

Shawn (HyungJoon) Yoon / 2hrs

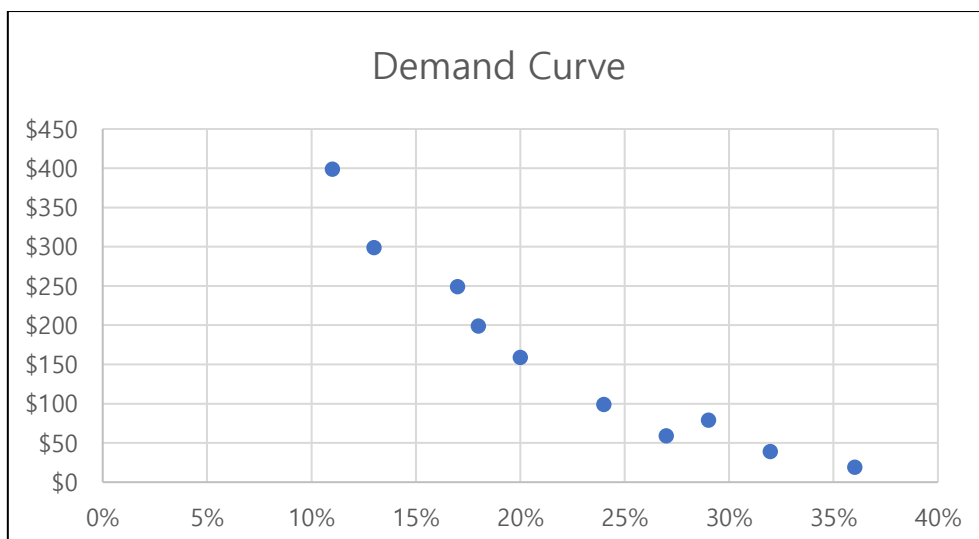
Problem Set 1: Monopoly Pricing at ZipRecruiter

Name of treatment group	Price charged	Expected Revenue	Number of customers that reached the paywall and were offered a price	Number of customers that paid	Conversion Rate
Test 1	\$19	\$5,434	794	286	36%
Test 2	\$39	\$10,140	813	260	32%
Test 3	\$59	\$12,626	793	214	27%
Test 4	\$79	\$19,434	848	246	29%
Control	\$99	\$19,008	800	192	24%
Test 5	\$159	\$24,327	765	153	20%
Test 6	\$199	\$27,860	778	140	18%
Test 7	\$249	\$31,623	747	127	17%
Test 8	\$299	\$29,601	762	99	13%
Test 9	\$399	\$31,920	727	80	11%

0. I followed the honor code on this problem set. (Answer Yes or No.)

a. Yes

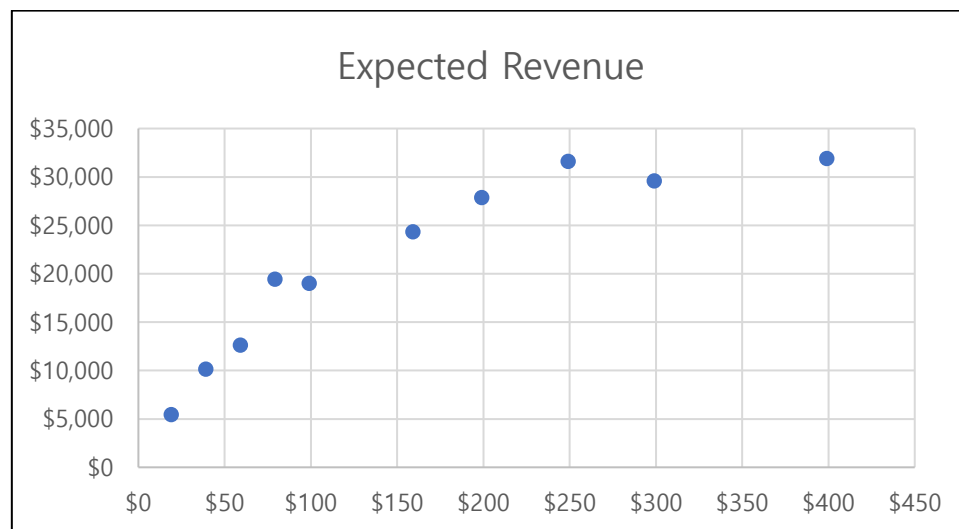
1. Plot the demand curve, with price charged on the y-axis and conversion rate (the share of customers who reached the paywall that actually paid) on the x-axis.



2. The demand curve is non-monotonic. Why do you think this is?

- a. The demand curve is overall downward sloping, but it still has some little ups and downs. This is because each sample group has slightly different tendency to accept its given price. This could be understood as statistical discrepancy.

3. Plot expected revenue per customer that reaches the paywall (on the y-axis), as a function of the price charged (on the x-axis).



4. Based on the data, would you advise ZipRecruiter to continue charging \$99?

- a. Which of the prices charged in the experiment would maximize profits?
- b. No.
- c. \$400

5. Calculate the demand elasticity for each segment of the demand function.

(Remember that by convention, we write downward-sloping demand functions as having negative elasticity.)

- a. What is the demand elasticity between price = \$19 and price = \$39?
- b. -0.10654702 (if were to express in an absolute value, then 0.10654702).
- c. What is the demand elasticity between price = \$299 and price = \$399?
- d. -0.720831201 (if were to express in an absolute value, then 0.720831201).

6. According to the inverse elasticity markup rule, what should be the elasticity of demand at ZipRecruiter's profit-maximizing price? (Again, write this demand elasticity as a negative number.)

- a. -0.720831201

7. To fine-tune its pricing, ZipRecruiter is interested in running a second experiment where they would estimate conversion rates at new prices that they did not try in the original experiment. They need to keep it simple, however, and can only randomize between two different prices. What two prices would you recommend they randomize between in order to close in on the profit-maximizing price? (There is no right answer, but there are wrong answers.)

- a. We can possibly choose one price between \$299 and \$399. Because in the previous experiment, we chose these two prices but the range between the two is relatively large that we might find a conversion rate that gives the highest profit. Another price we can choose is any price higher than \$399, simply because we don't know how the customers would react to it.