

ECOS2002 - Tutorial 1 Solution

Welcome! Welcome everyone, online and on campus, to ECOS2002-Intermediate Macroeconomics S2 - 2022. Tutorial 1 will serve as an icebreaker and repetition tutorial.

1. **Icebreaker Exercise:** Introduce yourself to the person sitting next to you or the people assigned to your breakout room. You could discuss your hobbies, your chosen degree or what you hope to learn in this class.

2. Macroeconomic research in a nutshell

<https://www.youtube.com/watch?v=d0nERTFcSk>

- Fear the Boom and Bust: Keynes vs. Hayek
- Economics as a science lives off debates and (dis-)agreements
- It is rarely a 'right-or-wrong' science
- Further reading: <https://www.nytimes.com/2011/10/23/business/keynes-hayek-views-origins-of-an-economics-debate-review.html>

3. What is the difference between nominal and real variables? Which are more useful for economic analyses?

Answer:

- **Nominal Variable:** Nominal variables are expressed at current monetary values.
- **Real Variable:** Real variables are adjusted for inflation and show prices/wages at constant prices.

Nominal variables have not been adjusted for inflation. Hence, changes in nominal values reflect (at least partly) changes in prices. In economics, the net effect is often more relevant and therefore we typically use real variables in our analyses.

4. Consider a one good (car) economy in 2009–11. Calculate the nominal and real GDP (in 2010 dollars) values.

Year	Quantity of cars	Price of Cars	Nominal GDP	Real GDP (in 2010 dollars)
2009	5	\$10 000		
2010	10	\$14 000		
2011	13	\$16 000		

Answer:

- Nominal GDP = quantity x price
- To construct real GDP, we need to multiply the number of cars in each year by a common price. Suppose we use the price of a car in 2010 as the common price.
- Real GDP = quantity x price (2010)

Year	Quantity of cars	Price of Cars	Nominal GDP	Real GDP (in 2010 dollars)
2009	5	\$10 000	$5 \times \$10\,000 = \$50\,000$	$5 \times \$14\,000 = \$70\,000$
2010	10	\$14 000	$10 \times \$14\,000 = \$140\,000$	$10 \times \$14\,000 = \$140\,000$
2011	13	\$16 000	$13 \times \$16\,000 = \$208\,000$	$13 \times \$14\,000 = \$182\,000$

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5. Form small groups (2-4 students) and research the most recent values (for Australia) for:

- Annual inflation: *6.1% (annual change to June 2022 quarter) source: ABS*
- Unemployment: *3.5% (June 2022) source: ABS*
- Quarterly real GDP growth: *The Australian economy rose 0.8% in seasonally adjusted chain volume measures (March 2022) source: ABS*

Discuss these values within your group.

6. What is the difference between an endogenous and an exogenous variable? What is an example you could think of?

Answer:

- **Endogenous:** A variable that is determined by the model and is explained by other variables within the model

- **Exogenous:** A variable that is determined outside the model and is imposed on the model

Many different examples are possible here. I was thinking of the crop yield example. Imagine being a farmer producing crop. The response variable that determines revenue is crop yield. Some factors that influence the crop yield and could be determined by the model itself, such as the amount of fertilizer or type of crop. Others may be imposed on the model (exogenous) such as the amount of rainfall or the climate (not influenced by other variables or the farmer - at least not short term). Students can come up with many different examples.

7. Assume the following GDP values for country A and country B in 2000 and 2020:

Country A:	2000: \$5,000	2020: \$11,300
Country B:	2000: \$9,700	2020: \$14,700

Calculate the average (compound) annual growth rate for the two countries.

Answer: $y_{2020} = y_{2000}(1 + g)^{20} \Rightarrow g = \left(\frac{y_{2020}}{y_{2000}}\right)^{\frac{1}{20}} - 1$

$$g_A = \left(\frac{11,300}{5,000}\right)^{\frac{1}{20}} - 1 = 0.0416$$

$$g_B = \left(\frac{14,700}{9,700}\right)^{\frac{1}{20}} - 1 = 0.0210$$

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