Assignment-1

Principle of Macroeconomics (HSS2021)

1. **Explain how absolute advantage and comparative advantage differ.**

   i. **Absolute advantage** and **comparative advantage** are two concepts in economics and international trade.

   ii. **Absolute advantage** refers to the uncontested superiority of a country or business to produce a particular good better.

   iii. **Comparative advantage** introduces opportunity cost as a factor for analysis in choosing between different options for production diversification.

2. **Pat and Kris are roommates. They spend most of their time studying (of course), but they leave some time for their favorite activities: making pizza and brewing root beer. Pat takes 4 hours to brew a gallon of root beer and 2 hours to make a pizza. Kris takes 6 hours to brew a gallon of root beer and 4 hours to make a pizza.**
   a) **What is each roommate's opportunity cost of making a pizza? Who has the absolute advantage in making pizza? Who has the comparative advantage in making pizza?**
   b) **If Pat and Kris trade foods with each other, who will trade away pizza in exchange for root beer?**
   c) **The price of pizza can be expressed in terms of gallons of root beer. What is the highest price at which pizza can be traded that would make both roommates better off? What is the lowest price? Explain.**

Roommates	Root Beer/Hour	Pizza/Hour	Opportunity cost for Pizza
Pat	4	2	2/4= 0.5
Kris	6	4	4/6= 0.6

a) Pat's opportunity cost of making pizza is 1/2 i.e. 0.5 gallon of root beer & Kris's opportunity cost of making pizza is 2/3 i.e. 0.6 gallon of root beer.

Pat has an absolute advantage in making pizza because he can make one pizza in 2 hours while Kris can make one pizza in 4 hours.

Pat has a comparative advantage in making pizza because he has lower opportunity cost of making pizza than Kris.

b) Pat will take away pizza in exchange for root beer because he has a comparative advantage in making pizza.

c) The highest price of pizza expressed in terms of root beer that will make both roommates better off is 2/3 i.e. 0.6 of a gallon of root beer.

If the price is higher than that, Kris will prefer to make his own pizza since the opportunity cost of making a pizza would be lower than the price for trade.

The Lowest price of pizza expressed in terms of root beer that will make both roommates better off is 1/2 i.e. 0.5 of a gallon of root beer.

If the price is lower than that, Pat will prefer to make his own pizza since the opportunity cost of making a pizza would be lower than the price for trade.

3. Below are some data from the land of milk and honey.

Year	Price of Milk	Quantity of Milk	Price of Honey	Quantity of Honey
2010	$ 1	100 quarts	$ 2	50 quarts
2011	$ 1	200	$ 2	100
2012	$ 2	200	$ 4	100

a) Compute nominal GDP, real GDP, and the GDP deflator for each year, using 2010 as the base year.

b) Compute the percentage change in nominal GDP, real GDP, and the GDP deflator in 2011 and 2012 from the preceding year. Did economic well-being rise more in 2011 or 2012? Explain.

a) Nominal GDP 2010 = (1*100) + (2*50) = $200
Nominal GDP 2011 = (1*200) + (2*100) = $400
Nominal GDP 2012 = (1*200) + (4*100) = $600

Real GDP 2010 = (1*100) + (2*50) = $200
Real GDP 2011 = (1*200) + (2*100) = $400
Real GDP 2012 = (1*200) + (2*100) = $400

GDP Deflator 2010 = 100*(Nominal GDP / Real GDP)
= 100*($200 / $200)
= $100

GDP Deflator 2011 = 100*(Nominal GDP / Real GDP)
= 100*($400 / $400)
= $100

GDP Deflator 2012 = 100*(Nominal GDP / Real GDP)
= 100*($600 / $400)
= $150

b) Nominal GDP 2011 = (1*200) + (2*100) = $400
Nominal GDP 2012 = (1*200) + (4*100) = $600 } 50%

Real GDP 2011 = (1*200) + (2*100) = $400
Real GDP 2012 = (1*200) + (2*100) = $400 } 0

GDP Deflator 2011 = 100*(Nominal GDP / Real GDP)
= 100*($400 / $400)
= $ 100

GDP Deflator 2012 = 100*(Nominal GDP / Real GDP)
= 100*($600 / $400)
= $150

} 50%

Yes, economic well-being rose from 2011 to 2012, since real GDP rose in 2011 but not in 2012. In 2011 real GDP rose but price did not. In 2012 real GDP did not rise but price rose.

4. Explain the meaning of nominal interest rate and real interest rate. How are they related?

A **real interest rate** is an interest rate that has been adjusted to remove the effects of inflation to reflect the real cost of funds to the borrower and the real yield to the lender or to an investor.

A **nominal interest rate** refers to the interest rate before taking inflation into account.

For e.g. if your fixed deposit earns an interest rate of 5%, then let us assume that the inflation rate is 3%. Then, adjusting for the effect of inflation, your deposit earns only 2% (5% - 3% = 2%).

Now the interest after adjusting for inflation is called the real interest rate and in the given example, it is 2%. So, while the nominal interest rate is 5%, the real interest rate is only 2%.

5. Suppose that people consume only three goods, as shown in this table:

	Tennis Balls	Golf Balls	Bottles of Gatorade
2011 price	$ 2	$ 4	$ 1
2011 quantity	100	100	200
2012 price	$ 2	$ 6	$ 2
2012 quantity	100	100	200

a) What is the percentage change in the price of each of the three goods?

b) Using a method similar to the consumer price index, compute the percentage change in the overall price level.

a) Percentage change in Tennis balls = (2-2/2)*100= 0
Percentage change in Golf balls = (6-4/4)*100= 50%
Percentage change in Bottles of Gatorade = (2-1/1)*100= 100%

b) Cost of basket in each year:

In 2011:

($2*100) + ($4*100) + ($1*200) = 200 + 400 + 200 = $800

In 2012:

($2*100) + ($6*100) + ($2*200) = 200 + 600 + 400 = $1200

Taking 2011 as base year:

Consumer Price Index (CPI) in 2011= 800/800*100 = 100

Consumer Price Index (CPI) in 2012 = 1200/800*100 = 150

Percentage change in overall price level = 150 – 100 = 50%

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