Household Responses to Change II
Intermediate Microeconomics

Today’s Main Objectives
- Review of income effects and income-consumption paths
- Review of substitution and income effects
- Reconsideration of price effects, taking income effects into account
- Graphical derivation of individual demand curves.
- Some applications.

The Income-Consumption Path
What is it?
The income-consumption path is drawn for a specific price ratio.

Demand Relationships – Income Effects

- A good is __ if:
  - Normal – quantity demanded is positively related to income.
  - Inferior – quantity demanded is inversely related to income.
  - Luxury – an increase in income results in a more-than-proportionate increase in quantity demanded.
    - or, as income rises, a greater share of total expenditures is spent on that good.
  - Non-luxury – an increase in income results in a less-than-proportionate increase in quantity demanded.
    - if, as income rises, a smaller share of total expenditures is spent on that good.
- Consumption paths (price- or income-consumption curves) and Engel curves
  - their shapes differ with each of the above classifications.

How would you classify the following? Imagine its income-consumption path.

- Limousine service
- Taxi service
- A subway ride
- Idaho potatoes
- Fresh salmon
- Chinese take-out
- Cellular phone service
- A house in the suburbs
- A rented efficiency apartment
- Granulated sugar
Consider the income-demand relationship for household sugar purchases.

**UK: Ratio of Sugar Expenditures to Total Expenditures: United Nations, FAO, Survey of 1306 Families, 1953-54**

![Graph showing the ratio of sugar expenditures to total expenditures in the UK, 1953-54.]

Would you expect this relationship to vary from country-to-country? Why?


![Graph showing the ratio of sugar expenditures to total expenditures in India, 1951-53.]

What do the income-consumption curves for sugar in the UK and India look like? How are they different? Why?

**UK: Expenditures on Sugar Products & All Other Items: United Nations, FAO, Survey of 1306 Families, 1953-54**

![Graph showing expenditures on sugar products and all other items in the UK, 1953-54.]


![Graph showing expenditures on sugar products and all other items in India, 1951-53.]

9/18/2001 A. Dye
How would you classify these items? (Taken from Example 4.1 of Mansfield & Yohe, p. 94)

<table>
<thead>
<tr>
<th>Good or service</th>
<th>% change in consumption from a 1% increase in income</th>
<th>% change in consumption from a 1% increase in price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor vehicles</td>
<td>1.08</td>
<td>-0.25</td>
</tr>
<tr>
<td>Furniture and appliances</td>
<td>1.38</td>
<td>-0.72</td>
</tr>
<tr>
<td>Purchased meals</td>
<td>1.15</td>
<td>-0.34</td>
</tr>
<tr>
<td>Alcoholic beverages</td>
<td>0.12</td>
<td>-0.60</td>
</tr>
<tr>
<td>Clothing &amp; shoes</td>
<td>0.86</td>
<td>-0.45</td>
</tr>
<tr>
<td>Gasoline</td>
<td>0.60</td>
<td>-0.39</td>
</tr>
<tr>
<td>Telephone service</td>
<td>0.36</td>
<td>-0.34</td>
</tr>
<tr>
<td>Airline service</td>
<td>1.63</td>
<td>-0.21</td>
</tr>
</tbody>
</table>
Recall: Substitution & Income Effects

The effects of a price change are separated into two conceptual components:
- the (pure) substitution effect
- the (real) income effect

Income effects influence gross own- and cross-price effects.

When considering the effect of a all of \( \frac{\partial y}{\partial x} \) on \( y \), in this case...
- the (net-price) substitution effect is inverse,
- the (real) income effect is positive
- they perfectly offset each other.

Demand Relationships – Price Effects

Demand curves consist of more than just own-price relationship
- "Own-price" Relationship
  - Quantity demanded is inversely related to its own price.
- "Cross-price" Relationships
  - Substitutes – Quantity demanded is positively related to the prices of substitutes (Distinguish gross and net substitutes)
  - Complements – Quantity demanded is inversely related to the prices of complements (Distinguish gross and net complements)
- Some limitations of the two-good choice model for illustrating cross-price relationships.
What possible paths can the price-consumption path follow?

Consumer Confidence after the WTC Crisis (a practical example of the consumer choice model)

- One of the key factors in predicting the economic effects of the WTC crisis will be how businesses forecast what they expect to happen to consumer confidence.
- Today, The Conference Board, the organization responsible for the nation's official "consumer confidence index," will be putting out a statement about how one might expect.
- Macroeconomic theory shows that falling consumption demand is contractionary. If consumer confidence is substantially disturbed, it can push the economy into a recession.
- Let's look at some of the underlying theory that is derived from the consumer choice theory.

Consumers' Time Preferences

- Households choose to spend or save based on their preferences and the perceived trade-offs.
- Let's consider "consumption today" (C_t) and "consumption tomorrow" (C_{t+1}) as two goods over which consumers have standard preference orderings.
- How do they choose their optimal bundle? i.e. their optimal time allocation of consumption?
- For given preferences, the choice depends on the constraints.
**Households’ Savings Constraint**

Suppose

\( I_t = C_t + S_t \)

\( C_{t+1} = (1+i) S_t \)

where \( I_t \) is the household’s income at time \( t \), \( S_t \) is savings at time \( t \), and \( i \) is the interest rate that accrues over one period (from \( t \) to \( t+1 \)). How would you write the household’s savings constraint? (i.e. its budget constraint for consuming today v. consuming tomorrow?)

**Consumer’s Time-Preference Model**

If consumers’ confidence in the economy should fade,

- How would you expect that to be represented in this model?
- What predictions would you make about savings v. consumption?

**Summary: Main Concepts**

- How to find the consumer’s optimal choice
- Analyzing individual responses to change:
  - Price & income changes
  - Substitution and income effects
- Classifying goods as:
  - Substitutes, Complements, Normal, Inferior, Luxuries & Non-luxuries.
- Identifying some new features in the model:
  - Price- and income-consumption paths, Engel curve, revealed preference