

# VALUING BENEFITS AND COSTS IN SECONDARY MARKETS

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EE465/EE463 Project Evaluation  
Semester 2/2015

# Topics

- Valuing Benefits and Costs in Efficient Secondary Markets
- Valuing Benefits and Costs in Distorted Secondary Markets
- Summary

# Secondary Markets

- Recall: *Secondary markets* refer to markets that are indirectly affected by a policy.
- The effects in secondary markets are often referred to as *secondary, second-round, spillover, side, pecuniary, or indirect effects*.
- Examples:
  - Public transportation:
    - Primary market effects: bus, trains, railways, and related inputs
    - Secondary market effects: personal cars, gas
  - Tariff on imported palm oil:
    - Primary market effects: palm oil
    - Secondary market effects: other biodiesel

# Complements and Substitutes

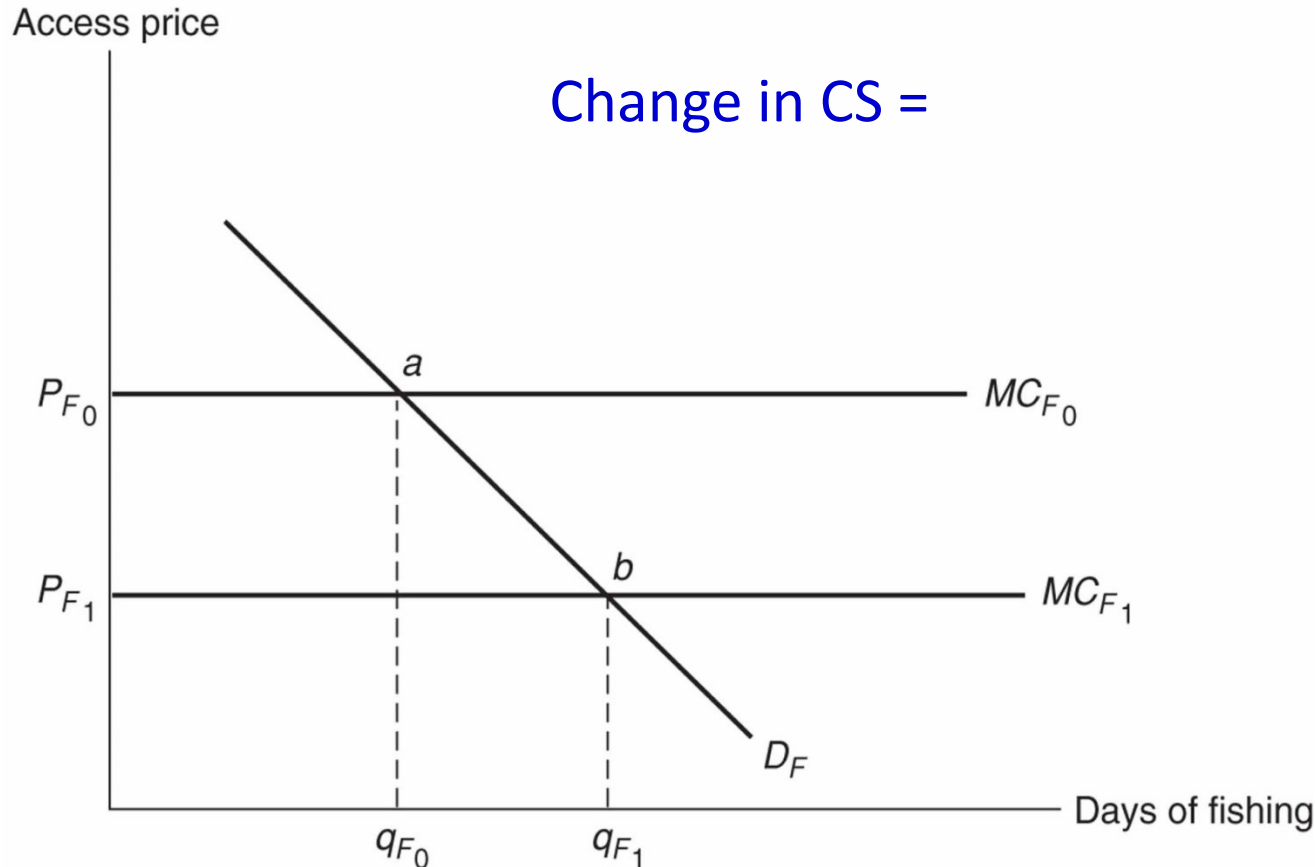
- A primary reason for secondary market effects is that price changes of goods in primary markets change the **demand for the complements and substitutes of the primary market goods**.
- These complements and substitutes are **exchanged in secondary markets**.
  - **Complements** are goods that tend to be **purchased and used with another good** (e.g., hamburger buns are complements to hamburgers).
  - **Substitutes** are goods that can be **used in place of another good** (e.g., hot dogs are substitutes for hamburgers).
- The effect in the primary market *may or may not* affect the price in secondary markets. (But when?)

# VALUING BENEFITS AND COSTS IN EFFICIENT SECONDARY MARKETS

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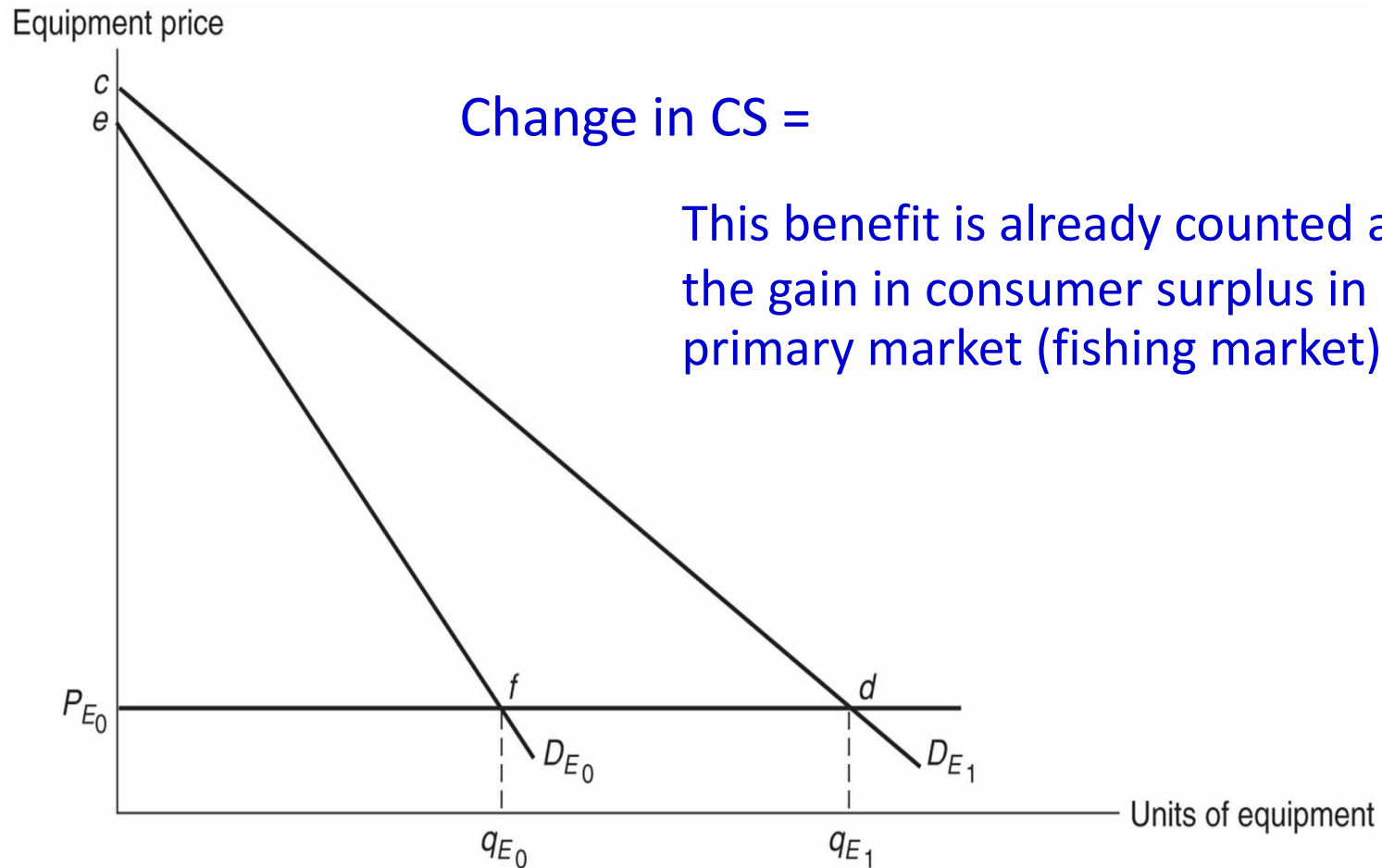
# Efficient Market Effects With No Price Changes

Assume prices in other markets are constant.



Primary Market: Fishing Days

# Efficient Market Effects With No Price Changes



Secondary Market: Fishing Equipment

# Efficient Market Effects With No Price Changes

- Summary:

A nearby lake is stocked with fish, and effective price of fishing days decreases

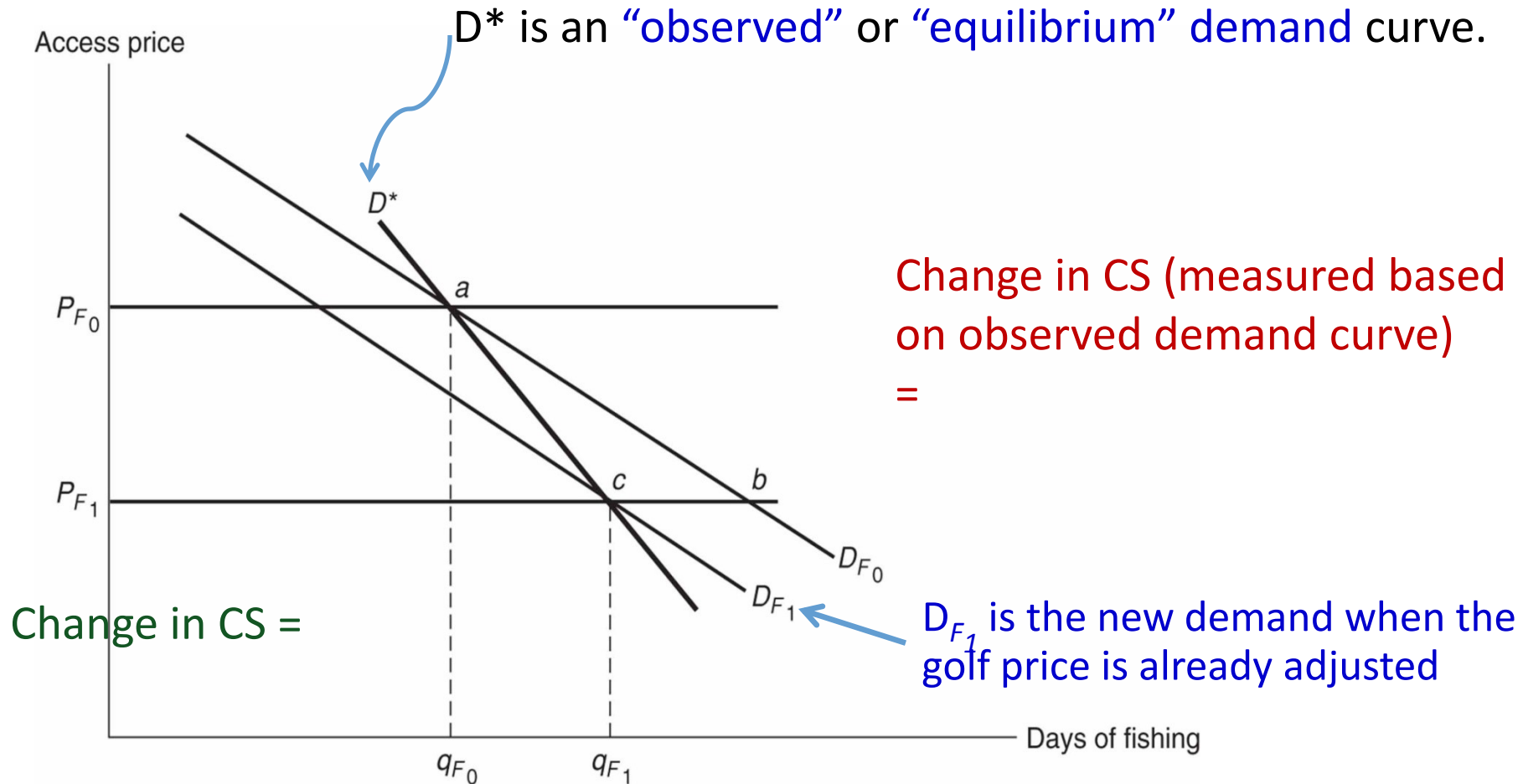
→ the number of fishing days increases

→ Increase the demand for fishing equipment

(complement), but the price of fishing equipment is unaffected.

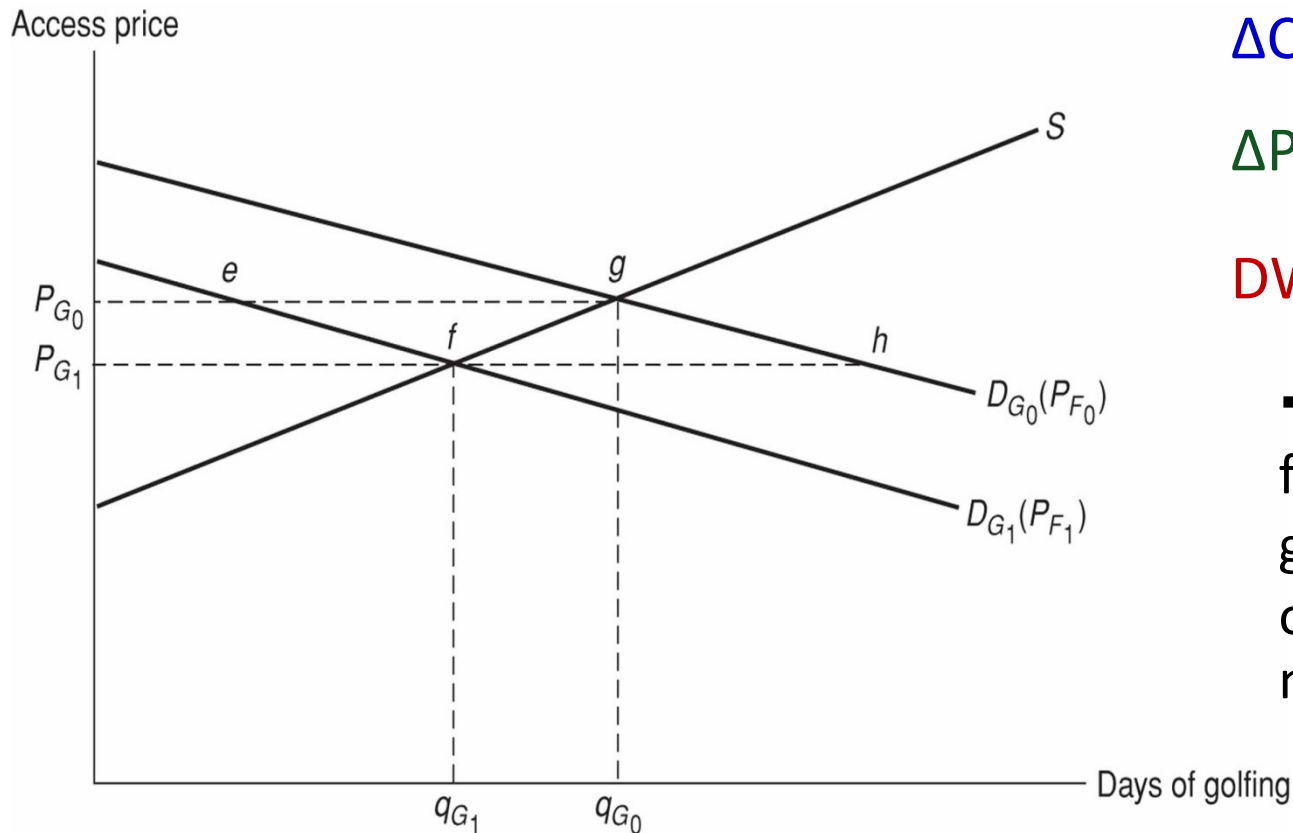
- Result: When the prices in the secondary markets don't change and the change in social surplus in the primary market is measured, the impacts in undistorted secondary markets should be ignored.

# Efficient Market Effects with Price Change



Primary Market: Fishing Days

# Efficient Market Effects with Price Change



$\Delta CS = \text{Area}$

$\Delta PS = \text{Area}$

$DWL = \text{Area}$

→ Area *abc* in fishing markets is a good approximation of area *efg* in golfing market.

Secondary Market: Golfing Days

# Efficient Market Effects with Price Change

- Summary - **Golfing** is the secondary market (**substitute**) of fishing:

Price of fishing days decreases  $\rightarrow$   $\uparrow$  demand & social surplus.

$\rightarrow$  The demand for golf  $\downarrow$   $\rightarrow$  price of golfing  $\downarrow$  (why?)

$\rightarrow$  Golfers' consumer surplus  $\uparrow$ , but producer surplus  $\downarrow$  by a larger amount  $\rightarrow$  net social surplus  $\downarrow$

$\rightarrow$  Also, the reduction in the price of golf also causes some consumers to switch back from fishing to golfing.  $\rightarrow$  Demand for fishing  $\downarrow$

- Hence, if changes in social surplus in secondary markets are ignored and an “equilibrium” demand curve is used to measure a change in social surplus in the primary market, then **errors result that tend to be offsetting**.

# Conclusion: Efficient Secondary Market

- The effects in undistorted secondary markets should be *ignored*, regardless of whether or not there are price changes.
- This is true as long as benefits in the primary market are measured using empirically measured "observed" demand curves that don't hold prices constant in secondary markets.

# Example: Voluntary Restraint Agreement

- In 1981, Japan and the US agreed to cut imports of Japanese cars with the **Voluntary Restraint Agreement (VRA)**.
  - The limit on imports raised the price of Japanese cars and, thereby, increased the demand for U.S. cars.
  - This shift in demand increased the price and quantity sold of U.S. cars, which, in turn, caused the demand for Japanese cars to increase (shift to the right), increasing Japanese car prices even more.
  - Overall effects of the policy:
    - An increase in producer surplus for U.S. car manufacturers
    - An increase in producer surplus for Japanese car manufacturers
    - A large decrease in consumer surplus and a deadweight loss.
    - The net effect was a loss in social surplus within the U.S.

# VALUING BENEFITS AND COSTS IN DISTORTED SECONDARY MARKETS

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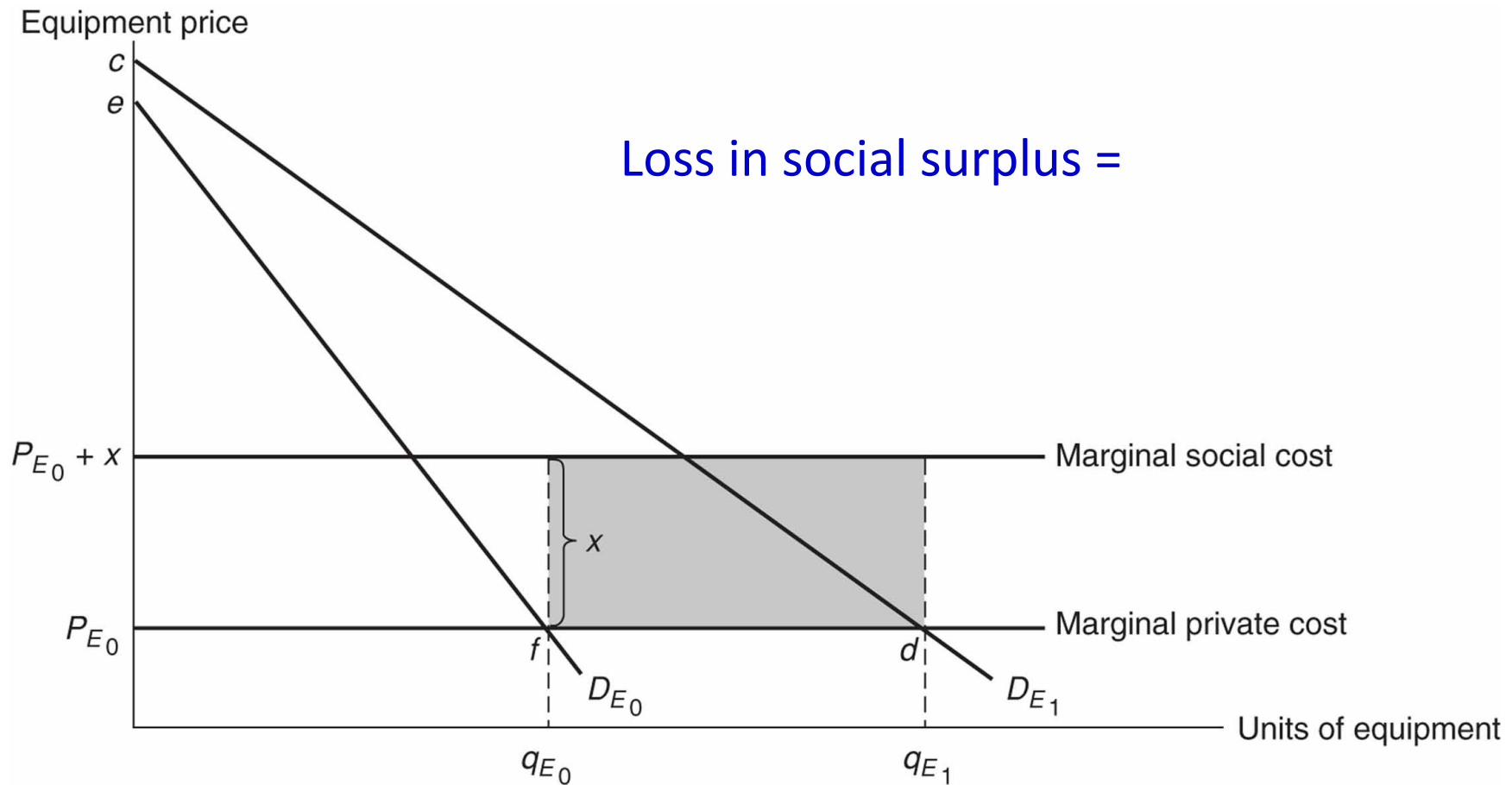
# Distorted Secondary Markets (1)

- **Distorted markets** are those in which **price doesn't equal social marginal costs**.
- Example 1: **Negative externality**.

Consider the possibility that lead sinkers, which are part of fishing equipment, can poison some of the wildlife.

- The loss of wildlife has a cost of \$  $X$  per sinker.
- An increase in consumption of lead sinkers imposes a cost of  $X$  times the increase in quantity that should be included in a CBA.

# Example 1: Market for Fishing Equipment (No Price Effect)



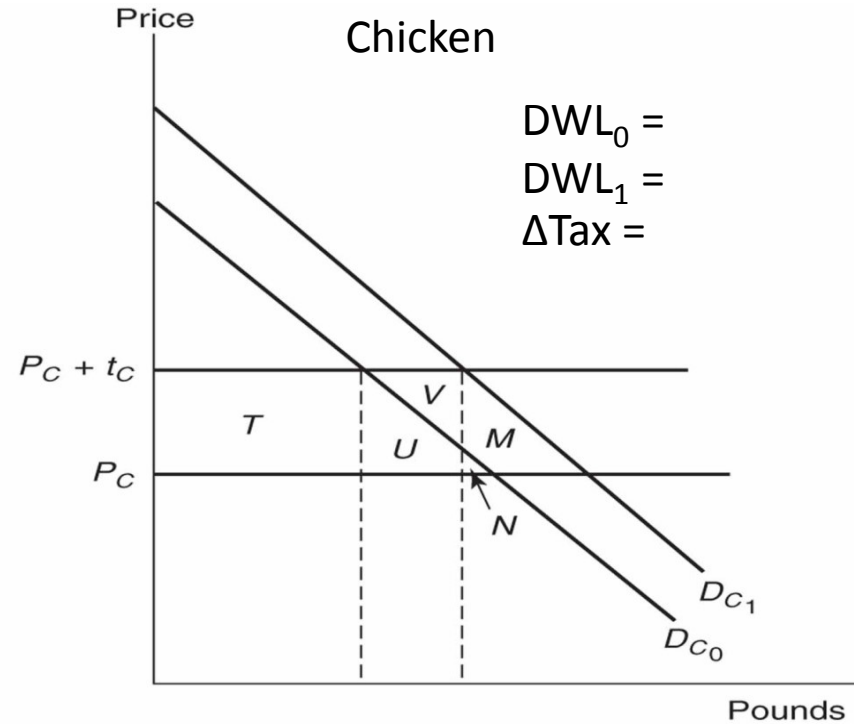
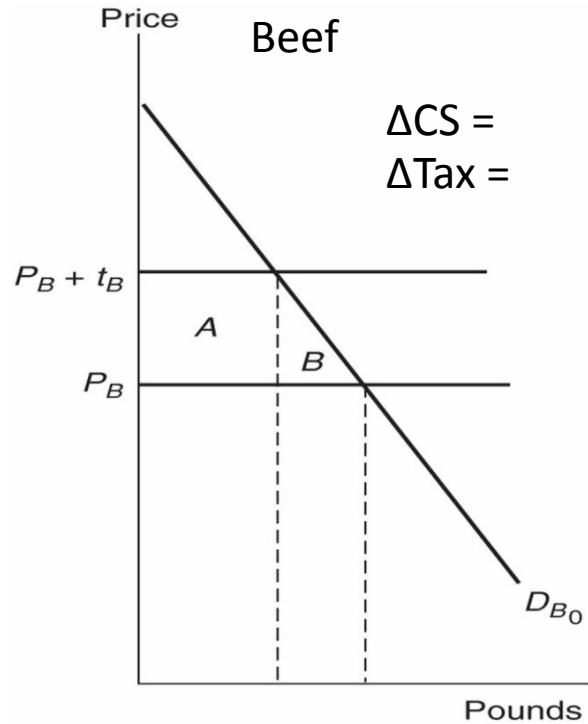
# Distorted Secondary Markets (2)

- Example 2: Taxes.

Consider two substitute goods: Beef (not initially taxed) and Chicken (taxed). Imagine that a tax is now imposed on beef.

- Tax on beef → Government revenue increases
  - Consumer surplus decreases → DWL
- Increase in the market price of beef → the demand for chicken increases
  - More revenue for government, which may offset the deadweight loss created in the beef market.

# Example 2: Market for Beef and Chicken



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	Benefits	Costs
Consumers	<input type="text"/>	<input type="text"/>
Government Revenue	<input type="text"/>	<input type="text"/>
Social Benefits and Costs	<input type="text"/>	<input type="text"/>

# Conclusion: Distorted Secondary Markets

- When there are distortions in secondary markets, benefits and costs can't be measured solely by observing effects that occur in primary markets.
  - Effects in distorted secondary markets must be valued separately.
- In practice, the effects in secondary markets are very difficult to measure.
  - They can be ignored if they are small (usually the case).
- Unless the good in question has strong substitutes or complements, large price changes would be needed to produce noticeable demand changes in secondary markets.

# Rules for Measuring Social Benefits and Costs of Government Interventions

Type of Intervention	Efficient Markets	Inefficient Markets
Purchases from factor market  <i>[Opportunity costs]</i>	If supply is flat, value cost as direct budgetary expenditure.  If supply is upward sloping, value cost as direct budgetary expenditure less (plus) any increase (decrease) in social surplus in market.	Value costs as direct budgetary expenditure less (plus) any increase (decrease) in social surplus in market.
Changes in costs to consumers or producers in primary markets  <i>[benefits = WTP, costs = WTP to avoid the change]</i>	Value change as net change in social surplus (CS+PS) plus (less) any increase (decrease) in government revenues.	Value change as net change in social surplus (CS + PS + third party's) plus (less) any increase (decrease) in government revenues.

# Rules for Measuring Social Benefits and Costs of Government Interventions (cont'd)

Type of Intervention	Efficient Markets	Inefficient Markets
<p>Changes in quantities exchanged in secondary markets as a result of intervention in primary or factor markets.</p> <p><i>[complements or substitutes of primary-market goods]</i></p>	<p>If prices do not change in secondary market, ignore secondary market impacts.</p> <p>If prices do change, but benefits in primary market are measured using an “observed” demand (other market prices are not held constant), ignore secondary market impacts. <i>Otherwise, secondary market effects will always represent reductions in social surplus that should be subtracted from changes in primary market.</i></p>	<p>In principle, costs or benefits resulting directly from increases in the size of distortion should be measured.</p> <p>Other impacts in secondary market should be ignored if prices do not change.</p>