LECTURE 9: MONOPOLY

Today's Topics: Market Power

1. **Why Monopolies?** resources, governments, economies of scale $\rightarrow$ *natural* monopolies.
2. **Monopoly Output and Price**: monopoly v. competition, revenue, $MR = MC$, monopoly's mark-up and profit.
3. **Price Discrimination**: capturing Consumer Surplus, examples.
4. **Inefficient Too**: Deadweight Loss, profiteering?
5. **Competition Policy**: regulation, privatisation.

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3. **The high *FC* (and ∴ falling *ATC*) make a single producer more efficient than a large number of producers.**

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For historical reasons, different uses in Melbourne (residential) and Sydney (industrial). Different price elasticities? in the SR and the LR?

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Examples?

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Cable TV: high *FC*, the cable. Other reticulation networks, as service (more households) grows, the *FC* are shared by many more users, so there are *economies of scale*, falling *AC* (or IRTS).

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Examples?

Less concerned about new entrants. Why?

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Chooses y^* so that $MR(y^*) = MC(y^*)$. But where is this?

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Quantity of output y	Price $ P	TR $ $=P \bullet y$	AR $/unit $=\frac{TR}{y}$	MR $/unit $=\frac{\Delta TR}{\Delta y}$
0	11	0	-	

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1	10	10	10	8
2	9	18	9	

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				6
3	8	24	8	

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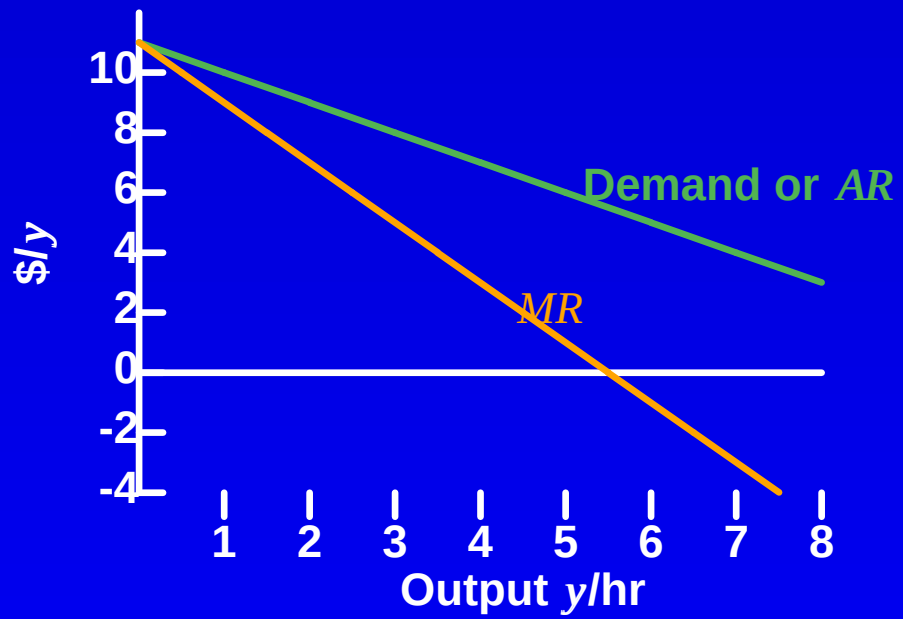
				6
3	8	24	8	
				4
4	7	28	7	
				2
5	6	30	6	
				0
6	5	30	5	
				–2
7	4	28	4	
				–4
8	3	24	3	

This assumes a single price for all units sold. (Later, we allow price discrimination and market segmentation.)

MONOPOLIST'S MARGINAL REVENUE



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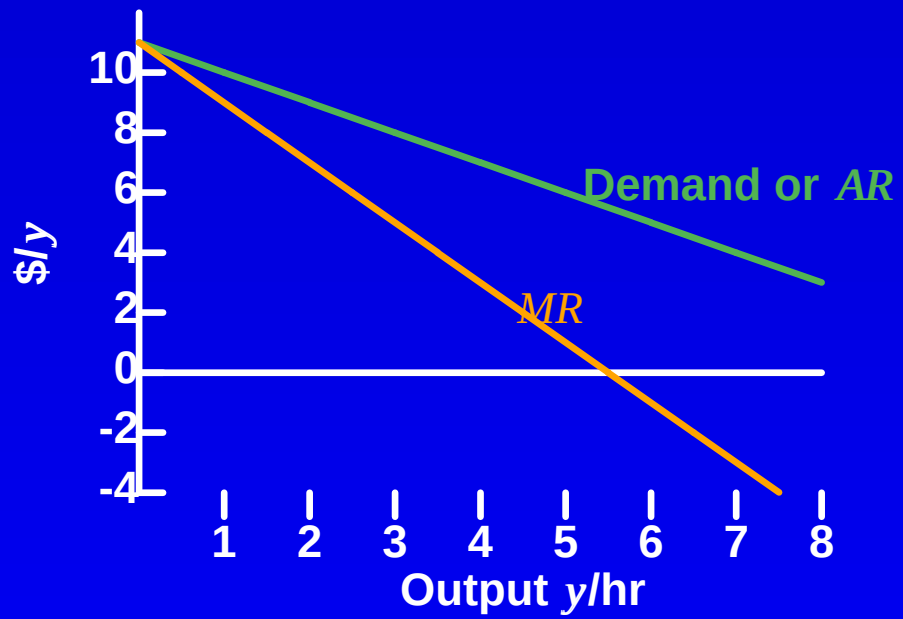

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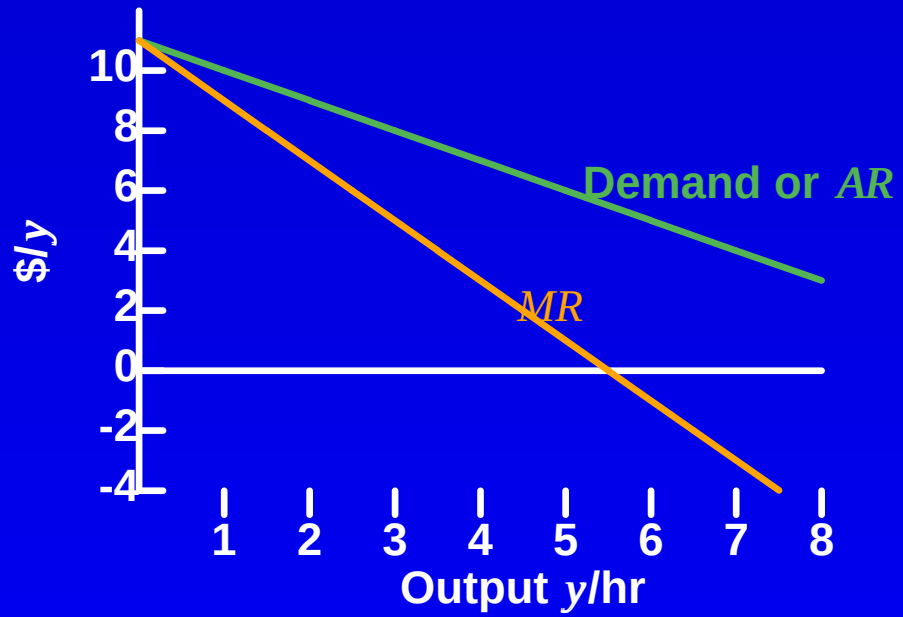

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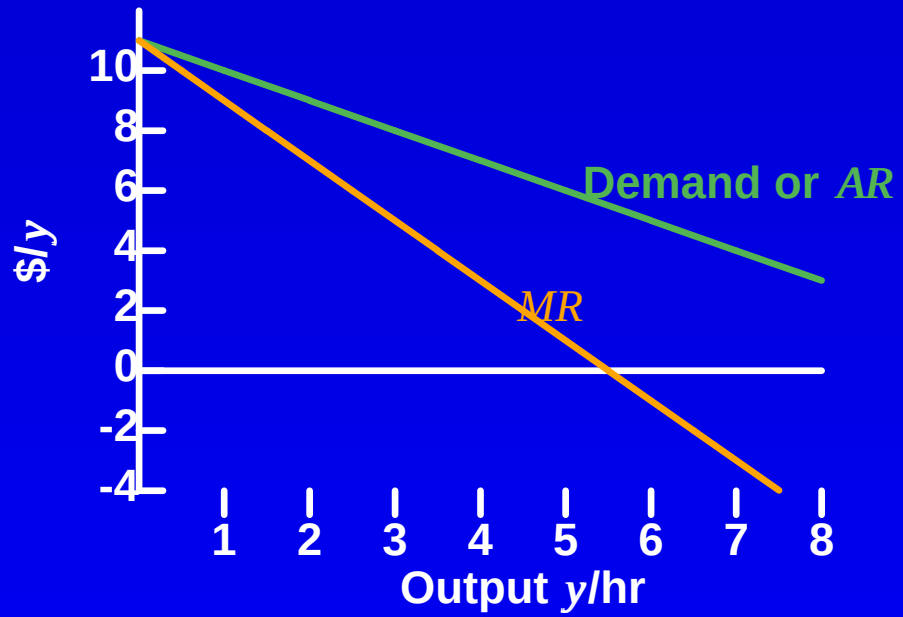

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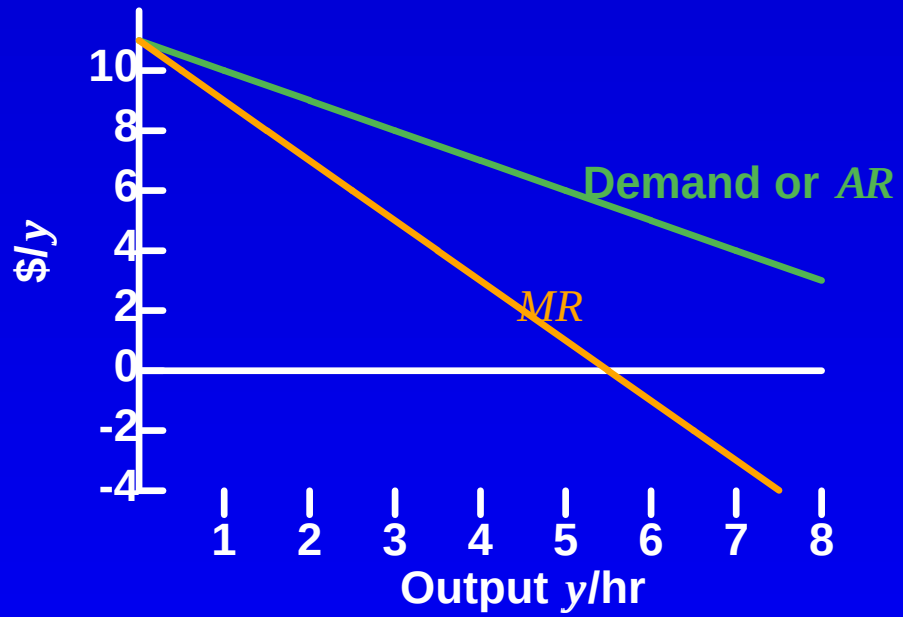

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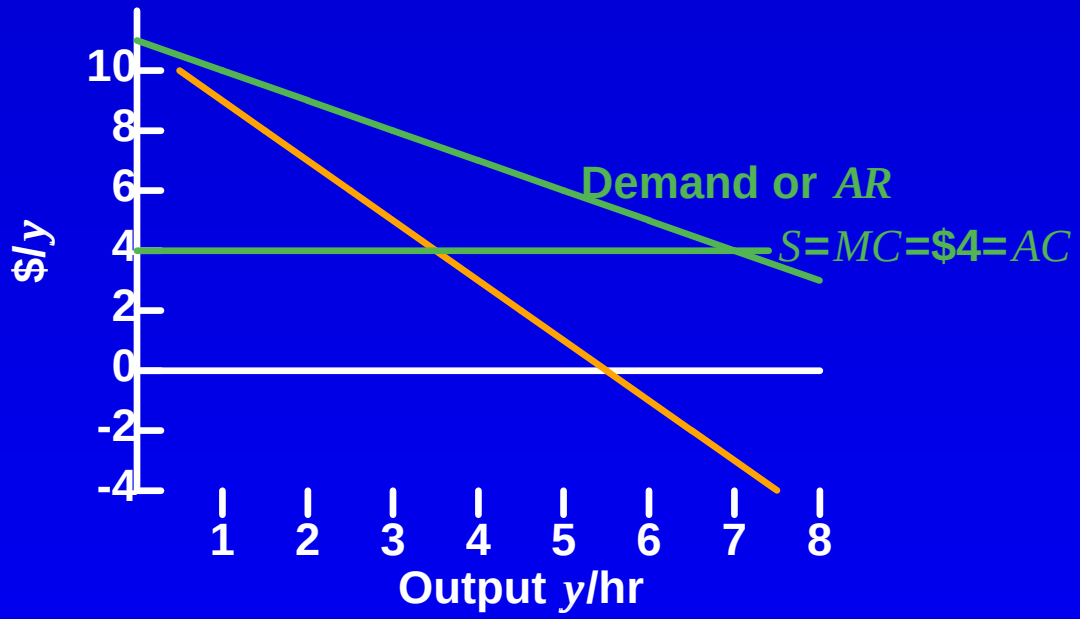
If Bill's *MC* is zero, where should he operate as a monopoly? 5.5 units. His price? $5/unit → $27.50 profit.

PROFIT MAXIMISATION



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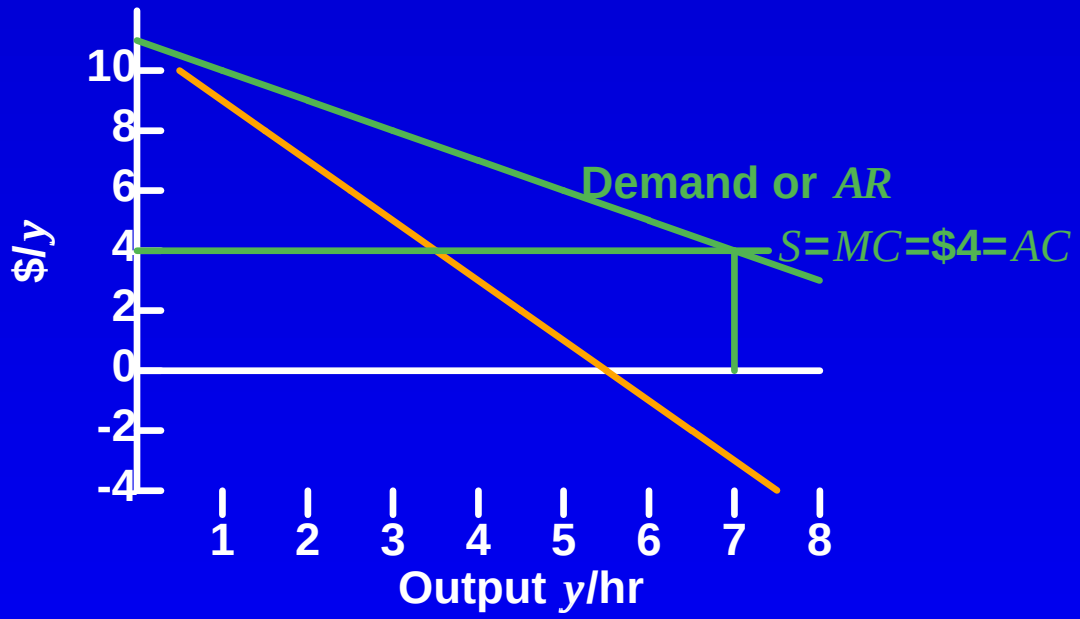

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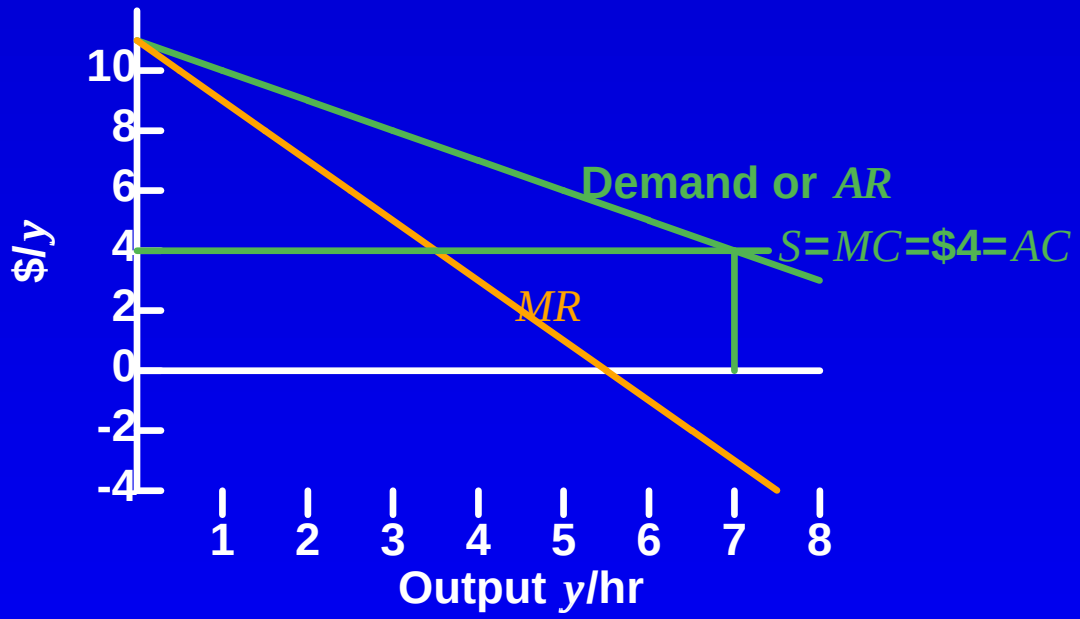

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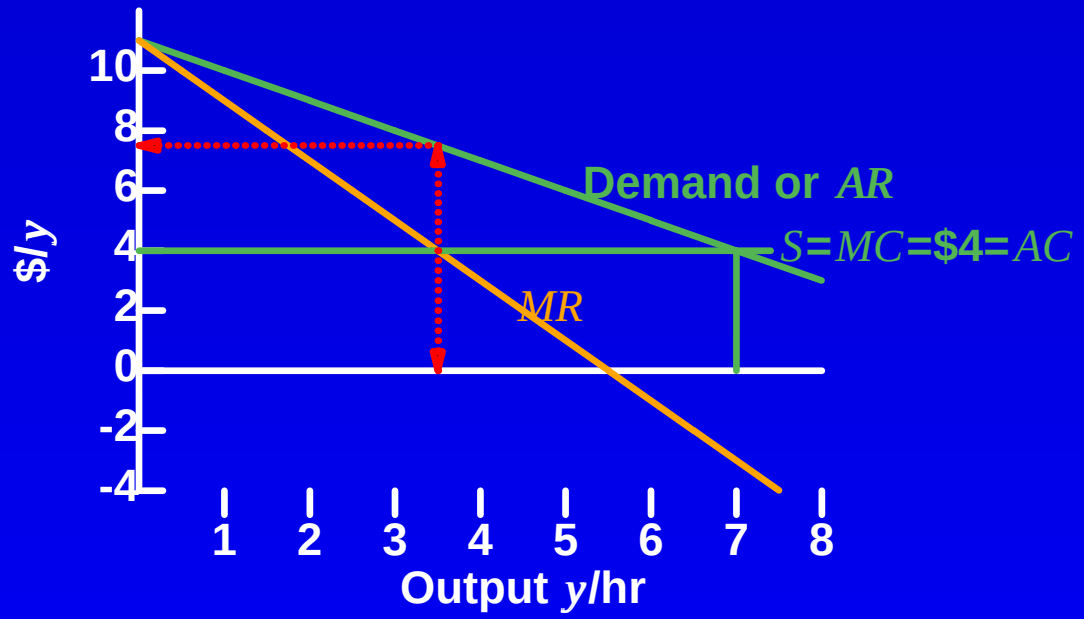

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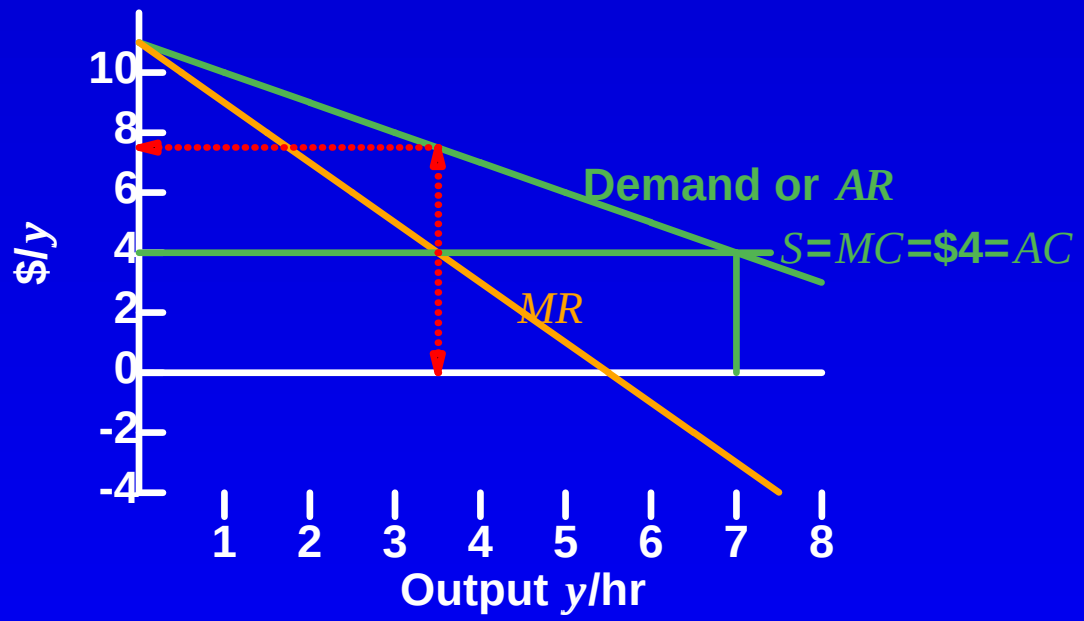

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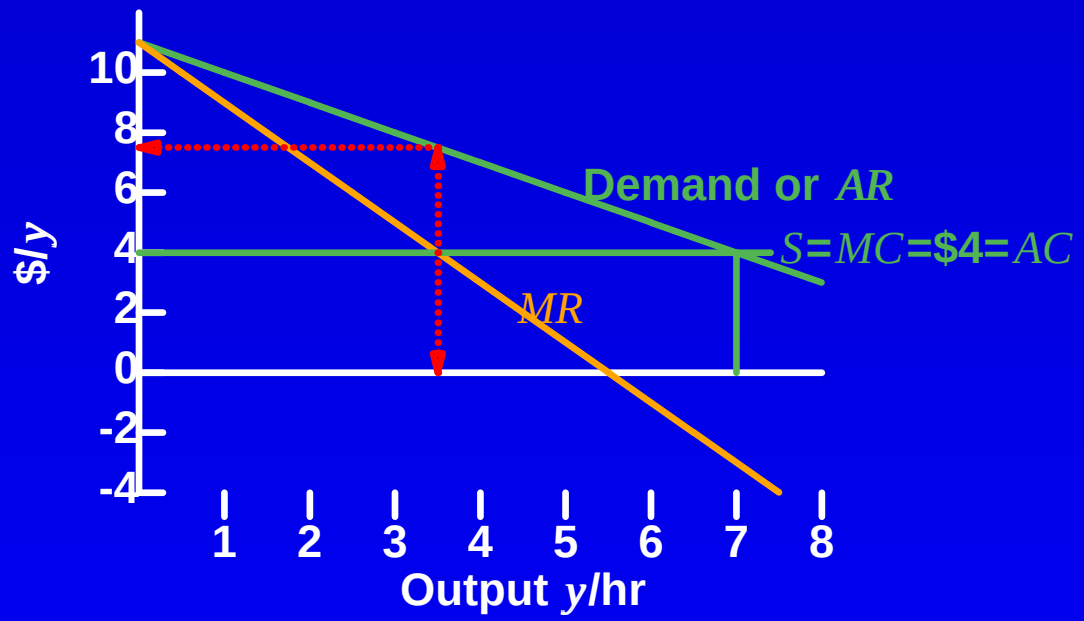

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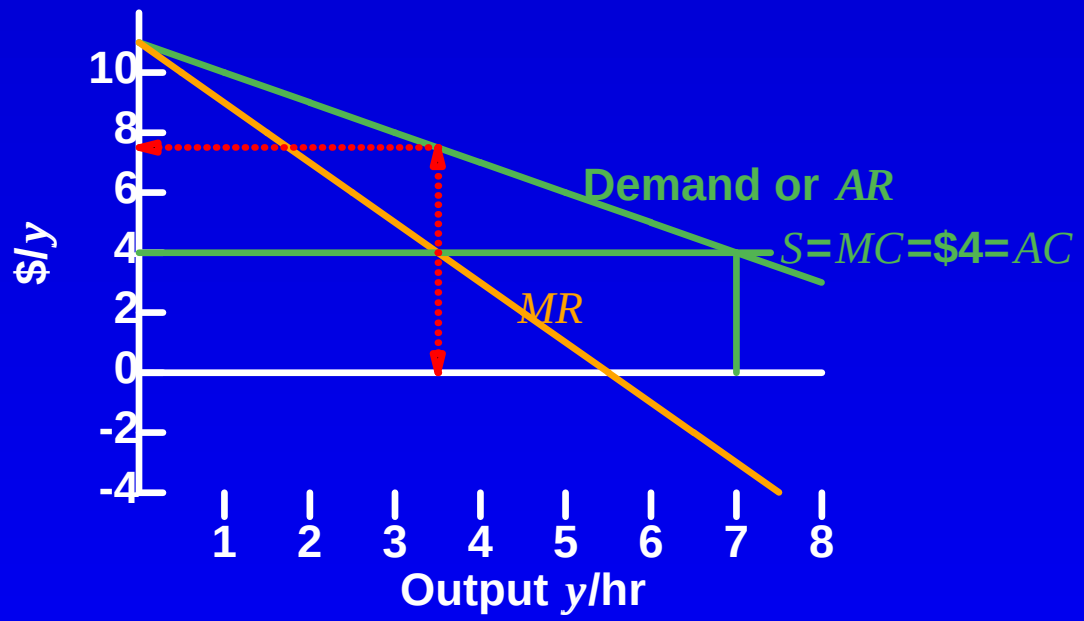

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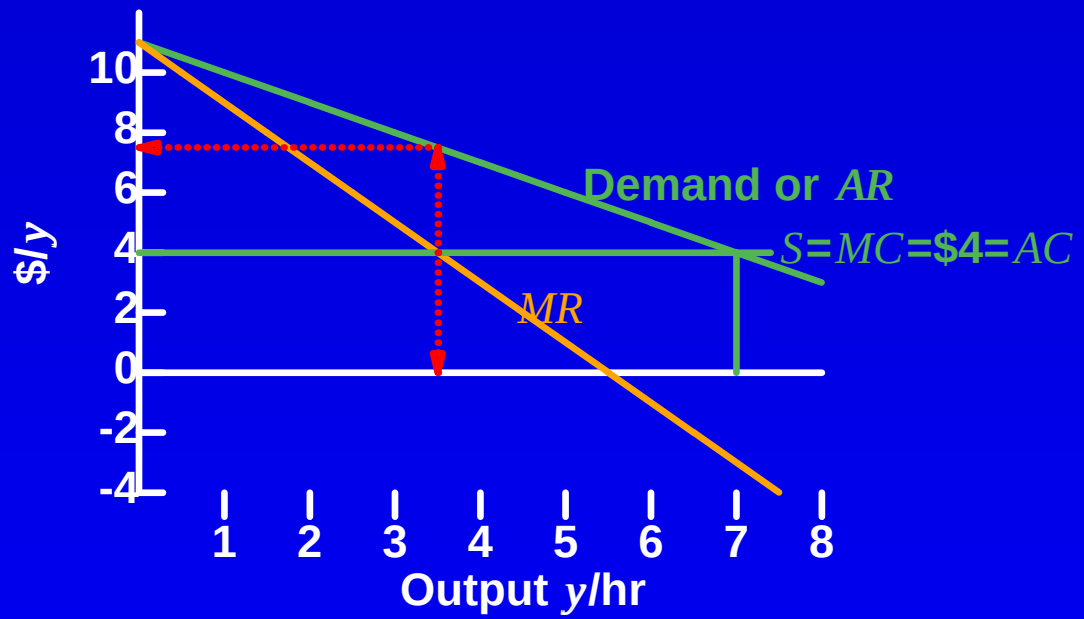

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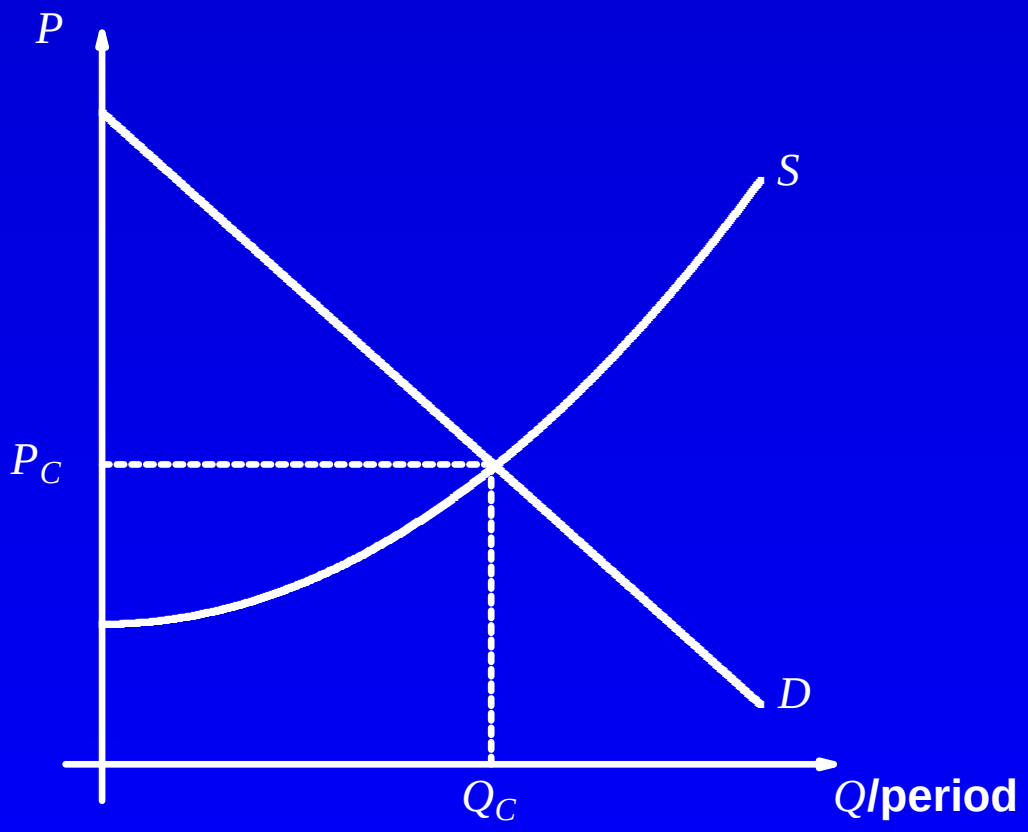

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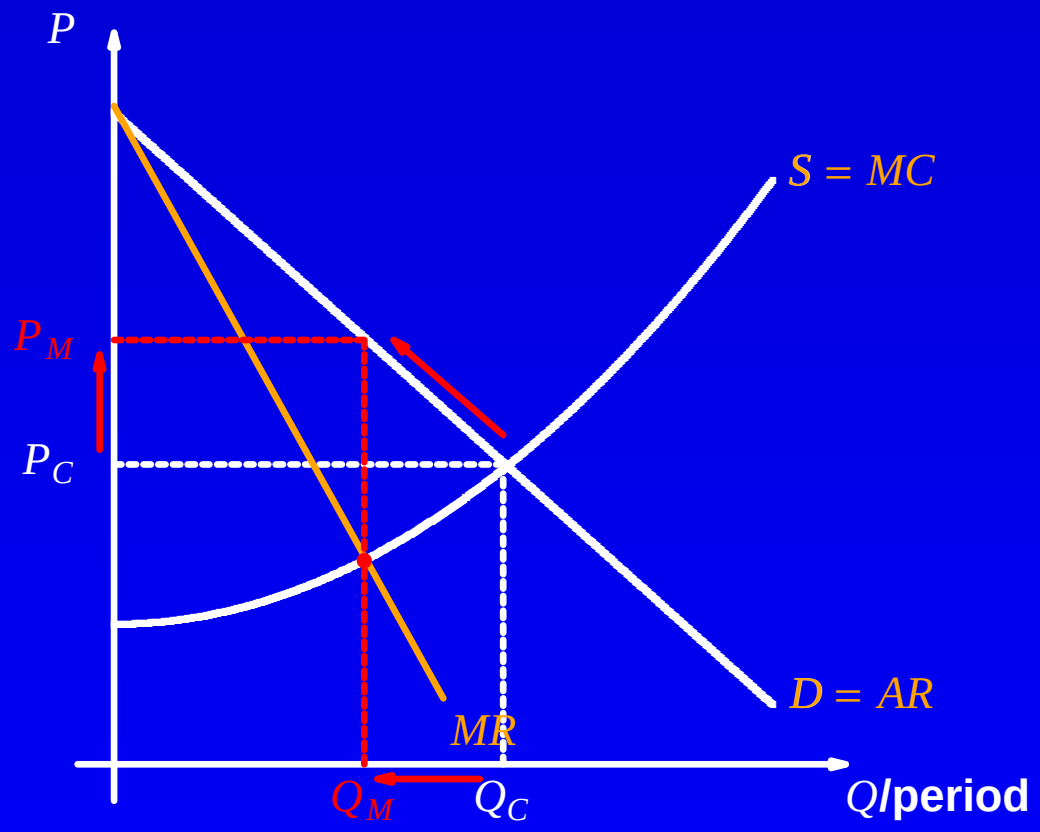
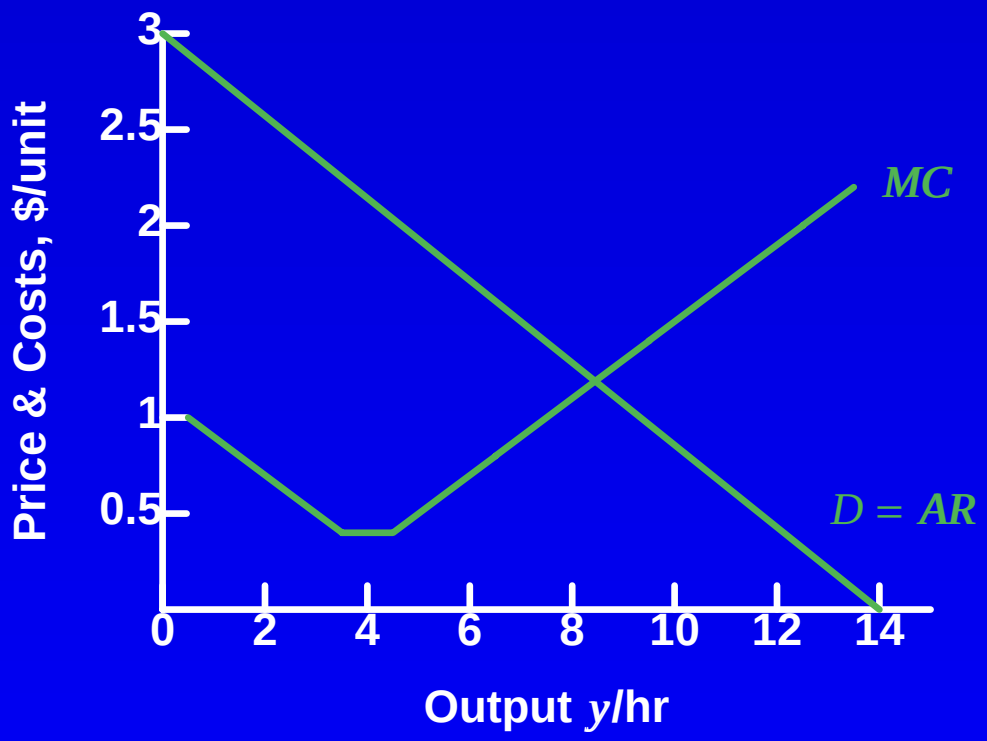


So lower output ($Q_M < Q_C$), and higher price ($P_M > P_C$).

BOB'S BAGELS, AGAIN



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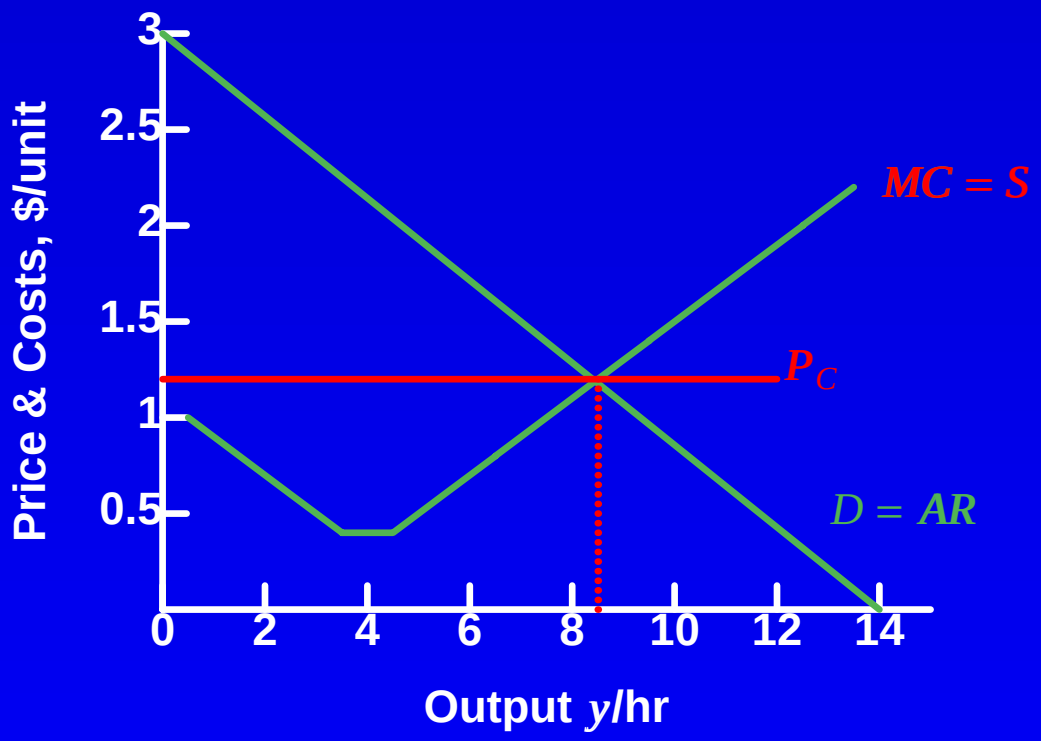

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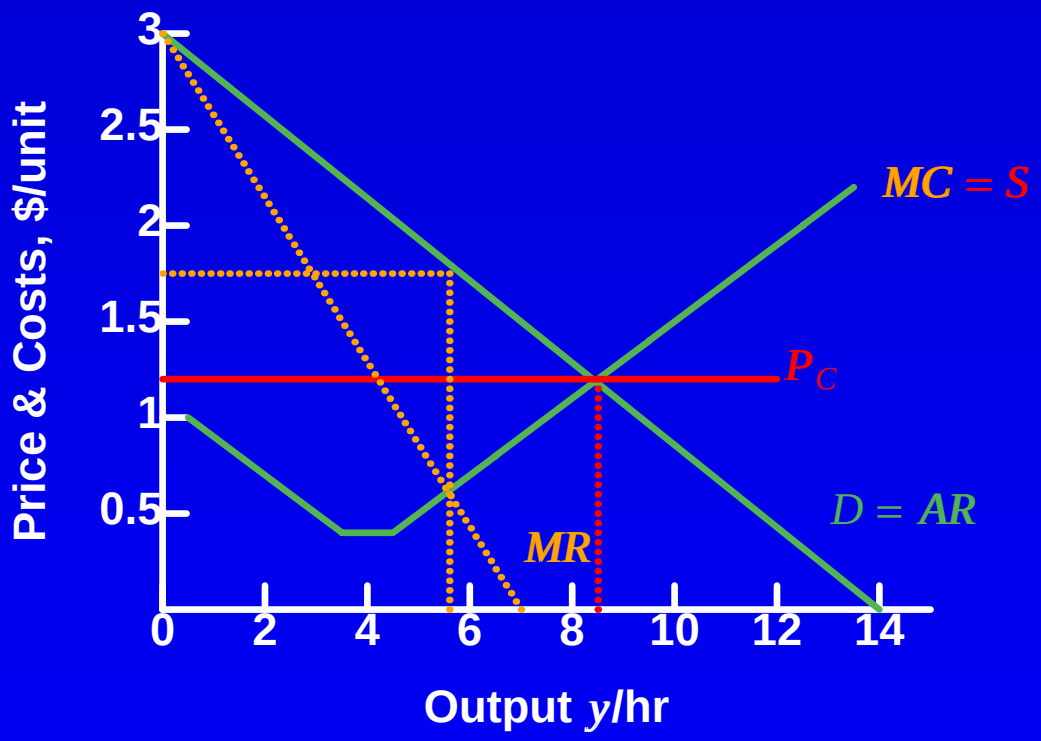

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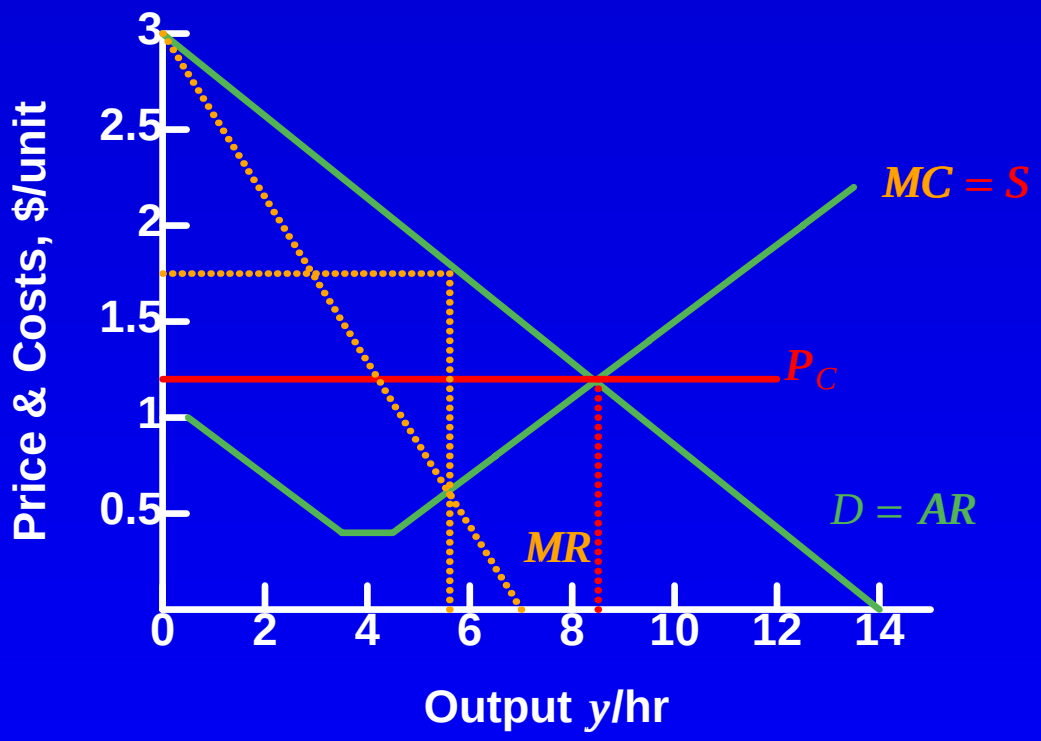

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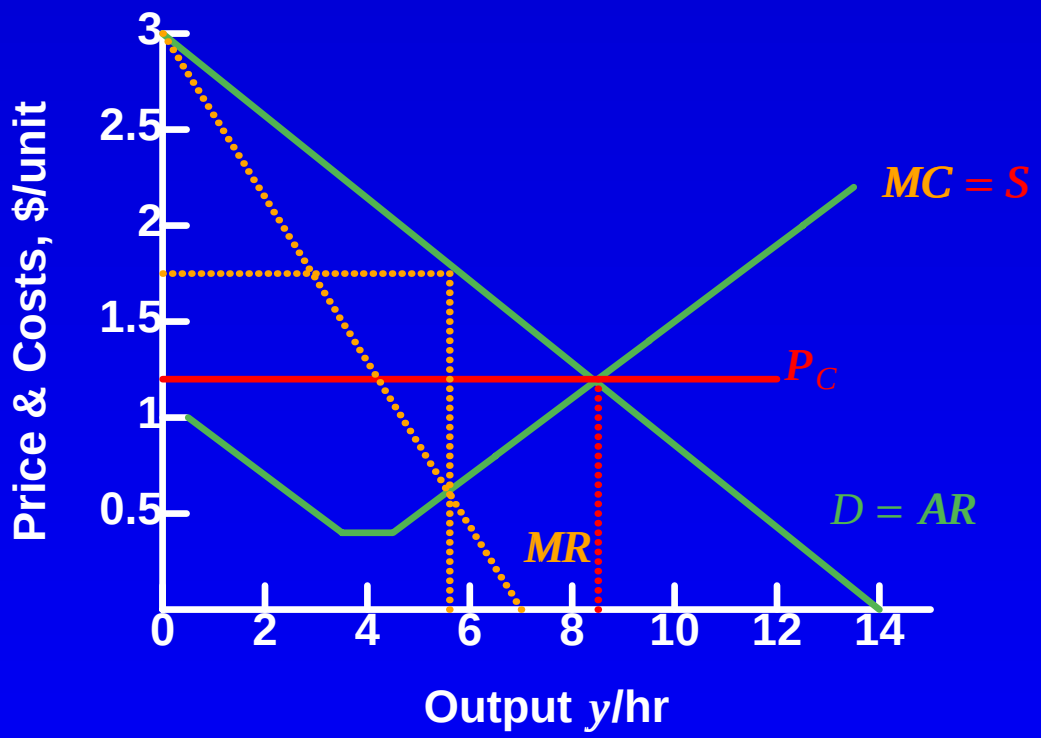

Acting as a price-taker, Bob would choose 8.5 units at the market-clearing price of $1.20. As a monopolist, 5.6 units at the monopolist's price of $1.75.

A MONOPOLY'S PROFIT

In the Appendix we derive the monopolist's π-maximising mark-up:

$$MC(y^*) = MR(y^*) = P\left(1 - \frac{1}{|\eta|}\right), |\eta| > 0$$

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The monopolist only chooses to sell when demand is elastic ($|\eta| > 1$). (That is, price on the upper half of the linear demand curve.)

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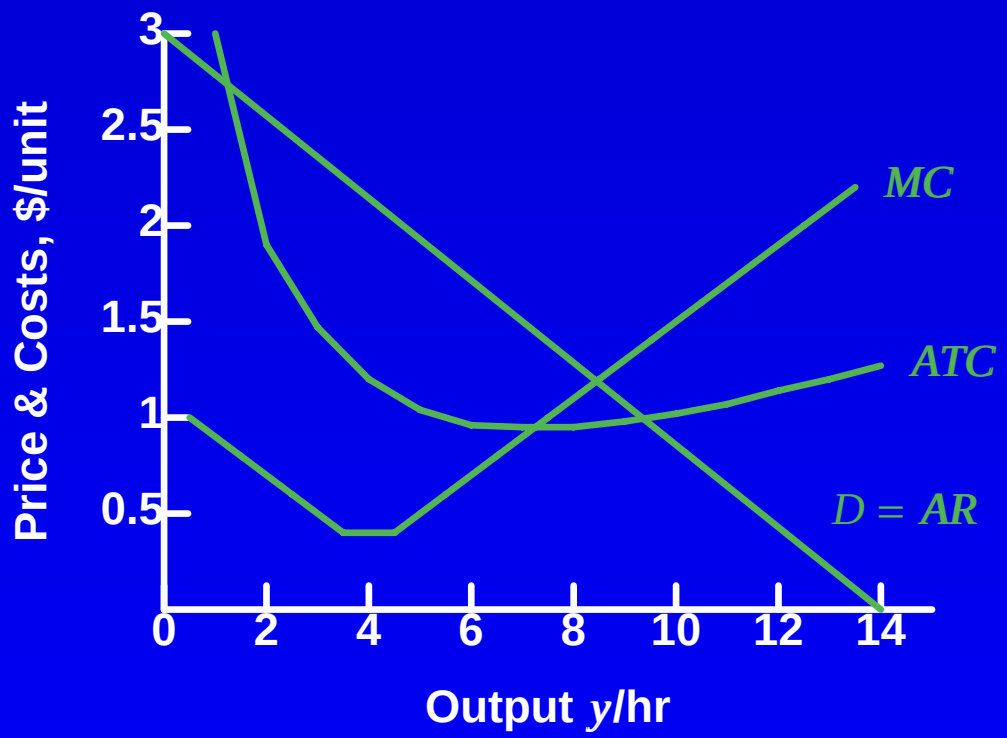

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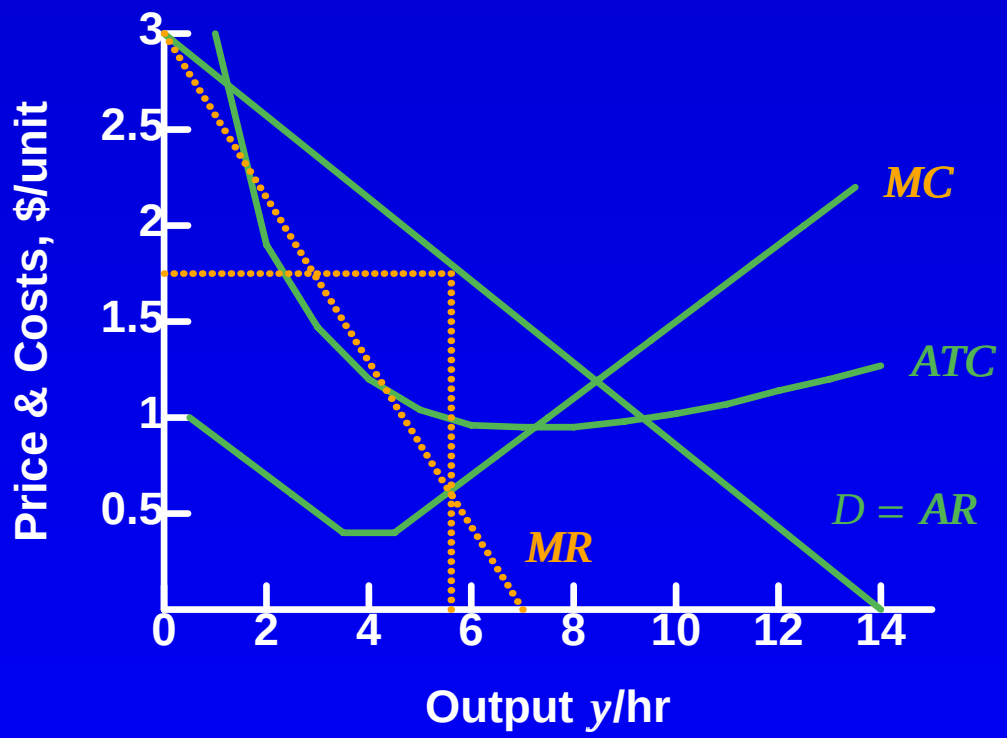

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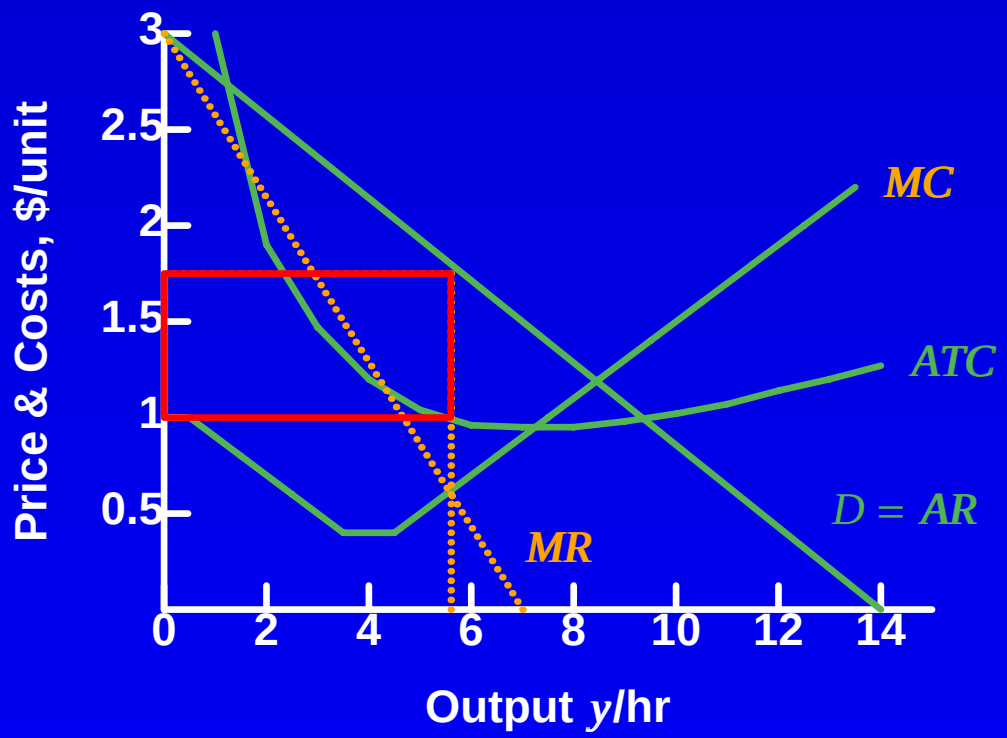

Bob's monopoly profit is shown by the red rectangle. His average profit = $1.75 − $1 = $0.75/unit, and he sells 5.6 units. ∴ his profit is $4.20 with this demand (up from 8.5•0.20=$1.70).

PRICE DISCRIMINATION

When a seller charges *different prices for essentially the same product*. If $\frac{P_2}{P_1} \neq \frac{MC_2}{MC_1}$.

The monopolist wants to *segment the market* according to the price elasticity of demand η and charge higher prices for those consumers with lower elasticities of demand, according to the mark-up formula.

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Other examples?

TWO-PART TARIFFS

Another way of extracting consumer surplus:

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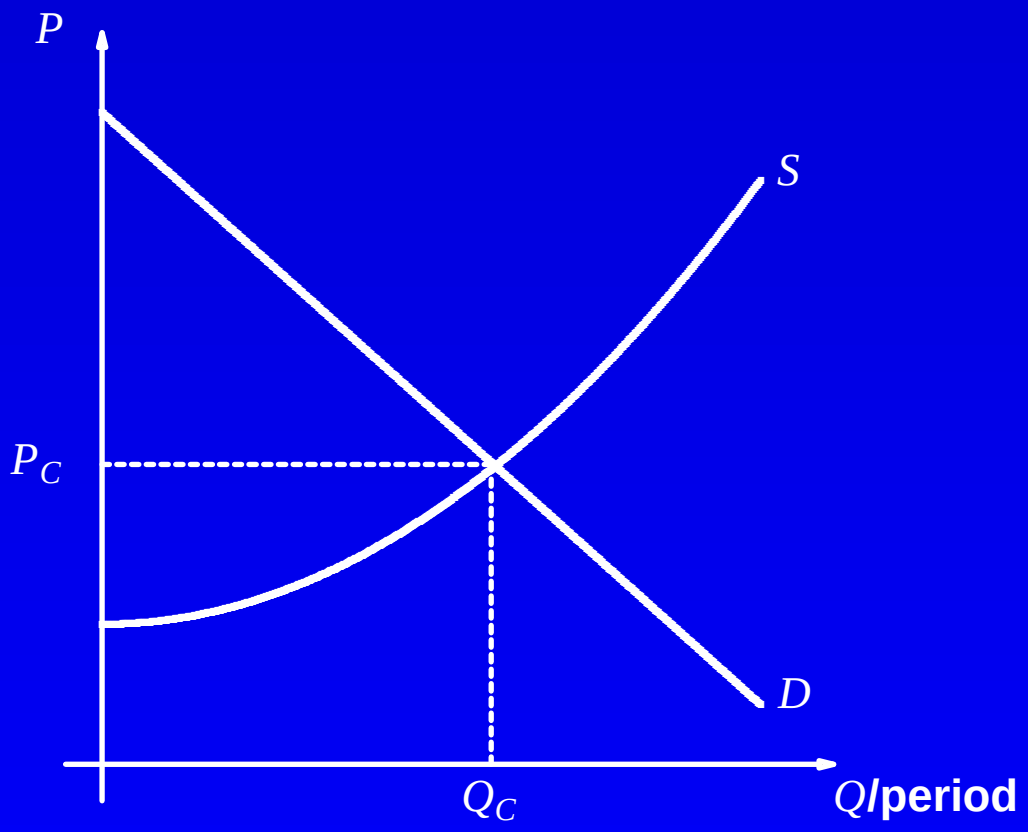
Examples? Ink-jet printers. Mobile phone contracts.

THE DWL OF MONOPOLIES



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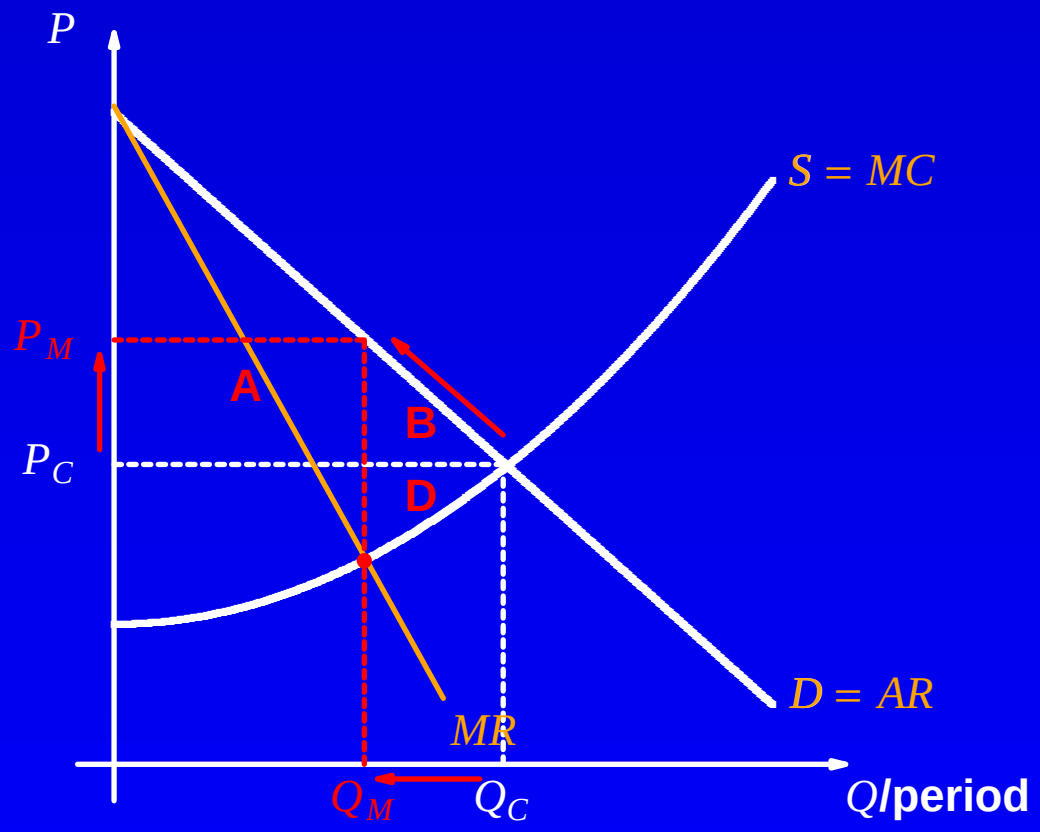

Fall in Consumers Surplus = areas A + B.
Rise in Producers Surplus = areas A − D.
(Profit π = Producers Surplus − Fixed Costs.)

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To what extent do the dynamic incentives of patents and copyrights mitigate these?

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Colluding: **forming cartels to support price or restrict output.**

THE MORAL

You're gouging on your prices if
You charge more than the rest.
But it's unfair competition if
You think you can charge less.
A second point that we would make
To help avoid confusion:
Don't try to charge the same amount—
Since that would be collusion!
You must compete. But not too much,
For if you did, you see,
The total market would be yours,
And that's monopolee!

— R. W. Grant, *Tom Smith and his Incredible Bread Machine*, Competitive Enterprise Institute, 1964.

SUMMARY

1. Reasons for monopolies (governments, economics).
2. How monopolies squeeze the market to push up price. The less elastic the demand, the higher the price.
3. Ways in which monopolies segment the market and price discriminate.
4. The costs (efficiency and equity) of monopolies.
5. How governments respond.

APPENDIX: MARK-UPS

(Not for exam.)

Profit $\pi = P \bullet y - TC(y)$

Differentiating totally:

$\therefore \frac{d\pi}{dy} = P + \frac{dP}{dy} y - MC(y)$ **(the monopolist can vary price *and* quantity, along the demand curve)**

$= 0$ **when** $P(1 - \frac{1}{|\eta|}) = MC(y^*)$, **(i.e.** $MR = MC$**),**

(the necessary condition for y^* **to maximise profit** π**), where** $|\eta|$ **is the price elasticity of demand (+ve).**

So $P > MC(y^*) = MR(y^*)$ **when** $|\eta| > 1$ **(or elastic demand).**

When demand is perfectly elastic ($|\eta| = \infty$**),** $P = MR = MC$**, the competitive solution (horizontal demand).**

The *monopoly mark-up* = $\frac{P}{MC} - 1 = \frac{1}{|\eta| - 1}$ **is positive.**

The monopolist will only operate where demand is elastic, or $|\eta| > 1$**.**