

Fuel Pricing in Fiji

Gyaneshwar Rao

Abstract

This paper looks at the fuel pricing structure in Fiji for unleaded petrol and diesoline. It examines the components of the final retail prices, and shows that there is a component which remains unexplained by the pricing template used in Fiji. This component could be said to reflect the oligopoly rent which oil companies in Fiji are deriving.

Introduction

Changes in prices of petroleum products are always under public scrutiny. Fuel is an essential commodity, without viable substitutes. It is needed to fuel a country's economic expansion. The common view in Fiji is that oil companies are manipulating prices in an oligopolistic market structure to earn super profits. Some also claim to observe an asymmetric relationship between the retail end prices and the crude oil prices. That is, retail end prices respond more quickly to crude price increases than when they are falling. Previous research (for example, Bacon, 1991; Karrenbrock, 1991; French, 1991; and Borenstein, Cameron and Gilbert, 1997) has found evidence of asymmetric response in the UK and the US gasoline markets. On the other hand, Norman and Shin (1991) found a symmetric response in the US gasoline market, while, Bachmeier and Griffin (2003) found no evidence of asymmetry.

This paper looks at the fuel pricing structure in Fiji for unleaded petrol and diesoline. It examines the components of the final retail prices, and shows that there is a component which remains unexplained by the pricing template used in Fiji. This component could be said to reflect the oligopoly rent which oil companies in Fiji are deriving.

Why fuel prices remain high?

The price of fuel is likely to remain high in future for many reasons. First, war or threat of war brings uncertainty which fuels speculation on product availability. The oil rich regions of the Middle-East have been politically unstable for years now; the recent political incursion by the American-led forces in the area has further exacerbated an already volatile situation. Second, too few oil fields have been drilled in the last decade while the surplus of the previous decades is now dwindling. No new large oil fields have been found in the last two decades. Third, petroleum is taxed heavily due to the nature of the product. That demand for fuels is relatively inelastic, makes it an ideal candidate for tax levy as consumers cannot switch consumption to substitutes. Fuel is also taxed at multiple levels and is an excellent revenue earner for governments. Fourth, the demand for fuel is continuously rising. Fifth, attractive and viable energy alternatives to gasoline do not exist. Ethanol additives to gasoline are politically popular but inefficient since more energy is required to produce a gallon of ethanol than is gained. Natural gas powered vehicles work but natural gas is also of uncertain supply (Green, 1997).

Recent price changes can be traced to 1999 OPEC oil production cuts and the American invasion of Iraq. A historical examination of crude price movements indicates that the production decisions of OPEC have had a considerable effect on the world crude oil prices at all stages of production (Weinhagen, 2003).

The Structure of the Fuel Market in Fiji

The country is serviced by three large multi-national companies: Mobil, Shell and British Petroleum¹. All three companies buy the refined product from either Australia or Singapore. Recently, petroleum has been bought largely from Singapore which is a key trading and refining centre for the Asia-Pacific region. Fiji does not have any petroleum refining facilities. The suppliers own petrol stations, equipment, and vehicles for product delivery to petrol stations around the country. Other smaller customers – the petrol stations and petrol pumps in rural areas - are serviced by contractors who work on a commission basis using their own delivery vehicles. The major task of the three multi-national companies is to facilitate the in-

¹ The market share each company holds depends upon who acquires contracts to supply large users like Fiji Sugar Corporation and Fiji Electricity Authority. According to Fiji Islands Revenue and Customs Authority data, for 2004, the market share was: Mobil 47.5%, BP 26.4%, Shell 24.4% and others 1.7% (eg. Juhi).

frastructure for product delivery to customers. Petroleum is bought from the refineries and stored for delivery in Fiji or to be re-exported to other island nations in the South Pacific which these companies also service.² Petrol stations are leased to operators at different rates of rental, depending upon the turnover per year at each locality³. There are no independent operators, with ownership of petrol stations, as are found in Australasia.

The market outlets are spread out on a number of islands, with prices differing accordingly. This paper concentrates on the main centres of the island of Viti Levu. The petroleum market in Fiji is divided into two segments, a price-controlled segment and a non-price control segment. This paper focuses on the price-controlled segment of the market.

Petroleum supplies for Government and substantial industrial users like Fiji Electricity Authority, Fiji Sugar Corporation, Emperor Gold Mines, Inter-Island Shipping, Fishing Companies and the Bus Companies are in the non-controlled segment of the market. A number of these industrial users receive subsidy from the Government in the form of a lower rate of fiscal duty⁴. Numerous types of fuel are supplied to the Fiji market. The paper concentrates on unleaded petrol and diesoline. These two fuels are in most common use in the Fiji market. The supply and distribution structure of the Fiji Fuel Market is shown in Figure 1.

The Fuel Pricing Formula

Fuel prices in Fiji are reviewed quarterly under the Counter Inflation Act. Fiji is the only country in the South Pacific where the review is done every three months. Fuel pricing is of strategic importance to industrial, transport and household sectors of the economy.⁵ This at least has been the

² About 25-30% of fuel imported into Fiji is re-exported to Tuvalu, Samoa, Cook Islands, Tonga, Norfolk Islands, Wallis and Futuna, Niue, and sold to foreign ships and airlines.

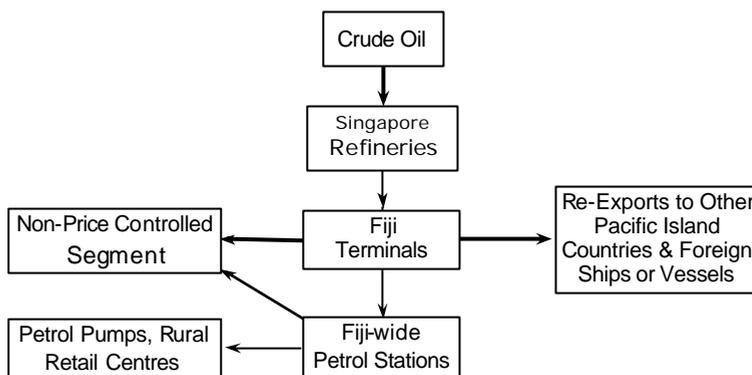
³ For a petrol station that sells 1 million litres a year or less, typical rental is \$1000 a month, between 1 million and 2 million litres, \$2000 a month and those above 2 million litres would be \$3000-\$5000 a month.

⁴ The specific fiscal duty rate for diesoline is 18 cents a unit. The Bus Industry received a rebate of 14 cents a litre, while in 2005 it is receiving a full rebate (18 cents a litre). The Fiji Electricity Authority and the Emperor Gold Mining Company receive full rebates. The Fiji Sugar Corporation received 10 cents rebate until 2004; in 2004 it did not apply for a rebate. Inter-island shipping companies, and the fishing industry receive 14 cents and 10 cents rebate respectively.

⁵ Fuel prices are also regulated in other Pacific Countries. In Papua New Guinea, Kiribati, Tuvalu, Niue, Nauru, Marshall and Cook Islands it is reviewed monthly.

rationale for price fixing in Fiji. Fiji is not the only country that has instituted controls. Countries like United States of America have instituted controls at different levels from oil fields to retail outlets to ensure that the benefits of lower crude prices are passed on to the end users.

Fig 1: The Supply and Distribution Structure of Fiji Fuel Industry



The price fixing formula, called the Petroleum Pricing Template (PPT), developed by the Forum Secretariat in consultation with the Government and the oil companies, provides the price fixing mechanism. The PPT is concerned with the price-controlled segment of the market. PPT quantifies all supplier cost components: 'free on board' (FOB) prices based on Singapore world price, freight, insurance, exchange rate effects, demurrage and losses, operating costs, fiscal duty and tax paid to government, distributional costs and a return on investment for the oil companies.

The Fiji FOB cost is based on prices that are readily available from the Singapore market and published by Platts on a regular basis⁶. These are SPOT prices. The SPOT prices are actual prices paid on a given day. The average of these spot prices on any given day is called the MOPS (the Mean of Platts Singapore)⁷.

The Fiji FOB price is based on the MOPS. The Fiji Prices and Incomes Board computes a plus and minus 10-day average of the MOPS

In Solomon Islands and Tonga, the review is done every two months. Samoa has adopted an alternative system of purchase, which is discussed later in the paper.

⁶ Platts is a website that provides oil industry information. It reports the actual trading that takes place each day at the Singapore petroleum market.

⁷ Spot prices fluctuate on a given day.

from the date of the bill of lading for each purchase for each company. The average for the three companies is then computed to give the price to be used in the pricing template.⁸

Freight charged depends upon the number of ports the vessel has to service. One port discharge is cheaper than a two or more port discharge. Shipment costs are also influenced by a 'seasonal factor', which refers to the demand and supply of vessels at any particular time. Currently oil spills have been of major environmental concern, thus the consequent high demand for 'safe vessels' for fuel delivery. Medium range vessels are used for fuel conveyance for Fiji.

All operating and distributional costs are itemized for recovery in the PPT. It may include items such as cartage, on-stock variation, oil industry charges, depreciation, labour costs / employee expenses, communications, rent/leasing, insurance, taxes, material and supplies, advertising and promotions, professional fees, doubtful debts, bad debts, head office expenses, regional office expenses, mark-up for petrol stations and other recoverables. Demurrage and losses can arise from port delay in offloading fuel, the speed at which offloading is executed and storage and pipeline losses. All these costs are factored into the pricing template.

Exchange rate effects are considered as Platts is quoted in US dollars. Thus, fluctuations in \$F/\$US affect the fuel retail prices in Fiji.

The oil companies are assured by the PIB of a return of 15% on all their assets. The pricing template accommodates income tax of 32%.

All costs in the price-controlled segment are pro-rated by volume to ensure that there is no cross subsidy to the uncontrolled segment of the market. All operational, administrative and distributional costs are pro-rated by volume between the two segments of the market. Localised centres are apportioned costs for regional as well as the headquarters costs incurred by the parent oil companies.

Weaknesses of the Price Setting Mechanism

The major criticism of the pricing mechanism has been the observance of an asymmetric relationship between the retail end prices and the crude oil prices. That is, the retail end prices respond more quickly to crude

⁸ Singapore Platts reports all actual trading prices in the South-East Asia region. These are called the spot prices. The average of all spot prices on a given day is called mops. Mops is used for price calculations by PIB in Fiji. It does not consider actual prices paid by different companies. Oil companies own their own refineries and buy from their refineries.

price increases than to falling prices. Why are fuel retail prices not responsive to the falling spot crude oil prices? The most probable explanation is that there is some flaw in the methodology of arriving at the FOB price used in the pricing template, which inhibits any fall in crude prices to be passed on to consumers readily. Fuel is purchased in Singapore at Spot prices. But Fiji price is based on MOPS, the average of Spot prices on a given day. The method used is to average MOPS around the bill of lading for each company and then to average for all oil companies. Thus, the price used in the template is averaged three times before being used in the fuel pricing template. The fluctuations in the spot prices are, therefore, flattened. This prevents fluctuations in spot prices to transmit to retail end prices. Econometric analysis show that the quarterly MOPS prices and the retail end prices over the period 1996-2004 exhibit evidence of the existence of asymmetry between them; the upward adjustment in gasoline is twice as fast as in the downward direction (Rao and Rao, 2005).

The second major weakness is in guaranteeing a return on investment of 15% of all assets. Pricing on this basis leads oil companies to build up their assets – for example, building their own outlets for distribution, a function which could reasonably be taken over by private retailers. A thorough analysis of the asset ownership structure of petroleum companies is needed to ascertain the asset valuations and asset build-up of petroleum companies and its probable impact on retail prices of fuel.

Third, petroleum companies do not provide audited financial statements to the Prices and Incomes Board for the quarterly review and variation of prices. This does not provide the PIB any verifiable basis of establishing the values of the assets which the companies hold.

The 15% return on assets is itself an arbitrarily rate of return. While this is at the lower end of the range of 14% to 18% for other South Pacific Island Countries, in Australia return on investment has been in the range of 2% to approximately 8% for the industry. The figures for 1993 to 1996 show a return of 8.1%, while in 1997 return was 2%; the average rate of return for the Australian oil companies is around 7% after tax (Forum Secretariat, 1998). Australian fuel industry is not regulated. The higher rate of return for Fiji has been attributed to higher political risks of investment here. Therefore, higher fuel prices are also linked to political instability and issues of law and order.

Recent Changes in the Pricing Formula

Two aspects of the pricing formula were recently changed. The PPT prior to 2000 used a different formula to arrive at the FOB price. The Fiji

FOB price that was used in the template was based on 50% MOPS and 50% POSTED prices. The POSTED price is a 'theoretical price' published by each major regional oil company. This is an indicative price by which oil companies 'communicate the pricing sentiment' to each other; it reflects product availability, marketing positions and impending stock shortages, amongst other things.

POSTED prices can remain unchanged for weeks and are generally higher than SPOT prices and are not used in the actual trading of the commodity. If POSTED prices are higher than the SPOT prices, there is a distinct possibility of the POSTED prices holding up falling SPOT prices or pushing up further the rising SPOT prices, and hence influencing the FOB price in the pricing template to the disadvantage of the consumers here. This problem was rectified in 2000. Now the FOB price used in the pricing template is based only on MOPS, the daily average of the SPOT prices.

The other issue is the methodology in the calculation of the rate of return on investment of the oil companies. Until recently, creditors were not offset from assets, thus overstating the assets by the value of creditors, ensuring a higher rate of return on investment in nominal terms. This has also been rectified.

Fuel trading is a complex market operation; there is a need for highly specialised people to read and understand price fluctuations and market volatility. The ability and skill of personnel in a bargaining process influences the outcome. Such quality of skill is hard to come by in the islands. The rectification of the two major anomalies mentioned after a substantial period of time is indicative of the market power of the oil companies. The Island Governments had keenly relied on the expertise available at the Forum Secretariat but the Australian-aided position of petroleum advisor was rescinded in 2004 to give way for a general advisor position dealing with all imports to the islands. The Petroleum Advisor's position was discontinued from 2004, which was to considerable disadvantage of the island nations.

Other Issues

There is concern about the octane level of fuel sold in the Fiji market. Prices would differ with different grades of fuel. Lower octane grades imply higher usage and hence greater expenditure on it. There is also concern of 'black smoke emissions' from vehicles, attributed to lower octane levels of fuel. Institutions, like the University of the South Pacific, can independently verify fuel quality but these are costly for small island countries.

Cross-subsidy to the uncontrolled segment of the market is also of concern. There is possibility of cross-subsidy within the country between the price-controlled segment and free price segment of the market, and cross-subsidy across the region. The Fiji storage facilities are used to re-export to other South Pacific countries. There are a number of issues of concern here. Firstly, the storage volumes installed in Fiji are not fully utilised for Fiji consumers. This increases the frequency of vessel visits to off-load fuel increases fixed port and wharfage charges as well as shipping and insurance costs. Each subsequent shipment entails higher retail prices. Fiji consumers are, therefore, denied the savings associated with volume that can be retained for consumers here. The regional administrative costs associated with Fiji as the regional centre and considered in the pricing template for other island nations must offset Fiji costs. Whether this is happening is not clear from official public records on fuel pricing, or PIB annual reports or oil company publications.

The Composition of Fuel Price in Fiji

Fuel pricing is categorized into its main components. Data on fuel has been extracted from published sources and extrapolated to arrive at broad indicators of unleaded fuel and diesoline price structure in Fiji. The breakdown of the structure of fuel pricing in Fiji is given in Table 1.

Table 1: The Structure of Fuel Pricing
(Per litre – Main Centres Island of Vitilevu)

	Unleaded Fuel	%	Diesoline	%
Tapis Crude	\$0.41	29.4	\$0.41	39.8
Refinery Costs	0.09	6.7	0.05	4.6
Shipping Costs	0.04	2.9	0.02	1.9
Total	0.54	38.6	0.48	46.6
Fiscal Duty	0.44	31.4	0.18	17.5
'A'*	0.174	12.4	0.186	18.1
Value-added Tax	0.156	11.1	0.114	11.1
Distribution Costs & Mark-Up for Retail Outlets ⁹	0.09	3.5	0.07	6.8
Price as of October 2004	\$1.40	100	\$1.03	100

* 'A' is a residual in the sense that it is the balance when other known or estimated costs are subtracted from the retail price. The 15% mark-up on costs is a part of the residual. The 32% company tax is also a part of the residual.

⁹ The retail petrol station mark –up including profits is \$0.05 a litre for unleaded petrol and \$0.04 a litre for diesoline.

The analysis shows that almost 40% of unleaded petrol costs and slightly more than 45% of diesoline costs are determined in the world markets, with the domestic economy acting only as the price taker. Fiji has some control over the other 55-60 % of the costs either by adjusting the fuel taxes or by influencing the market power of the oil firms.

The retail price for the third quarter of 2004 for unleaded petrol was \$1.40 per litre and for diesoline \$1.03 a litre. These prices are based on the second quarter changes in all costs incurred in bringing the fuel to the consumer.

The Singapore Refineries use Tapis Crude oil (light crude bought from the Middle East countries). In the second quarter of 2004, Tapis Crude was selling for US\$37.76 a barrel, which converts to \$F67.23 per barrel¹⁰. There are approximately 158.9 litres in a barrel of crude oil, implying that the price of crude is \$F0.412 a litre.

Similarly, the MOPS in the second quarter of 2004 for unleaded petrol comes to approximately \$F0.5056 a litre and for diesoline, \$F0.459 a litre. Refinery costs and their mark-up approximate to \$F0.0936 and \$F0.047 per litre for unleaded petrol and diesoline respectively¹¹.

The Fiji CIF value reflects the actual prices paid for the product, including freight and insurance. This value for the second quarter of 2004 is shown to be \$0.547 per litre for unleaded petrol, and \$0.4809 per litre for diesoline. This implies that the conveyance cost of fuel, including insurance, from the refinery to Fiji is approximately \$0.04 a litre for unleaded petrol and \$0.02 a litre for diesoline.¹²

It is at this point that fiscal duty is charged at the rate of \$0.44 a litre for unleaded petrol and \$0.18 a litre for diesoline. This brings the price to \$0.987 a litre of unleaded petrol and \$0.6609 a litre for diesoline. The oil company administration and distribution costs, and profits in nominal terms, are difficult to establish, though the return on investment is believed to be around 15%.

At the retail end a value-added tax of 12.5 % is levied. The value-added tax per litre comes to 15.6 cents for unleaded fuel and 11.4 cents for diesoline. The pricing structure clearly indicates that one of the largest components of the price structure is Government taxation in the form of fiscal duty and value-added taxation. The total tax collected from fuel levy in nominal terms is 59.6 cents per litre for unleaded petrol and 29.4 cents

¹⁰ \$F1 = US\$0.5611 for the relevant quarter.

¹¹ Calculated from the MOPS data available from Platts.

¹² Transport costs depend on volume transported and the density of the fuel.

per litre for diesoline. This accounts for 42.6% of unleaded fuel retail price and 28.5 % for diesoline.

The ad-valorem tax rates bring in higher tax revenues when production or other costs increase. If the price of crude oil increases, this would have an add-on effect on the value-added tax collected in nominal terms, even though the ad-valorem rate remains the same. The taxes will be transmitted entirely to the end users since unleaded petrol and diesoline do not have any viable substitutes.

The sector marked 'A' in Table 1 is a residual. This is about 12% of the retail price of unleaded petrol and about 16% of the retail price of diesoline. This component includes the share that accrues to the oil companies. It is inclusive of all special charges relating to the acquisition and shipping of the fuel, apart from the cost of fuel and transport costs from the refineries to the destination countries, port and wharf charges, administrative costs of the firm, 32% company tax, headquarters expenses, 15% return on assets and other smaller charges.

Shell provided its annual financial report for 1999 to the Registrar of Companies. According to the report, it made a profit of \$13,762, 607 in 1998, of which it paid out \$6,530,511 as dividends to the owners of the 6,000,000 \$1 paid up shares. For 1999, its profit was \$7,468,108 while the dividend paid out was \$9,135,080.¹³

A lack of access to costs of oil companies makes any analysis of costs of oil firms difficult. The oil companies are neither obliged to provide their annual reports for public consumption (as other locally registered companies are required to), nor do they have any moral compulsion to act within the interests of the wider community in which they function.

Under the Companies Act, all companies that are locally incorporated must file their annual returns with the Registrar of Companies. Oil companies, therefore, must file their returns. However, none has filed any return during the recent decade.

Thus, the oil companies in Fiji have been defying the law for years now. Shell lodged its 1999 financial returns, but not since. The Prices and Incomes Board also does not have access to the audited financial statements of the oil companies for the quarterly reviews of oil prices. To date, neither the PIB nor the government has seen any need for not had the courage to demand that the oil companies follow established laws of the land, or demand the audited financial statements for the quarterly price reviews.

¹³ Dividend paid out in 1999 was more than the profits since retained earning from the previous period was used to pay out the dividends.

Does Market Structure Affect Fuel Pricing in Fiji?

From the information computed in Table 1, the oil companies have a mark-up of around 17 to 18 cents per litre. In Fiji the price-setting agents are not only Government officials but also the representatives of oil companies. Therefore, the skills of the personnel on either side are crucial in negotiations and the outcomes of negotiations. Any evidence of asymmetry can be attributable to the paucity of skill levels on the government side and the abundance of it with the oil companies and the oligopolistic tendencies of the oil companies.

Another probable source for profits for the oil companies is at the point of purchase of fuel from the refineries. Fuel can be bought in the 'futures market'. If the prices paid in the futures market are less than the FOB price used in the template, the Oil Companies can gain. It is believed that increasingly fuel is being transacted in the futures market.

Pre-tax and retail prices in New Zealand and Fiji can offer interesting comparisons since both source fuels from Singapore refineries, use similar vessels for fuel cartage while Fiji is closer to Singapore than New Zealand.

Gasoline Prices in Fiji and New Zealand

Data on pre-tax and post-tax oil prices in Fiji and New Zealand are given in Tables 2 and 3. These tables show that the Fijian prices, both pre-tax and post-tax, are higher than the New Zealand prices. But while the pre-tax unleaded fuel price, on average between the first quarter of 2003 to first quarter of 2005, was 15% higher in Fiji, the retail prices were 22% higher. Similarly, the averages for the same period show that while the pre-tax diesel price was 5.9% higher in Fiji, the retail price was 32% higher in Fiji.

The decomposition of the prices in the two countries reveals that the combined shipping costs and wholesaler and retail margins in New Zealand account for 12% of gasoline prices while in Fiji the figure is 22%¹⁴ This reinforces the result that the 'unexplained portion' of the costs includes oligopoly rents.

Any Alternative?

The standard policy prescription for diluting market power is to introduce competition which can exert downward pressure on prices.

Independent operators can play within their margin and bring some

¹⁴ Author's calculation from data at http://www.med.govt.nz/ers/oil_pet.html and http://www.caltex.co.nz/products/fuel_prices.htm#tandd, and Fiji data.

relief to consumers. Independent operators could own service stations and, thus, be able to engage in some price competition. Such market behaviour is observable in New Zealand, Australia and other countries. The current practice in Fiji is that the leaseholders of the petrol stations have to buy fuel from the landlords. Fuel price competition is rare in Fiji

Table 2: Unleaded Fuel Prices in Fiji and New Zealand, 2003-05 (\$F)

	Fiji Prices and Taxes			NZ Prices		Fiji:NZ prices	
	Retail Price	Pre-Tax Price	Tax	Pre-Tax Price	Retail Price	Pre-Tax	Retail
2003Q1	1.24	0.578	0.662	0.657	1.101	1.01	1.13
2003Q2	1.34	0.589	0.751	0.541	0.970	1.39	1.38
2003Q3	1.21	0.574	0.636	0.590	1.025	1.08	1.18
2003Q4	1.29	0.583	0.707	0.573	1.007	1.23	1.28
2004Q1	1.29	0.583	0.707	0.633	1.074	1.12	1.20
2004Q2	1.32	0.587	0.733	0.710	1.161	1.03	1.14
2004Q3	1.40	0.596	0.804	0.735	1.189	1.09	1.18
2004Q4	1.52	0.609	0.911	0.747	1.203	1.22	1.26
2005Q1	1.49	0.606	0.884	0.747	1.202	1.18	1.24

Table 3: Diesel Fuel Prices in Fiji and New Zealand, 2003-05 (\$F)

	Fiji Prices and Taxes			NZ Prices		Fiji:NZ prices	
	Retail Price	Pre-Tax Price	Tax	Pre-Tax Price	Retail Price	Pre-Tax	Retail
2003Q1	0.98	0.289	0.691	0.701	0.788	0.99	1.24
2003Q2	1.03	0.294	0.736	0.576	0.648	1.28	1.59
2003Q3	0.91	0.281	0.629	0.595	0.669	1.06	1.36
2003Q4	0.92	0.282	0.638	0.581	0.654	1.10	1.41
2004Q1	0.94	0.284	0.656	0.644	0.725	1.02	1.30
2004Q2	0.97	0.288	0.682	0.708	0.797	0.96	1.22
2004Q3	1.03	0.294	0.736	0.773	0.869	0.95	1.19
2004Q4	1.22	0.316	0.904	0.835	0.94	1.08	1.30
2005Q1	1.21	0.314	0.896	0.825	0.928	1.09	1.30

Source: http://www.med.govt.nz/ers/oil_pet/prices/ for NZ. Fiji: author's calculations.

Rather than solely relying on the Singapore Refineries and, therefore, on its price indicator rates, fuel imports can be diversified to more than one source. Another probable refinery source could be Russian eastern pipe-

lines which could serve the Pacific region well. The Russian Outlet offers an interesting option as its thicker fuels are suitable for the internal combustion diesel engines which require the heavier fuels. Recent oil wells and refineries in Papua New Guinea offer another alternative. It may be in the interest of the larger companies that use substantial amounts of the heavier fuels to set up storage centres that may encourage independent operators to emerge and offer the Fiji consumers an alternative. New entrants in the market could encourage independent operators to set up operations and bring in more competition.

The Samoan Oil storage facilities are owned by the Samoan Government, which is able to buy from the lowest bidder. Samoa is a small market and whether similar practices are feasible here is uncertain, especially when smaller Governments and market oriented policies are the order of the day. Petroleum in Samoa is cheaper than in Fiji.

Bio-fuels are technologically feasible and have potential to enhance country economy-wide effects in terms of economic development and rural development. Fiji has the capacity to meet all its energy needs from renewables (Kumar and Mario, 2004). Renewable alternatives exist in bio-fuel, biomass, geothermal, hydro, solar and wind energy systems.

Conclusions

Fuel price hikes and how fuel is priced have generated immense public interest and concern. It is evident that the hikes are generally related to crude oil price spiral due to speculation brought on by unrest and political instability in the Middle-East countries and uncertainties in Venezuela. Economic boom in China and India and re-stocking to support the momentum of their booming economies in future, has put on pressure on the world oil markets. USA has also been re-stocking.

Crude oil price is a major component of fuel prices. Recent fuel price hikes can be directly attributable to these crude oil price spirals. The ad-valorem tax gives an add-on effect to crude price rises, further exacerbating the price rises. Fuel tax is the largest component of fuel pricing but is a good revenue earner for the Government coffers.

Fuel has no viable alternatives in Fiji. Costs and taxes are then wholly passed on to the consumers. But rising crude oil prices and the resultant fossil fuel environmental and global concerns have made the search for alternatives possible.

The major influence on the fuel pricing in Fiji is the cost of crude oil, government taxation, and markup. Almost 70% of retail price for unleaded

petrol and diesoline is government taxation and the price of crude oil. This percentage would be higher if company tax is taken into account. Crude oil prices make up almost 40% of price of unleaded petrol and diesoline. The lower taxation rate on diesoline results in lower retail prices for it than for the unleaded petrol.

The influence of market power of oil companies over fuel pricing in Fiji should be taken seriously. There is evidence of asymmetric response between crude prices and the retail end prices.

References

- Bachmeier, L. J. and Griffins, J. M. (2003) 'New Evidence on Asymmetric Gasoline Price Responses'. *The Review of Economic Statistics*, August, 85(3): 772-776.
- Balke, N. S., Brown, S. P. A. and Yucel, M. K. (1998) *Crude Oil and Gasoline Prices: An Asymmetric Relationship?* Federal Reserve Bank of Dallas Economic Review, First Quarter.
- Borenstein, S., Cameron, A. C. and Gilbert, R. (1997) 'Do Gasoline Prices Respond Asymmetrically To Crude Oil Price Changes?'. *The Quarterly Journal of Economics*, February, 305-339.
- Bureau of Statistics, *Trade Report*, Government of Fiji, various issues.
- Forum Secretariat (1998) Potential Savings available to Forum Island Countries Purchasing Petroleum Products, Unpublished Report.
- Green, Rich (1997) *Why your gasoline prices will stay high*. Lincoln Heritage Foundation Contributor.
- Weekly_Magazine/weekly_magazine.html
- Kumar, M. and Mario, R. (2004) 'Renewable Energy Alternatives for Fiji'. *Fijian Studies, A Journal for Contemporary Fiji*, Vol 2 No 1 May, 51-74.
- Landsburg, S. E. (1999) *Price Theory and Applications* (4th edition) Cincinnati Ohio: South Western College Publishing
- Naulivou, A. B. (2002) *Fuel Pricing in Fiji*. Post Convention Newsletter, Fiji Bus Operators Association, Suva.
- Norman, D. A. and Shin, D. (1991) *Price Adjustment in Gasoline Markets and Heating Oil Markets*. American Petrol Study no 60.
- Pacific Islands Forum Secretariat (2003 -2004) *Pacific Fuel Monitor*. Petroleum Advisory Services, various issues.
- Rao, B. B. and G. Rao (2005) *Rockets and Feathers Hypothesis: Applications to Gasoline Prices in Fiji*, Working Paper Series, USPEC, Forthcoming.
- Weinhagan, J. (2003) 'Consumer Gasoline Prices: An Empirical Investigation'. *Monthly Labour Review*, August.

Gyaneshwar Rao is Lecturer in Economics at the University of the South Pacific. Email address: rao_gr@usp.ac.fj