for the group project the grade earned from this representation of your group's work. Every member must agree to these terms to earn a non-zero grade for this assignment.

_____ Signature Group Member 1	_____ Print Name	_____ Date
_____ Signature Group Member 2	_____ Print Name	_____ Date
_____ Signature Group Member 3	_____ Print Name	_____ Date
_____ Signature Group Member 4	_____ Print Name	_____ Date

1. The last column is a dummy variable for whether each country was one of the original members of OECD (Organization for Economic Cooperation and Development), originally signed on December 14, 1960 (most European countries have since joined). The variable is equal to 1.0 for original member countries and 0.0 for all others. Test whether or not original OECD European countries have a higher average Internet commerce usage in 2010 than European countries who did not originally join. Construct and interpret a 95% confidence interval for the difference in Internet commerce usage between these two groups.
2. Test whether or not the average Internet commerce usage among European countries in 2010 is less than 25%. Construct and interpret a 95% confidence interval for the average Internet commerce usage among European countries in 2010.
3. Test whether or not the average Internet commerce usage increased in European countries from 2008 to 2010. Construct and interpret a 95% confidence interval for the difference in Internet commerce usage from 2008 to 2010.
4. Test whether or not there is a relationship between 1995 real GDP per capita and average Internet commerce usage in 2010. Construct and interpret a 95% confidence interval for an estimate on the strength of the relationship. Comment on the nature of the relationship.