Lectures 13 and 14

Applying the Competitive Model

Key topics

1. consumer surplus
2. producer surplus
3. competition maximizes surplus
4. policies that shift supply curves
5. policies that create a wedge between supply and demand
6. comparing both types of policies: imports

Consumer’s well-being

- using a consumer's utility function is not practical for 2 reasons:
  - we don't know individuals' utility functions
  - we cannot compare utilities across individuals
- instead, we measure consumer welfare in dollars
  - easier to measure than utility
  - can compare dollars across individuals

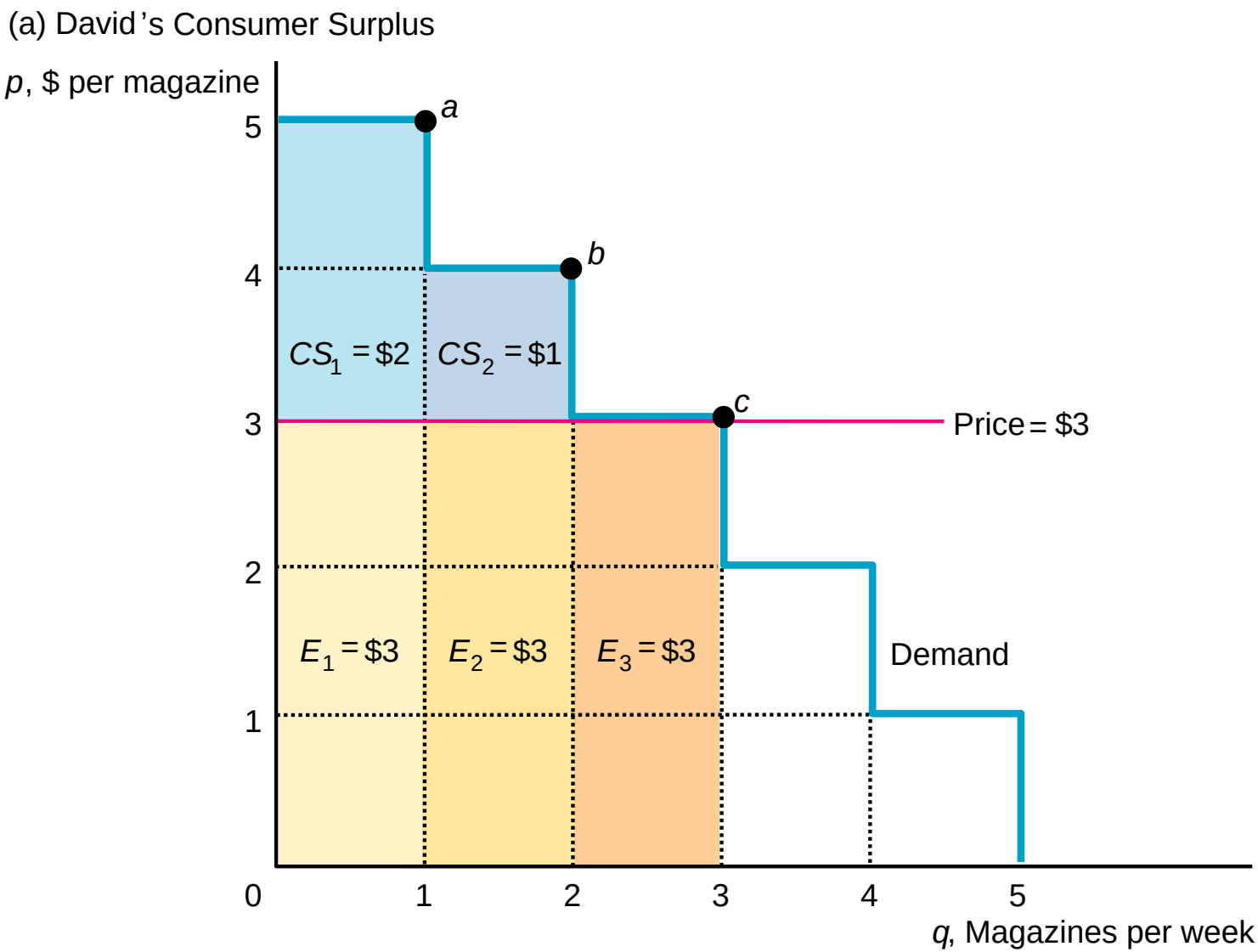
Measuring consumer well-being

- *consumer surplus* (CS) from a good =
  - benefit a consumer gets from consuming it (in $'s) minus its price
  - how much more you'd be willing to pay than you did pay for a good
- demand curve contains this information
- demand curve reflects a consumer's *marginal willingness to pay*: amount a consumer will pay for an extra unit

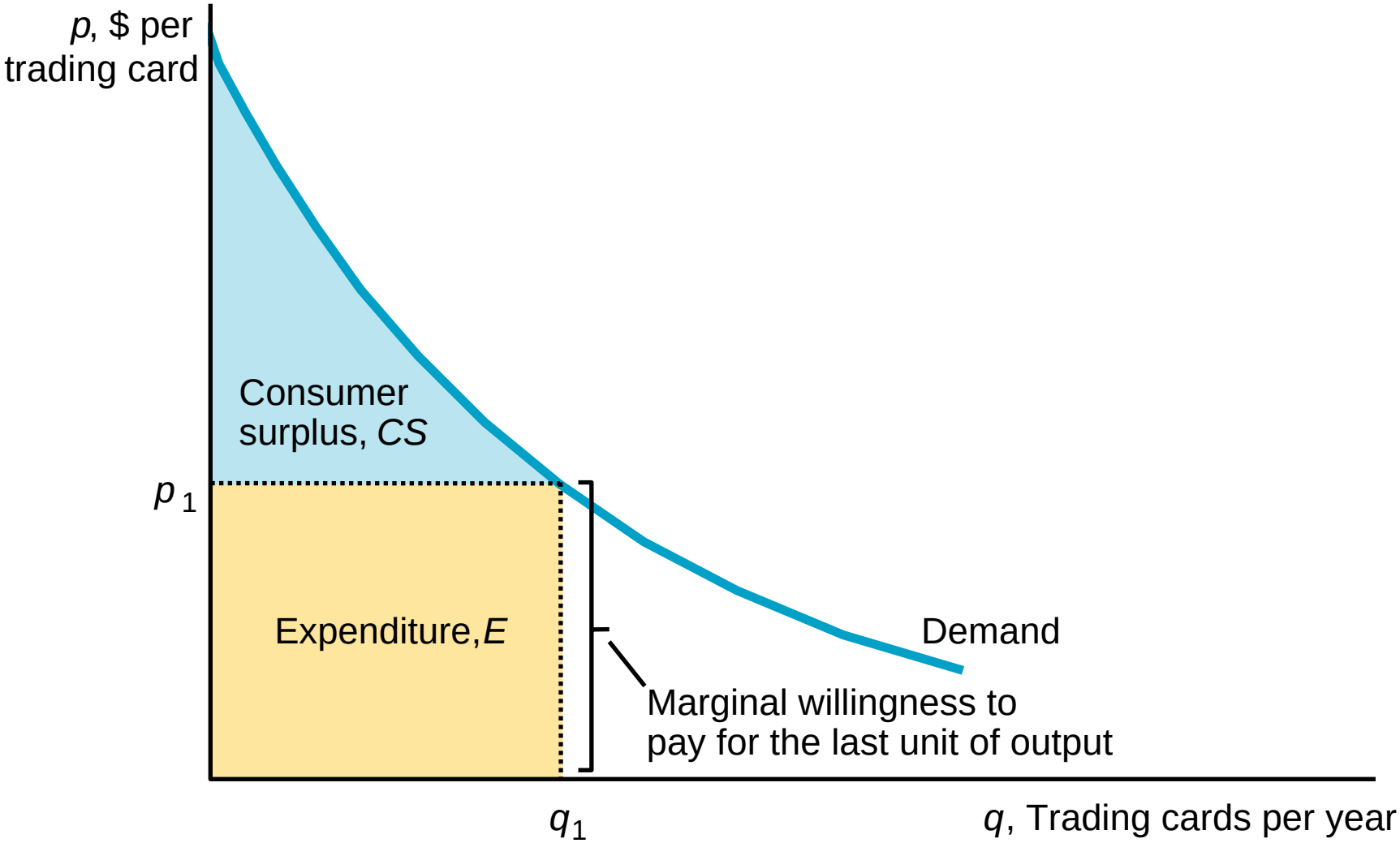
Graph individual's CS

area under individual's demand curve and above market price up to quantity that consumer buys

Consumer Surplus



Consumer Surplus



Bruce Springsteen's Gift to His Fans

- 2002 average rock concert ticket price was $51
- $75 that Bruce Springsteen and the E Street Band charged for their concerts was below the market clearing price
- when tickets went on sale at the Bradley Center in Milwaukee, 9,000 tickets sold in the first 10 minutes and all were gone after 20 minutes

Scalpers

- some tickets were available from scalpers, ticket brokers, or on the Internet at higher prices
- a web site offered tickets for Dallas American Airlines Center concert for $540 to $1,015
- according to a survey, the average price of a resold ticket at the Philadelphia First Union Center concert was $280

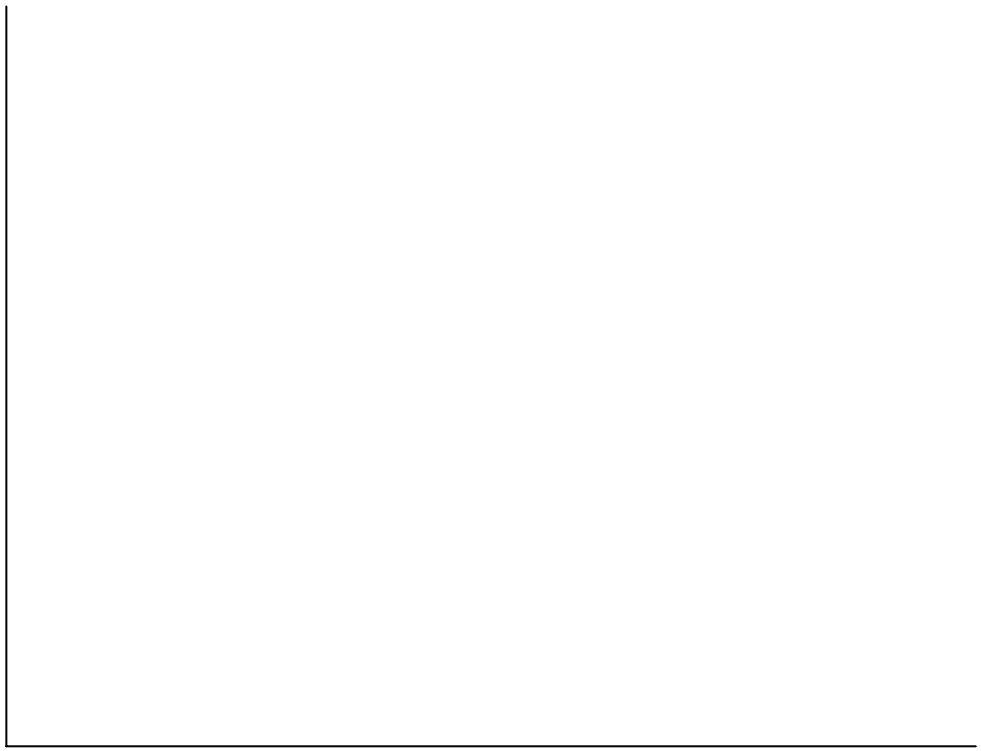
Springsteen's pricing

- says he set the price relatively low to give value to his fans
- (in addition, he may have helped promote his new album)
- assuming that he could have sold all the tickets at $280, he gave almost $3 million of consumer surplus to his Philadelphia fans — double the ticket revenue for that concert

Effect of a price change on CS

- price increase reduces CS
- could be caused by
  - leftward shift of supply curve
  - new government tax

Fall in Consumer Surplus from Roses as Price Rises



Solved problem

- 2 linear demand curves go through the initial equilibrium e_1
- one demand curve is less elastic than another at e_1
- for which demand curve will a price increase cause largest consumer surplus loss?

Producer surplus

1. supplier's gain from participating in a market
2. difference between amount for which good sells and minimum amount necessary for seller to produce good
3. minimum amount a seller must receive to be willing to produce is firm's avoidable production cost (shut-down rule)

Measuring PS using supply curve

- producer surplus for a competitive firm or market:
- area above supply curve (*MC* curve), below price line, up to quantity sold

Interpreting producer surplus

Common measure of well-being

Key: Surplus maximized at competitive output

- producing more or less than competitive level reduces surplus
- competition maximizes surplus because $p = MC$ in competitive equilibrium

Fundamental Economic Measures: Deadweight loss (*DWL*)

drop in welfare due to loss of surplus by one group that is not offset by a gain to another group from an action that alters a market equilibrium

C + E

or

B

DWL of Agricultural Price Supports

- Government imposes a binding price floor on production of wheat
- To support the price, the government buys up the excess supply
- Graphically identify the change in consumer and producer welfare and the deadweight loss of the policy

DWL of a Target Price Policy

- Government sets at target price p_t for wheat
- If the market price is less than p_t, government pays farmers the difference
- Graphically, determine the change in consumer and producer welfare and find the deadweight loss
- Can we determine which policy has a smaller deadweight loss?

Deadweight loss of Christmas

- *efficient gift*: recipient values gift as much as it cost giver
- *DWL* = price of gift – value to recipient
- according to Yale undergraduates, DWL is between 10% and 33% of value of gifts

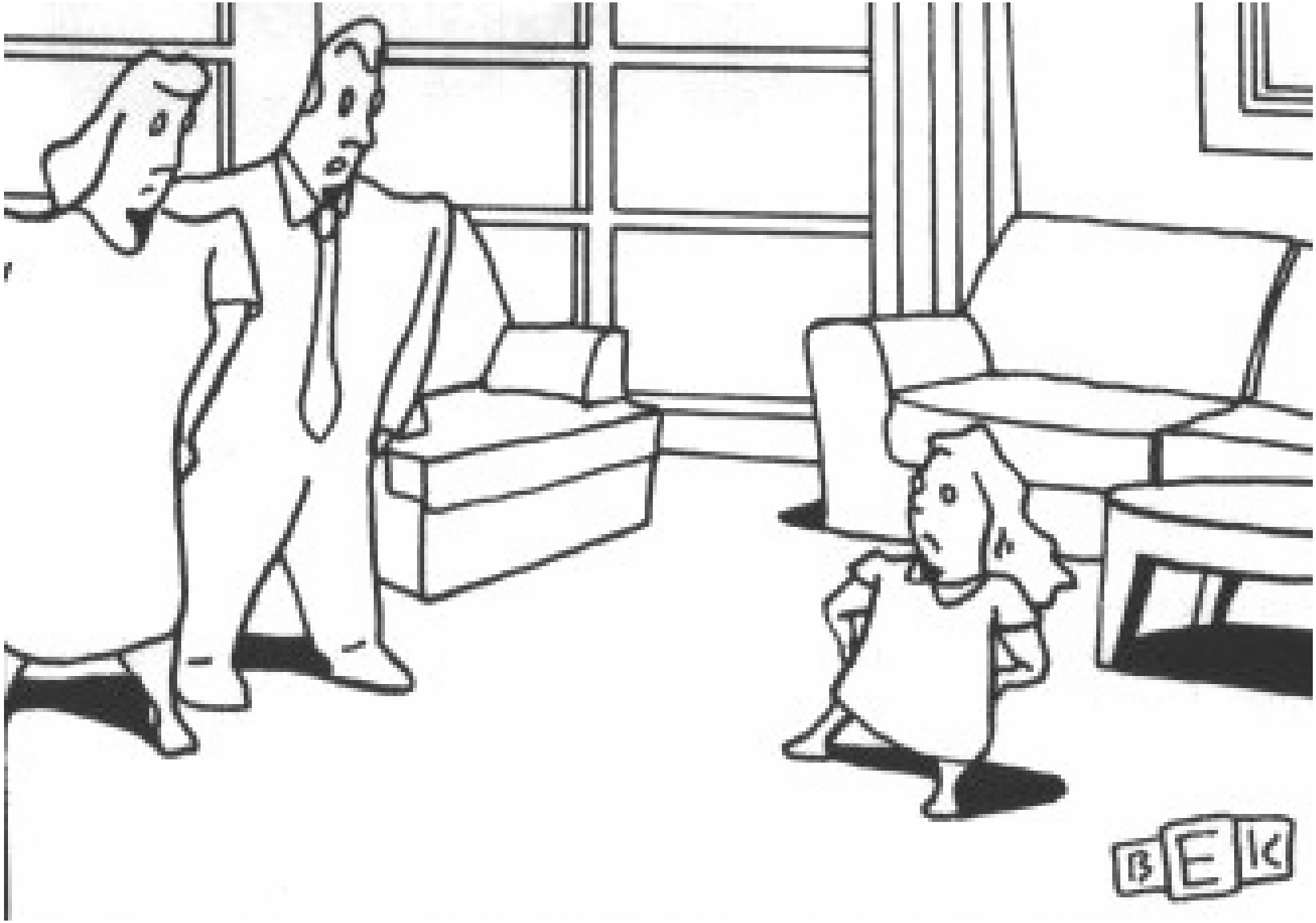
DWL of Christmas (cont.)

- gifts from friends and "significant others" are most efficient
- noncash gifts from members of extended family are least efficient (1/3 of value is lost)
- grandparents, etc. are most likely to give cash
- *DWL* is large
  - U.S. holiday expenditures are $40 billion per year
  - *DWL* of gift-giving holidays is between a 1/10 and 1/3 as large as estimates of DWL from inefficient income taxation

“Boy, you have to be the hardest person in the world to buy for.”

Government policies

- government policies tend to lower welfare in competitive markets:
- welfare is maximized in competitive equilibrium, so new equilibrium has lower welfare



“Yes, we do have the authority to regulate you.”

We examine 2 types of policies

- limits on number of firms in a market, which shift supply curve
- sales taxes, which create a wedge between p and MC

Regulation of taxicabs

- every country except Sweden regulates taxicabs
- many American cities limit number of taxicabs

Explanations for taxi regulation

- raises earnings of permit owners (taxi-fleet owners), who lobby city officials
- some city officials contend that limiting cabs allows for better regulation of cabbies' behavior and protection of consumers (why not regulate without restricting?)

Effects of limiting number of cabs

- raises market price
- lowers welfare creates DWL
- hurts consumers helps medallion owners (but not cab drivers)

Occupational licenses

- governments around world license: doctors, lawyers, electricians, contractors, beauticians,…
- usually current practitioners design tests to prevent entry
- failure rate on California bar exam in 1993:
  - 46% overall
  - 47% of attorneys from other states

Zoning

MOE'S BOOKS

- many cities frequently control number and location of firms using zoning laws
- Berkeley's zoning ordinances
  - limits number of restaurants to 31 in Telegraph Av. area near UCB
  - limits number of chain book stores in certain areas
  - designed to prevent these low-cost stores from driving higher-cost, traditional book stores out of business

FTC opposes Internet bans that harm competition

- preventing Internet shopping raises the prices of some goods
- in 2003, a FTC report concluded that ending bans on interstate wine sales over the Internet would save consumers as much as 21% on relatively expensive wines and increase consumer choice

Existing regulations

- 26 states, including New York, Florida, Massachusetts, and Pennsylvania, laws (many dating from the Prohibition era) ban direct-to-consumer shipping from out-of-state, in part to prevent sales to minors
- FTC concluded that shipping wine directly to homes does not lead to more underage drinking: many states require an adult to sign to accept wine deliveries

Entry barriers

- *LR barrier to entry*:
  - an explicit restriction or a cost that applies only to potential new firms
  - existing firms are not subject to restriction or do not bear cost
- barriers to entry limit ability of firms to enter a market in response to a profit opportunity

Government barriers: Milk

when a federal court declared unconstitutional a 50-year-old statute that allowed only 5 wholesalers to sell milk in New York City

- a new firm entered market
- price per gallon fell 70¢
- consumers saved

  $80 million a year

Government barriers: Factories

laws require

- new factories have extra features to prevent pollution or avoid seismic problems
- exempt older factories

Trucking regulation

- Motor Carrier Act of 1935 gave Interstate Commerce Commission (ICC) control over pricing and entry in interstate trucking
- in response to lobbying by industry it was supposed to regulate, ICC granted truck firms monopolies over some routes and restricted entry on others
- drove up prices

Motor Carrier Act of 1980

- ended ICC's regulation
- increase in entry from 1977 to 1982
  - # of for-hire trucks rose 17% (to 267,000)
  - # of trucks in private trucking sector rose 65% (to 510,000)
- more efficient firms expanded; less-efficient firms failed
  - trucking rates fell 15-20% from 1980 to 1983 (saves consumers $15 billion/year)
  - 25-35% by 1985

State regulation

- with end of federal regulations, state regulations created bizarre rate differentials
- before trucking was partially deregulated in 1990 in California, sometimes less expensive to ship a package from SF to Reno (deregulated interstate route) than to ship it 15 miles from SF to Oakland (an intrastate route)
- As of 1/1/95 federal law ended state differentials: prohibited state or local agencies from regulating "prices, routes or services" in trucking industry

Exit barriers

- exit barriers make it difficult for a firm to go out of business
- exit barriers keep number of firms in a market high in SR low in LR

- Example: electric utilities

Welfare effects of a price ceiling

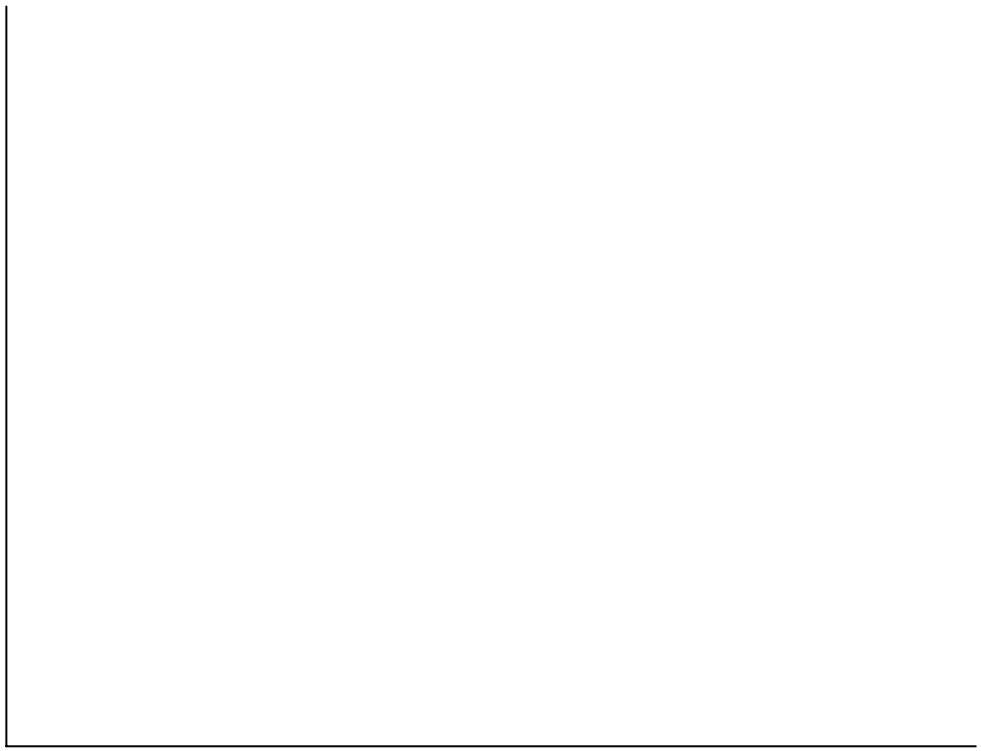
- *price ceiling*: highest price that a firm can legally charge
- in 1970s, U.S. government used price controls to keep gasoline prices below market price
- long lines at gas stations and large *DWL* loss in consumer surplus in California ($1985)
  - $1.2 billion 12/1973 - 3/1974 price controls
  - $800 million 5/1979 - 7/1979 controls


SUNOCO
CAR WASH
1970s
PEOPLE & EVENTS
OIL SHORTAGE

Tariff effects

- tariff protects U.S. producers from foreign competition
- larger tariff $\Rightarrow$ less is imported, hence domestic firms charge higher price
- consumers lose; domestic producers gain
- loss is less than from a ban

Effect of a Tariff (or Quota)

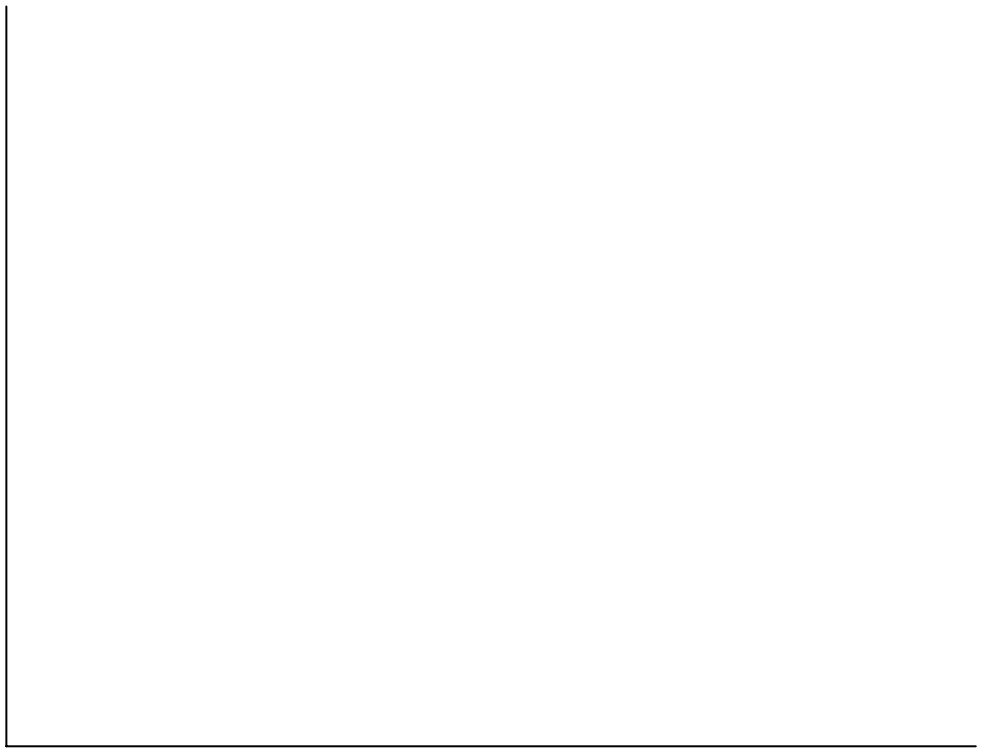


Interpretation of *DWL*

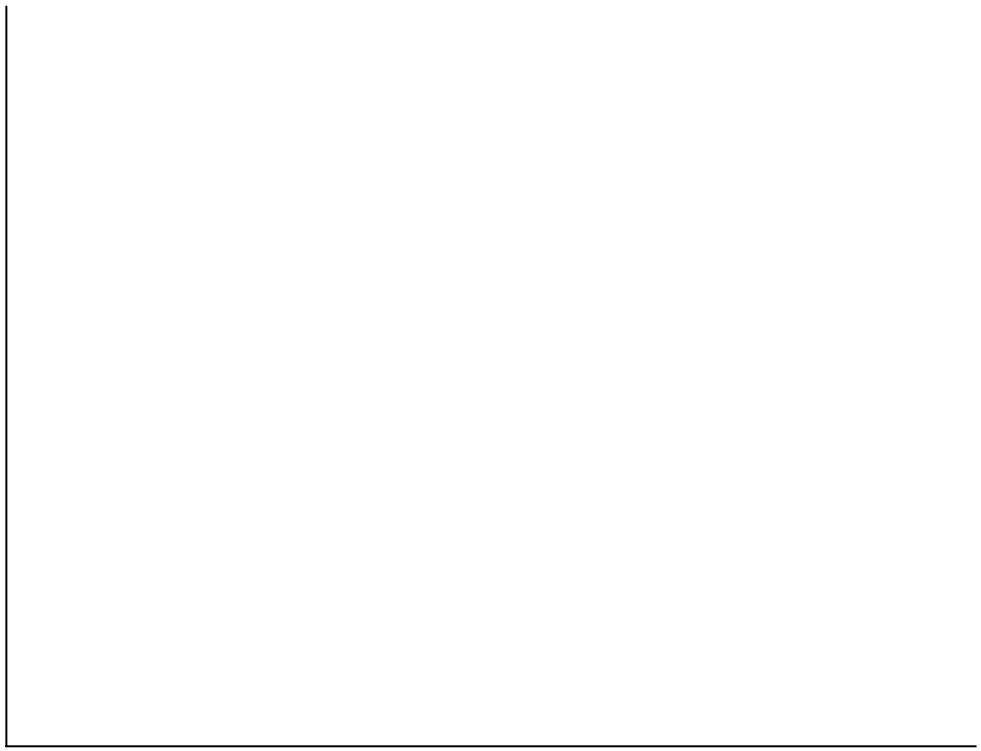
Free trade versus a quota

- effect of a positive quota is similar to that of a tariff
  - gain to domestic producers are same as with a tariff
  - but government gets no tariff revenues
  - foreign exporters get what would be tariff revenues
- thus, *DWL* from quota > greater than under tariff

Rent-Seeking: Trade



Rent-Seeking: Theft



1 Consumer welfare

- *CS* = area under consumer's demand curve above market price up to quantity that consumer buys
- how much consumers are harmed by an increase in price is measured by change in *CS*

2 Producer welfare

- *PS* = area above *MC* and below demand (price line) up to quantity produced
- *PS* = a firm's gain from trading
- *PS* = largest amount of money that you could take from a firm's and it would still produce
- $PS = R - VC$ (= π in LR)

3 Competition maximizes welfare

- one standard measure of welfare:
- $W = CS + PS$
- more p is above MC, lower is W
- in competitive equilibrium, where $p = MC$, W is maximized

4 Policies that shift supply curves

- governments limit # of firms by
  - limiting number of firms (licensing)
  - raising costs of entry or exit to new firms
- results
  - higher price
  - hurts consumers
  - helps existing firms
  - lowers welfare ($DWL > 0$)

5 Policies that create a wedge between supply and demand

- policy creates a gap between price consumers pay and price firms receive
  - taxes
  - price ceilings
  - price floors
- consequently, $p > MC$ and *DWL*

6 Comparing both types of policies: Imports

- welfare highest with free trade
- welfare lowest with ban on imports
- if a tariff and quota produce same equilibrium, tariff better for home country as it produces tariff revenues for government