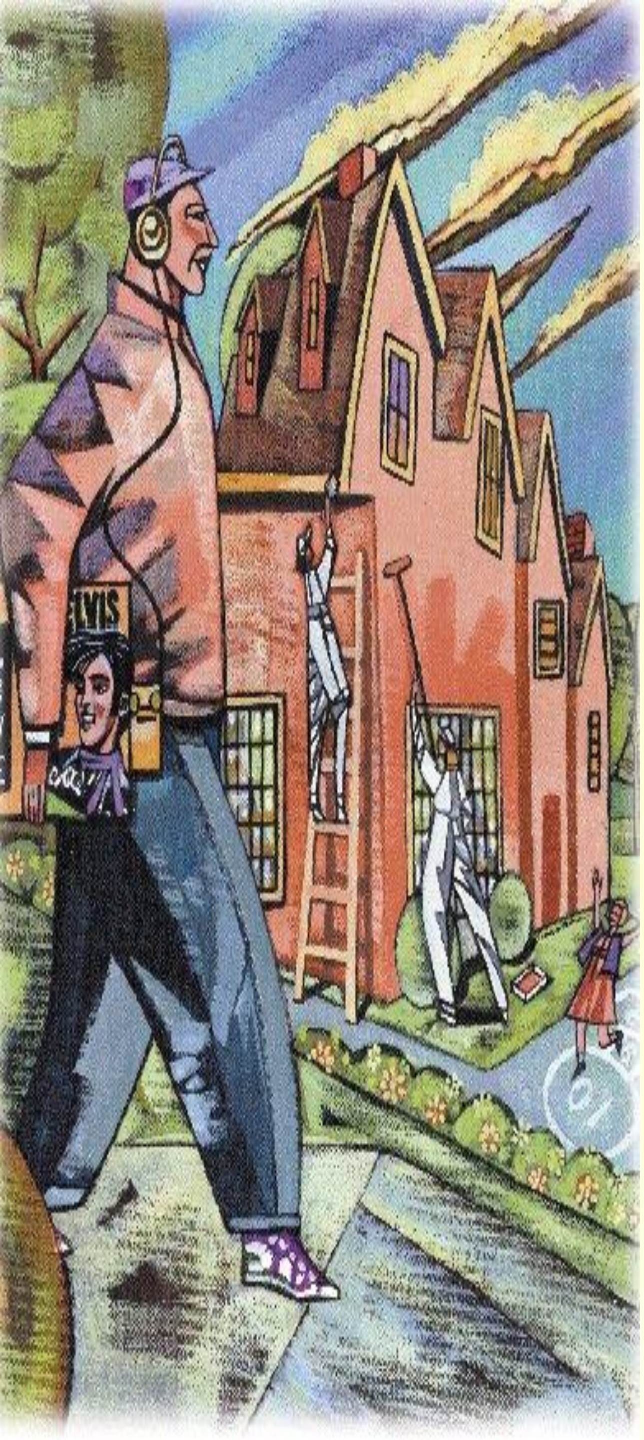


Application:
The Costs of Taxation

Chapter 8

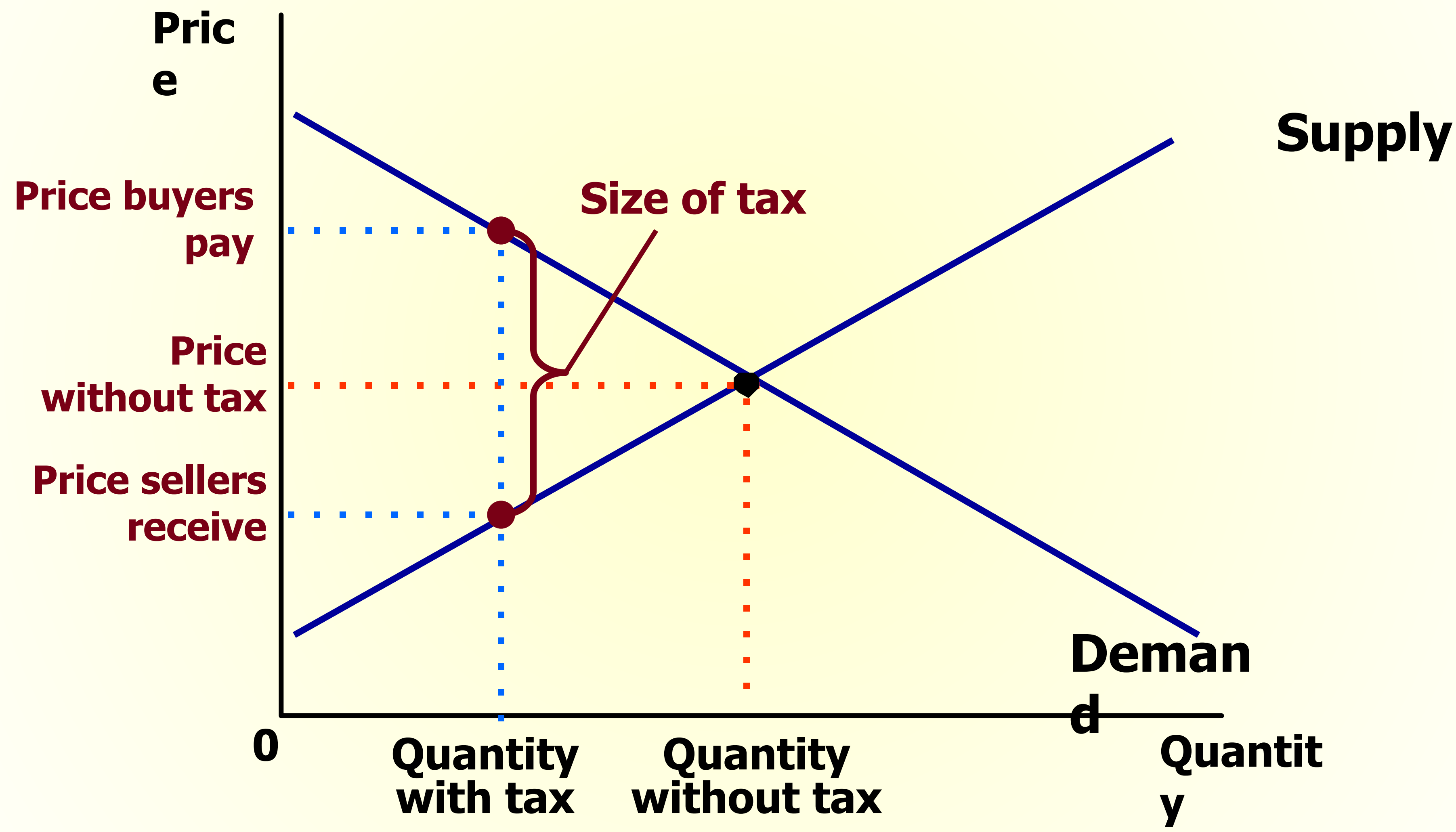
The Costs of Taxation

How do taxes affect the economic well-being of market participants?

The Costs of Taxation

It does not matter whether a tax on a good is levied on buyers or sellers of the good…the price paid by buyers rises, and the price received by sellers falls.

The Effects of a Tax...



The Effects of a Tax

- A tax places a wedge between the price buyers pay and the price sellers receive.
- Because of this tax wedge, the quantity sold falls below the level that would be sold without a tax.
- The size of the market for that good shrinks.

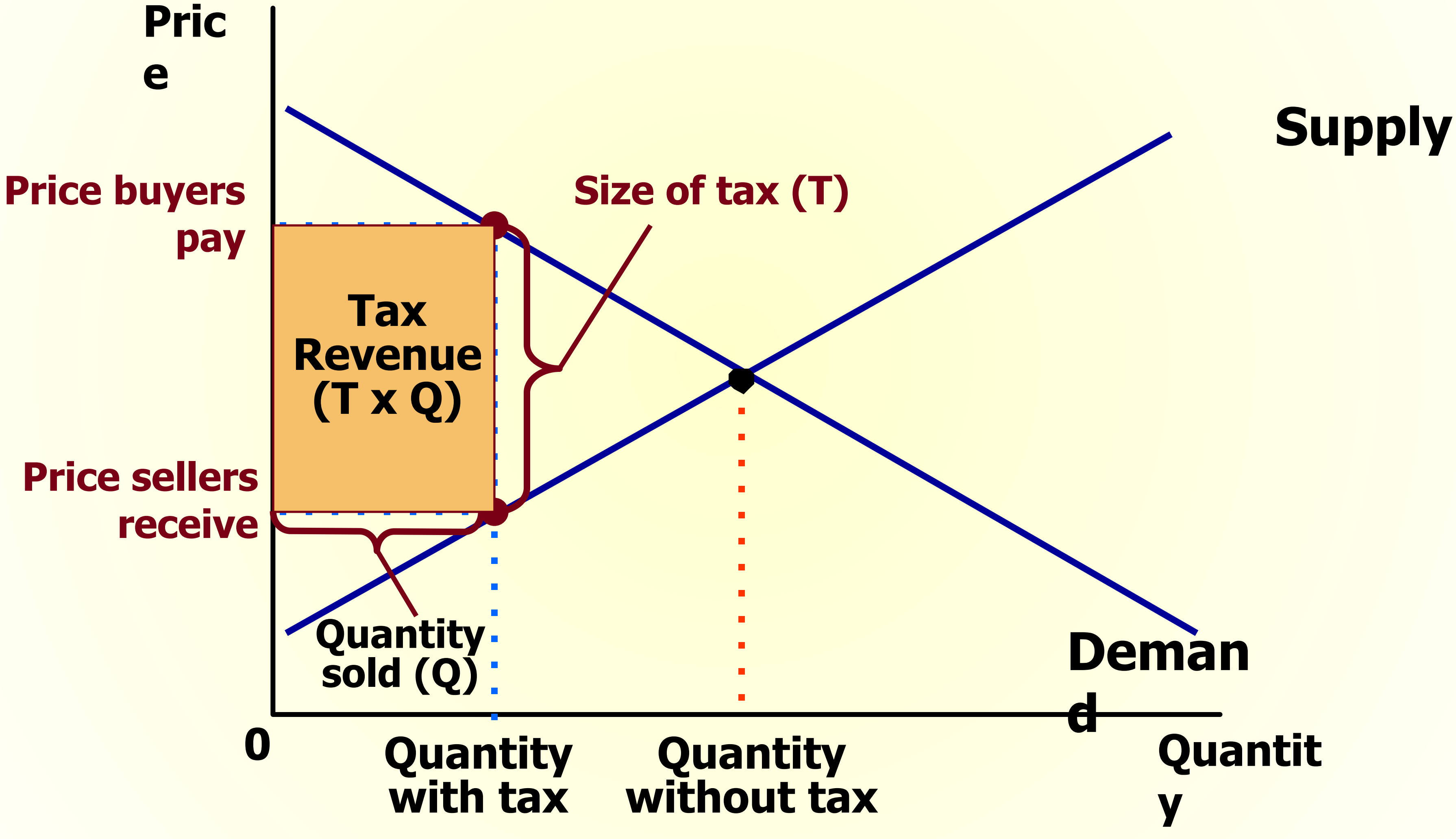
Tax Revenue

T = the size of the tax

Q = the quantity of the good sold

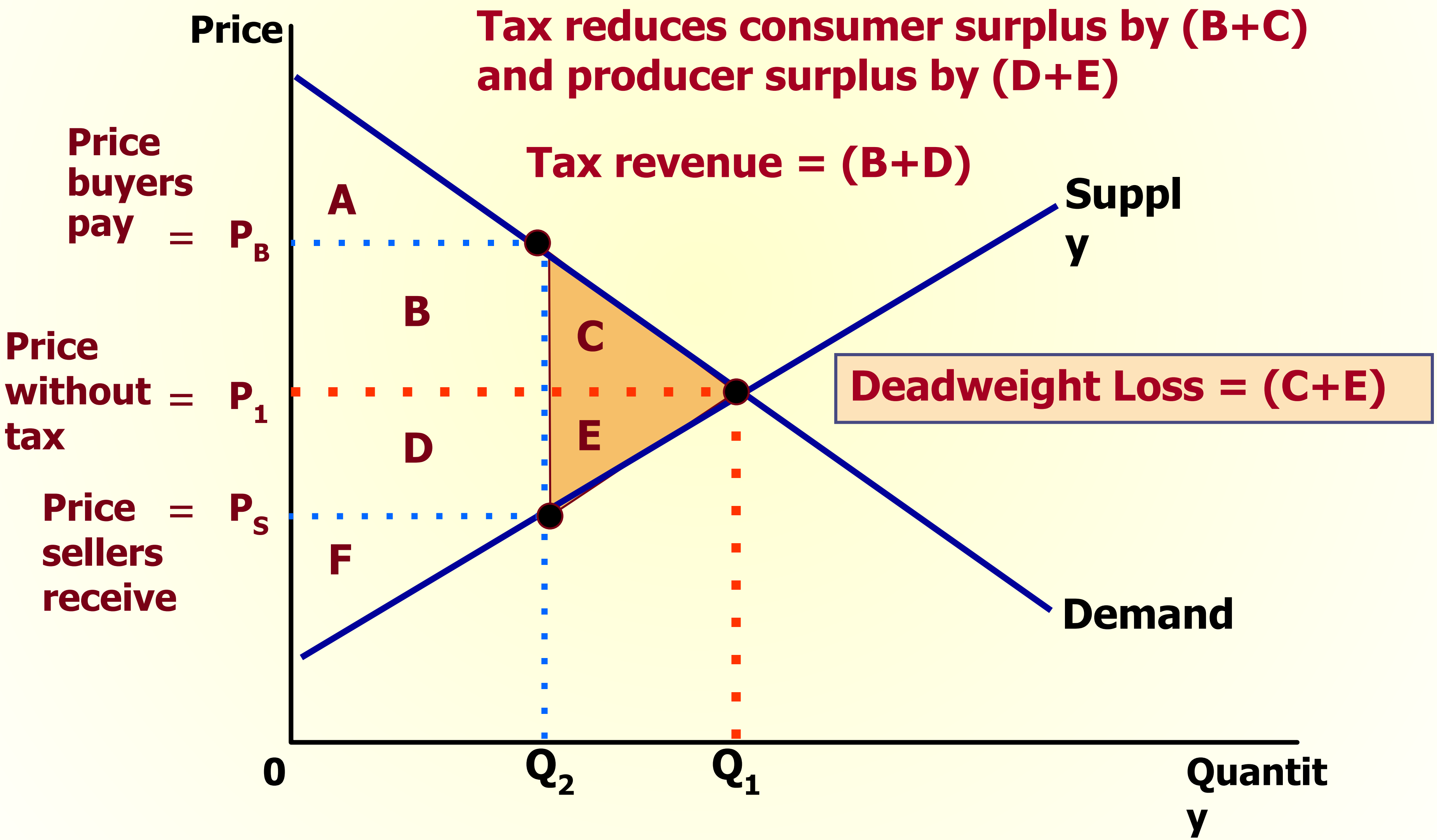
T×Q = the government's tax revenue

Tax Revenue...



Price
Supply
Price buyers pay
Size of tax (T)
Tax Revenue (T x Q)
Price sellers receive
Quantity sold (Q)
Demand
0
Quantity with tax
Quantity without tax
Quantity

How a Tax Affects Welfare…



Changes in Welfare from a Tax

	Without Tax	With Tax	Change
Consumer Surplus	A + B + C	A	- (B + C)
Producer Surplus	D + E + F	F	- (D + E)
Tax Revenue	none	B + D	+ (B + D)
Total Surplus	A + B + C + D + E + F	A + B + D + F	- (C + E)

The area C+E shows the fall in total surplus and is the *deadweight loss* of the tax.

How a Tax Affects Welfare

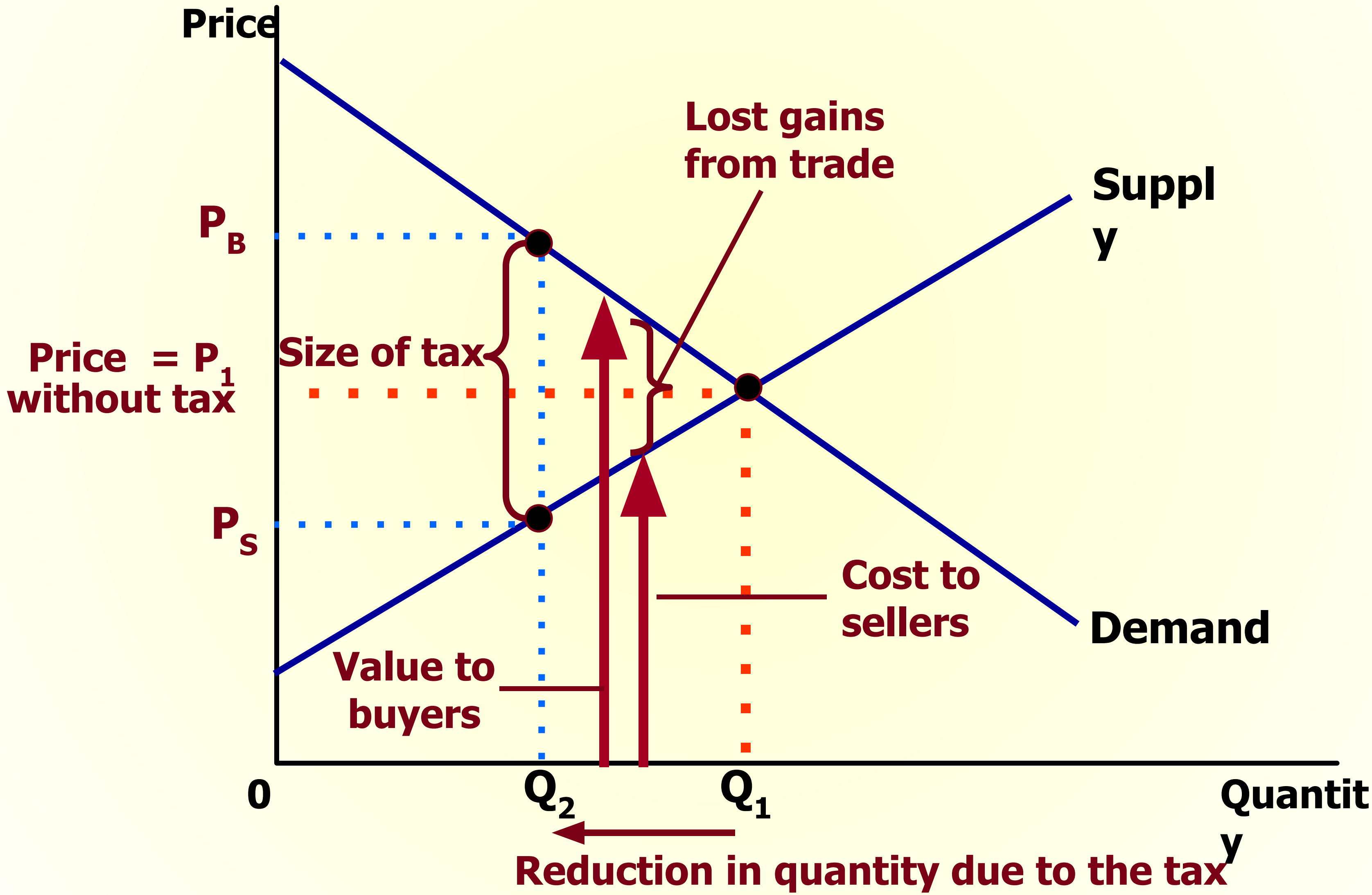
The change in total welfare includes:

- **The change in consumer surplus,**
- **The change in producer surplus,**
- **The change in tax revenue.**
- **The losses to buyers and sellers exceed the revenue raised by the government.**
- **This fall in total surplus is called the deadweight loss.**

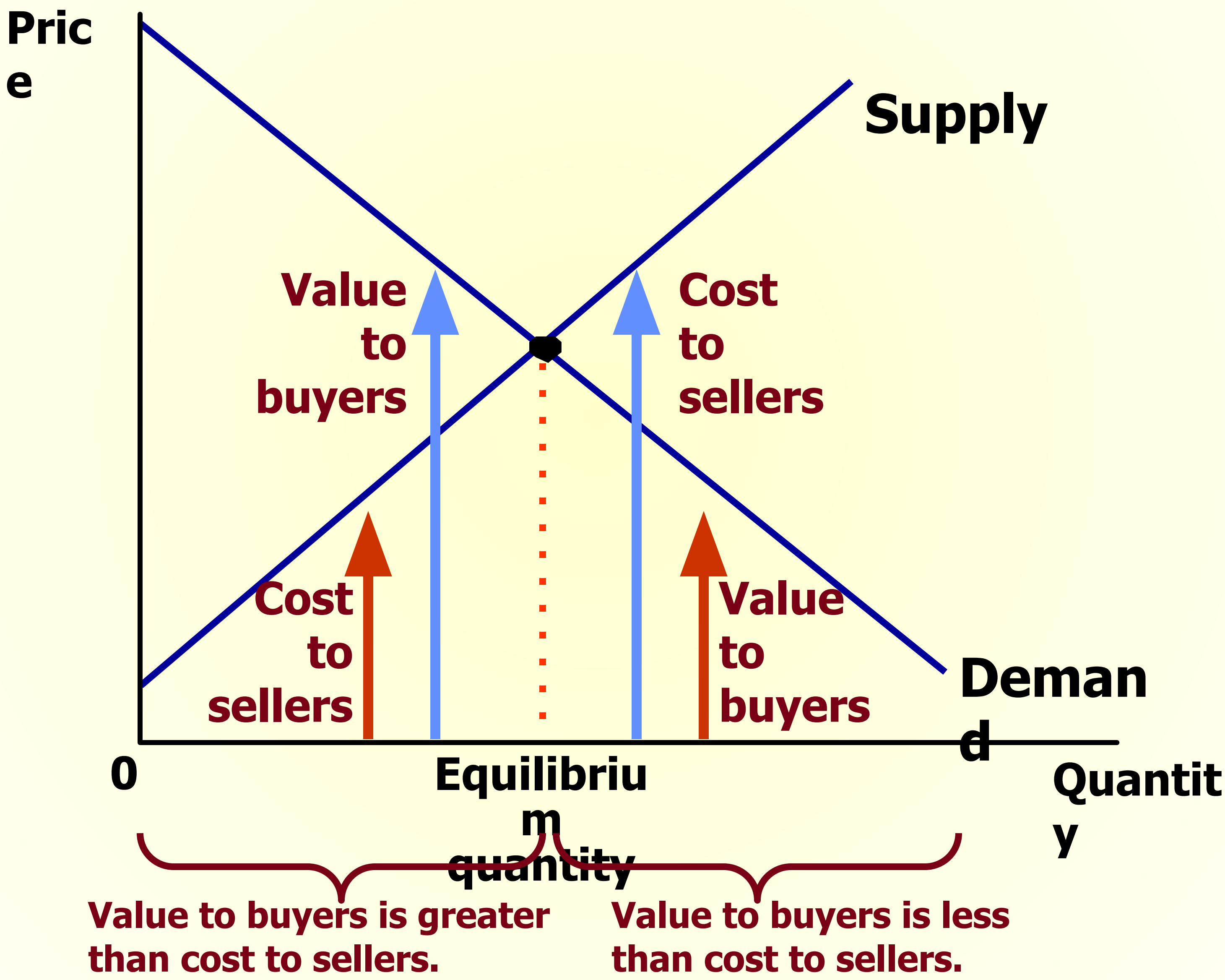
Deadweight Losses and the Gains from Trade

Taxes cause deadweight losses because they prevent buyers and sellers from realizing some of the gains from trade.

The Deadweight Loss...



Gains from Trade in Market



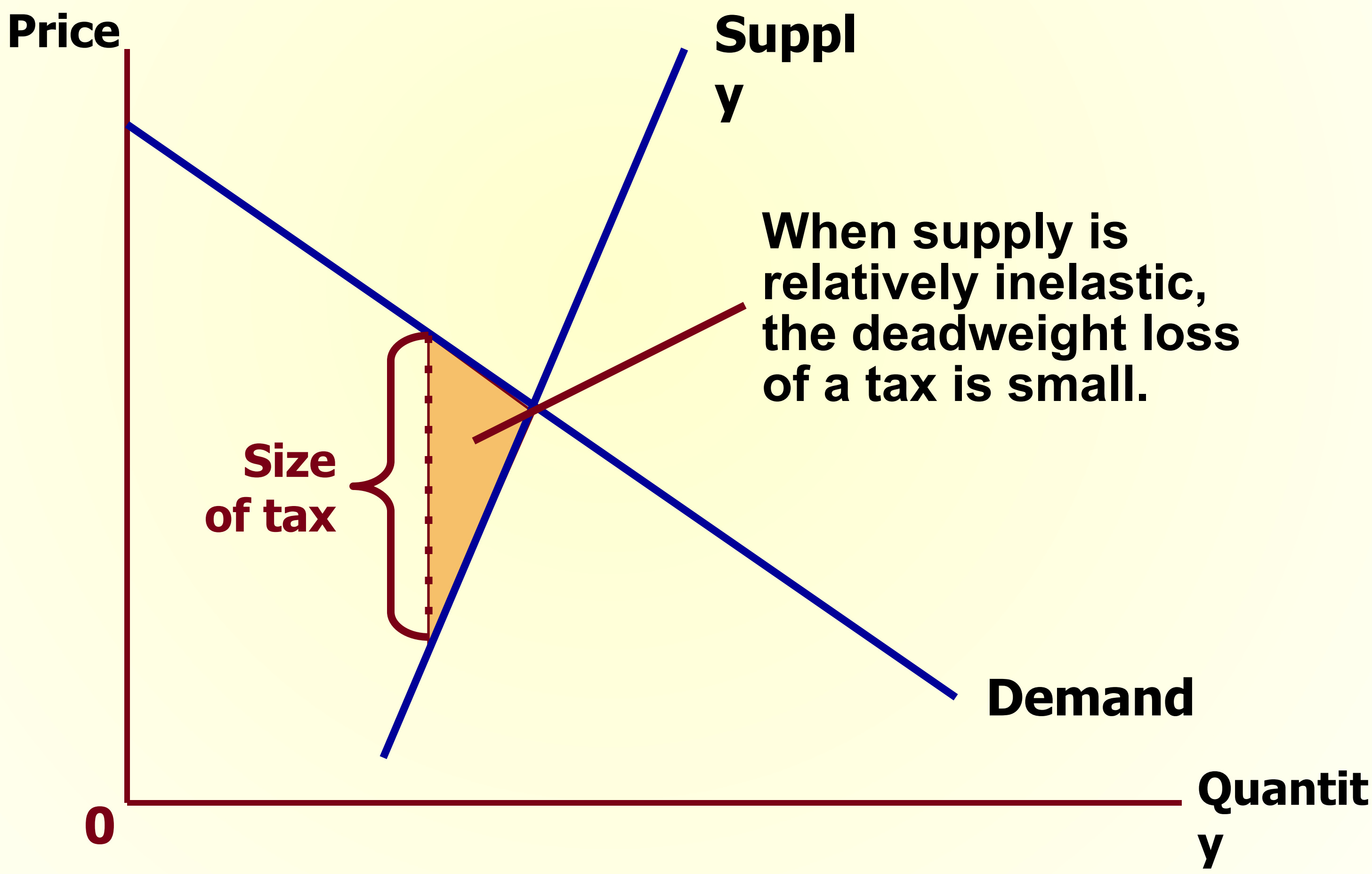
Determinants of Deadweight Loss

What determines whether the deadweight loss from a tax is large or small?

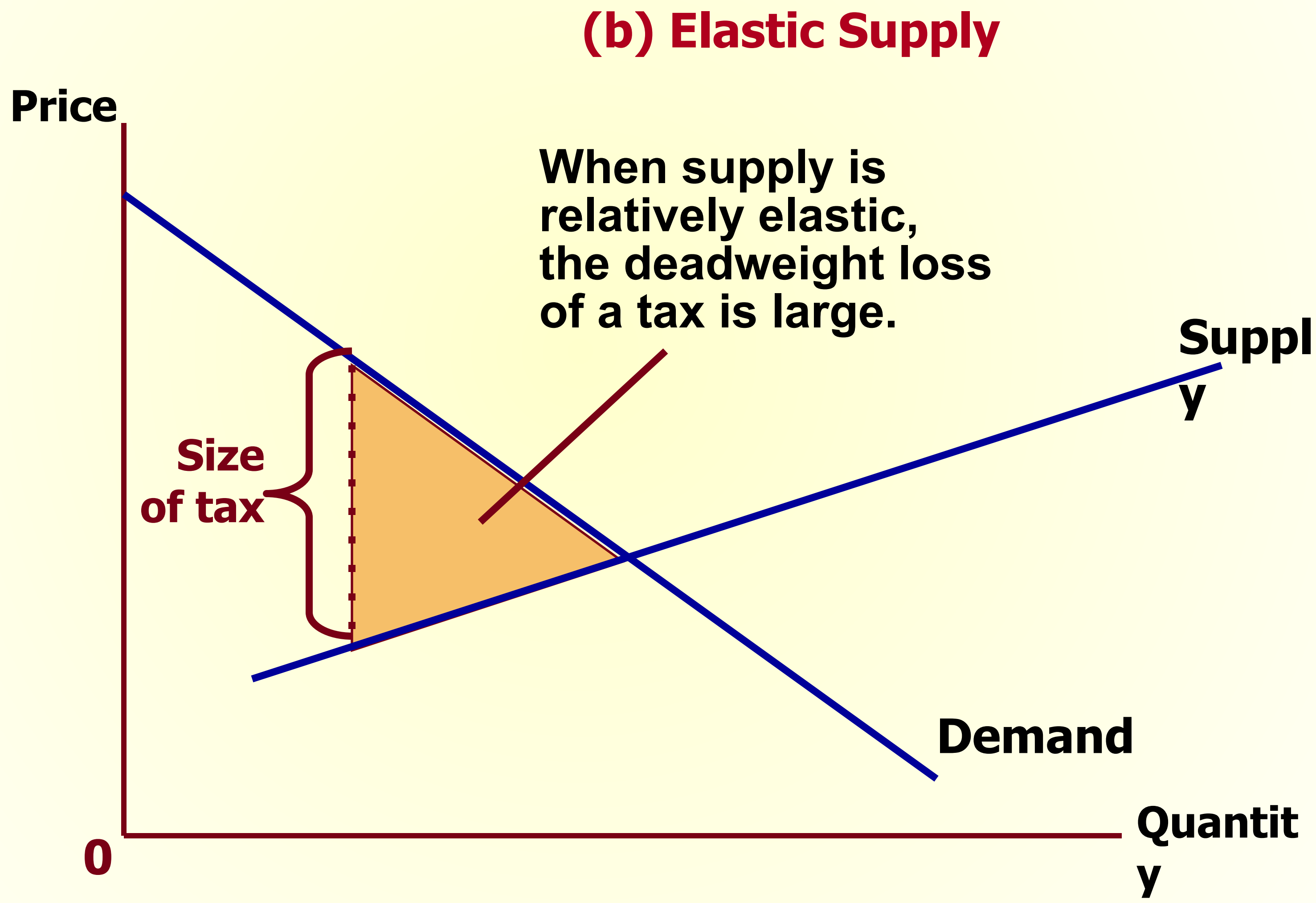
- **The magnitude of the deadweight loss depends on how much the quantity supplied and quantity demanded respond to changes in the price.**
- **That, in turn, depends on the price elasticities of supply and demand.**

Tax Distortions and Elasticities...

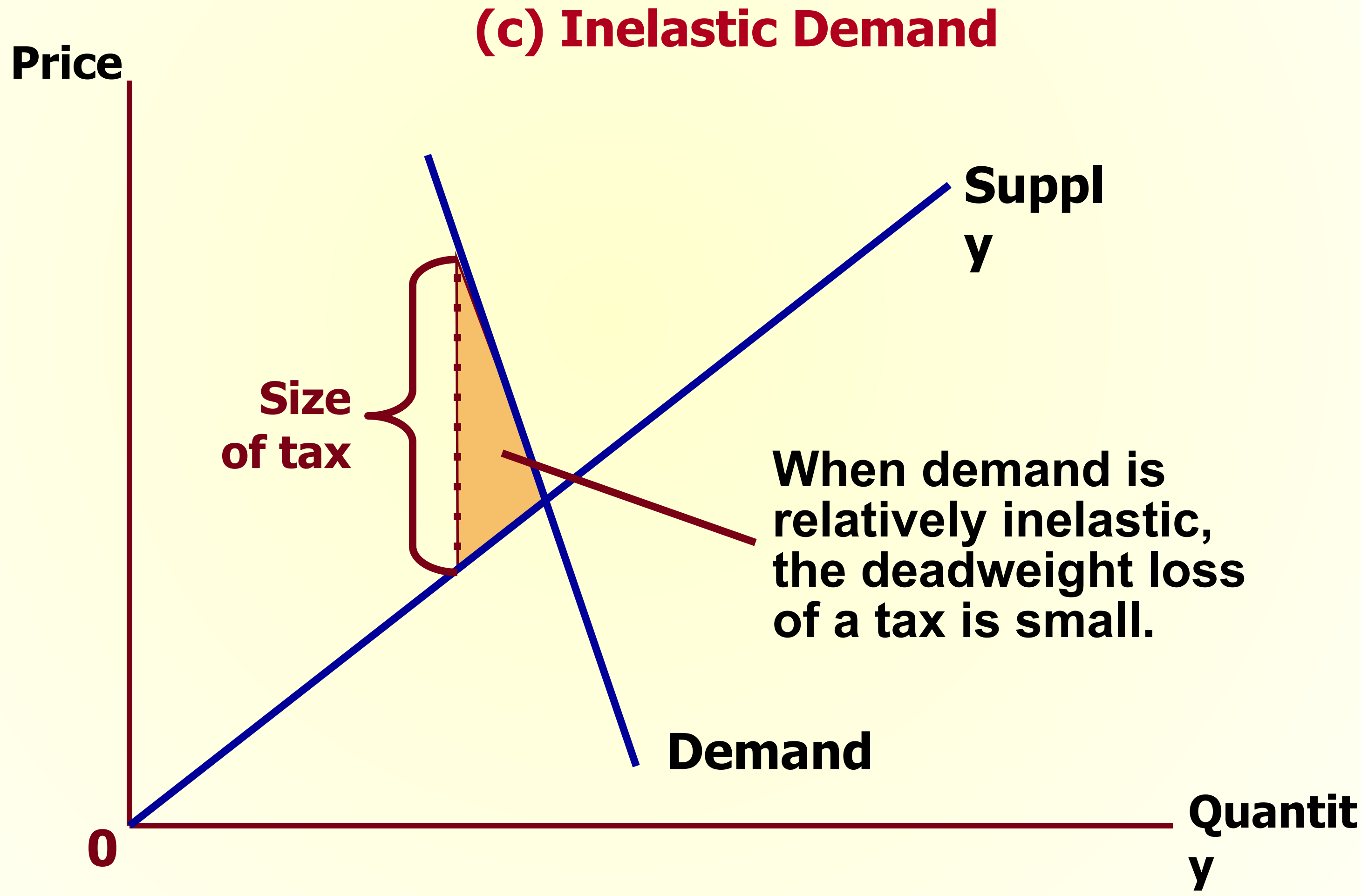
(a) Inelastic Supply



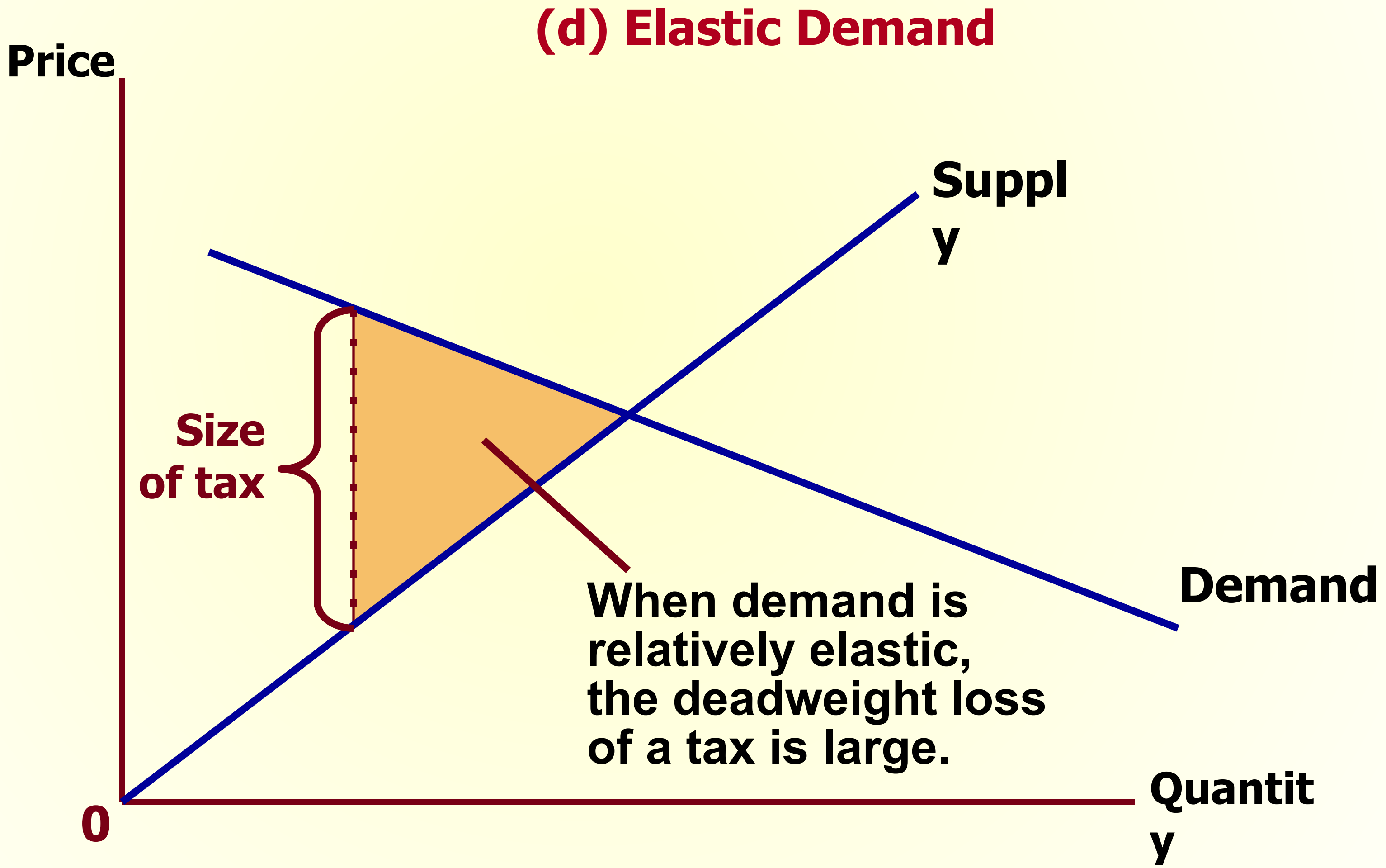
Tax Distortions and Elasticities...



Tax Distortions and Elasticities...



Tax Distortions and Elasticities...



Determinants of Deadweight Loss

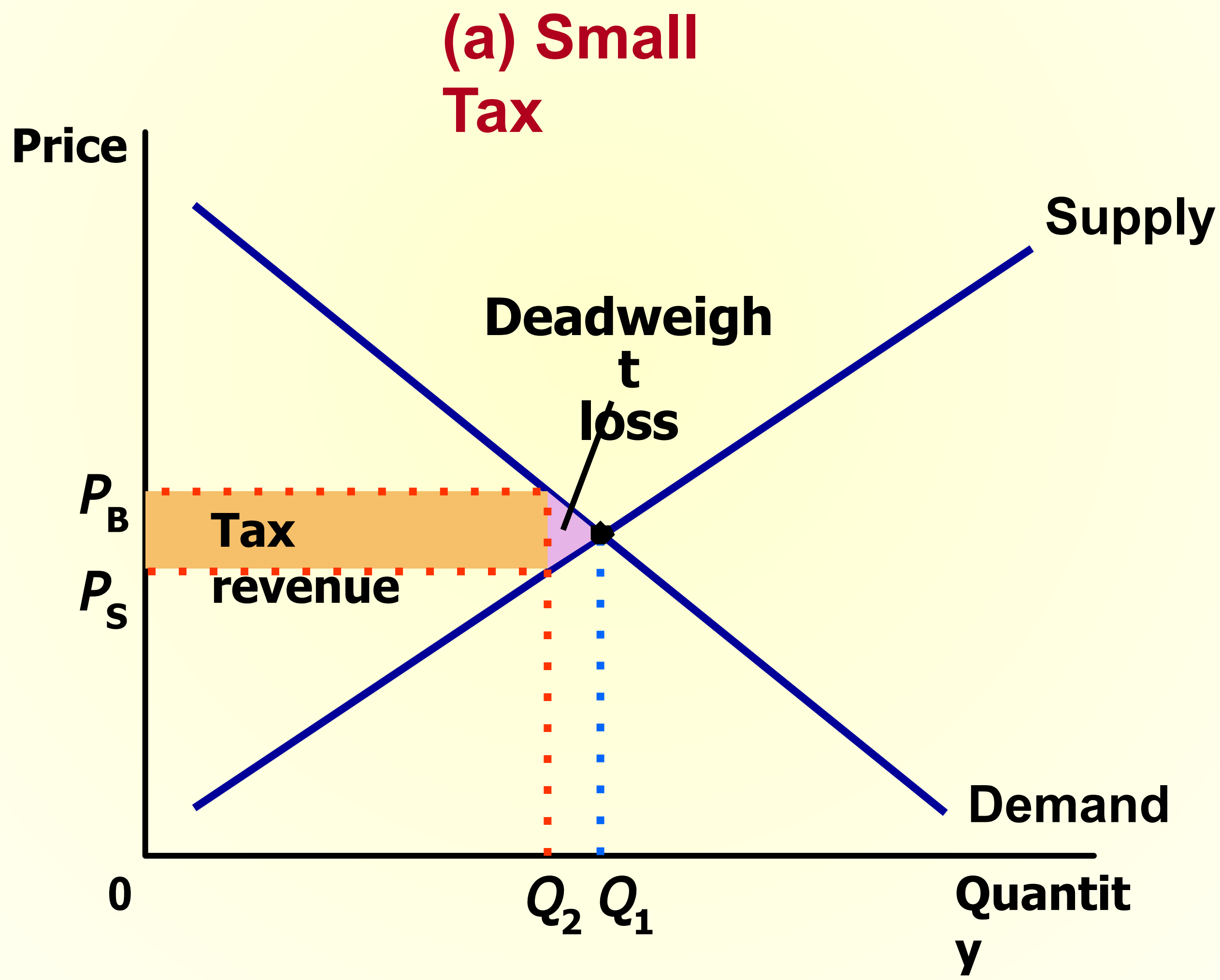
The greater the elasticities of demand and supply:

- **the larger will be the decline in equilibrium quantity and,**
- **the greater the deadweight loss of a tax.**

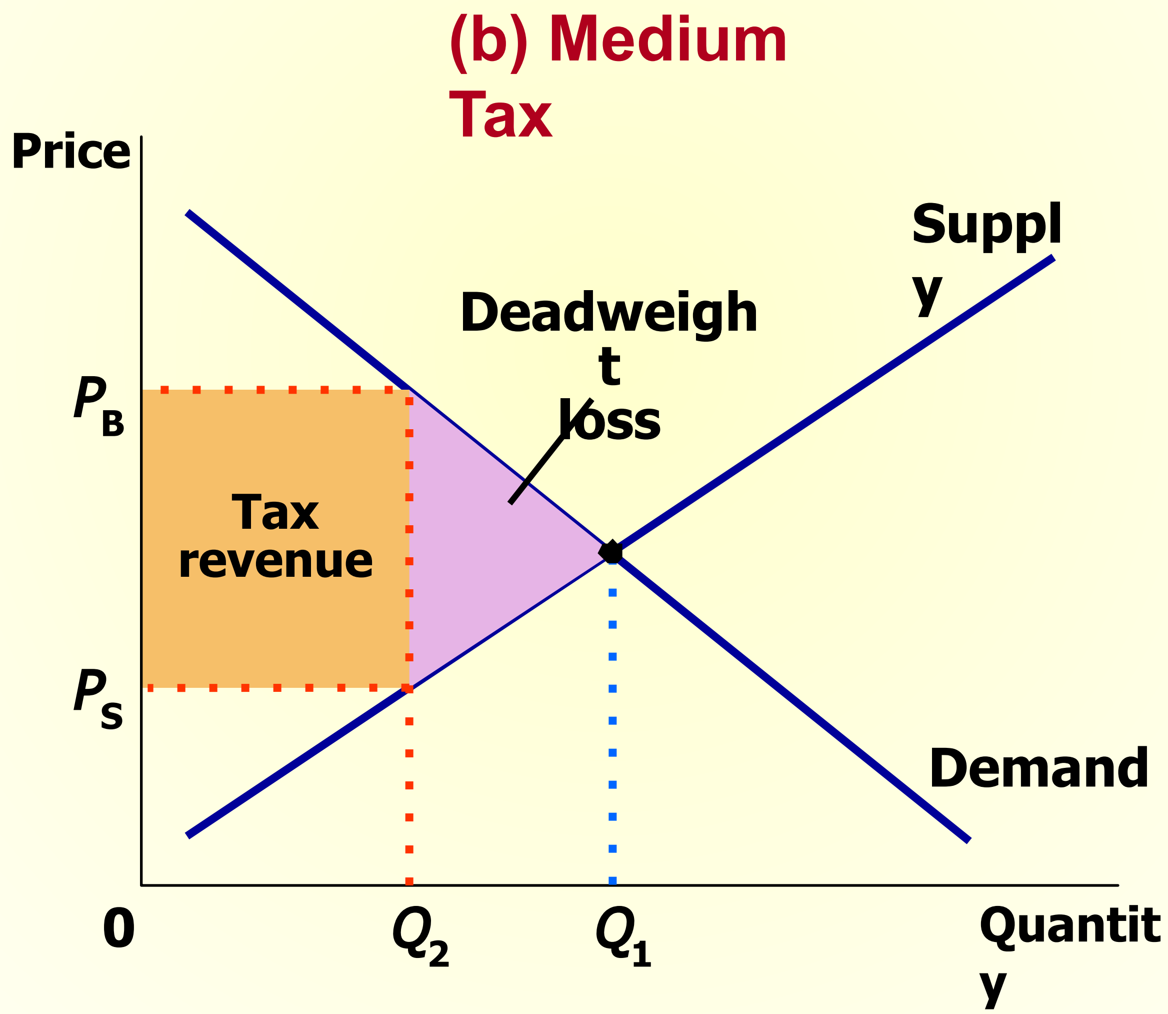
Deadweight Loss and Tax Revenue as Taxes Vary

With each increase in the tax rate, the deadweight loss of the tax rises even more rapidly than the size of the tax.

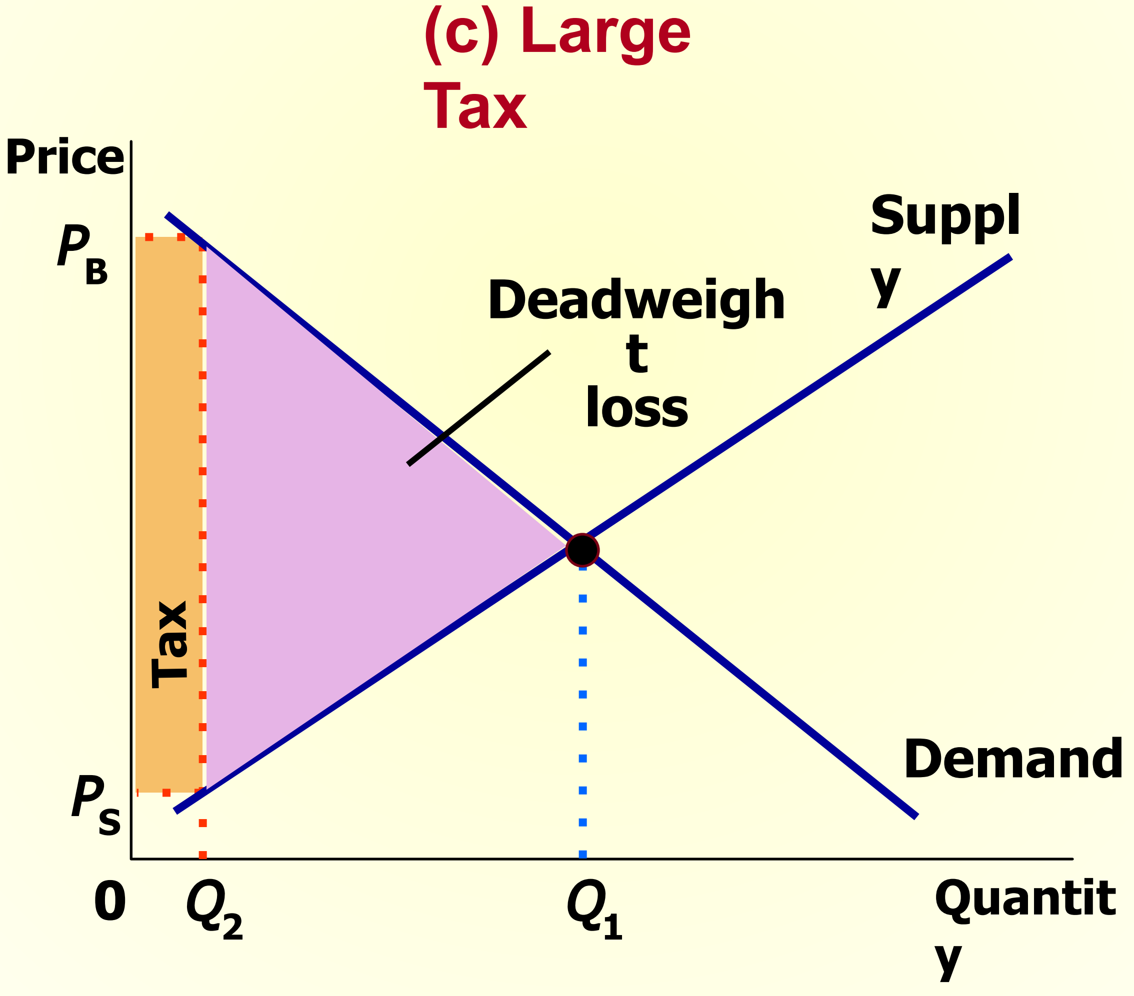
Deadweight Loss and Tax Revenue...



Deadweight Loss and Tax Revenue...



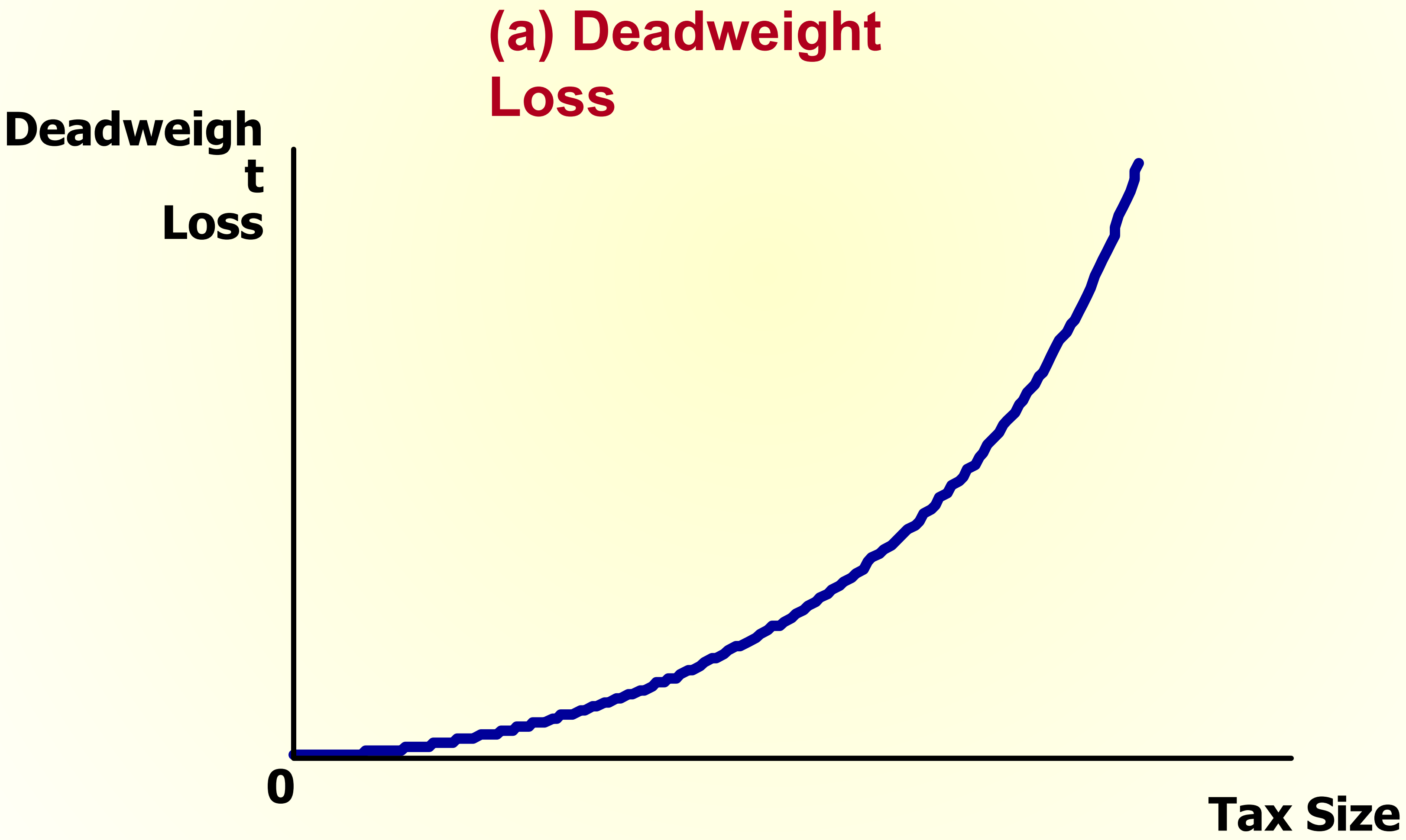
Deadweight Loss and Tax Revenue...



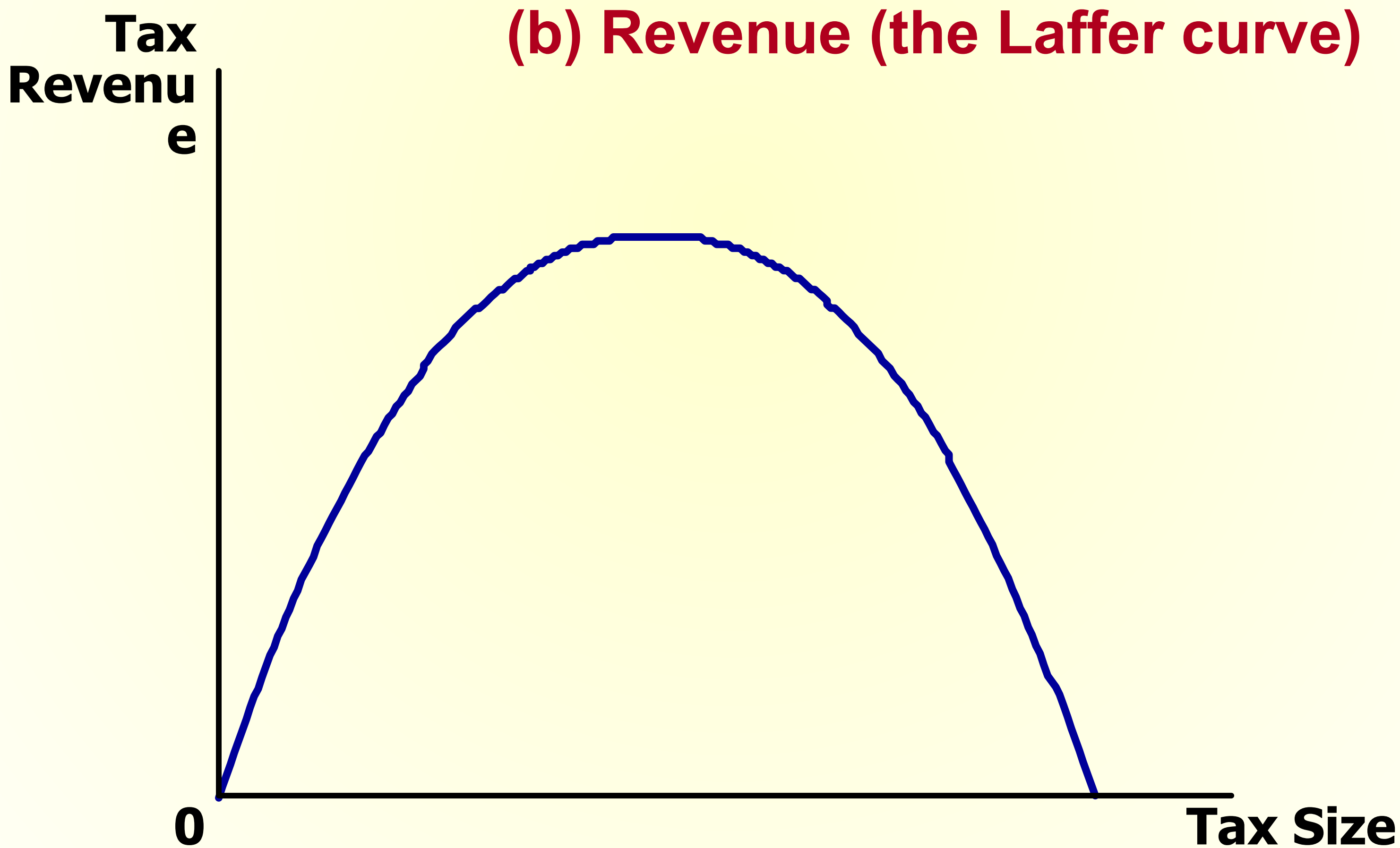
Deadweight Loss and Tax Revenue

- For the small tax, tax revenue is small.
- As the size of the tax rises, tax revenue grows.
- But as the size of the tax continues to rise, tax revenue falls because the higher tax reduces the size of the market.

Deadweight Loss and Tax Revenue Vary with the Size of the Tax...



Deadweight Loss and Tax Revenue Vary with the Size of the Tax...



Deadweight Loss and Tax Revenue Vary with the Size of the Tax

- As the size of a tax increases, its deadweight loss quickly gets larger.
- By contrast, tax revenue first rises with the size of a tax; but then, as the tax gets larger, the market shrinks so much that tax revenue starts to fall.

The Laffer Curve and Supply-Side Economics

- The **Laffer curve** depicts the relationship between tax rates and tax revenue.
- **Supply-side economics** refers to the views of Reagan and Laffer who proposed that a tax cut would induce more people to work and thereby have the potential to increase tax revenues.

Summary

- A tax on a good reduces the welfare of buyers and sellers of the good. And the reduction in consumer and producer surplus usually exceeds the revenues raised by the government.

Summary

- **The fall in total surplus – the sum of consumer surplus, producer surplus, and tax revenue – is called the deadweight loss of the tax.**

Summary

- Taxes have a deadweight loss because they cause buyers to consume less and sellers to produce less.
- This change in behavior shrinks the size of the market below the level that maximizes total surplus.

Summary

- As a tax grows larger, it distorts incentives more, and its deadweight loss grows larger.
- Tax revenue first rises with the size of a tax.
- Eventually, however, a larger tax reduces tax revenue because it reduces the size of the market.