Econ 200
Module 6
Lecture 15

UNIVERSITY of WASHINGTON

Outline

1. Product Differentiation and Monopolistically Competitive Markets
2. Marginal Revenue and Downward Sloping Demands
3. Profit Maximization
4. Long Run Profits

Reading: Ch 15

Imperfect Competition

We have seen market structures at the two extremes of the competition spectrum:

- Perfect Competition – Lowest prices, highest quantities, maximizes surplus
- (Single Price) Monopoly – Highest prices, lowest quantities, maximizes profits

But there are many models of market structures that fall between these extremes. What these "imperfectly competitive" models have in common is:

- $Q_m < Q_{ic} < Q_{pc}$
- $DWL_{pc}(=0) < DWL_{ic} < DWL_m$

Monopolistic Competition

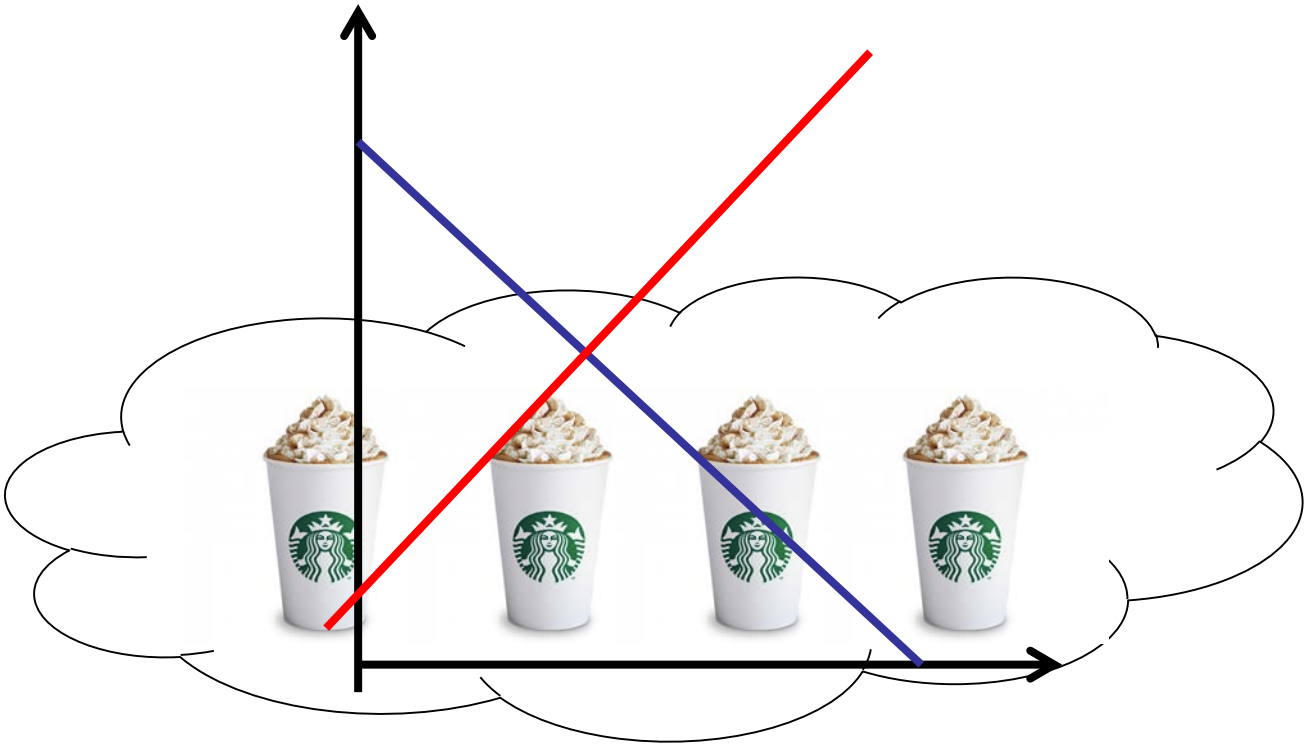
Monopolistic competition describes a market with many firms that sell similar, but differentiated, goods and services.

- Able to earn a positive profit in the short run by selling a differentiated product.
- Offer goods that are similar to competitors' products but more attractive in some ways.

Firms have an interest in persuading customers that their products are unique, a practice known as *product differentiation*.

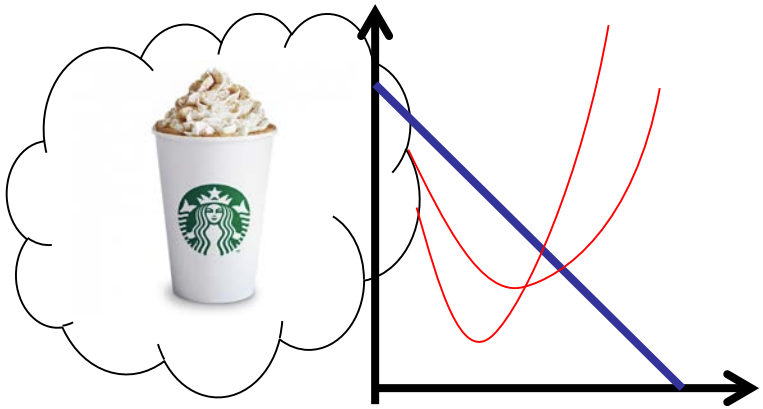
- This is the role of advertising and branding.

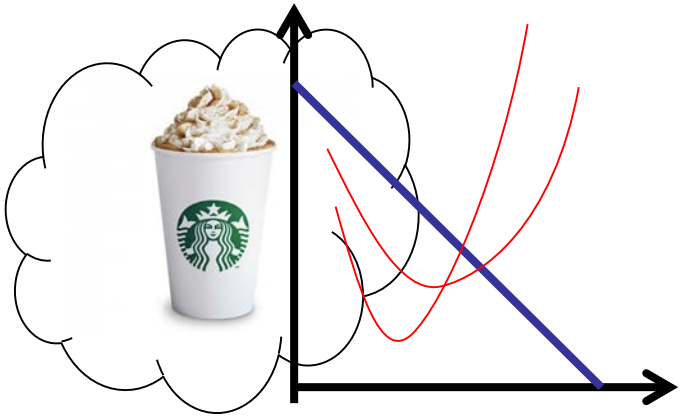
Product Differentiation as Distance

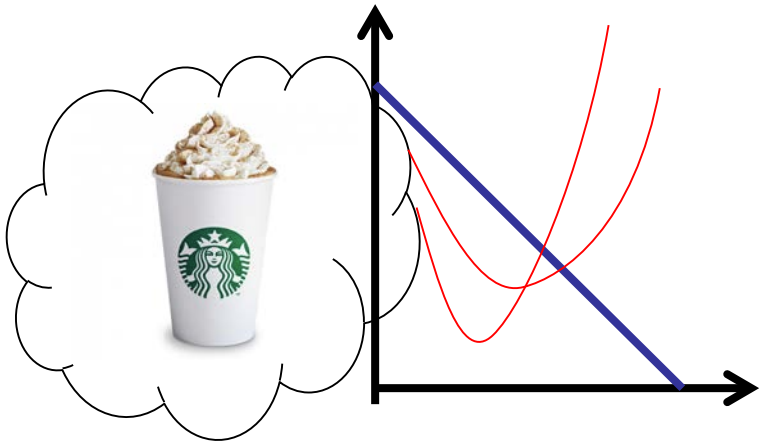


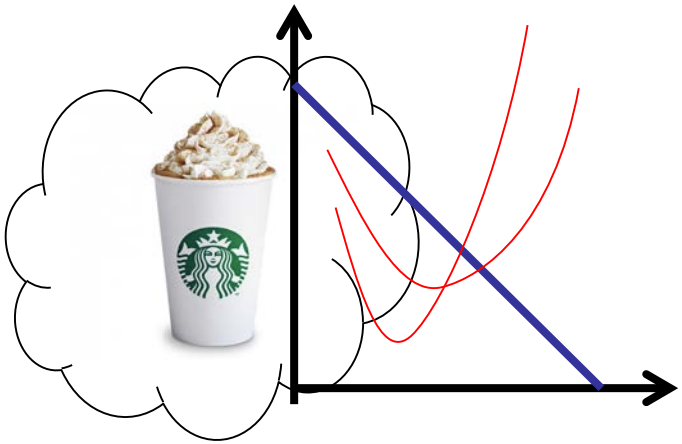
Perfect competition – identical products means all firms close to each other

Product Differentiation as Distance









Product Differentiation

Now, instead of physical space, think of products being differentiated in “characteristic space”…

BLUE BOTTLE COFFEE

Seattle's Best Coffee

STARBUCKS COFFEE

Peet's Coffee AND TEA

COFFEE EST. 1999 STUMPTOWN ROASTED DAILY ROASTERS

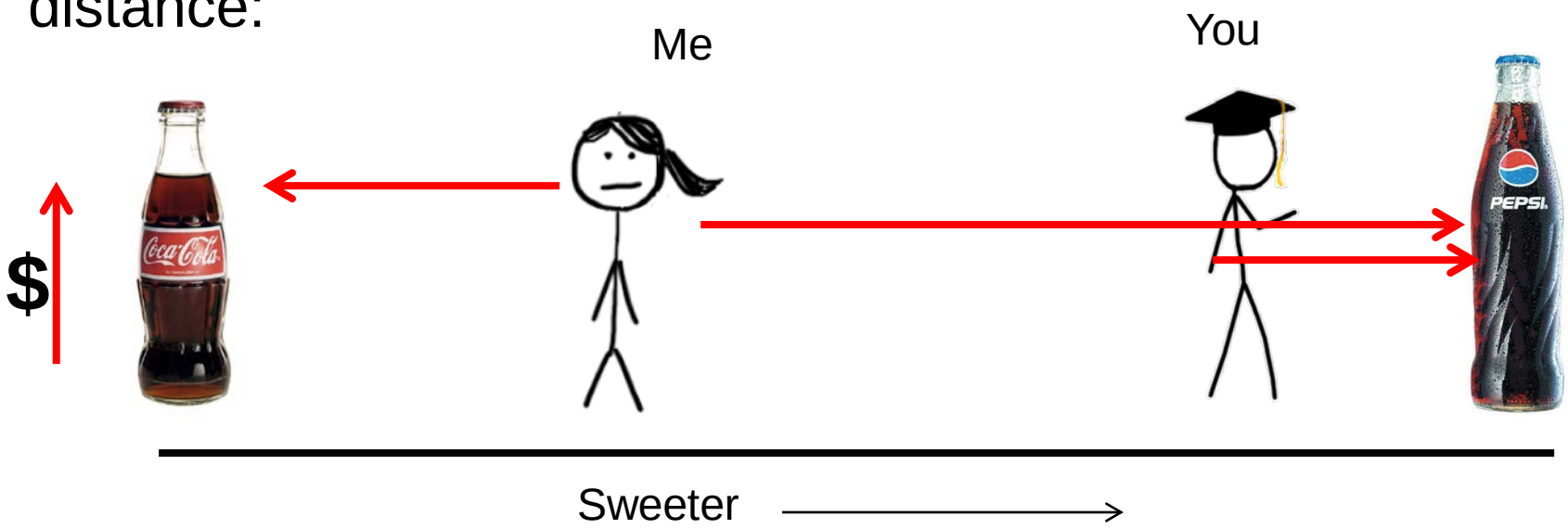
DUNKIN' DONUTS

TULLY'S COFFEE

Gloria Jean's COFFEES

Product Differentiation

We can even think of characteristic space as an actual distance:

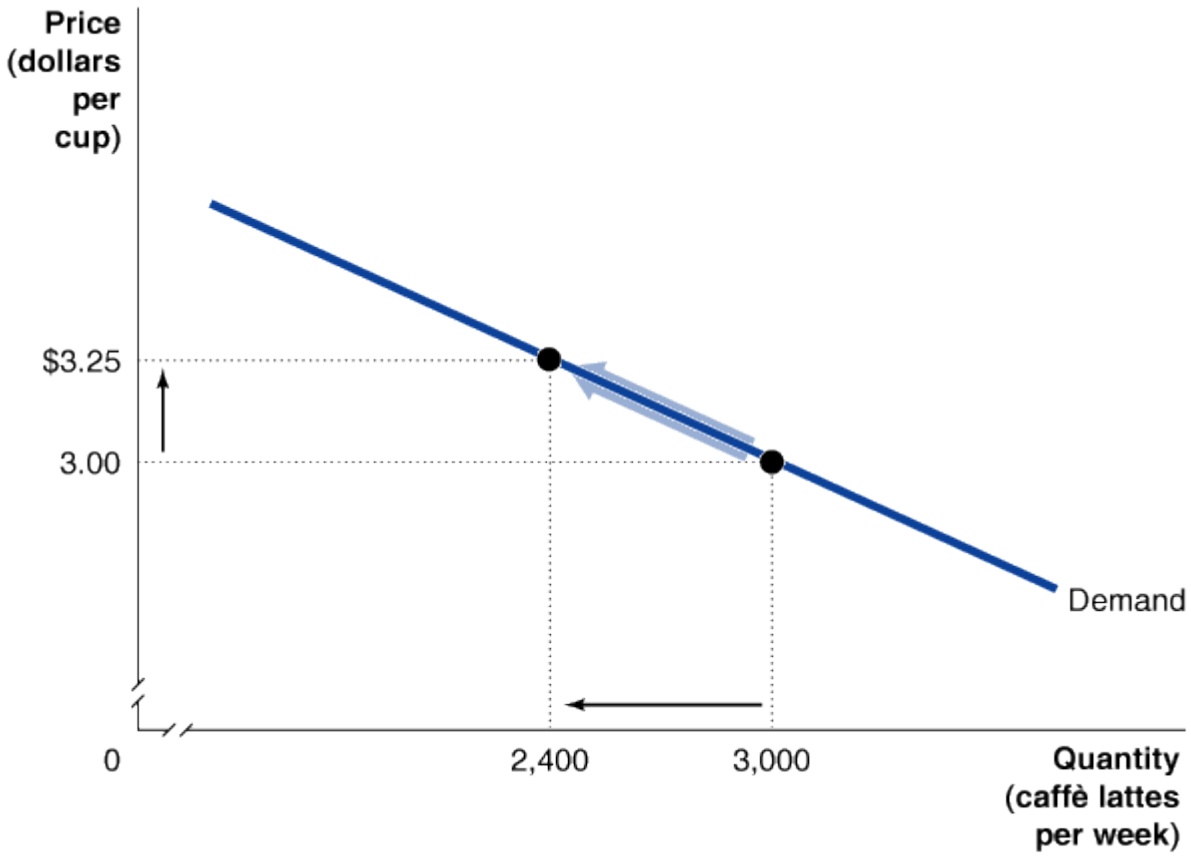


Pepsi is a more costly choice for me – either because of the physical distance I have to travel, or because of how far I have to stray from my ideal product characteristic (sweetness).

The Demand Curve for a Monopolistically Competitive Firm

If some consumers have a taste for Sbx lattes over lattes from Tullys, Peets, etc…

Then when sbx latte price goes up, it will lose some, but not all, of its customers.



Marginal Revenue When Demand Is Downward-Sloping

CAFFÈ LATTES SOLD PER WEEK (Q)	PRICE (P)	TOTAL REVENUE ($TR = P \times Q$)	AVERAGE REVENUE $\left(AR = \frac{TR}{Q}\right)$	MARGINAL REVENUE $\left(MR = \frac{\Delta TR}{\Delta Q}\right)$
0	$6.00	$0.00	—	—
1	5.50	5.50	$5.50	$5.50
2	5.00	10.00	5.00	4.50
3	4.50	13.50	4.50	3.50
4	4.00	16.00	4.00	2.50
5	3.50	17.50	3.50	1.50
6	3.00	18.00	3.00	0.50
7	2.50	17.50	2.50	–0.50
8	2.00	16.00	2.00	–1.50
9	1.50	13.50	1.50	–2.50
10	1.00	10.00	1.00	–3.50

Total revenue increases initially, then decreases; Starbucks has to lower the price in order to sell additional lattes.

Hence marginal revenue is initially positive, then negative.

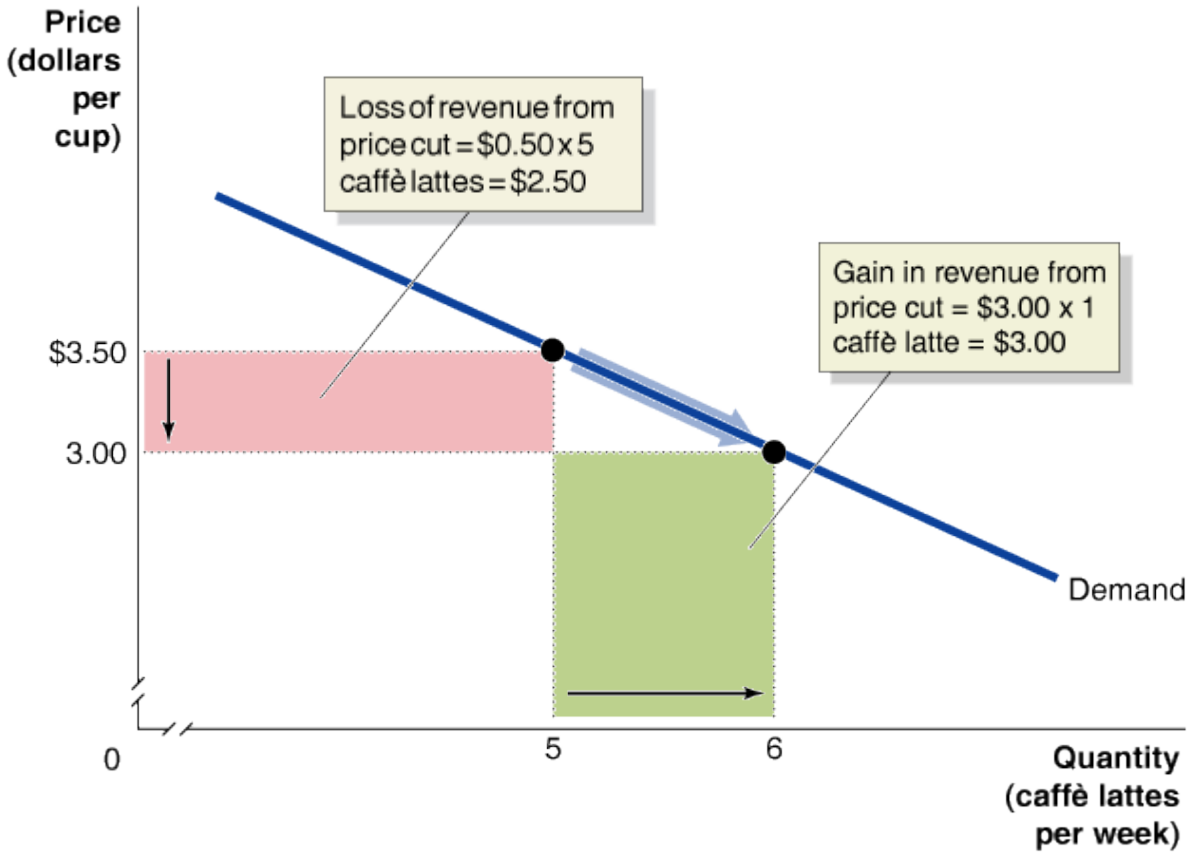
How a Price Cut Affects Firm Revenue

When Starbucks reduces the price of a caffè latte, it can sell more output.

→ Quantity effect

But its revenue decreases also. In order to sell the additional caffè latte, it must reduce the price on all cups it will sell.

→ Price effect



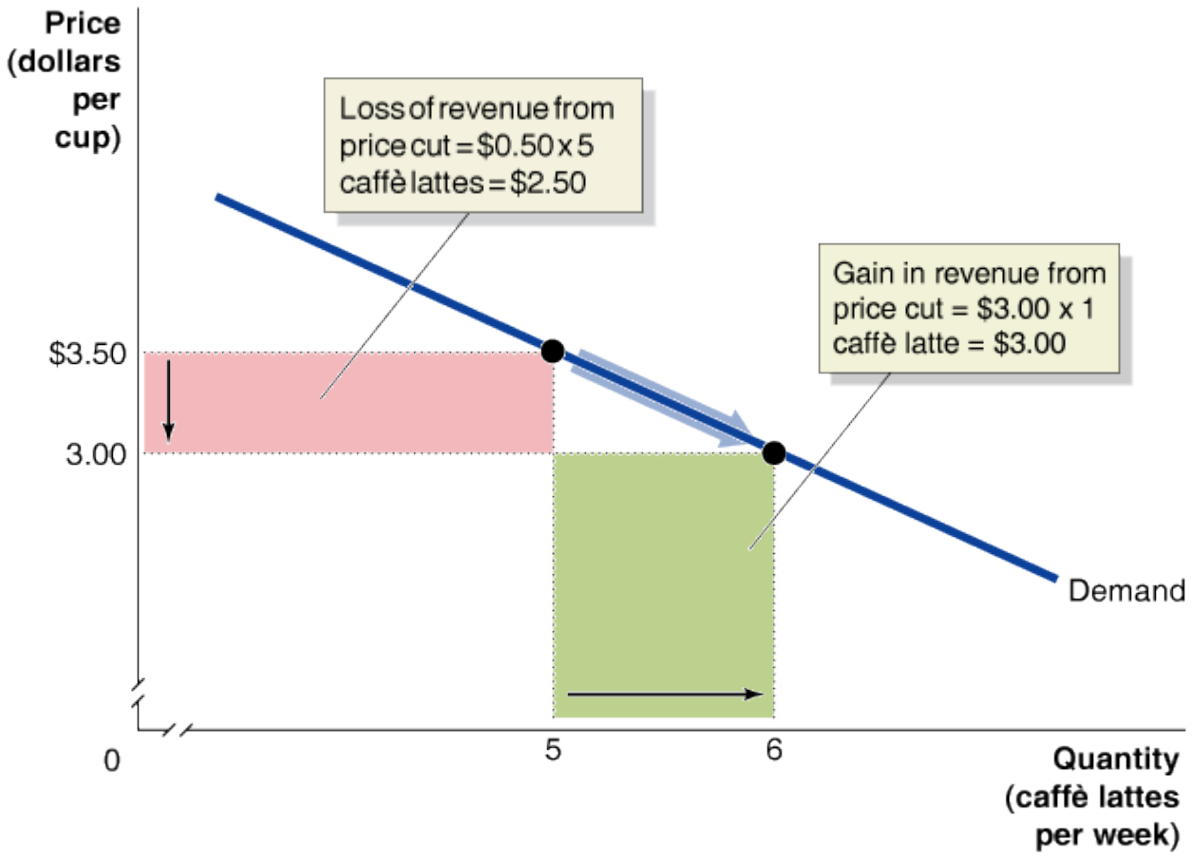
Marginal Revenue

Starbucks' marginal revenue for selling the additional latte is equal to the green area minus the pink area: the quantity effect minus the price effect.

But…

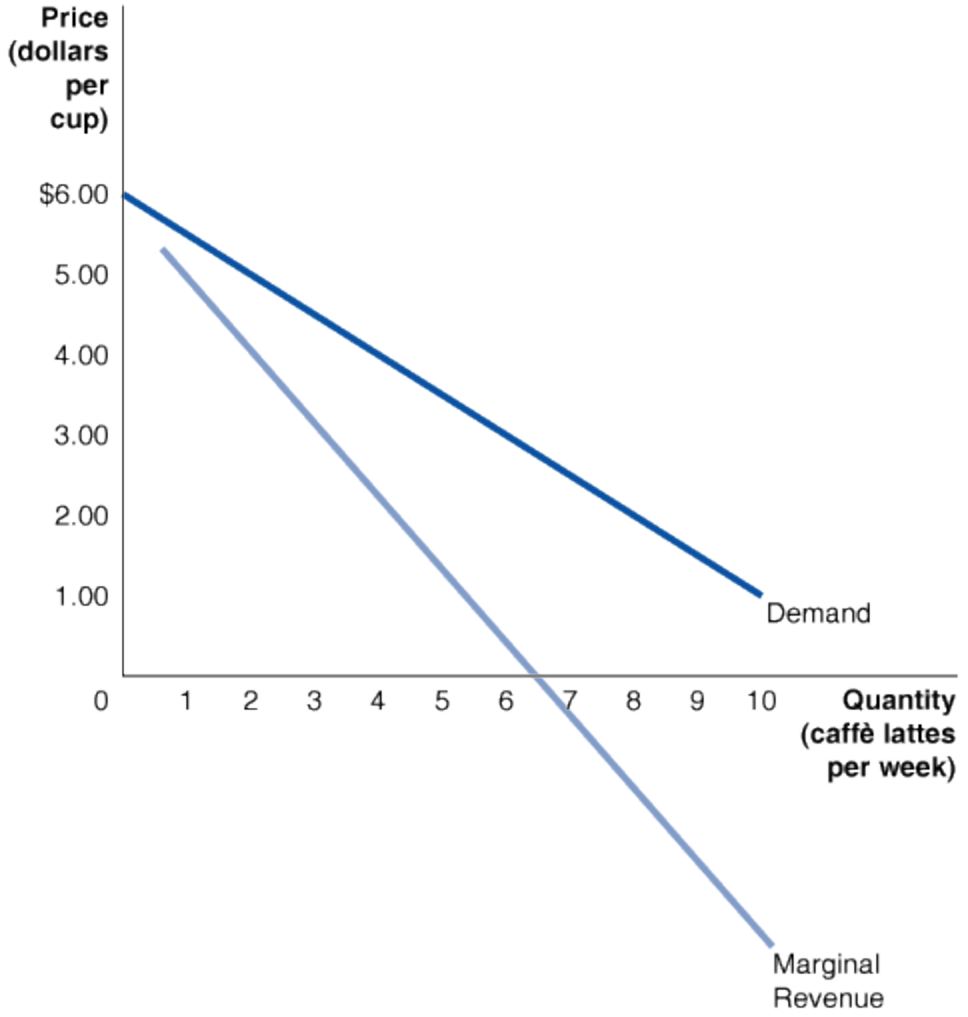
Quantity effect = price

→*MR < P*



Demand and Marginal Revenue Curves

After the 6th latte, reducing the price in order to increase sales results in revenue decreasing → negative marginal revenue



Profit Maximization

Profit maximization requires producing until the marginal revenue from the last unit is just equal to the marginal cost: $MC = MR$.

This same rule holds for all firms that can marginally adjust their output.

Profit Maximization Using a Table

Caffè Lattes Sold per Week (*Q*)	Price (*P*)	Total Revenue (*TR*)	Marginal Revenue (*MR*)	Total Cost (*TC*)	Marginal Cost (*MC*)	Average Total Cost (*ATC*)	Profit
0	$6.00	$0.00	—	$5.00	—	—	–$5.00
1	5.50	5.50	$5.50	8.00	$3.00	$8.00	–2.50
2	5.00	10.00	4.50	9.50	1.50	4.75	0.50
3	4.50	13.50	3.50	10.00	0.50	3.33	3.50
4	4.00	16.00	2.50	11.00	1.00	2.75	5.00
5	3.50	17.50	1.50	12.50	1.50	2.50	5.00
6	3.00	18.00	0.50	14.50	2.00	2.42	3.50
7	2.50	17.50	–0.50	17.00	2.50	2.43	0.50
8	2.00	16.00	–1.50	20.00	3.00	2.50	–4.00
9	1.50	13.50	–2.50	23.50	3.50	2.61	–10.00
10	1.00	10.00	–3.50	27.50	4.00	2.75	–17.50

The 1st, 2nd, 3rd, and 4th caffè lattes each increase profit: $MC < MR$.

The 5th does not alter profit: $MC = MR$.

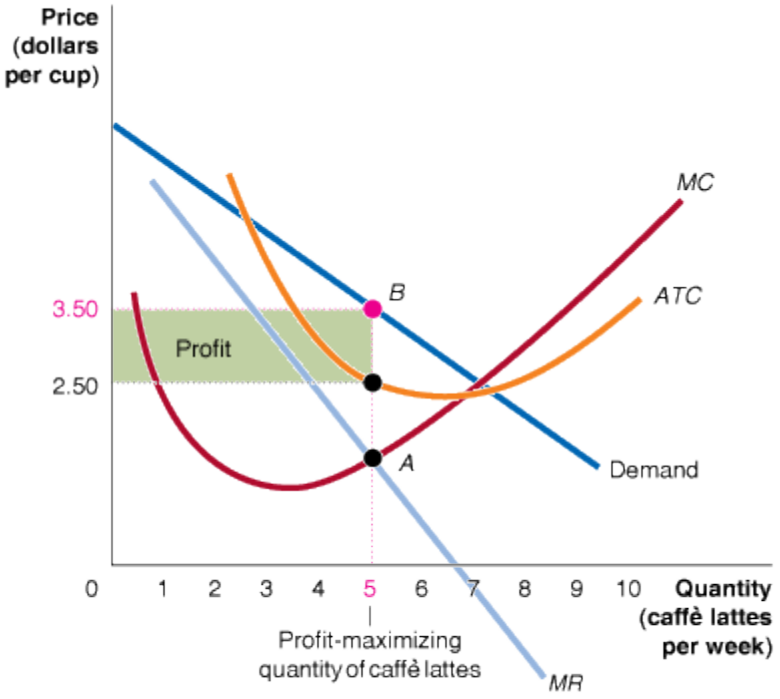
The 6th and subsequent caffè lattes decrease profit: $MC > MR$.

Identifying Profit Graphically

Use MC=MR to identify the profit-maximizing quantity like with monopolies

Profit = (P-ATC)*Q

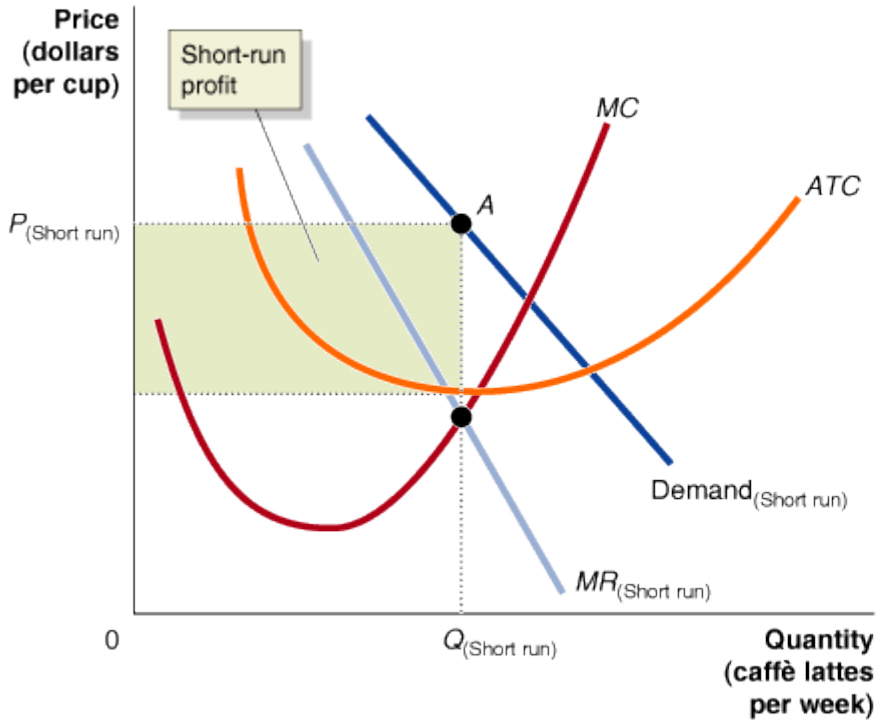
We will assume profit > 0 as a result of product differentiation. If not, maybe they should have been satisfied with perfect competition!



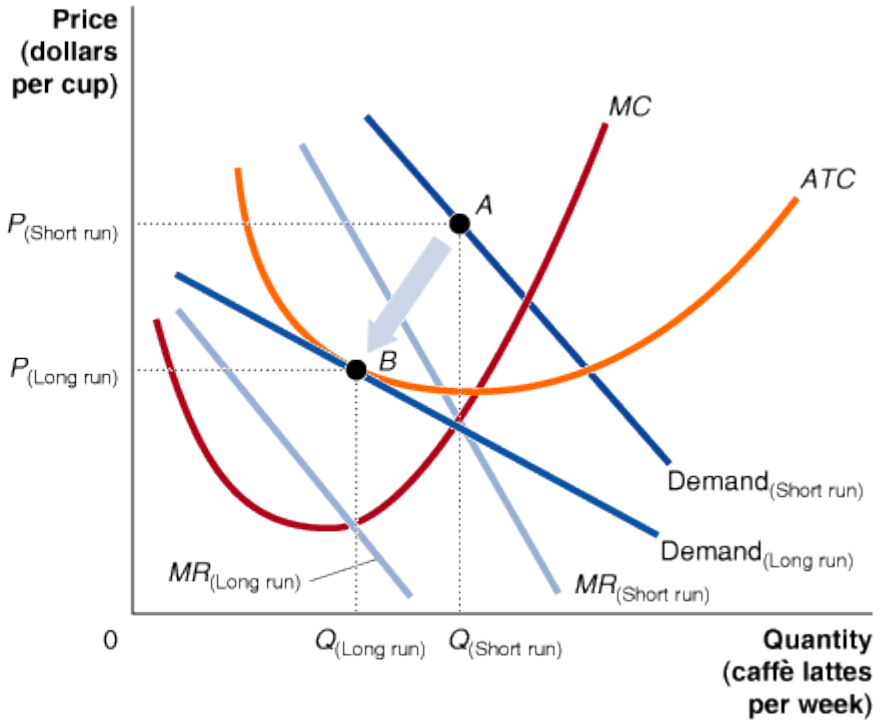
(b) Short-run profits for a monopolistic competitor

Product Differentiation in the long run

How the Entry of New Firms Affects Profits of Existing Firms



(a) A monopolistic competitor may earn a short-run profit



(b) A monopolistic competitor's profits are eliminated in the long run

When Sbx makes a profit selling lattes, new firms enter.

→ Substitutes for Sbx lattes increase

→ Demand falls and becomes more elastic

→ In the long run, no profit can be made, so *P* = *ATC* (not minATC!)

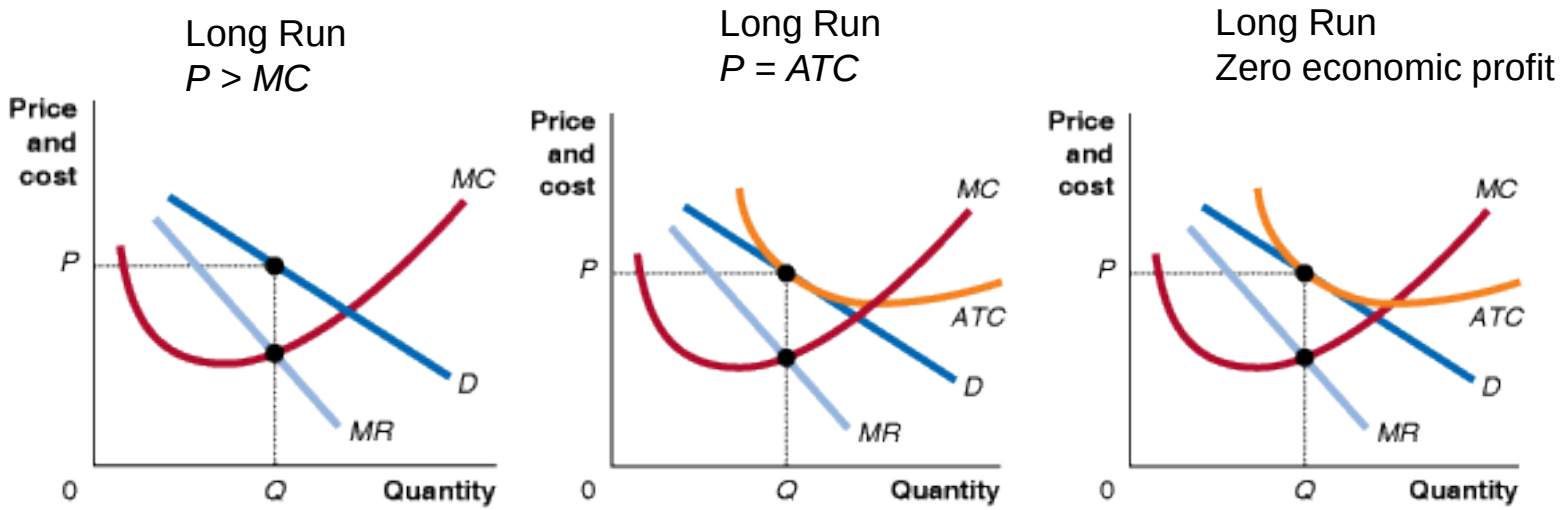
Monopolistic Competition: Short Run, Firm Making Loss

Now the firm is making a loss.

Notice that there is now no quantity for which demand (price) is above *ATC*; this firm must make a (short-run, economic) loss

(In the long run, some firms exit, price rises to P=ATC)

Monopolistic Competition: Long Run, Firm Breaking Even



In the long run, the firm must break even.

The *ATC* curve is just tangent to the demand curve. The best the firm can do is to produce that quantity.

Zero Profit in the Long Run?

Firms need not passively accept this long-run outcome. They could:

- Innovate so that their costs are lower than other firms, or
- Convince their customers that their product/experience is *better* than that of other firms, either by actually making it better in some unique way, or making customers perceive that it is better, perhaps through advertising and **brand management**.

Brand management: The actions of a firm intended to maintain the differentiation of a product over time.

Keeping the demand curve downward sloping!

Keeping the demand curve downward sloping!

Kentucky Fried Chicken → KFC Fresh (Chipotle knockoff)
WHY???

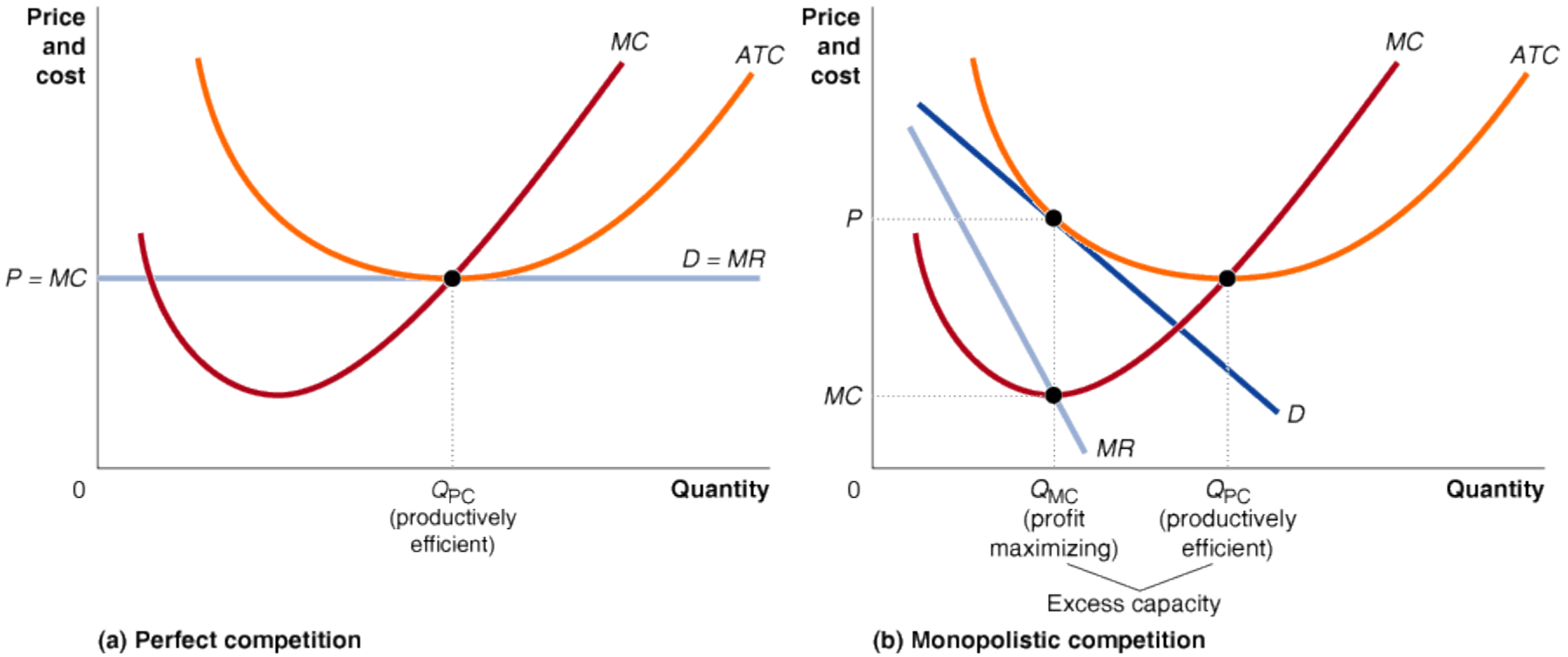
Is Monopolistic Competition Efficient?

Last chapter we learned that perfectly competitive firms achieved *productive* and *allocative efficiency*.

- **Productive efficiency** refers to producing items at the lowest possible cost.
- **Allocative efficiency** refers to producing all goods up to the point where the marginal benefit to consumers is just equal to the marginal cost to firms.

Monopolistic competition results in neither productive nor allocative efficiency.

Inefficiency of Monopolistically Competitive Firms

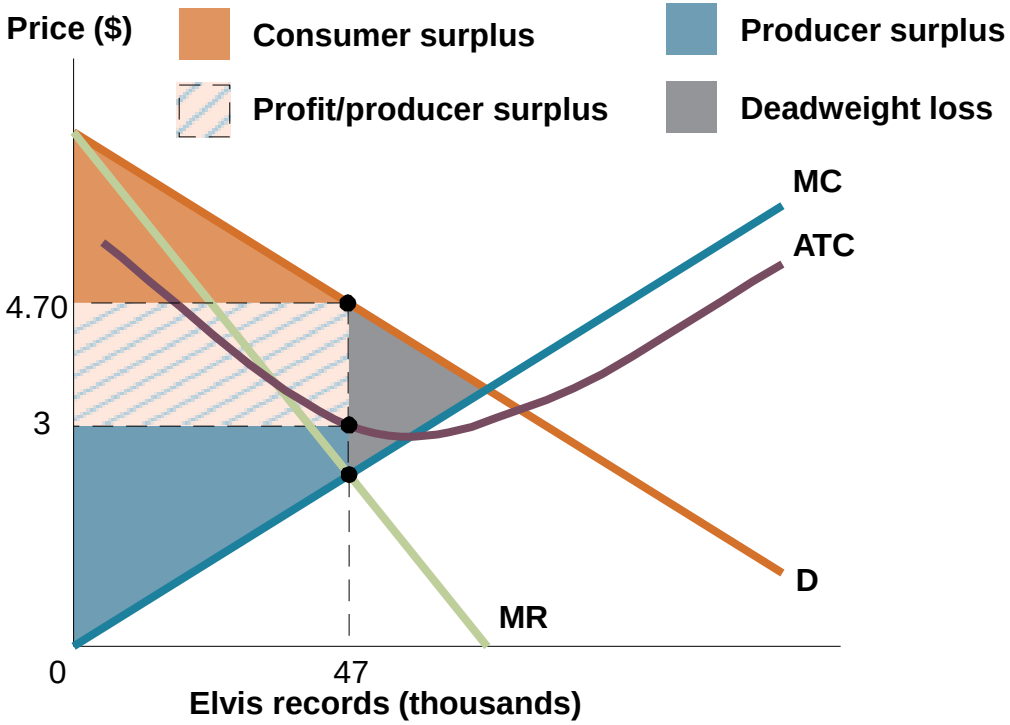


Monopolistically competitive firms in panel (b) produce the quantity where *MC=MR≠MB*: not allocatively efficient.

And average cost is above its minimum point: not productively efficient.

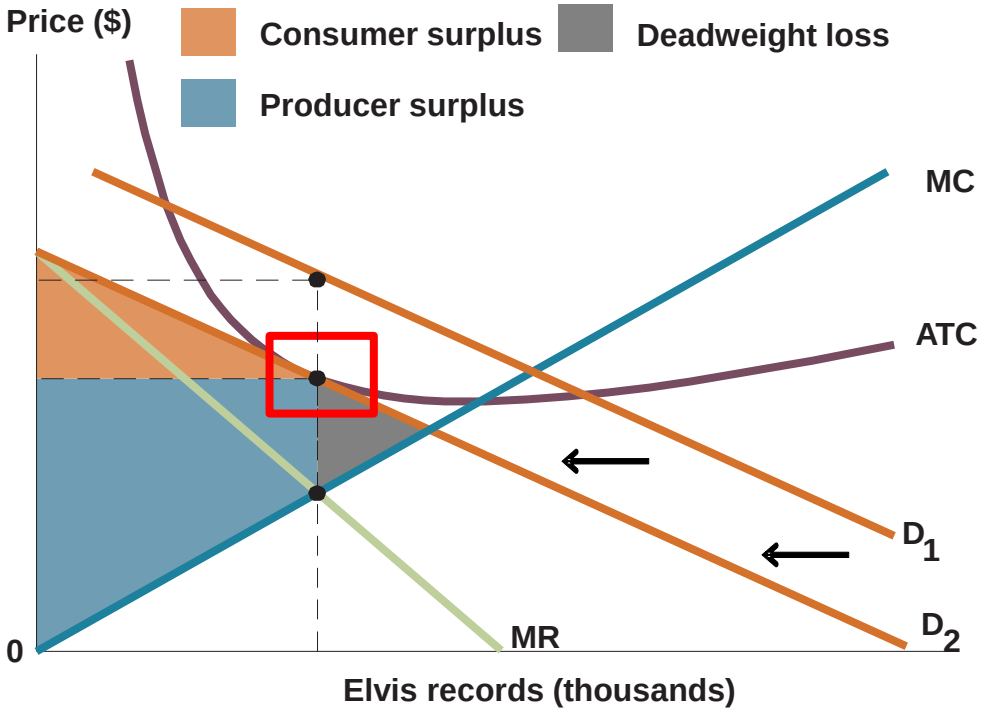
Monopolistic Competition and Welfare

Monopolistically competitive firms maximize profits in the short-run by setting P>MC → Deadweight loss!



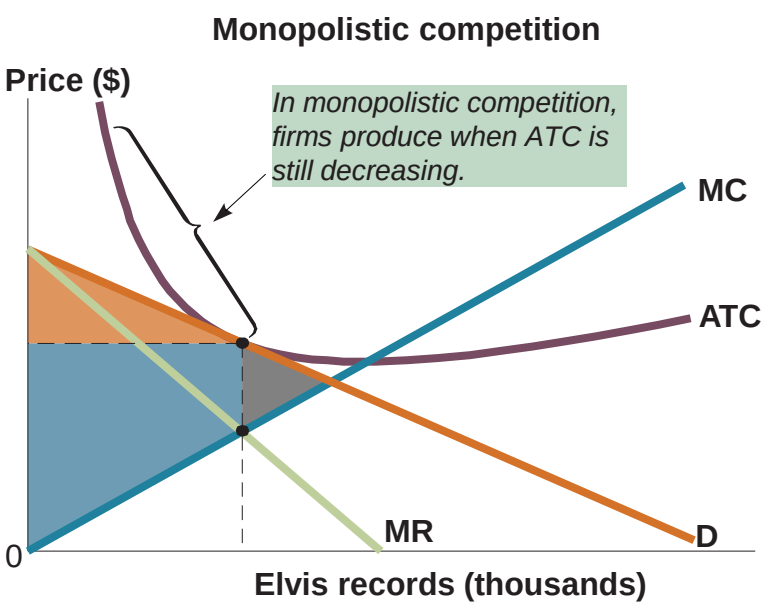
Welfare in the Long Run

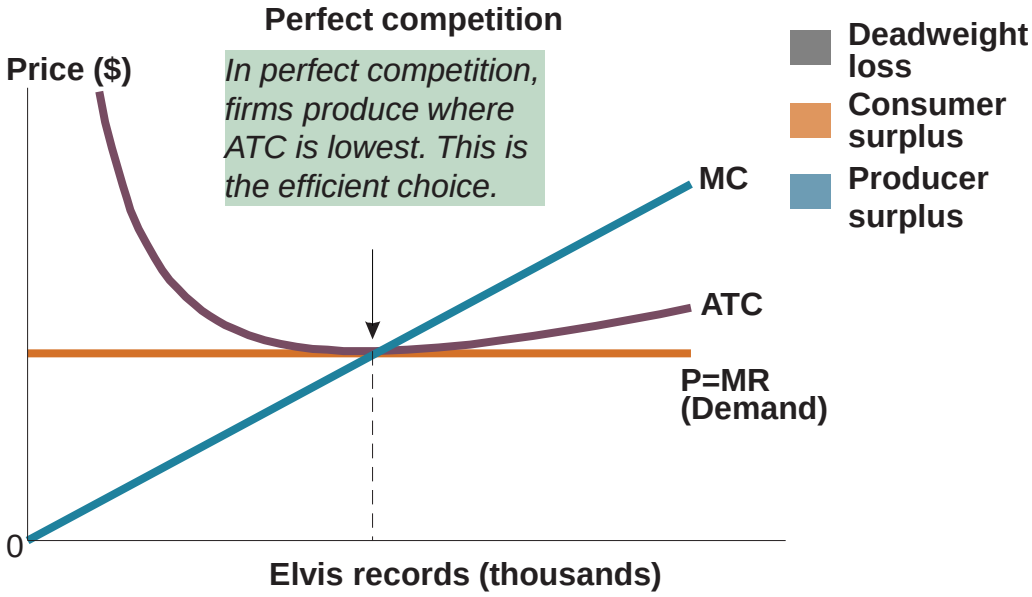
In the long-run, entry can drive monopolistically competitive firms to zero profit, and yet these markets will still produce deadweight loss.



Welfare in the Long Run

Similar to monopolists, monopolistically competitive firms operate at smaller-than-efficient scale. Firms could decrease costs by producing more. →This would decrease profits.





- Sets price at P = ATC > MC.
- Produce at smaller-than efficient scale.

- Sets price at P = min(ATC) = MC.
- Efficient scale.

Comparing Market Characteristics

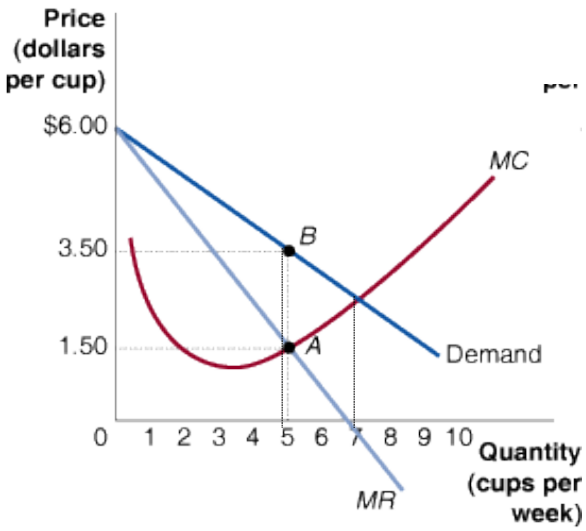
Characteristic	Perfect Competition	Monopoly	Monopolistic Competition
How many firms?	Many firms	One firm	Many firms
Price taker or price maker?	Price taker	Price maker	Price maker
Marginal revenue?	MR = P	MR < P	MR < P
Profit-maximizing quantity occurs where?	MR = MC	MR = MC	MR = MC
Can earn economic profits in the short run?	Yes	Yes	Yes
Can earn economic profits in the long run?	No	Yes	No
Quantity is efficient?	Yes	No	No

Is Monopolistic Competition Bad for Consumers?

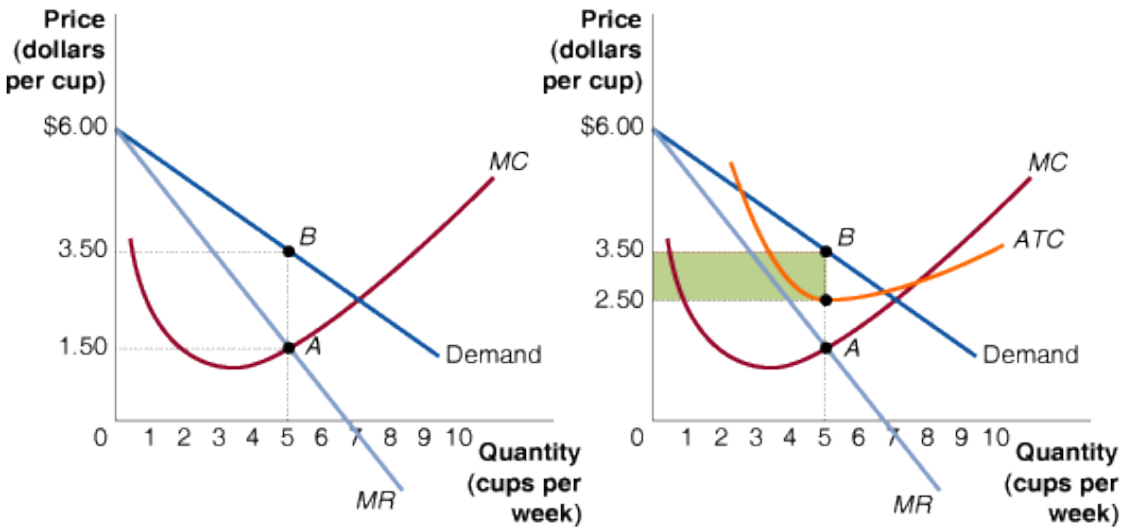
The lack of efficiency suggests that monopolistic competition is a bad situation for consumers.

But consumers might benefit from the product differentiation.

Many consumers are willing to accept a higher price for a differentiated product. So monopolistic competition is not necessarily bad for consumers.



Refer to the graph for a firm in a monopolistically competitive market above. What level of output (approximately) maximizes profit?



Profit is maximized at q=5 (where MR=MC)

What is the price?

If firms in a monopolistically competitive industry are making profits, more firms will enter the industry in the long-run, causing the demand curves faced by individual firms to shift to the _____ and become ____elastic.

a. left; more
b. left; less
c. right; more
d. right; less

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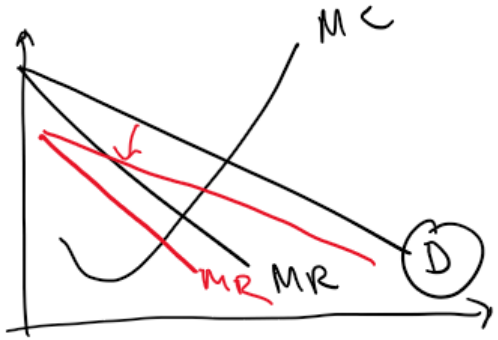
a. left; more


MC
D
MR
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