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Module:

Microeconomics

Lecturer:

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Microeconomics

Tutorial 2 -
Supply & Demand Exercises
The Market for Hotel Rooms in Ireland

Tutorial Questions

1. Are the price elasticities of demand & supply for hotel rooms likely to be elastic or inelastic?
2. What will be the effect on revenue of an increase in V.A.T.?
3. What will be the effect on revenue of a Tourism Ireland promotion?
4. What would be the effect of a petrol subsidy for foreign visitors?
5. What would be the effect of a reduction in P.R.S.I.?

Are the price elasticities of demand & supply for hotel rooms likely to be elastic or inelastic?

- Are there many substitutes to a hotel room in Ireland?
  - Guest houses, apartment stays, places to stay in other countries, cruises, caravans, campsites, etc.
  - Demand for hotel rooms in Ireland is likely to be elastic
- Can the supply of hotel rooms be increased quickly?
  - Supply of hotel rooms is likely to be inelastic

What determines demand/supply?

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- The quantity demanded of a good ($Q_A{}^D$) is determined by;
  - The (own) price of the good (P_A) (Movement)
  - The price of other goods ($P_{B\text{-}Z}$) (Shift)
  - Income (Y) (Shift)
  - Tastes (T) (Shift)
  - Expectations (E) (Shift)

What determines demand/supply?

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- The quantity supplied of a good (Q_A^S) is determined by;
  - The (own) price of the good (P_A) (Movement)
  - The price of other goods ($P_{B\text{-}Z}$) (Shift)
  - Costs (C) (Shift)
  - Technology (T) (Shift)
  - Expectations (E) (Shift)

Using Demand/Supply Model: Procedure

- Does the change involve Supply or Demand (or both)
- Which of the variables does it affect?
- If it affects (own) price then it is a movement along the curve)
- If it affects any other variable then it is a shift in the curve
- Finally, does the curve shift in or out

What will be the effect on revenue of the introduction of a tax on hotel rooms?

STEP 3:

The shift causes price to increase and quantity to fall.

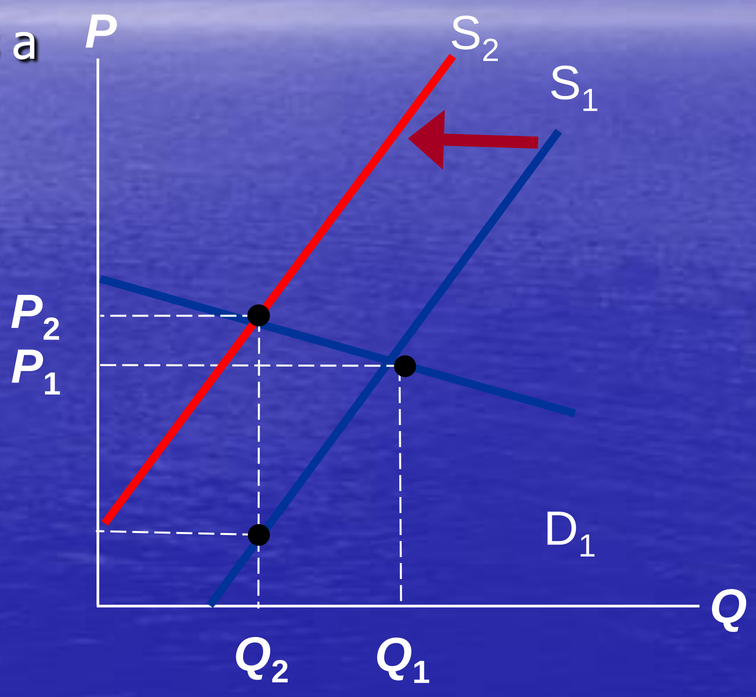
EVENT: The government introduces a tax on hotel rooms

STEP 1:

Does this effect supply or demand? Answer: ***Supply***

Which variable does it affect? Answer: ***Costs (C)***

Is it a shift or movement? Answer: ***Shift***



STEP 2:

Does the supply curve shift left/right? Answer: ***Supply curve*** shifts <u>left</u>

(Because the event increases cost, making production more profitable at any given price.

Comparison: What will be the effect on revenue of a tax on food?

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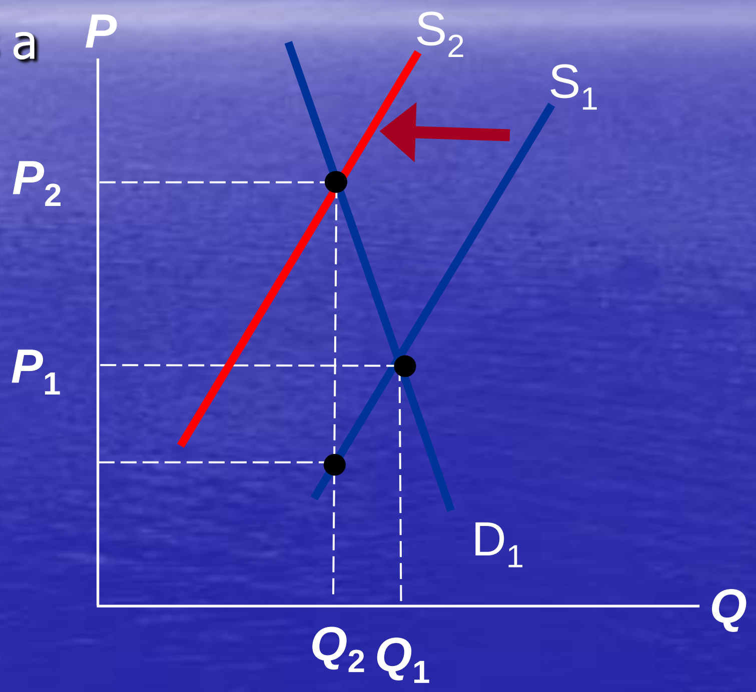
EVENT: The government introduces a tax on food

STEP 1:

Does this effect supply or demand? Answer: ***Supply***

Which variable does it affect? Answer: ***Costs (C)***

Is it a shift or movement? Answer: ***Shift***



STEP 2:

Does the supply curve shift left/right? Answer: ***Supply curve*** shifts <u>left</u> (Because the event increases cost, making production more profitable at any given price.

STEP 3:

The shift causes price to increase and quantity to fall.

What will be the effect on revenue of a Tourism Ireland promotion?

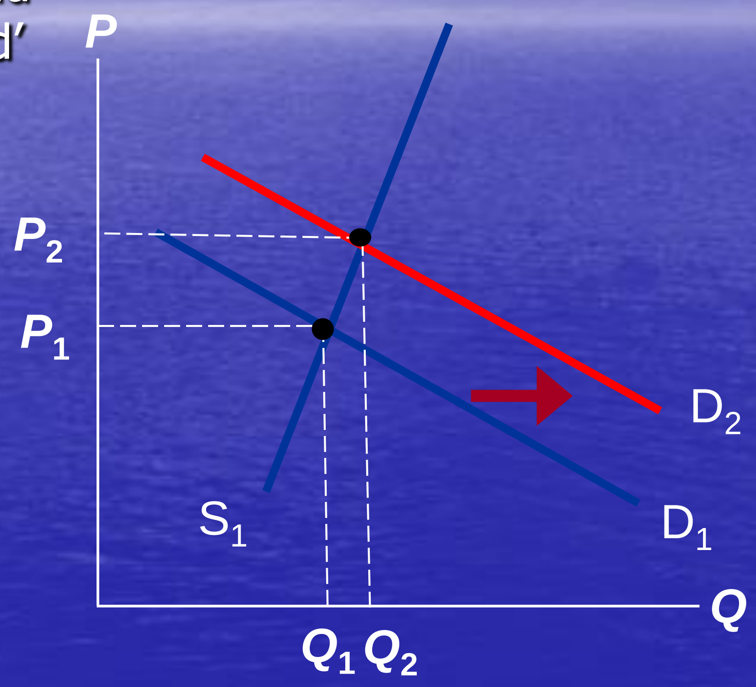
EVENT: Tourism Ireland launches a 'Visit Ireland' promotion globally

STEP 1:

Does this effect supply or demand? Answer: ***Demand***

Which variable does it affect? Answer: ***Price of related goods (P_{B-Z})***

Is it a shift or movement? Answer: ***Shift***



STEP 2:

Does the demand curve shift left/right? Answer: ***Demand curve*** shifts <u>right</u> (Because the event increases the 'taste' for Irish holidays, a complement to Irish hotels

STEP 3:

The shift causes price to rise and quantity to rise.

(Producer is better off)

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What would be the effect of a petrol subsidy for foreign visitors?

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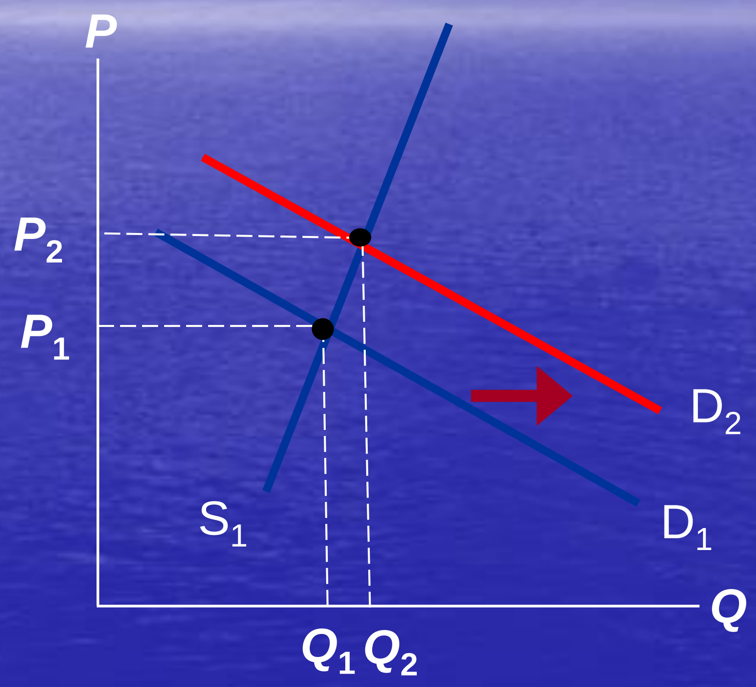
EVENT: Petrol subsidy for foreign visitors

STEP 1:

Does this effect supply or demand? Answer: ***Demand***

Which variable does it affect? Answer: ***Price of related goods ($P_{B\text{-}Z}$)***

Is it a shift or movement? Answer: ***Shift***



STEP 2:

Does the demand curve shift left/right? Answer: ***Demand curve*** shifts <u>right</u> (Because the event increases the 'taste' for Irish holidays, a complement to Irish hotels

STEP 3:

The shift causes price to rise and quantity to rise.

(Producer is better off)

What would be the effect of a reduction in P.R.S.I.?

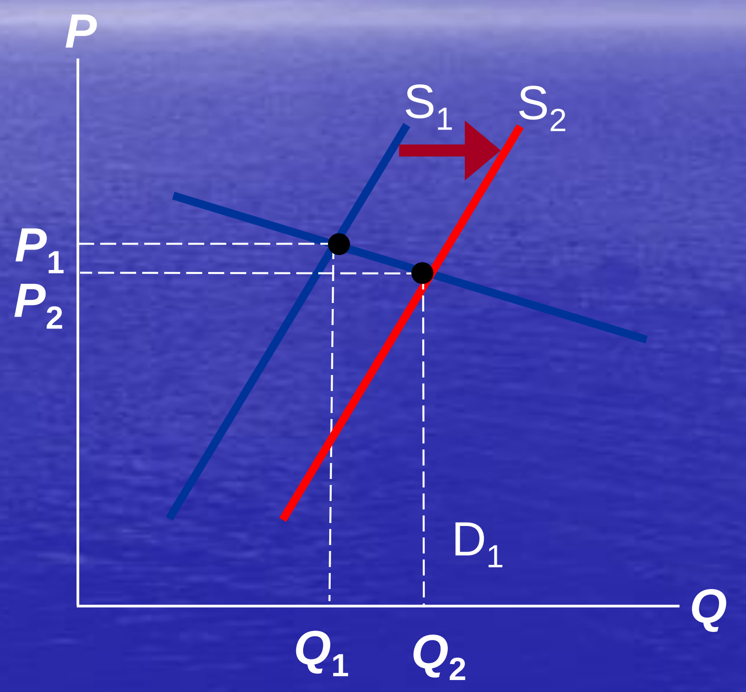
EVENT: A reduction in PRSI

STEP 1:

Does this effect supply or demand? Answer: ***Supply***

Which variable does it affect? Answer: ***Costs (C)***

Is it a shift or movement? Answer: ***Shift***



STEP 2:

Does the supply curve shift left/right? Answer: ***Supply curve*** shifts <u>right</u> (Because the event reduces cost, making production more profitable at any given price.

STEP 3:

The shift causes price to fall and quantity to rise.

The Effects of a Tax

Equilibrium with no tax:

Price = P_E

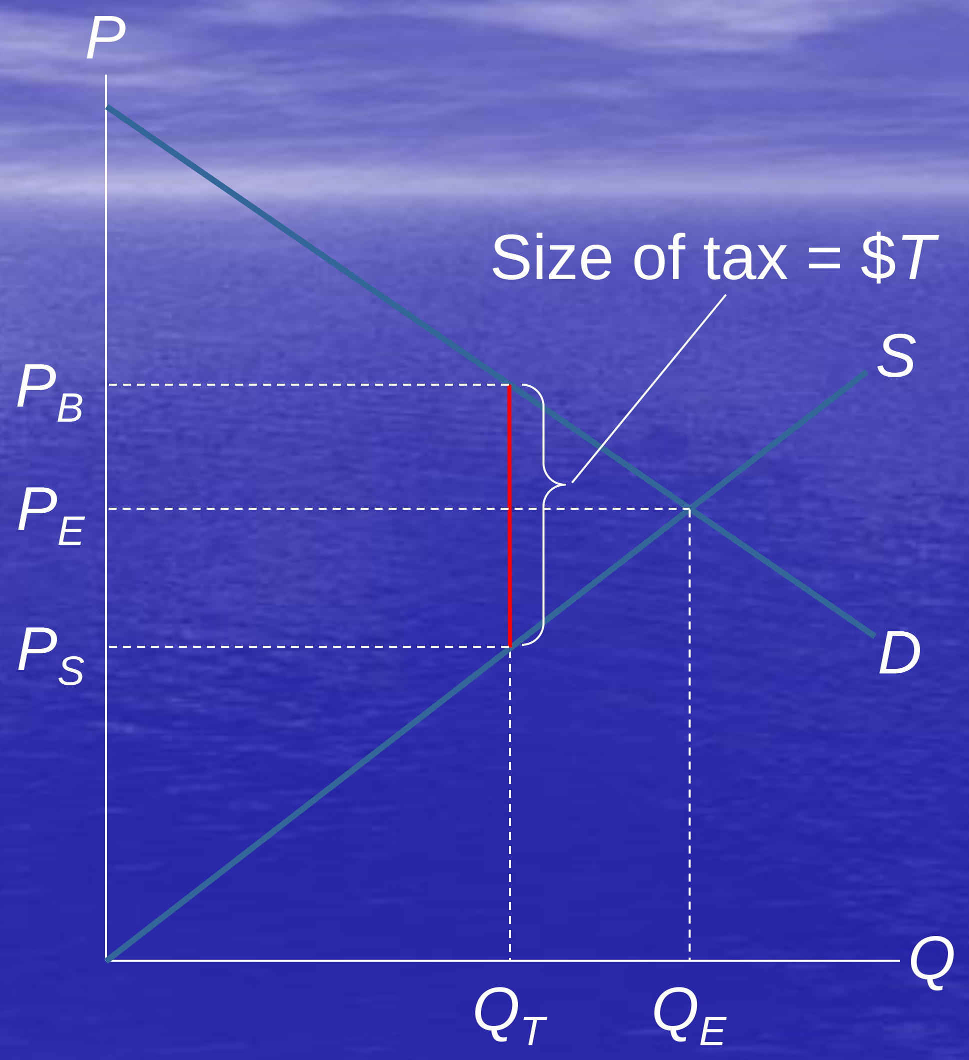
Quantity = Q_E

Equilibrium with tax = $\$T$ per unit:

Buyers pay P_B

Sellers receive P_S

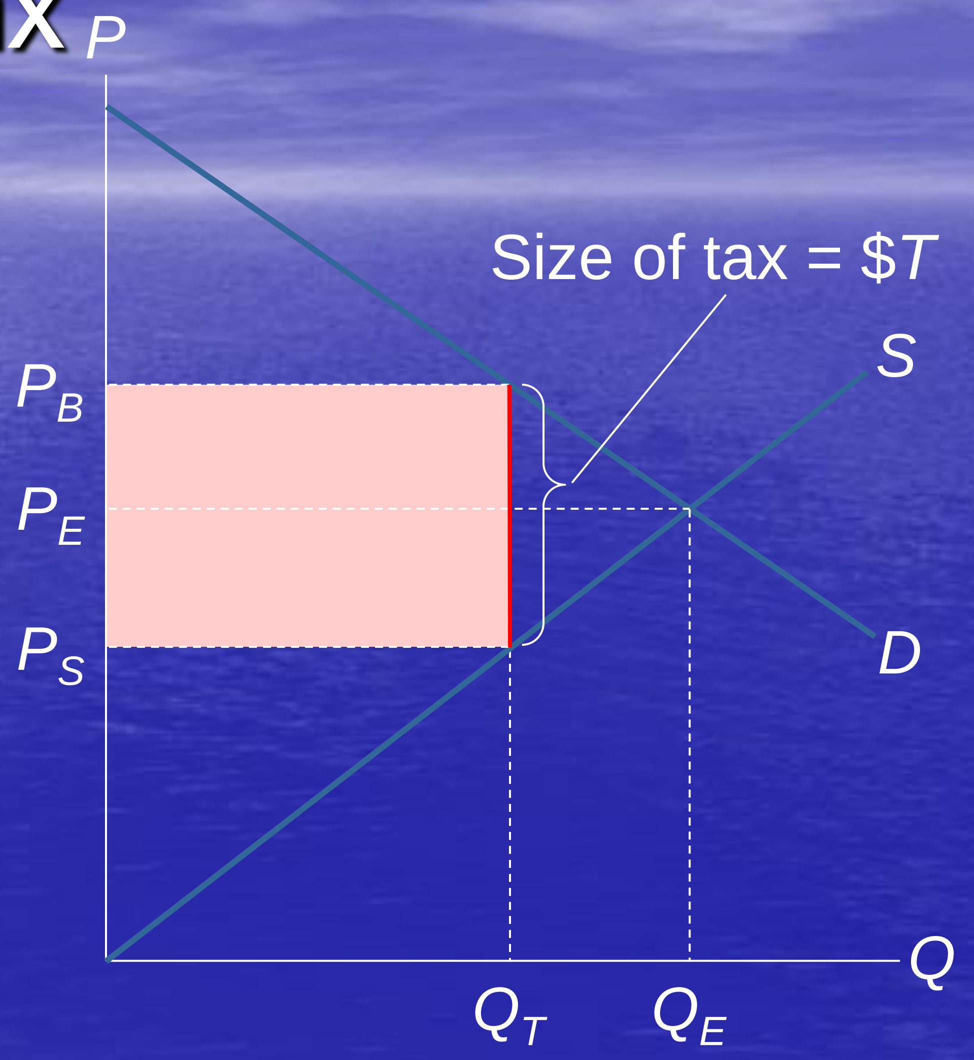
Quantity = Q_T



The Effects of a Tax

Revenue from tax:

$\$T \times Q_T$



The Effects of a Tax

- Next, we apply welfare economics to measure the gains and losses from a tax.
- We determine consumer surplus (CS), producer surplus (PS), tax revenue, and total surplus with and without the tax.
- Tax revenue can fund beneficial services (e.g., education, roads, police), so we include it in total surplus.

The Effects of a Tax

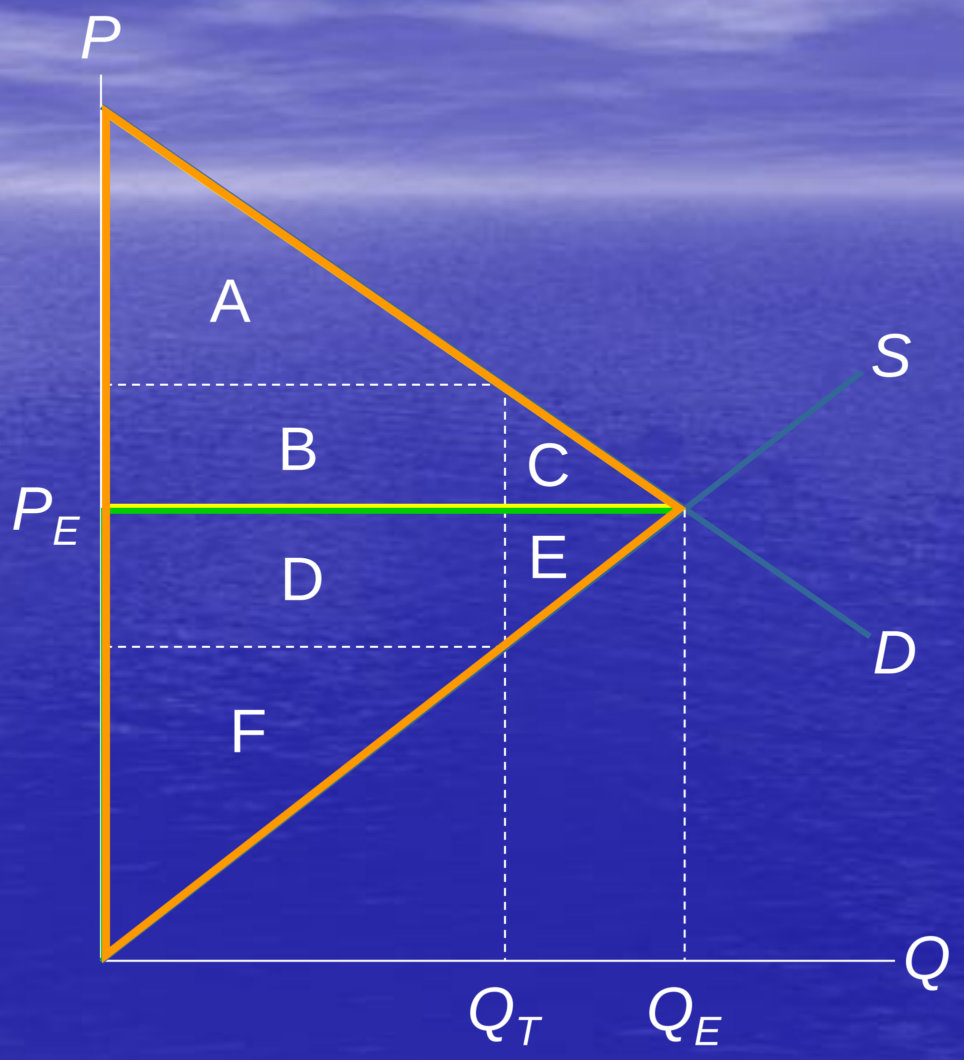
Without a tax,

CS = A + B + C

PS = D + E + F

Tax revenue = 0

Total surplus
= CS + PS
= A + B + C
+ D + E + F



The Effects of a Tax

With the tax,

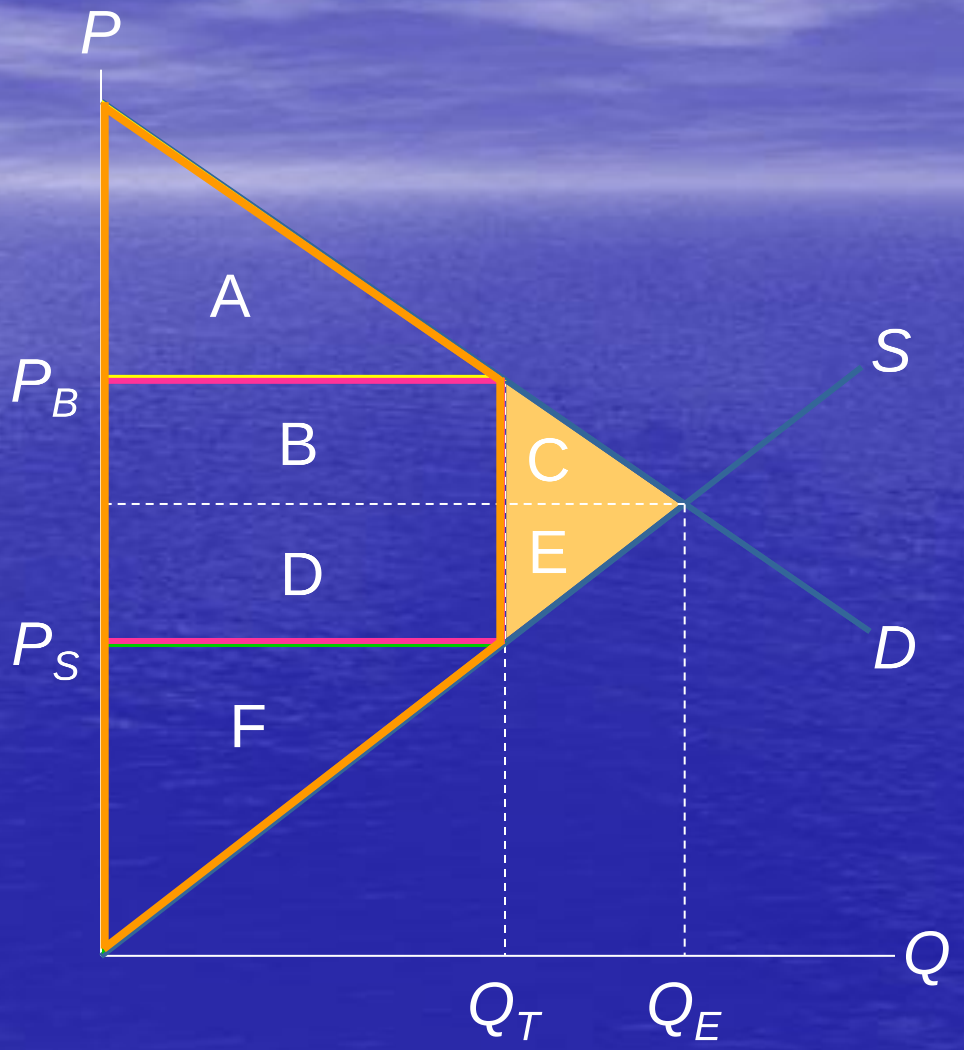
CS = A

PS = F

Tax revenue
= B + D

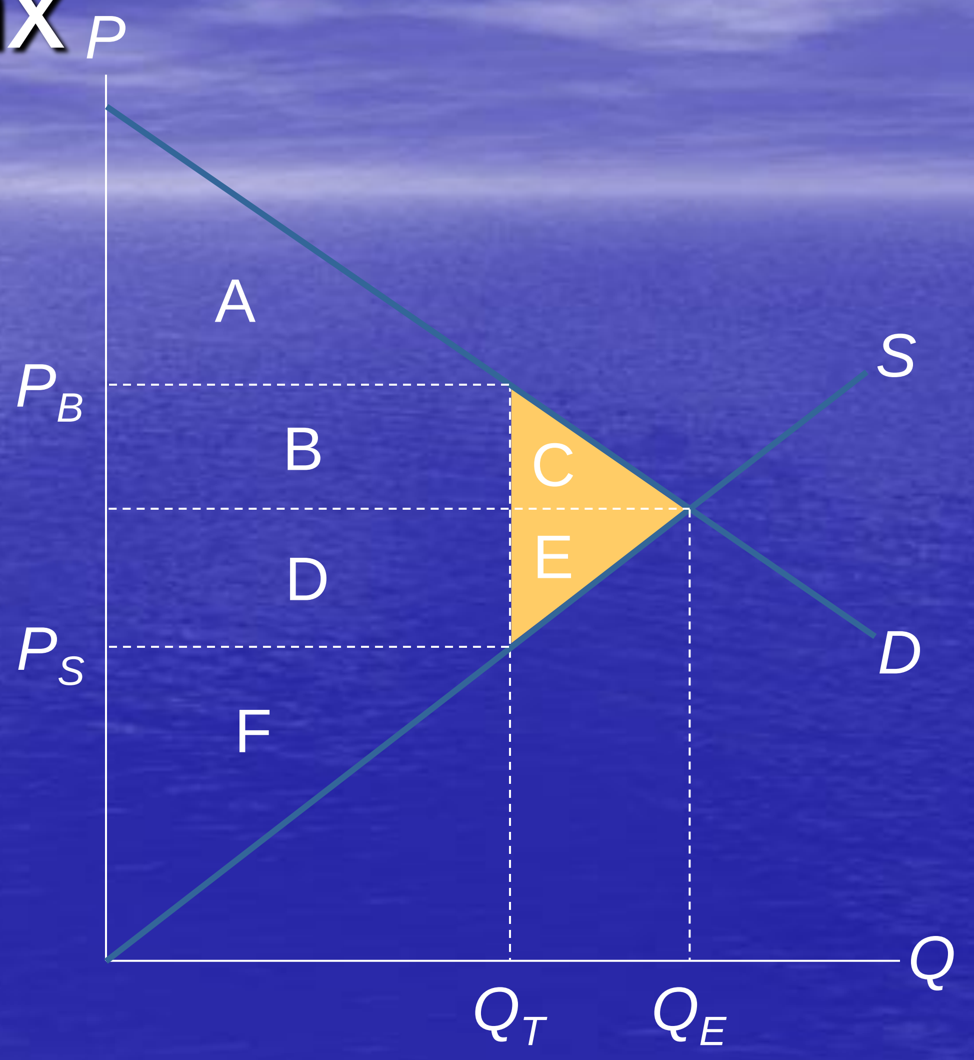
Total surplus
= A + B
+ D + F

The tax reduces total surplus by
C + E



The Effects of a Tax

C + E is called the **deadweight loss** (DWL) of the tax, the fall in total surplus that results from a market distortion, such as a tax.

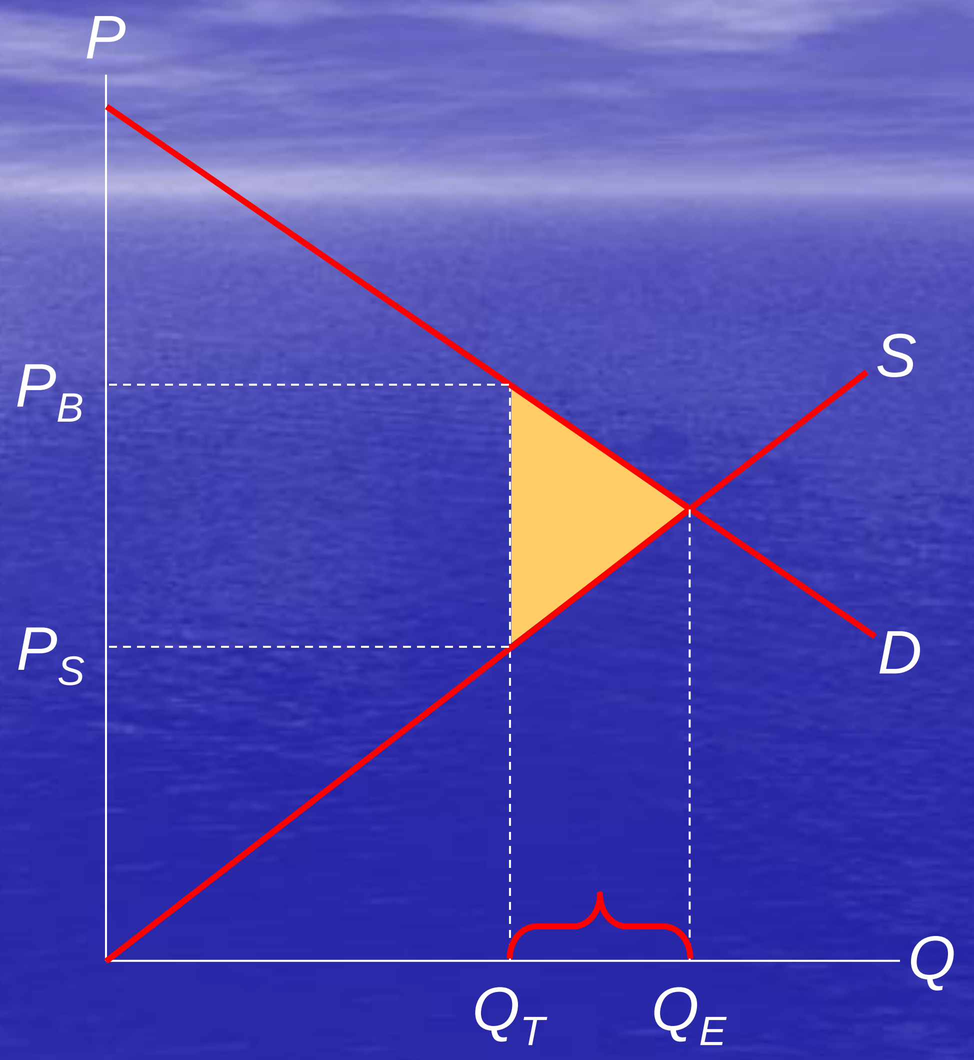


About the Deadweight Loss

Because of the tax, the units between Q_T and Q_E are not sold.

The value of these units to buyers is greater than the cost of producing them,

so the tax prevents some mutually beneficial trades.



What Determines the Size of the DWL?

- Which goods or services should government tax to raise the revenue it needs?
- One answer: those with the smallest DWL.
- When is the DWL small vs. large?
  Turns out it depends on the price elasticities of supply and demand.
- Recall:
  The price elasticity of demand (or supply) measures how much Q^D (or Q^S) changes when P changes.

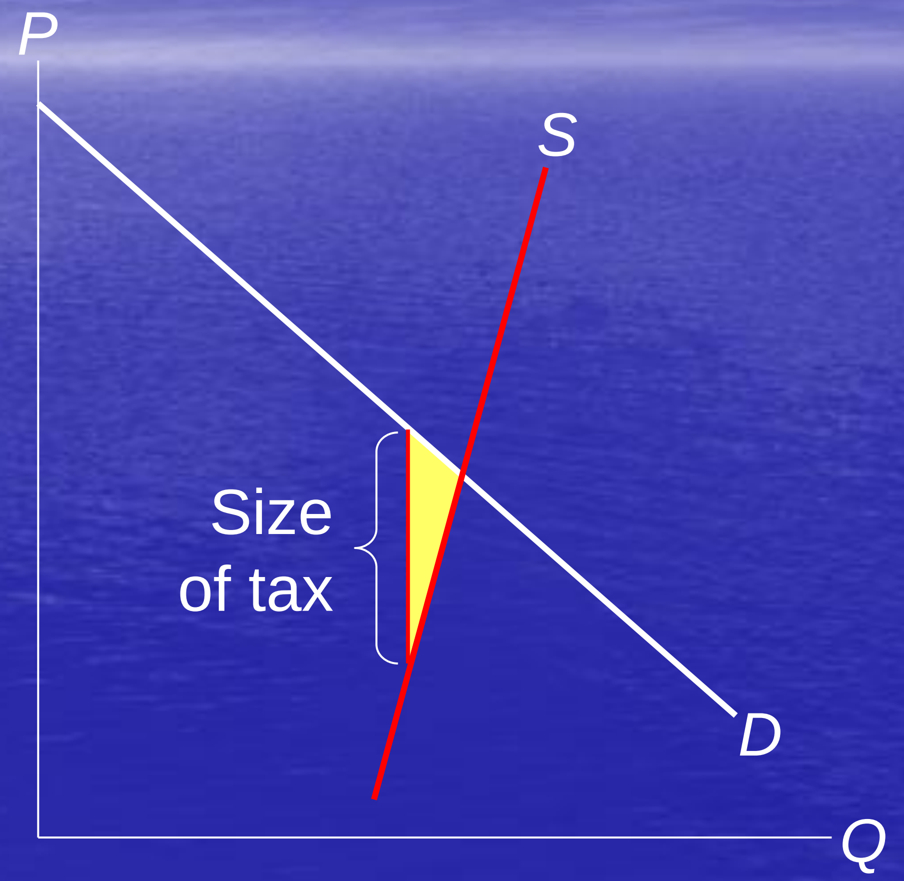
DWL and the Elasticity of Supply

When supply is inelastic,

it's harder for firms to leave the market when the tax reduces P_S.

So, the tax only reduces Q a little,

and DWL is small.



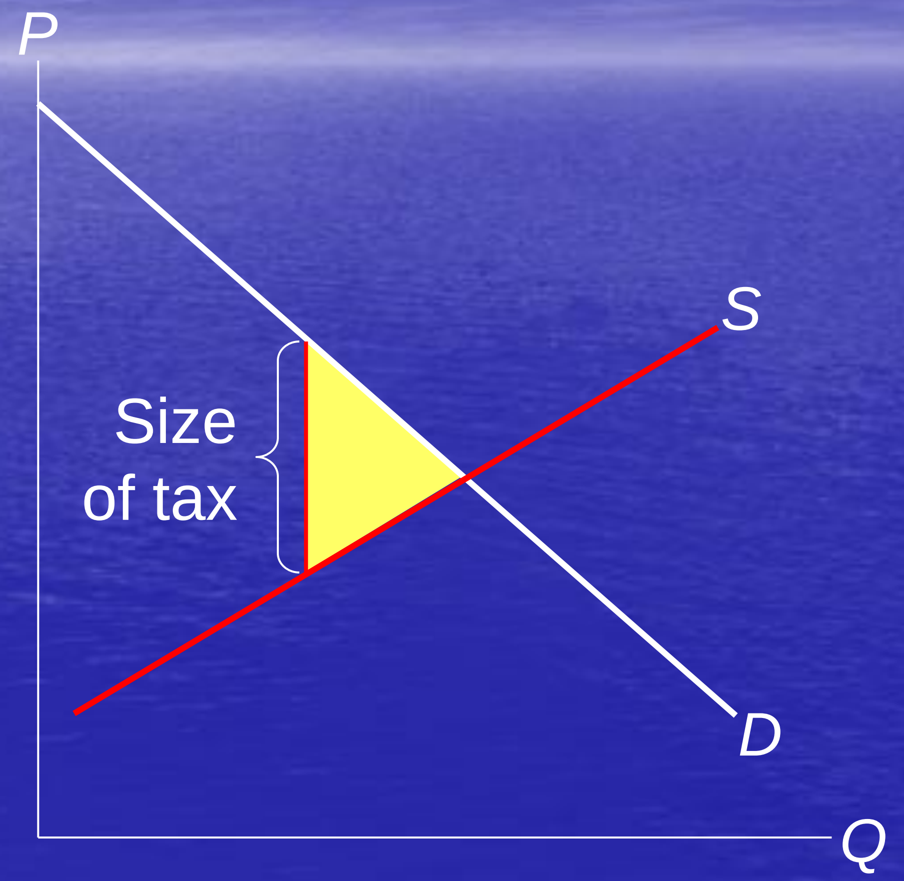
DWL and the Elasticity of Supply

The more elastic is supply,

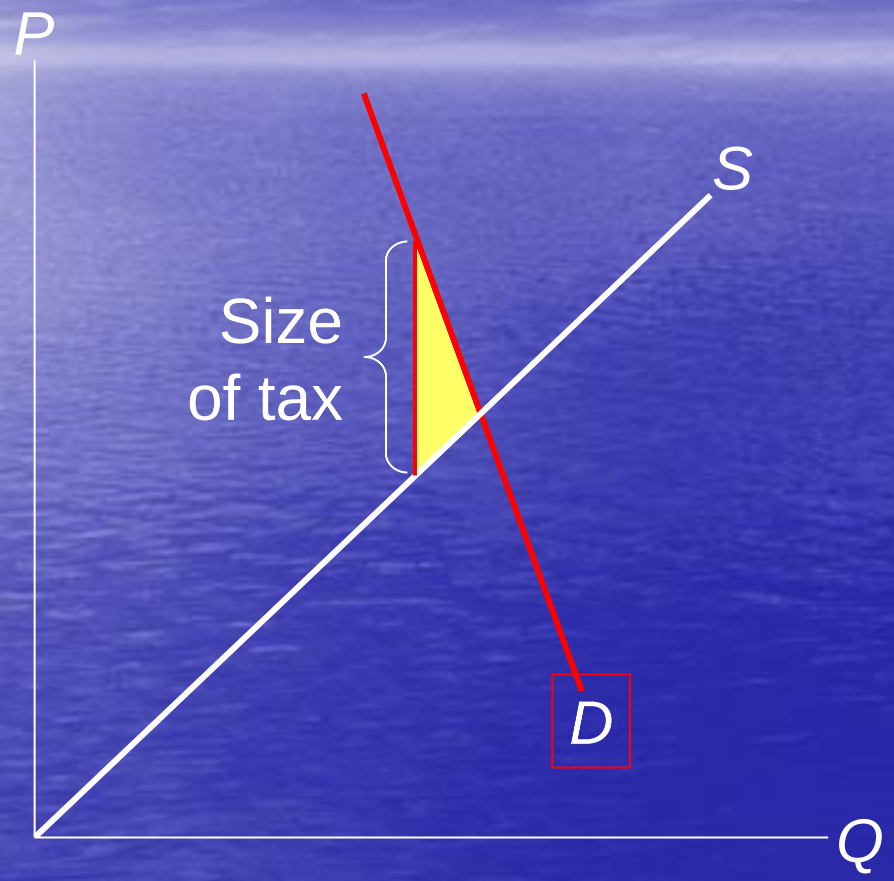
the easier for firms to leave the market when the tax reduces P_S,

the greater Q falls below the surplus-maximizing quantity,

the greater the DWL.



DWL and the Elasticity of Demand



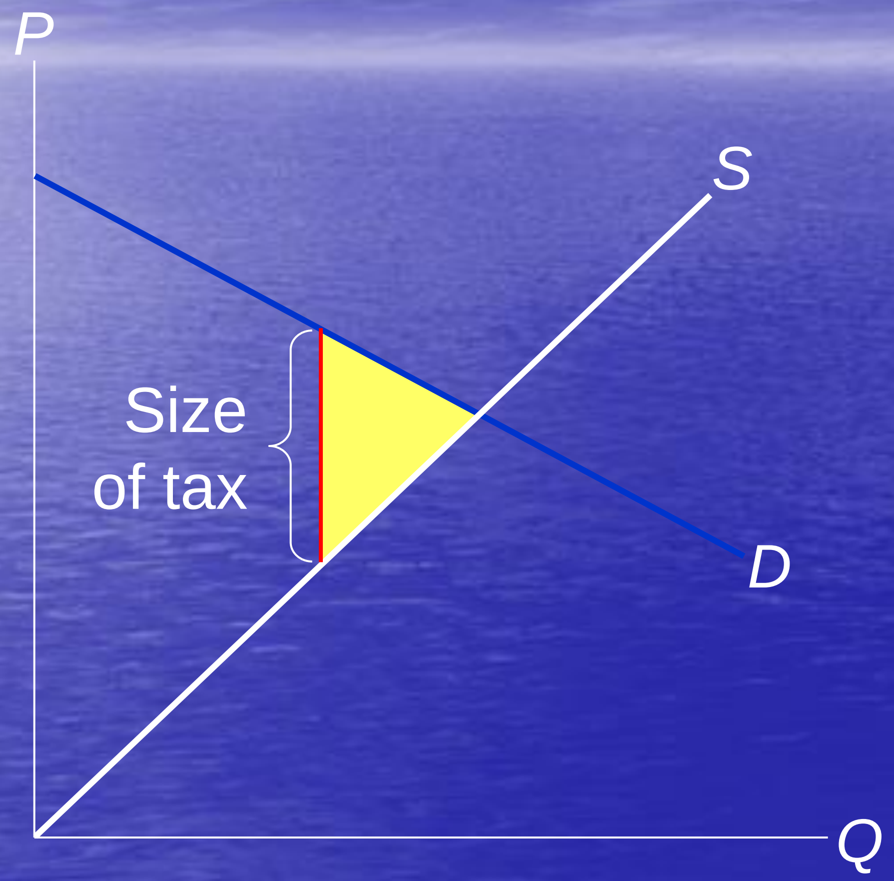
When demand is inelastic,

it's harder for consumers to leave the market when the tax raises P_B.

So, the tax only reduces Q a little,

and DWL is small.

DWL and the Elasticity of Demand



The more elastic is demand,

the easier for buyers to leave the market when the tax increases P_B,

the more Q falls below the surplus-maximizing quantity,

and the greater the DWL.

Thank You