Experiment 7: Monopoly and Cartels

Four types of buyer:

		Number	Value
Student	Poor	2	★11
Student	Rich	1	★16
Non-student	Poor	2	★16
Non-student	Rich	1	★21

Suppose you have to offer at least a profit of ★1 to induce a buyer to buy.

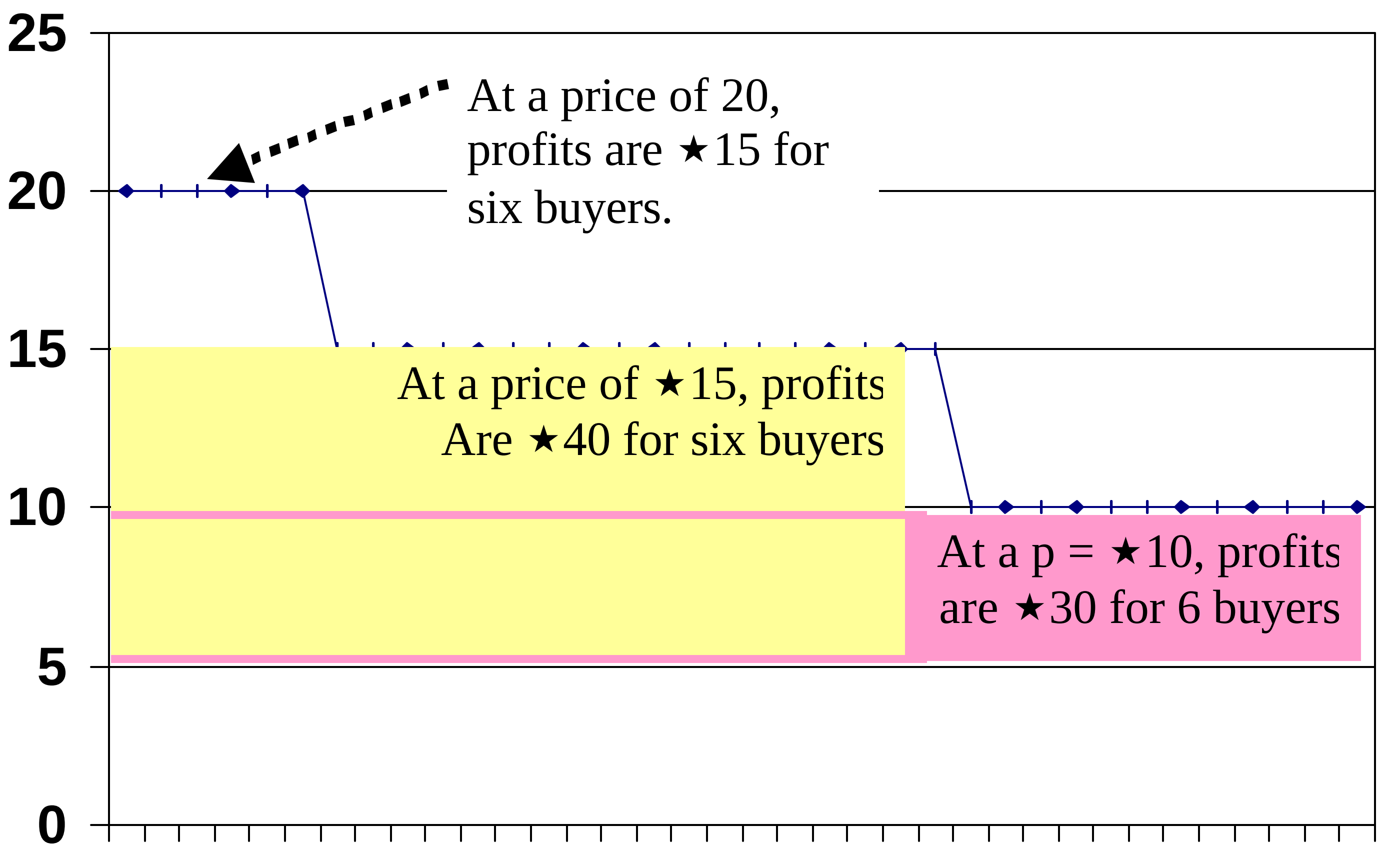
If you sell to only students, and cost is ★5, what price maximizes profit?

At a price of ★10, you earn 3 x ★5 = ★15. At a price of ★15, you earn ★10 x 1=★10.

If you sell to only non-students, and cost is ★5, what price maximizes profit?

At a price of ★15, you earn 3 x ★10 = ★30. At a price of ★20, you earn ★15 x 1=★15.

If you sell to both students and non-students at a single price, a price of ★15 maximizes profit.



Experiment 7

First six people to receive information sheets will be firms in 7.1. Second six will be firms in 7.2, third in 7.3 and fourth six in 7.4.

Sellers have constant marginal cost of ★5.

Experiment 7.1

Cartel meets for 3 minutes to set quantities for each member. The market manager will announce the number of people who have value ★21 and value ★15.

If 4 or more sellers agree to the cartel quantities, this will be enforced by the market manager, who will not permit more than the voted number of sales per firm. In addition, the cartel can set a price, and *the market manager will enforce the price*.

Each seller has a sheet of paper for the purposes of posting price. Prices must be in whole ★s. You have 3 minutes to trade.

Experiment 7.2:

This runs like experiment 7.1, except the market manager doesn't enforce cartel agreements. Sellers still post prices. However, *individual sellers may negotiate discounts with the buyers*. Buyers are encouraged to try to negotiate discounts.

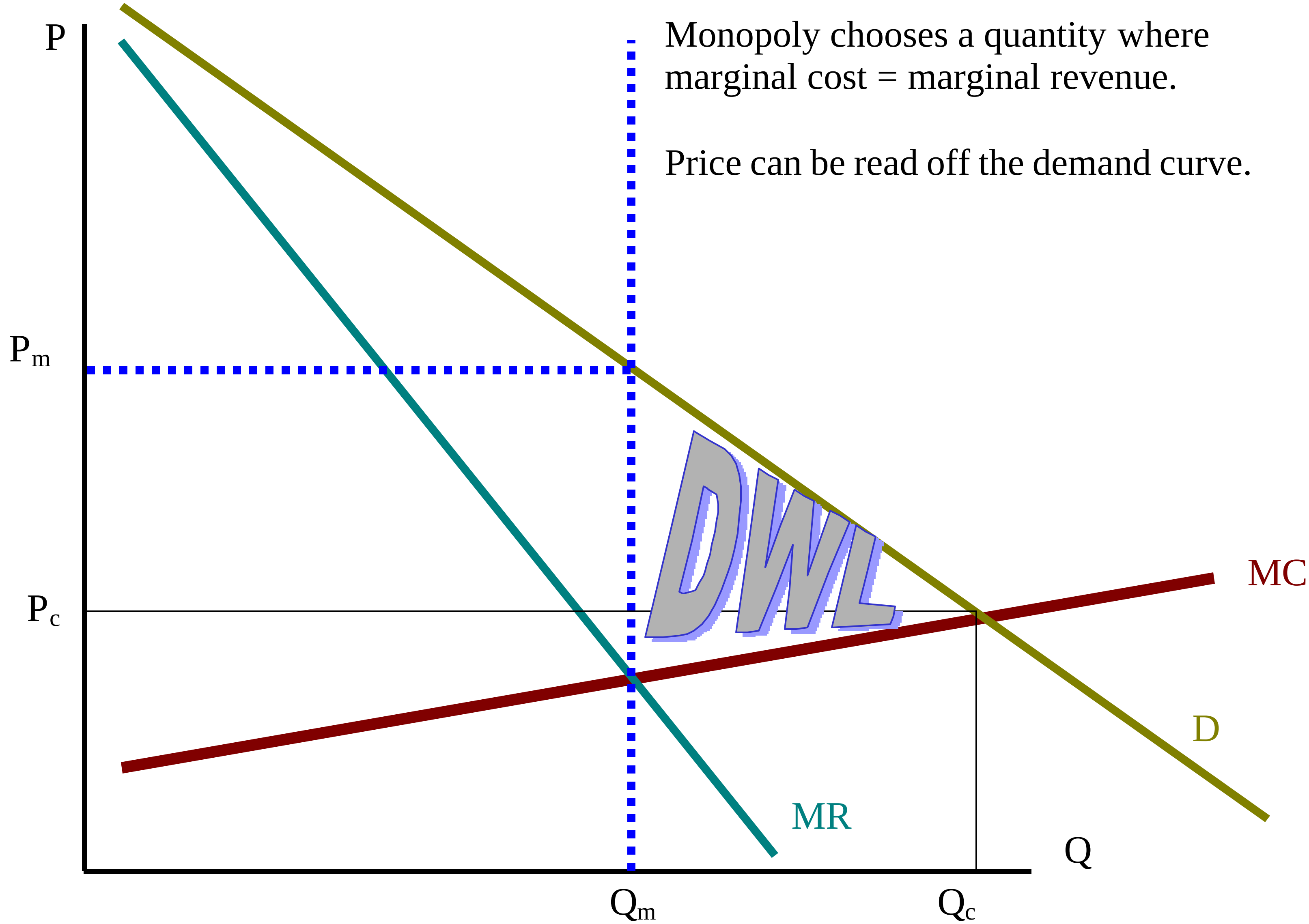
Experiment 7.3:

This runs like 7.1, with cartel enforcement, except the sellers can agree on student discounts (e.g. post a price of ★20, then offer a ★5 student discount). The market manager will enforce prices.

Experiment 7.4:

This runs like 7.3, except students can buy more than one unit and attempt to resell those units.

Monopoly Pricing



Monopoly Pricing

A monopoly generally wishes to maximize revenue, pQ, minus cost. Thus, a monopoly will set marginal revenue, pΔQ + Q Δp, equal to marginal cost, MC. Using

$$\frac{\Delta p}{p} = -\frac{\Delta Q}{Q}\frac{1}{\eta},$$

We obtain:

$$-\,p\,\Delta Q\frac{1}{\eta} + p\;\Delta Q = MC\;\Delta Q, \quad \text{or}$$

$$\frac{p - MC}{p} = \frac{1}{\eta}$$

The markup is 1/η. Monopoly prices are higher when demand is less elastic. In particular, when a monopoly serves two markets, it charges more to the consumers with inelastic demand.

Antitrust

Prior to 1890, it was legal for firms to act jointly to maximize their profits, and such a cartel was called a *trust*.

In 1890, the *Sherman Act* prohibited combinations of firms acting jointly to restrict interstate trade and monopolization of markets.

The *Antitrust Division* of the Justice Department was formed to enforce this legislation.

The Clayton Act,passed in 1914, extended this enforcement to acts "injuring competition" and the *Federal Trade Commission* was set up to enforce this legislation, which prohibits monopolization, and contracts that restrict trade.

Price Discrimination aimed at firms was made illegal by the *Robinson-Patman Act* in 1936.

Mergers

Today, most antitrust enforcement is concerned with *mergers*.

There are three kinds of merger.

A *horizontal merger* involves firms that sell the same product.

Examples: Exxon & Mobil,

A *Vertical Merger* involves a firm that supplies another firm. An input supplier who owns a firm has an incentive to engage in *raising rival's costs.*

Example: Barnes & Noble's attempted takeover of Ingram, the largest supplier (who supplied 80% of all Amazon books).

The third kind of merger is a *conglomerate merger* in which the firms have no inputs or outputs in common. The merger wave of the 1960s was mostly conglomerate mergers.

Example: Phillip-Morris and Miller Beer

An industry is said to be concentrated if a small number of firms control most of the production.

Industry concentration is usually assessed using either CR4 (four firm concentration ratio) or HHI (Hirschmann-Herfindahl Index).

CR4 is the sum of the market shares of the four largest firms.

HHI is the sum of the squared market shares of all the firms.

> Example: If there are five firms in an industry, with market shares of 50, 20, 15, 10, and 5:
>
> - The CR4 is 95 [50+20+15+10]
> - The HHI is 3250 [$50^2+20^2+15^2+10^2+5^2$ = 2500+400+225+100+25].

An industry with a CR4 exceeding 50, or an HHI exceeding 1800, is said to be very concentrated.

Regulated Monopoly

Some firms are permitted to be monopolies, but regulated.

Examples: Bell Operating Companies, electric utilities, cable TV providers.

Two types of regulation are typically used.

Price regulation sets a maximum price for the product or products that the firm sells

Examples: cable TV, gasoline had a maximum price until recently; many states put limits on interest rates, airlines until 1982, trucks until 1980,

Rate of Return regulation sets a maximum profit rate.

Examples: Bell operating companies, many electric utilities,

Advantage of price regulation: Strong incentives to minimize cost.
Disadvantage: Requires a lot of information about costs to set correctly.

Rate of return regulation is easier to implement, since regulator can observe expenses, but may induce regulated firm to inflate costs as a way of earning the rate of return on a larger base.

Another branch of antitrust enforcement revolves around *price-fixing*, where firms get together and agree to raise price.

The famous case is the General Electric, Westinghouse case. Four large firms divided up the market for electrical components and raised prices. For bidding purposes, they used *the phases of the moon system*, where the firm allowed to win with ineffective competition depended on the phase of the moon.

> *People of the same trade seldom meet together, even for merriment or diversion, but the conversation ends in a conspiracy against the public, or some contrivance to raise prices.*
>
> -Adam Smith, 1776

One third of all price-fixing cases are brought against highway and street contractors.

Price Discrimination

Shoe: Buy one, get one free

Price discrimination is charging different people different prices for the same good.

Student or senior citizen discounts

Coupons

Frequent flyer programs

Quantity discounts
- electricity
- phone service
- frequent flyer programs
- multi-packs of paper towels, lightbulbs, toothpaste, etc.
- shopping clubs
- outlet malls

Bargaining (personalized prices)

- automobiles
- third world

Damaged Goods

- student software
- Intel 486SX
- IBM LaserPrinter E
- Sony Minidisc
- Fedex 2ND day delivery

Freight absorption

It is not price discrimination to pass on cost savings.

Price discrimination is effective when a firm has market power and can prevent arbitrage.

Generally want to charge customer with the more elastic demand a lower price.