E: Tax burden refresher

Tax burden:

Portion of a tax borne by a given agent: buyer or seller

Notation and accounting:

P_i^d Price paid by buyers in equilibrium i

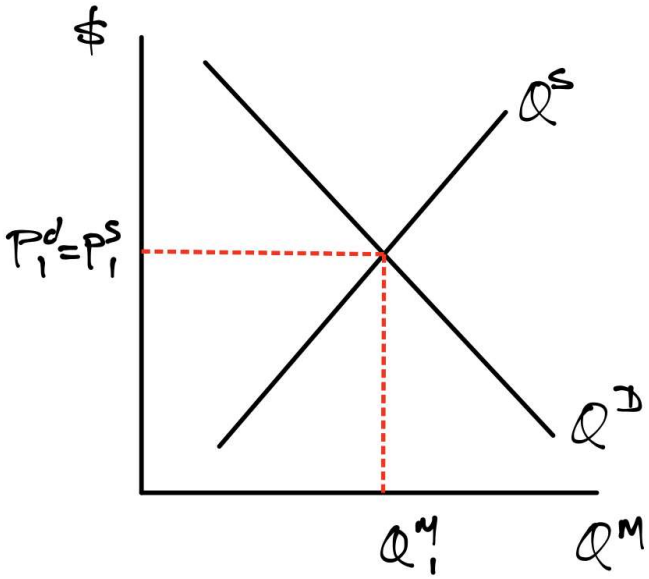
P_i^s Price received by sellers in equilibrium i

Q_i^m Market quantity traded in equilibrium i

Relationship between prices: $P_i^d = P_i^s + t$

Example using hypothetical results:

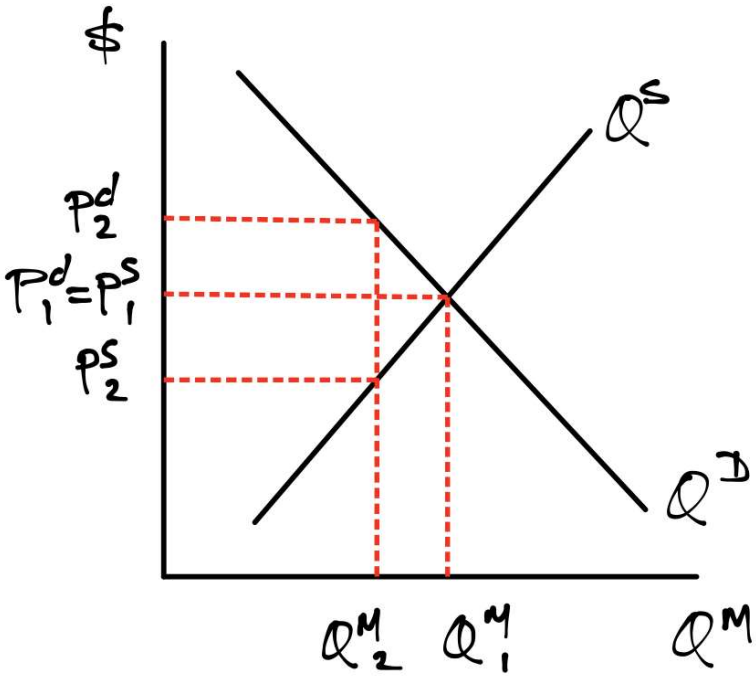
Equilibrium 1: no tax



Suppose:

$P_1^d = 80$
$P_1^s = 80$
$Q_1^m = 1000$

Equilibrium 2: $10 unit tax



Suppose:

$P_2^d = 84$
$P_2^s = 74$
$Q_2^m = 900$

Analysis:

Revenue collected:

$$T * Q_2^m = \$10 * 900 = \$9000$$

Impact of tax on prices:

$\Delta P^d = 84 - 80 = 4$ Buyers worse off by $4

$\Delta P^s = 74 - 80 = -6$ Sellers worse off by $6

Relation between impacts and tax: $\Delta P^d - \Delta P^s = T$

Revenue paid by each group:

Group	Revenue	Share of revenue	Percent
Buyers:	$4*900 = $3,600	$3600/$9000 = 0.4	40%
Sellers:	$6*900 = $5,400	$5400/$9000 = 0.6	60%

Tax burdens via price changes alone:

Group	Share of T	Percent
Buyers:	$4/$10 = 0.4	40%
Sellers:	$6/$10 = 0.6	60%