

2023

AP<sup>®</sup>



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# AP<sup>®</sup> Microeconomics

## Sample Student Responses and Scoring Commentary Set 1

### **Inside:**

#### **Free-Response Question 2**

- Scoring Guidelines**
- Student Samples**
- Scoring Commentary**

**Question 2: Short****5 points**

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- (a) State that Southland has a comparative advantage in producing wheat and explain that the opportunity cost of producing one bushel of wheat in Southland is 1/2 yard of cloth, which is less than the opportunity cost of producing one bushel of wheat in Northland, which is 3 yards of cloth. **1 point**
- 
- (b) Identify any specific number between 5 and 30 yards of cloth. **1 point**
- 
- (c) State no and explain that Southland's opportunity cost to produce one yard of cloth is 1.5 bushels of wheat, which is greater than Northland's opportunity cost of producing cloth, which is 1/3 of a bushel of wheat. **1 point**
- 
- (d)(i) State no, the market results in an inefficient allocation of resources and explain with **ONE** of the following: **1 point**
- The negative externality causes the marginal social cost to be greater than the marginal social benefit ( $MSC > MSB$ ) at the market equilibrium.
  - The negative externality in production causes the marginal social cost to be greater than the marginal private cost ( $MSC > MPC$ ) at the market equilibrium.
- 
- (ii) State that a lump-sum tax will not change the market equilibrium price and quantity in the short run. **1 point**
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**Total for part (d) 2 points****Total for question 2 5 points**

● Important: Completely fill in the circle that corresponds to the question you are answering on this page.

Question 1    Question 2    Question 3



Begin your response to each question at the top of a new page.

2. a. Southland opportunity cost of wheat =  $\frac{50 \text{ yds cloth}}{100 \text{ bushels wheat}} = \frac{1}{2}$

Northland opportunity cost of wheat =  $\frac{300 \text{ yds cloth}}{100 \text{ bushels wheat}} = 3$

Southland has a comparative advantage because it has a lower opportunity cost of one bushel of wheat, giving up  $\frac{1}{2}$  yard of cloth per bushel compared to Northland giving up 3 yards of cloth

b. The trade conditions must be in between their opportunity costs.

OC Southland = 5 yds cloth / 10 bushels

OC Northland = 30 yds cloth / 10 bushels

They could trade 20 yards of cloth per 10 bushels

c. Southland OC of cloth =  $\frac{75 \text{ bushels}}{50 \text{ yds}} = \frac{3}{2}$

Northland OC of cloth =  $\frac{100 \text{ bushels}}{300 \text{ yds}} = \frac{1}{3}$

Southland does not have a comparative advantage because it gives up 1.5 bushels of wheat per yard of cloth, whereas Northland has a lower opportunity cost and only gives up  $\frac{1}{3}$  bushel of wheat

d. i. The equilibrium results in an inefficient allocation. The runoff causes the marginal social cost (MSC) of each unit of nimpis to be greater than the marginal private cost (MPC). Thus, the equilibrium is not efficiently allocating resources.

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**Important:** Completely fill in the circle that corresponds to the question you are answering on this page.

Question 1

Question 2

Question 3



Begin your response to each question at the top of a new page.

ii. The equilibrium price and quantity will not change in the short run. A lump-sum tax, unlike a per-unit tax, does not incentivize producers to produce less, so the turnip supply will stay the same & the equilibrium will not be affected. If the government instead used a per-unit tax, the supply of turnips would decrease and reduce the impact of the negative externality

Use a pen with black or dark blue ink only. Do NOT write your name. Do NOT write outside the box.

Important: Completely fill in the circle that corresponds to the question you are answering on this page.

Question 1    Question 2    Question 3



Begin your response to each question at the top of a new page.

2, (a) opportunity cost:

Southland: Cloth = 2 bushels wheat

Wheat =  $\frac{1}{2}$  yards cloth

$$\frac{1}{2} < 3$$

Northland: Cloth =  $\frac{1}{3}$  bushels wheat

Wheat = 3 yards cloth.

Southland has a lower opportunity cost for producing wheat at  $\frac{1}{2}$  yards cloth, comparing to Northland with a opportunity cost at 3 yards cloth. Southland has the comparative advantage in producing wheat.

(b) 10 yards of cloth trade for 10 bushels of wheat would be mutually beneficial.

(c) New OC southland: cloth = 1.5 bushel wheat

wheat =  $\frac{2}{3}$  yards cloth

$1.5 > \frac{1}{3}$ . No. Northland will still have comparative advantage in producing cloth.

(d) (i) it is not an efficient allocation of resources.

The marginal social cost is greater than the marginal private cost, meaning there is a negative externality.

The country is producing too much turnips.

(ii) The lumpsum tax will increase the equilibrium price and lower the equilibrium quantity in the short run.

Important: Completely fill in the circle that corresponds to the question you are answering on this page.

Question 1

Question 2

Question 3

Begin your response to each question at the top of a new page.

a) Northland

$$1 \text{ wheat} = \frac{300}{100} = 3 \text{ cloth}$$

• Southland has comparative advantage in producing wheat, since  $\frac{1}{2} \text{ cloth} < 3 \text{ cloth}$ . (opportunity cost is lower)

Southland

$$1 \text{ wheat} = \frac{50}{100} = \frac{1}{2} \text{ cloth}$$

b) 10 cloth

$$c) \text{ No } 1 \text{ cloth} = \frac{75}{50} = 1.5 \text{ wheat (Southland)}$$

$$1 \text{ cloth} = \frac{100}{300} = \frac{1}{3} \text{ wheat (Northland)}$$

• No, Southland will not have a comparative advantage in producing cloth, since  $1.5 \text{ wheat} > \frac{1}{3} \text{ wheat}$ . (opportunity cost is higher).

d) (i) No, the additional turnip produced, does not outweigh the additional cost of hurting their residents through pollution.

(ii) The turnip market equilibrium price will increase, and the turnip market equilibrium quantity will decrease.

## Question 2

**Note:** Student samples are quoted verbatim and may contain spelling and grammatical errors.

### Overview

The question assessed student understanding of comparative advantage and the implications of, and policy to correct for, a negative externality.

The question shows the production possibilities curves for Northland and Southland, producing wheat in bushels and cloth in yards.

In part (a) students were asked to state which country has a comparative advantage in producing wheat and to explain using numbers. This part of the question required students to demonstrate their ability to calculate the opportunity cost of producing wheat and explain, using their knowledge of comparative advantage, that Southland has a lower opportunity cost of producing wheat and, therefore, has the comparative advantage in producing wheat.

Part (b) of this question asked students to identify a specific term of trade that would be beneficial to both countries for 10 bushels of wheat. This part required knowledge of terms of trade when comparing opportunity costs between countries.

Part (c) of this question required students to state whether a change in opportunity cost changed comparative advantage and explain using numbers. Students had to calculate the opportunity cost of producing cloth and apply numbers in their explanation that Southland has a higher opportunity cost of producing cloth and, therefore, does not have a comparative advantage in producing cloth.

In part (d) students were introduced to a third country, Alderia, which produces turnips in a perfectly competitive market, is not engaged in international trade, and has pollution runoff from the turnip fields that is harming residents.

In part (d)(i) students were asked to indicate the effect of a negative externality on efficiency and explain their reasoning using marginal analysis. Students were required to demonstrate knowledge of marginal social benefit and marginal social cost, as well as understanding the difference between marginal social cost and marginal private cost due to a negative externality.

In part (d)(ii) students were asked to demonstrate their understanding of tax policy effects by stating the impact of a lump-sum tax on the equilibrium price and quantity in the short run.

## Question 2 (continued)

### Sample: 2A

Score: 5

Part (a): 1 point

The response earned the point in part (a) because the response states that Southland has a comparative advantage in producing wheat and provides an explanation which compares the opportunity cost of producing wheat in each country.

Part (b): 1 point

The response earned the point in part (b) because the response identifies a specific number between 5 and 30 yards of cloth.

Part (c): 1 point

The response earned the point in part (c) because the response states that Southland does not have comparative advantage in producing cloth and provides an explanation which compares the opportunity cost of producing cloth in each country.

Part (d): 2 points

The response earned the point in part (d)(i) because the response states the quantity is not allocatively efficient and explains the negative externality causes the marginal social cost to be greater than the marginal private cost at the market equilibrium. The response earned the point for part (d)(ii) because the response states that a lump-sum tax will not change the market equilibrium price and quantity in the short run, unlike a per-unit tax, which would affect market price and quantity.

### Sample: 2B

Score: 4

Part (a): 1 point

The response earned the point in part (a) because the response states that Southland has a comparative advantage in producing wheat and provides an explanation which compares the opportunity cost of producing wheat in each country.

Part (b): 1 point

The response earned the point in part (b) because the response identifies a specific number between 5 and 30 yards of cloth.



## Question 2 (continued)

Part (c): 1 point

The response earned the point in part (c) because the response states that Southland does not have comparative advantage in producing cloth and provides an explanation which compares the opportunity cost of producing cloth in each country.

Part (d): 2 points

The response earned the point in part (d)(i) because the response states the quantity is not allocatively efficient and explains the negative externality causes the marginal social cost to be greater than the marginal private cost at the market equilibrium. The response did not earn the point in part (d)(ii) because the response states that a lump-sum tax will change the market equilibrium price and quantity in the short run.

### **Sample: 2C**

**Score: 3**

Part (a): 1 point

The response earned the point in part (a) because the response states that Southland has a comparative advantage in producing wheat and provides an explanation which compares the opportunity costs of producing wheat in each country.

Part (b): 1 point

The response earned the point in part (b) because the response correctly identifies a specific number between 5 and 30 yards of cloth.

Part (c): 1 point

The response earned the point in part (c) because the response states that Southland does not have comparative advantage in producing cloth and provides an explanation which compares the opportunity cost of producing cloth in each country.

Part (d): 2 points

The response did not earn the point in part (d)(i) because the response does not explain that the negative externality causes the marginal social cost to be greater than the marginal private cost at the market equilibrium. The response did not earn the point in part (d)(ii) because the response states that a lump-sum tax will change the market equilibrium price and quantity in the short run.