The Economics of Fuelwatch

Addressing information asymmetries

3.1 Petrol is a very homogeneous product. While the petrol sold by a Coles Express service station, a BP station and a Gull station may be 'branded', in many cities it all comes from the same refinery so is really an identical product. Furthermore, petrol accounts for a sufficiently large proportion of household spending that it is worthwhile trying to buy it at a good price. These factors should lead to a very competitive market as customers compare prices and buy at the cheapest outlet. This in turn should drive prices down to the level at which petrol retailers are earning just enough profit margin to stay in business.

3.2 However, this potential competition is impeded, if not thwarted, by the unusual volatility of petrol prices. There are no other non-perishable consumer goods, or services, for which prices are so volatile.[1]

3.3 This makes it very hard for motorists to compare prices. For example, if a consumer is told by a friend that they saw on the way to work that a particular service station had a low price, this provides little incentive to divert to that station on the way home as that station and other stations' prices are likely to have changed (perhaps a number of times) during the course of the day.

3.4 There are certainly large signs outside service stations displaying the current price at that station. But this does not tell the customer how this price compares to that being charged by rival stations at this time and by the next day it is likely to have changed. Due to the unusual volatility in petrol prices, knowing today's price is not much help in predicting what the price will be tomorrow at a given outlet and its rivals.

3.5 This volatility does more than just add 'noise' to the market. It does not affect buyers and large sellers equally. Rather there is a problem of 'information asymmetry'. The large petrol retailers subscribe to a service from a company called 'Informed Sources'. The company collects price data from 3 500 retail sites by a combination of paying people to ride around noting down prices and having their subscribers send price data to them. Informed Sources then provides its customers with information every 15 minutes about what other stations are charging. Armed with this information, the large petrol retailers have a huge advantage over consumers in the market.

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1 Prices in financial markets, such as share prices and exchange rates are also volatile, but information and transactions costs are much lower in these markets so that prices quoted from different brokers will vary very little in contrast to the large differences in prices between service stations.

3.6 This information asymmetry is likely to mean that the retail price of petrol is higher than in a more competitive market. Firstly, consider the case of a normal, reasonably competitive market. Suppose a bookseller is deciding what price to charge for a popular title in an advertisement in the weekend newspaper. He notes the book has been selling well and is thinking of increasing the price. He knows that if other booksellers follow his price increase, he will lose few sales and so profits will rise. But if none of his competitors increase their prices for the book, he may lose a lot of sales and so profits may fall. There is therefore a risk attached to deciding to increase the price of the book.[2]

3.7 By contrast, the information asymmetry greatly reduces this risk in the retail petrol market. A petrol retailer who puts up her price will know that her competitors will be aware of this almost immediately and she will be aware almost immediately of their response. So if the price rise is not followed it can be reversed, before consumers become aware that her price is higher than her peers, and so before there has been much loss of sales. Her rivals may well follow her lead in raising prices as they know if she changes her mind and cuts the price again, they can respond immediately.

3.8 The information asymmetry also discourages petrol stations from cutting prices. A lower price will reduce the profit on sales that would have been made anyway. Rivals will know of it immediately and may match it, removing any extra sales to the most price-conscious customers. Many other customers who might have been attracted by the lower price will be unaware of it, or unsure whether other stations have also lowered their prices.

3.9 The information asymmetry gives rise to a 'lazy competition'.[3] Fuelwatch will greatly reduce this information asymmetry. As stations are required to 'lock in' their prices for 24 hours, they will risk a loss of sales if they increase their price. As useful information about prices is more readily available to motorists, they will be more willing and able to shop around and buy petrol where it is cheapest, increasing the incentive for stations to cut prices. After 4 pm they will know both the current day's price and the next day's price at all their local stations. The market will become more competitive.

3.10 The above argument for the benefits from Fuelwatch was put by the Australian Competition and Consumer Commission, the state Department responsible for FuelWatch in Western Australia, independent academics and others:

> By having to quote fixed fuel prices for a 24 hour period, petrol retailers will have to make better judged and more competitive choices on fuel prices.[4]

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2 This risk could be reduced by colluding with the other sellers to agree to all increase their prices, but this is illegal.

3 Mr Graeme Samuel, ACCC, *Proof Committee Hansard*, 7 August 2008, p.12.

4 National Roads and Motorists Association, *Submission 23*, p. 2.

> The disincentive to be the first to hike price is much greater under the 24-hour-rule. Without the rule, the price leader for a cycle knows that once its price is hiked, other firms can respond very quickly (within hours) by hiking their prices as well. If other firms do not respond quickly, the price leader can quickly retract its price hike to avoid losing much market share. However, under the 24-hour-rule, after a price leader hikes its price, other firms cannot respond within 24 hours. The price leader has to lose market share for an entire day – it cannot retract its price hike either.[5]

3.11 The committee does not believe opponents of the scheme ever offered a convincing rebuttal of this argument. The logic of the argument is that over time Fuelwatch will not only help those motorists using it to locate stations offering cheaper fuel, but the added stimulus to competition will push down average prices for all.

3.12 It is hard to quantify how large this impact will be. The most important factor determining the retail price of petrol will remain the wholesale price, and therefore the world price of oil and the exchange rate (with about a week's lag).[6] But even a reduction of a few cents per litre due to a more competitive retail market adds up to a significant saving for motorists. And unlike a cut in the excise duty, it is an amount shifted to consumers from large oil companies and retailers not from other taxpayers.

Could a modified scheme achieve a similar result?

3.13 An alternative suggested in a number of submissions was making more pricing information available but still allowing intraday price changes; 'Fuelwatch without the 24 hour rule'. The Service Station Association endorses requiring stations to notify the ACCC of their *opening* prices for the next day, but believes (at least small independent) stations should be able to *cut* (but not increase) their price during the day.[7]

3.14 However, such an approach would not get around the problem that consumers would not know that what they were told was the lowest price in the area would still be the lowest by the time they made their purchase. It also weakens the disincentive Fuelwatch builds in for raising prices.

3.15 For these reasons the committee believes the 24 hour rule is an integral part of the Fuelwatch scheme.

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5 Professor Wang, *Submission 27*, p. 6.

6 ACCC (2007, p. 13); Senate Standing Committee on Economics (2006, pp 5-7, 22).

7 Service Stations Association, *Submission 7*, p. 2.

Information costs

3.16 Some opponents of Fuelwatch have either argued that it is too costly or asked why similar schemes are not being applied to other goods and services. One response is the points made above that petrol prices are unusually, almost uniquely, volatile; that the information asymmetry problem is particularly acute for petrol; and that petrol constitutes a significant amount of household budgets.

3.17 A more complete answer is to consider what signs there are that better information is desired and the most cost-effective means of providing it.

3.18 The committee heard that there is a huge demand for better information about petrol prices, from both retailers and consumers.[8] This is despite the large amount of resources currently being expended on collecting and distributing it.

3.19 The large petrol retailers mainly get data by buying it from 'Informed Sources', a private company that collates fuel price data. Informed Sources have not disclosed how much it costs them to gather their information or how much they charge for it, but it is clearly substantial. They stated:

> it currently costs in excess of $50k pa for each car and driver we put on the road in capital cities to collect prices six hours per day across 350 days per annum and with each vehicle covering more than 100,000 kilometres each year.[9]

3.20 As well as the amount retailers pay Informed Sources for the data, there are the costs involved in staff sending price information every 15 minutes to Informed Sources to provide the data sold back to them.

3.21 The small independent operators cannot afford to subscribe to the service. Instead they spend time and money driving around town checking out rival stations' prices.

3.22 Another private company, FUELtrac, also collates and sells information on petrol prices.

3.23 Consumers may collect information themselves by driving around and the extent of these search costs are often neglected in discussions of Fuelwatch:

> Fuelwatch… reduces the search costs that they currently face in trying to work out where to find the cheapest petrol. Those costs include not just

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8 Among those advocating more information for consumers are the Royal Automobile Club of Tasmania, *Proof Committee Hansard*, 11 August 2008, pp 11-2; Royal Automobile Club of Victoria, *Proof Committee Hansard*, 7 August 2008, p. 48; National Roads and Motorists Association, *Proof Committee Hansard*, 1 August 2008, p. 16; Choice, *Proof Committee Hansard*, 7 August 2008, p. 61; and Royal Automobile Club of Queensland, *Proof Committee Hansard*, 17 July 2008, p. 11;

9 Informed Sources, *Submission 22a*, p.9.

> time; they also include money in the form of petrol driving to places that they did not want to be.[10]

3.24 Alternatively consumers may use various services set up by motoring associations or local media.[11] For example, in Rockhampton, the local television station explained:

> About 12 months ago, we got rid of the share-watch segment from our news across rural and regional Queensland and replaced it with a fuel-watch segment, which was basically designed to just inform people about fuel prices during the day…Every day in the markets of Far North Queensland—which is Cairns, Townsville, Rockhampton, the Sunshine Coast and Toowoomba—our crews, who are out all day, are basically collating prices from petrol stations in their region during the day and, of an evening, we just present that information during the news service.[12]

3.25 While this information is of some value to viewers in Rockhampton, where petrol prices are much less volatile than in the cities, its limitations are recognised:

> The idea is really just to inform people about what the price was during the day. We present an average fuel price for the day across the market and we also present the cheapest .. it by no means predicts what is going to happen the next day. It is just telling people what the prices were during the day. [13]

3.26 The motorists' organisation in Tasmania explained:

> The RACT has carried out fuel price monitoring, using its own resources, for around five years and has posted those fuel prices on its website—RACT.com.au—on a weekly basis on its fuel prices update page.[14]

3.27 It also realised the limitations of its service:

> The reason the club supports a Western Australian style FuelWatch is that it provides additional information to motorists that the club cannot provide, because it cannot afford to do so on its own, using its own resources. [15]

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10 Mr Gordon Renouf, Choice, *Proof Committee Hansard*, 7 August 2008, p. 61.

11 The committee heard that fuel price information is posted on websites by motoring associations in New South Wales, Victoria, Queensland, South Australia and Tasmania. Of course this is a cost the motoring organisation does not incur in Western Australia, where a Fuelwatch scheme already operates. Other websites with fuel prices include one operated by a radio station in the Northern Territory; Mr Robert Bradley, Automobile Association of the Northern Territory, *Proof Committee Hansard*, 7 August 2008, p. 66.

12 Mr Stephen Marshall, WIN Television, *Proof Committee Hansard*, 18 July 2008, p. 17.

13 Mr Stephen Marshall, WIN Television, *Proof Committee Hansard*, 18 July 2008, p. 17.

14 Mr Vince Taskunas, Royal Automobile Club of Tasmania, *Proof Committee Hansard*, 11 August 2008, p. 9.

15 Mr Vince Taskunas, Royal Automobile Club of Tasmania, *Proof Committee Hansard*, 11 August 2008, p. 9.

3.28 A similar limited service is provided by the NSW motorists' organisation:

> we actually do provide what I would call a limited service. We have petrol watch on our website. That provides information in the morning and the afternoon for Sydney and a post event for regional areas on the price of petrol. But we cannot give it for every site and you cannot actually track. What we can tell you is where the highest priced petrol was and where the lowest priced petrol was and what the average price is. That is not a costless exercise. It is a costly exercise.[16]

3.29 The Royal Automobile Club of Victoria reports that their petrol price monitoring website had received over 660,000 hits in the past year.[17]

3.30 Yet all these services provide is a patchy coverage of what petrol prices had been. They do not provide what is actually most useful to motorists: what petrol prices will be. This is what Fuelwatch can provide.

3.31 The administrative costs of FuelWatch comprise initial capital costs of $1.3 million and annual operating costs of around $4½ million.[18]

3.32 The compliance costs of the proposed FuelWatch scheme would be minimal, only requiring petrol stations making a daily call to a toll-free number or sending an email.[19]

3.33 A cost-benefit analysis of the information on petrol prices provided by Fuelwatch involves a comparison of the large resources currently being expended on a variety of different monitoring schemes (involving paying people to drive around noting down prices) that fail to provide consumers with the forward-looking information that is useful to them against the costs of a single agency collecting and distributing information (provided to them by email or telephone) which would be very useful to consumers and all retailers. It seems clear that the resources devoted to collating and dispersing petrol price information will be much less under a national Fuelwatch scheme than under the current arrangements, and the benefits it provides to consumers much greater.

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16 Mr Alan Evans, National Roads and Motorists Association, *Proof Committee Hansard*, 1 August 2008, p. 16.

17 Mr David Sullivan, RACV, phone call to Secretariat.

18 *Explanatory Memorandum*, p. 7; .*Budget Paper no. 2*, p. 291 and *Estimates Hansard*, 5 June 2008, pp 42-3. This estimate of operating costs seems plausible given that the WA government currently spends $700 000 a year operating its FuelWatch system.

19 The Australian Institute of Petroleum claims that compliance costs for service stations will average $4,000 a year but provide no explanation for this estimate; *Submission 2a.*

Petrol price cycles

3.34 There are regular weekly price cycles in Sydney, Melbourne, Brisbane and Adelaide. (Price fluctuations are less regular or non-existent in Canberra, Hobart, Darwin and rural areas.) Typically prices peak on Thursdays and are lowest on 'magic Tuesdays'.[20]

3.35 It is generally the stations affiliated with a refiner in that city that lead the price up in the cycle, when the wholesaler announces the withdrawal of price support to retailers.[21] However, the large petrol retailers operate sophisticated strategies which allow them to adjust prices on a localised basis.[22] Independent retailers used to be more aggressive discounters but this has been less common since the entry of the supermarkets with their shopper docket schemes.[23]

3.36 Most customers are well aware these cycles exist. Most motorists try to buy petrol when they think it is cheapest rather than just when they need it.[24] However motorists are limited in the extent to which they exploit their (imperfect) knowledge of the price cycles.[25]

3.37 One indication of the uncertainty that consumers face about price cycles is indicated by some 'urban myths' that have grown up around them. One persistent belief is that petrol prices spike more before long weekends than other weekends.[26]

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20 The cycles have been around a long time but with gradual changes. A South Australian select committee (2001, p. 33) found 'a pattern of high prices around Tuesday/Wednesday chasing down to low prices around Sunday/Monday'. The term 'magic Tuesday' was coined by Mr Aivars Blums, Motor Trades Association of Queensland, *Proof Committee Hansard*, 17 July 2008, p. 1.

21 ACCC (2007, pp 14 and 136).

22 ACCC (2007, p. 14).

23 ACCC (2007, p. 137).

24 The opinion poll commissioned by the ACCC in November 2007 showed that 70 per cent of motorists usually or always try to buy petrol when it is cheapest while 28 per cent just buy when they need it. The latter group includes many of the 8 per cent of customers for whom someone else (presumably mostly employers) pays for the petrol. An opinion poll conducted for the Australian Automobile Association showed that 49 per cent of motorists try to buy when petrol is cheapest, up from 41 per cent in 2005. ACCC (2007, pp 31-2).

25 An opinion poll conducted for the ACCC in November 2007 showed 74 per cent of motorists correctly nominate Tuesday as the best day to buy petrol but only 47 per cent buy petrol on Tuesdays. Only 20 per cent of petrol is sold on Tuesdays; ACCC (2007, pp 177-9, 290, 293).

26 ACCC (2007, p. 31). 68 per cent of motorists were 'extremely concerned' about this, so presumably an even larger proportion believe it happens. See also Senate Standing Committee on Economics (2006, pp 26-7).

However the ACCC's analysis shows this is not the case. Customers also overstate the extent of the cycle.[27]

3.38 These cycles are much more marked in Australia than in overseas retail petrol markets.[28] Despite extensive analysis by the ACCC, 'the causes … are an enigma'.[29]

3.39 The typical observed pattern of quick price rises followed by gradual declines is consistent with the Edgeworth cycles theory where a small number of competing retailers are continuously undercutting each other by small margins in an attempt to increase market share until a substantial price rise is required to restore viability.[30] This theory is supported by the large petrol retailers and Informed Sources.[31] It does not explain why the cycle has such a regular periodicity. It is also noteworthy that it is a theory about an oligopoly, not about a perfectly competitive market.

3.40 Another possible explanation is that refineries are trying to smooth their production by adjusting (wholesale) prices to even out demand across the week and this is flowing into retail prices.[32] However, there is no weekly price cycle evident in wholesale prices. Furthermore, a problem with the smoothing argument is that sales tend to be higher than average on the days prices are lower,[33] which would imply that prices are being persistently over-cut.

3.41 The cycles are most likely a form of price discrimination. Retailers are trying to segment the market so they can sell at a higher price to those who buy petrol on a 'when needed' basis but still sell to more price conscious consumers on the Tuesdays. An analogy might be drawn with cinemas charging more for tickets on Saturdays than on Tuesdays.[34] However, unlike in the petrol market, cinemagoers may benefit from this as more people want to go to cinemas on Saturdays and there are capacity constraints on how many can attend. In general, price discrimination is a means of

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27 While the variation during the weekly cycle is typically 5-10 cents per litre, the average customer estimates it at 13 cents.

28 ACCC (2007, pp 162-3). An exception may be Norway, which has similar cycles; Informed Sources, *Submission 22,* p. 26.

29 ACCC (2007, p. 16). On their website, the ACCC describe the reasons for them as 'complex' and include 'possible anti-competitive practices'.

30 ACCC (2007, pp 164, 350-2). The theory was first developed in Edgeworth (1925).

31 Informed Sources, *Submission 22,* pp 24-6; and Professor Wang, *Submission 27*.

32 It may go back to when workers were predominantly paid on a Friday and would fill the car up while out shopping on a Saturday morning; Neumann Petroleum, cited in ACCC (2007, p. 174). A similar explanation is put by Informed Sources, *Submission 22,* p. 25.

33 Cited in ACCC (2007, p. 177).

34 Those on a 'date' , wanting to go out with a large group of friends or not wanting a late night when working the next day may be willing to pay the higher price on a Saturday while individuals on a tight budget may prefer to buy the cheaper ticket on a Tuesday.

increasing profits at the expense of consumers, rather than an act of altruism on the part of sellers.

3.42 The committee heard a range of views about whether the existence of cycles implies a higher or lower average price of petrol. If the cycles are the result of price discrimination, then this implies that those buying on the 'cheap' day are getting the price that would prevail generally in the absence of information asymmetries and other market imperfections. The other customers are paying more than a competitive price. Measures that make the market more competitive would then tend to reduce prices on the more expensive days but leave them unchanged on the 'cheap' days, both dampening the cycle and lowering the average price.

3.43 On the other hand, those who claim that the cycle results in a lower average price have to explain why the difference between the high and low points of the cycle appears to exceed the average margin on petrol. This implies that stations are selling at a loss at the low point of the cycle. The committee has not heard a convincing explanation as to why stations would choose to do this persistently.

The 'buying below the average' fallacy

3.44 A commonly-used argument is that consumers benefit from the cycle as they buy petrol at below the average price. For example:

> Discount cycles favour the consumer, with over 60% of petrol sales occurring below the average price of the price cycle…more than 60 per cent of weekly sales were made on the four days of the week (ie. Sunday, Monday, Tuesday & Wednesday) when the average daily price was below the average weekly price.[35]

3.45 If consumers bought petrol completely at random, then 57 per cent of sales would be made on Sunday, Monday, Tuesday and Wednesday (or whichever four days had the lowest prices). It is not clear what is so impressive about an extra, possibly insignificantly different, 3 per cent of sales occurring on these days, which is largely a function of how high is the spike on the most expensive day of the week.

3.46 If the Committee thought that the goal of the inquiry was to ensure that a large proportion of consumers paid less than the average posted price, it would probably recommend that stations be made to charge $1,000 a litre for an hour a week, so that 100 per cent of sales are made below the weekly average price. This is absurd of course, but it illustrates the irrelevance of the proportion of sales made below the average price as a criterion.

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35 Australian Institute of Petroleum, *Submission 2a*, p. 18.

Intra-day price movements

3.47 In addition to the interday movements each week, there are often intra-day price changes which make it much harder for consumers to compare prices. This variation is very unpopular with consumers, with a third even being willing to pay higher average prices if it meant no intraday volatility.[36] The classic example is a customer who complained that the price had risen by 15 cents while she was waiting in a queue.[37]

36 44% of motorists nationwide are 'extremely concerned' about this (the national average being pulled down by Perth motorists where intra-day variation is prohibited) and 83% would prefer the same price apply all day. 63% would prefer a uniform price all day even if this meant a less predictable weekly cycle. Given a choice 33% of motorists would prefer no intraday variation and 48% would prefer a lower average price. ACCC (2007, pp 280-1, 295–6).

37 Cited by the Hon Chris Bowen, *House Hansard*, 29 May 2008, p. 3870.