

For information

Legislative Council Panel on Economic Development
Competition Commission's Study into Hong Kong's Auto-fuel Market

Purpose

This paper presents the findings of the Competition Commission's ("Commission") study into Hong Kong's auto-fuel market and the recommendations on furthering competition in the market.

Background

2. Hong Kong's petrol prices being highlighted as the highest in the world have brought the state of competition in the local auto-fuel market into focus. In view of public concern, the Commission has conducted a study into the market and released a report on 4 May 2017.

Approach to the Study

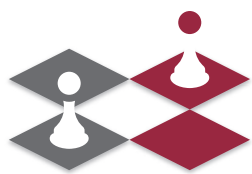
3. To determine the state of competition and whether potential concerns exist in the market, the Commission has looked beyond auto-fuel prices and examined the market's underlying structural and behavioural characteristics.

Key Findings of the Study

4. The report identifies a number of structural and behavioural features of the market which the Commission believes to be hindering competition and would likely have contributed to the high auto-fuel prices in the territory. The Commission has made some recommendations in the report on how to address these issues with the aim of furthering competition in the market.

5. The Executive Summary of the report is appended to this paper.

Competition Commission
May 2017



競爭事務委員會
COMPETITION
COMMISSION

Report on Study into Hong Kong's Auto-fuel Market

Executive Summary



May 2017

EXECUTIVE SUMMARY

This report summarises the findings of the Hong Kong Competition Commission's (Commission) study of the local auto-fuel market. Given the vital role that auto-fuels play in day-to-day life, it is important for the markets in which they are supplied to be functioning well. Indeed, the main objective of market studies conducted by competition agencies is to determine the state of competition in relevant markets.

News reports highlighting that petrol prices in Hong Kong are the highest in the world have brought the state of competition in the local auto-fuel market into even sharper focus. However, there is a danger of only searching for signs of anti-competitive conduct as an explanation for high prices and overlooking a number of structural and behavioural issues that may have been undermining competition.

Competition authorities around the world have studied their respective auto-fuel markets at length. Many of these studies have highlighted common issues in the different markets but the Commission is of the view that the Hong Kong market has a number of features that have not generally been seen elsewhere. These features are not only highly unusual but also go to the heart of the issue of whether our city has a competitive auto-fuel market.

It is important to take note that this market study is not conducted as part of an investigation, and therefore the Commission does not have compulsory information gathering powers at its disposal and has to rely heavily on stakeholders' willingness to provide information and materials gathered from the public domain. For the purpose of this report, the Commission has requested oil companies to provide information on a voluntary basis. While it is acknowledged that co-operation was generally forthcoming, there was some information that could not be obtained. In spite of this, the Commission is confident that this report provides an accurate and balanced overview of the sector.

This report identifies a number of issues which the Commission believes to be responsible for hindering competition and which would likely have contributed to high auto-fuel prices in Hong Kong. The report then goes on to make recommendations on how to address these issues. With public support, many of these proposed changes should not take long to implement. Indeed, some should be implemented immediately. The fact that the Government will be re-tendering a number of petrol filling station (PFS) sites, the leases of which are expiring in 2018, creates the perfect impetus for adding more competitive dynamics to the market.

Two Common Perceptions

Throughout the Commission's interactions with stakeholders, two key themes emerged time and again: that prices are higher in Hong Kong than anywhere else and that they are always the same across companies. These two factors were widely perceived to be evidence of collusion amongst oil companies. Given the pervasiveness of those beliefs, it is worth pointing out that these two features on their own cannot be taken as hard evidence of anti-competitive conduct.

Hard evidence of anti-competitive conduct requires proof of an agreement or concerted action among competing suppliers, not just observably high or identical/comparable prices. However, as this report outlines, even if there is no evidence of anti-competitive conduct, this does not mean that the auto-fuel market in Hong Kong is functioning as competitively as it should be.

High prices - the result of collusive behaviour or other factors?

Retail pump prices are indeed high in Hong Kong, relative to the rest of the world. However, in isolation, that is not conclusive evidence of collusion. Firstly, one can argue that very few Hong Kong customers pay the 'headline' pump price for either petrol or diesel because of the ubiquitous discounts that are made available through different sources. The cumulative effect of those discounts could reduce the pump price by anything from \$0.90/litre to \$2/litre (or more) for petrol, and from \$2/litre to \$5/litre (or more) for diesel. In other words, the *effective* retail prices that customers pay can be materially lower than the advertised pump prices.

Secondly, there are cost differentials. It is worth noting that before petrol and diesel enter the storage facilities on Tsing Yi Island, around \$9-\$10/litre and \$3-\$4/litre have already been spent respectively, on product costs and duty (for petrol only at \$6.06/litre). This accounts for a substantial part of the final pump prices. Retailers must also incur the ongoing costs of operating the retail sites themselves, such as labour.

Then there are land costs. Hong Kong is a small, densely populated city. There is only limited land available for auto-fuel retailing sites in desirable locations and it is natural to expect that a premium will need to be paid. Ultimately, 'auto-fuel retailing' must compete with all other alternative potential uses of land, including residential and commercial real-estate developments. These traits all contribute to the high pump prices. However, short of reducing duties (for petrol) and/or somehow reducing land prices, little can be done to change that overall picture.

Parallel pricing versus price fixing

Retail pump prices are almost always identical across Hong Kong retailers, and move together. When one firm changes its pump prices, all others follow within one or two days, until they are all at the same level again – this is sometimes called ‘parallel pricing’. It is important to understand that this is an almost universal feature of homogeneous product markets. Irrespective of whether the firms are competing vigorously or coordinating their pricing, one would still expect to see very similar prices. Given that all the retailers are selling virtually identical products, it would be more puzzling if prices were *not* moving together. In isolation, the existence of broadly parallel pricing therefore reveals very little about whether firms are competing or coordinating.

In the Hong Kong context, when one talks about auto-fuel price, it is also necessary to take into consideration the wide prevalence of discounting. This is because headline pump prices do not tell the whole story with respect to either price levels *or* movements. If pump prices do not move, but discounts do, then prices may be different across time and retailers.

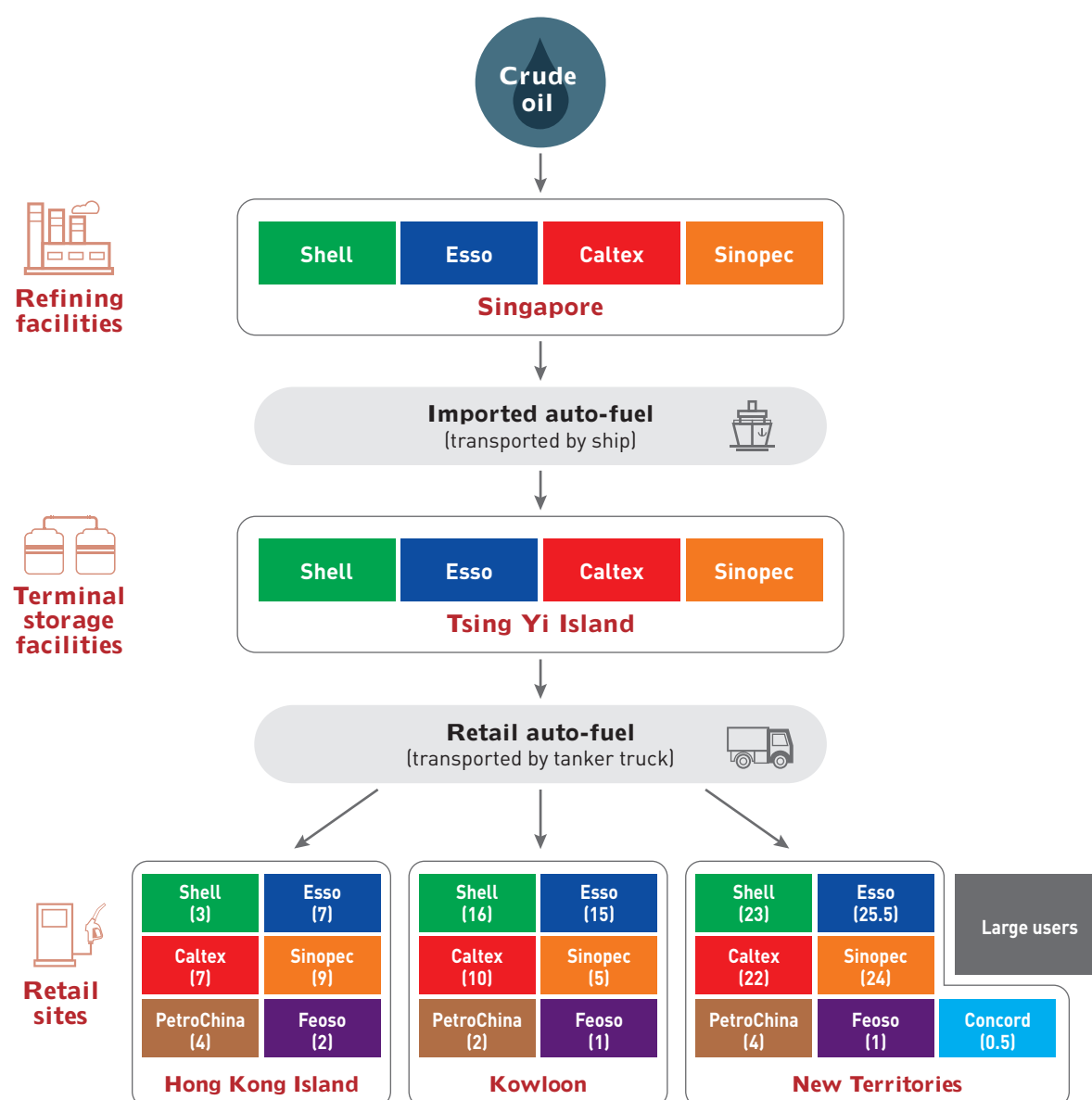
To determine the degree of rivalry, it is therefore necessary to look beyond the mere similarity in pump prices and examine more closely the market’s *underlying* structural and *behavioural* characteristics. Only then can robust conclusions be drawn about the effectiveness of competition and whether potential concerns exist that might warrant some forms of market intervention. These underlying dynamics are consequently the Commission’s core focus throughout the remainder of this market study.

Analysis of Market Structure

The market structure is the 'arena' in which commerce takes place. Some key structural characteristics include the number of buyers and sellers; the products that are bought and sold; the various functional levels of the supply chain and the ease with which new firms can enter and expand. Competition problems can often be traced back to one of these factors, and so we have explored whether any of the market's structural features may have such an effect in this case. The market structure comprises both 'supply-side' and 'demand-side' features.

Supply of auto-fuel

The figure below provides an overview of the vertical supply chain through which petrol and diesel are supplied to customers in Hong Kong.



Note: Numbers in brackets denote number of retail sites in each location.

Crude oil is the primary input into auto-fuel and its cost represents a major component of final retail prices. Oil is converted into auto-fuel in large, technically complex refineries. Hong Kong has no refineries, and is consequently wholly dependent on imports of refined auto-fuel. These imports arrive principally from refineries in Singapore owned by the major retailers.¹ Typically, the 'vertically integrated' retailers receive multiple shipments per month, in 30,000 tonne tankers capable of transporting different auto-fuels simultaneously.

Upon arrival in Hong Kong, the fuel is stored in large 'terminal storage' tanks on Tsing Yi Island. Four companies own terminal storage facilities in this location – Shell, ExxonMobil (Esso), Chevron (Caltex) and Sinopec. Acquiring land to build new terminal storage would be difficult – especially for a new entrant.² Renting existing storage from competitors would also be challenging.³ Because PetroChina does not have its own terminal storage, it must purchase a wholesale supply of fuel from its competitors, placing it at a competitive disadvantage.

Most auto-fuel in Hong Kong is sold through retail stations. Sites for stations are designated for that specific use by the government after the consideration of many factors, including potential demand, environmental impacts, and road and fire safety concerns. In theory, parcels of privately-owned land being used for other purposes can also be converted into PFS sites. However, the conversion process is arduous and time consuming (typically taking two to three years) and, consequently, would likely give pause to potential new entrants.

Most PFS are owned by the major retailers and pump prices are determined by them. Unlike some of the low-cost 'self-service' stations seen in other countries (e.g., stations operated by supermarkets), most of Hong Kong's sites are 'full-service'. Space restriction has also been mentioned as a reason behind the limited revenue that can be generated from sales of 'high-margin' non-fuel items like snack food – nearly all revenue comes from fuel sales.

Three types of auto-fuel are currently imported into Hong Kong – 'standard' 98 RON unleaded petrol, 'super' 98 RON unleaded petrol⁴ and diesel. The 98 RON octane rating is uniformly higher than in most other markets, where it is considered a premium fuel and either offered alongside a cheaper alternative (e.g., 91 RON), or not at all. Currently all diesel sold is required to meet 'Euro V' standards.

¹ Importing from their own facilities presumably represents the most cost-effective way to source fuel.

² A deep-draft jetty would be required capable of receiving 30,000 tonne tankers, and in an unpopulated area. Government approval would also be needed – and may be hard to obtain.

³ The vertically integrated retailers are under no obligation to provide access and they might simply – and quite rationally – refuse outright, or demand uneconomic terms (which amounts to the same thing).

⁴ The Commission notes that there have been some claims that the 'super' variety of petrol on sale in Hong Kong may be of a higher RON than 98 RON, however the Commission has not been able to verify this.

98 RON unleaded petrol was introduced to Hong Kong in October 1991. Prior to that, another lower octane grade of petrol, 95 RON leaded petrol was sold but it was substituted by 95 RON unleaded petrol in April 1991. Between October 1991 and March 1992, both 95 RON and 98 RON unleaded petrol were available. 95 RON unleaded petrol was subsequently withdrawn from the market by all oil companies after being sold in the market for less than one year.

Retailers have stated that their decision to sell only 98 RON petrol reflected customer preference. However, the plausibility of this explanation is questionable, since most modern cars can comfortably use 95 RON petrol. Hong Kong stands alone in the world where only such a top grade of petrol (in practical terms the most expensive) is available for motorists. Both the “standard” and “super” varieties of petrol on offer here are 98 RON. The Commission has found it difficult to establish how the current one-product situation came about more than 20 years ago. That it was said to be reflective of consumer demand has made it all the more puzzling. To put this in perspective, 95 RON can be used in most cars with the exception of a very few luxurious and high performance models. In Singapore, for example, the 98 RON petrol price is around 15% higher than that of 95 RON petrol⁵ and the market share of 95 RON is over 50%⁶. As shown by a consumer preference survey⁷, a vast majority (86.2%) of the respondents in Hong Kong indicated that they are likely to switch to petrol with lower octane level than 98 RON petrol if it is 10% cheaper, while close to half of the respondents (45.7%) will definitely/ are very likely to make the switch. Furthermore, in another survey⁸ conducted on the car types in Hong Kong, it was shown that more than 99% of the petrol engine vehicles sampled could use 95 RON petrol, and only around 15% are recommended to use 98 RON.

The PFS sites themselves are leased to suppliers for 21-year periods via a tender process. Since July 2000, PFS sites are now leased in batches of up to five at a time, rather than one-by-one, and firms may lodge ‘super’ bids to lease all the stations together.⁹ The basic idea of the ‘super’ bid option was to enable new entrants to obtain scale more quickly, without the uncertainties of acquiring sites on a piecemeal basis. Both Sinopec and PetroChina availed themselves of the opportunity to acquire multiple sites in the early tenders held under this process.

⁵ The price differential percentage is the average of the data on 10/4/2017 or 11/4/2017 from 4 major auto-fuel retailers in Singapore.

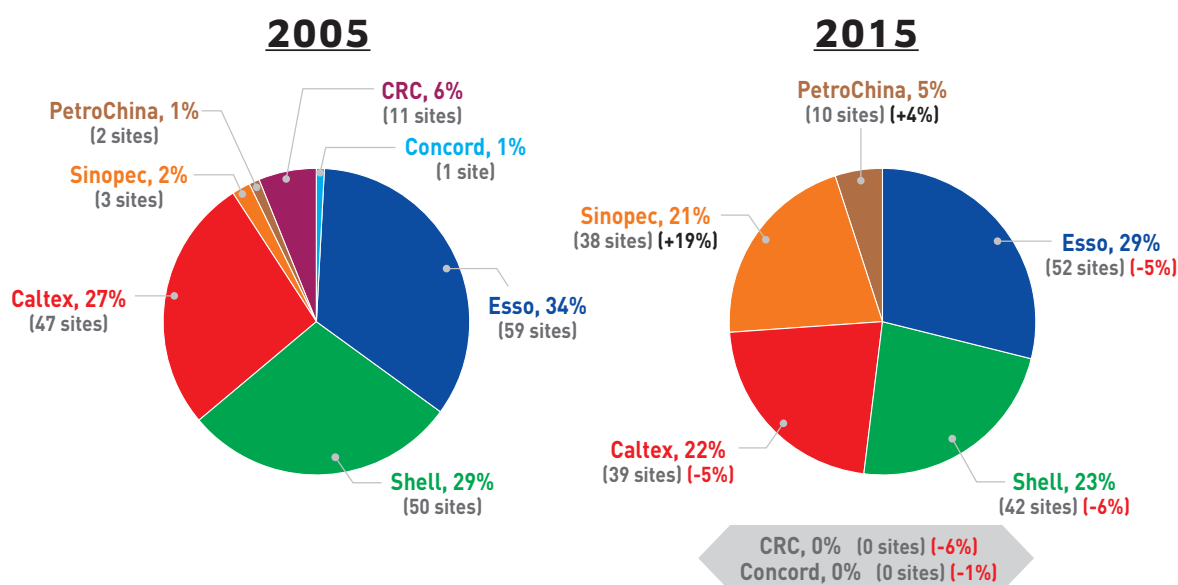
⁶ Competition Commission of Singapore (2011), Inquiry into Retail Petrol Market in Singapore, p. 6. Available [here](#).

⁷ The Commission commissioned the Social Science Research Centre of The University of Hong Kong to conduct the survey in 2017 during which 625 interviews were successfully completed.

⁸ The Commission commissioned the Social Science Research Centre of The University of Hong Kong to conduct the survey in 2017 during which 3,053 petrol-powered vehicles were sampled in 5 different locations across Hong Kong on both weekdays and weekends.

⁹ In addition, all PFS sites are now made available for re-tender upon expiry of the 21-year lease, instead of rolling these over as was previously the case. There are also fewer restrictions on whom may submit tenders, e.g. there is no need to hold a Special Import Licence, or a supply contract with a licence holder.

Since 2007, Sinopec has joined the ranks of the ‘vertically integrated’ retailers by acquiring CRC’s operations – including both its retail sites and its terminal storage facilities. There are now five principal retailers in Hong Kong: Shell, Esso, Caltex, Sinopec and PetroChina. The handful of stations operated by Feoso (four) and Concord Oil (one) are Esso-branded, and sell Esso fuel (so are treated as Esso stations). The charts below show retailers’ market share by their number of PFS sites in 2005 and 2015 respectively.



Sources: COMPAG 2005 Study; oil company websites; Lands Department

Demand for auto-fuel

In Hong Kong, there are, broadly speaking, two main groups of consumers. The first is private vehicle owners. These consumers account for virtually all the demand for unleaded petrol in Hong Kong. As at December 2015, there were 521,852 licensed private cars in Hong Kong,¹⁰ or around 7 licensed private cars per 100 population,¹¹ which is very low compared to other markets. Despite the low overall level of ownership, the number of licensed private cars in Hong Kong has grown steadily by 48.8% from 350,753 in 2005 to 521,852 in 2015. Net imports of unleaded petrol have also increased by approximately 51.1% – from around 450 million litres in 2005 to over 680 million litres in 2015.

¹⁰ Census and Statistics Department, *Hong Kong Monthly Digest of Statistics*, February 2017, Table 10.5, p.231. Available [here](#).

¹¹ The population of Hong Kong as at mid-2015 was 7,305,700.

Despite the significant increase in overall demand over the last decade, there has only been a very small increase by approximately 4.6% in the number of PFS sites: from 173 in 2005 to 181 in 2015.¹² This has translated into a sizeable uplift in the average amount of petrol being bought at each PFS site. The estimated average sales per PFS site has increased by approximately 46.2% from around 2.6 million litres per annum¹³ in 2005 to around 3.8 million litres per annum¹⁴ in 2015. All other things being equal, this should have allowed retailers to defray their fixed costs over larger volumes.

The second group of consumers are commercial transport operators, which account for most of the demand for diesel. The largest consumers in this group are the franchised bus operators. Each franchised bus company tenders its fuel supply periodically – a practice encouraged by the Government to demonstrate that they are controlling their input costs. They also have their own facilities for dispensing fuel and are therefore not dependent upon retail sites. Another category of large users for which competition appears quite keen is trucking fleets.

The remaining consumers of diesel are 'single operator' trucking providers, non-franchised bus companies and diesel-powered private cars. We have been advised that these customers are reliant on road-side filling stations and do not receive the same level of discounts as larger users. Bigger discounts can potentially be obtained, however, through third-party 'consolidators' (or 'fleet card agents').¹⁵ The Commission understands that the average diesel throughput at each PFS site has also increased since 2005, but not to the same extent as for petrol.

A curious feature of the Hong Kong market is the way customers appear to respond to pump price changes. In most international markets, consumers – or a significant proportion of them – are keenly aware of the prevailing fuel prices and try their best to buy where it is cheaper. This is quite intuitive: why pay more for the same thing, if you can switch by simply driving a bit further down the road? At least, that is the reaction one would expect to observe. What the Commission has *actually* observed in Hong Kong is quite different.

Some oil companies provided the Commission with daily volumes of auto-fuel sales, which enabled us to examine what happened at four 'pairs' of adjacent stations when their pump prices diverged.¹⁶ Sometimes the expected result was observed – that is, the station with the lower pump price appeared to gain volume and the more expensive site lost volume, compared with the previous week's levels. But not always.

¹² This number has decreased slightly in recent years – from 185 in 2011 – due to several station closures.

¹³ 454 million litres for 173 stations.

¹⁴ 685 million litres for 181 stations.

¹⁵ As the name suggests, these parties seek to 'consolidate' a large group of motorists, then negotiate a volume discount with an oil company. They are then able to pass on less than 100% of that discount, making a margin.

¹⁶ When retailers change their 'headline pump prices' there is usually a small window of time during which those prices differ across brands and, by extension, across retail sites.

On other occasions, the opposite occurred – and the station with the *higher* pump price ostensibly picked up volume. We consider some potential explanations for this unusual phenomenon in our assessment of market conduct.

Summary of structural characteristics

The key structural features of the Hong Kong auto-fuel market are summarised in the table below. Many of these are very difficult to change. For example, little can be done about Hong Kong's unique topography, which makes it harder for 'alternative retailing models' to emerge.¹⁷ However, there are other structural traits that *are* potentially amenable to reforms that might promote competition by making it easier for new firms – and nascent entrants – to acquire PFS sites and access to auto-fuel supply. We shall return to these in our recommendations.

High seller concentration	The market is highly concentrated, but the retailers' respective market share based on number of PFS have moved significantly over the last decade – due primarily to the growth of Sinopec.
High degree of vertical integration	The market exhibits a high degree of vertical integration, with the vast majority of auto-fuel sold through retail stations owned by integrated oil companies (the only exception being PetroChina).
Similar cost structures	The major retailers are likely to have broadly similar cost structures, i.e., there is no low-cost 'maverick' competitor and Hong Kong's topography limits opportunities for alternative retailing models to emerge.
High barriers to entry and expansion	The market is characterised by high barriers to entry – it is particularly difficult for new entrants to obtain a sufficient number of PFS sites and access to terminal storage facilities.
Availability of single product for petrol	Only one octane number of petrol, 98 RON, is available in Hong Kong.
Small number of private drivers	Few people drive cars. The city is dense, rendering car travel and parking inconvenient – particularly given the very convenient public transport options.
Strong dependence on retail sales	The majority of customers make auto-fuel purchases from retail stations – with only larger operators (such as the franchised bus companies) possessing their own filling infrastructure.

¹⁷ For example, supermarkets selling auto-fuel and retailers devoting significant floor space to high-margin 'non-fuel' items (noting also that few Hong Kong motorists exit their cars when filling up, in any case).

Analysis of Market Conduct

Certain types of conduct – or market outcomes – can signal potential competition problems, buttressing any concerns identified in a structural assessment. Alternatively, certain behaviours may simply be symptomatic of the unique characteristics of the Hong Kong market. The way that firms set prices – and the margins that they earn (to the extent they can be measured) – are especially important factors to consider.

The way pump prices are displayed

In most other markets, ascertaining the prevailing prices of petrol and diesel is straightforward. Stations typically have large price boards displaying clearly the current pump prices to passing motorists. This makes it quite easy for customers in these other markets to figure out what they will pay. In Hong Kong, it is harder for customers to gauge and compare prices in this way – and to ‘shop around’.

This is partly due to the greater complexity of discounts – which we discuss below – but, also, because of the lack of visibility of pump prices themselves. Some PFS sites do not have price boards at all (although, since 2000, all new leases require them) and those that are in place are not always visible from the street and/ or are relatively small. Moreover, some stations that have large, clearly visible boards at their disposal do not actually use them to display pump prices – which is puzzling.

When a retailer changes its pump prices, it usually takes one or two days for all the other retailers to follow suit. There is therefore a window – however brief – when pump prices diverge across the different brands. Given the infrequency of pump price changes (a phenomenon we explore below), these periods surrounding ‘price change events’ are potentially of great significance to the competitive process. During these windows, motorists may be aware that prices are changing, but they may not be fully apprised of those retailers that have changed the prices and those that are lagging. In the Commission’s view, that is problematic.

It might also at least partly explain the seemingly counterintuitive phenomenon described earlier, whereby stations with higher pump prices during ‘price change episodes’ were sometimes seen to ‘gain volumes’ at the expense of neighbouring stations with lower pump prices. It could be that some of those customers simply did not know there was a pump price difference between the two stations. In the Commission’s view, the ubiquitous use of prominent price boards would clearly assist with that ‘price discovery’ process. Indeed, this view is well supported by the recent consumer preference survey where almost 70% respondents favoured such price boards.

Prevalence and complexity of discounts

Another striking aspect of the Hong Kong market is the prevalence of discounts. Few customers pay the 'headline' pump price for either petrol or diesel. That price serves merely as a starting point from which various discounts are then typically applied. The first broad category is 'walk-in discounts'. These savings are available to anyone prepared to complete a form – at no charge.¹⁸ The Commission has compiled data on walk-in discounts from public sources – most notably the Consumer Council and the Environment Bureau. The key trends are as follows:

- In terms of diesel, walk-in discounts have been relatively steady across all retailers for the past four years. All retailers provide a walk-in discount of around \$2/litre for most of the days, which equals to 17% of the current pump price (which was \$11.80/litre at the time of writing).
- More variations can be seen in the structure of walk-in discounts offered by retailers on petrol purchases. Their size ranges from around \$0.8/litre to as much as \$2.0/litre off the pump price. Some companies also provide larger discounts on certain weekdays – and some discounts vary with the sum spent.¹⁹

There are many other potential avenues for Hong Kong customers – or subsets thereof – to receive other discounts. A customer might receive a discount upon presentation of certain payment cards (e.g., credit card discounts), or once various expenditure thresholds have been exceeded at a particular retailer (e.g., a loyalty discount), or upon the presentation of discount coupons, which are distributed to customers through various channels. In other words, the walk-in discounts may sometimes be the 'first tranche' of savings depending on whether the discounts can be combined.

Yet more discounts are potentially available to larger customers operating a fleet of vehicles (e.g., trucking companies) or to those availing themselves of the services of consolidators. These discounts – which apply most commonly to diesel purchases – are usually negotiated on a case-by-case basis. The Commission's research has revealed that these 'fleet' discounts are quite common – and can be very substantial. We also understand that larger customers tend to secure bigger savings – perhaps unsurprisingly.

Notwithstanding the clear importance of these other sources of discounts, there is a paucity of publicly available information about their size, the number of customers that receive them and their overall impact on retail prices. The Commission consequently requested further data from retailers on the average size of these discounts. Some retailers did not respond to this request (and they were under no compulsion to do so) and, although some others did, the level of detail provided varied substantially across those respondents.

¹⁸ For the avoidance of doubt, if a customer drove into a PFS site with no 'membership' or 'loyalty' cards of any kind (see further description below) and paid cash, he may need to pay the headline pump price. However, those customers can be expected to be few and far between.

¹⁹ These figures reflect the walk-in discounts available for standard 98 RON petrol in early November 2016.

The information that we did receive was sufficient to highlight the significance of these discounts. However, the 'gaps' in the data mean that we cannot say for certain how they would affect the overall prices paid by customers, i.e., the incremental effect above and beyond the walk-in discounts, if any, described earlier. What we *can* say with more confidence is that the overall variety of discounts offered in Hong Kong is consistently more than those in the other international markets.

It has been suggested that this discounting conduct reflects a competitive market. It is argued that oil companies do not engage in competition over the headline prices, but they do compete by offering a wide range of discounts, including walk-in discounts, credit card discounts, loyalty discounts, coupons, etc. Consumers who enjoy the discounts benefit as the effective prices they pay are lower than they would have to pay without discounts.

The Commission is of the view that discounts are not a perfect substitute for price competition. Specifically, discounts are not offered to all buyers in a uniform way. They are in fact a form of price discrimination, and it is a common way in which businesses maximise their profits. It operates by way of offering the exact same product at different prices based on the supply/demand characteristics of each market segment, rather than the underlying supply/demand characteristics of the market as a whole.

The Commission finds the discount system in the local auto-fuel market complex and opaque, making it difficult for consumers to compare the effective or actual prices. The Commission wishes to point out that the prevalence of discounts in the market does not necessarily mean that competition is vigorous. Indeed, the Commission is of the view that the opacity of discounts alleviates the competitive pressure on the oil companies to compete on price.

The movement of prices

Hong Kong auto-fuel pump prices do not move very often. Although a widely-used measure of the wholesale price – the price in Singapore published by Platts ('mean-of-Platts-Singapore or 'MOPS') – fluctuates daily, pump prices in Hong Kong usually remain at the same level for several days. This is unusual, compared to most markets, where pump prices often fluctuate daily. Of course, the frequency of changes in true retail prices will again be influenced by how often discounts change. However, these appear to move not too frequently as well.

Part of the explanation may lie in the fact that Hong Kong has no refining capacity and therefore must import all of its auto-fuel in large increments – generally in 30,000 tonne shipments. These large shipments of refined auto-fuel, purchased at one fixed price, provide supply for several weeks. Consequently, the input cost profile of a Hong Kong retailer is quite different to that facing an importer in, say, New York or Los Angeles where refined auto-fuel is piped in every day at a different daily price.

However, it does not offer a *complete* explanation. If all retailers set their prices on a weighted/ moving average basis then, at some point in time, a company's costs would have been below that average. In such circumstances, it appears unusual that no company perceives a competitive benefit in reducing its retail prices more quickly when product costs fall. Accordingly, the widespread practice of 'smoothing' fluctuations in input costs when setting retail prices may indicate a lack of effective competition between Hong Kong retailers.

Another curious feature of Hong Kong's prices is that they move in sync across geographic regions. It is unusual to observe complete pricing symmetry across a geographic location of comparable size to Hong Kong. In most international markets, prices do vary geographically – sometimes significantly. One might therefore expect to observe different prices in different local areas in Hong Kong due to the variations in demand and supply.

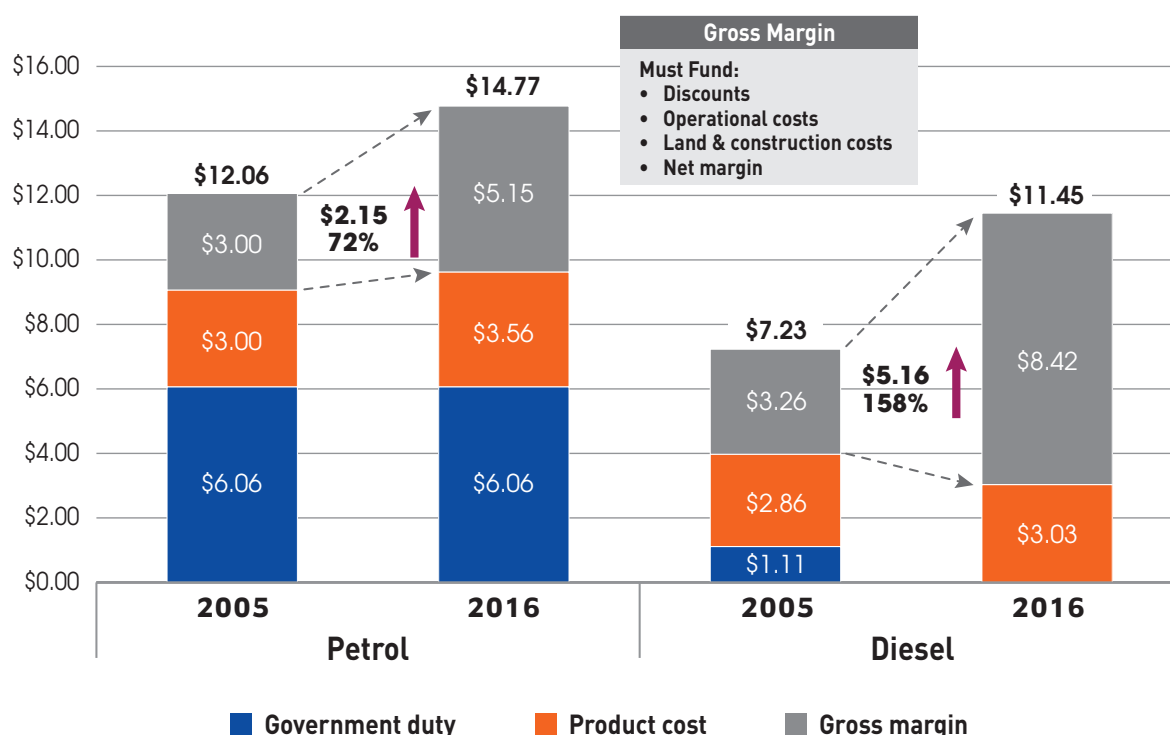
This lack of geographic price variation could, again, indicate a lack of vigorous competition between retailers. Alternatively, it could simply be symptomatic of the Hong Kong market. That is, whilst there is little or no *geographic* price variation, there is an atypical degree of price variation across *customers*, through the discount schemes. This approach to pricing may be the most effective retail strategy in Hong Kong, where locking-in repeat business from large commercial diesel and petrol customers through loyalty schemes may be critical for all retailers.

Finally, there is no evidence that retailers are increasing their retail margins by passing-through increases in import costs more quickly than reductions, i.e., engaging in 'rockets and feathers' pricing. Rather, the analysis undertaken by the Commission has shown that the timing of price changes in response to movements in input cost is broadly symmetric for both petrol and diesel.

Retail margins

The level of retail margins prevailing in a market can potentially provide a further indication of the level of competition. Unfortunately, the Commission does not have reliable data on several key factors that are necessary to arrive at robust estimates of retail margins. The only margin that can be calculated with any precision is retailers' 'gross margin'. This margin shows the per-litre revenue stream that retailers are receiving, from which they must cover all their costs after allowing for product costs and taxes.

The figure below shows how this gross margin has changed for petrol and diesel since the study prepared for the Competition Policy Advisory Group (COMPAG) and the Economic Development and Labour Bureau by Arculli and Associates, NERA Economic Consulting, and Gilbert & Tobin, published in 2005. In both cases, it has increased significantly – by \$2.15/litre for petrol and \$5.16/litre for diesel.²⁰ These increases – especially for diesel – are quite striking.



Sources: Product costs estimates provided by the Census and Statistics Department; Pump prices provided by the Consumer Council (2016 prices are for the month of December).

However, it is important to remember that these measures *gross margin*, and not *net profit margin*. The gross margin must fund all a retailer's discounts, its variable costs and its fixed costs. It is only after all these other outlays that a retailer earns a *net profit margin*, i.e., a true retail profit. This begs the question: what has driven the increase in gross margins? Have retailers' net profit margins increased significantly, or are the rises merely symptomatic of higher discounts and/ or cost escalation? In short, the answer to this question is unclear, because (amongst other things):

- A considerable proportion of the growth in the observed gross margins may be attributable to higher discounts. However, although we know that the impact of discounts on gross margins has been substantial over this period, we are unable to say precisely how much of the observed increase was driven by this factor, because the information needed for such an assessment was not supplied.

²⁰ Note that these values are depicted in nominal terms – i.e., without accounting for inflation. We discuss potential movements in the various components of the gross margin subsequently.

- The cost of PFS land has more than doubled during this period, i.e., the average tender price has gone up by 117%. It is conceivable that a substantial proportion of this increase is attributable primarily to a general upward trend in all land prices throughout Hong Kong over this period, which must ultimately flow-through to auto-fuel prices, e.g., The Price Indices of Private Domestic published by the Rating and Valuation Department indicates that the residential prices have increased by around 210% since 2005.

We therefore cannot rule out the possibility that the observed rises in gross margins are largely or wholly attributable to benign factors (i.e., the increases in discounts and/ or costs). We reflect more upon these data limitations in the recommendations presented subsequently.

Summary of behavioural characteristics

The price setting and adjustment practices of Hong Kong retailers – and the resulting retail margins – are summarised in the table below. It is again important to be mindful that many of these pricing practices are inevitable features of almost any homogeneous product market. However, several of the other practices could be cause for concern, as we will explain in our recommendations.

Parallel pricing	Prices are very similar across companies, exhibit small differences and change more or less at the same time – even accounting for the various forms of discounts off pump prices.
Little emphasis on pump prices	There is considerably less emphasis on pump prices in Hong Kong than in other markets – some stations do not even display those prices on price boards, which is customary elsewhere.
Strong emphasis on discounts	Discounts are prevalent, yet complex and opaque.
Limited variation in prices across time or geography	Prices move infrequently and are the same across each retailer's stations.
Symmetric pass-through of import costs	The Commission found no evidence that increases in import costs are passed on more quickly than reductions (of the so-called 'rockets and feathers' phenomenon).
No robust information on retail margins	It has not been possible for the Commission to draw any robust conclusions about the level of – and movement in – retail margins, since the data required to draw such inferences was not available.

Recommendations

Our analysis has highlighted several impediments to further competition in the Hong Kong auto-fuel market. Some of these are structural in nature and others relate to the way retailers set prices, and the difficulties customers have in comparing them.

Short-term options

In the Commission's opinion, there are four reforms that could be undertaken almost immediately and which may serve to enhance competition with relatively little downside risk. The first is to promote greater choice for consumers by simply *mandating* the sale of alternative cheaper products like 95 RON octane petrol.

As we explained earlier, the Commission is not persuaded by retailers' claims that they sell only 98 RON petrol because that is all that customers want to buy. Indeed, our view is well supported by the recent consumer preference survey where a vast majority (86.2%) of the respondents said that they are likely to switch to the petrol with lower octane level than 98 RON petrol if it is 10% cheaper, while close to half (45.7%) of the respondents will definitely / are very likely to make the switch. Also, another survey on car types in Hong Kong confirmed that more than 99% of the petrol engine cars sampled can use 95 RON petrol. According to many experts, the difference in performance relative to 95 RON petrol is negligible for most modern cars. We consider that many consumers might purchase 95 RON petrol, if given the option. Indeed, it is commonly sold in other international markets – much more so than 98 RON petrol. In fact, the Commission understands that the Government had written to oil companies in 2010 encouraging them to supply petrol of different octane numbers to the Hong Kong market.

Although there may be challenges to overcome, the Government should consider whether mechanisms are available to mandate the re-introduction of 95 RON petrol in some way. For example, offering 95 RON petrol could be made a condition of lease of PFS site. Such supply might be conditional upon there being sufficient space, or it might not. If there was no such conditionality, 95 RON petrol would then be the 'default' fuel option at those sites and 98 RON would then become an 'optional' premium product – supplied only if there is space. Alternatively, the Government could specify that particular sites which are put up for tender should supply 95 RON exclusively.

Any requirement to offer 95 RON petrol would need to also consider how any additional terminal storage requirements would be met. The potential options here include two of those listed subsequently in Recommendation 5, e.g., a Government-owned open-access facility, or a facility operated by a third-party and offered to 'all-comers'. All the potential challenges associated with those options that were raised below would apply equally here, and would need to be addressed if this course of action were to be pursued.

Of course, there remains yet another alternative – if enough demand for 95 RON petrol is generated by car owners in Hong Kong, oil companies will have to consider ways to meet this demand and one possibility would be to withdraw one of the two varieties of 98 RON petrol to make way for 95 RON petrol at least in some of their PFS sites.

The Commission is also of the view that re-introducing 95 RON petrol will not only provide more and likely cheaper options to drivers, it may also put competitive pressure on the sales of existing 98 RON petrol, possibly leading to lower prices and benefiting those consumers who will choose to continue to use 98 RON petrol.

RECOMMENDATION 1

The Government should facilitate the re-introduction of 95 RON petrol by considering making it a lease condition for new PFS sites or those sites which are up for re-tender and exploring various terminal storage options.

The second short-term reform concerns the processes surrounding the designation and conversion of sites for PFS use. Demand for auto-fuel has grown considerably over the past decade (net imports of unleaded petrol are up by around 50%) but yet there are only eight more PFS sites today than there were in 2005 (an increase of less than 5%). This discrepancy is conspicuous. It suggests that the process by which land is earmarked for PFS sites is not functioning effectively and that it remains too difficult to convert privately-held land to PFS use.

If the processes for the designation and conversion of sites for PFS use could be reformed so that more are made available when overall demand is increasing, then this could reduce barriers to entry. Presently, this structural characteristic may be serving as an impediment to additional competition.

RECOMMENDATION 2

The Government should enable more sites for PFS use to be tendered and/or converted.

Thirdly, with the leases of 28 PFS sites expiring in 2018, this is an opportune time for the Government to review the tendering system for such sites with a view to introducing more competition to the Hong Kong auto-fuel market. Back in 2000, the Government introduced a laudable new tendering arrangement that allowed firms with no import licences to bid for PFS sites and also enabled them to submit “super bids” to gain a critical mass of stations within a short time to better compete with incumbents. In light of the findings in this study, the Commission is of the view that there is room for

further enhancements and the timing is right for the Government to engage different stakeholders in such a review. Indeed, there have been no shortage of suggestions from different quarters on alternative ways of tendering for PFS sites over the years. For example, the Government had been asked to consider applying a system similar to how Liquefied Petroleum Gas (LPG) suppliers bid for LPG filling stations to PFS.

RECOMMENDATION 3

The Government should engage different stakeholders and initiate a review of the tendering system for PFS sites.

Fourthly, every PFS site in Hong Kong should display its current headline prices and walk-in discounts on a prominent price board that can be easily read by passing motorists. Without such boards, a motorist will be deprived of an easy and direct way of knowing the pump prices and the walk-in discounts being offered by different stations – including during those crucial windows of time when prices are moving.

The Commission acknowledges that it may still be difficult for customers to gauge *perfectly* the price differentials across retailers if the existing complex discounting regimes persist. However, 'difficult' is clearly preferable to 'impossible'. In our view, the potential benefit of enabling customers to 'shop around' more easily justifies any additional costs that retailers would need to incur erecting boards at those sites that do not currently have them. Moreover, the risk of facilitating greater price coordination is minimal, given the prevalence of discounting.

Again, the recent consumer preference survey indicated that almost 70% of respondents supported the display of price information on prominent boards at auto-fuel stations.

RECOMMENDATION 4

The auto-fuel retailers should display the prevailing pump prices and walk-in discounts for their petrol and diesel products on prominent boards that can be read by passing motorists at every PFS site.

Longer-term options

Substantial enhancements in competition between retailers are unlikely to occur in the longer-term unless it is easier for smaller firms – including new entrants – to source competitively priced imports and terminal storage. Indeed, the existing competitive norms (e.g., the emphasis on discounts, the 'smoothing' of prices, the exclusive sale of 98 RON octane petrol, etc.) are most likely to be challenged by a new entrant, or a smaller competitor with fewer 'existing profits' at stake.

However, the opportunities for that kind of entry and expansion are limited at present. Building terminal storage or renting it from existing owners may simply not be feasible, for the reasons we discussed earlier. Yet, without it, entrants are forced to buy their fuel from other retailers, placing them at a significant competitive disadvantage. The Government may therefore wish to explore alternative ways of providing economically priced terminal storage, to enable new entrants to import their own supplies of auto-fuel. The potential options include:

- introducing an access regime whereby companies with existing terminal facilities are required to allow third parties access to those facilities on regulated terms, subject to capacity being available; or
- introducing a new 'open access' facility that might be built and operated by a third party – the Government could put the proposal to tender, and mandate criteria such as the price that the operator would offer to retailers.

To be sure, a multitude of potential considerations would need to be considered before any of these options was implemented, including:

- each of the options would entail considerable additional costs (e.g., designing, consulting upon and administering the approach) and many of these would fall upon the Government ;
- questions would need to be resolved as to how firms would co-mingle and 'share' products in any 'shared' facility – this raises complex questions about quality and liability;
- if an access regime is introduced, it would be necessary to define when capacity was 'available' and when it was not, which would be challenging and could give rise to opportunities for strategic conduct; and
- entrants may still be at a distinct cost disadvantage even with terminal storage – at least initially – since shipping costs vary considerably with the size of the tanker and they are unlikely to be able to justify 30,000 tonne shipments.

For the avoidance of doubt, the Commission is not recommending that the Government necessarily pursue any of these options²¹ – indeed, the factors set out above (and many others that are not listed) could well mean that the costs outweigh the benefits. We are simply suggesting that there could be merit in exploring them in more detail, since significant changes to the competitive landscape of the retail market are unlikely to occur whilst the upstream structural barriers to obtaining economically-priced imports persist.

²¹ Indeed, we note that the COMPAG 2005 Study examined each of these options – albeit only briefly – and chose not to recommend them. See: COMPAG 2005 Study, p.82.

The exploration of options might even look beyond the terminal storage level to alternative sources of supply. For example, given Hong Kong's proximity to the Mainland, it may be possible for fuels to be imported via a pipeline that could be constructed from Shenzhen to Hong Kong – with a bonded warehouse situated along the border on the Hong Kong side. There again seems to be no obvious downside to exploring whether these alternative 'structural' solutions might serve to deliver long-term benefits in the form of increased retail competition that outweigh their costs.

If any of the options set out above could make it easier for new entrants to acquire access to economically priced imports, the more likely it is that significant change will be seen in the retail market. For instance, reducing this structural barrier to entry could lead to different pricing approaches (e.g., less emphasis on discounting) and more product differentiation. For example, a new entrant may be more inclined than the incumbent retailers to offer 95 RON octane petrol as a cheaper alternative to the existing premium products.

RECOMMENDATION 5

The Government should explore whether potential 'structural' reform options – such as various interventions at the terminal storage and alternative source of auto-fuel supply, could deliver benefits through increased retail competition that outweigh the attendant costs and risks.

Finally, another long-term recommendation is more general in nature and concerns the way in which market studies are undertaken. Presently, the Commission does not have the power to compel parties to produce information when conducting such studies. We must rely instead on their willingness to cooperate. The potential problem this creates has been self-evident throughout this report. We did not always receive the data we requested from parties, and the resulting 'gaps' have prevented us from undertaking some analyses with the degree of rigour required to draw robust inferences – the assessment of retail margins being the clearest example.

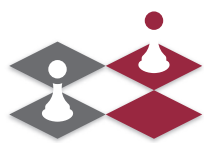
At present, 58 out of 60 competition authorities (over 96%)²² which carry out market studies, enjoy some sort of power to request information. Power includes authorization provided by law to competition authorities to request information to be provided by stakeholders, whether such authorization is expressed on general ('to protect competition') or specific terms ('for the purpose of carrying out market studies'). The ability to exercise such powers have been found to be vital to many important studies which have been undertaken and led to positive changes in relevant markets.

²² OECD (2016), The Role of Market Studies as a Tool to Promote Competition, p.12. Available [here](#).

Future market studies would therefore be assisted if the Commission has compulsory information gathering powers so that the same problems do not recur. After all, the purpose of such studies is to obtain information about how a market functions to see whether potential problems exist. If businesses can simply refuse to provide it, that can serve to undermine that fundamental objective. Provided sensible limits are placed upon what the Commission can ask for and how it is reported, we believe that parties should be compelled to furnish the information required to undertake the relevant analyses.

RECOMMENDATION 6

The Commission should be provided with information gathering powers that would compel the production of materials when undertaking future market studies, provided no undue burden is placed on those parties and confidentiality is protected appropriately.



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**COMPETITION
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