Petrol Price Competition Across Geographic Markets in Hong Kong?

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Price uniformity under Hong Kong' s petrol oligopoly

In a report on the petrol product markets in Hong Kong (*Energizing the Energy Market: A Study of Motor Gasoline, Diesel and LPG Markets in Hong Kong*), released on 12 January 2000, the Consumer Council has invoked the concept of price competition across geographic markets even in the case of an oligopoly. The concept is of course related to the spatial characteristics of demand. It may be useful to provide a short note here to render the idea more clearly to the reader.

In the petrol product markets (gas, diesel and LPG) covered in the study, three of the largest oil companies are observed to be taking 70% to 90% of the market shares in Hong Kong. Operationally, the degree of vertical integration (from import to retail) is very high. Price uniformity across filling stations in the territory turns out to be the norm; and after-tax petrol prices are among the highest in the world. The Council, like many in the public, is worried about the possible abuse of market power by the oligopolists under such a market structure. Price uniformity is a symptom (but not necessarily a proof) of abuse. Given the limited range of information and data that it has access to, the Council has located no direct evidence of explicit collusion, i.e. a cartel. Nor has it been able to reach any clear conclusion about tacit cooperative behaviour.

In an oligopoly, three results may theoretically emerge amongst others:

a. explicit collusion, i.e. a cartel;
b. tacit cooperative behaviour based on "understandings"; and
c. contestable market where the oligopolists could even engage in fierce competition that drives the selling price down to the marginal cost level.

Each of these results can lead to price uniformity. Sometimes, it is not easy to distinguish between them, unless one has access to commercially sensitive data such as rates of returns on assets and equity and marginal costs. Barring them, one can only base on circumstantial analysis or judgement.

In theory, if there is a high degree of product differentiation, prices should vary even in an oligopoly, e.g. among big supermarket chains selling a large number and range of items. However, Robert H. Bork in his book *The Antitrust Paradox* (New York: The Free Press, 1993) has the following interesting comment:

> "Cartels very often engage in product standardization precisely to secure stability. It seems perverse of oligopolists to engage in product differentiation for the same reason. Conventional oligopoly theory ought to predict a lessening of product competition, just as it predicts a lessening of price competition. Where product competition is observed, the correct inference is that the companies involved are not behaving as restrained oligopolists …"

Spatial demands and geographic markets

In the case of the petrol product markets in Hong Kong, product differentiation is argued to be very limited. Hence the uniformity in prices across filling sites. But this argument neglects the spatial dimension of demand. Exactly the same type of gasoline or diesel may face different demands when the filling stations are found in different "geographic locations". In other words, “market boundaries” should in some situations be more appropriately defined by the location of the product rather than its specific contents or characteristics.[(1)] The existence and the extent of market power and the evidence that such power is exercised will have to be judged with reference to the boundary of the geographic market. Within a geographic market, effective competition should result in price uniformity at or near the marginal cost level, assuming that product differentiation is limited or impossible. But then prices are expected to vary across different geographic markets.

It is not always easy to delineate geographic markets and their boundaries may change over time. Nevertheless, regarding petrol products, these markets could sometimes be separated by just a few blocs or streets, as is the case in an economy with genuine competition, e.g. Sydney. The reason is simple. In a large and crowded city, traffic flows differ significantly along various routes: the flow is much bigger on the main road than that along an inner avenue. Hence filling stations off the major routes are forced to price-compete to attract customers.

Over time, of course, drivers will discover cheaper petrol in not-too-distant areas and may change their driving habits to take advantage of it. Price differentials within a “district” should hence narrow, but may not equalize because of the “transaction cost”, in particular time cost, involved in traveling across “geographic markets”. To take a somewhat dramatic example: station A is on the main road, and station B is located on a side street just around the corner of a junction. If that side street allows only one-way traffic, and any car going into it needs to take a long detour before being able to get back on the main road, B’s petrol prices would have to be low enough (compared with A’s) to compensate for the extra time (possibly even for the fuel cost if the detour is very long) that a driver has to spend in patronizing it.

The time dimension is also important in many big cities in the developed countries, particularly those with diversified market structure and effective competition. For example, there is usually an exodus of people from the cities on the weekend and they need to fill up for the long journeys to their various resort destinations. Often prices go up on those routes where there are major outflows of traffic. The filling stations can do so because of the desire on the part of drivers to quickly escape the heavy traffic of a Friday night by getting onto the highways as soon as possible. Hence they will choose to fill up at a site that is easy to get to on their way out of the city; and they do not mind paying more.

In any case, if there is no collusion or tacit understanding among petrol filling stations, one would expect some form of geographic price competition, or at least price variation, to take place.

The Council's *Report on the Petrol Product Markets* actually observes (in chapter 7) one incidence of geographic price variations in Hong Kong. It seems worthwhile to cite it here at some length (with a presentational adjustment: shuffling the table).

Consumer Council's findings

"Price discounting by geographic area - case study

7.8 To assess the extent of competition that might be influenced by spatial characteristics, it is instructive to note what has actually happened in terms of price competition, by geographic area. The Council has obtained the following information from various press reports made in late 1998 and early 1999.

7.9 In November 1998, Esso initiated a coupon scheme whereby discount points would be earned on actual sales, that translated to a 12% and 15% discount for petrol and diesel respectively. The discount was initially offered at only nine Esso and Esso / Feoso stations. CRC announced a 15% discount at all of its PFS on 4 January 1999 (all located in the New Territories). Caltex responded on 10 January 1999 and offered 12% petrol and 15% diesel discounts to drivers at 11 of its stations which, by reference to the following table and the appended PFS location maps, were closely located to the discounted outlets operated by Esso and Feoso. Esso extended its coupon scheme to all its PFS at around this time. Shell and Mobil subsequently followed Caltex and announced, virtually at the same time, that 11 of their PFS were going to offer similar discounts to drivers.

7.10 Table 7.2 and the PFS location maps in Appendix 3 show the distribution of the PFS with the price discount. The Mobil, Shell and Caltex PFS noted on the maps at Appendix 3, that were discounted, are underlined.

7.11 The question that arises is why only some PFS were discounted, while others were not.

7.12 It is apparent from the table and the appended PFS location maps that the discounted sites are located not only in the same districts but in many instances next to each other, and therefore in the same geographic retail markets. For example discounts could be found (among other places) at Kai Tak - the three PFS (Mobil, Shell and Caltex) located next to each other; and on or near Boundary Street, the junction of Old Kowloon and New Kowloon - Caltex, Shell and Esso. The heaviest area of discounted sites was in the New Territories.

7.13 By contrast, there was no discounting in Yau Tsim, Hung Hom, North District, Central and Western Districts, Wanchai, Stanley, Shek O and Lantau Island.

7.14 The notable feature from the above information is that it appears that where there were either Esso or Feoso sites in close proximity to the three majors, there was discounting. This indicates the existence of certain geographic markets for the products within Hong Kong. It is apparent therefore that geographic markets, and the substitution possibilities that exist for consumers between different oil companies within those markets, play an important part in way in which competition develops in Hong Kong. This is an important factor for the Government to consider when locating PFS sites for public auction, and in determining who should be the successful bidder for a site."

Table 7.2: Price Discounting by Geographic Areas in January 1999

	Shell	Mobil	Caltex	Esso	CRC
Price Discount: Unleaded petrol Auto diesel	 12% less 15% less	 12% less 15% less	 12% less 15% less	 12% less 15% less	 15% less 15% less
No. of PFS	61	Mobil: 37 Mobil Feoso (JV): 1 Mobil Concord (JV): 1 Concord (supplied by Mobil in Jan 99, now by CRC): 1	50	Esso: 11 Feoso (supplied by Esso): 7	11
Effective date	12 January 1999	12 January 1999	10 January 1999	24 November 1998	4 January 19
Discounted Locations (Initial)	11	11	11	Esso: 8 Feoso (Esso): 1	All
HKI	Wong Chuk Hang King's Road	Aberdeen	Aberdeen King's Road Chaiwan		
Kln	Tung Choi Street Boundary Street Tai Hung Tung Road Lei Yue Mun Road	Nullah Road Castle Peak Road Tai Po Road Lai Chi Kok Road Kwun Tong	Tai Hung Tung Road Kwun Tong	Boundary Street	
NT	Tsuen Wan Shatin City One Kwai Chung Yuen Long Au Tau Yuen Long	Tai Wai Kwai Chung Fairview Garden Tuen Mun Tai Po	Tsuen Wan Shatin Yuen Chau Kok Kwai Chung Sheung Kwai Chung Fairview Garden Yuen Long Tai Tong	Kwai Hing Shatin Kwai Chung Shek Mun Yuen Long Yuen Long Tai Tong Yuen Long Kam Tin Tai Po	All 11 PFS in NT
Discounted Locations (End of January 1999)	11	11	11	All	All
HKI	Wong Chuk Hang King's Road	Aberdeen	Aberdeen King's Road		
Kowloon	Lei Yue Mun Road Kai Tak Boundary Street	Kwun Tong Kai Tak Princess Margaret Road	Kwun Tong Kai Tak Tai Hang Tung Road		
NT	Tsuen Wan Shatin City One Kwai Chung Yuen Long Au Tau Tuen Mun	Tsuen Wan Tai Wai Kwai Chung Fairview Garden Lam Tei Tai Po Tsing Yi	Sheung Kwai Chung Shatin Yuen Chau Kok Kwai Chung Yuen Long Long Ha Yuen Long Tai Tong Tai Po Market	All 18 PFS	All 11 PFS in NT
Applicable for	Cash or credit card payment		Not applicable for payment by bonus card		

Closing remarks

The Council is not sure why the episode emerged. My personal guess is that it might or might not be because of the painful economic recession that generated heavy pressure on the suppliers to stimulate demand geographically. A cynic (I am not one) would say that the oil companies were actually resisting territory-wide downward adjustment in prices, although just for one month. Therefore, it was not genuine price competition. Without knowing the real cause, it is of course difficult to explain appropriately why it disappeared after January 1999, when prices converged to the discounted levels over the territory.

Limited as it was, should the public in Hong Kong be justified in expecting some kind of "geographic price competition/variation" like that, or more pronounced ones, to emerge even under the highly integrated oliogopoly market for petrol products? Or is price uniformity in the SAR a reality to live with?

I wish to thank Ron Cameron for insights and useful comments. All deficiencies are my own.

(1) In the antitrust literature, a starting point is to delineate a market before the investigation of market power and its possible abuse can be pursued. The boundary of a market depends, amongst other factors, on supply elasticity and substitutability; and there are basically four dimensions to the definition of a market: (1) product; (2) geographic; (3) functional; and (4) time. For a discussion of the concept of the geographic market, see for example chapter 5 of John H. Shenefield and Irwin M. Stelzer, *The Antitrust Laws: A Primer*, Washington DC: AEI Press, 3rd edition, 1998.