The Value of Time

- Almost all economic purchases require time to use. This is a cost of the good.
- Add the time cost, valued at the consumer’s wage rate, to the cost of the product; and
- Add the value of time, again valued at the wage rate, to the budget constraint.

Hiring A Mowing Service

<table>
<thead>
<tr>
<th>Service</th>
<th>Wilson</th>
<th>Smith</th>
</tr>
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<tbody>
<tr>
<td>Mowing Service</td>
<td>$300</td>
<td>$500</td>
</tr>
<tr>
<td>Out of Pocket, Self Mowing</td>
<td>$100</td>
<td>$100</td>
</tr>
<tr>
<td>Time Cost</td>
<td>$300</td>
<td>$4,000</td>
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Hiring A Mowing Service

20 hours at the value of their time

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The Formal Model

- Each unit of X takes $t_x$ hours;
- Each unit of Y takes $t_y$ hours.
- The consumer spends $T_w$ hours working and has $T$ hours after allowing for sleep.

\[ t_xX + t_yY + T_w = T \]
The Formal Model

• Each unit of X takes \( t_x \) hours;
• Each unit of Y takes \( t_y \) hours.
• The consumer spends \( T_w \) hours working and has \( T \) hours after allowing for sleep.

\[
t_xX + t_yY + T_w = T
\]

\[
p_xX + p_yY = wT_w + V
\]
**The Formal Model**

\[(p_x + wt_x)X + (p_y + wt_y)Y = wT + V\]

\[F_X = p_x + wt_x\]

\[F_Y = p_y + wt_y\]

**An Illustration**

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Wage Rate</th>
<th>Time</th>
<th>Out of Pocket Cost</th>
<th>Cost</th>
</tr>
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<tbody>
<tr>
<td>X</td>
<td>$10</td>
<td>2 hours</td>
<td>$15</td>
<td>$35</td>
</tr>
<tr>
<td>Y</td>
<td>$10</td>
<td>3 hours</td>
<td>$5</td>
<td>$35</td>
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**Some Applications**

- **Shopping**
  - Why do senior citizens shop on weekdays and working people on weekends? Different values of time?

- **Dinner Reservations**
  - Restaurants that take reservations must charge more
  - Thus students will favor restaurants that don’t take reservations
  - High wage earners will favor a policy of reservations.
Some Applications

• Shopping
• Dinner Reservations
• Automobiles or Mass Transit
  – Mass transit is cheaper but slower, hence its appeal to low income households.

Some Applications

• Shopping
• Dinner Reservations
• Automobiles or Mass Transit
• Convenience Foods
  – Time is money

End

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