

Chapter 1

The Market

Introduction. The problems in this chapter examine some variations on the apartment market described in the text. In most of the problems we work with the true demand curve constructed from the reservation prices of the consumers rather than the “smoothed” demand curve that we used in the text.

Remember that the reservation price of a consumer is that price where he is just indifferent between renting or not renting the apartment. At any price below the reservation price the consumer will demand one apartment, at any price above the reservation price the consumer will demand zero apartments, and exactly at the reservation price the consumer will be indifferent between having zero or one apartment.

You should also observe that when demand curves have the “staircase” shape used here, there will typically be a *range* of prices where supply equals demand. Thus we will ask for the the highest and lowest price in the range.

1.1 (3) Suppose that we have 8 people who want to rent an apartment. Their reservation prices are given below. (To keep the numbers small, think of these numbers as being daily rent payments.)

Person	=	A	B	C	D	E	F	G	H
Price	=	40	25	30	35	10	18	15	5

(a) Plot the market demand curve in the following graph. (Hint: When the market price is equal to some consumer i 's reservation price, there will be two different quantities of apartments demanded, since consumer i will be indifferent between having or not having an apartment.)



(b) Suppose the supply of apartments is fixed at 5 units. In this case there is a whole range of prices that will be equilibrium prices. What is the highest price that would make the demand for apartments equal to 5 units? **\$18.**

(c) What is the lowest price that would make the market demand equal to 5 units? **\$15.**

(d) With a supply of 4 apartments, which of the people A–H end up getting apartments? **A, B, C, D.**

(e) What if the supply of apartments increases to 6 units. What is the range of equilibrium prices? **\$10 to \$15.**

1.2 (3) Suppose that there are originally 5 units in the market and that 1 of them is turned into a condominium.

(a) Suppose that person *A* decides to buy the condominium. What will be the highest price at which the demand for apartments will equal the supply of apartments? What will be the lowest price? Enter your answers in column *A*, in the table. Then calculate the equilibrium prices of apartments if *B*, *C*, ..., decide to buy the condominium.

Person	A	B	C	D	E	F	G	H
High price	18	18	18	18	25	25	25	25
Low price	15	15	15	15	18	15	18	18

(b) Suppose that there were two people at each reservation price and 10 apartments. What is the highest price at which demand equals supply?

18. Suppose that one of the apartments was turned into a condominium. Is that price still an equilibrium price? **Yes.**

1.3 (2) Suppose now that a monopolist owns all the apartments and that he is trying to determine which price and quantity maximize his revenues.

(a) Fill in the box with the maximum price and revenue that the monopolist can make if he rents 1, 2, ..., 8 apartments. (Assume that he must charge one price for all apartments.)

Number	1	2	3	4	5	6	7	8
Price	40	35	30	25	18	15	10	5
Revenue	40	70	90	100	90	90	70	40

(b) Which of the people A–F would get apartments? **A, B, C, D.**

(c) If the monopolist were required by law to rent exactly 5 apartments, what price would he charge to maximize his revenue? **\$18.**

(d) Who would get apartments? **A, B, C, D, F.**

(e) If this landlord could charge each individual a different price, and he knew the reservation prices of all the individuals, what is the maximum revenue he could make if he rented all 5 apartments? **\$148.**

(f) If 5 apartments were rented, which individuals would get the apartments? **A, B, C, D, F.**

1.4 (2) Suppose that there are 5 apartments to be rented and that the city rent-control board sets a maximum rent of \$9. Further suppose that people A, B, C, D, and E manage to get an apartment, while F, G, and H are frozen out.

(a) If subletting is legal—or, at least, practiced—who will sublet to whom in equilibrium? (Assume that people who sublet can evade the city rent-control restrictions.) **E, who is willing to pay only \$10 for an apartment would sublet to F, who is willing to pay \$18.**

(b) What will be the maximum amount that can be charged for the sublet payment? **\$18.**

(c) If you have rent control with unlimited subletting allowed, which of the consumers described above will end up in the 5 apartments? **A, B, C, D, F.**

(d) How does this compare to the market outcome? **It's the same.**

1.5 (2) In the text we argued that a tax on landlords would not get passed along to the renters. What would happen if instead the tax was imposed on renters?

(a) To answer this question, consider the group of people in Problem 1.1. What is the maximum that they would be willing to pay to the landlord if they each had to pay a \$5 tax on apartments to the city? Fill in the box below with these reservation prices.

Person	A	B	C	D	E	F	G	H
Reservation Price	35	20	25	30	5	13	10	0

(b) Using this information determine the maximum equilibrium price if there are 5 apartments to be rented. **\$13.**

(c) Of course, the total price a renter pays consists of his or her rent plus the tax. This amount is **\$18.**

(d) How does this compare to what happens if the tax is levied on the landlords? **It's the same.**