ECON 336 HW 1 Solutions

Due: Wednesday, September 22

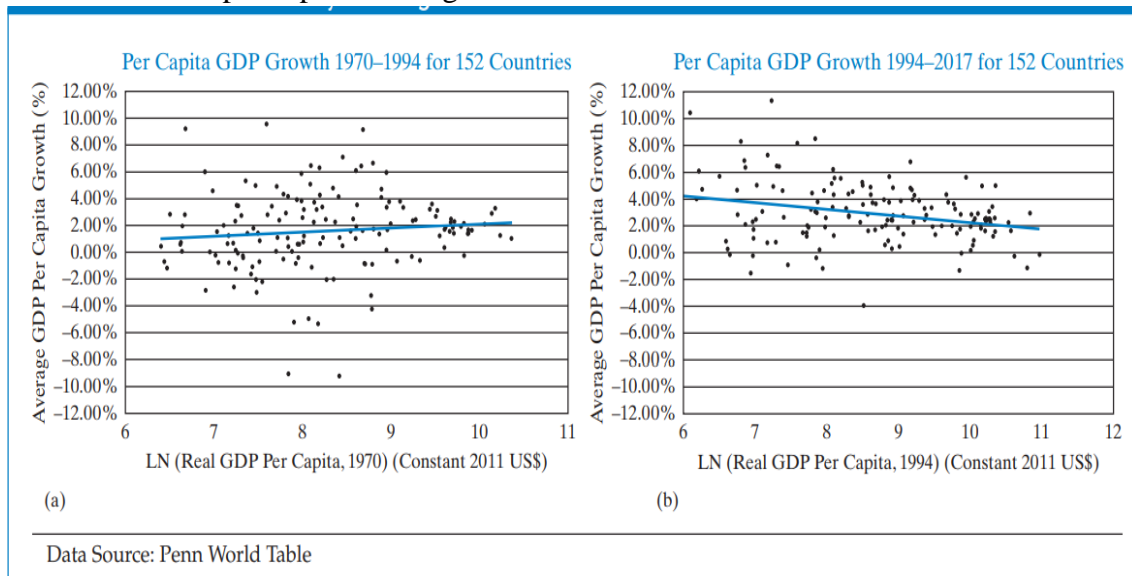**Short Answer Questions:**

1) Define the following terms
   a. **Absolute poverty**: A situation of being unable to meet the minimum levels of income, food, clothing, health care, shelter, and other essentials.
   b. **Subsistence economy**: An economy in which production is mainly for personal consumption and the standard of living yields little more than basic necessities of life—food, shelter, and clothing.
   c. **Traditional economics**: An approach to economics that emphasizes utility, profit maximization, market efficiency, and determination of equilibrium.
   d. **Brain drain**: The emigration of highly educated and skilled professionals and technicians from the developing countries to the developed world.
   e. **Convergence**: The tendency for per capita income (or output) to grow faster in lower-income countries than in higher-income countries so that lower-income countries are "catching up" over time. When countries are hypothesized to converge not in all cases but other things being equal (particularly savings rates, labor force growth, and production technologies), then the term conditional convergence is used.
   f. **Economic Institutions**: "Humanly devised" constraints that shape interactions (or "rules of the game") in an economy, including formal rules embodied in constitutions, laws, contracts, and market regulations, plus informal rules reflected in norms of behavior and conduct, values, customs, and generally accepted ways of doing things.
   g. **Natural resource curse**: the phenomenon of countries with an abundance of natural resources having less economic growth, less democracy, or worse development outcomes than countries with fewer natural resources.

2) Briefly explain the capability approach. In what regard, it is different from the utility approach?

Capability approach: poverty cannot be properly measured by income or even by utility as conventionally understood; what matters fundamentally is not the things a person has—or the feelings these provide—but what a person *is,* or can be, and does, or *can do*.

In the utility approach, the characteristics of commodities consumed matters. In the capability approach, what use the consumer can and does make of commodities is important.

3) Briefly compare the two plots below. Also, explain what implications these two plots have for income per capita convergence.

Per Capita GDP Growth 1970–1994 for 152 Countries

Per Capita GDP Growth 1994–2017 for 152 Countries

(a)

(b)

Data Source: Penn World Table

Left graph: the relationship between initial GDP per capita and average growth rate is positive, meaning that high-income countries experienced higher growth rates from 1970 to 1994: Evidence for divergence

Right Graph: the relationship between initial GDP per capita and average growth rate is negative, meaning that low-income countries experienced higher growth rates from 1994 to 2017: Evidence for convergence

4) What is the relationship between economic development and happiness? (You need to refer to the concept of diminishing marginal utility in your answer.)

The relationship is positive but with a decreasing rate. Higher units of income have less effect on happiness than the first units due to diminishing marginal utility of money.

5) Briefly explain why GNI per capita is not a good measure of economic development.

GNI per capita cannot solely measures development as it doesn't account for many factors that are important in economic development. For example, it doesn't show what the level of income inequality in a country is, or if there is a democratic regime in place or not. Other factors such as environmental issues are also not included in GNI per capita.

6) What are the potential relationships among health, labor productivity, and income levels? Explain your answer.

At very low income levels, in fact, a vicious circle may set in, whereby low income leads to low investment in education and health as well as plant and equipment and infrastructure, which in turn leads to low productivity and economic stagnation. This is also known as a poverty trap or what Nobel laureate Gunnar Myrdal called "circular and cumulative causation."

Numerical Questions

7)

a. Briefly explain why GNI per capita, PPP is better for comparing countries than the regular GNI per capita.

Per capita GNI comparisons between developed and less developed countries are exaggerated by the use of official foreign-exchange rates to convert national currency figures into U.S. This conversion does not measure the relative domestic purchasing power of different currencies.
GNI per capita, PPP is the calculation of GNI using a common set of international prices for all goods and services, to provide more accurate comparisons of living standards.

b. Assume that a basket of goods has been selected to calculate the PPP rate for Bolivia. The cost of this basket is 156 Bolivian Boliviano (the official currency of Bolivia). The same basket costs consumers $60 to buy in United states. Calculate the PPP rate for Bolivia.

PPP rate = 156/60 = 2.6

c. Bolivia's GNI per capita in 2019 was 17458 Bolivian Boliviano. Assuming that the official exchange was 6.9 ($1= 6.9 Bolivian boliviano), calculate both the GNI per capita PPP and regular GNI per capita. Briefly explain how your answer is related to part **a**.

Regular GNI per capita = 17458/6.9= $2530
PPP GNI per capita = $6714
GNI per capita, PPP is three ties higher than the regular one. Bolivia standards of living are much higher than the one reflected in the regular GNI per capita.

8) The following table presents the human development indices for Kenya as well as maximum and minimum values in 2019.

	Kenya	Maximum	Minimum
Means Adults Years of Schooling	8.4	15	0
Expected Years of schooling	11.6	18	0
Life expectancy rate at birth	67	85	20
GNI Per Capita	4243	75000	100

    a. Calculate all dimension indices for all four categories (remember, you need to take logs of GNI values).

    b. Calculate the NHDI for Kenya in 2019.

```
Please see the excel file for this assignment.
```

Excel Questions

9) Download the excel file uploaded on Sakai, HW1. It is the GNI per capita data for selected countries and regions. You are supposed to categorize countries based on World Bank categorization for 2 different years.

    a. Based the thresholds presented in the sheet named "Categories", categorize countries accordingly.
Help: You can make use of the following command, which is for year 2000 to categorize countries. You, then, need to adjust the command according to the year. Copy and paste the command into cell E2 and the drag the lower corner of the cell to the bottom.

```
= IF(C2<755,"LIC",IF(C2<2995,"LMI",IF(C2>9256,"HIC","UMC")))
```

```
Please see the excel file for this assignment.
```

    b. How many low-income countries were available in 2000? What about 2019?
Help: You can make use of the `COUNTIF` command. For example, using =COUNTIF(A1:A3,"HIC") would evaluate the characters in cells A1 to A3 and count how many of them have "HIC" included.
```
2000: 19
2019:16
```
    c. Given your findings above, what conclusion you can make the trend of economic development in the world?
```
There are less underdeveloped countries right now and
developing countries are on the path to gradually become
developed.
```

d. Plot GNI per capita growth rate from 2000 to 2019 against GNI per capita in 2000 using Scatter chart. What pattern do you observe?

```
The same as the left graph of question 3.
```

Analytical Questions

10) Read the article entitled "The trouble with GDP" uploaded on Sakai. Answer the following questions.
   a. What is the main criticism made by William Nordhaus against measuring standards of living?
   ```
   GDP, as the mainstream indicator for standards of living does not
   account for the vast changes in the quality of things we consume. Each
   innovation in lighting, from candles to tungsten light bulbs, was far
   more efficient than the last. For example, if you measured the price
   of light in the way a cost-conscious physicist might, in cents per
   lumen-hour, it plummeted more than a hundredfold.
   ```
   b. What was the disagreement between Keynes and Kuznets about?
   ```
   Kuznets treats government spending as a cost to the private sector,
   but Keynes sees that if wartime procurement by the state was not
   treated as demand, GDP would fall even as the economy grew.
   ```
   c. Name four things that are not counted in the measurement of GDP.
   ```
   Public-sector output. For example, number of operations performed by
   health services or the number of students taught in schools.
   Financial services
   Selling recreational drugs and paid sex work
   Depreciation of assets
   Pollution of the environment
   Human accomplishments.
   ```
   d. The article argues that benefits of new inventions to consumers are not measured in GDP. What is the example provided by the article? Can you think of other examples?
   ```
   From the article: "In a world where houses are Airbnb hotels and
   private cars are Uber taxis, where a free software upgrade renews old
   computers, and Facebook and YouTube bring hours of daily entertainment
   to hundreds of millions at no price at all, many suspect GDP is
   becoming an ever more misleading measure."
   You can think of many start-ups as other examples.
   ```
   e. The article talks about a few adjustments in measuring GDP. Name two of them.
   ```
   Valuing free digital services: estimate the value of the time spent
   on the internet.
   Including income from selling recreational drugs and paid sex work.
   ```