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Economics 152
Solution to Problem Set 3

PART 1 (5 POINTS)

Suppose Greenland has a total population of 12 million people. Of these, 4 million people are under the age of 16 or are institutionalized, and an additional 2 million people either do not work or are not able to work. Assume that 5.5 million people are already employed. Compute the unemployment rate in this country.

Answer: Total Population = 12 million

Not in labor force = (4+2) = 6 million

Labor force = (12 – 6) = 6 million

Labor force = Employed + Unemployed

6 = 5.5 + Unemployed

Unemployed = (6 – 5.5) million = 0.5 million

$$\text{Unemployment rate} = \frac{\text{Unemployed}}{\text{Total labor force}} * 100$$

$$= \frac{0.5 \text{ million}}{6 \text{ million}} * 100$$

= 8.33 %

PART 2 (5 POINTS)

Iceland is said to have full employment when the unemployment rate is 6.5%. Corresponding to this unemployment rate, the economy produces goods and services worth $20.5 billion. At present, the economy has an unemployment rate of 9.5%. Given this rate of unemployment, the real domestic output produced in the economy is $14.8 billion. Answer the following questions, based on the above information.

(i) What is the potential GDP in this economy? Explain your answer.

Answer: The potential GDP in this economy is the level of output corresponding to the full employment or the natural rate of unemployment. Therefore the potential GDP is $ 20.5 billion.

(ii) What types of unemployment are included in the 6.5% unemployment rate? Explain your answer.

Answer: Frictional + Structural

(iii) Compute the output gap in this case.

Answer: Output gap = Potential Output – Actual Output

= $(20.5 – 14.8) billion

= $ 5.7 billion

PART 3 (5 POINTS)

Mr. X is contemplating of installing an additional machine in his firm. The cost of the machine is $1200. Mr. X expects that using the machine will increase his output and revenues to $1500. Assume that the nominal interest rate in the economy is 10% and the inflation rate is 5%. Explain clearly whether Mr. X should install the machine.

Answer: EROR (r) = $\frac{\$ (1500 - 1200)}{\$ 1200} * 100$

= 25 %

Real Interest Rate (i) = Nominal Interest Rate – Rate of Inflation

= (10 – 5) %

= 5 %

EROR (r) = 25 % > Real Interest Rate (i) = 5 %

MB > MC

Hence invest.

PART 4 (5 POINTS)

Complete the following table assuming that (a) **MPS = 1/6**, (b) there is no government and all saving is personal saving.

Level of Output and Income	Consumption	Saving
$ 350	$ 360	- $ 10
375	381	- 5.8
400	402	- 2
425	423	+ 2
450	444	+ 6