Lecture 11(i)

Announcements

* Midterm results posted next week
* Sections this week will go over worksheet at Canvas on monopoly.
* HW 9 due next week.
* Thanksgiving week schedule (next week)
  + Monday: class as usual for large lectures
  + Wed: no class
  + No discussion sections week of Thanksgiving

Lecture

1. Marginal Revenue of a Monopolist

2. Profit-Maximizing Monopoly

3. Inefficiency of Monopoly

Monopolist and Competitive Firm

How are they similar?

* Both try to maximize profit = revenue - costs
* So both set quantity where marginal rev. = marginal cost (MR = MC)

How different?

* When competitive firm sells more unit, price stays the same
  + Marginal Revenue = Price
  + Same as saying price taker
* When monopoly firm sells more price falls
  + Marginal Revenue < Price

Lemonade Stand

Suppose can sell

* 1 at P = $1.00
* 2 at P = 50¢

Sell second one, cash register rings up 50¢. Is this MR?

No!!!!

Sell one: Revenue = $1.00

Sell two: Revenue = .50 +.50

= $1

So marginal revenue = 0!

(Note: this is uniform price monopoly. Things are different if can price discriminate)

Widget Monopoly in Econland

S1-S3 and S5-S10 deceased.

S4 has monopoly.

One change: now she can produce as many widgets as she wants at ATC = 4. (So MC = 4 too)



If perfect competition, then

* P = 4
* Note P = MC
* Q = 6

But with monopoly, need to do something different.

Let’s figure out Marginal Revenue

Marginal Revenue of S4

|  |  |  |  |
| --- | --- | --- | --- |
| Q | P | Revenue | MR |
| 0 | 10 |  |  |
| 1 | 9 |  |  |
| 2 | 8 |  |  |
| 3 | 7 |  |  |
| 4 | 6 |  |  |
| 5 | 5 |  |  |
| 6 | 4 |  |  |
| 7 | 3 |  |  |
| 8 | 2 |  |  |
| 9 | 1 |  |  |



Rules for MR of linear demand

* vertical intercept same as demand
* horizontal intercept is halfway

Picture is all you need for this class. But if you like an equation…

Rev = P×Q

= (10-Q)×Q

=10Q – Q2

Marginal Revenue is slope

MR = 10 – 2Q

What if demand looked like this?



So let’s go back to S4’s problem and figure out what she should do.

Put in MC to find optimal output



* Profit maximizing Q = 3
* Price that goes with this is PM=$7
* Profit = [P – ATC]\*Q=[7 – 4]\*3=9
* See it on graph

Check that this is profit maximizing:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Q | P | Rev | Cost | Profit |
| 1 | 9 |  |  |  |
| 2 | 8 |  |  |  |
| 3 | 7 |  |  |  |
| 4 | 6 |  |  |  |
| 5 | 5 |  |  |  |

What if demand looked like this and MC = 2? Figure out the monopoly price and quantity.



Inefficiency of Monopoly



Just like a $3 tax,

But monopolist gets tax revenue!

|  |  |  |  |
| --- | --- | --- | --- |
|  | Comp. | Monopoly | Change |
| Q | 6 | 3 | -3 |
| P | 4 | 7 | +3 |
| CS | 18 | 4.5 | -13.5 |
| PS | 0 | 9 | 9 |
| TS | 18 | 13.5 | -4.5 |

1. Monopoly results in a loss of CS of 13.5 from the higher price.

2. Part is a transfer from consumers to the firm. Called a monopoly rent

3. Part of consumer loss is deadweight loss of -4.5.

Too little output (condition 3 violation).

First Welfare Theorem does not hold when we have monopoly.

4. Can have additional social costs:

Monopoly Rent Seeking Behavior

Efforts to secure a monopoly

Example in Econland. Suppose give monopoly to first person in line. Suppose time costs $1 hour. In equilibrium one person gets in line for 9 hours. All the monopoly rent is dissipated

In real world:

* Use of resources like the legal and patent system to keep out rivals.
  + Time spent on lawyers is social waste (opportunity cost)
* Entry of too many real estate agents.
  + Try to get the monopoly rent of too high a commission. But may end up selling only a few houses a year.
  + Wait. Where is the monopoly? Control of Multiple Listing Service (MLS)