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INCREASED PETROL PRICES
&
IMPLICATIONS on CONSUMERS, PRODUCERS AND THE GOVERNMENT

A. Market structure of the oil industry

Petrol is one of the essential products that keep an important role in human life. The petrol market is structured as the **Oligopoly** market.

Definition:

Oligopoly market means there are only a few sellers of a differentiated product, which are close substitutes. There is small number of sellers in the oligopoly market (called Oligopolists). The main features of oligopoly market structures are: the strong barrier to entry, product brand of each oligopolist is notable, Inter-dependent decision-making and Non-price competition.

Explanation:

Petrol is a homogenous product because consumed petrol from any petrol station is able to operate the vehicles so that they are close substitutes within the group of sellers in the market.

The strong barriers to entry the oligopoly market come from the huge start-up cost for a selling petrol business and the product brands in the market are all famous and remarkable in the market for a long period of time. Moreover, the large incumbent firms may have existing customers loyal to established products. The presence of current strong brands within a market can be a barrier to entry. The barriers to entry maintain supernormal profit for the dominant firms. It is able for some private firms to enter the market however the famous brands are large enough to keep the consumers stay with their normal routine. The consequence of the strong barriers to entry the market is that there are so few firms in the petrol market.

Petrol sellers are price setters rather than price takers. Since there are not many sellers in the market, the decisions of making any changes in price or non-price factor affect significantly to the reactions of the rivals. Before making any change, a seller needs to consider and take into account the reactions of other sellers.

Non-price such as consumer services is an appropriate method to compete with other sellers in the oligopoly market since the rivals tend to follow quickly decreasing the price to make their consumers stay.

Justification:

In New Zealand, there is small number of petrol sellers such as: Gull, BP, Caltex, Z, Mobil and Shell. While a particular petrol brand charges a higher, the customers behavior is that they are likely to choose other petrol station within town that charge them lower price since petrol is homogenous product and close substitutes.

The evidence for the strong barriers to entry the petrol is that there are so few private or independent petrol stations. The famous petrol brands established long time ago.

Another feature of the petrol market is inter-dependent decision making. Petrol suppliers must consider reactions of their business rivals to any their change in price. This is illuminated by the realistic situation. According to AA website & report about the fuel price watching news on 19th of September, the fuel prices have fallen across the board again, this time a 2c (218.9 to 216.9) drop and led by Z. All other petrol suppliers quickly change their prices within the day. They all compete and it leads to price war.

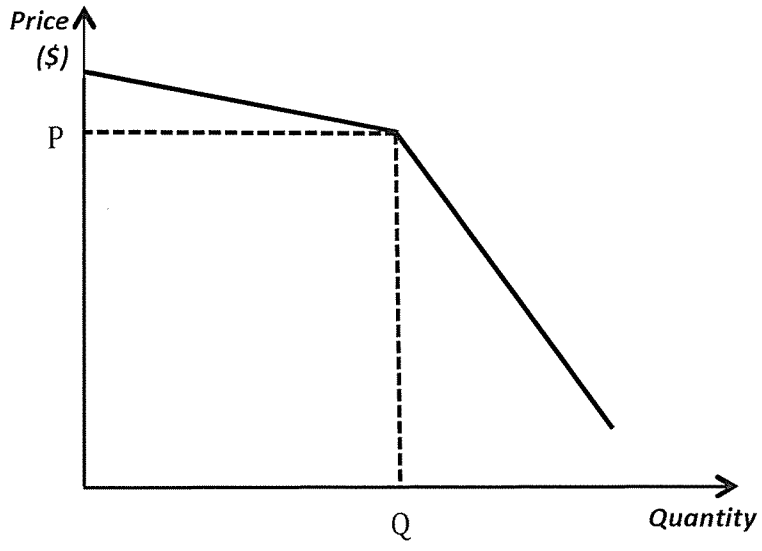
Price and Non-price competition: Moreover, the high prices of petrol also lead to several of methods of petrol firms to keep the consumer demand remain stable. Petrol discount vouchers is applied by shopping around. In the same article that I have researched about, New World was offering shoppers 35c per liter discount of they spend over $200 while Countdown is offering 30c off per liter (at local Z and Gull petrol stations) for spending the same amount. New World and Pak N' Save (at local Mobil petrol stations) stores usually offer a standard fuel discount of 4c a liter if shoppers spend at least $40.

There are several of methods that petrol supplier use in their competition. They increase quality of services: BP – bean coffee and convenient shops, Caltex – cleans your car as you drive, Z – petrol cards to redeem vouchers and coffee shops. *(Source: economics.org.nz)*

Non-price competition is important under the oligopoly market since the price war has negative effects to the firm itself as well as its rival firms. The non-price competition tends to be a better method to attract and increase the demand inasmuch as businesses would use policies to increase market share: strengthen quality service; discount vouchers; advertising; contractual relationships with others suppliers (supermarket).

B. Elasticity of demand for petrol

Demand model for oligopoly market is a kinked demand curve.



Petrol is a necessity in human life nowadays since it is used for the majority of overland traffics transportation. Secondly, it is not easily postponed. Once the car run out of petrol, it is unable to operate obviously. In addition, there are very few substitutes for petrol thus it is considered as an inelastic product. Diesel can be considered

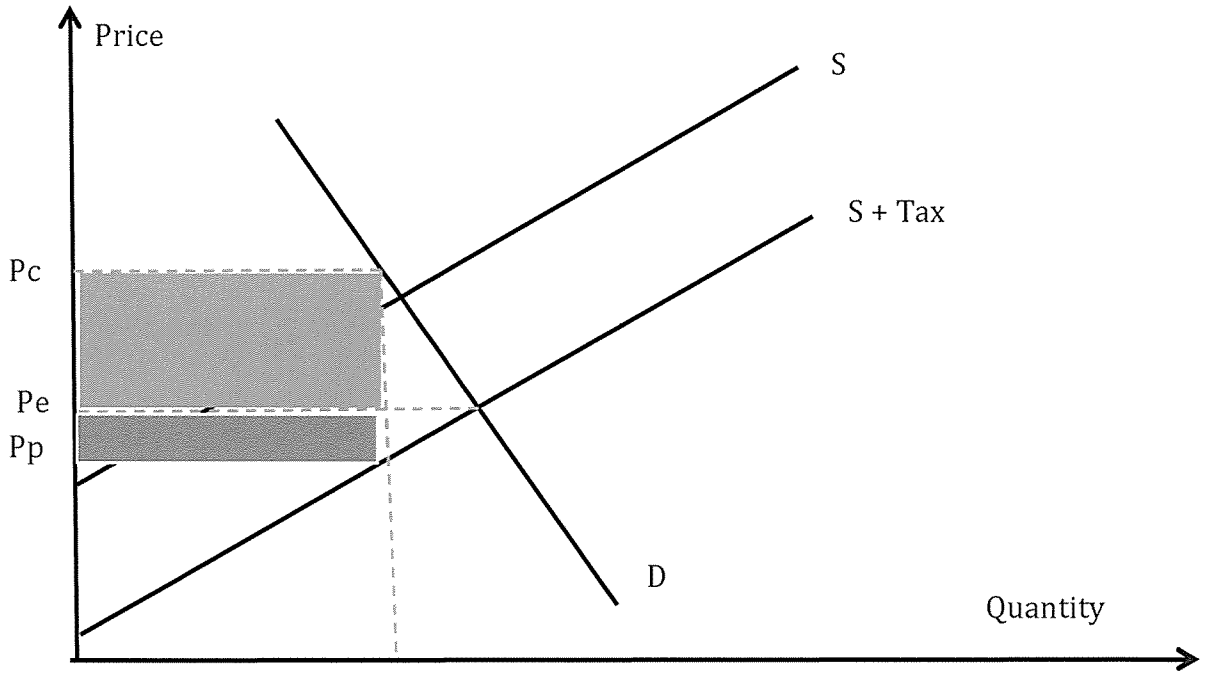
as a substitute for petrol and it has a cheaper price compared to petrol. There are some types of SUVs of BMW or Audi, etc. use Diesel instead of 91 or 92 Octane to operate, however, the majority of traffics is using 91 or 92 petrol.

The demand for petrol is inelastic; the elasticity of demand for petrol is less than 1, that is, changes in price have a relatively small effect on the quantity of the petrol demanded. ***The evidence of responsiveness of consumers to the increased petrol price will be justified more detailed in the impact of increased petrol price to consumers.***

C. Indirect Tax in petrol price

Nevertheless, since petrol is inelastic, producers are more likely to pass on any increase in the cost of production onto consumers. In the graph above, the green area is the incidence of tax on consumers, which is bigger than the incidence of tax on petrol sellers (purple area).

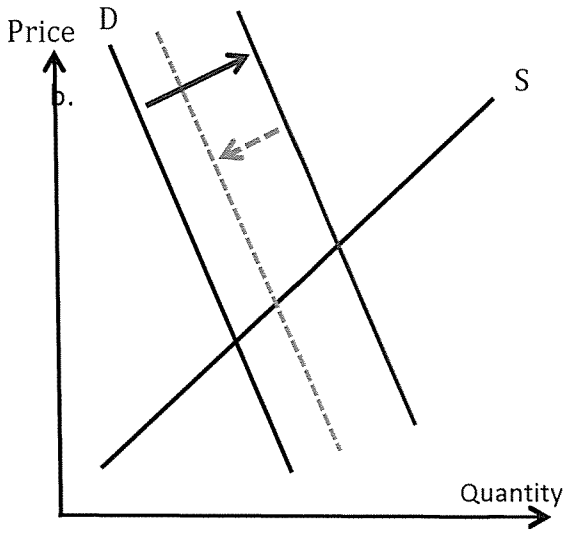
Petrol suppliers are called oligopolists. They are likely price setters rather than price takers. Since petrol suppliers are price setters rather than price takers so that their profit can be supernormal and it is maximized by producing where MC = MR. The higher petrol price means the higher profit that petrol sellers can get.



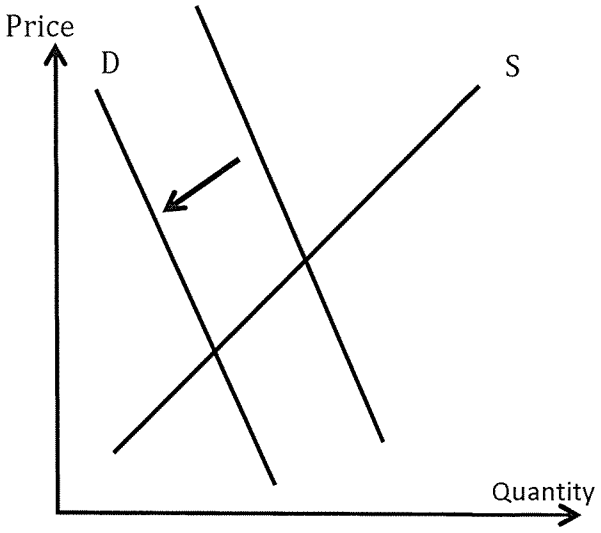
D. Impact of increased petrol price

a. Substitutes and Complements

The increased petrol price and its effects can be modeled by the substitute and complementary good theory. Substitute good is that can be used instead of other and the complementary good is the good that parallel using by consumers.



Substitute goods

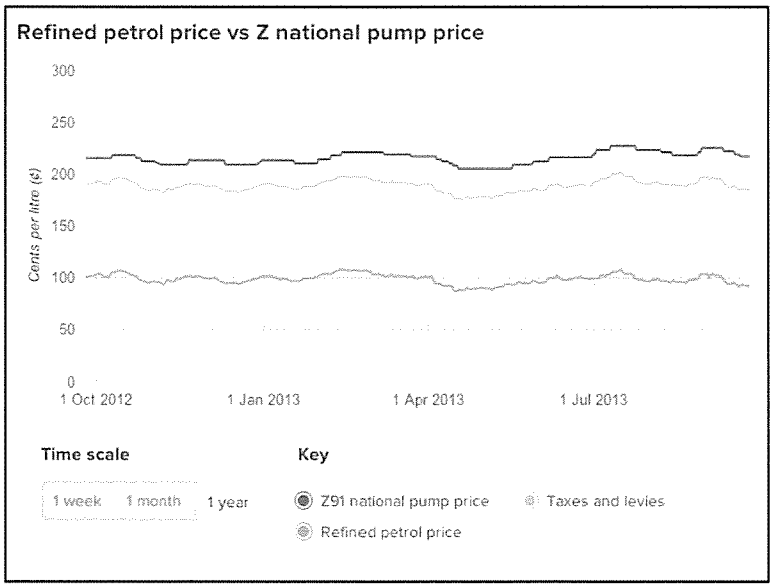


Complementary goods

The substitute goods graph shows that as a consequence of high petrol price, the demand for substitute goods (such as: public transports; bikes; walking gear, etc.) is increase in the short run (Blue movements). However, in the long run, the demand for substitute goods would move back (Red movements) because the inconvenience of public transports, etc.
The complementary graph shows that as a consequence of high petrol price, the demand for complementary goods (such as: big cars and old cars that burn more petrol) tend to decrease since the petrol bills for them is costing a large amount of consumers' disposal incomes.

b. Producers, Government and Consumers

- ***Producers:***



The impacts of increased petrol price on petrol producers pass on the increase in the cost of production, through increased imported refined oil prices to consumers or not. The graph above shows the refined petrol price vs. Z national pump price *(Source: z.co.nz/motorists/fuel-pricing)*

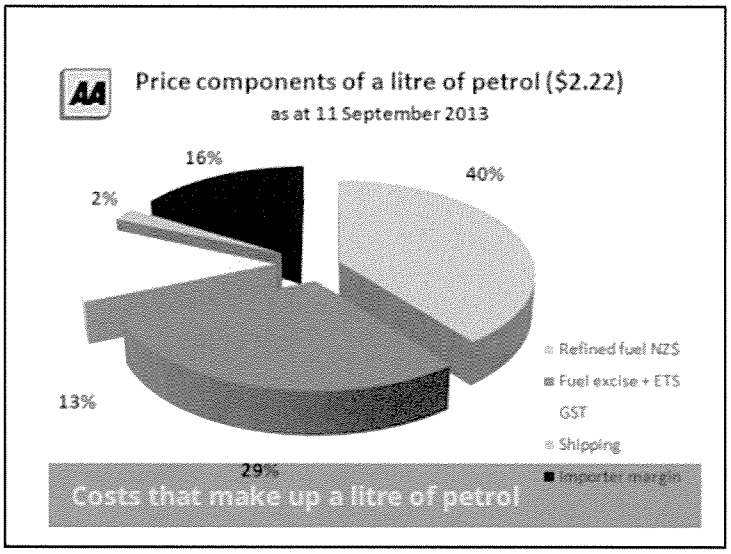
The higher petrol price would increase significantly the price of transport, which takes a big amount of production cost. As a consequence of increased petrol price, the production cost increased then the price several types products tend to be more expensive. Since the prices of other products are more expensive, the quantity demanded would decrease. Firms would force to a loss in revenue as well as their business confidence.

In the short-term, producers will decrease the amount of their production cost by reduce the unnecessary payments for petrol. However, in the long term, producers respond to the increased price by seeking for more efficient machinery to use. What is more, they would likely to increase the price of products to maintain the private profits.

- ***Government:***

As mentioned above, the producers would respond to the high petrol price by increasing their products' prices. As a result, the inflation rate would increase since petrol is an essential raw material for production activities. Once inflation occurs, the Government would need to be able to have responsibility to reduce the inflation (decrease the price level) by monetary policies, regulations (subsidy, etc.) As a consequence, the increase of petrol price creates a serious problem to the local Government.

According to website *z.co.nz,* a significant portion of the price of every tank of fuel is made up of Government taxes and levies. At the moment, 64.12 cents per liter is collected by the government as fuel excise. In addition, a GST of 15% is collected on the overall price on fuel including excise.



A high petrol price decreases the saving level of households, increases the production cost, and reduces business confidence of firms. All of those implications would decrease GPD per capita then affect negatively the economic growth.

According to AA website, around 45% of the pump price is the actual cost of refined petrol and another 45% is tax i.e. 64.13 cents per liter in fixed excise, plus the Emissions Trading Scheme levy (approximately 1c/l) and GST.

In addition, with an increase in petrol prices, revenue from tax will increase. Since the demand for petrol is inelastic, quantity demanded will not decrease by much and so Government will gain a lot more from petrol taxation. Increased revenue from tax could trigger Government push it's spending in other areas up.

- ***Consumers:***

In the short-term, travelling by bus, bike and walking probably are the most common reacts of consumers to the increased petrol prices. Public traffics tend to be cheaper nevertheless there are quite a lot of inconveniences for users such as the limited time, ease of accessibility from private accommodation to the bus/train stations.

In the article "Petrol prices hit 6-month high for consumers" of NZ Herald Bay of Plenty in February, a motorist at Mobil Causeway said the petrol hikes had hit her so hard and she no longer used her car as much and often cycled or walk.

Mr. Powel (interviewed in the same article) said he and his wife owned two vehicles but tended to use their smaller car and car-pool as much as possible. When he filled up in Rotorua one week before, the price was 16 cents cheaper than in Tauranga. What is more, he tried to shop around then he could redeem supermarket fuel discount vouchers.

The graph in the right is the trend in actual petrol price and petrol consumption. *(Source: Land Transport NZ Research report 331 – David Kennedy and Ian Wallis).*

The petrol price affects significantly the consumption in overall trend. They seem to use less amount of petrol in the short-run.

Nevertheless, in the long run, the behavior of consumers would not change as much as in the short term. Since the inconvenience and the inefficiency of some other substitute transport methods (buses, subway, bikes, jogging, etc.), consumer go back to using the same amount of petrol as before for their cars. The demand for petrol market in the long run is more inelastic and its calculated elasticity is small.

Sandra A. Barns 2001 Department of Economics of Waikato found elasticity of petrol to be 0.195 in short-run and 0.065 in long run.

The elasticity $E_d = 0$ is the perfectly inelastic demand, the elasticity of petrol is 0.065 (is almost 0) in the long run in the study of Sandra A. Barns is the evidence of an inelastic demand for petrol.

In the long-term, consumers start to think how to use petrol more efficiency. They would like to forage for and invest other types of methods that help them reduce their spending on petrol. As a result of those responses of consumers, the petrol consumers would be able to accept the high petrol price since they have other ways to decrease the spending on petrol.

In addition, the consequence of increased petrol prices showed in some other areas. The spending for other goods of households has a tendency of reduction since the bills for their petrol climb up. Moreover,

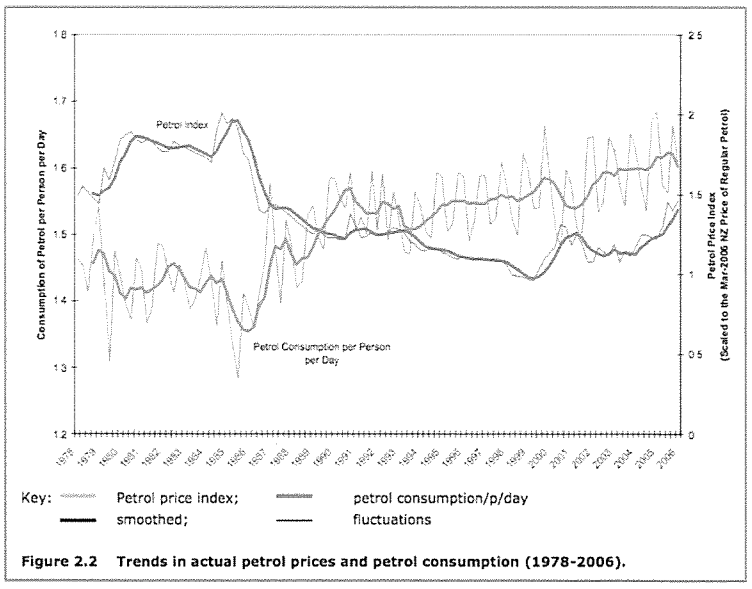


Figure 2.2 Trends in actual petrol prices and petrol consumption (1978-2006).

the high payments for petrol might take away a larger amount of their disposal income. This situation discourages savings of households and could lead to a loss in spending of households on other goods such as luxury goods, oversea holidays, etc. Low-income households are hit directly and strongly by the increased petrol price since they might no longer can afford the petrol for their cars. The bill for petrol is higher and it takes more percentage in their income. Therefore, their spending on other goods as well as savings falls down. In the article of NZ Herald, a motorist said the petrol hikes had hit her so hard she no longer used her car as much and often cycled or walked, "I can't remember when I last completely filled my Toyota Corolla. I can only afford $10 a time now. If I did fill up it would cost $90 to $95, whereas a few months ago it was $75 to $80".