

Agenda

1. Optimal Choice and Demand
2. Price Change Decomposition
3. Types of Goods
4. Consumer Surplus
5. Market Demand

Price Consumption Curve

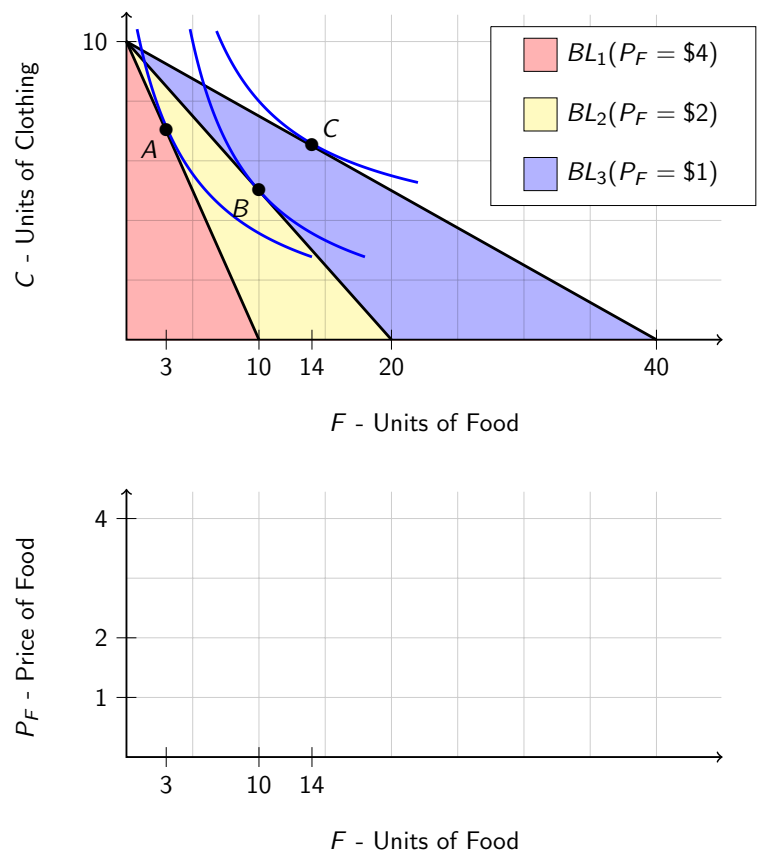
► Price Consumption Curve:

► Example: Food vs. Clothing

- Fix: $I = 40$ and $P_C = \$4$
- Three scenarios:
 1. $P_F = \$4$, chooses A
 2. $P_F = \$2$, chooses B
 3. $P_F = \$1$, chooses C

► Demand Curve:

- Can also think of **Demand Curve** as



Income Consumption Curve

► **Income Consumption Curve:**

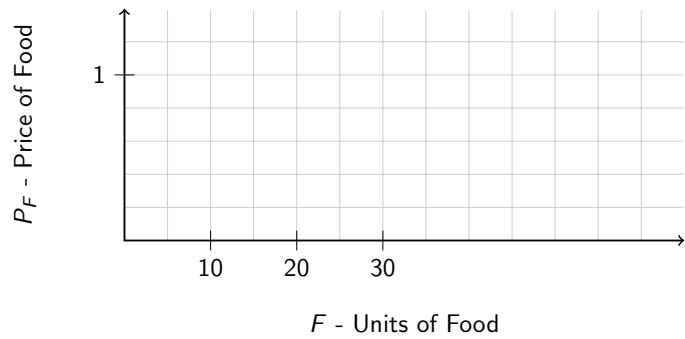
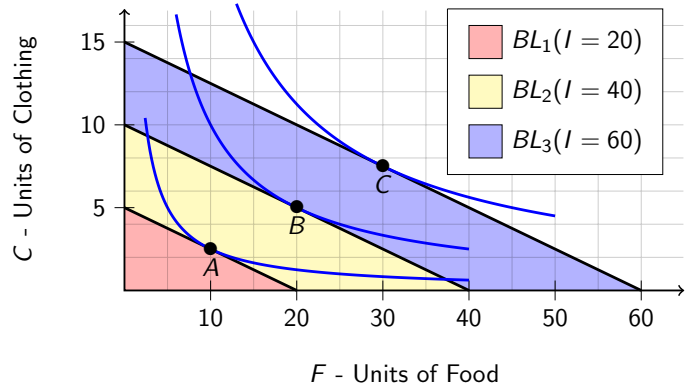
► **Example:** Food vs. Clothing

► Fix: $P_F = \$1$ and $P_C = \$4$

► Three scenarios:

1. $I = 20$, chooses A
2. $I = 40$, chooses B
3. $I = 60$, chooses C

► Demand curves shift

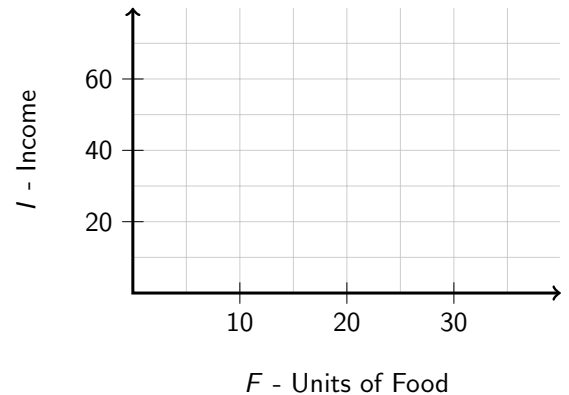
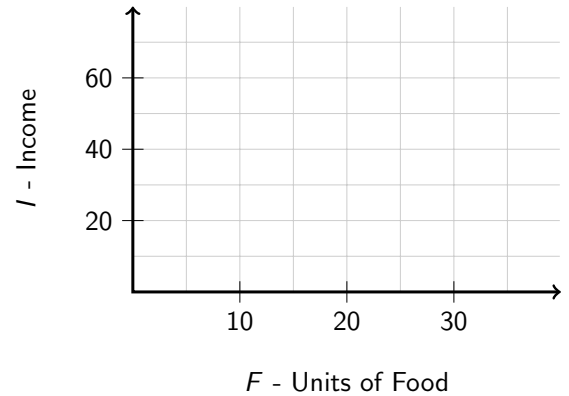


Engle Curve

Definition (Engle Curve)

► **Normal Good**

► **Inferior Good**



Exercise

- ▶ Consumer has utility $U(F, C) = \sqrt{FC}$.
 - ▶ If $P_F = 1$, $P_C = 1$ and $I = 10$, what is the optimal basket?
 - ▶ If $P_F = 4$, $P_C = 1$ and $I = 10$, what is the optimal basket?
 - ▶ If $P_F = 1$, $P_C = 4$ and $I = 10$, what is the optimal basket?
 - ▶ What is the equation for the Demand Curve for food and for clothing?
 - ▶ Solve for F and C as a function of exogenous variables P_F , P_C , and I .
- ▶ Remember:
 - ▶ Budget Line:

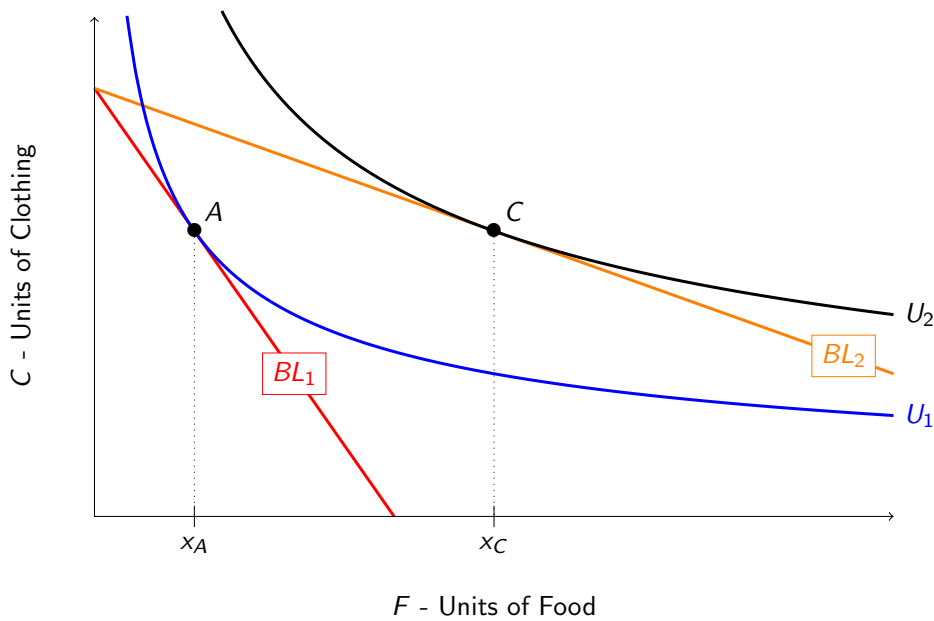
$$P_x x + P_y y = I$$

- ▶ Tangency Condition:

$$MRS_{xy} = \frac{MU_x}{MU_y} = \frac{P_x}{P_y}$$

Solution

Change in Prices



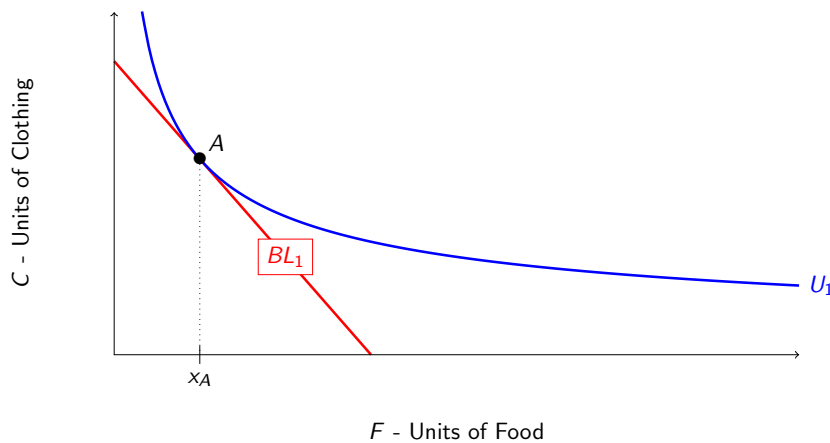
	1	2
P_F		
P_C		
Budget Line		
Optimal Basket		
Utility		

- ▶ Decrease in price x makes
- ▶ Decrease in price

▶ **Goal:** Breakdown change in consumption into **Substitution Effect** and **Income Effect**

Substitution Effect

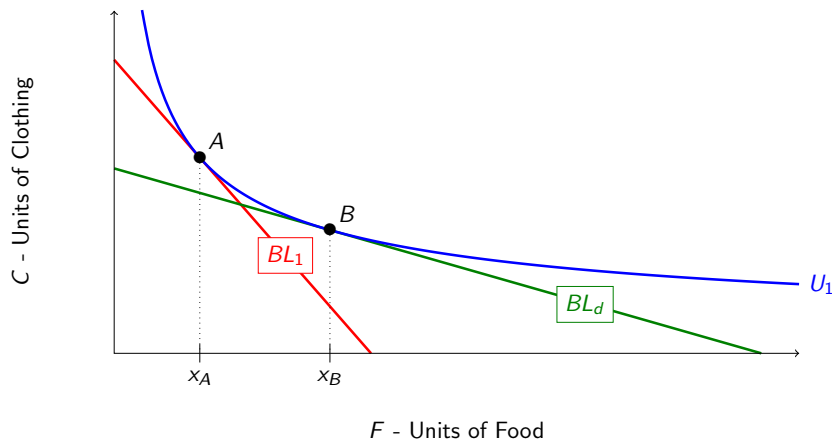
Definition (Substitution Effect)



	1	2
P_F	4	1
P_C	2	2
Budget Line	BL_1	BL_2
Optimal Basket	A	C
Utility	U_1	U_2

Income Effect

Definition (Income Effect)

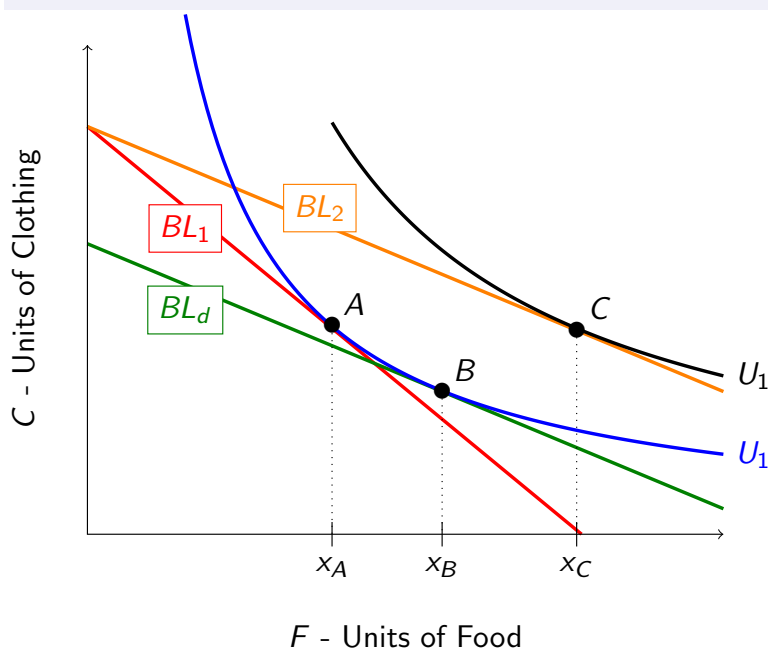


	1	2
P_F	4	1
P_C	2	2
Budget Line	BL_1	BL_2
Optimal Basket	A	C
Utility	U_1	U_2

Example #1: Normal Good

Definition (Normal Good)

A good that a consumer purchases _____ of as income rises.



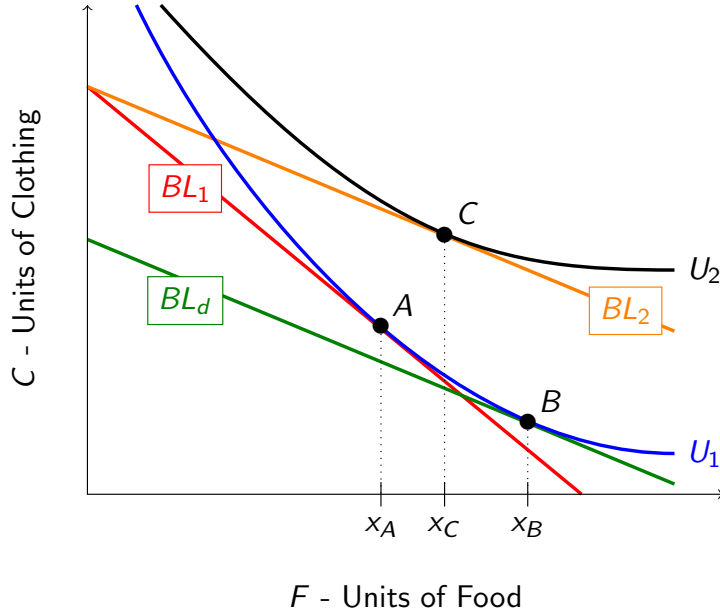
► **Substitution Effect:**

► **Income Effect:**

Example #2: Inferior Good

Definition (Inferior Good)

A good that a consumer purchases _____ of as income rises.

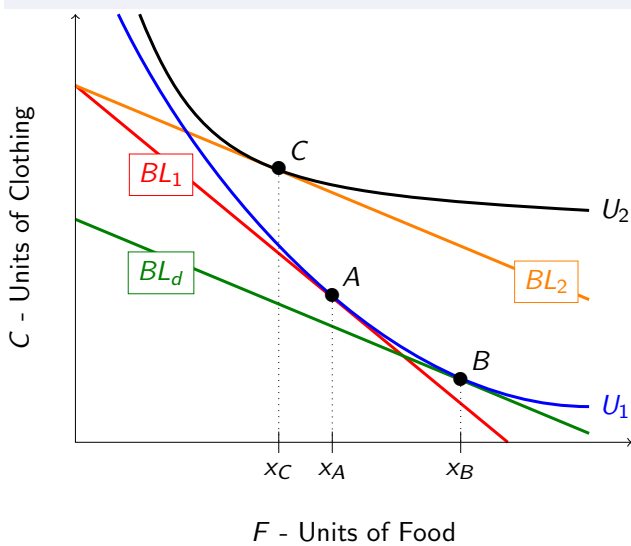


► **Substitution Effect:**

► **Income Effect:**

Example #3: Giffen Good

Definition (Giffen Good)



► **Substitution Effect:**

► **Income Effect:**

Summary

- ▶ Substitution Effect will be _____ if $MRS_{x,y}$ is diminishing.
- ▶ Income Effect _____

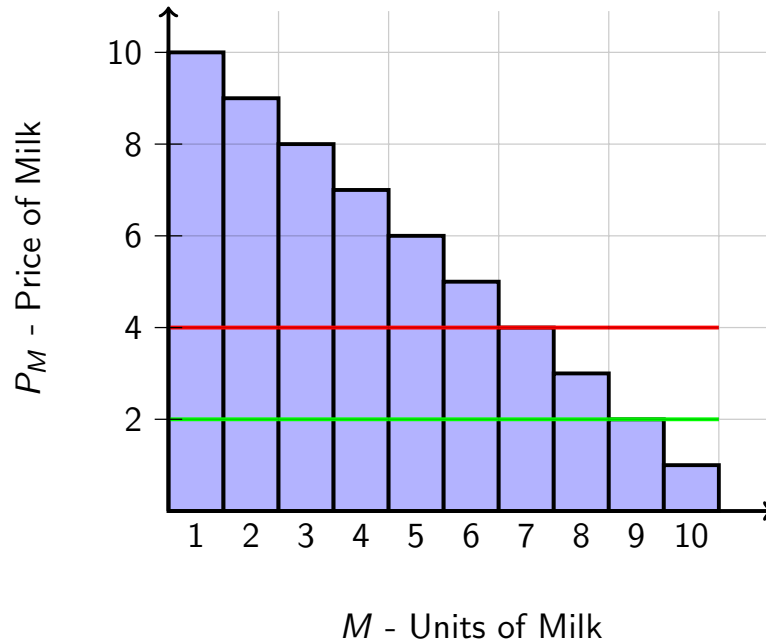
Scenario	Good

Exercise

- ▶ Finding the Income and Substitution Effect
- ▶ $U(x, y) = xy$
- ▶ $I = \$72$
- ▶ $P_y = \$1$
- ▶ $P_x^1 = \$9$ and $P_x^2 = \$4$.
- ▶ Following steps:
 1. Find initial consumption basket A .
 2. Find final consumption basket C .
 3. Find decomposition basket B .

Measuring Consumer Satisfaction

- ▶ How does consumer satisfaction change when price changes from $P_M = 4$ to $P_M = 2$?



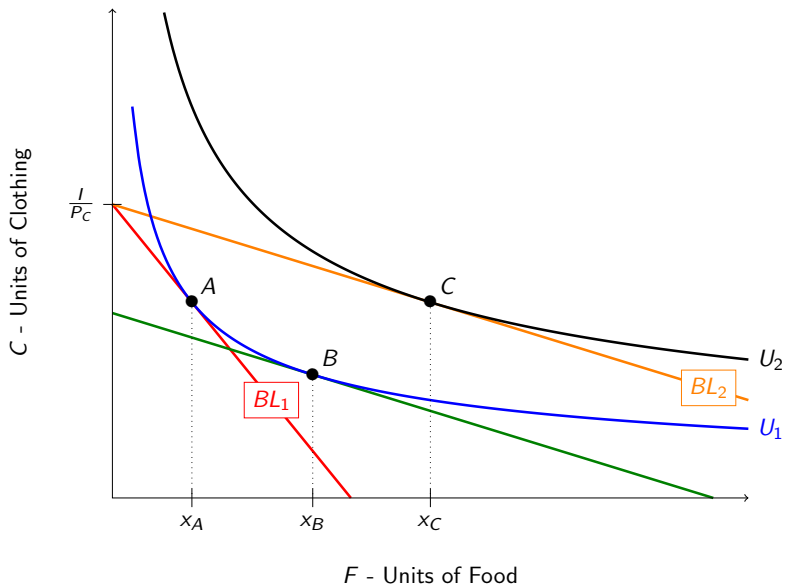
Consumer Surplus

Definition (Consumer Surplus)



Compensating Variation

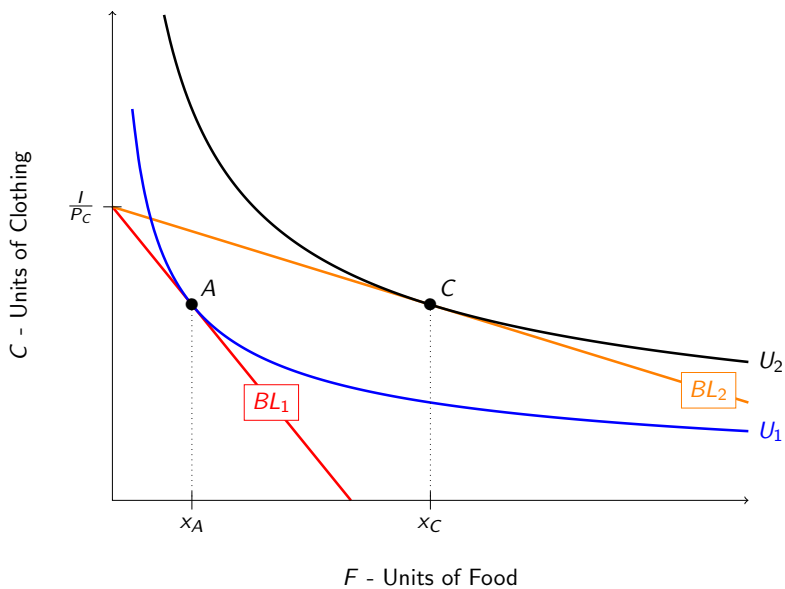
Definition (Compensating Variation)



- ▶ After reduction in prices
- ▶ As well off as before
- ▶ Compensating Variation:

Equivalent Variation

Definition (Equivalent Variation)

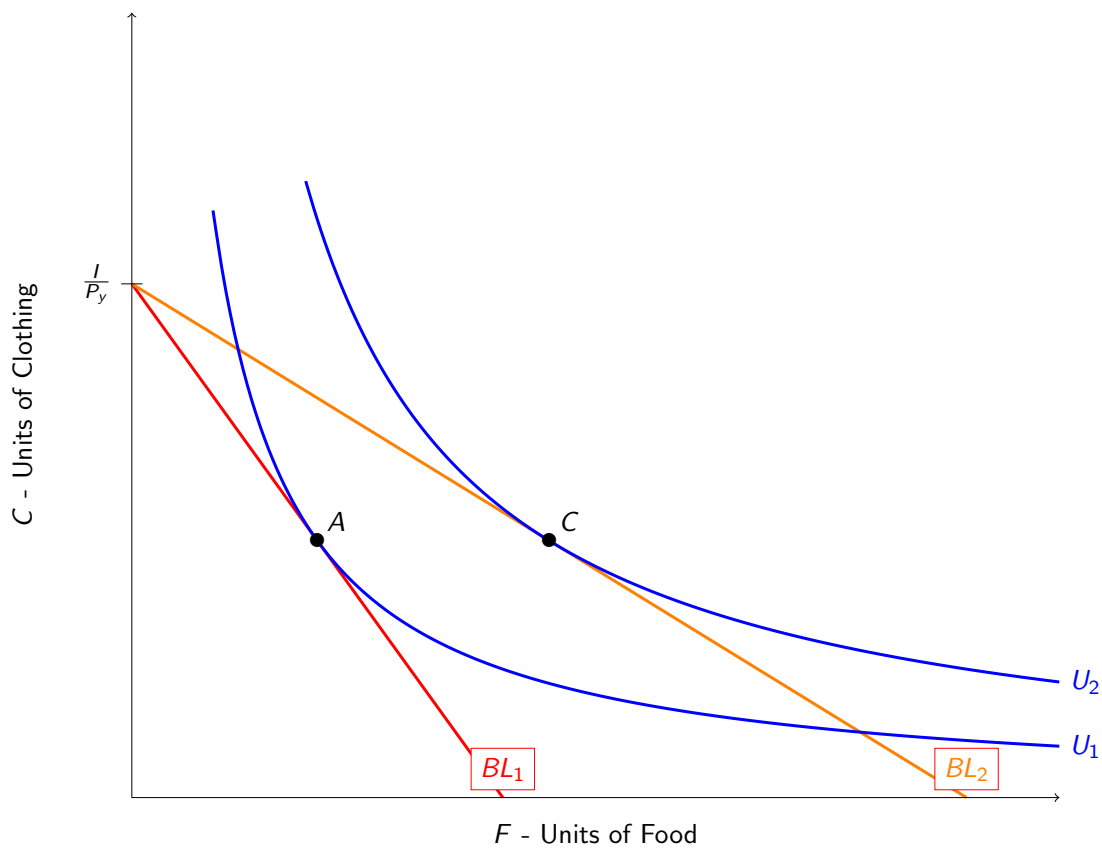


- ▶ Before reduction in prices
- ▶ As well off as after
- ▶ Equivalent Variation:

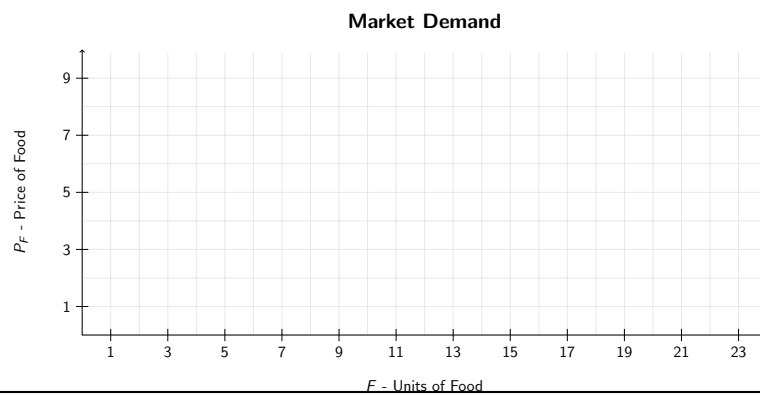
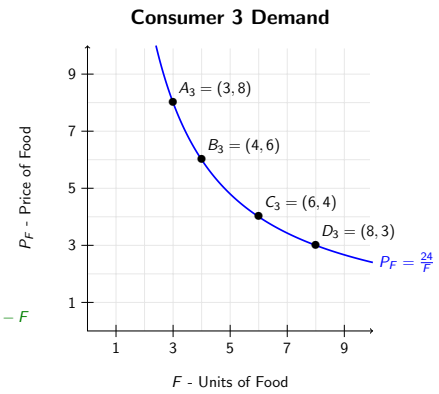
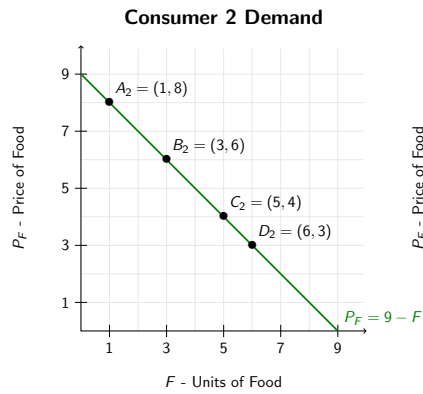
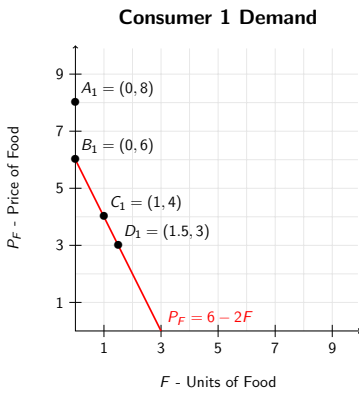
Exercise

- ▶ Finding the Income and Substitution Effect
- ▶ $U(x, y) = xy$
- ▶ $I = \$72$
- ▶ $P_y = \$1$
- ▶ $P_x^1 = \$9$ and $P_x^2 = \$4$.
- ▶ Following tasks:
 1. Find compensating variation.
 2. Find equivalent variation.

Solution



Market Demand

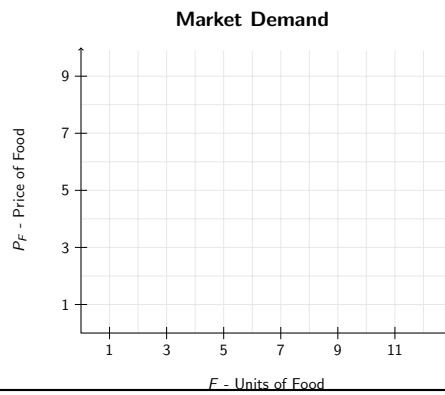
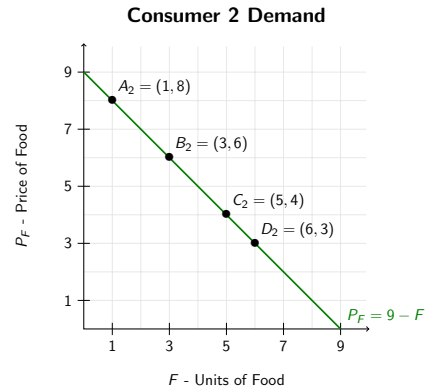
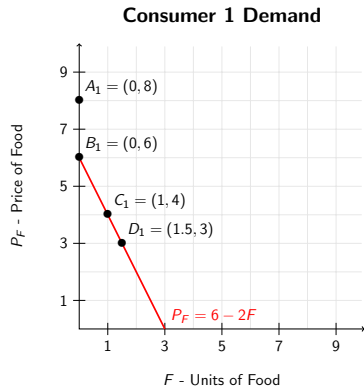


Market Demand

- ▶ To get market demand, must add demand curves _____.
- ▶ Example, 2 Consumers with demands,

$$P_F = 6 - 2F \quad P_F = 9 - F$$

Market Demand



Summary of Demand Curve

