IN4203 - Macroeconomics 2017-1
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Teaching assistantship # 1

Goods market and IS curve

Problem 1: Cars, computers and oranges

An economy produces three goods: cars, computers and oranges. Quantities and prices per unit for year 2015 and 2016 areas follows:

	2015		2016	
	Quantity	**Price**	**Quantity**	**Price**
Cars	10	$2,000	12	$3,000
Computers	4	$1,000	6	$500
Oranges	1000	$1	1000	$6

1. What is the nominal GDP in 2015 and 2016? By what percentage does nominal GDP change from 2015 to 2016?
2. Using the prices from 2015 as the set of common prices, what is the real GDP in 2015 and in 2016? By what percentage does real GDP change from 2015 to 2016?
3. Using the prices from 2016 as the set of common prices, what is the real GDP in 2015 and in 2016? By what percent age does real GDP change from 2015 to 2016?
4. Why are the two output growth rates constructed in (2) and (3) different? Which one is correct? Explain your answer.
5. Compute the inflation rate between 2015 and 2016.

Problem 2: Approaches to measure GDP

In a particular economy and in a given year national account data show the following:

- The steel sector produced $10 billion worth of steel, using no intermediate input, and sold all of its output to the automobile sector.
- The automobile sector produced $25 billion worth of cars, using $15 billion of steel as intermediate input ($10 billion purchased domestically and the rest imported) and sold $15 billion of its output to domestic consumers and export the rest.
- The construction sector produces $2 billion worth of new still mills, using $1 billion cleaning services as intermediate input and sold its output as capital good to steel sector.

- The service sector produced $6 billion worth of paid housecleaning services, using no intermediate input, performed $1 billion worth of cleaning services for construction sector and the rest for the private homes and final consumers.
- Some citizens of this country had income from ownership of foreign stocks, amounting $3 billion. In addition, assume there was no inventory in this economy, and consumers in this economy purchased $19 billion worth of cars ($15 billion domestically and $4 billion imported).

1. Find GDP in this economy, using Value Added approach.
2. Find GDP using expenditure approach and compare it to part i.
3. Suppose that a change occurred in people's attitude toward their private time, so that everyone (only in the households not firms) does home cleaning his/herself (total used labor for cleaning remains the same) instead of hiring cleaners. What happens to GDP?

Problem 3: Calculations in closed economy

Suposse an economy characterized by the folllowing equations: $C = 160 + 0{,}6Y^D$, $I = 150$, $G = 150$, $T = 100$. Derive:

1. Equilibrium GDP (Y).
2. Disposable income in equilibrium (Y^D).
3. Consume in equilibrium (C).

Conceptos básicos

- **Producto Interno Bruto (PIB o simplemente Y)**: es un indicador que mide la Producción de la economía local. El PIB percápita indica un promedio del bienestar económico del país.
- **Crecimiento del PIB:** $g_t \equiv \frac{Y_t - Y_{t-1}}{Y_{t-1}} \cdot 100\,\%$. Si $g_t > 0$, la economía se encuentra en una "expansión". Si $g_t < 0$, la economía se encuentra en una "recesión".
- **Deflactor del PIB:** $P_t \equiv \frac{PIB_t nominal}{PIB_t real} = \frac{\$Y_t}{Y_t}$.
- **Inflación:** $\pi_t \equiv \frac{P_t - P_{t-1}}{P_t - 1} \cdot 100\,\%$. Fenómeno económico consistente en una subida continua de los precios de la mayor parte de los productos y servicios, y una pérdida del valor del dinero para poder adquirirlos o hacer uso de ellos. Si $\pi_t < 0$ hablamos de "deflación".
- **Mercado de Bienes en Economía Cerrada**
  - **Condición de equilibrio:** es cuando la demanda y producción de bienes son equivalentes ($Z = Y$).
  - **Relación IS (Investment-Savings):** $I = S + (T - G)$, donde $S = Y - T - C$ es el Ahorro de Privados (firmas y hogares), $T - G$ es el Ahorro Fiscal e I es la Inversión. Equivalentemente se puede escribir como $Y = C + I + G$.