

APPLIED ECONOMICS FOR MANAGERS: SESSION 3

I. REVIEW: SUPPLY AND DEMAND IN ACTION

A. SUPPLY AND DEMAND DETERMINE EQUILIBRIUM PRICE AND QUANTITY

1. MARKET PRICE TENDS TO GIVE GOOD SIGNALS IF:

- a. COMPETITION
- b. INFORMATION
- c. NO EXTERNALITIES

2. MAXIMIZATION OF TOTAL SURPLUS: CONSUMER + PRODUCER SURPLUS = EFFICIENCY

B. INFORMATION, PRICE, VALUE, AND COST

1. PRICE AS A SIGNAL TO COORDINATE THE ACTIVITIES OF INDIVIDUAL CONSUMERS AND FIRMS

2. POSSIBLE DEFINITION OF AN ECONOMIST: “ONE WHO KNOWS THE PRICE OF EVERYTHING AND THE VALUE OF NOTHING” , E.G., DIAMONDS VS WATER

a. DEMAND CURVES AS A SCHEDULE OF VALUE AT THE MARGIN

⇒ TOTAL VALUE IS AREA UNDER DEMAND CURVE

b. SUPPLY CURVES AS A SCHEDULE OF COST AT THE MARGIN

⇒ TOTAL COST IS AREA UNDER SUPPLY CURVE

3. EFFICIENT EQUILIBRIUM:

- a. MARGINAL VALUE = P = MARGINAL COST = MC
- b. RESOLVING THE DIAMONDS/WATER PARADOX

II. MARKET DISTURBANCES

A. SHIFTS IN THE SUPPLY CURVE

1. MOVE ALONG THE DEMAND CURVE

- a. FALL (RISE) IN SUPPLY RAISES (LOWERS) PRICE
- b. FALL (RISE) IN SUPPLY LOWERS (RAISES) QUANTITY

2. EXAMPLE: AN OUTPUT TAX OR COST INCREASE

3. SUPPOSE SUPPLY IS: $P = 10 + 0.5Q$

- a. PRICE NECESSARY TO GET 36 UNITS PRODUCED IS \$28
- b. TAX OF \$10 PER UNIT PRODUCED—
 - i. PRODUCERS NOW REQUIRE \$28 TO PRODUCE 36 UNITS
 - ii. \$28 AS BEFORE PLUS \$10 FOR TAX COLLECTOR

B. SHIFTS IN THE DEMAND CURVE

1. MOVE ALONG THE SUPPLY CURVE

- a. RISE (FALL) IN DEMAND RAISES (LOWERS) PRICE
- b. RISE (FALL) IN DEMAND LOWERS (RAISES) QUANTITY

2. EXAMPLE: A SALES TAX OR DEMAND DECREASE

3. SUPPOSE DEMAND IS: $P = 100 - 2Q$

- a. AT PRICE = \$28, $Q = 36$
- b. TAX OF \$10 PER UNIT BOUGHT
 - i. TO BUY 36 UNITS, CONSUMERS ONLY WILLING TO PAY \$18 TO PRODUCERS
 - ii. WILLING TO PAY \$28 IN TOTAL—NEED \$10 FOR TAX

III. ANALYZING THE MARKET RESPONSE TO SHOCKS

A. PRICE AND OUTPUT RESPONSES

1. PRICE RESPONSES LESS THAN FULL AMOUNT OF SUPPLY OR DEMAND SHOCK

2. CONSIDER OUR EXAMPLE:

a. SUPPLY: $P = 10 + 0.5Q$

DEMAND: $P = 100 - 2Q$

EQUILIBRIUM: $P = \$28, Q = 36$

b. IF SUPPLY CURVE SHIFTS TO: $P = 20 + 0.5Q$

DEMAND: $P = 100 - 2Q$

EQUILIBRIUM: $P = \$36, Q = 32$

B. MEASURING THE RESPONSE OF SUPPLY/DEMAND

1. ELASTICITY OF DEMAND

a. RESPONSIVENESS OF DEMAND TO PRICE CHANGES

b. ELASTICITY OF DEMAND: $\epsilon_d = -\frac{\Delta Q/Q}{\Delta P/P}$

c. $\epsilon_d = -(P/Q) \times (\Delta Q/\Delta P) = -(P/Q) \times (1/\text{DEMAND SLOPE})$

d. ϵ_d DIFFERENT AT DIFFERENT POINTS ON LINEAR DEMAND CURVE

e. $\epsilon_d = -(28/36) \times (1/2) = 0.39$ IN INITIAL EXAMPLE

2. ELASTICITY OF SUPPLY

a. RESPONSIVENESS OF SUPPLY TO PRICE CHANGES

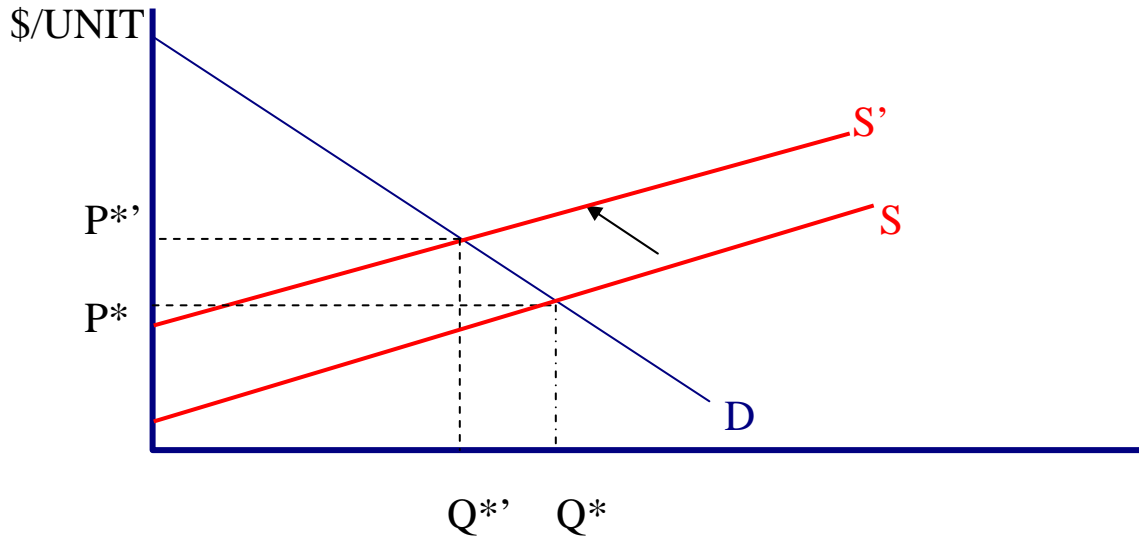
b. ELASTICITY OF SUPPLY: $\eta_s = \frac{\Delta Q/Q}{\Delta P/P}$

c. $\eta_s = (P/Q) \times (\Delta Q/\Delta P) = (P/Q) \times (1/\text{SUPPLY SLOPE})$

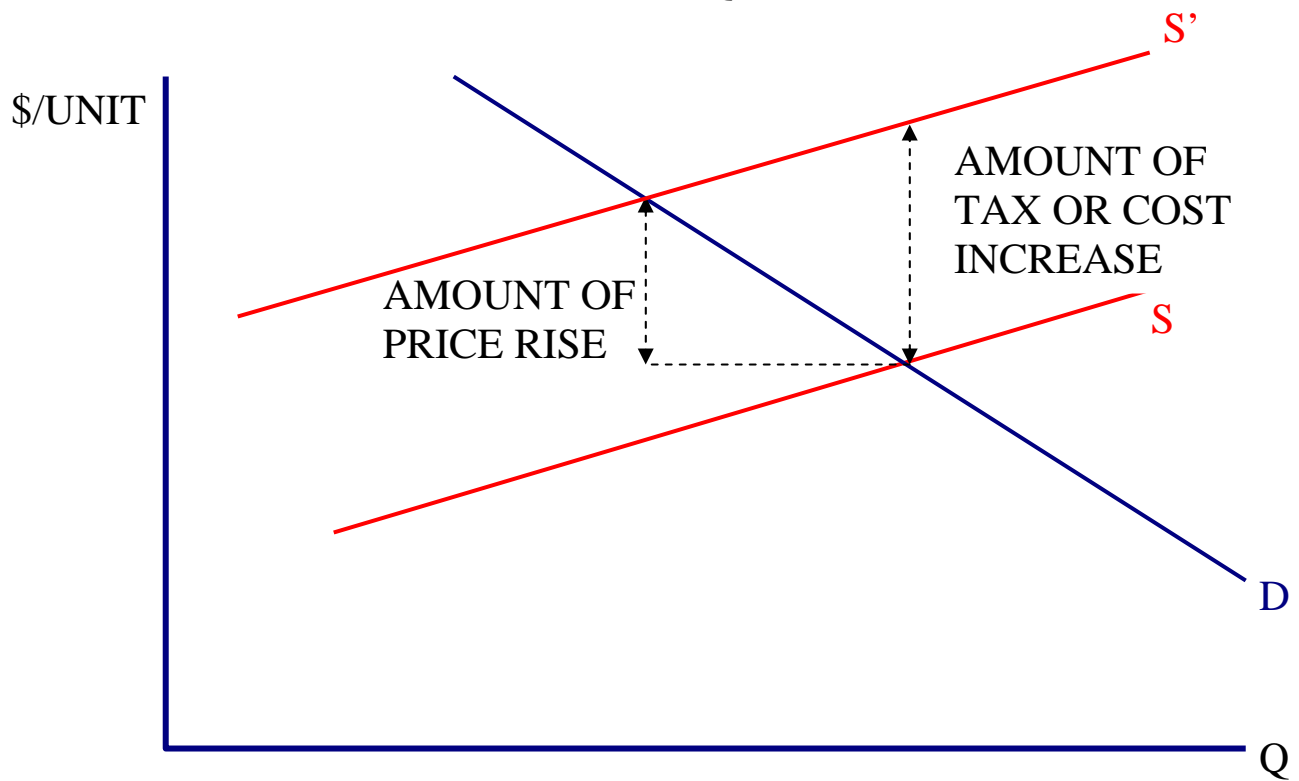
d. η_s DIFFERENT AT DIFFERENT POINTS ON LINEAR SUPPLY CURVE

e. $\eta_s = (28/36) \times (2) = 1.56$ IN OUR INITIAL EXAMPLE

SHIFTS IN THE SUPPLY CURVE MOVE PRICE AND QUANTITY IN THE OPPOSITE DIRECTION

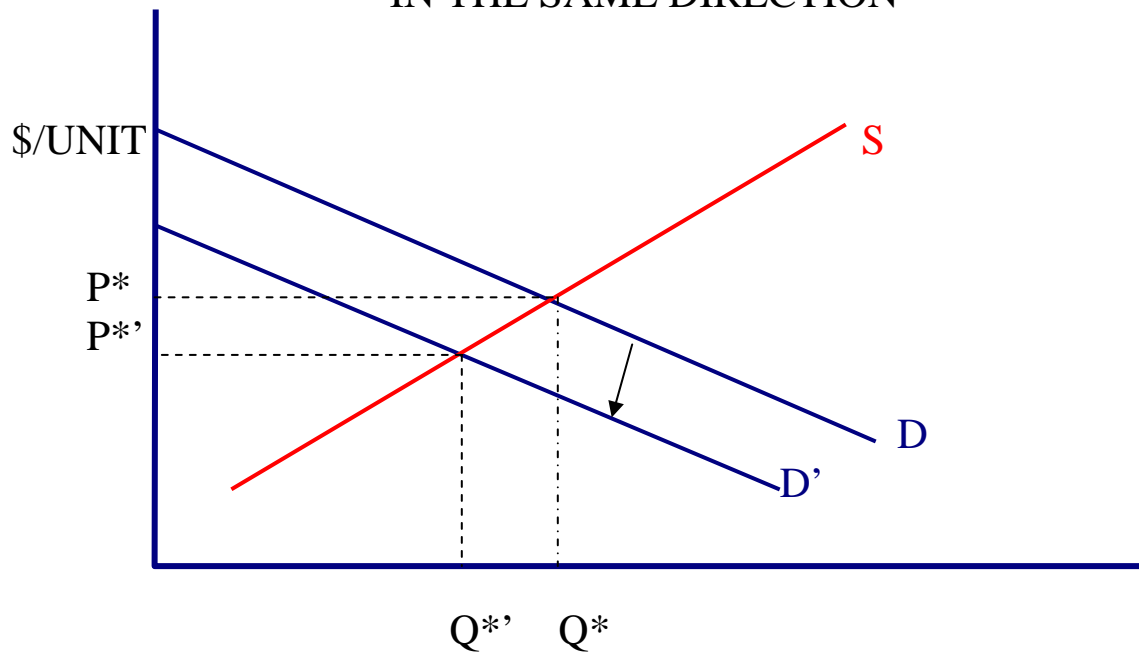


DETAIL NEAR EQUILIBRIUM

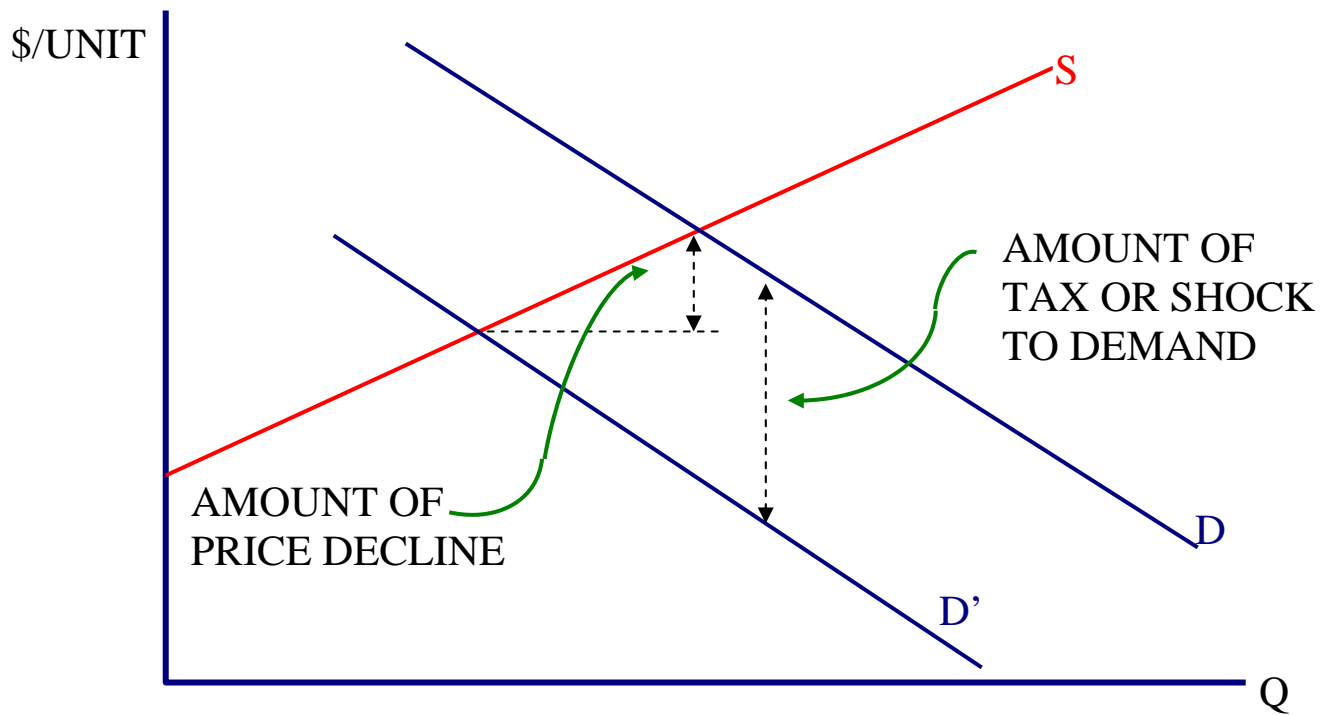


LESSON: FULL AMOUNT OF TAX OR COST INCREASE IS NOT PASSED ON IN PRICE RISE

SHIFTS IN THE DEMAND CURVE MOVE PRICE AND QUANTITY IN THE SAME DIRECTION

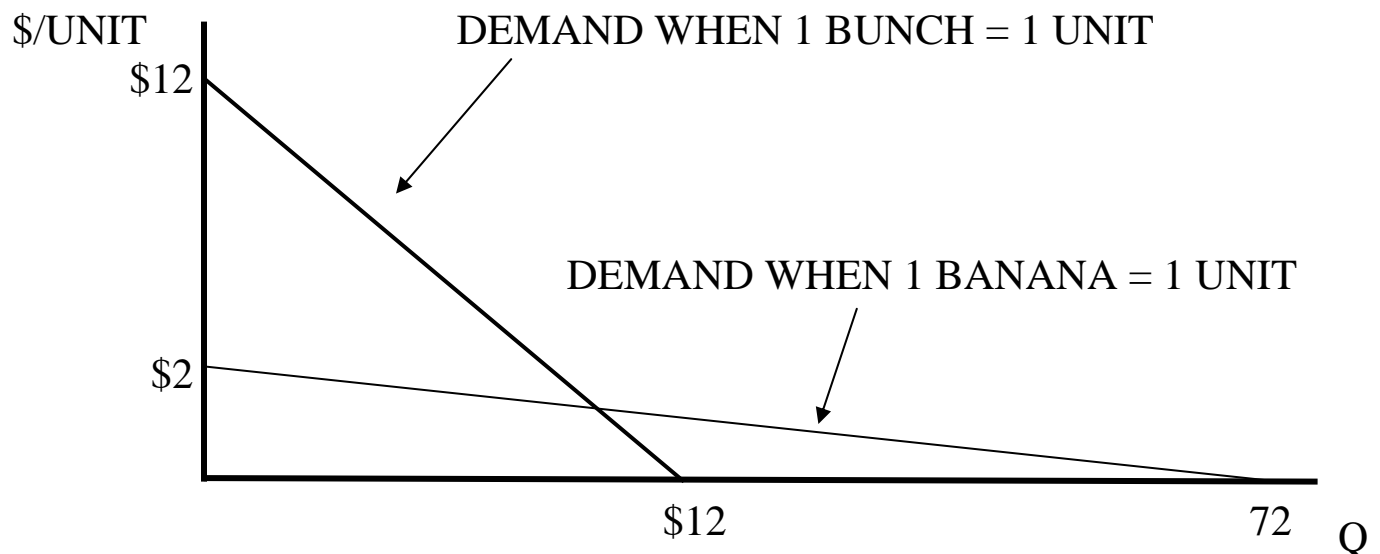


DETAIL NEAR EQUILIBRIUM



LESSON: FULL AMOUNT OF TAX OR DEMAND SHOCK IS NOT PASSED ON IN PRICE DECLINE

ELASTICITY VS SLOPE: THE PRICE OF BANANAS



CONSIDER A SMALL VILLAGE IN THE FRENCH COUNTRYSIDE. SUPPOSE WE DEFINE ONE UNIT OF BANANAS TO BE A BUNCH OF 6 BANANAS. SUPPOSE FURTHER THAT AT A PRICE OF \$12 PER BUNCH, VILLAGE DEMAND FOR BANANAS IS ZERO UNITS (ZERO BUNCHES) WHILE AT A PRICE OF \$0 PER BUNCH, TOTAL DEMAND IS 12 UNITS (72 BANANAS). THEN VILLAGE BANANA DEMAND IS GIVEN BY THE EQUATION:

$$P = 12 - Q, \text{ I.E., THE DEMAND SLOPE IS } -1$$

NOW SUPPOSE THAT WE DEFINE ONE BANANA UNIT AS JUST ONE BANANA. THE DEMAND CURVE JUST DEFINED SAYS THAT WHEN THE PRICE PER BANANA IS \$2 (OR \$12 PER 6), DEMAND IS 0, WHILE DEMAND IS 72 BANANAS AT $P = 0$. THUS, WHEN WE DEFINE A BANANA UNIT AS 1 BANANA, THE VILLAGE DEMAND CURVE IS GIVEN BY:

$$P = 2 - \left(\frac{1}{36}\right)Q, \text{ I.E., THE DEMAND SLOPE IS } -\frac{1}{36}$$