

**Problem Set #2: Long-Term Economic Performance**

Revised: September 11, 2014

You may do this assignment in a group. Whatever you hand in should be the work of your group and include the names of all of the contributors.

1. *Sources of Korean success (35 points).* The Republic of Korea (“South Korea”) has been one of the great economic success stories of world history. Since the end of the Korean War in 1953, GDP per capita has risen by a factor of almost 20. Over the same period, US income rose by a factor of 3. As a result, the gap between the two countries has shrunk dramatically. In 1953, average income in Korea was about 10% of US income, but by 2010 (the most recent comparable number) it was about 65%.

Was Korea a classic productivity story, or did capital formation and hours worked play more important roles than in other countries? We know, for example, that the saving rate and hours worked are both unusually high. Let’s check the numbers and see where the remaining difference in GDP per person comes from.

Use the Penn World Table summary spreadsheet,

<http://pages.stern.nyu.edu/~dbackus/2303/pwt80-GlobalEconomy.xlsx>,

to fill in this table for 2011:

	South Korea	United States
GDP per person (Y/POP)		
GDP per worker (Y/L)		
Capital-output ratio (K/Y)		
Capital per worker (K/L)		
Employment rate (L/POP)		
Hours worked (h)		

- (a) What is the ratio of GDP per person in the two countries (Korea over US)? (5 points)
- (b) Use the production function to derive total factor productivity (TFP) in each country from the numbers in the table. What is the ratio of the two countries? How does it compare to the ratio you computed in (a)? (10 points)
- (c) Overall, what factors contribute to the difference in GDP per person? How important is capital? (10 points)

- (d) You have heard that Koreans work exceptionally long hours. If you incorporate hours data into your calculations, how does your calculation of TFP change? How does this affect your assessment of the relative productivity of Korea and the US? (10 points)

2. *La Dolce Vita* (35 points). Like most of Western Europe, Italy grew rapidly after World War II. It differs from some of the other European countries in slowing almost to a halt over the last decade, even before the crisis took hold. The question is why.

We'll start by looking at the numbers. Complete the following table using the same source as the previous question:

	1950	2000	2011
GDP per capita (Y/POP)			
GDP per worker (Y/L)			
Capital-output ratio (K/Y)			
Capital per worker (K/L)			
Employment rate (L/POP)			

- (a) Compute the “average annual continuously compounded growth rates” of GDP per capita and GDP per worker over the periods 1950-2000 and 2000-2011. (The long phrase in quotation marks is a signal to use logarithms.) (10 points)
- (b) Use our growth accounting methodology to allocate growth in GDP per worker to growth in productivity and capital per worker. Which factor changed most between the two periods? (15 points)
- (c) Use the World Bank's [Doing Business](#) rankings, and any other sources you deem relevant, to assess Italy's business environment. What are its strengths? Its weaknesses? What factors would you blame for Italy's malaise? (10 points)
3. *Labor market conditions* (30 points). Your first day on the job at General Electric, you are given two hours to collect information for a 5-minute presentation to your group summarizing the labor market conditions a manufacturer would face in Brazil, the Czech Republic, and Taiwan. Once you get over your initial panic, you contact your Global Economy professor, who suggests you start with:
- The Bureau of Labor Statistics' [International Labor Comparisons](#), especially the section titled [Hourly Compensation Costs](#) in manufacturing, which includes labor costs in a number of countries collected on a comparable basis.
 - The [Barro-Lee dataset](#) includes information about the education level of the population. (In my experience, it's easiest to download the whole thing and look at the countries you want.)

- The World Bank's Doing Business website, which includes institutional information about the labor market, labeled [Employing Workers](#).
- The Economist Intelligence Unit's Country Commerce Reports, particularly the section on human resources, which describes the legal and business environment governing employment. To access the reports go to NYU's [Virtual Business Library](#), click on Country Information, then EIU Country Commerce, login as directed using your NYU id and pw, click on Country Commerce again, and choose the country of interest.

Use this information to put together a short report summarizing labor market conditions in these three countries. A summary table or chart would be ideal.