Elements of Macroeconomics TA Session 3-2: Assignment 3

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Slides on https://github.com/Haruki-Shibuya/TA

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Q1 (a)

Question One

One day, Barry the Barber Inc., collects $400 for haircuts. Over this day, his equipment depreciates in value by $50. Of the remaining $350, Barry sends $30 to the government in sales taxes, takes home $220 in wages, and retains $100 in his business to add new equipment in the future. From the $220 that Barry takes home, he pays $70 in income taxes. Based on this information, compute Barry's contribution to the following measures of income.

- Total revenue from haircuts: $R = 400$
- Depreciation: $D = 50$
- Sales tax: $T_s = 30$
- Wages: $W = 220$
- Retained earnings: $E_r = 100$
- Income tax: $T_i = 70$

Q1 (a)

a) Gross Domestic Product (GDP)

$$\text{GDP} = R = 400$$

- GDP represents the total market value of all final goods and services produced within a country in a specific period.
- Note that capital depreciation is already added in GDP. This is clear in the income approach:
- $GDP = W + T_s + Er + D$
- $400 = 220 + 30 + 100 + 50$

Q1 (a)

- You might get confused if you use the expenditure approach. (I was.) But it's consistent
- $Y_t = C_t + I_t + G_t + NX_t = C_t + I_t$
- $C_t = R_t$, so $Y_t = R_t + I_t$
- $I_t = K_{t+1} - (1 - \delta)K_t$ (identity). Here in this exercise,
- $\Delta K_{t+1} = -\delta K_t$, i.e., there is no investment to retain the capital. So,
- $I_t = 0$
- $Y_t = C_t = R_t$ (in this case.)

Q1 (b)

- NNP:=GNP-Depreciation
- GNP=GDP+Net Factor Payments
- But we assume Barry earns inside the country, so GNP=GDP

b) Net National Product (NNP)

Assuming Barry is a resident of the same country:

$$\text{NNP} = \text{GDP} - D$$

$$\text{NNP} = 400 - 50 = 350$$

Q1 (c)

c) personal income

Personal income = income received by households (in this case, Barry's wages)

$220

$$\text{Personal Income} = W = 220$$

Q1 (d)

d) disposable personal income

Disposable personal income = personal income - taxes paid on that income

Disposable personal income = $220 - $70

$150

$$\text{Disposable Personal Income} = \text{Personal Income} - T_i$$

Q2

Question Two

Between January 2010 and January 2016, U.S. employment increased by 12.1 million workers, but the number of unemployed workers declined by only 7.3 million. How are these numbers consistent with each other? Why might one expect a reduction in the number of people counted as unemployed to be smaller than the increase in the number of people employed?

$$\Delta E = E_{2016} - E_{2010} = 12.1 \text{ million}$$

$$\Delta U = U_{2016} - U_{2010} = -7.3 \text{ million}$$

Q2

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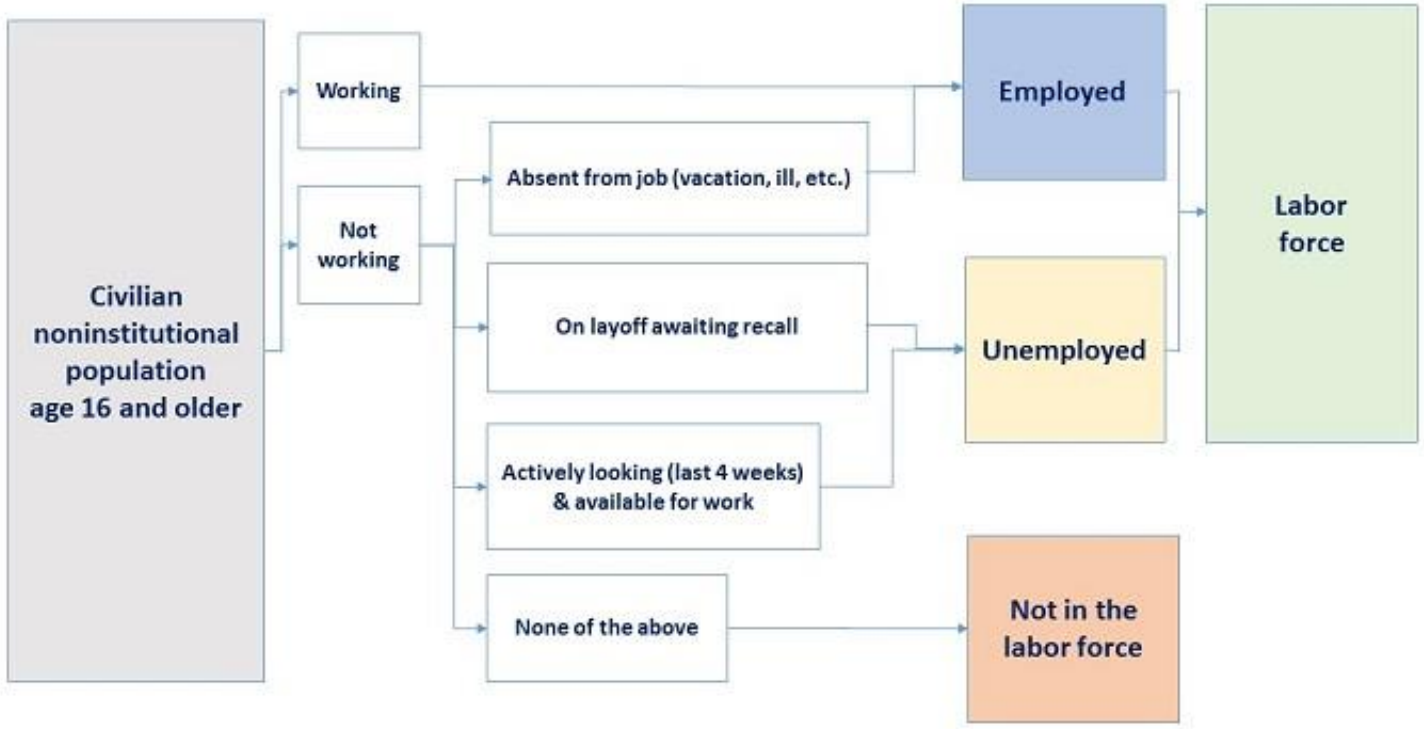
Q2



[Bureau of Labor Statistics]

Q2

4.8 million of the newly employed individuals **may have entered the labor force**. (For example, they may have previously been students, stay-at-home parents, below working age, discouraged workers, etc. who immediately found work without a period of unemployment.)

In other words, **the labor force** (as well as the labor force participation rate) **increased**.

$$\begin{aligned}\Delta LF &= \Delta E + \Delta U \\ &= 12.1 \text{ million} - 7.3 \text{ million} \\ &= 4.8 \text{ million}\end{aligned}$$

Q3

Question Three

In each of the following cases, classify the person as cyclically unemployed, structurally unemployed, frictionally unemployed, or not in the labor force. Explain your answers.

Q3

- **Cyclically unemployed**: jobless due to recession
- **Structurally unemployed**: jobless because skills not in demand
- **Frictionally unemployed**: jobless due to transition to a new workplace
- **Not in the Labor Force**:
- (1) younger than 16 or
- (2) not on vacation or ill or laid off or actively looking for a job

Q3(a)

a. Samuel quit his job as a bank teller to work full-time on his master's degree.

Full-time students are **not in the labor force,** as they do not have jobs and are not looking for jobs.

Q3(b)

b. Charmaine lost her job as a customer service representative when her employer outsourced the work to India.

Structural unemployment; they would need to either relocate to India or retrain for another industry.

Q3(c)

c. Lucy just graduated from law school and is deciding which job offer she will accept.

Frictional unemployment; Lucy is just entering the job market.

Q3(d)

d. Carlos got laid off from his job as a limo driver six months ago and gave up looking for a new job two months later.

Not in the labor force (discouraged worker); Carlos has not looked for a job within the last four weeks and therefore cannot count as unemployed.

Q3(e)

e. Byron quit his teaching job in Atlanta six weeks ago to look for a higher-paying job in Miami. He is still looking for a job.

Frictional unemployment; Byron is between jobs.

Q3(f)

f. Arlisha lost her job as a restaurant manager due to a recession.

Cyclical unemployment, due to recession.

Q4

Question Four

There are 100,000 inhabitants in Macronesia. Among those 100,000 inhabitants, 25,000 are too old to work and 15,000 inhabitants are too young to work. Among the remaining 60,000

inhabitants, 10,000 are not working and have given up looking for work, 45,000 are currently employed, and the remaining 5,000 are looking for work but do not currently have a job.

Q4(a)

a) What is the number of people in the labor force in Macronesia? Briefly explain

Labor force = employed + unemployed = 45000 + 5000 =50,000

Q4(b)

b) What is the unemployment rate in Macronesia? Show your work

U rate = unemployed/labor force =5000/50000=10%

Q4(c)

c) How many people in Macronesia are discouraged workers? Briefly explain

10,000 are not working and have given up looking for work