LECTURE 5: APPLICATIONS 1

Today’s Topics

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6. **Two Cases**: fur sales, newspaper sales.
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GLUTS AND SHORTAGES

From Lecture 3:

\[ P \]

\[ Q^* \]

\[ Q/period \]
GLUTS AND SHORTAGES

From Lecture 3:

When \( P = P^* \) and \( S = D \), market-clearing equilibrium, at \( P^*, Q^* \).
GLUTS AND SHORTAGES

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When \( P = P^* \), \( S = D \), market-clearing equilibrium, at \( P^* \), \( Q^* \).

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GLUTS AND SHORTAGES

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When $P = P^*$, $S = D$, market-clearing equilibrium, at $P^*$, $Q^*$.
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When $P = P_-$, $S > D$, a buyers’ market and glut.
NON-PRICE RATIONING

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Minimum wage laws: a floor $w$ on wages → a glut in the labour market, called unemployment, with $w > w^*$, the market-clearing wage. By maintaining the wages of the low-paid, the government reduces the number of their jobs.
2. TAXES ON BUYERS

A unit tax on buyers: each unit bought costs 50¢ more, but the seller gets only (price paid – tax): a wedge between the buyers’ price $P_D$ and the sellers’ price $P_S$. How do equilibrium price and quantity change?
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SHIFTED DEMAND AND THE BURDEN

If the previous (before-tax) price $P^*$ was $2.00, the buyers’ price is now $2.50; but at the higher price, buyers demand less: to sell the same quantity, the before-tax price must be 50¢ less. The demand curve in effect shifts down by 50¢ to $D_2$. 

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The after-tax quantity falls to $Q_2$, and the price paid ($P^D_2$) is 50¢ higher than the price received by sellers ($P^S_2$).
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![Graph showing the supply and demand curves with a tax applied, shifting the supply curve upward.]
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![Graph showing the supply curve shifting up by 50¢ from $S_1$ to $S_2$.]
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![Diagram showing the effect of a unit tax on sellers with supply curve shifting up by 50¢.]
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The burdens are measured by the relative movements of the buyers’ price $P^D_2$ and the sellers’ price $P^S_2$ from the before-tax equilibrium price of $P^*$. 
TAX BURDEN & ELASTICITIES

\[ P \]

\[ P_1 \]

\[ D \]

\[ S \]

\[ Q/\text{period} \]
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\[ \frac{Q}{\text{period}} \]

\[ P \]

\[ D \]

\[ S \]

\[ P_1 \]

\[ P_2 \]

\[ P_{2b} \]

\[ \text{tax}=50c \]
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\[ P \]
\[ D \]
\[ S \]
\[ Q/\text{period} \]

\[ P_1 \]
\[ P_2 \]
\[ P_1^D \]
\[ P_2^D \]
\[ P_1^S \]
\[ P_2^S \]

\text{tax}=50\text{c}
Elastic supply; inelastic demand.
Consumers’ burden is greater than producers’.

Inelastic supply; elastic demand.
Consumers’ burden is less than producers’.
3. CONSUMER SURPLUS

Remember: The market demand curve measures the maximum quantity demanded at any price, or the maximum *willingness to pay* for any quantity.
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At any price $P_1$, consumers buy $Q_1$ units, and are left with a positive net willingness to pay: their *consumers’ surplus*, which equals the area above the price and below the demand curve.
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So consumers’ surplus is a willingness to pay over and above the price, or net willingness to pay.
GRAPHICALLY

P

P_1

Q_1

Q/period

D
GRAPHICALLY

C.S.1

P

P_1

Q_1

Q/period
GRAPHICALLY
If price rises, C.S. shrinks. From C.S.1 at $P_1$ to C.S.2 at $P_2$. Some demand is choked off ($Q_1 - Q_2$), and for the first $Q_2$ units, the net willingness to pay is less.
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4. PRODUCER SURPLUS
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Remember: Each point on the supply curve gives the lowest price at which suppliers are willing to sell the corresponding quantity of output, or the maximum quantity they will supply at any price.
WILLINGNESS TO SUPPLY

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So what happens to area B+D?
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*Efficient allocation* maximizes the Total Surplus = C.S. + P.S.
6A. U.S. FUR SALES

Expenditures (billions of US $)

'75 '80 '85 '90 '95
6A. U.S. FUR SALES

\[
\frac{\Delta Q}{Q} = \eta \frac{\Delta P}{P} + \varepsilon \frac{\Delta I}{I} + \eta_{X,Y} \frac{\Delta P_Y}{P_Y} + \Delta_{\text{temperatures}} + \Delta_{\text{tastes}}
\]
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\[ \frac{\Delta Q}{Q} = __, \quad \eta = __, \quad \frac{\Delta P}{P} = __, \quad \varepsilon = __, \quad \frac{\Delta I}{I} = __ \]
### 6B. LONDON NEWSPAPER SALES

<table>
<thead>
<tr>
<th></th>
<th>August 1993</th>
<th>May 1994</th>
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<tbody>
<tr>
<td>The Times</td>
<td>355,000</td>
<td>518,000</td>
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<tr>
<td>Daily Telegraph</td>
<td>1,024,000</td>
<td>993,000</td>
</tr>
<tr>
<td>The Independent</td>
<td>325,000</td>
<td>277,000</td>
</tr>
<tr>
<td>The Guardian</td>
<td>392,000</td>
<td>402,000</td>
</tr>
</tbody>
</table>

\[
\frac{\Delta P_{\text{Times}}}{P} = -____
\]