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EC569 Economic Growth
Problem Set #0

1. Go to the following website:

(If necessary, copy the link above and paste in your browser.)
Download Maddison Project Database 2018 either in Excel or Stata format (you are free to use whichever software you are comfortable with).

a. Plot income per capita of the UK over time (use all the years that data exists). The variable you need to plot is rgdpnapc[1]. Briefly comment on the graph.

b. Now, calculate average annual growth rate of the UK using variable rgdpnapc for the time periods specified in table 1. Express in percentages.

c. Using the rule of 72 and average annual growth rates you calculated in part b, calculate the number years it takes to double income per capita for each time period in table 1. Round the numbers to nearest integer.

Table 1: Growth rate of the UK GDP per capita

Time Period	Average annual growth rate	Years to double income
1000 - 1700		
1700 - 1800		
1800 - 1900		
1900 - 1950		
1950 - 2000		
2000 - 2014		

Average annual growth rate: There are many ways to calculate average annual growth rate. One method is as follows. Let $y_{i,t}$ be the GDP per capita of country i at year t, and $y_{i,t+n}$ and be the GDP per capita of country i in year $t+n$. Then the average annual growth rate of country i from year t to $t+n$, g_y, is equal to

$$g_y = \left(\frac{y_{i,t+n}}{y_{i,t}}\right)^{1/n} - 1.$$

Rule of 72: For an economy with a growth rate of x%, it takes 72/x years to double its income. For example, with a growth rate of 1.8% it takes 40 (=72/1.8) years to double income.

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[1]Real GDP per capita in 2011US$, 2011 benchmark (suitable for cross-country growth comparisons)