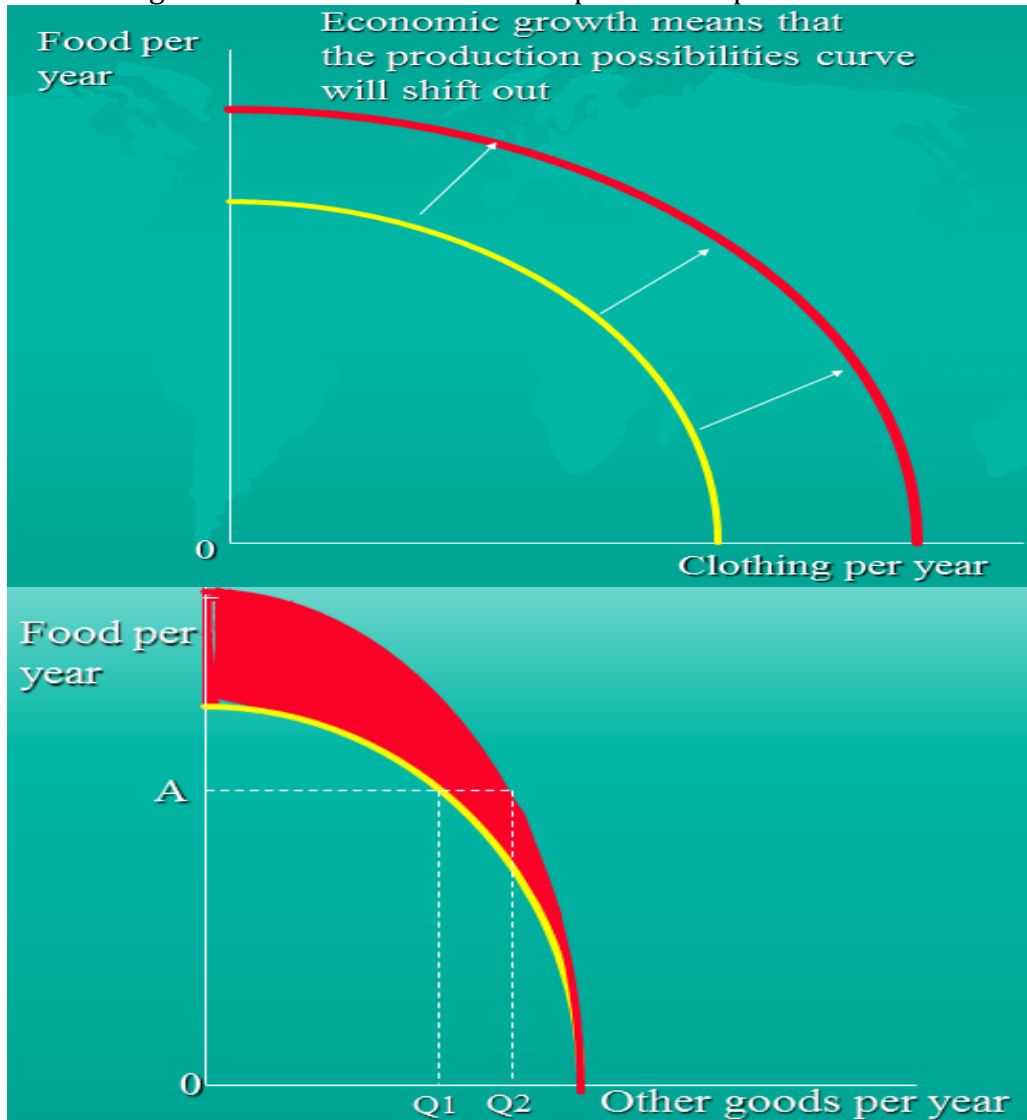


## Week #2 Notes – Shift in PPC ~ Change in Income

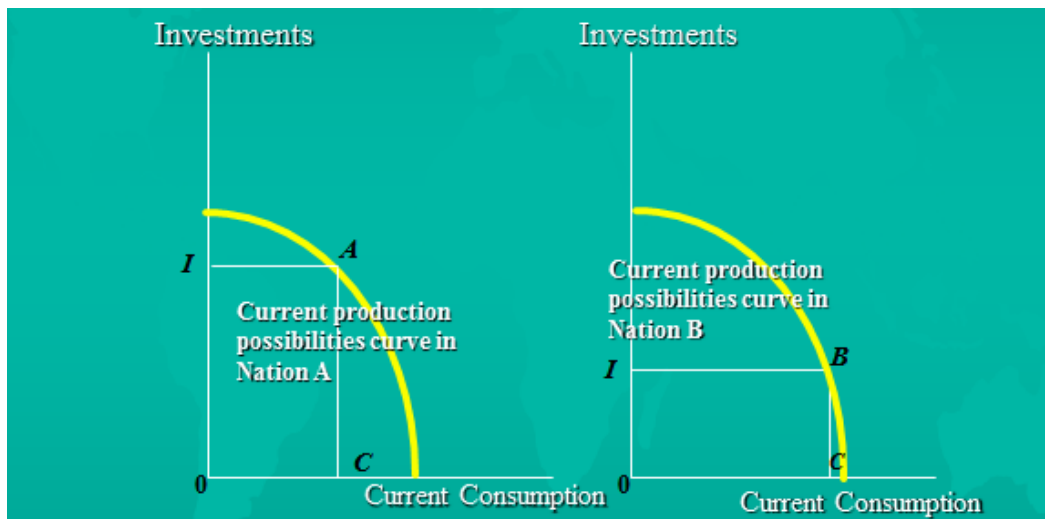
### 1. Expanding production possibilities curve and three sources of economic Growth:

- a. Economic growth is the expansion of PPF that results from increased availability and increased productivity of economic resources.
- b. Economic growth  $\rightarrow$  PPF shifts outward.
  - i. Resource Growth  $\rightarrow$  More workers
  - ii. Improved quality of resources  $\rightarrow$  Improvement in skills of workers
  - iii. Advances in Technology  $\rightarrow$  Speed of computers
- c. Economic growth in one sector increases production possibilities in all sectors.

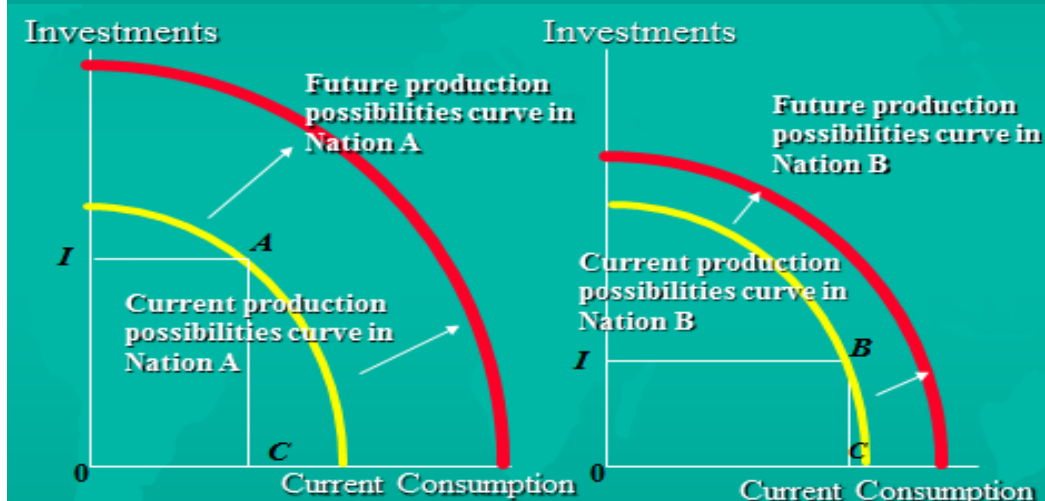


2. **Other sources that expand PPF:**

- a. **Investment:** The more investment in the current year, the greater the growth in production possibilities in future years.

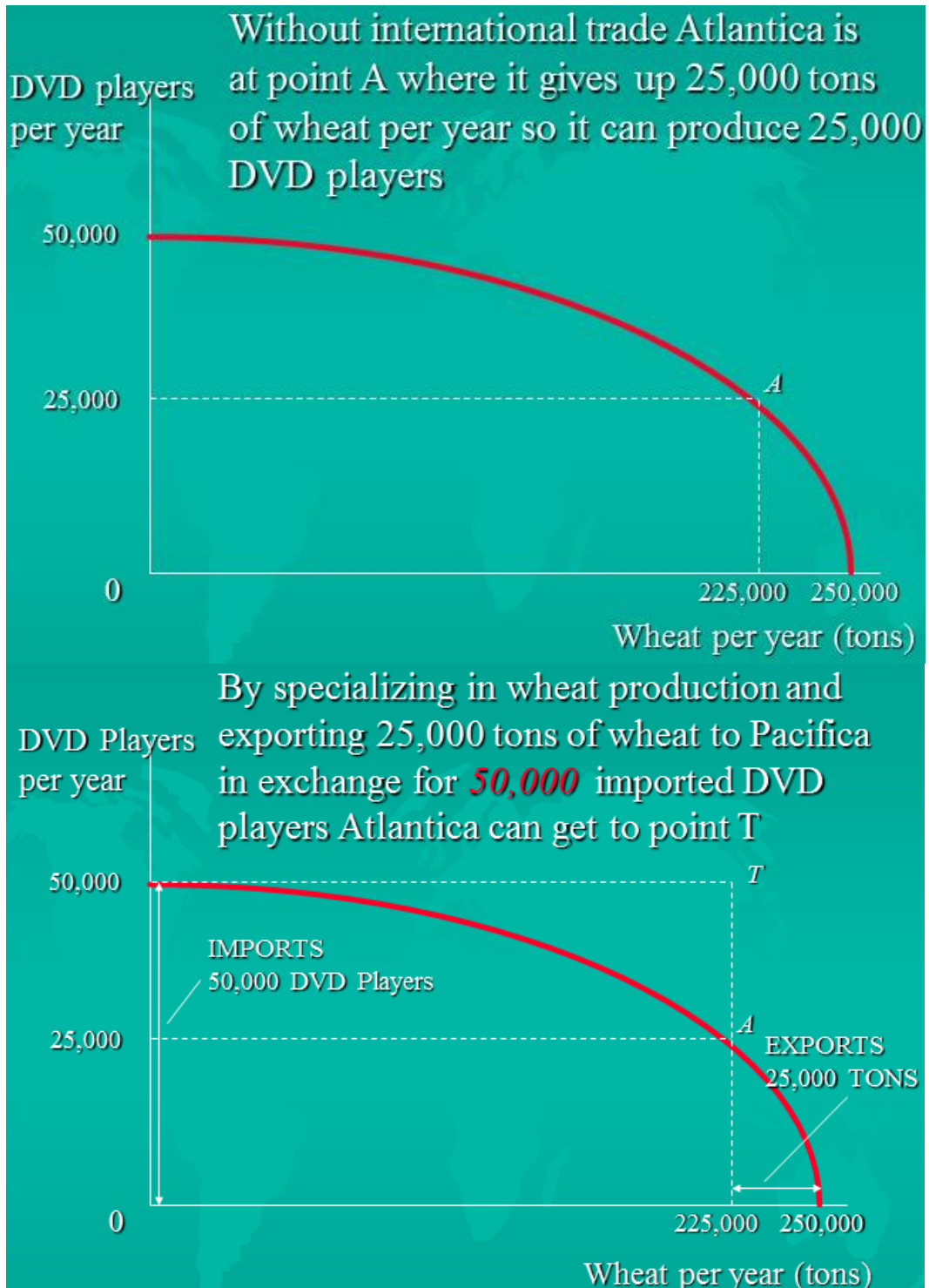


Both nations begin with the same production possibilities. Nation A invests more than Nation B giving up more current consumption. Nation A therefore has a higher savings rate than Nation B.



Nation A ends up with a bigger increase in its future production possibilities compared to Nation B as a result of its higher saving and investment

- b. **International Trade:** makes it possible to obtain items at lower opportunity costs than can be achieved through domestic production.  
 → Infeasible production possibilities become feasible consumption possibilities.



3. **Absolute Advantage:** The advantage a nation has over other nations in the production of an item if it can produce more of the item over a certain period with a given amount of resources than the other nations can.
  - a. A nation can benefit from international trade even if it has absolute advantage in all traded goods.
4. **Comparative Advantage:** The advantage that a nation has over a trading partner in the production of an item if it produces that item at a lower opportunity cost per unit than its partner does.

**Example:** Nation A can produce 400 cameras **or** 20 computers in a year. Nation B can produce 360 cameras **or** 10 computers in a year.

	Nation A	Nation B
Cameras in a year	400	360
Computers in a year	20	10

**a. Absolute Advantage:**

- i. Given the resources of each nation, during a given year Nation A can produce **40 more** Cameras than Nation B. Nation A has an **absolute advantage** over Nation B in the production of Cameras.
- ii. Given the resources of each nation, during a given year Nation A can produce **10 more** Computers than Nation B. Nation A has an **absolute advantage** over Nation B in the production of Computers.

**b. Comparative Advantage:** To talk about the comparative advantage between the Nations A and B, we need to calculate the opportunity cost of 1 computer and opportunity cost of 1 camera for each nation.

Nation A	Nation B
The opportunity cost of 1 computer is <b>20</b> cameras. → $400/20$	The opportunity cost of 1 computer is <b>36</b> cameras. → $360/10$
The opportunity cost of 1 camera is <b>1/20</b> computers. → $20/400$	The opportunity cost of 1 camera is <b>1/36</b> computers. → $10/360$

- i. Nation A has a **comparative advantage** over Nation B in the production of computer. It costs Nation B **36 cameras** to make 1 computer, while it only costs Nation A **20 cameras**.
- ii. Nation B has a **comparative advantage** over Nation A in the production of **camera**. It costs Nation A **1/20** computers to make 1 camera, while it only costs Nation B **1/36** computers.

**5. Trade:** By engaging in trade both can make themselves better off. → Trade makes both nations better off even if Nation A has absolute advantage in both computer and camera production. **You need to check/compare the comparative advantage to calculate the benefit of trade, not the absolute advantage.**

**a. Example:** Nation B could produce 360 cameras. Nation A could produce 20 computers. Nation A could sell 10 computers to Nation B. Suppose Nation B paid 20 cameras for each computer (Note that this terms of trade—1 computer for 20 cameras—makes Nation A just the same and Nation B better off, check the opportunity cost to understand). Nation B would then have 160 Camera and 10 computers, that's 160 more cameras than they'd have had, they produced 10 computers and NOT engaged in international trade. So, Nation B is better off and Nation A is same (at least) after the international trade.

**Before International Trade**

	Nation A	Nation B
# of Cameras Produced	0	360
# of Computers Produced	20	0

**After International Trade**

	Nation A	Nation B
# of Cameras	200	160
# of Computers	10	10

- b. In this scenario Nation A, with 200 cameras, is only just as well off as they'd have produced 10 computers and NOT engaged in international trade. Although, consider that the opportunity cost for Nation B is 36 Cameras for 1 Computer, not 20! Nation B is willing and able to pay 36 Cameras for 1 Computer. This means that Nation A could be made better off as well if they increased the price above 20 Cameras.
- i. By specializing in the production of goods for which they have comparative advantage, countries can move **beyond their production possibilities curve.**

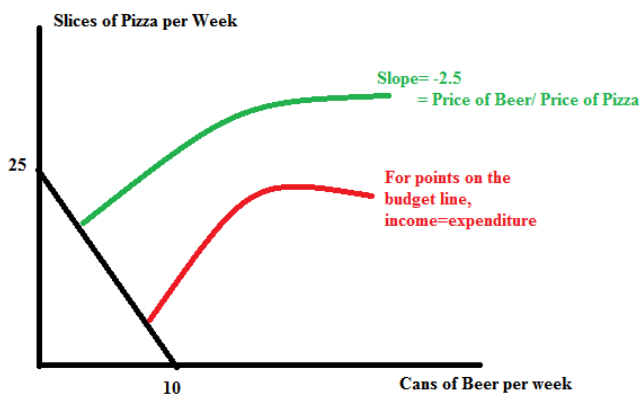
\*We have talked about the production possibilities curve, which shows the maximum attainable combination of two products that may be produced with available resource and technology. PPC is basically the constraint that the production process faces in the economy.

\*Now let's focus on the constraint we, as individuals, face in satisfying our desires. To explain that concept we will use "Budget line". Note that section 6-11 are not included in your text book and I wont ask any question directly related to these sections. However, these sections are very important for you to understand/learn slope, opportunity cost and income related analyses.

6. **Budget Line:** shows the feasible combinations of items you can purchase (consumption bundles) given the fixed income and fixed prices.

- a. Expenditure cannot exceed income unless we borrow.  
 b. How much we can afford depends on both our income and the prices of what we want.

**Ex:** Your total income is \$50 per week. Assume neither save nor loan money. You can consume pizza and beer. The price of pizza is \$2 and the price of beer is \$5. Draw the budget line, find the slope of a budget line, and find the equation of the budget line. Also interpret the points from A to G: efficient, attainable, and unattainable?



- Points A to E show that you are spending all your income to some combination of pizza and beer and you don't save
- Point G is unattainable since you don't have enough income to consume a combination of goods above the budget line.
- Point F is attainable, but it means that you are not spending all your money. You save some of it. All points under the budget line indicate that you save some of your money.

→ The formula of slope =  $\Delta\text{Rise} / \Delta\text{Run}$

→ Slope of the budget line =  $(\text{income}/\text{Price of Pizza}) / (\text{Income}/\text{Price of Beer})$   
 $= - (\text{Price of Beer}/\text{Price of Pizza})$   
 $= - (5/2) = -2.5$

## 7. How to find the equation of a linear curve?:

a. You can find the equation from two ways which are very similar.

i. If the slope and one point on line are given.

→ **Ex:** In the above question the slope is (-2.5) and let's consider we only know one point on the line which is the point (10,0).

Formula →  $m = (Y - Y_1)/(X - X_1)$  after plugging  $X_1$  and  $Y_1$  you can find the equation. Note that m is the slope.

ii. If two points on the line given.

→ **Ex:** in the above question let's consider the points (0, 25) and (10, 0) are given but we don't know the slope.

Formula →  $(Y_1 - Y_2)/(X_1 - X_2) = (Y - Y_1)/(X - X_1)$  after plugging  $X_1$  and  $Y_1$  you can find the equation.

b. So, let's solve for the equation for the above question.

$$(25 - 0)/(0 - 10) = (Y - 25)/(X - 0) \rightarrow Y = 25 - 5x/2$$

→ The opportunity cost of 1 can of beer is 2.5 pizza →  $\$5(\text{beer}) / \$2(\text{pizza})$

OR: The opportunity cost of 1 can of beer is 2.5 pizza → 25 pizza / 10 beer

→ The opportunity cost of 1 slice of pizza is 0.4 beer →  $\$2(\text{pizza}) / \$5(\text{beer})$

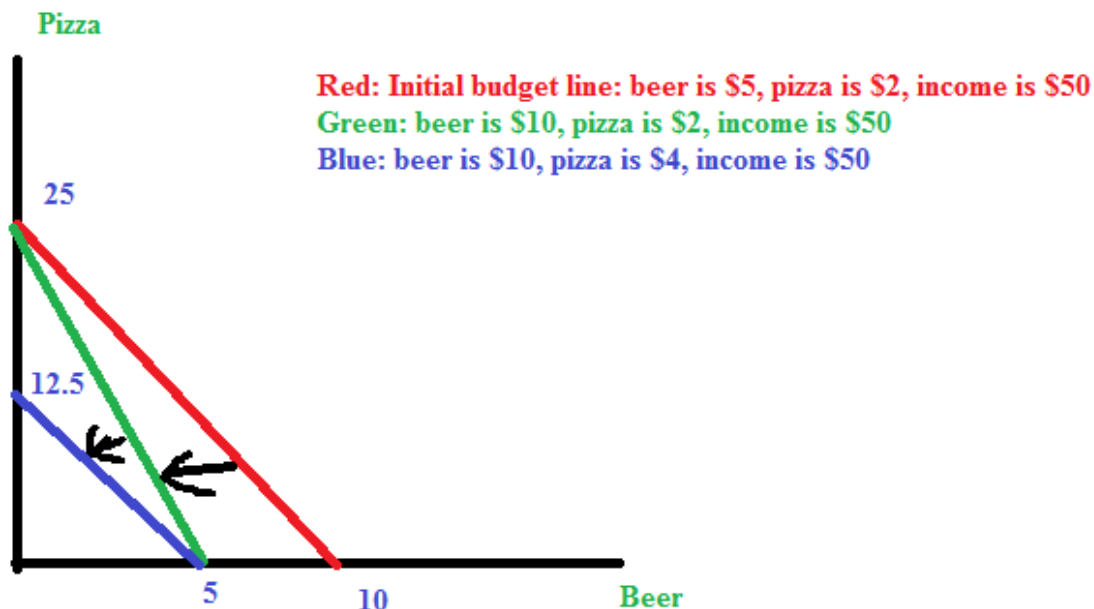
OR: The opportunity cost of 1 slice of pizza is 0.4 beer → 10 beer / 25 pizza

## 8. Changes in Prices:

→ A relative change in the prices changes the slope of the budget curve.

**Ex:** Assume that beer price increased to \$10 and pizza price is still \$2. In the first example the relative price was  $\$5/\$2 = 2.5$  but now the relative price is  $\$10 / \$2 = 5$ . Therefore the slope of the budget line has changed.

If the price of beer is \$10 and price of pizza is \$4 then the slope will be the same since the relative price is the same. But the budget line will shift inward due to loss in real income.



→ With the new prices

→ The opportunity cost of 1 can of beer is 5 pizza →  $\$10(\text{beer}) / \$2(\text{pizza})$  → INCREASE

→ The opportunity cost of 1 slice of pizza is 0.2 beer →  $\$2(\text{pizza}) / \$10(\text{beer})$  → DECREASE

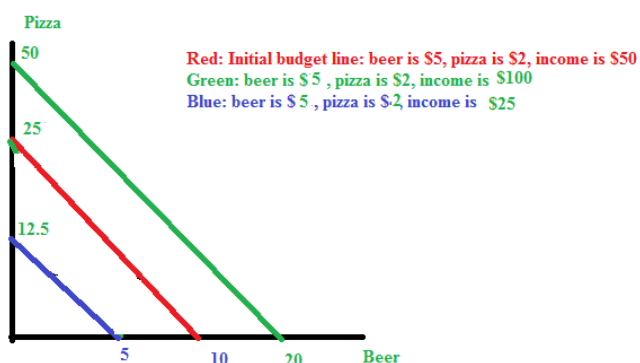
→ So the opportunity cost of pizza falls even though the price of pizza remains the same.

**9. The Opportunity cost of purchasing an item depends on:**

- a. The price of the item.
- b. The price of the alternative
- c. The relative price

**10. Changes in Income:** Changes in income shift the budget line in or out parallel to the original line.

**Ex:** Draw the line when prices are the same but income increases to \$100 and decreases to \$25.



→ With the new income

→ The opportunity cost of 1 can of beer is 2.5 pizza →  $\$5(\text{beer}) / \$2(\text{pizza})$  → SAME

→ The opportunity cost of 1 slice of pizza is 0.4 beer →  $\$2(\text{pizza}) / \$5(\text{beer})$  → SAME

→ So the opportunity cost is about pizza or beer does not change with income, but changes with the relative prices.

**11. Proportionate Increase in the price of all goods (Inflation):** A proportionate increase in the price of all goods can be considered as inflation in the economy. Since the increase in prices applies to all goods in the economy, it is proportionate, which means the relative price is the same, the slope of the budget line does not change. However, due to the loss in real income, the budget line will shift inward. Suppose the inflation in the economy is 100%, then the new prices will be \$10 for beer and \$4 for pizza. Since the relative price is the same as before, the slope will remain the same. However, the real income has decreased, so the budget line shifts inward.

