

1 Marshallian Demand

Exercise 3. from Chapter 6.

$$u(x_1, x_2) = \min\{x_1, x_2\}$$

$$p_1 = 1, p_2 = 2, m = 60$$

Budget condition:

$$x_1 + 2x_2 = 60$$

No-waste condition:

$$x_1 = x_2$$

Solve these equations:

(Replace the x_1 with and x_2)

$$x_2 + 2x_2 = 60$$

$$3x_2 = 60$$

$$x_2 = 20$$

$$x_1 = 20$$

$$(20, 20)$$

The optimal bundle, the consumers demand.

Chapter 7 we talk about the **Marshallian Demand**

Marshallian demand tells us the optimal bundle for any p_1, p_2, m .

Do the same process but leave p_1, p_2, m as variables.

$$u(x_1, x_2) = \min\{x_1, x_2\}$$

Budget condition:

$$p_1x_1 + p_2x_2 = m$$

No-waste condition:

$$x_1 = x_2$$

Replace x_1 with x_2 in the budget equation:

$$p_1(x_2) + p_2x_2 = m$$

$$p_1x_2 + p_2x_2 = m$$

$$x_2(p_1 + p_2) = m$$

$$x_2 = \frac{m}{p_1 + p_2}$$

$$x_1 = \frac{m}{p_1 + p_2}$$

These are the marshallian demands.

2 Engle Curve

At $p_1 = 1, p_2 = 2$ let's plot the engle curve

$$x_1 = \frac{m}{1 + 2}$$

$$x_1 = \frac{m}{3}$$

Tempting to plot a line with slope of 3.

The engle curve puts m on the vertical axis

$$x_1 = \frac{m}{3}$$

$$m = 3x_1$$

Is a plot of the demand for a good against income.

3 Inverse Demand Curve

Demand curve relates the demand to the price of that good.

How much does the consumer want at some price.

Inverse demand curve what price would be responsible for the consumer buying some amount of the good.

At $m = 60, p_2 = 2$

$$x_1 = \frac{60}{p_1 + 2}$$

Inverse demand we need to isolate p_1 on the left side:

Multiply both sides by $p_1 + 2$

$$(p_1 + 2) x_1 = 60$$

Divide both side by x_1

$$p_1 + 2 = \frac{60}{x_1}$$

Subtract 2

$$p_1 = \frac{60}{x_1} - 2$$