Analyzing Policies

Core approach:

Compute two market outcomes for two cases:
(1) **Baseline** or "**business as usual**" (BAU)
(2) **Policy scenario** with the policy change in place

Compare the results:
Changes in: P, Q, CS, PS and more

Formally known as *comparative statics*

Example: imposing a new sales tax

Case	Description	Tax
1	BAU: no tax	$T = 0$
2	Policy: tax $T per unit	$T > 0$

Types of sales taxes:

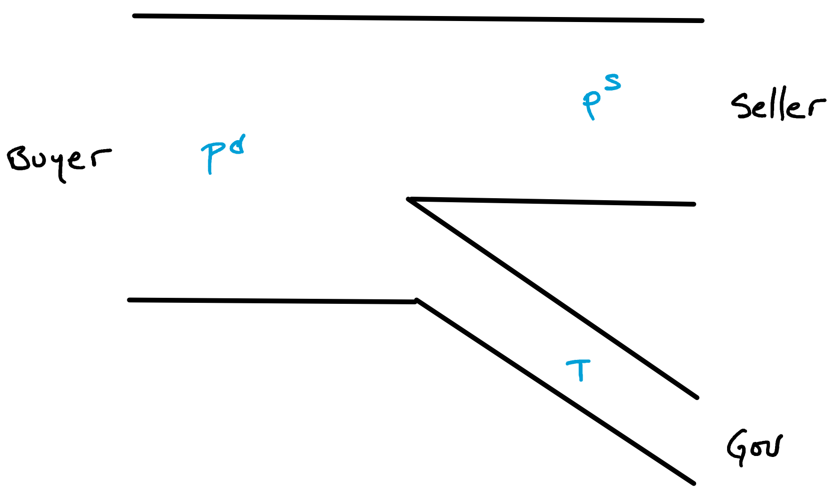
Unit tax:	$ tax per unit	[this example]
Ad valorem tax:	% of price	[more common]

Adds a complication:
Tax causes buyer and seller prices to differ

Define two prices:

Price paid by buyer: P^d (d indicates demand side)
Price seller keeps: P^s (s indicates supply side)

Visualizing the flow of money through a transaction:



In algebra:

$$P^d = P^s + T$$

What goes into the transaction must equal what comes out.
Technically, an "*accounting identity*"

Changing the decision rules accordingly:

Buyers buy until Q^* where: $WTP(Q^*) = P^d$
Sellers sell until: $WTA(Q^*) = P^s$

Immediate result: moves the equilibrium to an inefficient Q

Can see by substituting decision rules into accounting equation:

$P^d = P^s + T$

$WTP(Q^*) = WTA(Q^*) + T$

Implication:

- If $T > 0$, will end up at Q^* where $WTP(Q^*) > WTA(Q^*)$
- Q^* will be **too small**

Intuition behind inefficiency?

1. Rewrite equation:
   $\text{WTP}(Q^*) - WTA(Q^*) = T$

2. Also know difference is SS:
   $\text{WTP}(Q^*) - WTA(Q^*) = SS(Q^*)$

3. Thus, at new Q^*:
   $\text{SS}(Q^*) = T$

Last unit has $SS = T$:
Tax eliminates all trades with SS gains less than T