



THE UNIVERSITY
OF QUEENSLAND
AUSTRALIA

CREATE CHANGE

ECON2030 - Microeconomic Policy

Tutorial 4: Competition Policy

Tutor: Francisco Tavares Garcia

Assessments

Assessment Task	Due Date	Weighting	Learning Objectives
<i>Report</i> Written assessment	TBC. 22 Aug 13:00:00; 12 Sep 13:00:00; 3 Oct 13:00:00; 17 Oct 13:00:00; 7 Nov 13:00:00	100% 4 Assessments	1, 2, 3

R1.1/R1.2: *“Climate deal struck after Labor and the Greens reach safeguard mechanism agreement”* (ABC, 2023). Provide the economic background of the Safeguard Mechanism. Provide a critical economic appraisal of the mechanism on reaching Australia’s climate goals. What would you propose as a better economic policy?

Deadline R1.1: 22nd August 2023; before 13:00

Deadline R1.2: 12th September 2023; before 13:00

THE UNIVERSITY OF QUEENSLAND, SCHOOL OF ECONOMICS

ECON 2030: Tutorial 4

Competition Policy

1 DWL OF MONOPOLY

Assume that the inverse demand function is $P = 100 - 2Q$ under both monopoly and competition. With competition $MC = AC = \$8$, but monopoly is X-inefficient and has greater costs—in particular the monopoly has $MC = AC = \$20$.

a) Calculate the prices and quantities under monopoly and competition.

Perfect Competition

$$MC = AC = \$8$$

$$MC = P$$

$$P = 100 - 2Q$$

$$8 = 100 - 2Q$$

$$2Q = 100 - 8$$

$$Q = 46$$

Monopoly

$$MC = AC = \$20$$

$$\text{Revenue} = P * Q$$

$$= (100 - 2Q) * Q$$

$$\begin{aligned} MR &= \frac{d}{dQ} 100Q - 2Q^2 \\ &= 100 - 4Q \end{aligned}$$

$$MR = MC$$

$$100 - 4Q = 20$$

$$100 - 20 = 4Q$$

$$Q = 20$$

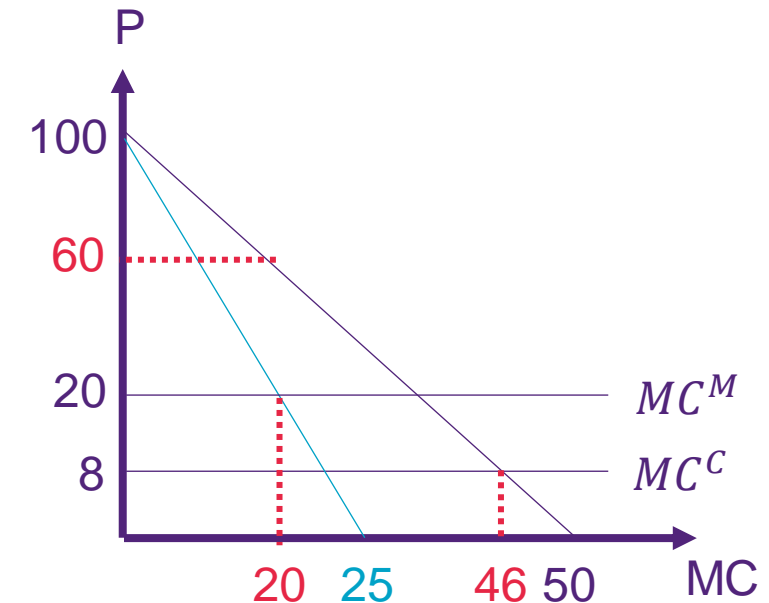
$$P = MC$$

$$= 100 - 2Q$$

$$= 100 - 2 * 20$$

$$= 100 - 40$$

$$= 60$$



1 DWL OF MONOPOLY

Assume that the inverse demand function is $P = 100 - 2Q$ under both monopoly and competition. With competition $MC = AC = \$8$, but monopoly is X-inefficient and has greater costs—in particular the monopoly has $MC = AC = \$20$.

b) Calculate total economic surplus under monopoly and competition. The difference is the social cost of monopoly.

Monopoly

$$\begin{aligned}\text{Consumer Surplus} &= \text{Triangle} \\ &= (100 - 60) * (20 - 0) / 2 \\ &= 40 * 20 / 2 \\ &= 400\end{aligned}$$

$$\begin{aligned}\text{Producer Surplus} &= \text{Rectangle} \\ &= (60 - 20) * (20 - 0) \\ &= 40 * 20 \\ &= 800\end{aligned}$$

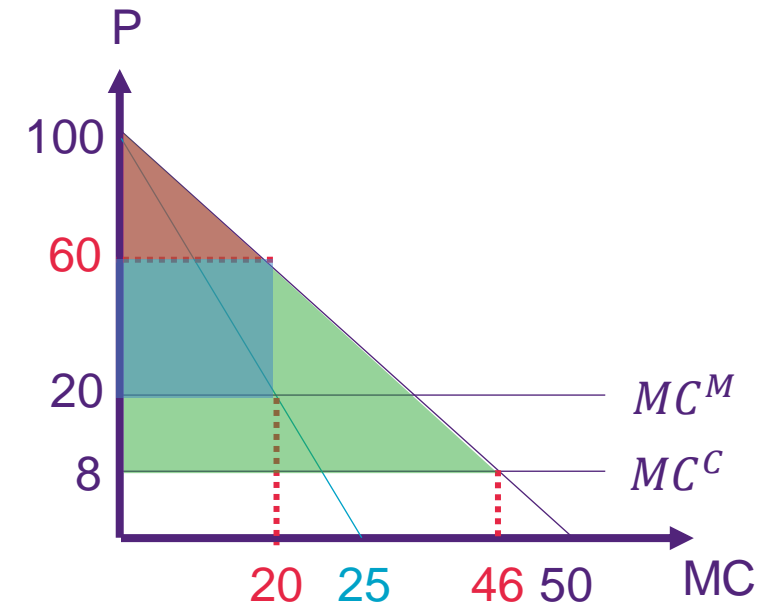
$$\text{Total Surplus} = 1,200$$

Perfect Competition

$$\begin{aligned}\text{Triangle} &= (100 - 8) * (46 - 0) / 2 \\ &= 92 * 46 / 2 \\ &= 2,116\end{aligned}$$

Social cost of monopoly

$$\begin{aligned}\text{Difference} &= 2,116 - 1,200 \\ &= 916\end{aligned}$$



2 CALCULATING CR_4 AND HHI

In a market with ten companies, annual sales (in \$1,000's) are as follows:

Firm	A	B	C	D	E	F	G	I	J	K
Sales	400	330	250	200	200	150	150	120	100	100

a) Compute the four-firm concentration ratio for this industry.

Market Shares

$$\begin{aligned}
 A &= 400/2,000 = 0.2 \\
 B &= 330/2,000 = 0.165 \\
 C &= 250/2,000 = 0.125 \\
 D &= 200/2,000 = 0.1 \\
 E &= 200/2,000 = 0.1 \\
 F &= 150/2,000 = 0.075 \\
 G &= 150/2,000 = 0.075 \\
 I &= 120/2,000 = 0.06 \\
 J &= 100/2,000 = 0.05 \\
 K &= 100/2,000 = 0.05
 \end{aligned}$$

$$\begin{aligned}
 \text{Market Size} &= 400 + 330 + 250 + 200 + 200 \\
 &+ 150 + 150 + 120 + 100 + 100 = 2,000
 \end{aligned}$$

$$CR_4 = 0.2 + 0.165 + 0.125 + 0.1 = 0.59$$

$$CR_4 = 59\%$$

2 CALCULATING CR_4 AND HHI

In a market with ten companies, annual sales (in \$1,000's) are as follows:

Firm	A	B	C	D	E	F	G	I	J	K
Sales	400	330	250	200	200	150	150	120	100	100

b) Compute the Herfindahl-Hirschmann Index (HHI) for this industry.

Market Shares

$$\begin{aligned}
 A &= 400/2,000 = 0.2 \\
 B &= 330/2,000 = 0.165 \\
 C &= 250/2,000 = 0.125 \\
 D &= 200/2,000 = 0.1 \\
 E &= 200/2,000 = 0.1 \\
 F &= 150/2,000 = 0.075 \\
 G &= 150/2,000 = 0.075 \\
 I &= 120/2,000 = 0.06 \\
 J &= 100/2,000 = 0.05 \\
 K &= 100/2,000 = 0.05
 \end{aligned}$$

$$\begin{aligned}
 HHI &= (100w_1)^2 + (100w_2)^2 + \dots + (100w_n)^2 \\
 &= (100 * 0.2)^2 + (100 * 0.165)^2 + \dots + (100 * 0.05)^2 \\
 &= 20^2 + 16.5^2 + 12.5^2 + 10^2 + 10^2 + 7.5^2 + 7.5^2 + 6^2 + 5^2 + 5^2 \\
 &= 1,227
 \end{aligned}$$

2 CALCULATING CR_4 AND HHI

In a market with ten companies, annual sales (in \$1,000's) are as follows:

Firm	A	B	C	D	E	F	G	I	J	K
Sales	400	330	250	200	200	150	150	120	100	100

- c) Suppose that firms D and E wish to merge to become D&E and firms J and K wish to merge to become J&K. Evaluate each merger's effect on market concentration.

Market Shares

$$\begin{aligned}
 A &= 400/2,000 = 0.2 \\
 B &= 330/2,000 = 0.165 \\
 C &= 250/2,000 = 0.125 \\
 D &= 200/2,000 = 0.1 \\
 E &= 200/2,000 = 0.1 \\
 F &= 150/2,000 = 0.075 \\
 G &= 150/2,000 = 0.075 \\
 I &= 120/2,000 = 0.06 \\
 J &= 100/2,000 = 0.05 \\
 K &= 100/2,000 = 0.05
 \end{aligned}$$

Merger of D+E

$$D+E = 0.1 + 0.1 = 0.2$$

$$CR_4 = 0.2 + 0.165 + 0.125 + 0.2 = 0.69$$

$$HHI = 20^2 + 20^2 + 16.5^2 + 12.5^2 + 7.5^2 + 7.5^2 + 6^2 + 5^2 + 5^2 = 1,427$$

Merger of J+K

$$J + K = 0.05 + 0.05 = 0.1$$

$$CR_4 = 0.2 + 0.165 + 0.125 + 0.1 = 0.59$$

$$HHI = 20^2 + 16.5^2 + 12.5^2 + 10^2 + 10^2 + 7.5^2 + 7.5^2 + 6^2 + 10^2 = 1,277$$

3 PREDATORY PRICING

Virgin Airlines has accused Qantas of engaging in predatory behaviour by increasing flights and reducing prices on inter-city flights. What criteria would you use, and what data would you require, to determine whether a firm is engaging in predatory pricing?

Predatory Pricing (Section 46)

- ▶ an example of misuse of market power
- ▶ setting prices at unprofitable levels to drive competitors out of a market or deter entry
 - ▶ below average variable cost (AVC) OR excess supply
- ▶ price cutting or underselling competitors is not necessarily predatory pricing
- ▶ hard to prove: have to show not only that a firm is under-pricing, but also that it is aiming to harm a competitor (i.e. intention).

Example: Qantas and virgin; Coles and DVDs

Predatory pricing is most often defined as pricing below average variable cost (AVC) with the aim of driving out competition or deterring entry.

4 GENERAL COMPETITION POLICY

Australian competition policy requires that mergers and acquisitions be not allowed when they would result in a **substantial lessening** of **competition**. What issues arise in interpreting this principle?

The idea of a 'substantial lessening of competition' contains two important concepts, namely 'competition' and 'substantial lessening'. **Competition** is usually thought of in terms of market share. But this, in turn, depends on how markets are defined, which is often arbitrary. The key economic issue is one of substitution. There is little competition when there is little product substitution (or low cross-price elasticity). **Substantial lessening** does not appear to be defined and is also somewhat arbitrary.

5 PREDATORY PRICING

When Peter Pan replaced American Coach Lines on the New York - Washington, D.C. bus route in June 1992, it offered an introductory fare of \$9.95 “to gain publicity and [build] customer loyalty.” Greyhound, the remaining incumbent, responded by lowering its fare to \$7 and then to \$5. Peter Pan matched each reduction. The \$5 fares for both firms were pre-announced to be valid until mid-August. Operating costs (labour and fuel) per bus-trip are estimated at \$475; a bus can carry about 50 passengers. What arguments would you make to support or refute a charge of predatory pricing against Greyhound?

While it is always difficult to establish predatory pricing, this seems like a good test case: the incumbent has driven price **below average variable cost** (one proposed test for predatory behaviour), if the incumbent is both larger and has greater financial resources, it may be able to force Peter Pan’s exit, and Greyhound could raise price again if Peter Pan exits to recoup lost profits. ($AVC = 475 / 50 = 9.50$) We would like to know the passenger responses to these price changes and the bus load factors (ticketed to available seats) at each of the pricing points discussed. At \$9.50, the fare would cover the average variable cost on a full bus. At \$5.00, even if every bus goes out full, Greyhound will not make enough to cover out-of-pocket expenses for the trip (revenue = $5 \times 50 = 250$; operating costs = \$475). This suggests higher overall profits if the trip is cancelled (absent spillovers to other bus trip demand). If we consider “spillage” of seats (when the bus leaves with empty seats, the opportunity cost of another passenger is about 0), \$5.00 is above very short-term marginal cost (i.e., MC at the level of this trip). But if we ask whether this can be profit-maximising for Greyhound in the absence of strategic effects on Peter Pan, it seems unlikely.



THE UNIVERSITY
OF QUEENSLAND
AUSTRALIA

CREATE CHANGE

Thank you

Francisco Tavares Garcia | Tutor
School of Economics

Reference

Harvey, R., & Gayer, T. (2013). *Public finance*. McGraw-Hill Higher Education.