Problem Set No. 2
Introduction to Econometrics
Professor Adriana Kugler
Due on October 8, 2009

1. On my website (http://www.uh.edu/~adkugler/ProblemSets.html) you will find a file called Growth, with data on average growth rates over 1960-1995 for 65 countries along with variables that are potentially related to growth. Here, I have attached a detailed description of the data. In this exercise you will investigate the relationship between growth and trade.

(a) Construct a scatterplot of average annual growth rate (Growth) on the average trade share (TradeShare) and include the linear fit to this relation. One country, Malta, has a trade share much larger than the other countries. Mark Malta on the scatterplot. Does Malta look like an outlier?

(b) Using all observations, run a regression of Growth on TradeShare and report it. Calculate the predicted growth rate for a country with a trade share of 1.0 using the results from the regressions.

(c) Now, run a regression of Growth on TradeShare without Malta and calculate the predicted growth rate for a country with a trade share of 1.0 using the results without Malta.

(d) Should Malta be included or excluded from the analysis? (Hint: Malta is an island nation in the Mediterranean Sea, south of Sicily. Malta is a freight transport site, which explains its large ‘trade share’. Many goods coming into Malta (imports into Malta) are immediately transported to other countries (as export from Malta). This means that the ‘imports’ and ‘exports’ from Malta are unlike the imports and exports from other countries.)

2. Suppose that a researcher, using wage data on 250 randomly selected male workers and 280 female workers estimates the OLS regression,

\[
\hat{Wage} = 12.52 + 2.12 \times Male,
\]

\[
(0.23) \quad (0.36)
\]

\[
R^2 = 0.06 \\
SER = 4.2,
\]
where $Wage$ is measured in dollars/hour and $Male$ is a binary variable equal to 1 if the person is male and 0 if the person is female. Define the wage gap as the difference in mean earnings between men and women.

(a) What is the estimated wage gap?
(b) Is the estimated gender gap significantly different from zero at the 1% level?
(c) Construct a 95% confidence interval for the gender gap.
(d) In the sample, what is the mean wage of women? of men?
Documentation for Growth Data

Growth contains data on average growth rates over 1960-1995 for 65 countries, along with variables that are potentially related to growth. These data were provided by Professor Ross Levine of Brown University and were used in his paper with, Thorsten Beck and Norman Loayza “Finance and the Sources of Growth” Journal of Financial Economics, 2000, Vol. 58, pp. 261-300.

Variable Definitions

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Country_name</td>
<td>Name of country</td>
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<tr>
<td>growth</td>
<td>Average annual percentage growth of real Gross Domestic Product (GDP)* from 1960 to 1995.</td>
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<tr>
<td>rgdp60</td>
<td>The value of GDP* per capita in 1960, converted to 1960 US dollars</td>
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<tr>
<td>tradhare</td>
<td>The average share of trade in the economy from 1960 to 1995, measured as the sum of exports plus imports, divided by GDP; that is, the average value of ((X + M)/GDP) from 1960 to 1995, where (X) = exports and (M) = imports (both (X) and (M) are positive).</td>
</tr>
<tr>
<td>yearschool</td>
<td>Average number of years of schooling of adult residents in that country in 1960</td>
</tr>
<tr>
<td>rev_coups</td>
<td>Average annual number of revolutions, insurrections (successful or not) and coup d’etats in that country from 1960 to 1995</td>
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<tr>
<td>assasinations</td>
<td>Average annual number of political assassinations in that country from 1960 to 1995 (per million population)</td>
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<tr>
<td>oil</td>
<td>(= 1) if oil accounted for at least half of exports in 1960 (= 0) otherwise</td>
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