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| Cliff Rodriguez |
| Using Stata Problem 3 |
| Affiliations:  CU Denver  Abstract:  Abstract would go here for full paper |
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| Cliff Rodriguez  2-12-2018 |

# Style Guidelines

* Double space
* Equations
  + begin on a new line
  + centered on the page
  + numbered sequentially
  + describe important variables when introducing an equation
  + state whether or not standard errors are in parenthesis near the first equation
* Commands
  + List any special commands used in an appendix
* Graphs and tables
  + May be in-text or at the end
* Paper citations
  + Author (Year)

# Introduction

Using the PENN World Tables version 9 and STATA statistical software version 15 data analysis was performed to demonstrate the performance of various countries in relation to the US performance over time using both the Cobb-Douglas model and Constant Elasticity model.

Using the data from the PENN World Tables analysis was performed using the Cobb-Douglas and Constant Elasticity production functions.

# Conceptual (or theoretical) Framework

* Describe approach to answering questions being asked
  + Intuitive and conceptual problems are included in discussion
* Discussion on what factors should be controlled for and what factors are included and why

# Econometric Models and Estimation Methods

* Key equations estimated and presented in the results section
  + Fix ideas about what they key explanatory variable is and what other factors will be controlled for
  + Including equations with error terms allows for a discussion on whether OLS is a suitable method
    - Discuss whether OLS is suitable for this method
* Make distinction between model and if estimation method and what is being used
  + Do not discuss what variables have been omitted, this goes in the results section
  + After specifying model/s discuss estimation methods
    - Discuss any assumptions made is obtaining an estimable econometric model

# Data

* Describe data used in empirical analysis
* Include enough information so analysis could be repeated by the reader
* Discuss data sources
* Discuss units of each variable
  + May be presented in a table format
* Table of summary statistics may be included
  + Present means for binary variables
  + Computing the average growth rate can be interesting
* State the number of observations
  + Identify years for time series datasets and descriptions of any special periods (wars, recessions, etc.)
  + For pooled cross section or panel set data be sure to report how many cross-sectional units are included for each year



Figure : Predicted vs Actual using Cobb-Douglas and CES



Figure : Two Production Functions (A = 1)



Figure : Real GDP Per Person

|  | Data | | Model Predictions | | TFP | | | | Capital Augmenting | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Country** | **y** | **k** |  | **F2** | **Cobb-Douglas** | | | **CES** | **Cobb-Douglas** | **CES** |
| Austria | 0.89 | 3.77 | 1.56 | 2.04 | -0.56 | -0.83 | | | -1.57 | -2.49 |
| Brazil | 0.30 | 1.17 | 1.05 | 1.08 | -1.26 | -1.29 | | | -3.01 | -3.86 |
| China | 0.20 | 0.73 | 0.90 | 0.85 | -1.48 | -1.43 | | | -3.72 | -4.29 |
| India | 0.09 | 0.29 | 0.66 | 0.56 | -1.97 | -1.81 | | | -6.46 | -5.43 |
| Norway | 1.22 | 4.52 | 1.65 | 2.26 | -0.30 | -0.62 | | | -1.12 | -1.85 |
| South Africa | 0.24 | 0.75 | 0.91 | 0.87 | -1.33 | -1.29 | | | -3.23 | -3.86 |
| Spain | 0.66 | 3.46 | 1.51 | 1.94 | -0.83 | -1.08 | | | -2.12 | -3.25 |
| Sweden | 0.87 | 3.32 | 1.49 | 1.89 | -0.54 | -0.78 | | | -1.49 | -2.34 |
| Switzerland | 1.10 | 4.13 | 1.60 | 2.15 | -0.37 | -0.67 | | | -1.22 | -2.00 |
| United Kingdom | 0.73 | 3.09 | 1.46 | 1.82 | -0.69 | | -0.91 | | -1.78 | -2.74 |
| United States | 1.00 | 3.16 | 1.47 | 1.84 | -0.38 | -0.61 | | | -1.15 | -1.83 |
| Zimbabwe | 0.03 | 0.11 | 0.48 | 0.38 | -2.81 | -2.57 | | | . | -7.72 |

* Table 1: Karababounis and Neiman Table Using 2011 data

# Results

* Include estimates of any models formulated in the models section
  + Start with simple analysis
* Results may be presented in equation form with standard error in parenthesis below estimated coefficients
* For many explanatory variables, use a tabular form for presenting the equations
  + Make dependent and independent variables clearly indicated
  + Select units that make coefficients understandable
  + Do not use scientific notation in tables
* Most papers will have at least one table that includes the R2 value and the number of observations for each equation.
* The most important part is to discuss the interpretation and strength of empirical results
  + Do coefficients have the expected sign?
  + Are they statistically significant?
  + Explain why anything counterintuitive might be happening
  + Describe magnitude of coefficients on the major explanatory variables
    - For variables central to the study signs, magnitudes, and statistical significance should be discussed in detail
    - Distinguish between economic and statistical significance
    - Dropping a group of variables to simplify a model can be justified via an F-Test
    - Comment on any important differences if multiple methods were used

# Conclusion

* Summarize what you have learned
  + Can present the magnitude of a coefficient that was of particular interest
  + Discuss any caveats to the conclusion drawn
  + Suggest direction for further research

# Appendix

* Source code is located on https://github.com/madebycrod/MacroEcon/tree/branch/HW%202/rodriugezHW2.do