Chapter 9

Social Welfare

Main Themes

- Consumer/producer welfare
    - Definitions
    - Measurement
    - Why is it important?
- Competition and maximizing social welfare
- Government policies that affect markets and social welfare

Calculating Surplus

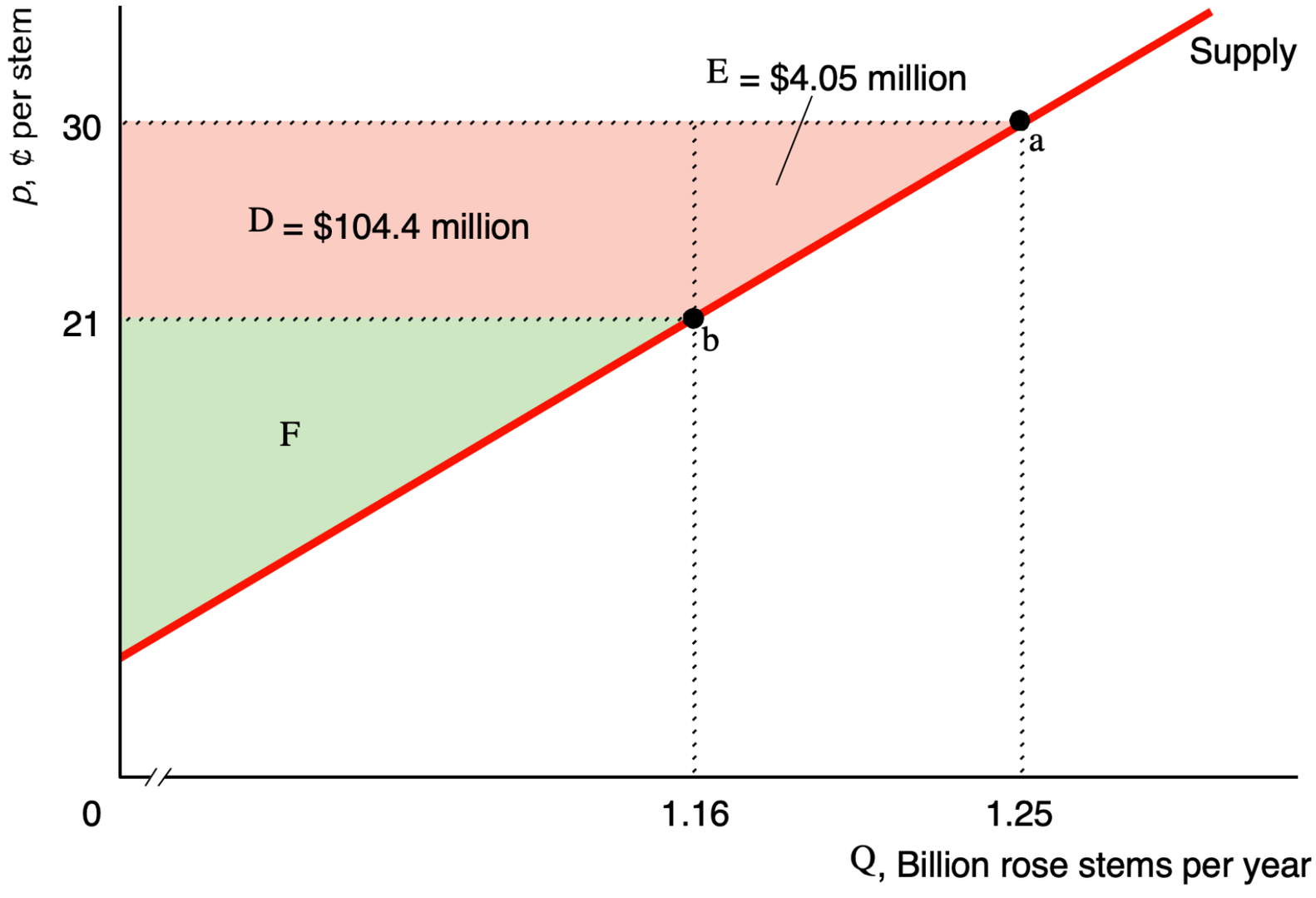
- If we make the assumption that demand curves are linear, calculating the size of consumer surplus becomes easy
- The formula for the area of a (right) triangle, plus knowledge of market conditions, is all we need
- Recall the area of a triangle is $\frac{1}{2} \times \text{base} \times \text{height}$

Producer Surplus

- Defined as the difference between the amount a good sells for and the minimum amount necessary for a producer to be willing to produce it

- Put another way: producer surplus is the area **above** the **supply curve** and **below** the **market price**

Calculating Producer Surplus with a Linear Supply Curve



	Original Price, 30¢	Lower Price, 21¢	Change ($ millions)
Producer Surplus	$D + E + F$	F	$-(D + E) = -108.45$

Using Surplus to Define Efficient Market Outcomes

- Use consumer and producer surplus to draw conclusions about when markets do and don't reach optimal levels of efficiency

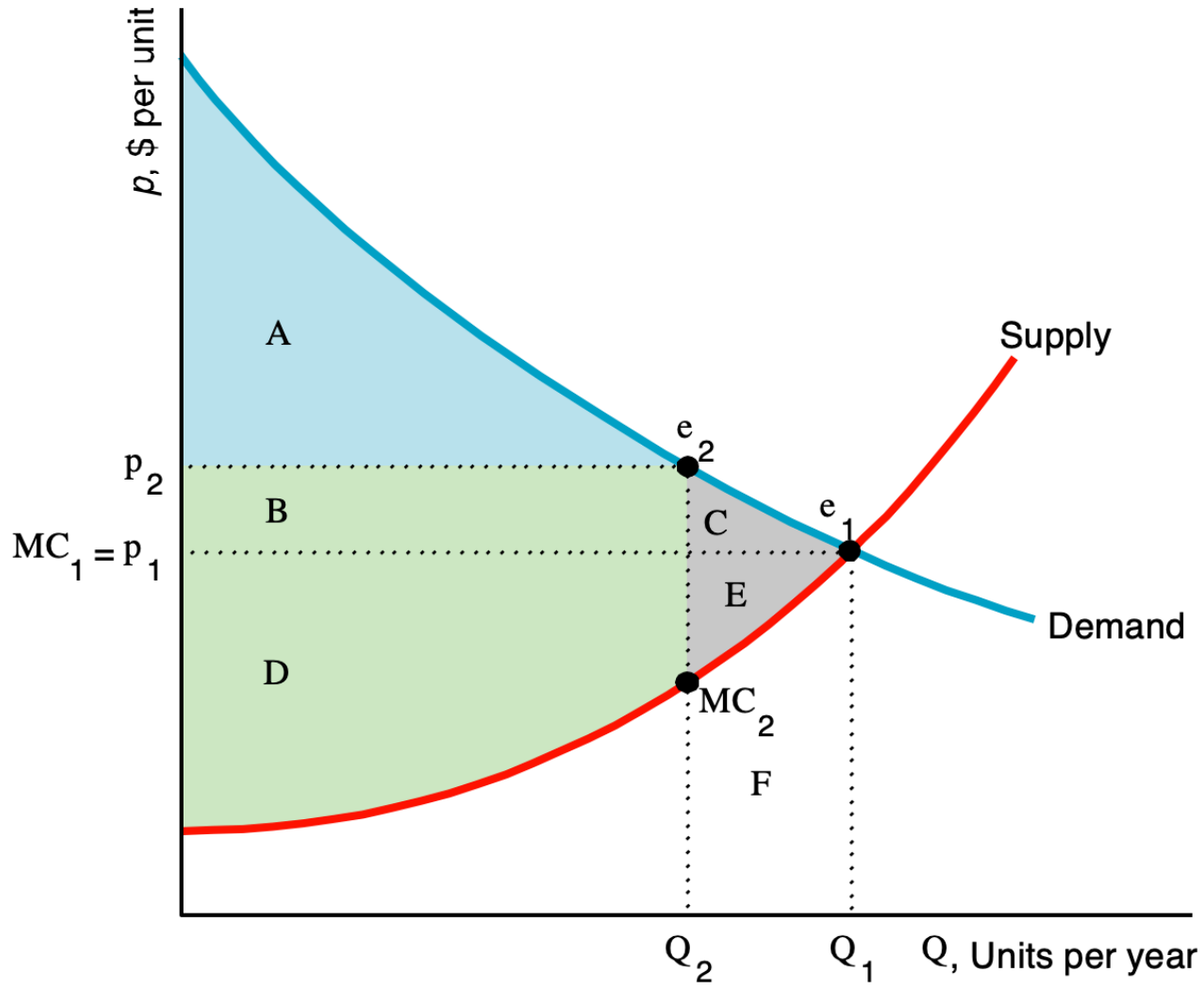
- **Social Welfare**: the combination and consumer and producer surplus (i.e. Social Welfare = CS + PS)

- When social welfare is maximized, the market is efficient

Why Competitive Markets Maximize Social Welfare

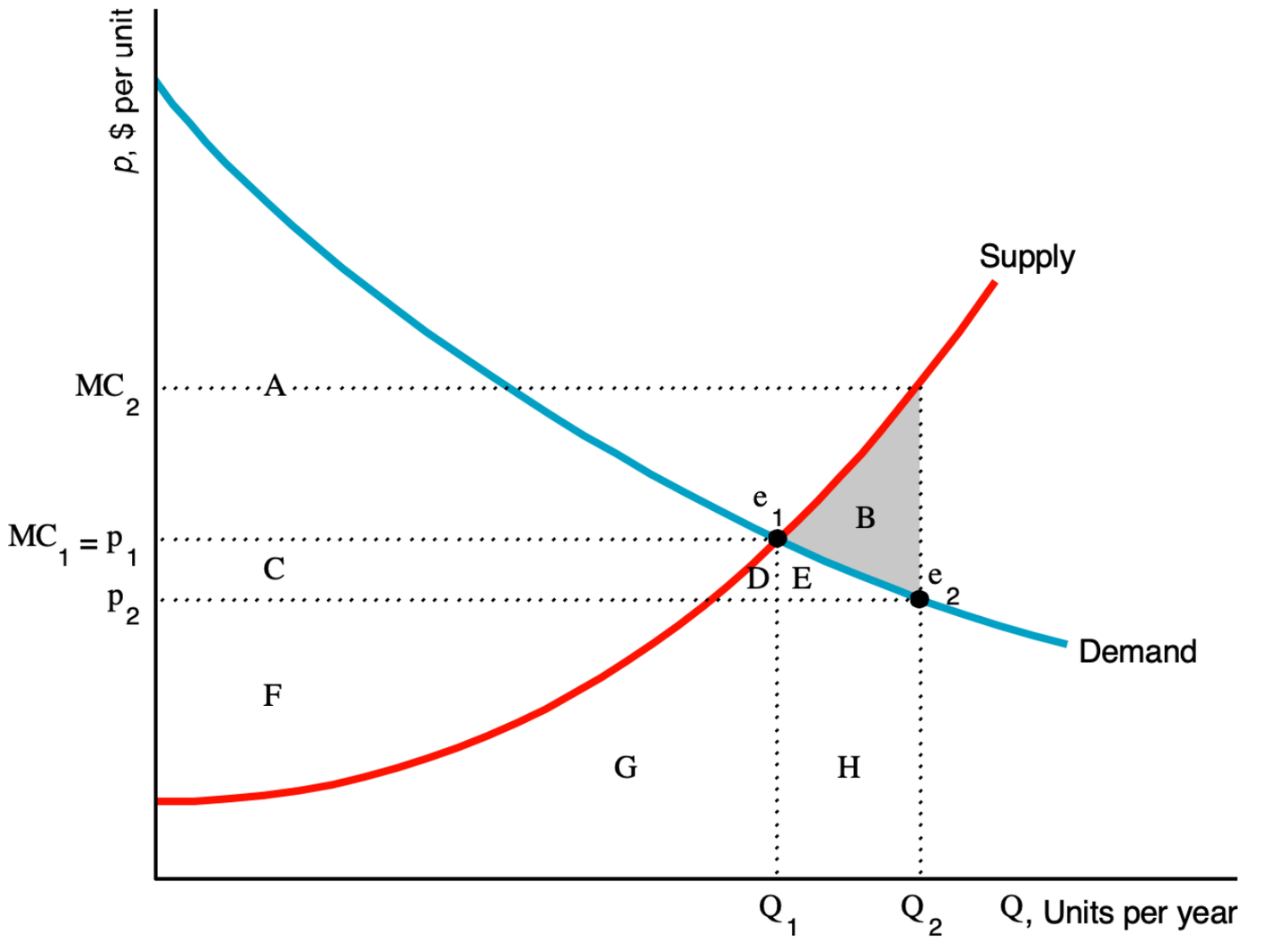
- We are going to look at:
  - Why producing less than the competitive output lowers social welfare
  - Why producing more than the competitive output lowers social welfare

Why Reducing Output from the Competitive Level Lowers Welfare



	Competitive Output, Q_1 (1)	Smaller Output, Q_2 (2)	Change (2) – (1)
Consumer Surplus, *CS*	$A + B + C$	A	$-B - C = \Delta CS$
Producer Surplus, *PS*	$D + E$	$B + D$	$B - E = \Delta PS$
Welfare, $W = CS + PS$	$A + B + C + D + E$	$A + B + D$	$-C - E = \Delta W = DWL$

Why Increasing Output from the Competitive Level Lowers Welfare



	Competitive Output, Q_1	Larger Output, Q_2	Change
Consumer Surplus, *CS*	*A*	*A* + *C* + *D* + *E*	*C* + *D* + *E* = Δ*CS*
Producer Surplus, *PS*	*C* + *F*	*F* − *B* − *D* − *E*	−*B* − *C* − *D* − *E* = Δ*PS*
Welfare, *W* = *CS* + *PS*	*A* + *C* + *F*	*A* + *C* + *F* − *B*	−*B* = Δ*W* = *DWL*

Government Policies that Affect Markets

- Policies can:

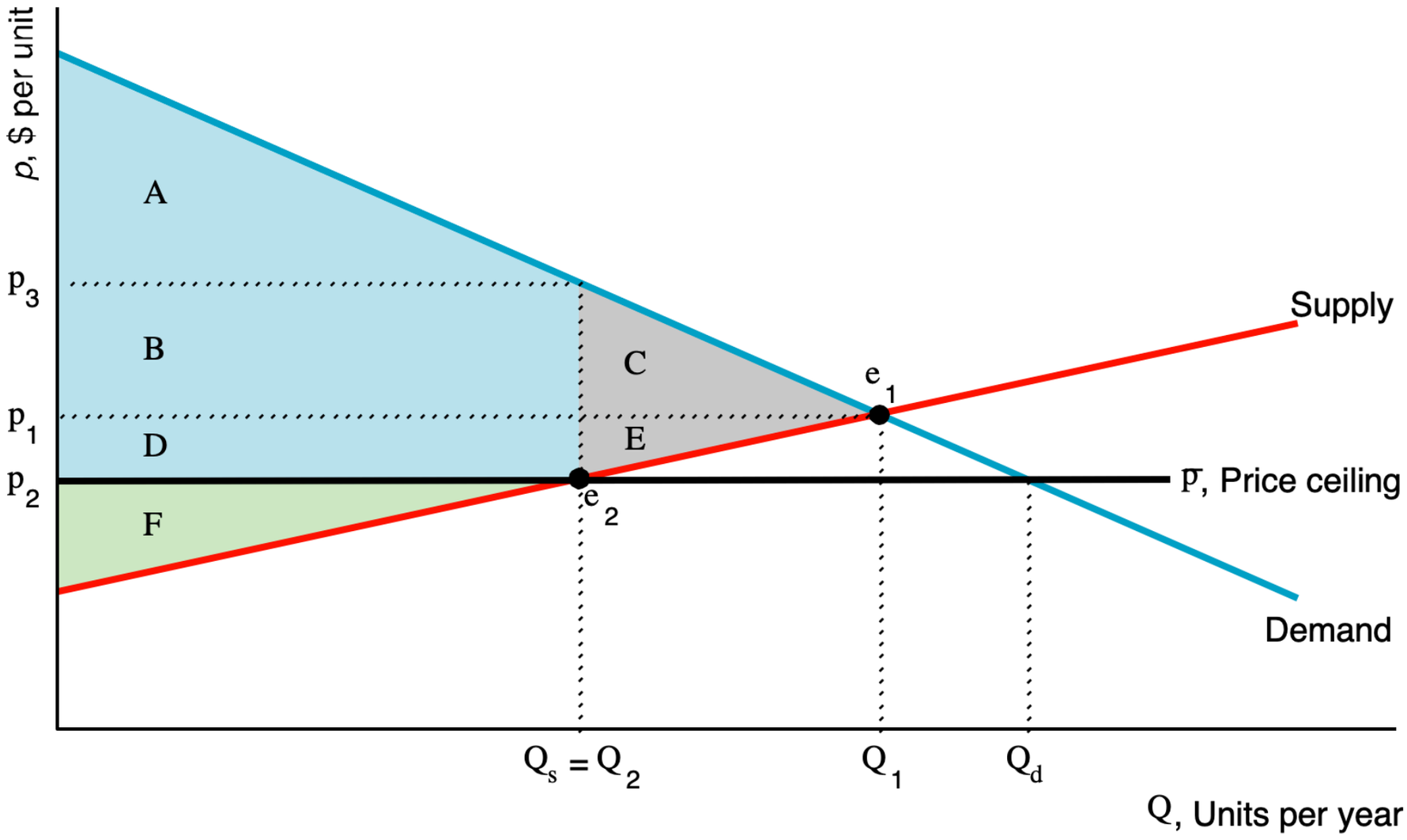
1. Shift supply curves

   - Restricting firms directly or by making entry difficult
   - Adding costs (e.g. licensing costs)

2. Drive a wedge between supply and demand (taxes, tariffs)

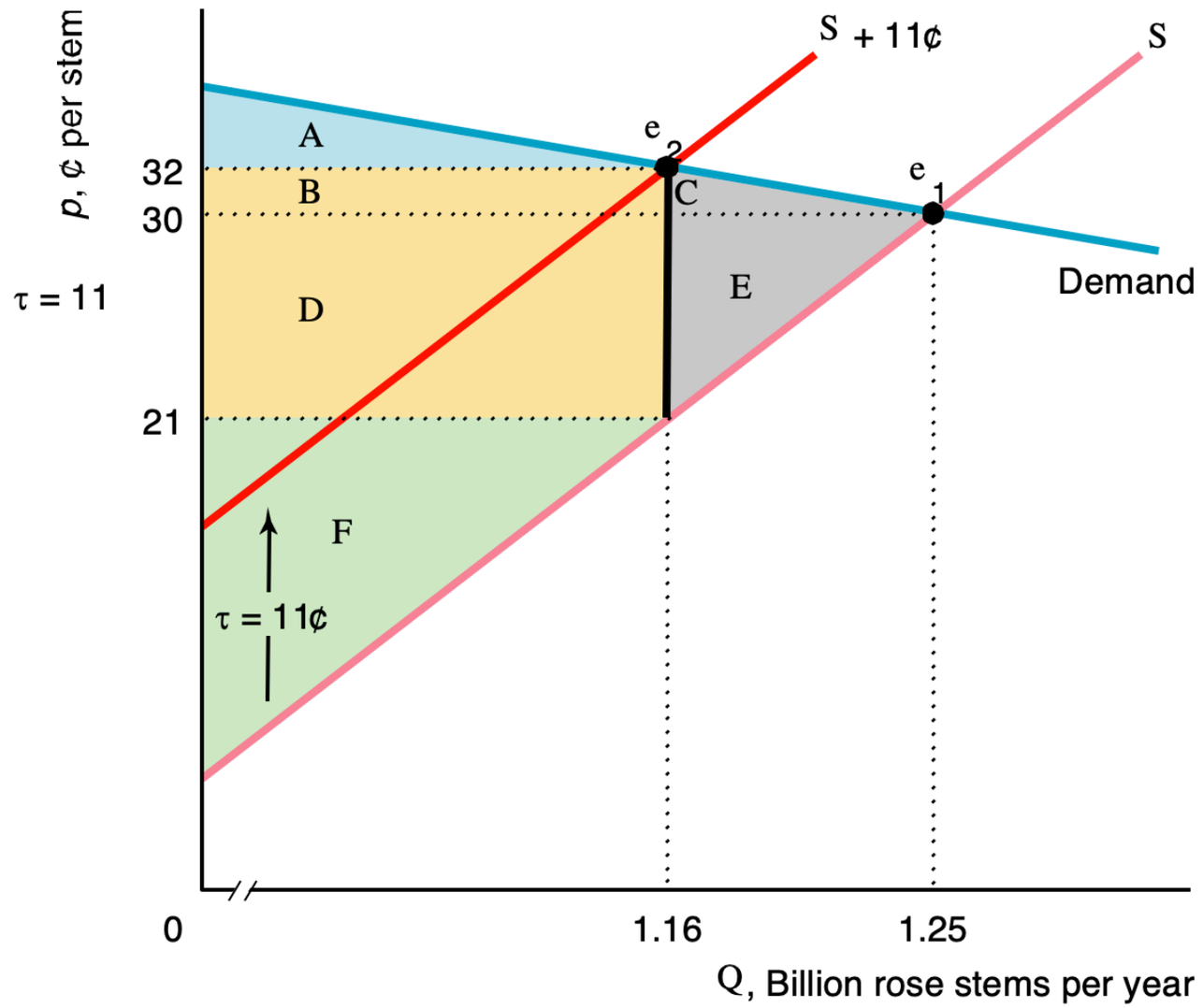
3. Prohibit the equilibrium price or quantity from being reached (price controls, quotas)

A Price Ceiling



	No Ceiling	Price Ceiling	Change
Consumer Surplus, *CS*	$A + B + C$	$A + B + D$	$D - C = \Delta CS$
Producer Surplus, *PS*	$D + E + F$	F	$-D - E = \Delta PS$
Welfare, $W = CS + PS$	$A + B + C + D + E + F$	$A + B + D + F$	$-C - E = \Delta W = DWL$

Welfare Effects of a Sales Tax



	No Tax	Specific Tax	Change ($ millions)
Consumer Surplus, CS	$A + B + C$	A	$-B - C = -24.1 = \Delta CS$
Producer Surplus, PS	$D + E + F$	F	$-D - E = -108.45 = \Delta PS$
Tax Revenue, $T = \tau Q$	0	$B + D$	$B + D = 127.6 = \Delta T$
Welfare, $W = CS + PS + T$	$A + B + C + D + E + F$	$A + B + D + F$	$-C - E = -4.95 = DWL$

Policies that Directly Limit Free Trade

- Tariffs: taxation of imported goods — not of domestically produced goods of the same type

- Quotas: a restriction on the quantity of a good that can be imported into a country

Who Benefits?

- If social welfare is lost with these policies, then why are they so popular?
    - Taxes — government revenue, public finance
    - Quotas
    - Price controls
- Tariffs vs. quotas: which one benefits the implementing country more?