

Firms Behaving Badly

A Real-Life Telephone Conversation

R.C.: *I think it's dumb as hell, for Christ's sake, all right, to sit here and pound the shit out of each other and neither one of us making a fucking dime.*

H.P.: *Well . . .*

R.C.: *I mean, you know, goddamn! What the fuck is the point of it?*

H.P.: *Nobody asked American to serve Harlingen. Nobody asked American to serve Kansas City, and there were low fares in there, you know, before. So ...*

R.C.: *You better believe it, Howard. But, you, you, you know, the complex is here—ain't gonna change a goddamn thing, all right. We can, we can both live here and there ain't no room for Delta. But there's, ah, no reason that I can see, all right, to put both companies out of business.*

H.P.: *But if you're going to overlay every route of American's on top of every route that Braniff has, I can't just sit here and allow you to bury us without giving you our best effort.*

R.C.: *Oh, sure. But Eastern and Delta do the same thing in Atlanta and have for years.*

H.P.: *Do you have a suggestion for me?*

R.C.: *Yes, I have a suggestion for you. Raise your goddamn fares 20 percent. I'll raise mine the next morning.*

H.P.: *Robert, we ...*

R.C.: *You'll make money, and I will too.*

H.P.: *We can't talk about pricing.*

R.C.: *Oh, bullshit, Howard. We can talk about any goddamn thing we want to talk about.*

Instead of raising Braniff's fares, Putnam sent a tape of this conversation to the government.

In 1982 Robert Crandall (MBA, Wharton, '60) was the CEO of American Airlines, Howard Putnam the chairman of Braniff International Airways. (U.S. Court of Appeals, 53 USLW 2209)

Today's Topics: Competition Policy

Governments regulate firms, especially monopolies and oligopolies, to improve social outcomes, especially efficiency.

Competition laws are used: to prevent anti-competitive mergers, to prevent cartel formation, to prevent certain tactics to undermine competitors, such as forcing them to exit.

The ACCC, the Australian Competition & Consumer Commission, oversees the Trade Practices Act.

In the U.S., the FTC, the Federal Trade Commission, performs a similar rôle.

In the EU, the European Commission DG Competition is the equivalent regulator.

(See *Oceans Apart*, from *The Economist*.)

Competition Policy

Governments (here, the ACCC) may intervene by:

- 1. prohibiting agreements or practices that restrict competition between firms, such as cartels (cardboard boxes, vitamins, bulk chemicals. etc)**
- 2. banning domineering behaviour by a dominant firm, or anti-competitive practices that tend to result in dominance: predatory pricing, tying, price gouging, refusal to deal (sell), etc.**
- 3. vetting mergers and acquisitions: either banning outright, or approving subject to “remedies,” such as divesting part of the merged entity, or offering licences, or access to facilities.**

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4. **“declaring” some facilities as essential, which allows other parties access to them, under certain conditions (telephone lines, cable networks, railways) (see below).**
 5. **or doing nothing. Market dynamics and the lure of fat profits will be enough. e.g. Polaroid? (IBM, AT&T, Microsoft)**

Always with Us

Firms are always trying to obtain market power (downwards-sloping demand curves).

***Vertical integration:* “SunRice – from the paddock to the plate”: 3000 rice growers seek market power.**

***Advertising:* create a brand image, which results in (some) market power. (See Lecture 21.)**

***M & A:* buying up competitors.**

***Buying suppliers:* to squeeze one’s competitors.**

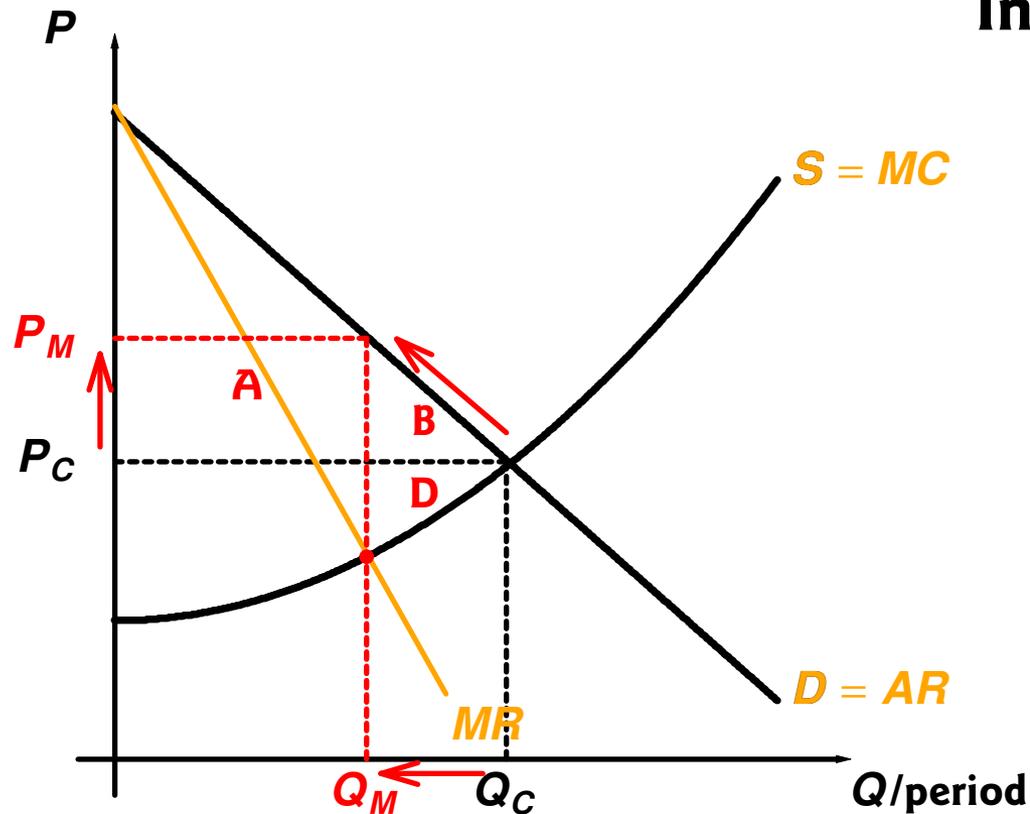
***Colluding:* forming cartels to support price or restrict output.**

In this lecture, we discuss:

- 1. Monopolies (pp. 347–353)**
- 2. Merger Analysis (pp. 352–3)**
- 3. Measuring Market Structure**
- 4. Linking Market Structure & Competition.**
- 5. Entry-Deterring Strategies**
- 6. Limit Pricing**
- 7. Predatory Pricing (pp. 358–61)**
- 8. Excess Capacity**
- 9. Exit-Promoting Strategies**
- 10. Resale Price Maintenance (p. 358)**
- 11. Tying (pp. 359–60)**
- 12. “Declaration” of an Essential Asset**

I. The Dead Weight Loss DWL of Monopolies

Inefficiencies.



Fall in Consumers Surplus = areas $\bar{A} + \bar{B}$.

Rise in Producers Surplus = areas $\bar{A} - \bar{D}$.

(Profit π = Producers Surplus - Fixed Costs.)

Monopolist's Profits: A Social Cost?

There are \therefore two reasons to dislike monopolies:

- 1. the waste or DWL (areas B+D) associated with a monopoly (efficiency)**
- 2. the extra PS (area A) the monopolist wrests from consumers, wasting area B in the process (equity, or fairness)**

Patents and copyrights create temporary monopolies to encourage invention and creativity. (The “Mickey Mouse” amendments.)

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

2. Merger Analysis – Case: Coca-Cola’s market

In 1986 Coca-Cola sought to acquire the Dr Pepper Company: the largest buying the fourth largest seller of carbonated soft drinks in the U.S.

The FTC sought an injunction to block the merger on the grounds that it would violate the prohibition against any acquisition of stock or assets of a company that might substantially lessen competition.

C-C apparently sought the deal to acquire, and more fully exploit, the Dr P trademark. C-C’s marketing skills and research ability were cited as two factors that would allow this.

Perhaps the takeover came because Pepsi-Cola had been trying, but abandoned, to buy Seven-Up.

The FTC's injunction was supported, and the merger abandoned.

“Proper market analysis directs attention to the nature of the products that the acquirer and the acquired company principally sell, the channels of distribution ..., the outlets they employ to distribute their products to the ultimate consumer, and the geographic areas they mutually serve.”

Not only the end-user market but also the intermediate markets.

The FTC: the market was “carbonated soft drinks”: the merger would increase C-C's market share by 4.6% nationwide, and by 10 to 20% in many geographic submarkets (distribution channels). Given C-C's share of 40 to 50% already, the merger would significantly reduce competition.

C-C: the market: “all ... beverages including tap water”, and hence the merger would have a negligible effect on competition.

The judge determined that carbonated soft drinks was the product market for antitrust purposes (as the FTC argued): relying on the product’s

- **distinctive characteristics and uses,**
- **distinct consumers,**
- **distinct prices, and**
- **sensitivity to price changes.**

Carbonated soft drink makers constrain each others’ pricing decisions, but are unconstrained by other drinks – a well-defined market.

A “horizontal” merger: between competitors.

3. Measuring Market Structure

A quick characterisation of a market is *concentrated* (having just a few sellers) or *unconcentrated*.

***Market structure*: the number and distribution of firms in a market.**

Most theories: market performance depends on characteristics of its largest firms, not the smallest or *fringe* firms.

A common market-structure measure is the *N-firm concentration ratio*: the combined market share of the *N* largest firms in the market.

obsolete ASIC code	Industry	Percentage of turnover accounted for by:			Total number of firms
		Largest four	Largest eight	Largest twenty	
2190	Tobacco products	100	100	100	3
2163	Biscuits	95	99	100	23
2945	Steel pipes & tubes	92	95	99	37
2770	Petroleum refining	85	100	100	8
3231	Motor vehicles	84	95	100	32
2751	Chemical fertilisers	81	98	100	19
2454	Foundation garments	73	97	100	12
2642	Printing & publishing	71	81	92	183
346	Rubber products	69	77	86	158
2872	Ready mixed concrete	69	75	83	178
2122	Butter	58	84	100	19
2765	Soap & other detergents	48	60	81	114
3353	Refrigerators & household appliances	46	61	80	167
3482	Jewellery & silverware	15	25	43	198
2644	Printing & bookbinding	14	21	33	1506

Selected Australian Industries 1982-83
Caves et al., *Australian Industry*, 1987.

The table shows not-so-recent four-firm, eight-firm, and twenty-firm concentration ratios for selected Australian industries in 1982–83, using the now-obsolete ASIC industry classification scheme.

Another measure of market concentration is the *Herfindahl index* (H.I.): the sum of the squared market shares S_i of all firms in the market:

$$\text{H.I.} = \sum_i (S_i)^2$$

e.g. a market with two equal firms in it has an H.I. of $.5^2 + .5^2 = .5$

The H.I. of a market with N equal-sized firms is $\frac{1}{N}$.

4. Linking Market Structure & Competition

Many models link market structure to the conduct (behaviour) and (financial) performance of its firms.

Previously discussed models of price determination:

- as a firm faces more elastic demand, the mark-up (or margin) between P and MC narrows, as price P falls.

Extreme (perfect competition): firms face horizontal demand curves of infinite elasticity, so that $P = MC$, and there is no DWL: an *efficient allocation*.

With free entry and exit, all (economic) profits competed away ($\pi = 0$), so that

$$P = MC = \min AC \text{ at } Q_{MES}$$

The Other Extreme:

a single seller or monopolist, and $P > MC$ and *inefficient* for two reasons:

1. a Dead-Weight Loss (DWL)
2. operating with $AC > \min AC$ and $Q < Q_{MES}$.

Note: Q_{MES} is the operating level that minimises the average cost AC : the *minimum efficient scale*, or MES .

(See Lecture 21 – Monopolistic Competition – for graphs.)

Suggests firms face a continuum of pricing possibilities, depending on the nature of the competition they face:

Nature of Competition	Range of H.I.s	Intensity of Price Competition
Perfect competition	Usually < 0.2	Fierce
Monopolistic competition	Usually < 0.2	May be fierce or light, depending on product differentiation
Oligopoly	0.2 to 0.7	ditto
Monopoly	0.7 and above	Usually light, unless threatened by entry.

The H.I.s are suggestive only:

- **There can be fierce price competition with only two firms.
And little with many.**
- **Below we examine condition for a *contestable market*, where a single firm prices competitively.**

Need to assess the particular circumstances of the competitive interaction of firms, and not rely solely on the H.I. or concentration ratios.

5. Entry-Detering Strategies

Two necessary conditions:

- **The incumbent can raise its price after it achieves monopoly status.**
- **The strategy must alter entrants' expectations about post-entry competition... lest they ignore the strategy.**

If a monopolist cannot raise price above MC , the market is *perfectly contestable*.

Contestability requires “hit-and-run entry” (HARE): if a monopolist raises price above MC , then a HAREntrant rapidly enters the market, undercuts the price, reaps short-term profits, and exits just as the incumbent retaliates.

If sunk entry costs are zero (at an extreme), then HARE is always profitable: $P = AC$ and $\pi = 0$, even with only one incumbent.

More usually, the HAREntrant prospers so long as it can set a price high enough, and for long enough, to recover its sunk entry costs.

Contestability shows how the threat of entry can restrain monopolists. But which industries?

With airlines, the threat of entry leads a monopolist to moderate its prices, but not down to AC : not perfectly contestable.

In most markets, incumbents can adjust prices rapidly when entry threatens, so contestability is limited.

How can an incumbent monopolist deter entrants?

- 1. Limit pricing (charging a low price before entry)**
- 2. Predatory pricing (charging a low price to drive others out of business)**
- 3. Excess capacity (shaping entrants' expectations of post-entry competition)**

6. Limit Pricing

The would-be entrant observes the low price set by the incumbent, infers that the post-entry price would be at least as low, and walks away. — or at least that's what the incumbent wants.

Case: Limit Pricing by Xerox

Xerox faced competition from electrofax, but Xerox was 1¢ per copy cheaper, and ½¢ per copy better quality.

Xerox machines were dearer to manufacture, however.

Did Xerox limit price?

Xerox' monopoly price about 10¢/page, > AC of electrofax.

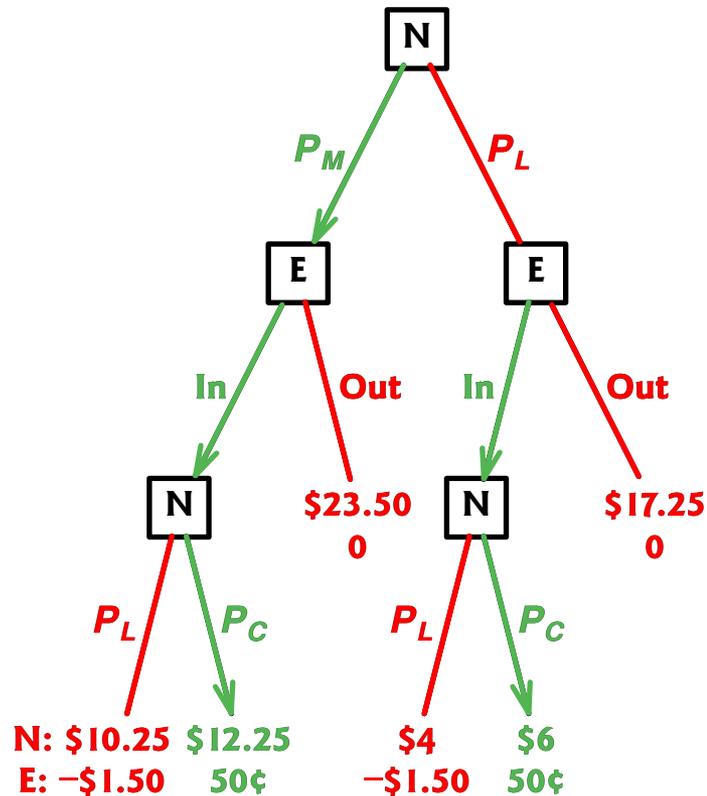
For small customers (1,000 pages/month), Xerox charged close to monopoly, which gave electrofax a profitable opening (→ 25 rival firms).

For large customers (> 2,000 pages/month), Xerox charged only 5¢/page: consistent with limit pricing, while still covering its AC (only 10 electrofax rivals).

By 1978, others were using its technology; Xerox share of new copiers down to 40%, and prices/page down 30%, but Xerox still very profitable: which implies substantial profits even when limit pricing.

Non-Credible Threats

Entrant E's expectations about Incumbent N's post-entry pricing are irrational: $(P_L < P_C < P_M)$



Solve this game tree using *backwards induction* or *rollback*.

- 1. In Year 1, N prices P_M or P_L to deter entry.**
- 2. Then E enters or not.**
- 3. In Year 2, N prices P_C or P_L .**

If E enters, then N is *always* better off with P_C than with limit price P_L ; E looks forward and reasons back to realise this, and Enters.

Since N realises it cannot credibly deter entry, it prices P_M in Year 1.

The incumbent's threat to price P_L even after Entry is *non-credible*.

So When does Limit Pricing Make Sense?

If limit pricing occurs, do firms set prices irrationally?

Or two types of uncertainty:

- 1. about the incumbent's objectives (see Predatory Pricing below);**
- 2. about the incumbent's costs or the level of market demand.**

Then the post-entry price forecasts can be influenced by the incumbent's pricing strategy.

Limit pricing may enable the incumbent to influence the entrant's estimate of its costs, and so the entrant's expectations of post-entry profitability.

7. Predatory Pricing

The preying firm sets its P below cost (AC or short-run MC) in order to drive out others and reap higher profits at higher P after they've gone.

Case: Coffee Wars

In 1970 GF's Maxwell House was best seller in the Eastern U.S.; P&G's Folger's in the West.

To increase sales of Folger's in Cleveland, P&G started: TV advertising, retailer's promotions, coupons, in-pack gifts, and mailed free samples.

GF responded with: mailed and in-pack coupons, and retailers' promotional incentives

But Folger's share grew to 15% after a year.

GF adopted its “defend now” strategy to limit Folger’s to 10% in the East:

- **heavy price discounting, “but $P \geq AVC$ ” (\therefore not predatory)**
- **and its “fighting brand,” Horizon**

Evidence in the FTC’s investigation that both sold with $P < AVC$: predatory pricing.

Clearly, GF wanted to signal to P&G its aggressive defence.

In 1976 the FTC charged GF with attempted monopolisation, unfair competition, and price discrimination.

But in 1984 GF was exonerated: the relevant market was deemed the whole U.S., in which GF did not possess market power:

“Maxwell House did not come dangerously close to gaining monopoly power as a result of any of its challenged conduct in any of the *alleged markets*. [my emphasis] As a result, its actions were output-enhancing and pro-competitive — the kind of conduct the antitrust laws seek to promote.”

8. Excess Capacity

Firms hold more capacity than they use for several reasons:

- 1. lumpiness of adding increments of capacity, (technology)**
- 2. downturns in demand (market forces), and**
- 3. to blockade entry by altering entrants' forecasts of post-entry competition (strategic).**

Holding excess capacity may signal the incumbent's willingness to slash prices if entry occurs

Indeed, this signal, if effective, may mean that prices are never cut, and so the risk of antitrust action in response to limit or predatory pricing never occurs.

Excess capacity may deter an entrant with full information about the incumbent's costs and strategic direction.

The more mature the industry, and the less proprietary the technology, the more likely the firms are to know each other's costs.

For this reason, antitrust regulators frown on firms announcing their costs.

The incumbent's excess capacity can affect the entrant's forecasts of post-entry competition, which depend on each firm's costs and capabilities.

9. Exit-Promoting Strategies

During price wars firms sometimes argue that their rivals are trying to drive them from the market in order to exercise market power later.

Complaints of “unfairly low prices” occur in international trade disputes, when foreign firms are sometimes accused of *dumping*: of selling at prices below cost.

Case: How Standard Oil Drove Out its Competitors

John D. Rockefeller’s Standard Oil grew by exploiting scale and scope economies in refining, distribution, and purchasing; careful organisation of the vertical chain; and a series of shrewd steps to destroy rivals.

“Drawbacks” meant that S.O. (Esso!) was paid a fee by the rails for every barrel of oil sent to NY by a rival: subsidised by its rivals.

S.O. had near *monopsony* power (single buyer’s power) in oil refining and distribution.

S.O. came to dominate refining by predatory pricing: by cutting prices until a recalcitrant refiner was driven from business. S.O. finally owned 90% of U.S. refining, and then squeezed profits out of the vertical chain.

S.O. aggressively built long-distance pipelines from the fields to the refineries.

S.O. was a trust, and hence immune to state anti-competitive actions.

Eventually broken up by the “antitrust” Sherman Act of 1890.

Was it predation if the end was acquisition?

- **Could have been a signal to future rivals, as well as softening the targets.**
- **Fear of an all-out war of attrition might have led to lower prices.**

A successful predation strategy can be extremely costly.

Wars of Attrition

Price wars — wars of attrition — hurt all firms in the market. (See the phone conversation above.)

Larger firms with greater sales may be harmed more, even if they have greater capacity to sustain losses (“deeper pockets”) than do smaller firms.

In a war of attrition the eventual survivor claims its reward of higher profits, while the loser gets nothing and wishes it had never participated.

e.g. Burns, Philp’s herbs and spices division against McCormick Spices.

If long and bloody enough, it may be only a pyrrhic victory for the survivor.

No firm sustains a price war in the belief that it will lose: the more convinced it is that it will survive, the more willing to enter and endure.

∴ A role for signalling its capacity for endurance to its rivals: via lower costs, greater earnings, or commitment to winning. To encourage their early exit.

Norman Schwartzkopf: “Show me a good loser, and I’ll show you a loser.”

Exit barriers will enhance a firm’s position in a war of attrition: committed to paying for inputs, compared to firms who can adjust their input costs.

Vertical Restrictions

These are business practices that sometimes exist between suppliers and dealers, or between manufacturers and retailers, that can be viewed as forms of vertical integration: they accomplish some of its outcomes by contractual means, not complete merging.

10. Resale Price Maintenance

***Resale price maintenance (RPM):* usually when a wholesaler requires that its retailers do not sell its products at less than a specified retail price. Lest no supply.**

**RPM is a partial substitute for vertical integration.
RPM is either a minimum or maximum resale price.**

If the supplier and the dealer both have market power, then the ability of the supplier to limit the dealer's price will increase its profitability.

A minimum-price RPM might be wise in cases where the supplier wants to ensure the provision of certain pre-sale information necessary for marketing technically complex products, without free-riding discount dealers.

RPM can be either efficiency increasing or reducing, depending on the demand effects of the information dissemination.

RPM might be used to foster a cartel of dealers or suppliers, but only for a product that didn't face substantial inter-brand competition.

II. Tying

***Tying* refers to the practice of a supplier agreeing to sell its customer one product (the tying good) only if the customer agrees to buy all of its needs for another product (the tied good) from the supplier.**

Exemplified by de Beer's offering boxes of assorted raw diamonds to diamond cutters on a take-it-or-never-deal-with-us-again basis.

Two types:

- 1. variable proportions and**
- 2. fixed proportions.**

Variable proportions: salt to salt dispensers, ink to duplicating machines, cans to can-closing machines, staples to stapling machines, ink cartridges to SOHO printers, games cartridges to consoles:

— the customer owns the “machine” and is tied to a source of input, demand for which will vary with the customer’s intensity of use of the machine.

Fixed proportions: de Beers’ diamonds, movie distributor’s block booking of bundles of movies.

Economists generally agreed that tying is a way of extracting higher profits through price discrimination. But courts have seen tying as a device for extending monopoly over the machine to its inputs.

12. Monopoly Resources and Regulation

A key resource, such as a single seller of bore water in a town, or mining a unique mineral.

Few examples, however.

Single sellers of gas in Victoria (Esso-BHP, from Bass Strait), South Australia and NSW (a consortium, from the Cooper Basin).

Problems when there is disaster (Vic. gas in 1998, SA gas in 2004).

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

Government-Created Monopolies

Exclusive rights: such as mail carriage, patents, copyrights.

Statutory monopolies over Intellectual Property (IP) can lead to higher prices, but provide an incentive for invention.

Examples?

Spectrum rights (auctioned)

Bridges, tunnels

Natural Monopolies

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).

Demand occurs with falling AC : cheaper for a single supplier than for two or more. e.g. ?

***A natural monopoly*: a monopoly that arises because a single firm can supply a good or service to a whole market at a lower cost than could two or more firms.**

Examples?

Less concerned about new entrants. Why?

e.g. rail lines in the Pilbara – iron ore exports, rival suppliers

Private Property or Public Asset?

Australia favours courts to determine when private property is to be "shared" (or "declared") in order to facilitate new entrants and so increased competition..

U.S. practice raises a much higher bar, and relies much more on the market response of the incumbent to the prospect of greater competition if a new entrant duplicates the incumbent's infrastructure.

Case: Fortesque tries to get access to the Pilbara railways of Rio Tinto and BHP-Billiton.

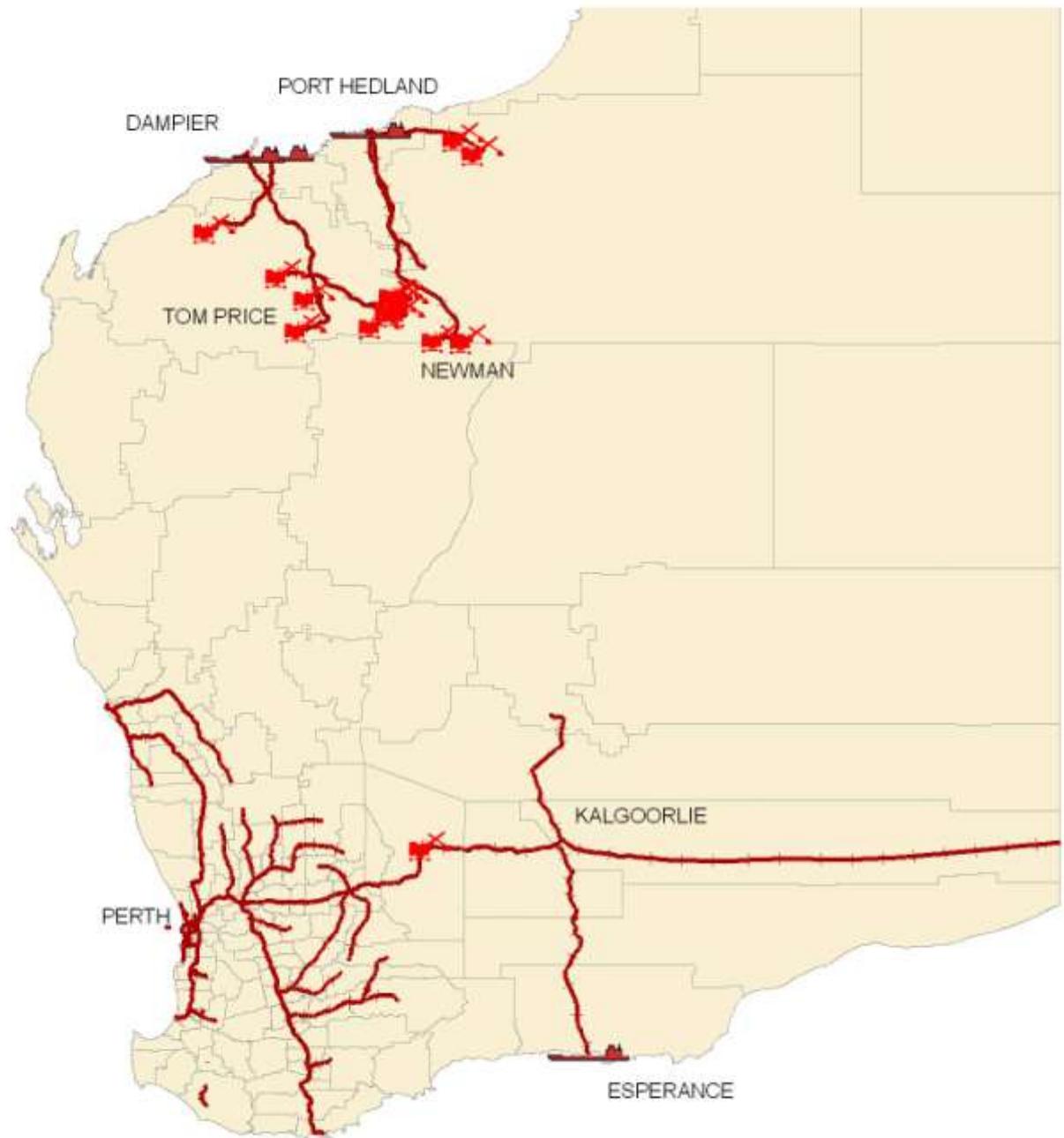
`http://www.railways.pilbara.net.au/`



IRON ORE MINING AND PORTS

Mines and ports

-  Iron ore mine
-  Port
-  Rail_major



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.