

Self-Test 7 (KEY)

Macro Aggregates & Inequality

The tasks in this self-test are designed to be solvable by any student who has mastered the material. The answers provided are written instructionally to walk you through the problem-solving process for each task. A well-prepared student should score between 9 and 11 out of 12 without assistance from AI or others. A 12 out of 12 — without help — requires outlier performance or sheer luck. This self-test is optional, and your result will not count towards your grade. Direct any questions to your section's TA.

1. A Singaporean company creates a subsidiary in Malaysia. Which of the following is most likely correct?
 - A. The revenue of the subsidiary should be included in Singapore's GDP.
 - B. The revenue of the subsidiary should be included in Malaysia's GDP.**
 - C. The revenue of the subsidiary should be included in both Singapore's GDP and Malaysia's GDP.
 - D. The revenue of the subsidiary should not be included in either country's GDP.

[GDP measures the value of goods and services produced within a country's borders, regardless of the nationality of the owner. Since the subsidiary operates in Malaysia, its output counts toward Malaysia's GDP only]

2. Anna illegally grows and sells marijuana to Chris. Betty legally makes and sells chocolate to Chris. Both Anna and Betty fancy Chris and would be giving their produce for free to him had they start dating. Which of the following would cause GDP to decrease?
 - A. Chris starts dating Anna. *[Anna's marijuana sales are illegal and already excluded from GDP. So, Chris dating Anna has no effect on measured GDP]*
 - B. Chris starts dating Betty. [If Chris dates Betty and receives chocolate for free, a market transaction is replaced by a non-market transfer, reducing GDP]**
 - C. Both of the above would decrease GDP.
 - D. None of the above would decrease GDP.

3. A shipyard completes a new cargo vessel in early 2025 and sells it for \$14M to a shipping company shortly thereafter. Later in 2025, the shipping company sells the vessel for \$16M to another operator. By how much are these transactions going to affect GDP?
 - A. They will not affect GDP.
 - B. By \$2M.
 - C. By \$14M.**
 - D. By \$16M.
 - E. By \$30M.

[GDP only counts the production of new goods and services. The first sale (\$14M) represents new production and is included in GDP. The second sale (\$16M) transfers an existing asset and no new production occurs, so it is excluded. The \$2M appreciation in value between the two sales reflects a capital gain on an existing asset, not new production, and is therefore also excluded]

4. Brazil produces soybeans and ethanol. In 2024, Brazil produced 500 tonnes of soybeans and 800 barrels of ethanol, at prices of \$100 and \$50 respectively. In 2025, production fell to 460 tonnes of soybeans and 700 barrels of ethanol, while prices rose to \$102 per tonne of soybeans and \$68 per barrel of ethanol. Which of the following is correct regarding the contribution of these two products to Brazil's GDP?

- A. Both real and nominal GDP contributions increased.
- B. Both real and nominal GDP contributions decreased.
- C. The contribution to real GDP increased and the contribution to nominal GDP decreased.
- D. The contribution to real GDP decreased and the contribution to nominal GDP increased.**

[Real GDP 2024 = $(500 \times \$100) + (800 \times \$50) = \$90,000$.

Real GDP 2025 = $(460 \times \$100) + (700 \times \$50) = \$81,000$. Real GDP decreases.

Nominal GDP 2024 = $(500 \times \$100) + (800 \times \$50) = \$90,000$.

Nominal GDP 2025 = $(460 \times \$102) + (700 \times \$68) = \$94,520$. Nominal GDP increases.

The large increase in the price of ethanol offset the fall in quantities in nominal terms, but real GDP correctly captures the decline in actual output]

5. A Japanese auto manufacturer produced 57,000 cars during Q3 2025. Of those, 34,000 were sold in Japan during Q4 2025 and 23,000 were sold in Japan during Q1 2026. How were the cars sold in 2026 recorded in Japan's national expenditure accounts for 2025?

- A. As "Investment".**
- B. As "Consumption".
- C. As "Profits".
- D. They were not registered in 2025.

[Unsold production of 2025 is counted as inventory investment in 2025. When sold in 2026, inventory investment of 2026 decreases by 23,000 cars while consumption of 2026 increases by the same amount. The two effects cancel out exactly, leaving 2026 GDP unchanged. Each unit of production is counted in GDP exactly once, in the year it is produced]

6. A French citizen who resides in Singapore ordered a tablet from China for \$199. The motherboard the Chinese manufacturer uses for the tablet is made in Singapore and was exported to China for \$59. How is the purchase of the tablet going to affect Singapore's national income accounts?

- A. Exports will increase by \$59.
- B. Imports will increase by \$199.
- C. Consumption will increase by \$199.
- D. All of the above.**
- E. None of the above.

[The nationality of the consumer does not matter as long as the purchase occurred in Singapore. The \$199 tablet purchase is consumption in Singapore's accounts and an import from China. The Singapore-made motherboard exported to China counts as an export of \$59. All three effects occur simultaneously, making D correct. Net GDP impact = $\$199 (C) - \$199 (M) + \$59 (X) = \$59$. Only the locally produced component adds to Singapore's GDP]

7. Which of the following could decrease GDP without necessarily reducing prosperity?
- A. A local factory closure. *[A factory closure reduces productive capacity and employment. It decreases both GDP and prosperity]*
 - B. A tax on all imported patented medications. *[Higher medication costs reduce consumer purchasing power and access to healthcare. Both GDP and prosperity fall]*
 - C. A government decision to cut public spending on education. *[Lower education spending reduces human capital formation. Both GDP and prosperity fall]*
 - D. More Singaporeans choosing to cook at home instead of eating out.** *[Households shift from market transactions to production. GDP falls while the service is still enjoyed]*
8. Which of the following is most likely to increase labor productivity?
- A. An increase in the economy's physical capital stock.** *[More or better machinery, equipment, infrastructure, raises the output each worker can produce]*
 - B. An increase in wages. *[Higher wages raise labor costs but do not directly increase output per worker]*
 - C. An increase in the price level. *[A higher price level is a nominal change and should not affect real output per worker]*
 - D. An increase in population. *[A larger population increases total labor supply and may increase total output but not output per worker]*
 - E. A decrease in unemployment. *[More people working increases total output but does not raise productivity per worker]*
9. Which of the following measurements should you use to compare people's prosperity between Mexico and Turkey over the last decade?
- A. Total GDP.
 - B. Total real GDP.
 - C. Real GDP growth.
 - D. GDP per capita.
 - E. Real GDP per capita.
 - F. Real GDP per capita PPP.**
[To compare individual prosperity across countries over time: "real" removes the effect of inflation; "per capita" adjusts for population differences; "PPP" accounts for differences in purchasing power between Mexico and Turkey, ensuring that what money can actually buy in each country is comparable]
10. Which of the following does NOT make sense when handling national GDP accounts?
- A. Adding government spending and household consumption together. *[Both are expenditure components of GDP. Adding them is standard practice in the expenditure approach]*
 - B. Subtracting imports from exports. *[This gives net exports (NX)]*
 - C. Adding profits and wages together. *[Both are income components of GDP. Adding them is standard practice in the income approach]*
 - D. Adding profits and investment together.** *[Profits belong to the income approach; investment belongs to the expenditure approach. Mixing components from different accounting frameworks is meaningless]*

11. AI has made it simple for employees to automate many routine tasks. Which of the following is most likely to result from further development of AI?
- A. **Labor productivity will increase.** *[AI augments worker capabilities, enabling more output per work hour, a direct increase in labor productivity]*
 - B. Capital productivity will decrease. *[The opposite is true. AI enables each unit of capital to produce more output, increasing capital productivity]*
 - C. Technological progress will stall. *[AI is technological development]*
 - D. Real wages will decrease. *[The distributional effects of AI may vary across skill levels. Workers who adapt and develop new skills are likely to see higher, not lower, real wages]*
12. A few days ago Caleb privately sold a 1967 Dodge Charger to Paul, a resident of Singapore. What is the primary reason this transaction did not affect Singapore's GDP?
- A. It is not 1967. *[The year of manufacturing is irrelevant in second-hand transactions]*
 - B. The transaction was private. *[Private transactions are included in GDP if they involve new production]*
 - C. **Nothing new was produced during the transaction.** *[The car is an existing asset. Its sale transfers ownership but creates no new output, which is the primary reason it is excluded from GDP]*
 - D. The transaction was illegal. *[Private car sales are legal]*
 - E. The car was not manufactured in Singapore. *[Place of manufacture affects which country's GDP captures the original production, but is not the primary reason this transaction is excluded]*

Good afternoon! Some basic economics of grades: A Singaporean dollar does not carry an equal value to a US dollar or a Russian Ruble. Similarly, a point in E&S does not carry the same value as a point you scored in some other course. Courses are not designed equal. In absolute terms, you cannot convince someone that 71 may be more than 89. However, a 71 in one course may give you an A- if the average is 65; while in another course, an 89 may give you a B+ if the average is 95. As we have already learned in E&S, 'value' is affected by 'scarcity'. The more "generous" an instructor is with points, the more points you will need to reach a good letter grade in the end. So, instead of pointlessly comparing your intermediate scores from one course to another, focus on maximizing your knowledge. When knowledge is present, good grades will follow.

Kosmas

Please report any typos, mistakes, or suggestions for improvement to kmarinakis@smu.edu.sg.