

ECONOMICS OF THE NOVA SCOTIA GASOLINE MARKET

For:
**Service Nova Scotia
& Municipal Relations**



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SUMMARY

PURPOSE AND OBJECTIVES

The main purpose of this study is to provide input into policy discussions concerning the decline of retail gasoline operators, particularly in rural areas. Two key objectives in meeting this purpose are to shed light on the factors behind the decline, and to outline options for addressing it.

MAIN FINDINGS

The number of gasoline stations has declined throughout Canada. Station numbers have dropped by about 45% in Nova Scotia since 1990. This rate of decline in Nova Scotia, both urban and rural, is comparable to that of the other Atlantic Provinces and has been observed across Canada over the past 10-15 years. It began as part of a larger rationalization program by the major oil companies that saw large segments of the industry, including refineries and marketing infrastructure, decommissioned during the late 1980s and 1990s. Over-capitalization and weak returns on capital in the face of declining demand for petroleum products provided the initial impetus for change.

Declining margins flow from adjustment to change. Continuing attrition from the retail sector is attributed to declining margins, but margins are as much an effect as a cause. Declining margins signal a response to more fundamental shifts as the marketing sector adjusts to find its equilibrium. Two factors – mutually reinforcing – explain the adjustment in Nova Scotia: changes in economic geography and structural change of the industry.

Rural retail outlets are losing customers and volume. In Nova Scotia, as in many other parts of Canada, the centre of economic gravity has shifted from rural to urban areas. One implication of this is a decline in demand for gasoline resulting from reduced populations and demographic shifts, and also from fundamental changes in commuting and shopping patterns that see people driving longer distances, facilitated by improved road networks. Being more closely integrated into urban markets also means direct exposure to the lower prices that these more competitive markets generate.

Structural change drives margins lower as lower margins drive structural change. New locations, new marketing approaches and new operating modes have driven petroleum margins to lower levels compared with a decade ago. In particular, expanded non-petroleum revenues have increased the contribution to retail profits, thereby creating an opportunity for marketers and dealers to be more price-competitive on gasoline. The entry of non-traditional "big-box" marketers has accelerated the pace and the impact of these factors, resulting in a steady decline in retail outlets, the need for greater non-petroleum revenues, and yet more downwards pressure on marketer margins.

The marketing margin is insensitive to final product price. Despite pump prices that have doubled over the past three years, retailers and suppliers have nothing more to work with to market gasoline efficiently. They share a marketing margin moving within a 7.0 to 10.0 cents per litre band, and averaging about 8.5 cents. This margin takes into consideration the supplier's discount off the rack price. Fairly steady margins at the marketing stage, means virtually all the increases in gasoline prices accrue to owners of crude oil and refiners, not to retailers.

Retailers manage a margin ranging between 4 and 5 cents per litre. This is the retailer's average share of the marketing margin. It has changed little for at least the past five years, possibly increasing slightly in the past year. Information provided by dealers indicates that many operate below this level, some more or less consistently in the 2.5 to 3.0 cents per litre range. Margins in this range do not cover operating costs. Unless these dealers operate high volume stations generating substantial non-petroleum revenues (and several do) from convenience stores or other ancillary services, they would be hard-pressed to survive. Several believe their suppliers maintain high wholesale selling prices knowing they (the dealers) are able to cross-subsidize their operations.

Retail margins vary because suppliers sell at different wholesale prices. There are as many dealer pricing arrangements as there are suppliers in the Nova Scotia market. This results in dealer wholesale prices varying from one supplier to the next, resulting in a range of gross margins for retailers. Dealer wholesale prices from the same supplier may also vary from one dealer to the next depending not only on differences in transportation costs, but also on the dealer's own circumstances and competitive conditions in the local market area.

Many dealers receive supplementary revenues. Over half the independent dealers (those with higher volumes) receive volume-based payments under their wholesale supply agreements. In most cases, these payments serve as inducements to sign long-term (5-10 year) contracts. They would add 1-2 cents per litre to the retail margin, with a corresponding reduction in the wholesale margin. In some cases, they serve as the basis for repaying interest-free loans made by suppliers so that dealers can build or up-grade stations. Many dealers do not consider such payments as part of their margin yet, in effect, they form an important part of the dealer's bottom line.

Entry to and exit from the retail market will continue. Retail gasoline marketing has proven to be a dynamic sector characterized by high rates of exit, but also fairly steady levels of entry of both supplier-controlled and independently owned stations. Both entry and exit reflect a healthy competitive environment. Entry to the industry will also continue at a rate of 2-3 stations per year to serve markets in high growth urban areas, as well as emerging regional commercial centres. Exit from the industry will continue, albeit at a slower pace than in the past as the number of vulnerable stations declines (we estimate 10-15 stations per year for the next few years). Exit barriers, such as the high cost of decommissioning underground storage tanks, are a likely reason why some relatively unprofitable stations continue to operate.

Rural areas are unlikely to be left without service. The risk that rural and remote areas will lose all gasoline service is low. Given the current distribution of stations and population, few people in the province live as much as half an hour away from a source of gasoline supply. Stations in remote areas are arguably in a relatively strong position because they face less competition and most are able to (and do) charge the higher prices they need to stay in business. The upper limit on the remote station's prices is determined by the trade-off involved in driving to the next outlet.

Gasoline markets are regulated in three provinces and several U.S. states. Three provinces, PEI, Newfoundland and Labrador and Québec, regulate the market through some form of price and/or margin controls. Controls in PEI and Newfoundland are intended primarily to protect consumers from price volatility and uncertainty, though they also provide margin protection for retailers, as does the system in Québec. Controls in the U.S. are designed mainly to protect retailers from unfair sales practices (predatory pricing). Margin protection in PEI and Newfoundland has helped dealers, but has not prevented attrition from the industry at roughly the same pace as in Nova Scotia. Price regulation has resulted in consumers paying higher prices than in Nova Scotia (pre-tax).

Regulation in Nova Scotia might help dealers, but could hurt suppliers and/or consumers. If the objective of regulation were to provide dealers with a minimum margin – say, 5-6 cents per litre – then the difference between what the margin would have been in the absence of regulation and what it is with regulation must come from somewhere. This means either higher pump prices or lower wholesale margins, or some combination of the two. Each extra cent of retail margin will cost consumers and/or suppliers about \$10 million. Some of the smaller suppliers would have difficulty absorbing this cost. These are the suppliers on whom the more remote and lower volume dealers depend.

INTRODUCTION

1. BACKGROUND

Gasoline prices rose sharply in early 2004, with increases continuing into 2005. These price increases occurred internationally, not just in Nova Scotia. They caused outrage amongst consumers everywhere. Consumers demanded action by their governments to regulate the companies responsible for these increases. The Government of Nova Scotia responded in mid-2004 by striking a Select Committee of the Legislature to examine the issue. It held hearings through the summer. At the end of August, the “Report of the Select Committee on Petroleum Product Pricing” containing several recommendations was released. Government also introduced legislation, the *Petroleum Products Pricing Act*, providing the foundation for regulation.

This study flows from the hearings and a commitment by government to examine the issues before any decision were made to proceed with regulation. Though the study traces its origins to concerns about prices, it is *not* about petroleum prices as such. The Select Committee hearings were dominated not by expressions of concern by consumers about high prices, but by the concerns of independent gasoline retailers about ruinously low margins and the threat they posed to the viability of their enterprises, particularly ones in rural areas. The focus shifted to this issue and, more specifically, to the role of suppliers – large oil companies – as the ultimate source of the threat.

2. OBJECTIVES

Against this backdrop, the two main objectives are to:

- Determine the causes of the loss of retail gasoline infrastructure in Nova Scotia, particularly in rural areas.
- Identify and assess the impact of market and regulatory options for addressing the issues contributing to the loss of retail outlets.

Among the specific questions to be addressed are:

- Whether Nova Scotia is in danger of losing all sources of supply in any rural areas of the province.
- Whether the decline in independent dealers in Nova Scotia is likely to continue and whether the experience here differs from other jurisdictions.
- What factors account for the decline in retail outlets, independent or otherwise?
- If low margins are the issue, what do they need to be at both the wholesale and retail levels for current enterprises to remain viable?
- What mechanisms can government choose from to fix the problem(s) and what are the costs and impacts of each mechanism?

3. APPROACH

Conducting the analysis and addressing the questions required considerable input from industry, both retail dealers and wholesale suppliers. Among the specific elements of our approach:

- conducting a survey of 250 independent retail dealers to ask about the structure and operation of their enterprises. Just over 100 sent back responses. These responses provided perspectives on outlet characteristics, volume of sales, price-setting and retail margins;
- interviewing 40 independent dealers to gain further insight into their operations and relationship with suppliers, and where possible, obtaining financial data to support the information on margins;
- interviewing six major suppliers to obtain information on business practices including competitive behaviour as it pertains to market development, networking planning, setting wholesale prices, and gasoline supply and sales;
- obtaining and analyzing price data from suppliers in order to compute retail and wholesale margins;
- compiling and analyzing industry data from published and unpublished sources and in particular information about the characteristics of the retail sector;
- conducting a literature review on competitive conditions in the wholesale and retail segments of the gasoline industry.

4. OUTLINE

The report is divided into six chapters. Following this introduction,

- Chapter II provides an overview of the petroleum industry in Canada, describing industry structure and pricing behaviour.
- Chapter III examines the gasoline market in Nova Scotia, assessing industry structure and competitive conditions. This chapter outlines supplier-dealer relationships, the various approaches to setting wholesale prices, and how the marketing margin is divided between suppliers and dealers. It also reviews and assesses the issues facing independent dealers operating in the Nova Scotia market.
- Chapter IV offers some perspectives on the decline in retail infrastructure, examining the factors underlying the demand for gasoline and how this has affected the ranks of dealers, particularly in rural areas.
- Chapter V examines approaches to industry regulation introduced elsewhere in Canada and the U.S. Regulation of prices and structure are examined.
- Chapter VI outlines options to address the issues, including regulatory and market-based approaches. Pros and cons of each are put forward, with an assessment of economic impacts.

II

THE GASOLINE INDUSTRY IN CANADA

1. OVERVIEW

The gasoline industry in Canada has undergone substantial restructuring over the last decade. This has occurred in both the refining and marketing sectors through the closure of underutilized refineries, terminals and retail stations. These structural changes, combined with the growth in the number of non-traditional gasoline marketers, have had a major impact on wholesale and retail gasoline pricing behavior and industry competitiveness.

2. STRUCTURE

Crude oil production

The oil industry consists of two distinct sectors:

- **upstream industry:** whose main activity is the exploration and development of crude oil, the raw material from which gasoline is made.
- **downstream industry:** whose main activity is the refining of crude oil into petroleum products, and the delivery and sale of these products to the consumer.

Companies participating in both the upstream and the downstream sectors are referred to as integrated oil companies. Canada has five: Imperial Oil, Petro-Canada, Shell, Husky and Suncor. Though these companies participate in the upstream, their total crude production is far less than their refinery requirements. As a result, they have to import much of their crude from foreign sources or buy it from other Canadian producers at world prices.

The upstream oil industry encompasses a broad range of operations: exploration for potential crude or natural gas reserves, drilling, production and transportation of crude oil to the refinery plant. Canada has more than 150 upstream companies, ranging from two to three person operations to internationally recognized corporations employing thousands of people. Most of Canada's upstream crude oil operations are situated in the western provinces.

Canada produced 3.1 million barrels of crude oil a day in 2004 (including all liquids). The country's oil production has been increasing since 1999, as new oil sands and offshore projects have come on-stream to replace aging conventional oil fields.

Canada's domestic production is more than adequate to meet domestic demand of about 2.5 million barrels a day. But because of high transportation costs from western Canada, it is more economic for refiners in Eastern Canada to use imported crude oil. As a result, refineries in Quebec and Atlantic Canada rely primarily on imported crude oil from the North Sea and the Middle East.

Of Canada's crude oil exports, 99% goes to the U.S., positioning Canada as one of the most important sources of U.S. oil imports. In 2004, Canada exported 1.62 million barrels a day of crude oil to the U.S., the single-largest component of U.S. crude oil imports. Canada also sent 522,000 barrels a day of petroleum products to the U.S. during this period.

An extensive pipeline system transports crude oil produced in western Canada to domestic and U.S. markets. There are two major oil pipeline operators in Canada: Enbridge Pipelines and Terasen. Enbridge operates a 9,000-mile network of pipelines and terminals, delivering oil from Edmonton to eastern Canada and the U.S. Great Lakes region. Terasen operates the Trans Mountain Pipe Line (TMPL), which delivers oil mainly from Alberta west to refineries and terminals in British Columbia.

Refining

The refining sector is the manufacturing stage of the petroleum product life cycle. The sector acquires crude oil from the upstream sector, and from this feedstock manufactures a range of refined petroleum products including, but not limited to, gasoline, diesel, heating fuels, jet fuels and lubricants.

Sixteen gasoline-producing refineries operate in Canada with a combined capacity of 1,830 thousand barrels per day or an average of 114,000 barrels per day (Table 1). The major integrated oil companies, Imperial Oil, Petro-Canada and Shell, account for 57 per cent of this total.

Table 1
Refining crude oil distillation capacities

Company	Location	Rated Capacity - Jan 1, 2005 (Barrels per day)
Imperial Oil	Dartmouth, NS	89,000
Irving Oil	Saint John, NB	250,000
North Atlantic	Come By Chance, NF	105,000
Ultramar	St-Romuald, QC	215,000
Petro-Canada	Montreal, QC	105,000
Shell	Montreal, QC	129,900
Imperial Oil	Nanticoke, ON	112,000
Imperial Oil	Sarnia, ON	120,800
Shell	Sarnia, ON	71,400
Suncor	Sarnia, ON	79,500
Co-op	Regina, SK	80,000
Imperial Oil	Edmonton, AB	187,200
Petro-Canada	Edmonton, AB	125,200
Shell	Scotford, AB	97,900
Chevron	Burnaby, BC	52,000
Husky Oil	Prince George, BC	10,250
Total		1,830,150

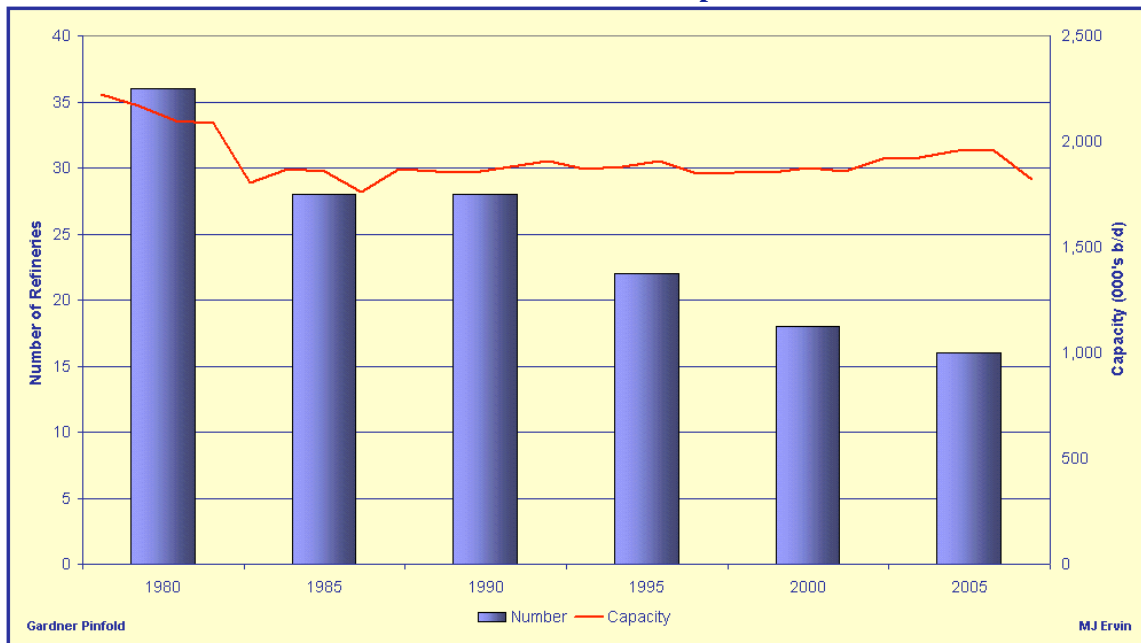
Source: Oil and Gas Journal

By comparison the United States has 149 refineries with an average capacity of 127,000 barrels per day. While the average daily capacity in the U.S. is similar to that in Canada, 18 U.S. refineries have daily capacities of more than 250,000 barrels. The largest single refinery in the U.S. is Exxon Mobil's refinery in Baytown Texas with a capacity of 557,000 barrels per day.

Refinery rationalization

The number of refineries operating in Canada has declined substantially in the past 25 years. Dramatic demand growth for refined petroleum products in the 1970s led to the opening of five new refineries and countless refinery expansions. In 1980, demand began to decline, and for the first time on record, Canadian refineries processed less oil than the year before. Declining demand, in combination with the overbuilding of the previous decade, resulted in over capacity, bringing construction to a halt and accelerating the contraction of capacity in the early 1980s. Between 1980 and 1985, eight refineries were shut down in response to weak demand and declining margins. Refinery rationalization continued throughout the 1990s to today's current population of 16 refineries. In spite of a 55 percent reduction in the number of refineries operating in Canada between 1980 and 2005, upgrades and expansions have resulted in a net decline of only 15 percent (Figure 1).

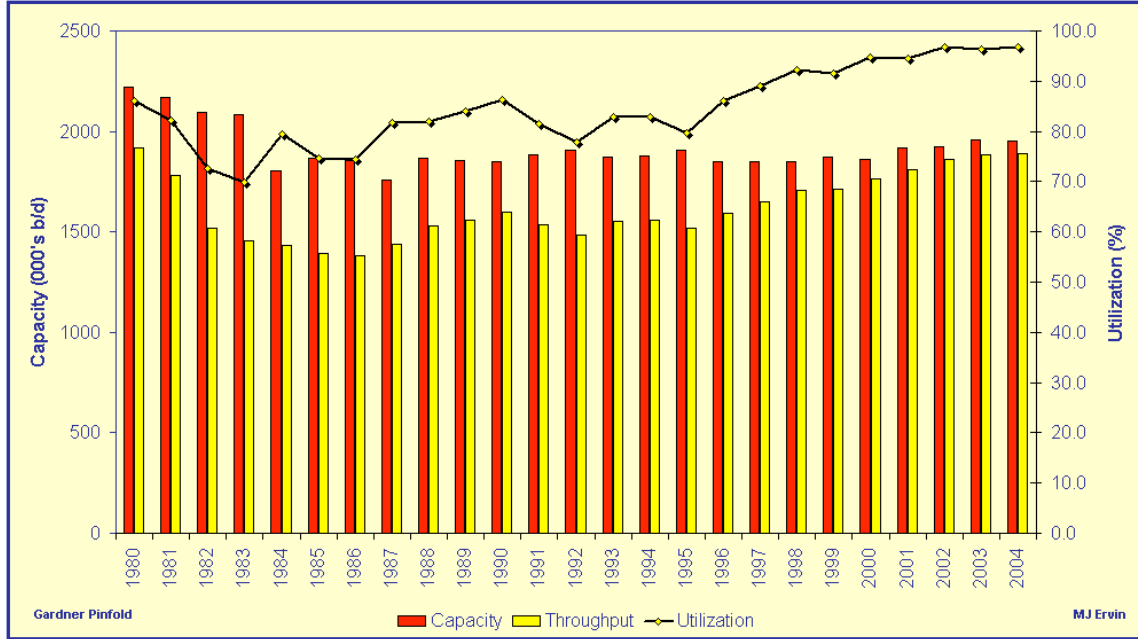
Figure 1
Canadian refineries and capacities



Refinery utilization

Refinery utilization rates (percentage of capacity used), declined in the late 1980s and early 1990s, then began to climb in the mid 1990s as a result of rationalization and increasing demand. At current utilization rates of more than 95 percent (Figure 2), Canadian refineries are, on average, effectively fully utilized. The strong utilization rates (here and in the U.S.) have a pricing implication in the peak summer driving season as refiners struggle to meet growing demand for gasoline. High utilization also leaves little room for adjusting to events causing refinery shutdowns, resulting in the potential for price spikes.

Figure 2
Canadian refinery utilization rates



Marketing

Wholesale

The wholesale marketing sector is involved in the sale of petroleum products from domestic and foreign refiners to gasoline marketers. Retail marketers purchasing fuel on a wholesale basis fall into two broad categories:

- **Integrated refiner marketers:** marketers whose corporate structure encompasses one or more domestic refinery.
- **Non-refiner marketers:** marketers who obtain supply from a refiner.

Canada has ten integrated refiner-marketers: Imperial Oil, Petro-Canada, Shell, Husky, Chevron, Federated Cooperatives, Irving Oil, North Atlantic Petroleum, Ultramar and Suncor.

Wholesale gasoline can be purchased directly from the refineries (at the “refinery gate”) or from supplier terminals at non-refining centres where there is sufficient wholesale demand for petroleum product (“at the rack”). Bloomberg Oil Buyers’ Guide™ currently lists twenty-two Canadian rack points, representing major Canadian population centres, many of which do not have integral refineries (Table 2).

Table 2
Bloomberg oil buyers’ guide – Canadian rack locations

St. John’s	Maitland	London	Regina	Victoria
Charlottetown	Ottawa	Sarnia	Calgary	Barepoint
Saint John	Toronto	Sault Ste. Marie	Edmonton	Kamloops
Halifax	Hamilton	Thunder Bay	Winnipeg	Vancouver
Montreal	Nanticoke			

Many Canadian oil companies publish rack prices for gasoline picked up at the refinery gate or at a terminal. Rack prices serve as a proxy for ex-tax refinery prices even though little gasoline is sold at the posted rack price in Canada. Typically, wholesale transactions take place at a discount off the rack, with the amount of the discount determined by the volume purchased. Understanding wholesale gasoline pricing behaviour is critical to understanding why retail prices change as frequently and as widely as they do, and so is explored in detail later in the report.

Terminal rationalization

Terminals, like refineries, have rack facilities for loading tanker trucks for delivery to retail gas stations, homes and businesses. Terminals are usually connected to a major transportation artery – either a pipeline or train. There has been significant rationalization in the number of terminal facilities in Canada over the past 20 years made possible by agreements among refiners to share facilities. Product exchange agreements, buy/ sell agreements and terminal service agreements allow refiners to sell into a wide area at lower costs.

Retail

The retail sector is involved primarily in selling petroleum products (primarily gasoline) through a network of retail gas stations. According to the 2004 National Retail Gasoline Site Census¹ researched and published by MJ Ervin & Associates Inc., there are 14,034 retail gasoline stations in Canada, or 4.4 outlets for every 10,000 population (Table 3). Per capita representation varies widely, with Ontario having the least number of outlets per capita (3.06 per 10,000) and Newfoundland and Labrador the highest (9.88 per 10,000). Nova Scotia ranks just above the Canadian average (5.36 vs. 4.4).

Table 3
2004 retail site demographics

	BC	AB	SK	MB	ON	QC	NB	NS	PE	NL	YT	NT	CAN
Population (000's)	4,196	3,202	995	1,170	12,393	7,543	751	937	138	517	31	43	31,917
Retail outlet population	1,550	1,580	775	610	3,788	4,018	504	502	106	511	60	30	14,034
Outlets per 10,000 pop'n	3.69	4.93	7.79	5.21	3.06	5.33	6.71	5.36	7.69	9.88	19.23	7.01	4.40
Rank (lowest = 1)	2	3	10	4	1	5	7	6	9	11	12	8	

Several factors contribute to the wide variance in per capita site representation by province – and hence their relative price competitiveness – although none has been extensively studied:

- Provinces where the population is more concentrated in large urban centres are likely to have a lower per capita representation of gas bars.
- Price regulatory structures in Quebec (a "price floor" structure), Newfoundland & Labrador and PEI ("price ceiling" structures) may influence entry into or exit from the petroleum market by improving or diminishing the potential for competitiveness and/or low pump prices.
- Regulations concerning underground storage tanks (USTs) may impede the closure of retail sites due to the high cost of decommissioning UST installations.

¹ MJ Ervin & Associates Inc, (2004) *National Retail Gasoline Site Census*.

Retail outlet rationalization

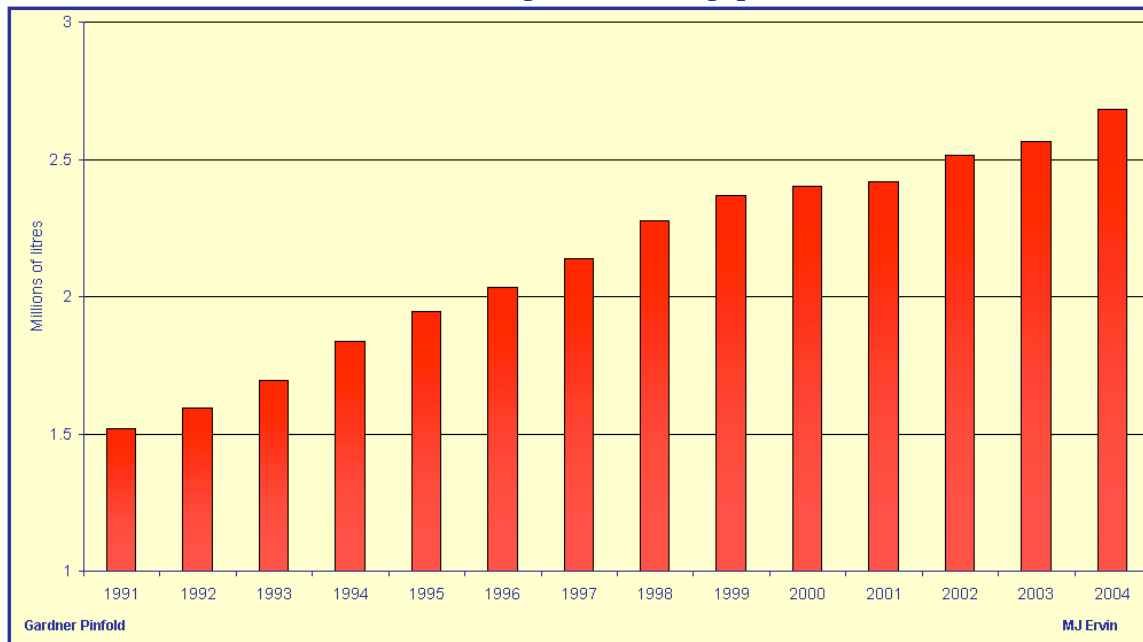
Marketers started to rationalize their networks in the 1980s, responding to the over-capacity in the retail segment of the industry. The number of gas stations in Canada has declined by 36% since 1990, dropping from an estimated 22,000 to about 14,000 in 2004. This has produced a substantial benefit in terms of improved average sales volumes, resulting also in reduced margin requirements at the surviving outlets.

Throughput efficiency

The throughput efficiency of a market, or of a region, is defined as the volume of petroleum sold by the average gas station in that market or region. This is an important measurement: markets with high average throughput efficiencies would be more likely to have more competitive retail gasoline prices (after eliminating differences in fuel taxes) than those with low throughput efficiencies. High volume stations incur a lower operating cost per litre than similar, low volume stations, thus enabling them to either be more profitable or to be more price-competitive, or both.

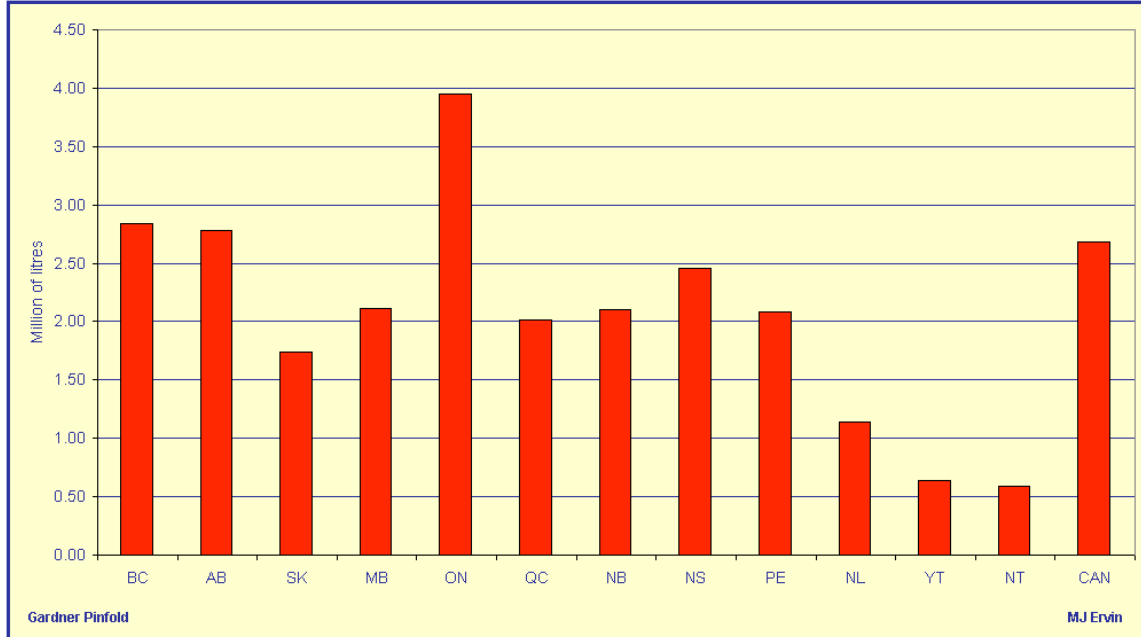
The average retail outlet in Canada pumped 2.68 million litres in 2004 (Figure 3). This represents the continuation of a strong upward trend in throughput efficiencies since about 1990, a consequence of a long-term rise in petroleum demand, coupled with a long-term decline in the number of retail outlets.

Figure 3
Canada average outlet throughputs



Throughput efficiencies vary widely from province to province. The average throughput efficiency of Nova Scotia outlets (2.4 million litres) ranks slightly below the Canadian average (Figure 4). The Nova Scotia average masks a wide difference in intra-provincial efficiencies. For example, outlets in rural markets in Nova Scotia typically pump between 250,000 and 1,000,000 litres, compared with 3-6 million litres for many stations in Halifax County.

Figure 4
Provincial average outlet throughputs - 2004



Refiner - marketer relationships

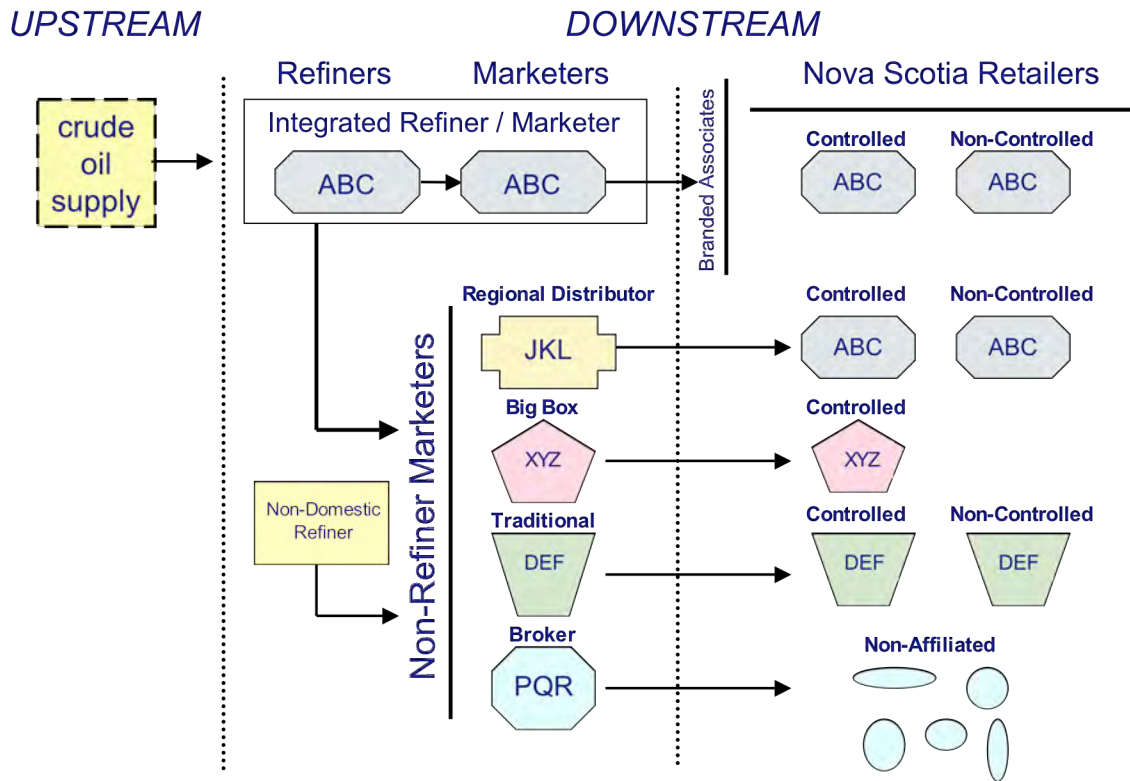
To the consumer, a gas station selling a given brand of gas may seem to be a straightforward entity. In fact, many types of dealer-marketer relationships and a variety of types of brand marketers exist (Figure 5), falling into one of two broad categories:

- **Integrated Refiner-Marketers:** marketers whose corporate structure also encompasses one or more (domestic) refineries. There are ten refiner-marketers operating a total of 16 refineries in Canada.
- **Non-refiner Marketers:** marketers who obtain supply from a refiner “at arms’ length”.

Non-refiner marketers can be generally classified in one of four different ways:

- **Regional Distributor:** An independent marketer who operates a number of retail outlets which carry a well-known brand (usually a refiner’s brand), under a supply and licensing arrangement. In the U.S., often referred to as a “jobber”.
- **Big Box Marketer:** A marketer whose primary offering is non-petroleum in nature, usually dealing in “high volume” retail sites.
- **Traditional non-refiner marketer:** A marketer whose primary offering is petroleum in nature, operating a chain of traditional gas stations under their own brand.
- **Wholesale Broker:** A marketer who buys from a refiner and sells to independent dealers who are typically not affiliated with any sort of recognized brand.

Figure 5
Refiner-marketer-retailer relationships



MJ Ervin & Associates

From the perspective of the marketer, a gas station (retailer) that it supplies can be either "controlled" (where the marketer decides upon the pump price), or "non-controlled" (where the pump price is controlled by the individual dealer).

2004 national retail site census findings

The 2004 site census identified 98 distinct brands of gasoline in Canada – there are likely over 120 Canadian brands of gasoline, if one were to include the many smaller marketers who remain unknown due to the small and (usually) remote nature of their retail operations. Although comparisons with a decade ago are difficult, we believe that the diversity of brands has grown.

Almost two-thirds of the gasoline stations in Canada are flying the banner of a non-major oil company (i.e., other than Imperial Oil, Petro-Canada, or Shell); reflecting a diversity of brands whose makeup differs significantly from one region to another.

Of the over 14,000 retail gasoline stations in Canada, 4,494 (32 percent) are price-controlled by integrated refiner-marketers. The others (68 percent) are price controlled by proprietors or companies who are not involved in the refining of petroleum products. These "non-refiner marketers" therefore reflect the majority of retail gasoline stations in Canada. Two categories of non-refiner marketers, the Regional Distributors and the Big Box marketers, typify an important trend in the marketing of retail gasoline.

Regional distributors

Several companies – in addition to the brand's owner – market Canada's "major" brands of gasoline. For example, no less than twelve different companies, including Imperial Oil (the brand owner), market the Esso brand. Petro-Canada and Shell brands are marketed under similar arrangements.

This approach to gasoline brand marketing is not new, but there are indications that refiner-marketers are increasingly willing to either extend or maintain their brand presence by allowing regional distributors to manage the relationship with formerly non-controlled branded associates. This allows the refiner-marketer to focus more strongly on its most profitable, higher volume, controlled outlets.

There appear to be several non-refiner marketers who are very willing to take on these outlets, either as controlled or non-controlled sites. Cango (in Ontario), and Wilson Fuels (in Atlantic Canada) exemplify this type of marketer: both operate a number of Esso-branded outlets.

"Big-Box" petroleum marketers

The survey identified 1,249 gasoline outlets in Canada that are associated with a "Big-Box", or a non-traditional marketer (a little less than 10%). This type of marketer is one whose primary source of gross sales revenue is typically merchandise other than gasoline. They generally have a much larger impact on the petroleum marketplace than their relatively small numbers might suggest. Most retail outlets under this category are High Volume Retailers (HVR), outlets with throughputs much higher than the market's average. Markets with a high concentration of HVR have generally been characterized by low pump prices, likely due to their strongly competitive advantages of low operating costs per litre, and the ability to offer cross-merchandising enticements associated with their non-petroleum merchandise offerings.

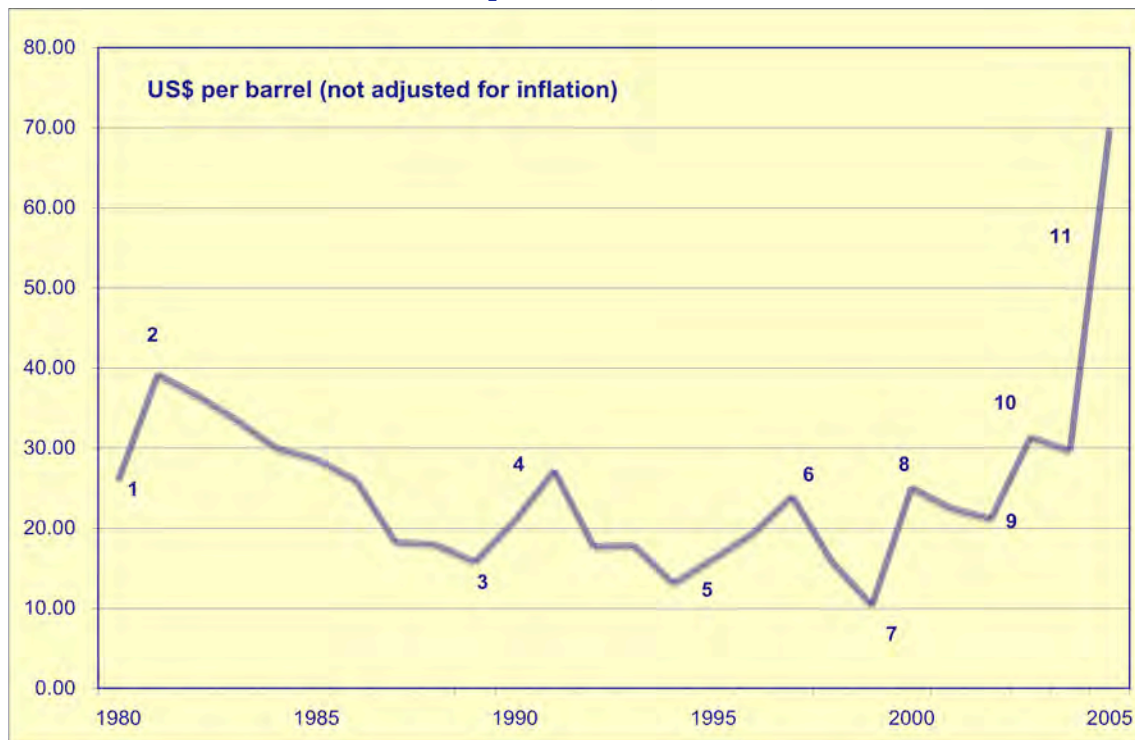
These non-traditional marketers have proliferated much more in the west than in central or eastern Canada, though it is likely that this imbalance will lessen in future years. Growth of this sector may be slower in Quebec, where its regulated floor price provisions may serve as an impediment to the market entry of such players.

3. PRICING BEHAVIOUR

Crude oil

Crude oil is a commodity that trades globally. Canadian crude oil producers compete with major oil producing countries around the world to sell their production to refiners. Canada produces around three million barrels of crude oil per day, which represents around 4% of total world production. Since Canada produces such a small portion of total world crude oil production, Canadian producers are known as “price-takers” with virtually no influence on global crude oil prices. Crude oil prices have fluctuated widely (and wildly) over the years, trading as low as \$10 per barrel in 1998 and as high as \$70 per barrel in 2005. Prices and major factors influencing change between 1980 and 2005 are depicted in Figure 6.

Figure 6
Crude oil price (Brent), 1980-2005



- Notes:**
1. Iranian revolution cuts supply and OPEC raises prices.
 2. Series of OPEC price cuts and production increases cause prices to moderate.
 3. OPEC reaches production and pricing accord and prices turn up.
 4. Persian Gulf War ends, Kuwaiti production resumes and OPEC expands production.
 5. Production cuts in Nigeria, instability in Middle East and cold weather in Europe.
 6. Prices plummet with increased OPEC production and sharp decline in Asian demand.
 7. OPEC cuts production, rising world demand and cold winter cause sharp prices rise.
 8. Recession, coupled with 9/11 attack, causes prices to drop.
 9. OPEC production cuts and general strike in Venezuela lead to sharp price hike.
 10. Prices fall as military action in Iraq commences.
 11. Successive rounds of price increases since early 2004 resulting from: OPEC production cuts, hurricanes in 2004 and 2005, rapidly rising demand in US and China.

Wholesale

In wholesale petroleum markets refiners compete on a *continental* scale to sell refined petroleum products to retail marketing organizations. Refiners sell their product under a variety of arrangements, which can be broadly characterized as follows:

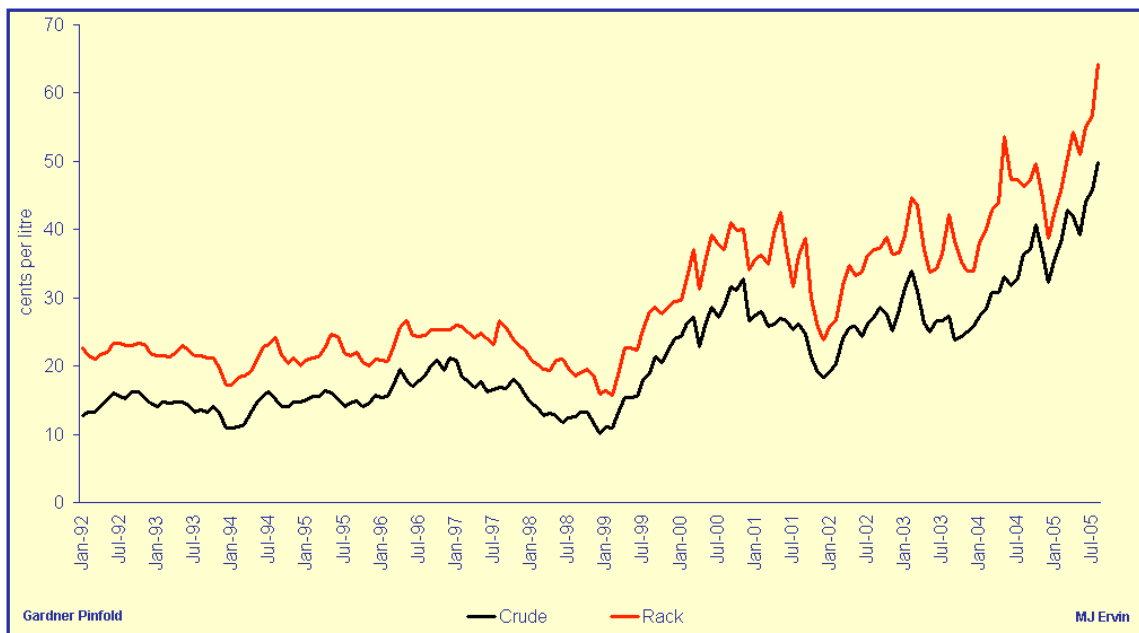
- **Rack price:** the price charged for immediate supply on an “as available” basis.
- **Contract price:** the price charged to a non-refiner marketer (or other sales channel customers) usually under the terms of a long-term supply agreement.
- **Transfer price:** the “internal” price charged by a refiner to the marketing arm of the same company.

Of these three refiner prices, only rack price information is readily available in the public domain. Contract and transfer prices are not openly shared, as they relate to negotiated, confidential terms between the seller and specific buyers. Although contract and transfer prices are distinct from rack price, they use rack price as their basis, since the market-driven rack price provides an objective, external measurement of the current market value of a particular petroleum product.

The rack price is a reference for the wholesale price of gasoline at various supply terminals across Canada. Wholesale marketers review their rack prices on a daily basis considering a number of factors including:

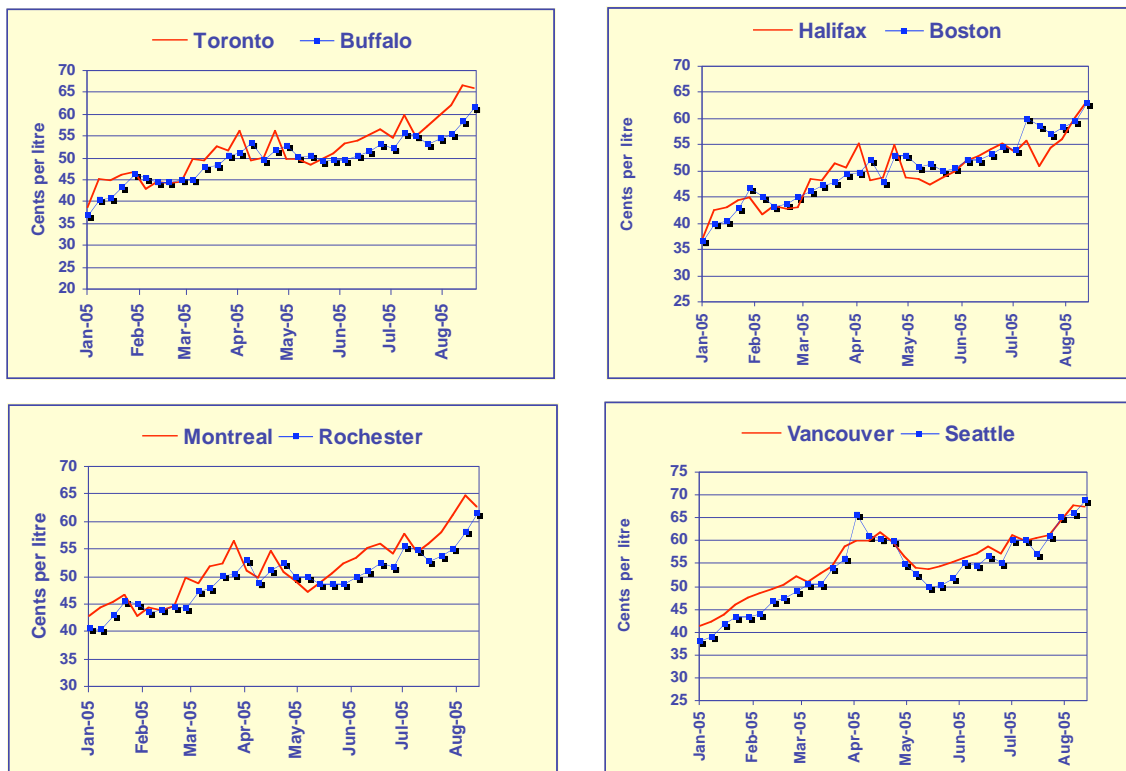
- **Crude oil prices:** the price of crude oil is established at major trading points throughout the world including New York Harbour. Wholesale rack prices typically follow very closely changes in the underlying price of crude oil with little or no lead or lag in the timing of rack price fluctuations relative to crude price changes (Figure 7). Crude oil prices move in response to many factors, including the demand and price for gasoline.

Figure 7
WTI crude oil and Canada-average regular gasoline rack price



- **Competing rack postings:** the demand for wholesale gasoline is highly price sensitive and as a consequence rack prices tend to be very similar from one marketer to another. Competitors’ rack postings are available through a number of subscription services.
- **Refiner margins:** the gross refining margin is the difference between the posted rack price and the crude oil price. High or low refining margins are indicative of gasoline supply conditions in a particular market. High refining margins indicate tight supplies, while low margins are indicative of ample gasoline supplies. Gasoline demand exhibits a very regular season pattern, increasing significantly in the spring and falling in the latter half of the year. Gasoline refining margins exhibit a similar pattern, rising and falling closely with demand.
- **U.S. rack prices:** Canadian and U.S. rack prices behave in a very similar fashion, trading at any given times within a relatively narrow range, and moving up and down more or less in unison (Figure 8). The fact that Canadian rack prices are so closely tied to adjacent U.S. markets is evidence of the close interdependence of these two markets. Any given Canadian or U.S. rack point cannot successfully price its wholesale product substantially higher than that of any other rack market in continental North America, or indeed anywhere. To do so would invite the inevitable consequence of that rack’s customers sourcing their product needs from the rack point that offers the lowest price (plus freight expense). For example, if the rack price in Boston rises relative to Halifax, this would encourage refiners in Atlantic Canada to export to that market, triggering a price increase here. It is the close integration of these markets, not shifts in the price of crude oil that accounts for the rapid price changes we experience in Nova Scotia.

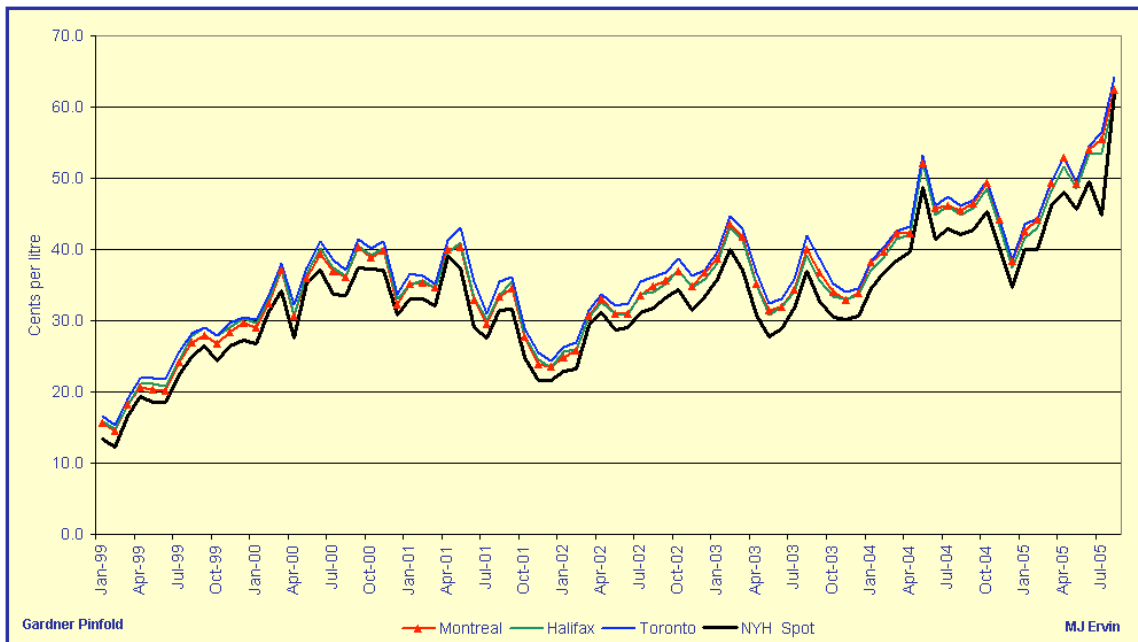
Figure 8
Select North American regular gasoline rack price



Spot/wholesale product prices

U.S. spot gasoline prices form the basis for rack prices across North America. The New York Harbour spot price quoted on the New York Mercantile Exchange (NYMEX) is the benchmark gasoline price on the U.S. East Coast. Gasoline rack prices in Eastern Canada are closely linked to the New York spot price (Figure 9). The rack market in Western Canada operates somewhat independently of the New York spot price, influenced primarily by prices in adjacent U.S. markets in Washington and Minnesota.

Figure 9
New York Harbour spot price (regular gasoline) and select Eastern Canadian rack prices

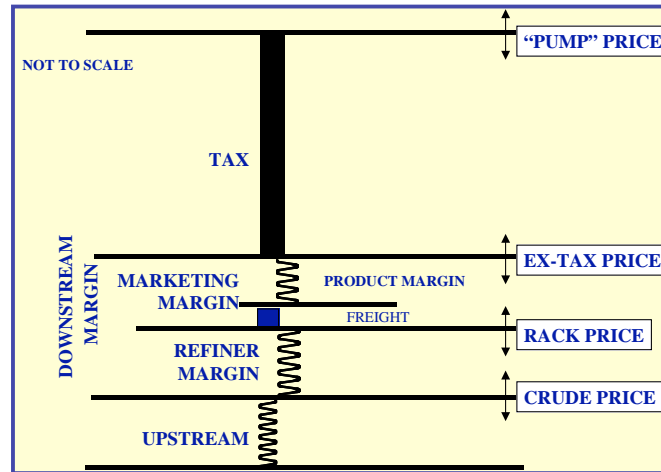


Retail

In retail petroleum markets local marketers compete with each other to sell gasoline to motorists. The pump price model (Figure 10) shows the interrelationship between the principal stakeholders who ultimately share in the revenue from the sale of a litre of gasoline.

The interface between each of the stakeholders in the model is defined primarily by the price at which the product is transferred from one sector of the industry to another. When a customer purchases a litre of gasoline, the revenue from that sale is split among four key sectors, each taking a share, or margin, from the total. The term margin used in the model refers to gross margin, not profit margin. Gross margin is simply the difference between two prices – representing revenue only. Operating expenses must then be considered to determine profit.

Figure 10
Pump price model

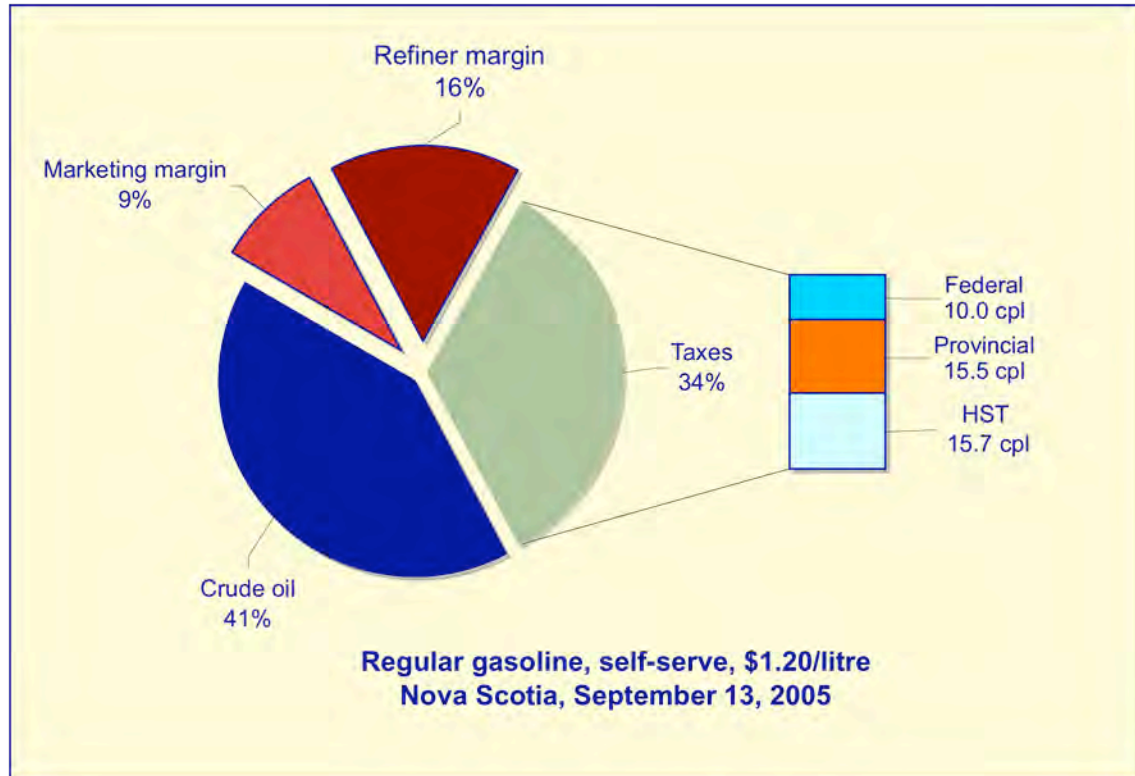


Pump prices consist of four major components: crude oil prices, refiner and marketing margins, and taxes.

- **Refiner Margin:** is the difference between the price at which the refiner sells refined product less the price at which it bought its raw material – crude oil. The gross refiner margin therefore is the rack price minus the crude price. Since both crude and rack prices may fluctuate according to different sets of market forces, the gross refiner margin expands and contracts between these two price points.
- **Marketing Margin:** or “rack to retail” margin is the difference between the retail ex-tax pump price and acquisition cost of the fuel, which may be at, below or above the posted rack price. The gross marketing margin represents revenue, which provides for all of the costs associated with operating a service station, all supplier costs, profit for the dealer and the supplier and freight costs.
- **Tax:** unlike the marketer margin, the tax content of the gasoline price is essentially a pre-determined, stable amount, regardless of market conditions. If pump prices decrease for example, this is reflected in the marketing margin as the tax content stays essentially the same, with the exception of GST, QST (in Quebec) and HST (in NB, NS, and NF).

To illustrate the division of the pump price among these components, we take the price in September 2005 in Nova Scotia (Figure 11). The pump price is \$1.20 per litre. Taxes and crude made up 75% of the pump price. The remaining 25 percent, or 30 cents per litre accrued to the petroleum industry to cover refining and marketing costs and generate a profit. The marketing margin, to be divided between wholesalers and retailers, accounted for 11 cents per litre or about 9% of the total.

Figure 11
Nova Scotia pump price components – September 13, 2005



Crude

Crude oil represented around 40 percent of the retail price of gasoline in 2004. In the first eight months of 2005 this number jumped to 47 percent. Given that world crude oil prices have more than tripled since 1998 it should not come as a surprise that retail gasoline prices have risen dramatically over the same period.

Taxes

The tax content of motor gasoline in Canada in 2004 represented almost \$12 billion in federal and provincial government revenues. The tax content of Canadian gasoline includes:

- 10 cent per litre federal excise tax;
- provincial sales taxes;
- municipal taxes (in a small number of markets);
- 7% GST (or 15% HST in NB, NS, NF);
- 7% QST in Quebec

Gasoline taxes vary widely across Canada (Table 4). This variation accounts for much of the difference in pump prices across Canada.

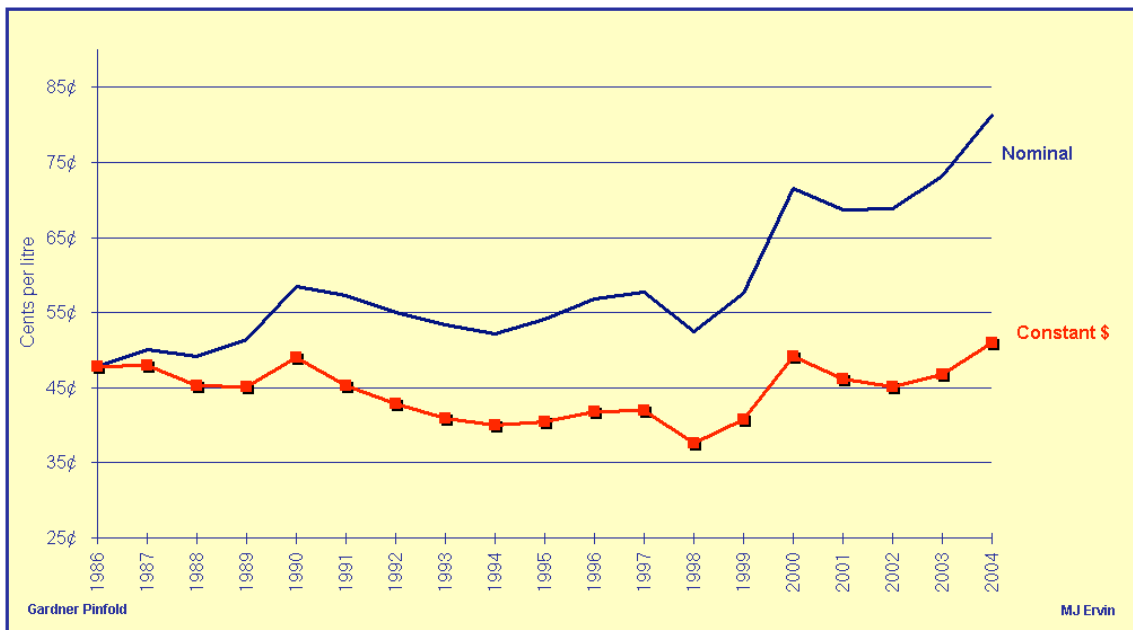
Table 4
Regular gasoline taxes– September 2005

	Federal Excise Tax (cpl)	Provincial Consumption Tax (cpl)	Municipal Tax (cpl)	QST (%)	GST/HST (%)
British Columbia	10.0	14.5	Vancouver 6.0 Victoria 2.5		7.0
Alberta	10.0	9.0			7.0
Saskatchewan	10.0	15.0			7.0
Manitoba	10.0	11.5			7.0
Ontario	10.0	14.7			7.0
Quebec	10.0	15.2	Montreal 1.5	7.5	7.0
New Brunswick	10.0	14.5			15.0
Nova Scotia	10.0	15.5			15.0
Prince Edward Island	10.0	21.3			7.0
Newfoundland	10.0	16.5			15.0
Yukon	10.0	6.2			7.0
Northwest Territories	10.0	10.7			7.0

Historical price/margin trends

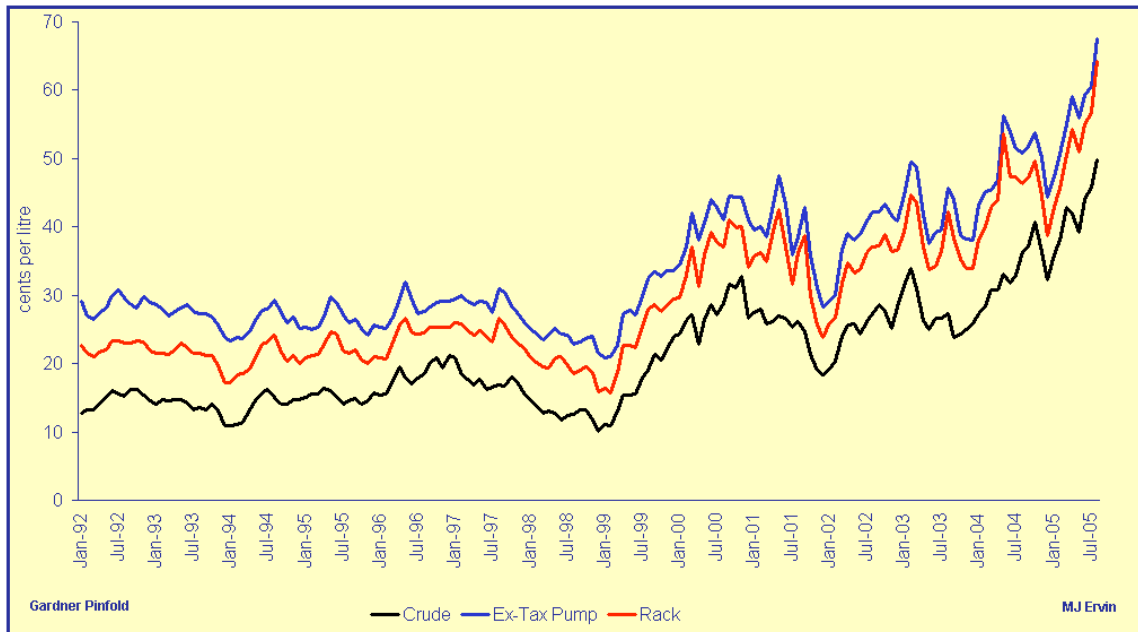
While pump prices have increased substantially in nominal (actual) dollars since 1986, in constant (inflation adjusted) terms the average price for regular unleaded gasoline in Canada was just 3.4 cents per litre higher in 2004 than it was in 1986 (Figure 12).

Figure 12
Canada-average regular gasoline pump price



Just as rack prices have followed closely the trend in underlying crude oil prices, retail prices have followed closely the trend in wholesale rack prices. There appears to be little or no lead, or lag in the timing of pump price fluctuations relative to rack price changes (Figure 13).

Figure 13
Canada-average regular gasoline prices



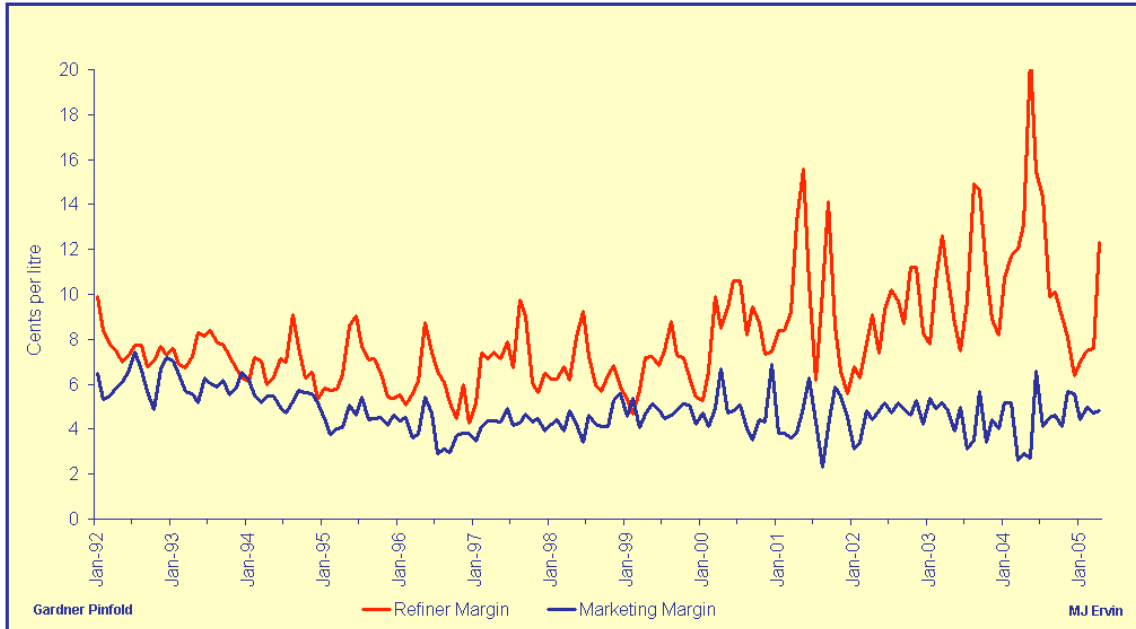
The average pump price in Canada rose from 60.7 cents per litre in 1992 to 89.4 cents per litre during the first eight months of 2005. In spite of this increase, retail marketing margins fell from 6.5 cents per litre in 1992 to 4.5 cents per litre in 2005 (Figure 14).² The lower margins are a reflection of:

- **Improved retail outlet performance:** as a consequence of higher throughputs due to outlet closures and demand increases.
- **Emphasis on ancillary revenue sources:** as a means to augment petroleum revenue and to offset outlet-operating costs.

The average refining margin trended slightly lower between 1992 and 1999 due to improved refinery efficiency and weak demand. The margin dropped to as little as two cents per litre in 1999 due to weak markets and inventory build-up. Refining margins have trended higher since 2000 as strong gasoline demand bumps up against extremely tight supplies. Any upset in refining capacity can result in immediate price spikes, particularly during the summer months when gasoline demand is at its peak. Tight supply, coupled with refinery shutdowns explains the price volatility in the summer of 2005.

² These figures are derived from actual retail and published rack prices and consequently understate the actual marketing margin by the average discount off the rack price. This may be as much as two cents for major marketers.

Figure 14
Canada-average regular gasoline margin



Inter-market price differences

Pump price

Pump prices vary widely from one city to another across Canada. The sample of Canadian cities depicted in Figure 15 exhibit a pump price variation of 22.4 cents per litre averaged over the past year. This variation is explained by differences in taxes, freight costs and site throughput.

Provincial differences in product taxation are the predominant cause of inter-regional pump price differences. A breakdown of pump prices to tax and ex-tax components reduces the price variation from 23.4 to just 3.5 cents per litre on a national basis. To take an example closer to home, the average pump price *including tax* was about 1.7 cents per litre higher in Halifax than Charlottetown over the past 12 months. Without tax, the Halifax price is 2.0 cents *lower* than Charlottetown (Figure 16).

Figure 15
Regular gasoline pump prices in select Canadian cities
September 2004 – August 2005

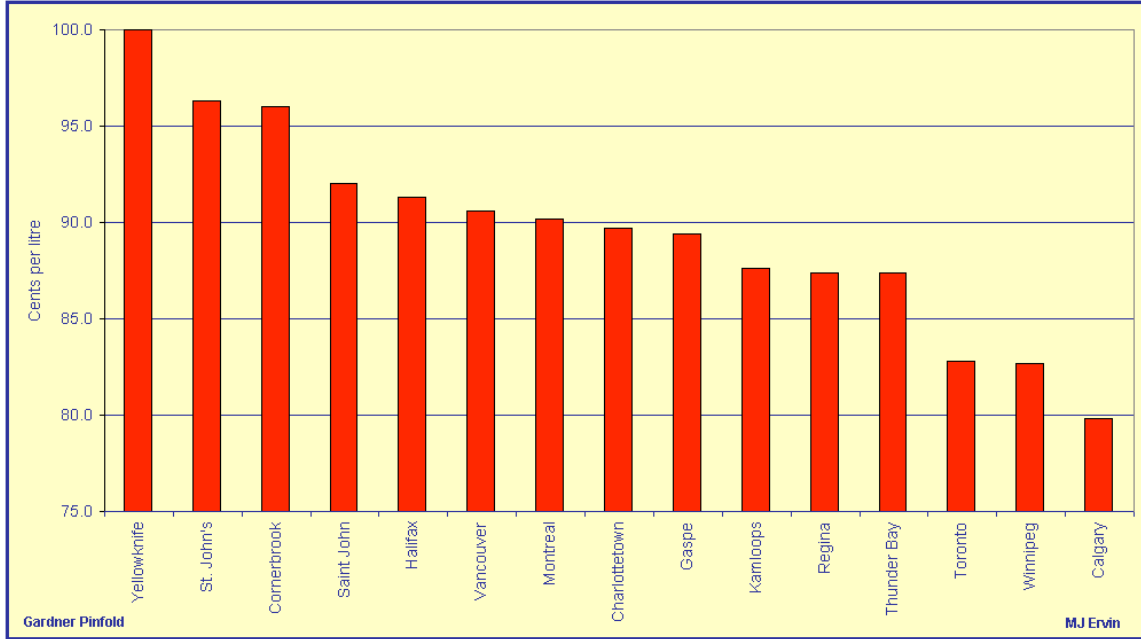
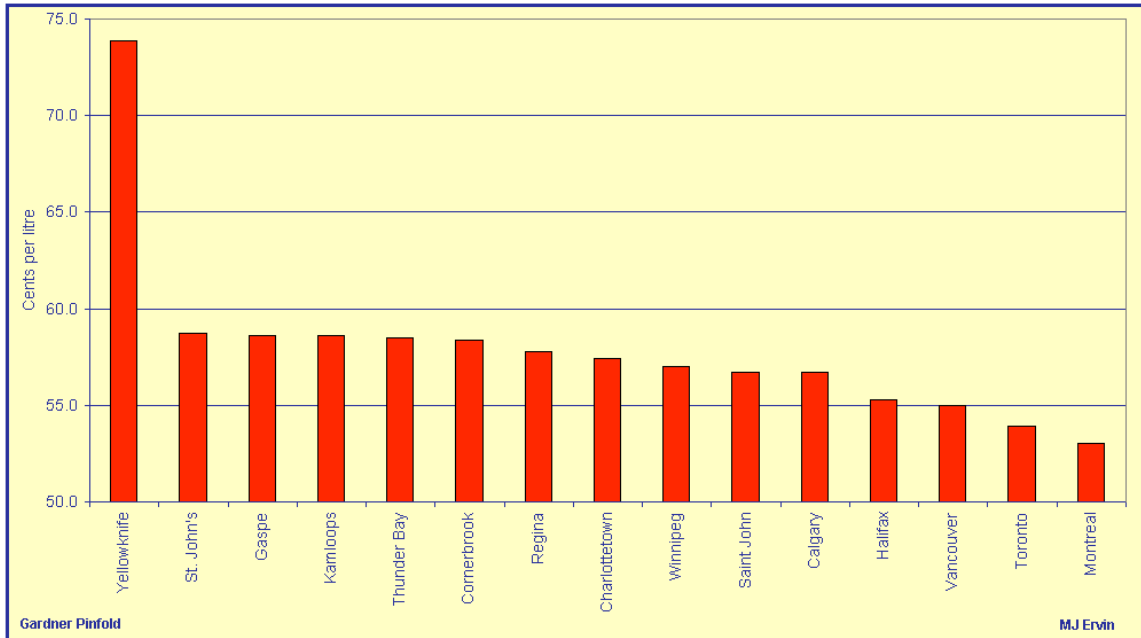


Figure 16
Regular gasoline ex-tax pump prices in select Canadian cities
September 2004 – August 2005



Wholesale price and margin

Gross marketing margin is the difference between the ex-tax pump price and the wholesale rack price, and is comprised of product margin and freight. Market-specific differences in product freight costs can also be a key factor in inter-market ex-tax pump price differences, particularly in comparisons between major urban markets and small, remote population centres. Freight costs in markets that are also established rack points are almost negligible, as low as 0.2 cents per litre, however freight costs in smaller markets can represent a significant part of the gross marketing margin. Nonetheless, a wide range of variability still exists between markets after the freight cost component is removed from the marketing margin (Figure 17).

The relationship between gross product margins to outlets throughputs is helpful in explaining this variance. Figure 18 compares gross product margins in select Canadian markets to average outlet throughputs in these same markets in 2002. This comparison shows a distinct pattern: an inverse relationship between retail product margins and average outlet throughputs associated with that market. That such a relationship exists is not surprising – markets with lower outlet throughputs support higher product margins per litre and vice versa.

Figure 17
Regular gasoline product margins in select Canadian cities
September 2004 – August 2005

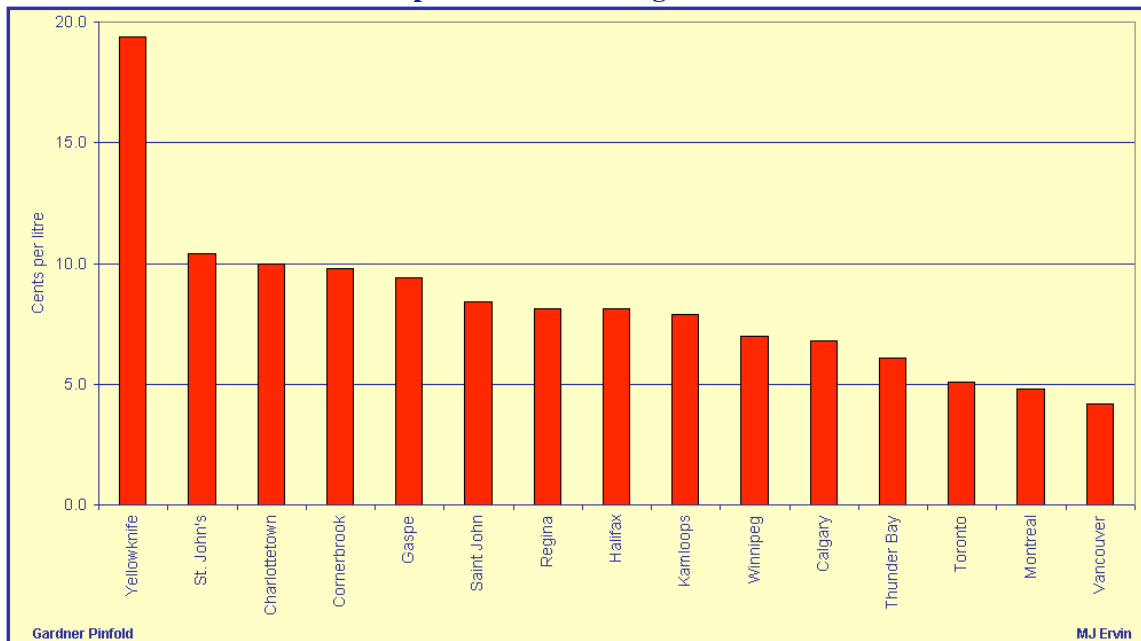
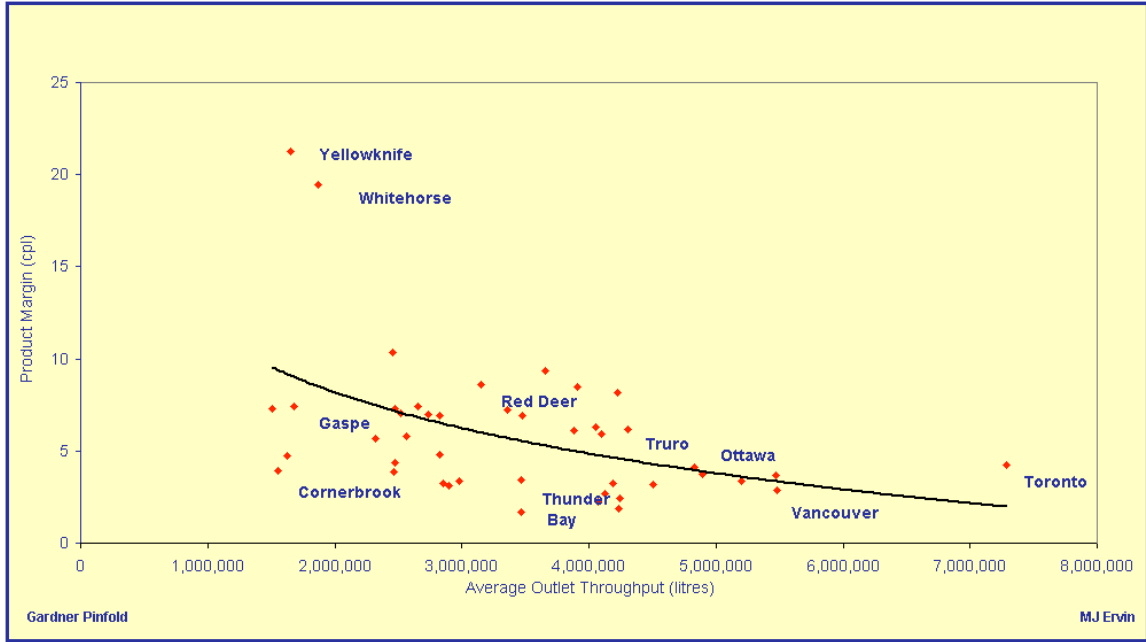


Figure 18
Relationship of product margins to average outlet throughput - 2002



III

THE NOVA SCOTIA GASOLINE INDUSTRY

1. OVERVIEW

Nova Scotia's downstream (refining and marketing) petroleum industry, while not differing fundamentally from other provinces in terms of infrastructure or market behavior, exhibits unique characteristics reflecting the particular market conditions in which it operates. This section describes these characteristics and their underlying market influences, exploring the structure, pricing behaviour and competitiveness of the industry.

This section also quantifies the marketing margin in Nova Scotia and, using industry data, provides an estimate of how the margin is divided between the wholesale and retail sectors.

2. STRUCTURE

Refining and supply

Imperial Oil Canada operates Nova Scotia's only refinery. This facility in Halifax Harbour, with a capacity of 89,000 barrels per day, was built in 1918 and has undergone numerous upgrades over the years.³ The refinery processes light crude oil imported from Venezuela, the Middle East and the North Sea.

The Imperial Oil refinery supplies virtually 100% of the gasoline consumed in Nova Scotia. Though several major oil companies sell gasoline under their own brands (e.g., Shell, Petro-Canada, Irving, Wilson and Ultramar), it is all produced at the Imperial refinery.⁴ This is made possible through product exchange agreements between the refiners. For example, Imperial provides Irving and Ultramar with product in Nova Scotia in exchange for equivalent quantities in New Brunswick and Quebec, respectively. Any differences in quantities exchanged are settled through purchases and sales using an agreed reference price.

Reduced production and marketing costs represent the major benefit of these exchange agreements. Companies no longer have to incur substantial transportation and storage charges to move product from their own refineries and hold it in various markets. In the long run, agreements encourage the concentration of refining capacity, contributing to the construction of larger and more efficient refineries (and the closure of smaller, less efficient ones). Also, by matching refining capacity to demand over more extensive market areas, refineries are able to operate at higher utilization rates (over 90%) and carry lower inventories.

³ A smaller refinery, operated by Ultramar following that company's takeover of Texaco's assets in eastern Canada in 1990, closed in 1994 because it had become uneconomic. Gulf Oil built a refinery at the Strait of Canso in the 1970s to take advantage of a growing U.S. market, but export restrictions to the U.S. resulted in its closure after just a few years operation. Statia Terminals acquired the Gulf storage tanks (7.6 million barrel capacity) in the late 1980s, and runs a crude oil storage and product blending facility.

⁴ Occasionally, product is sourced from the Irving refinery in Saint John, but this occurs only in the event of logistical constraints.

Each of the oil companies (marketers or wholesalers) takes its gasoline and diesel supply from the Imperial terminal in Eastern Passage, or from one of the regional terminals for distribution (e.g., Sydney or Yarmouth). The terminal incorporates blending facilities allowing each company to include additives distinguishing its brand from the others.⁵ Most companies contract the services of specialized product carriers to deliver the fuel. From the companies' perspective, using a third party to carry the fuel is not only more efficient, but it reduces the capital tied up in marketing.

Marketing

Wholesale sector

Six major marketers and about 10 smaller distributors sell automotive fuels (gasoline, diesel and propane) at the wholesale level in Nova Scotia. They market fuel through a network of some 475 retail outlets or sites in the province. The industry supports at least 13 brands, though most of the fuel is sold under one of six main brands: Esso, Irving, Petro-Canada, Shell, Ultramar and Wilson.

The six marketers range from branches of fully integrated international oil companies to a purely regional firm concentrated in the Atlantic Provinces.

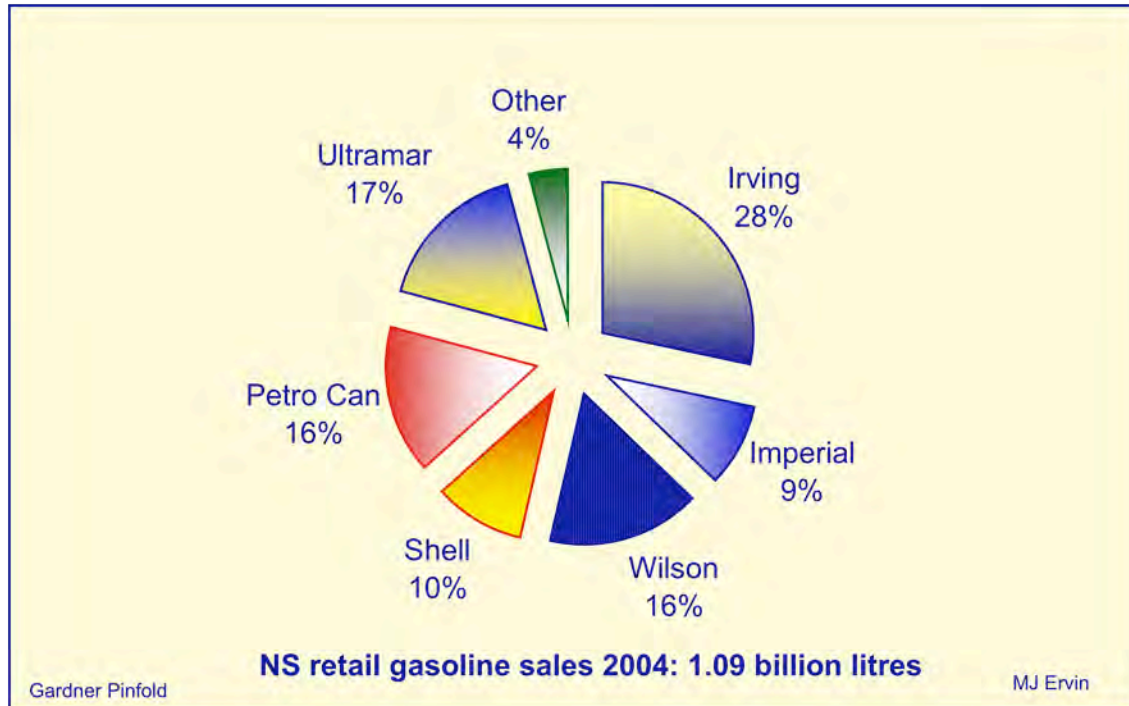
- Imperial Oil, Shell Oil and Petro-Canada are **fully integrated** companies, from crude oil production and refining, through to wholesale and retail sales. Their refining operations in Canada rely on domestic and imported crude oil. Their domestic production of refined product is sold in mainly in Canada, with any surplus exported to the U.S. Product from Imperial's Dartmouth refinery is sold mainly in the Atlantic Provinces, with surplus exported to the U.S.
- Irving and Ultramar are **integrated refiner-marketers**. They rely exclusively on imported crude oil, operating two of Canada's largest refineries. Well over half the output of the Irving Refinery is exported to the U.S., making its product pricing highly sensitive to demand and supply shifts in the North American market. Both companies operate wholesale divisions and retail outlets throughout Eastern Canada, with Irving also operating at the retail level in the U.S. northeast.
- Wilson Fuel Company is a Nova Scotia-based **non-refiner marketer** operating at the wholesale and retail levels throughout the Atlantic Provinces. Wilson acquires its product supply from the Imperial and Irving refineries, and from North Atlantic Refining in Newfoundland & Labrador. In addition to developing its own network of branded stations in the Atlantic Provinces starting in the late 1980s, Wilson acquired from Imperial Oil the wholesale supply function for most of the Esso brand retail network in 2003 (Imperial is holding on to its larger corporate sites).

The other 10 wholesalers and distributors supply their own retail outlets (e.g., Co-op), or ones too small to be of interest to the larger companies. Some of these firms are independent, while others are subsidiaries of the larger marketers. Several operate mainly as heating fuel suppliers, while also supplying gasoline to a few outlets located primarily in rural areas.

⁵ Gasoline is a basic commodity. Including additives (chemicals) changes the characteristics of the fuel, providing companies with a basis for differentiating their product from the others. "Product differentiation" is what economists would call a form of non-price competition.

The wholesale market in Nova Scotia is highly concentrated, with the top four firms accounting for 77% of total sales in 2004 (Figure 19). Irving Oil holds the largest market share (28%), followed by Ultramar (17%), Petro-Canada (16%) and Wilson (16%).

Figure 19
Market share in the Nova Scotia retail gasoline industry, 2004



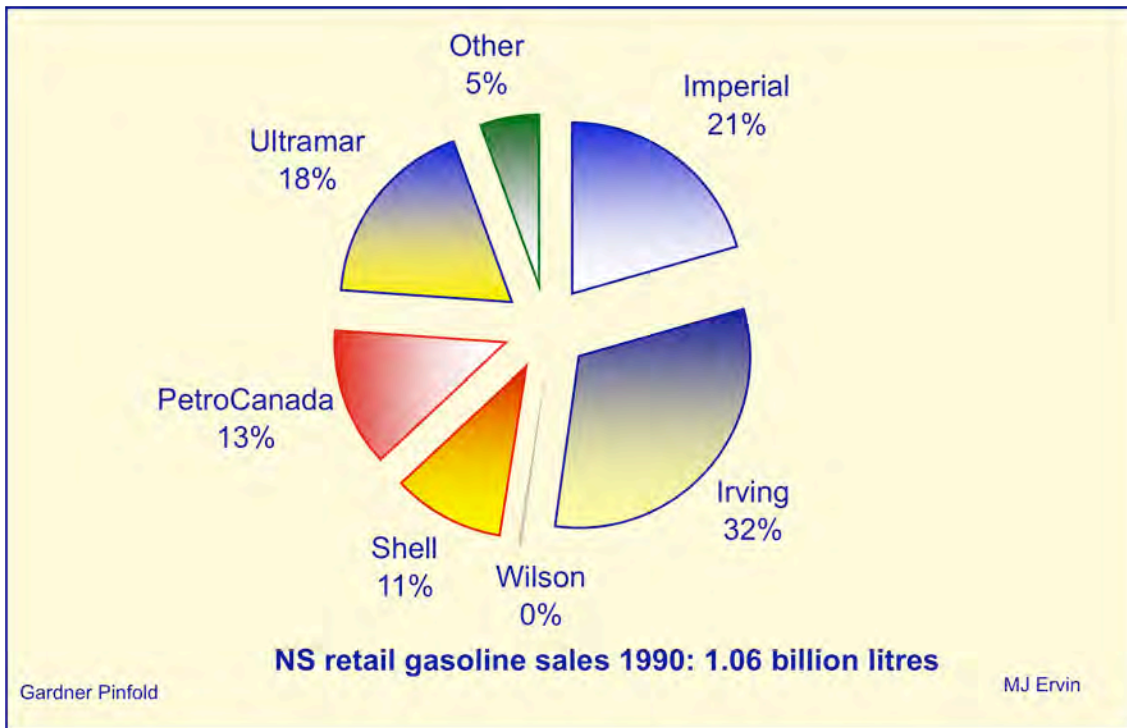
Source: estimated from provincial and oil industry data

Comparative figures for 1990 indicate that industry concentration has declined over time (Figure 20). In 1990, the top four firms accounted for 84% of market share. The major source of change lies in the decision by Imperial to dispose of its wholesale business (acquired by Wilson). Otherwise, the other shift of note is the decline in Irving's market share from 32% to 28%. Note that Wilson Fuel was at an early stage of developing its business in 1990, with a market share of less than 1%.

With this change in structure, the wholesale segment of the industry has moved slightly in the direction of greater competitiveness. The emergence of Wilson Fuel as a major wholesaler increased the number of large companies making pricing decisions from five to six. Nevertheless, with a four-firm concentration ratio exceeding 70% in 2004, the major firms would be regarded as having the potential to exert market power.⁶

⁶ Economists would regard an industry with a concentration ratio in this range as consistent with an *oligopoly* market structure. The significance of any market structure lies in the kind of competitive behaviour it engenders. An oligopolistic industry is likely to exhibit product differentiation, rigid prices, non-price competition, propensity for mergers, and collusive rather than competitive behaviour. There is nothing intrinsically wrong with an oligopolistic structure, but such industries tend to come under close scrutiny by the Competition Bureau given the greater possibility for anti-competitive behaviour. Annex B provides more detail on the characteristics of an oligopoly and its price-setting behaviour.

Figure 20
Market share in the Nova Scotia retail gasoline industry, 1990



Source: estimated from provincial and oil industry data.

The category labeled “other” in Figures 19 and 20 consists of the smaller wholesalers and regional distributors. This group has declined by half since 1990, dropping from 20 firms to about 10 in 2004. Low margins and a drop in the number of customers they supplied (independent retail dealers) account for this decline. These remaining distributors each supply between two and ten outlets.

Retail sector

A major transformation has occurred at the retail level over the past 15 years. This is reflected in a change in both the number and the characteristics of retail gasoline outlets. The number of outlets in Nova Scotia declined by almost half between 1990 and the end of 2004, dropping from 880 to about 475. This decline mirrors what has occurred elsewhere Canada, with the number of stations dropping from an estimated 22,000 to just over 14,000 over the period.⁷ Similar rates of decline are reported in the U.S.

Before examining how this rationalization played out, it is worth looking back to the preceding decades. Maximizing market share had been the main industry objective during the 1950s and 1960s, and saturating the roads with outlets emerged as the dominant marketing strategy. Nova Scotia was no different than most areas in North America in that it had far more gas stations than needed to meet the changing market needs of the 1980s and 1990s.

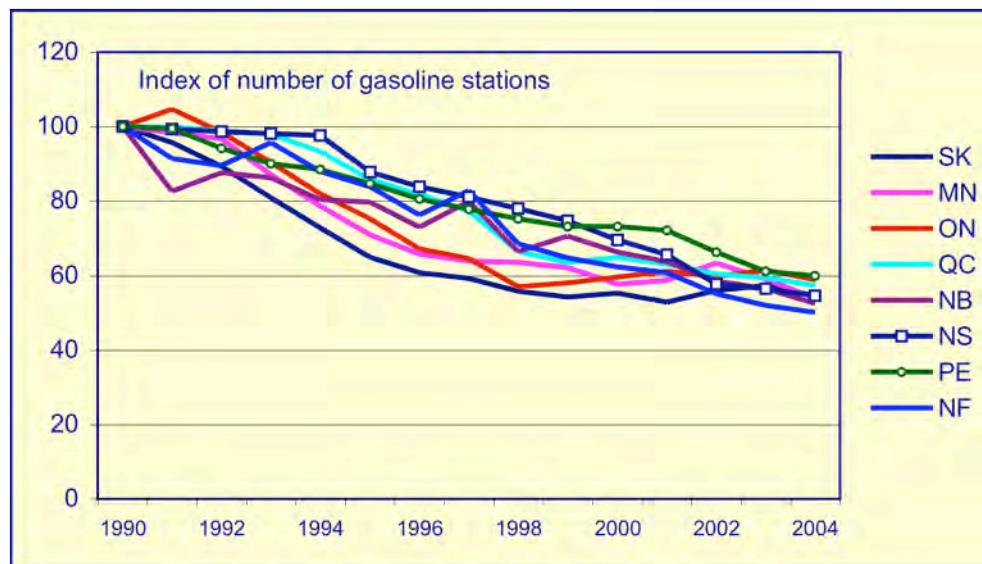
⁷ MJ Ervin & Associates, *National Retail Gasoline Site Census 2004*

Two key factors provided the rationale for cutting back on the number of stations: declining demand and financial discipline. Demand declined initially because of rapidly rising oil prices, and then because automakers began to produce more efficient cars. Cars travelled longer distances between fuel stops, required less maintenance, and they carried longer warranties. So not only did demand drop for gasoline, but also for maintenance, a related service that drew cars to the stations and provided another source of revenue. As margins declined, greater emphasis was placed on financial discipline, resulting in a drive to reduce the capital the industry employed. This affected not just gas stations, but refineries and terminals as well.⁸

Station closures in Nova Scotia had begun slowly in the 1970s, with 40-50 exiting the industry each year as oil prices rose and demand dropped off. The pace moderated in the late 1970s and 1980s when industry was subject to regulation of price and mode of operation. The pace picked up in the 1990s. De-regulation in 1991 was a contributing factor to the more rapid pace of rationalization as price competition intensified and margins began to decline. But the industry was also reacting to a pent-up demand for change in how it responded to consumer preferences. This meant not simply shifting from full-serve to self-serve, but a change in approach emphasizing convenience and the need to offer a wider array of ancillary services in order to compensate for reduced margins on fuel.

Figure 21 shows the trend in station numbers from 1990 to the present, comparing all provinces. The rate of closures for the Maritime Provinces is about the same – between 40 and 50%.⁹

Figure 21
Gasoline outlets, Canada, Nova Scotia, New Brunswick and PEI, 1988-2004



Source: PEI IRAC Annual Reports; NS Department of Environment and Labour; MJ Ervin & Associates; Octane Magazine.

⁸ Between 1980 and 2004, the number of refineries in Canada dropped from 40 to 16, and in the U.S. from 319 to 149. The actual decline in capacity was far less than the number of facilities would suggest due to on-going expansions and up-grades. For example, U.S. capacity dropped by less than 10%. But this decline comes in the face of rising demand, particularly in recent years. While Canada is self-sufficient in petroleum products, the U.S. relies increasingly on imports to meet demand.

⁹ NB had 1,400 outlets in the late 1970s. This dropped to 504 in 2004 (the same number as Nova Scotia). Annual NB data are not available. The change shown is based on interpolation of 1996 and 2004 data.

It is perhaps worth noting here that the number of stations in PEI declined despite a regulatory framework that leaves stations earning overall margins in the \$0.06 per litre range (based on a weighted average of all grades sold).

The integrated refiner-marketers led the closures by shutting down their many under-performing controlled sites. Many independent dealers also closed, mainly because their stations had become unprofitable in a more competitive climate that placed great emphasis on the need for non-petroleum revenues to support an enterprise. Table 5 shows the change in station numbers by supplier between 1990 and 2005. In 1990 about 75% of these outlets were company owned and controlled. The proportions have changed substantially over the past 15 years. Of the 478 outlets in 2005, about 45% (215) are under corporate ownership (either owned or leased), while the other 55% (263) are independently owned.¹⁰

Table 5
Number of outlets by supplier, 1990 and 2005

	1990	mid-2005
Irving	327	109
Imperial	150	17
Ultramar	141	77
Petro-Canada	94	52
Shell	85	35
Wilson	7	96
Other	75	92
Total	879	478

Source: Oil companies and Nova Scotia Department of Environment and Labour

The transition from an industry focused on market share to one driven by return on capital, shareholder value and “market effectiveness” is reflected in the figures in Table 5.

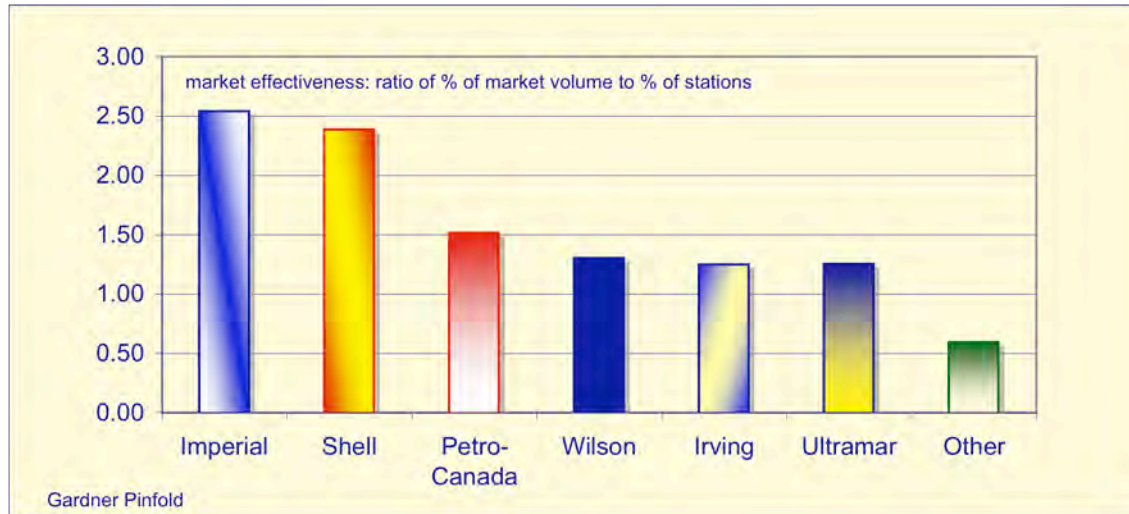
- Irving Oil now supplies just one third of the stations it did in 1990.
- Imperial Oil has removed itself from all but the most profitable segments of the retail business – refining, wholesaling and retailing through only the highest volume sites.¹¹
- Shell, Petro-Canada and Ultramar have also made major cuts in outlets supplied, retaining high volume sites, but continuing to support larger independent dealers (generally ones exceeding two million litres).
- Wilson’s growth is due partly to an increase in its own corporate and branded independent sites, but mainly to its takeover as supplier for the independent Esso branded stations.

¹⁰ Independent ownership means ownership of the site the outlet is built on. It may also include ownership of tanks and equipment. Independence in this sense does not necessarily mean the owner is free to make all the business decisions governing the operation of the outlet. We estimate over 15% of otherwise independent dealers operate under a consignment selling arrangement, leaving the day-to-day product pricing decision under the control of the supplier. By contrast, the dealers leasing sites from the companies (with the exception of one company) control their pump prices.

¹¹ Exxon Mobil’s 2004 *Financial and Operating Review* captures succinctly the marketing approach of the major oil companies: “Our capital management strategy combines selective investments with ongoing asset highgrading to create a resilient asset base. ... Our market effectiveness in markets where we have seen the full benefits of a focused market approach is 50 percent better than the industry. We are in the early years of a long-term program to apply these tools.”

The refiner-marketers use various indicators to assess their relative performance in a given market. “Market Effectiveness” is one of the main indicators. It is the ratio of the percentage of total volume sold by its controlled sites to the percentage of industry sites it controls.¹² The relatively high market effectiveness of Imperial and Shell reflects their strategy of focusing on high volume sites (Figure 22).

Figure 22
Market effectiveness of the major wholesale suppliers in the Nova Scotia market



Source: estimated from provincial and oil industry data

The category labeled “other” sits at the other end of the spectrum. It includes 263 independently owned outlets (55%), accounting for just over 31% of sales volume. Taken as a group, their market effectiveness ranks about half that of the three companies at the lower end of the scale. These independent stations form the cornerstone of the retail network in rural areas. Table 6 summarizes the numbers and average volumes.

Table 6
Nova Scotia gasoline stations and volumes, 2004

	Controlled/lessee	Independent
Number of stations	215	263
Total gasoline sales (litres)	746,317,650	340,100,300
Average volume (litres)	3,471,245	1,293,157

Source: estimated from provincial and oil industry data

¹² The estimates in Figure 22 may differ from values calculated by the industry. The industry would include just corporate sites, the ones it controls in all respects. Due to incomplete site status data, Figure 22 includes lessee dealers as well as corporate sites.

3. COMPETITION

The competitive environment...the battle for tenths of a cent

The struggle between wholesalers and independent retailers may be summed up by the phrase, “Buy low, sell high”. Wholesalers want to buy low from refiners and sell high to retailers. Retailers want to buy low from wholesalers and sell high to consumers. Militating against the potential free for all at this intersection of supply and demand is the need for some certainty and stability. This establishes the basis for the relationship between wholesalers and retailers. Wholesalers need to have reliable outlets for the products they want to sell. Retailers need to count on a reliable source of supply. This mutual dependence works as long as the balance struck in the division of the spoils is one that generates an acceptable return for both parties.

The “spoils” in this case are the 8-10 cents that separate the price at which the wholesaler buys and the retailer sells a litre of gasoline. This is known as the marketing margin. It does not seem like much a litre at a time, but at stake is the \$100 million or so that the marketing margin on the billion litres of gasoline sold each year in Nova Scotia represents. At these volumes, tenths of a cent make a difference. *Who acquires those tenths depends on the bargaining strength of the respective parties.* While it is easy to assume that “Big Oil” companies possess far more bargaining strength than the dealers with whom they negotiate, it is not that simple:

- In the on-going struggle to maximize its share of the margin, the wholesaler risks driving the independent retailer to seek an alternative source of supply when contracts come up for renewal, or at the extreme, out of business. It is not in the wholesaler’s interest to lose sales volume, unless the cost of continuing the arrangement exceeds the revenue to be gained (as it might in the case of low volume retailers). The supplier’s offer to the dealer will reflect such considerations as the value of its brand (including loyalty programs), competition in the market area, location and quality of site, and cost of branding and maintaining the site.
- Conversely, knowing that the wholesaler needs outlets, the retailer tries to maximize its share of the margin, recognizing that the limit to its bargaining power is defined by the alternatives open to the wholesaler: other retailers prepared to accept an inferior offer, or the wholesaler investing in its own retail site in the area. Retailers bring several factors to the table influencing the outcome of the arrangement from their perspective: current and potential sales volume, site location, quality of premises, range of services and credit risk.

The arrangements suppliers and dealers enter into are rarely built just on the fuel price or margin. This is because price tends to be an inadequate and potentially risky basis for reflecting the range of competitive differences among retailers. Wholesalers, of course, do sell at different prices to different retailers, reflecting the different circumstances retailers bring to the bargain – volume, location (competitive environment) and quality of site. But such price differences tend to be minor. In differentiating among retailers, arrangements rely mainly on forms of revenue flow allowing greater negotiating flexibility, including cross-lease payments, rebates, capital contributions and interest free loans. These non-price methods – essentially inducements to a dealer too sign on with a company – can be tailored more readily to specific circumstances.

The contracts between suppliers and dealers vary in duration depending on the interests of the parties, though the supplier usually dictates the term. Contracts with highly valued dealers extend for a minimum of five years, and terms of 15 years are not uncommon where suppliers have invested in the sites. Contracts with less valued dealers may extend for terms as short as 30 days.

Supplier-dealer relationships

Our discussions with wholesalers (suppliers) and retailers (dealers) reveal a matrix of relationships running along two dimensions: who controls the assets and who controls the pump price. Ownership runs the spectrum from full ownership and control of outlets by the suppliers, to full ownership and control of all aspects of the business by the dealer. Control of the pump price cuts across these arrangements, with dealers either simply buying and selling, or selling on some form of consignment/commission basis.

		Asset Control – dealer arrangement			
		Company	Lessee	Cross-lease	Independent
Pump Price Control – price arrangement	Buy-sell		X ✓	X ✓	X ✓
	Consignment	X		✓	✓
	Salary/commission	X ✓			

X who sets the price

✓ dealer arrangement where price-setting applies

- **Company operated outlets (controlled):** these are directly owned and operated by the supplier (with salaried employees). The supplier controls the pump prices. This relationship is rare.
- **Commission outlets (controlled):** this is a more common variety of controlled outlet, characterized by supplier ownership (or control) of the real estate, with management of the site through a commissioned agent with respect to petroleum sales. Like the company operations, these types of sites tended to be situated in key markets or in high volume locations (e.g., Halifax). Operator compensation for petroleum sales is on the basis of a commission rate per litre sold.
- **Standard lessee (uncontrolled):** most suppliers operate at least a portion of their outlets as standard lessees, whereby the dealer leases the supplier-controlled property, buys fuel from the supplier at a dealer wholesale price, and is therefore responsible for establishing the pump price. This mode of operation, covering about 15% of outlets, is more common outside of key markets.
- **Consignment dealers (controlled):** under this arrangement, the outlet may be owned and operated by an independent dealer, leased from the supplier, or owned by the dealer and operated under a cross-lease. The supplier owns the petroleum inventory and controls the price. The dealer receives a commission (margin) for petroleum sales, much in the same manner as a commission outlet. One supplier operates its network under this mode in order to facilitate its pricing strategy. Another uses this approach to ease the independent dealer's cash flow burden.

- **Cross-lease (controlled/uncontrolled):** four of the six marketers engage at least some of their dealers using this arrangement. The supplier typically leases the retail outlet from the dealer under a long-term lease, and then leases the site back to the dealer, effectively as a standard lessee. The dealer, who may be operating on a consignment (price-controlled) or buy-sell (not price-controlled) basis, receives volume-based lease payments (usually in the range of 1-2 cents per litre).
- **Branded independent (uncontrolled):** five of the six Nova Scotia marketers supply a network of branded independent outlets, where the dealer owns or controls the assets, buys fuel from the supplier at a dealer wholesale price, and is therefore responsible for establishing the retail pump price. This mode of operation, covering about 25% of outlets, is most closely associated with smaller sites in rural areas.

Dealer wholesale prices

Dealer wholesale prices (DWP) at uncontrolled outlets are established using a wide range of methods. Based on the descriptions of our interviewees, no two suppliers use exactly the same approach. Each of the methods could be generally characterized as being one of the following:

- **Retail Dependent:** DWP is set a specified number of cents below the prevailing retail price in a reference market (usually the dealer's own competitive trade area). This assures the dealer a specific margin at the time the dealer purchases the fuel. Changes in the retail price between fuel purchases may increase the margin (if the market price goes up) or decrease it (if the market price goes down).
- **Premium to Rack – formula based:** DWP is set at a fixed cent per litre premium to the (Halifax) posted rack price. DWP is independent of any fluctuations in the prevailing retail price. The premium to rack varies according to a formula taking into account dealer circumstances (e.g., volume and competitive environment) and freight cost. Margin will vary between fuel purchases depending on movement of the retail price.
- **Premium to Rack – negotiated one-on-one:** DWP is negotiated with the dealer, using a rack price reference, but without a set formula. Prices may vary by dealer.
- **Margin Sharing formula:** this applies to consignment sales where the dealer does not actually buy the gas from the supplier. Instead, the dealer margin is determined at the start of each week based on the relationship between a published reference price and the prevailing retail price. The arrangement fixes upper and lower limits for the dealer. The margin then rises or falls depending on retail price movements during the week, with gains and losses shared between supplier and dealer according to an established formula.
- **No reference to rack or margin:** DWP is simply posted as today's buy price, without any explicit relationship to a reference price (such as rack price or retail price). This type of arrangement is technically known as an “open price term”. The dealer relies on the supplier to act in good faith to set a price that is commercially reasonable – one that provides the dealer with an acceptable margin.

The difference between the DWP and the retail price, formally referred to as the retailer margin or dealer margin, is not the only source of petroleum-based revenue for many independent dealers. Depending on their negotiating ability and negotiating position, dealers may also build other petroleum-related revenue streams into their contracts with suppliers. These include:

- **Cross-lease payment:** this device was originally used to facilitate repayment of loans for capital improvements paid for by suppliers at independently owned outlets. On condition of lending money to a dealer to upgrade an outlet (usually interest-free), a supplier would lease the site from the dealer with the lease payment linked to volume of sales (1-2 cents per litre), and then lease it back to the dealer for a nominal amount. The lease payment would be used to repay the loan with the term of lease tied to the length of time needed to accomplish this.

Cross leases continue to be used, though infrequently for the original purpose (too few independents willing to make the \$1-2 million investments in new facilities). They are now entered into simply as a means inducing an independent dealer to sign a long-term supply agreement (ranging from 5-10 years). Based on dealer and supplier interviews, we estimate about 25% of independents operate with a cross lease not tied to capital. For these dealers, the payments add 1-2 cents to the retail margin.

- **Rebates:** instead of the complexities of cross leases, some suppliers pay rebates to their dealers. These are generally linked directly to volumes sold, and either deducted from invoices or paid on a monthly basis. Rebates are generally in the 1-2 cents per litre range, either a flat rate or escalating at specified volume thresholds. Based on dealer and supplier interviews, we estimate about 25% of independents operate with some form of rebate payment. For these dealers, the payments add 1-2 cents to the retail margin.

4. SHARING THE MARKETING MARGIN

The marketing margin using published data

An important research objective of this study centres on determining the division of the respective proportions of the gasoline gross marketing margin accruing to suppliers and dealers.

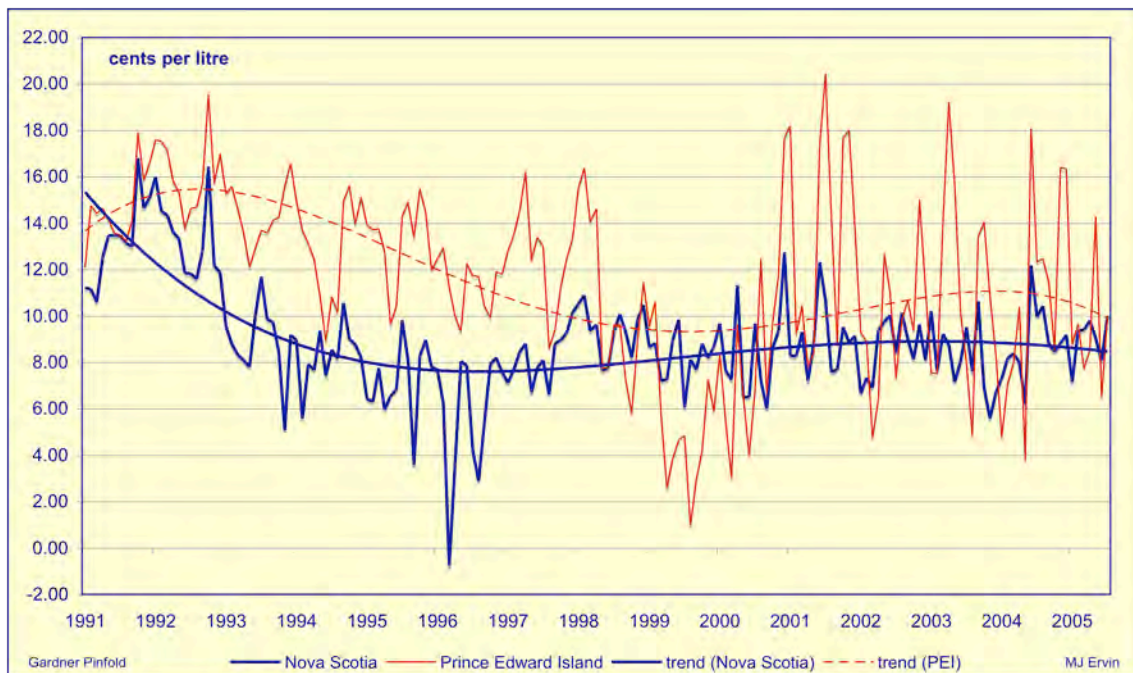
This margin is often referred to as the “rack and retail” margin. Both ends of this margin are known values based on publicly available sources.¹³ But in practice, the marketing margin is wider than the spread between these prices. This is because large volume buyers trade at a discount off the rack price. The data provided by major suppliers indicate this discount is in the order of 1.5 to 2.0 cents per litre, varying in proportion to volume.

¹³ See, for example, *Fuel Facts*, a bi-weekly publication available on-line at www.mjervin.com

By applying a two-cent discount to the published rack price for gasoline sold in Nova Scotia over the past 15 years we are able to derive an accurate measure of the marketing margin. This is depicted in Figure 23 based on Halifax prices (rack and retail), along with the similarly derived margin for PEI based on Charlottetown prices. Figure 23 illustrates that the marketing margin:

- declined relatively sharply in NS during the early 1990s. The termination of regulation combined with an increasingly competitive market caused the rapid decline.
- declined relatively slowly in PEI during the 1990s, dropping to (and below) the NS level by 1998. The introduction of regulation in PEI explains the relatively slow descent in the 1990s. The adjustment lag accounts for the drop below the NS margin in 1999 and 2000. (See Chapter IV for a description of the PEI system.)
- currently fluctuates in NS within a 1-2 cent range around a trend value of about 8.5 cents per litre. Competitive pressures keep the margin from rising above 10 cents per litre and from falling below 7 cents per litre.
- currently fluctuates in PEI within a range of 4-6 cents around a trend value of just over 10.0 cents per litre. Regulation keeps the margin above that in NS, with the adjustment lag accounting for the wide margin swings.

Figure 23
Marketing margin, Nova Scotia and Prince Edward Island, 1991-2005



Determining the division of the marketing margin between suppliers and dealers requires a comprehensive data set of either monthly average wholesale selling prices or retail buying prices over a period of 5-10 years. Subtracting either of these prices from the retail price would establish how the margin divides. The consultants requested price and margin data from suppliers and dealers.

Estimating wholesale and retail margins using industry data

Results

Dealers were able to provide limited data on prices and margins, but not in sufficient detail to allow the division of the marketing margin to be computed with confidence (dealer information is arrayed in Annex A). Few dealers keep systematic records of their buy price over a period of years. Three of the six major suppliers were able to respond to the data request within the short time frame of the study.

Specifically, the suppliers provided for each grade of gasoline their monthly volumes purchased, total acquisition cost (i.e., the refiner's selling price) and total revenues realized from the sale of that product to different categories of dealers. The data confirm the supplier acquisition cost is about two cents below the Halifax rack price. The DWP and the wholesale margin on sales to branded independent dealers were derived from these data by the consultants. Subtracting the DWP from the average retail price gives the retail margin. We used an average retail price based on the Sydney/Yarmouth/Truro (SYT) markets. Halifax was excluded because controlled outlets dominate the retail market.

Results are summarized below and presented in the accompanying Figures. Figure 24 shows the division of the margin between the retail and wholesale sectors, while Figure 25 illustrates the month-to-month relationship between the margins, indicating how widely they fluctuate and how they move in relation to each other.

- Over the past five years the marketing margin generally moved between 8 and 10 cents per litre, averaging in range of 8.5 cents (Figure 24).
- Since 2000, the retail margin has typically ranged between 4 and 5 cents per litre, at times rising above and occasionally dropping below these levels (Figure 25). The retail margin reached a sustained level of 6 cents per litre during the second half of 2004, dropped sharply in early 2005 then recovering to the 5-cent range by mid-2005.
- Since 2000, the wholesale margin has typically ranged between 4 and 5 cents per litre, on two occasions rising above this level (5-6 cent range) for sustained periods (second half of 2002 and the first half of 2005).
- The marketing margin has increased slightly from the level in the late 1990s (Figure 24). A mild recession during this period caused demand to drop, depressing refining and marketing margins.
- Generally the wholesale and retail margins move in tandem with changing market prices, though on three occasions in the past three years the margins diverged (Figure 25), once in favour of retailers (late 2004) and twice in favour of wholesalers (second half of 2002 and first half of 2005).

The wholesaler and retailer margins shown in Figures 24 and 25 do not take into consideration cross-lease and other payments (e.g., rebates) made to retailers. These would add to the gross retail margin and reduce the wholesale margin. Based on information from retailers (Annex A), we estimate such payments would add about 1 cent to the average retail margin and reduce the wholesaler margin by a corresponding amount.

Figure 24
Nova Scotia gasoline market: division of the marketing margin, 1998-2005

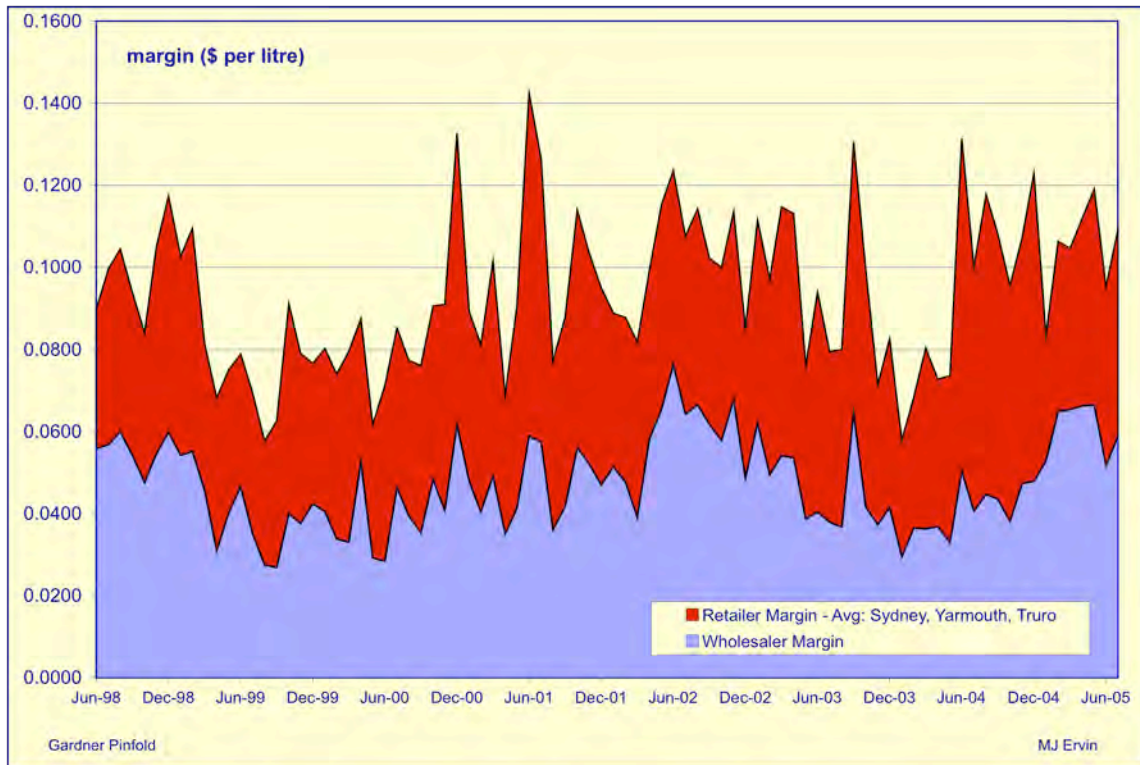
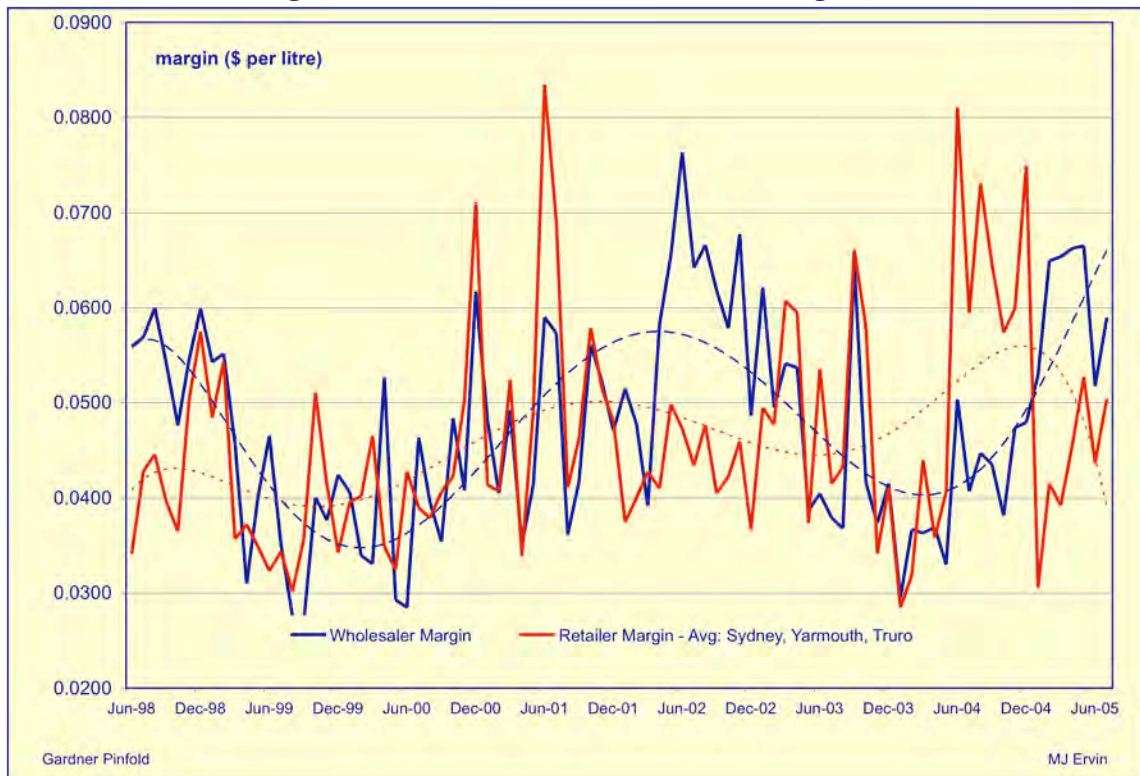


Figure 25
Nova Scotia gasoline market: wholesale and retail margins, 1998-2005



Notes on the supplier data

Wholesaler product costs

- The product acquisition cost data provided by Petro-Canada, Imperial Oil, and Irving is more accurately described as a "transfer price", the value used to "sell" product from an integrated company's refiner, to that same company's marketer. In theory, this transfer price could be set at any value desired by the refiner-marketer's corporate head office. In practice, these companies determine the transfer price such that it approximates the prevailing market-driven wholesale prices.
- Our examination of these submitted wholesaler product costs confirms this. All three submitted values were very similar at any given point in time for the period January 2002 to July 2004 (the time period for which all three companies could provide data), and all three transfer price fluctuated closely in accordance with the prevailing Halifax rack price (although the New York Harbour Spot price is likely the actual basis for setting these companies' transfer price).
- Based on these transfer prices, it is evident that the integrated refiner-marketers do not manipulate their transfer price so as to "cross-subsidize" marketing margins at the expense of refiner margins at some times, and vice-versa at others.

Marketing margin

- The marketer margin (sometimes referred to as the "rack-to-retail" margin) is a measurement of the difference between a market's ex-tax pump price, and the posted wholesale rack price. This margin is often referred to, since it is based on two publicly posted prices.
- The rack price is only one of many types of petroleum wholesale prices. Our study obtained *actual* branded wholesale prices. These are not publicly disclosed, as they represent the private contractual pricing between specific suppliers and wholesale customers. Our study also obtained *actual* Dealer Wholesale Prices, also not publicly disclosed, for the same reasons.

In obtaining these actual prices over a common time period, we were able to measure the actual wholesaler and retailer margins, defined as follows:

- **Wholesaler margin:** the difference between the wholesaler's product cost or transfer price, and the DWP.
- **Retailer margin:** the difference between the dealer's DWP and the prevailing (ex-tax) pump price.

Accordingly, the combined wholesaler and retailer margin for a given market, at a given time, normally exceeds the value of the more commonly cited marketing margin, given that the wholesaler's actual product cost is typically less than the publicly posted rack price.

What the dealers say

In presentations to the Nova Scotia Legislature Select Committee on Petroleum Pricing in the summer of 2004, independent dealers made a number of claims about the state of the retail gasoline market, particularly as it affected dealers in rural areas. Among these claims:

- Independent dealers are being squeezed out of business by **low margins**.
- Suppliers are trying to **force dealers out of business** in order to take over the site.
- Margins have held constant over the past several years but **costs have increased** making it increasingly difficult to continue in business.
- Dealers in different locations are being charged **different prices** by the same supplier, and these prices cannot be explained by transportation differences alone.
- Dealers do not understand the **basis of the prices** they are being charged by suppliers.
- Dealers (in some cases) pay **higher wholesale prices than expected** based on discussions leading up to the contract.
- Independent retail dealers need a **margin of at least 5-6 cents** per litre in order to be profitable.
- The gasoline margin should be high enough so that a dealer does not have to rely on **ancillary services to support the enterprise**.

Our interviews with dealers and suppliers, as well the data they provided, indicate there is at least some validity to each of these claims. Taking them one at a time:

- **Low margins:** the era of low margins started about a decade ago (Figure 23). There is no question that margins have declined. This trend is felt throughout Canada and the U.S. While low margins have caused outlets to go out of business, they have also led to the emergence of new modes of gasoline retailing involving reduced dependence on petroleum revenues. Most of the outlets closing in Nova Scotia during the 1980s and 1990s were supplier controlled. But the lower petroleum margins also affected, and continue to affect, independent dealers. Petroleum margins have declined for two related reasons: a) higher throughputs led to greater efficiency and competition forced the industry to pass these efficiencies on in the form of lower unit margins; and b), outlets relied increasingly on non-petroleum revenue to support the enterprise. Many independent dealers failed to make, or were simply not in a position to make, the adjustment in services offered, and in the absence of significant increases in volume of sales, simply lacked the revenue base to carry on. This trend will continue as competition intensifies with the entry of hypermarkets such as Superstore, Canadian Tire and Sobeys.
- **Forcing dealers out of business:** there is no evidence of this in Nova Scotia or anywhere else in Canada. The major companies are interested primarily in high volume sites in urban areas, not relatively low volume rural sites. Moreover, the evidence suggests the companies are trying to pull capital *out* of the retail business and direct it to more profitable uses. Imperial Oil's move to have Wilson Fuel take over its dealer network is the leading example. Except for the high volume sites (5 million litres and over), the companies are happy to have others' capital at work, particularly given all the risks the retail business entails. Notwithstanding that the *motive* may not be to drive dealers out of business, the net effect is the same for several dealers realizing margins in the 2.0-2.5 cents per litre range.

- **Costs have increased:** there is no question costs have increased. Insurance, utilities and credit card fees are three of the most frequently cited. Credit card fees, because they are applied as a percentage, are tied directly to rising prices. With gasoline over \$1.00 per litre, the first two cents per dollar of any credit card transaction go to cover fees. With 35-70% of gasoline purchases made with credit cards, this means dealers lose up to 35% of their margin right off the top. In the absence of any increase in the margin on fuel, dealers wishing to stay in business have little choice but to try to develop sources of non-petroleum revenue where margins are higher. Many have taken this step but it may not be enough to provide a basis for profitability.
- **Differing prices:** suppliers confirm they charge different prices to different dealers. This should not be shocking to dealers since these differences reflect differences in their competitive positions at the time the original deal was struck. While cost may be a factor in explaining a difference in price, it is neither the only nor necessarily the most important factor. Such factors as the dealer's location, volume and conditions in the local market influence the supplier's offer. Similarly, the dealer would (or should) pay nothing more than what the market will bear, as defined by the supply options available at the time the deal is struck. In short, both sides are trying to cut the best deal, and that deal may vary from one dealer to another.
- **Basis of price:** one thing is clear from the dealer interviews – many dealers understand poorly the basis of the price they are paying. They don't know if it is related to rack, to some other reference price, the retail price, or if the day-to-day price is driven by the supplier's revenue target in relation to what the supplier deems is a reasonable margin for the dealer. Some contracts operate on a renewable 30-day term, leaving the dealer with the option of always looking for a better deal. Others extend for periods of years involving both a basis for determining a supply price and an explicit guaranteed payment (rebate or cross-lease payment). Presumably, the stronger the supplier feels its negotiating position is, the more vaguely the basis for the supply price would be worded (an aspect of charging what the market will bear). That many dealers enter into long-term contracts where this wording leaves the price decision entirely in the hands of the supplier implies either a high level of trust or a belief by the dealer (and supplier) that the dealer lacks any bargaining strength.
- **Higher wholesale prices than expected:** several dealers contend that the discussions leading up to a long-term contract had led them to believe the margin on gasoline would be higher than it turned out to be once they started operating. In each case, the dealer has made substantial investments that rested critically on the margin assumption. The actual margin realized (exclusive of cross-lease payments) is no more than half that assumed in the business plan. In part the issue in these cases rests on the realism of the assumptions in the business plans, and on the dealer accepting these assumptions at face value. In the case of two dealers, the pricing arrangement under negotiation clearly left them below the assumed margin. In the case of two other dealers and a different supplier, the contract was completely open with respect to price (an open price term contract). In such arrangements, dealers take it on faith that the supplier will charge them a fair market price allowing them to realize an acceptable petroleum margin. That is not the experience of these dealers. In the U.S. most states have adopted a Universal Commercial Code that obliges sellers in open term contracts to act in good faith in setting prices. What is fair is a matter for the courts to decide, but one test is whether the prices charged are within the range of those charged by competing suppliers.

- **A margin of at least 5-6 cents:** several dealers expressed the position that they would have difficulty surviving at current margin levels. Those expressing this position cover the spectrum from outlets pumping less than one million litres to those exceeding five million. Not all dealers find themselves in this position. The summary financial statements presented in Table 7 indicate that at least some dealers turn a profit in current market conditions. The short answer to the question concerning the margin level needed for viability is that *there is no single number and no simple response*. A margin even at the industry average would help those currently below the average. A margin a cent or two above the average would provide a solid foundation for many more dealers. But it would also serve to increase profits for stations already in a profitable position.
- **Ancillary services to support the enterprise:** we spoke with many dealers who expressed the firmly held belief that each segment of a gasoline enterprise should be able to support itself. Financial statements obtained from dealers as part of this study indicate (Table 7) that gasoline currently generates a 4-7% margin, compared with a margin of 15-25% on other services (bays and convenience store). After more than a decade of declining margins, it is not clear under what circumstances a return to gasoline margins of the 1970s and 1980s might occur. Regulation is proposed as a solution by some of these dealers, though the target is likely to be elusive in light of continuing downward pressure expected in the future. Annex C sheds some light on the kinds of competitive conditions we can expect in Nova Scotia based on the experience in the U.S. and elsewhere in Canada.

Dealers in Nova Scotia may or may not see themselves within the 4-5 cents per litre range that industry data indicates is the retail margin. Information obtained directly from dealers through survey and by interview indicates a wide range in the retail margin – anywhere from 2 to 5 cents for regular gasoline (Annex A). The information suggests many dealers fall below the average and some above it. In some cases, dealers provided verifiable values calculated from financial data, but most provided estimates based on memory or partial information such as occasional invoices. Data on cross lease payments and rebates is included where provided. All suppliers and counties are represented with at least two entries.

Table 7
Financial results for independent gasoline dealers, Nova Scotia, 2004

	1	2	3	4	5	6	7	8	9
Type	Gas FS gen'l store	Gas FS C-store	Gas FS Store/Bar	Gas FS C-store	Gas FS Bays	Gas FS C-store	Gas FS Bays	Gas FS/SS C-store	Gas SS/FS C-store
Volume in litres	226,772	307,171	553,000	578,246	1,055,248	1,082,986	1,611,630	2,192,248	2,500,000
	\$	\$	\$	\$	\$	\$	\$	\$	\$
Revenue-fuel	174,880	240,292	447,000	526,000	830,635	809,251	1,196,379	1,922,572	1,721,318
Revenue-other	232,169	296,238	314,000	507,000	450,415	811,144	118,451	177,093	622,586
CGS-fuel	169,303	230,021	417,645	489,000	787,011	748,758	1,112,881	1,767,723	1,589,622
CGS-other	177,831	236,727	233,355	427,000	250,180	687,697	76,104	151,187	523,208
Gross margin-fuel	5,577	10,271	29,355	37,000	43,624	60,493	83,498	154,849	131,696
Gross margin-other	54,338	59,511	80,645	80,000	200,235	123,447	42,347	25,906	99,378
Gross margin-fuel %	3.19%	4.27%	6.57%	7.03%	5.25%	7.48%	6.98%	8.05%	7.65%
Gross margin-other %	23.40%	20.09%	25.68%	15.78%	44.46%	15.22%	35.75%	14.63%	15.96%
Gross margin-fuel cpl	2.46	3.34	5.31	6.40	4.13	5.59	5.18	7.06	5.27
Including C-L/rebate	-	-	-	-	1.25	1.50	1.00	1.00	1.00
Other expenses	41,255	69,873	102,000	83,000	202,497	138,801	135,198	154,778	283,309
Net income	18,660	-91	8,000	34,000	41,362	45,139	-9,353	25,977	-52,235

Source: financial statements of independent dealers

Several dealers also provided financial statements to allow margin data to be verified. Although all dealers were asked for financial data, relatively few complied with the request. In some cases, dealers operate substantial enterprises, of which gasoline is just one element. Their statements present only consolidated information making it impossible to extract margin information. Some were simply reluctant to share financial details, while others could not produce volumetric and financial information on a basis that would allow margins to be derived. Results for nine dealers of varying size and service offering are shown in Table 7.

The financial results in Table 7 allow a few general observations to be made:

- The very small dealers (in the range of 300,000 litres or less) have limited bargaining strength and consequently are unlikely to be paid a supplementary fee through a cross-lease or rebate. The relatively low margin dealers 1 and 2 realize reflects their low volume and the generally higher costs of delivery.
- The margins realized by dealers 3 and 4 reflect mainly the pricing approach used by the particular suppliers in question. Both tend to allow their dealers margins at the upper end of the spectrum. Neither dealer is large enough to merit a rebate or volume incentive payment.
- Dealers 5-9 realize relatively high margins compared with the values provided by most of the dealers directly in Annex A. Supplementary payments indicated are included in the fuel revenue and so form part of the gross fuel margin.
- The same wholesaler supplies dealers 8 and 9. The variation in gross margin reflects differences in transportation as well as competitive conditions in the local market.
- At 1,000,000 litres, dealers are large enough to merit supplementary payments of one form or another. These vary by supplier and may also escalate with volume.
- The margins realized are consistent with those derived from the supplier data and reflected in Figure 24.
- All but one of the dealers relies to a significant degree on ancillary revenues. The gross margin on ancillary revenues varies from 15 to 45%, compared with gross margins on fuel varying between 3 and 8%.

Though not evident from the way the data are presented, the margin differences reflect differences in the wholesale prices charged by different suppliers. Analysis of the data supplied by the companies and the margin information provided by dealers indicates as much as a 1-cent per litre difference in wholesale prices among suppliers. This reflects not just the nature of the market and the respective bargaining strength of suppliers and dealers, but also differing pricing policies of suppliers. Though there are clear differences in how prices are set, we found no evidence of price discrimination in the sense that term is used in the *Competition Act*.

IV

PERSPECTIVE ON DECLINE

1. OVERVIEW

Between 1990 and 2005, the number of gasoline outlets in Nova Scotia declined from 879 to 478, a drop of 401. The change in station numbers by county is set out on the map in Figure 26.

The decline in stations is not unique to rural areas, but has occurred throughout the province. In fact, the region with the largest number of closures turns out to be Halifax County, dropping from almost 180 stations in 1990 to 110 in 2005, a net decline of 68. How many of these were rural is difficult to say, not because it is not possible to locate the closures on a map, but because of the challenge in specifying which of those areas can be said to be rural.

Being drawn into a debate on what is and what is not a rural area would not be productive for this study. Much of Nova Scotia is rural in the accepted sense of areas characterized by relatively low population density, resource-based economy, relatively high unemployment and low income, limited services and amenities, high out-migration and an older average age structure. Rural areas are ones where places and services are widely distributed, and because of this, people generally have to travel farther to get on with their lives – to work, play, shop, and go to school. And because transit systems are poor or non-existent, individuals depend heavily on their vehicles.

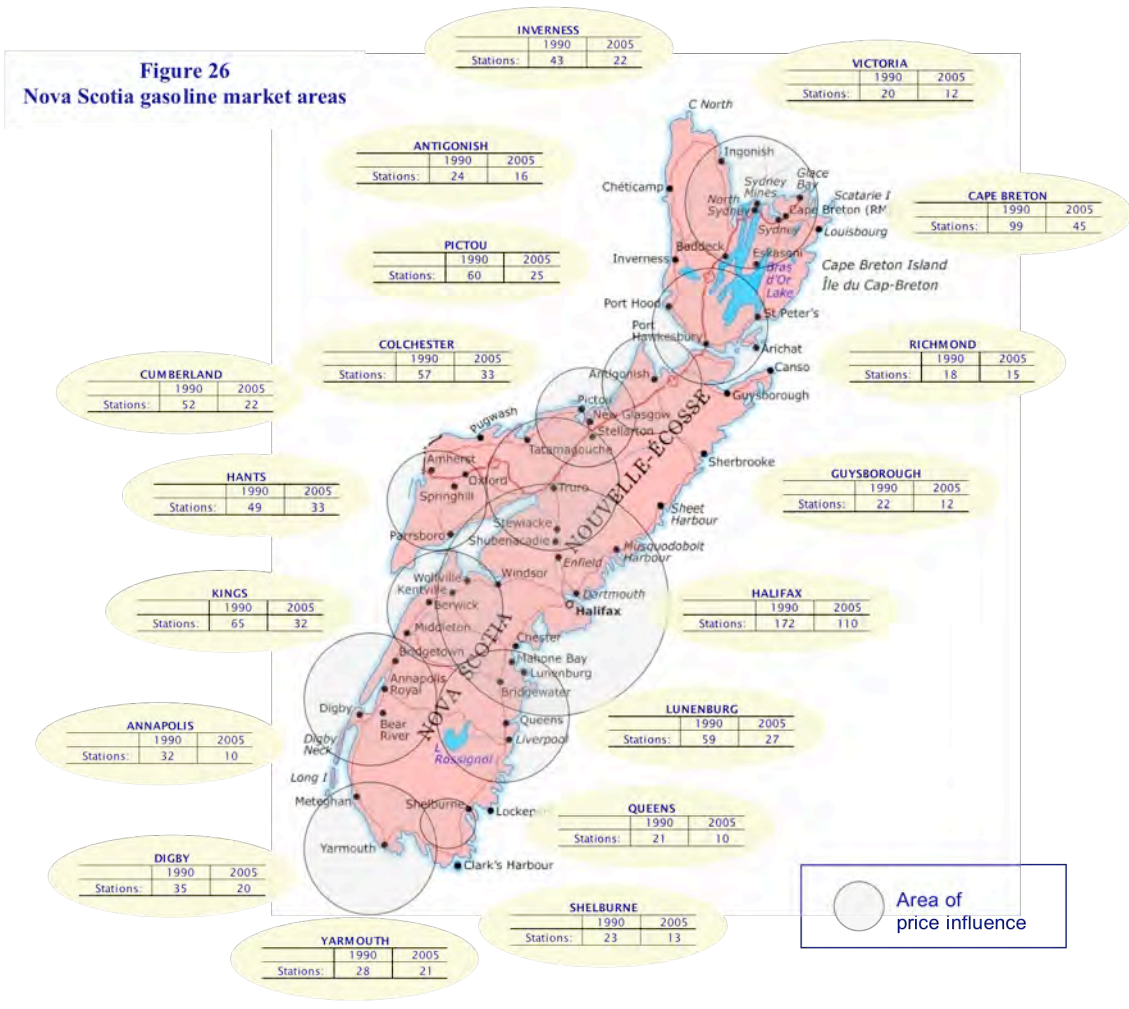
The distribution of Nova Scotia's 478 gasoline stations conforms closely to the distribution of the population. Most people and stations are located along the coast in communities of various size. Population and stations are fewer and farther between in inland areas. The major population centres in Nova Scotia are connected by an efficient highway system. Though many of us complain about the state of the roads, they have improved considerably over the years.

Nova Scotia is also relatively small, and due to its shape, all but the most remote communities in Nova Scotia are well within an hour's drive of one of the province's eight largest population centres. Nova Scotia and Prince Edward Island are unique in having these particular characteristics within Canada.

Figure 26 provides an indication of gasoline market areas in the province. Halifax exerts a strong influence over an area defined by the distance many people drive to work and shop in the city. The intersection of market areas indicates the integration of much of the province from a pricing perspective. Prices in major communities on the mainland are unlikely to diverge very far or for very long. Some distinct markets also exist. For example, the Digby, Barrington and Yarmouth areas, though adjacent, often generate different prices due to unique competitive conditions. There are also gaps in the market network – relatively isolated areas where prices tend to reflect local conditions including limited population, low volumes and high costs.

The question addressed in this chapter is not whether an area is rural or not, but whether access to fuel has become or is likely to become so constrained that it begins to compromise the ability of people to get on with their lives, or of institutions and business to get on with their day-to-day operations.

Figure 26
Nova Scotia gasoline market areas



2. PERSPECTIVE ON THE DECLINE IN RURAL OUTLETS

Station numbers and average volumes

The declines between 1990 and 2004 have reduced station numbers by 30-50% by county, though counties such as Annapolis, Cape Breton, Cumberland and Pictou, have seen declines in the 60% range (Figure 27). Figure 28 shows how average volumes have increased by county.

Figure 27
Number of gas stations by county, 1990 and 2004

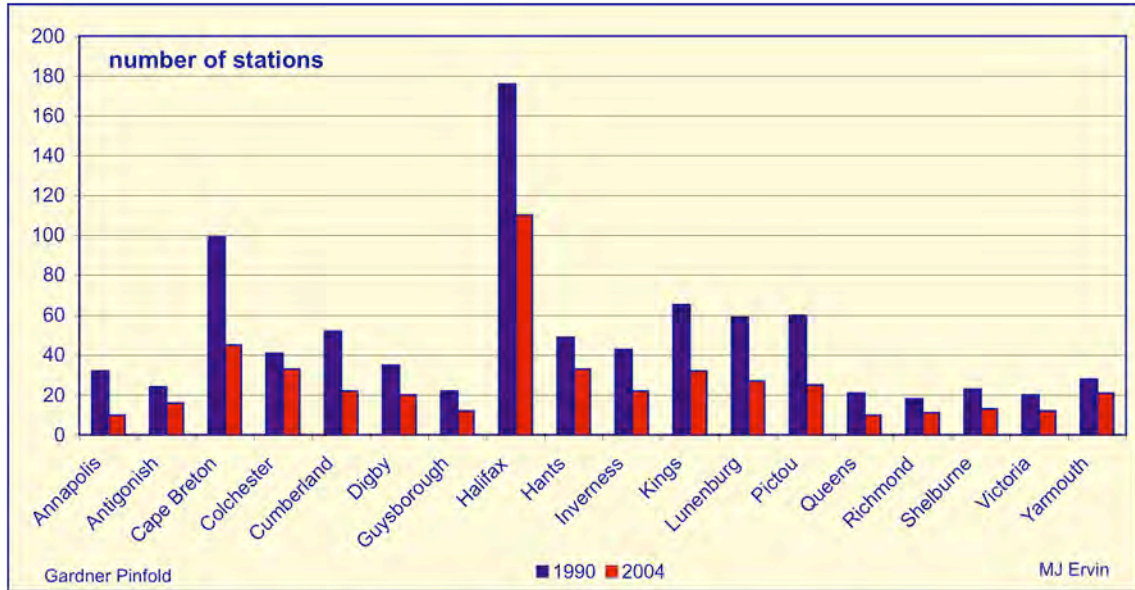
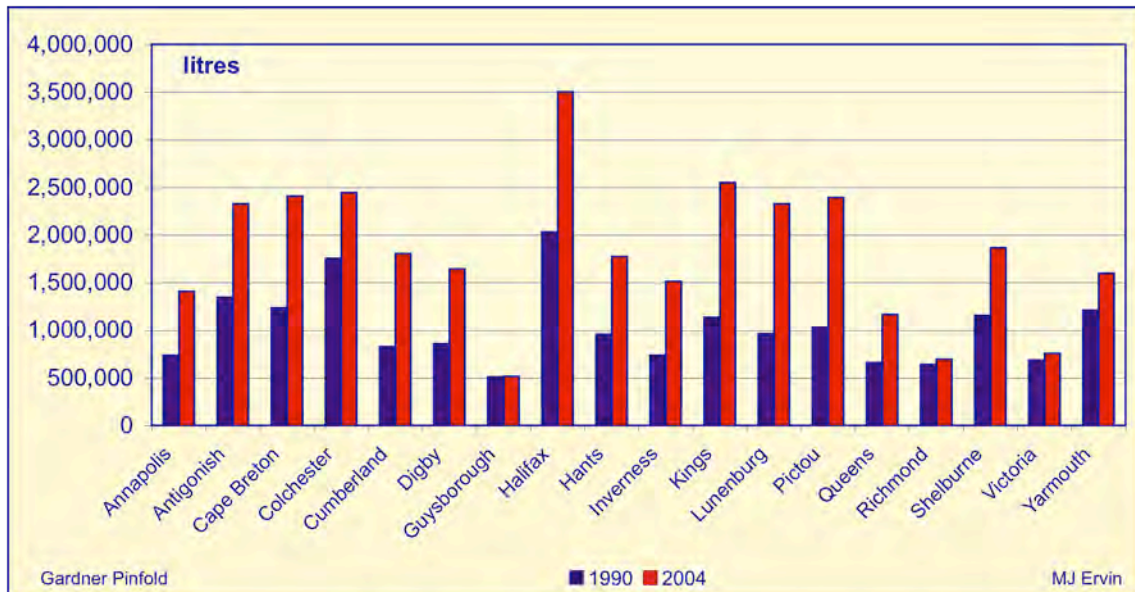


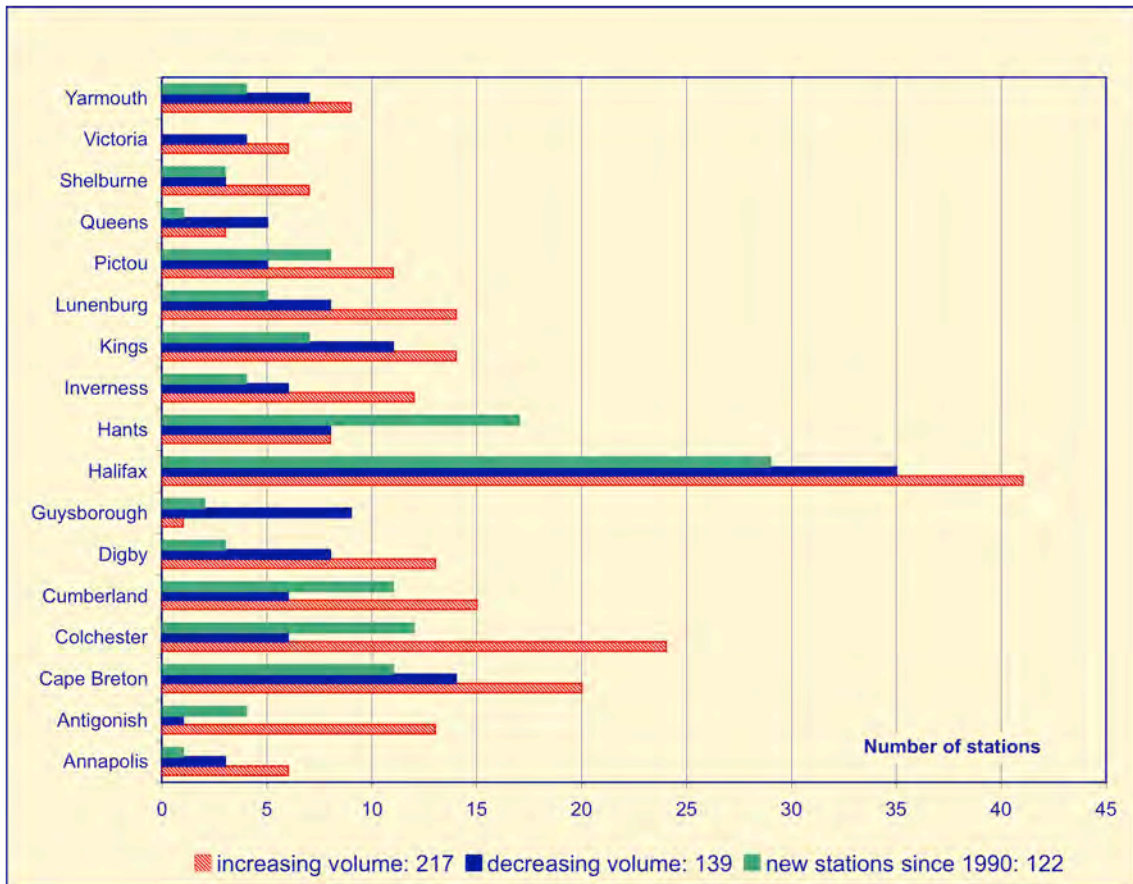
Figure 28
Average gasoline sales volume by station and county, 1990 and 2004



Source: Nova Scotia Department of Environment and Labour

While increased station volumes enhance the prospects for viability, the averages shown in Figure 28 are not distributed evenly across all stations. In fact, many stations have not only failed to gain as others have gone out of business, but have continued to lose ground. By examining station-by-station annual sales volume data, it is possible to gain some insight into the location and scale of the problem of declining station numbers (Figure 29).

Figure 29
Station volume change and number of new stations by county, 1990 to 2004



A comparison of the 1990 and 2004 data reveal several important findings:

- 879 stations operated in 1990.
- 478 stations operated in early-2005, of which 455 reported sales.
- 122 stations *entered* the industry between 1990 and 2004.
- 356 stations have been in continuous operation between 1990 and 2004:
 - 217 of these stations report increased sales volume
 - 139 of these stations report decreased sales volume
 - 80 of the stations with declining volume *sell less than 1 million litres* annually
- 523 stations *at a minimum* have gone out of business since 1990.¹⁴

¹⁴ This is derived by deducting the number of stations currently in operation from the sum of total number in 1990 plus the stations entering the industry since 1990: $(879+122) - 478 = 523$. Determining the actual number entering and exiting the industry between 1990 and 2005 would be a very time consuming exercise given the way the data are stored.

On the face of it, the stations most at risk of failure are the 80 smaller stations (those pumping less than one million litres annually) experiencing declining volumes. Figure 30 shows that stations in this smaller group dominated the retail sector in many counties in the 1990s. Most of these have closed up shop, some have grown, while others continue in business. Figure 31 indicates that most of the surviving smaller stations are located in predominantly rural counties.

Figure 30
Number of stations by county and size, 1990

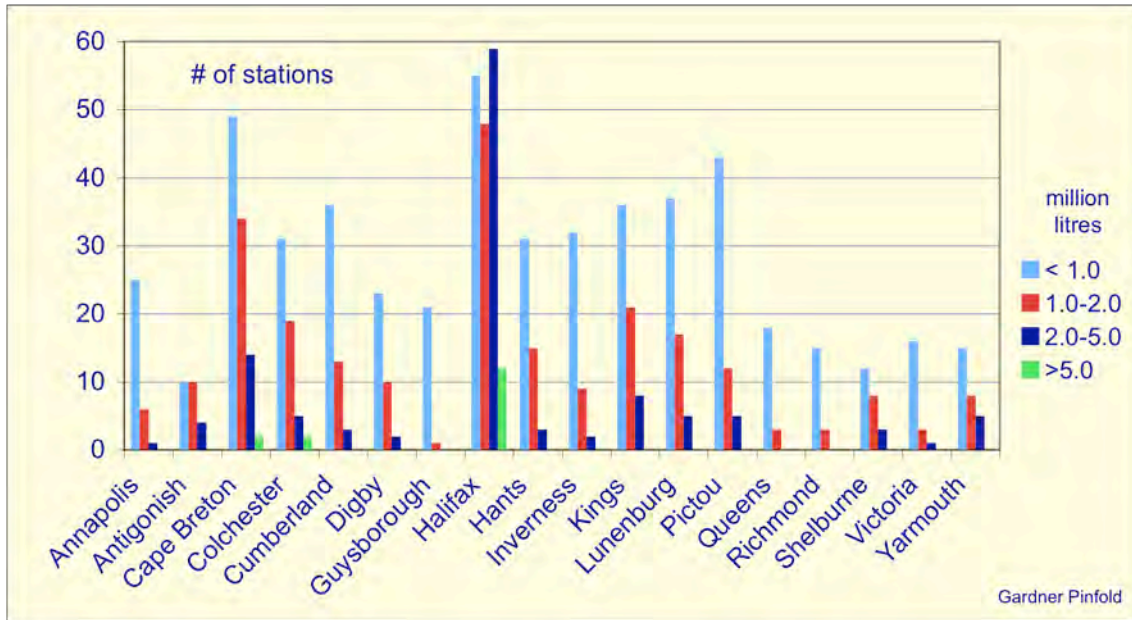
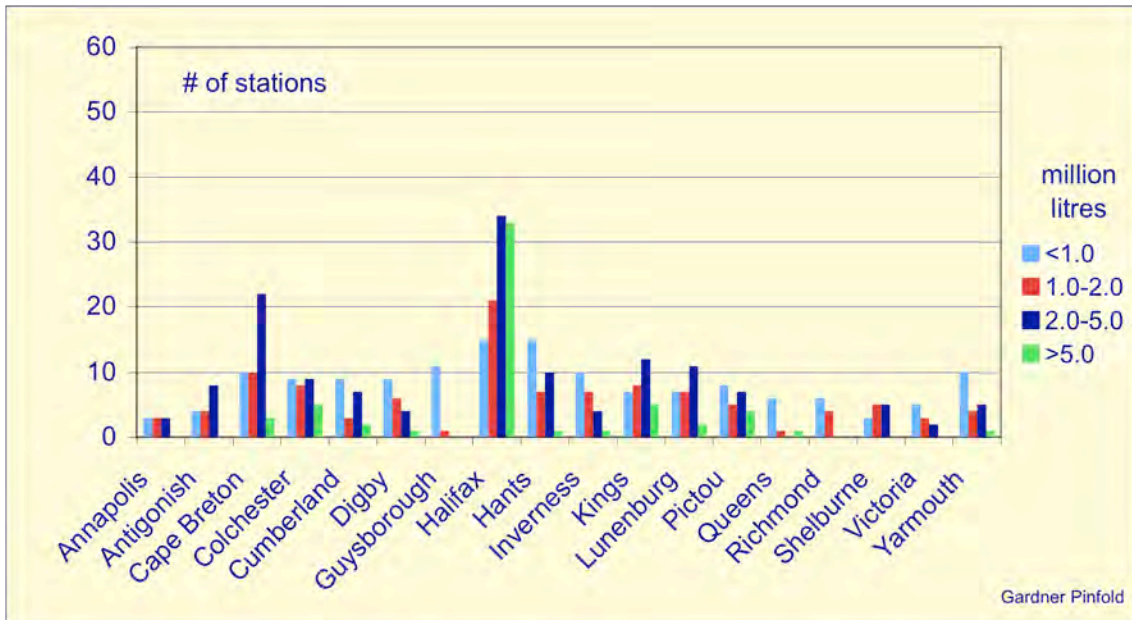


Figure 31
Number of stations by county and size, 2005



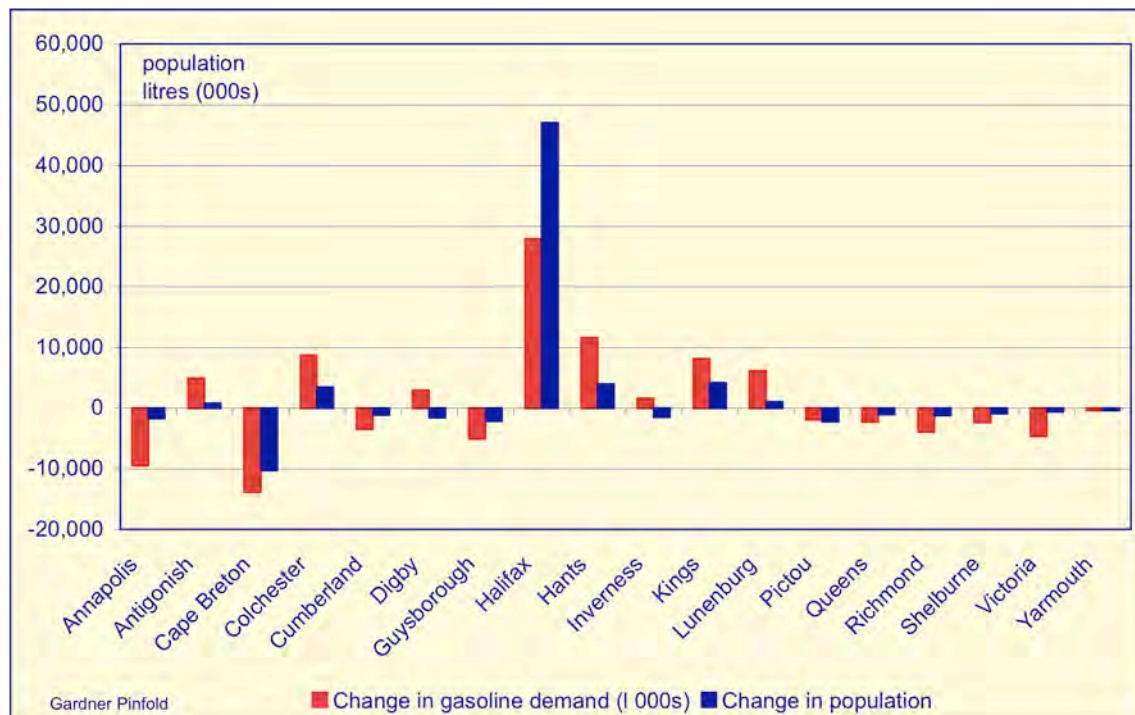
Factors explaining the decline in numbers

The data in Figures 27 - 29, while helpful in illustrating some of the trends in station numbers and location, do not address one of the most fundamental factors driving change – the demand for gasoline. This has remained fairly stable in aggregate terms in Nova Scotia over the past 15 years. But this aggregate stability obscures the changes occurring at the county level. Demand has declined in 10 of Nova Scotia’s 18 counties, while increasing in eight.

Demand for gasoline is closely linked to “economic geography” – where people live, work and spend their incomes. There is a direct relationship between gasoline demand and two key factors embodying the major changes in economic geography within the province (Figure 32):

- **demographic shifts in response to economic opportunity:** several counties lost 5-10% of their populations between 1990 and 2004, contributing to declining demand for gasoline, e.g., Cape Breton, Guysborough Shelburne, Queens and Richmond. Other counties gain from these shifts including Halifax, Antigonish, Hants and Kings.
- **influence of changing commuting and shopping patterns:** more people commute longer distances to work and also to shop in regional shopping centres resulting in a shift in demand. There are a few key examples. The drop in Annapolis would appear to be picked up in Digby and Kings (this is verified by dealers in both counties). Halifax has drawn population and traffic from other parts of the province. With better highways, commuting has become a practical option. So not just Halifax, but the adjacent counties (Colchester, Lunenburg, Hants and Kings) benefit. Antigonish and Bridgewater have also emerged as a regional centres, drawing people and gasoline demand from adjacent counties.

Figure 32
Changes in population and gasoline demand by county, 1990-2004



Source: Statistics Canada and Nova Scotia Department of Environment and Labour

- **industry factors:** this captures that broad range of factors on both the demand and supply side of the market for gasoline, all of which have contributed to reduced demand and greater financial challenges, not just for the independent station operator but for controlled outlets as well. On the demand side are such factors as greater fuel efficiency, better-made cars, longer warranties and stronger ties to car dealerships, emergence of specialist automotive shops (mufflers and shocks), and the emergence of hypermarkets that use cross-merchandising as a means of consolidating demand. On the supply side are pressures to reduce costs and increase throughput, while generating non-petroleum sources of revenue to carry the enterprise. All of these factors are expected to intensify in the coming years. All will increase the challenges facing smaller independent operators.

3. ENTRY AND EXIT IN THE FUTURE

Entry will continue

The industry continues to attract new stations where economic conditions provide opportunity. This is a sign of a healthy competitive environment. In the mature industry that gasoline retailing is, these opportunities arise primarily from two sources:

- new locations linked to population growth and changing traffic patterns. As long as highway construction continues in Nova Scotia (by-passes and extensions of twinned segments) exit ramps will provide opportunity for creation of service centres including gas stations.
- the introduction of new service modes aimed at consolidating supply as part of a broader service offering (e.g., hypermarkets such as Superstore, Sobeys and Canadian Tire). Expansion from this source is likely to continue, though the number of sites offering potential is limited by space and market considerations. Nonetheless, this source of competition creates an immediate challenge for all stations within a radius of 50-100 km. They have to match price or lose volume. And even when they match price they lose because they cannot compete with the coupons and discounts. If people are driving to shop anyway, filling up at the hypermarket becomes an easy decision.

We expect the industry to add 2-3 stations per year over the next five years or so.

Attrition from the industry will continue

In light of slow growth in overall volumes in most counties, any new outlets will take volume from existing stations, thereby decreasing their viability. This competition coupled with continuing pressure on margins can be expected to lead to continued attrition, particularly among stations already with low volumes.

Attrition from the industry is less likely to occur on the scale experienced over the past 10-15 years. This is because fewer low volume stations remain, and because many stations have reconfigured themselves to add non-petroleum sources of revenue. But as many as 140 low volume stations continue to operate, and more than half of these (80) indicate declining volumes. Many of these are traditional two-bay service stations located in small towns and rural areas. For many, adding ancillary services is not an option.

For outlets selling 1 million litres annually, the gross revenue from gasoline sales alone is likely to be \$40,000 at best. Wholesalers continue to supply these outlets, but do not feel the need to compete for this business, so rebates or cross-lease payments ordinarily do not form part of the relationship. Operating costs would eat up most of this revenue. At current prices, credit card fees alone would reduce revenue by at least \$10,000 (assuming 50% of sales are paid for with credit cards). After other expenses, this leaves little to take home. Service bays and small convenience stores help, but as the financial data in Table 7 show, there is not much left after expenses.

Many stations are marginal operations from which owners derive minimal income. Some continue to operate out of a sense of civic responsibility. Some are waiting for another station in the area to close in order to pick up the volume. Other owners are trapped. They stay in business because it is the less costly option – closing up shop means incurring a bill of \$10-20,000 to pull up underground tanks, with the possibility of substantial site remediation costs. For this reason, except in growth areas with high land values, gasoline station sites have little or no market value.

We expect 10-15 stations to go out of business in each of the next five years or so as a consequence of increased competition, low volumes, inadequate non-petroleum margins and increased pressure on petroleum margins.

Rural areas are unlikely to be left without service

Attrition from the industry is most likely to occur in rural and urban areas through competition from existing or new stations. Volumes in many communities are inadequate to support all the stations competing for the business. Some will go out of business. In most areas, this means consumers will have *fewer* choices, not that they will have *no* choice. The areas most likely to lose stations are communities over-supplied with service stations, not more isolated areas.

The risk that rural and remote areas will lose all gasoline service is low. Given the current distribution of stations and population, few people in the province live as much as half an hour away from a source of gasoline supply. While it is inconvenient and expensive to drive such distances, buying gas tends to be incidental to traveling to work, shop or to meet some other objective.

Stations in remote areas are arguably in a stronger position than those in rural areas because they face less competition and most are able to (and do) charge the higher prices they need to stay in business. This does not mean monopoly power. The upper limit on the remote station's prices is determined by the trade-off involved in driving to the next outlet. A few areas of the province may be considered remote from the perspective of population and distribution of gas stations:

- along the Cabot Trail between the Englishtown Ferry and Cheticamp. Along this stretch are 6 stations, excluding the three in Cheticamp. Each is 15-20 minutes drive from the other, with the exception of the stretch between Cape North and Cheticamp. Residents of Pleasant Bay face a 25-30 minute drive in either direction to buy gas.
- Along Trunk 4 between St. Peter's and Sydney Forks there is no gas station and has not been one for many years. People between these communities and those living along the Fleur-de-lis Trail must travel to the Sydney area or St. Peter's for gasoline (as well as other goods and services).

- Most of the smaller communities in the interior of Guysborough, Antigonish and Pictou Counties have not had gas stations for many years. Residents must drive to one of the stations in Sherbrooke, or along Highway 104 near Antigonish or New Glasgow. These would be no more than 20-25 minutes away from most communities.
- The western part of Cumberland County, though sparsely populated, has three stations within 15 minutes drive and several more along Highway 104 towards Truro and Amherst.
- The interior part of southwest Nova Scotia (Lunenburg, Queens, Annapolis and Kings Counties) has several communities served by six local gas stations and with relatively easy access to stations in the major communities along Highways 101 and 102.

Though the likelihood of a decline of retail gasoline service to an unacceptable level from a cost or safety (emergency) perspective is low, it is not out of the question. Two options to address such situations are direct financial support for a retail operation or investing in a “skid tank” for emergency purposes. The latter would be the more cost-effective option. To the extent that community outlets are going out of business because of declining volumes, local residents may also want to re-think their buying practices. Saving a dollar or two on a fill in the short run may not be worth the inconvenience and cost in the long run when the local dealer has gone out of business.

V

APPROACHES TO REGULATION

1. COMPETITIVE BEHAVIOUR

The federal government has the authority under the *Competition Act* to ensure that market forces operate within a competitive environment. The Competition Bureau of Industry Canada administers and enforces the *Act*. While the *Act* does not provide a basis for direct regulation of fuel prices – this falls under the jurisdiction of the provinces – it does empower the Bureau to investigate possible violations resulting in prices determined through anti-competitive behaviour.

The Bureau has conducted several investigations of anti-competitive behaviour in the petroleum industry over the past 30 years. In the words of the Acting Deputy Commissioner of Competition, the Bureau's work "...has not uncovered any evidence of price fixing among major integrated oil companies..."¹⁵ Nor has the Bureau found any evidence of wholesalers abusing their dominant position in the industry to eliminate independents through predatory behaviour. The most recent was an examination to determine whether increases in retail gasoline prices in 2004 resulted from activities constituting a breach of the *Act*. Based on a statistical analysis of the relationship among crude, wholesale and retail prices in Canada and the U.S., the report concluded there was no evidence of anti-competitive behaviour.

The *Act* makes it an offence to engage in several kinds of activities:

- **Conspiracy:** it is an offence for one company or individual to agree or arrange with another to prevent or unduly lessen competition in the sale or supply of a product. Examples of this include agreeing to fix prices or allocate markets or customers. Not only is it necessary to prove that acts amounting to conspiracy took place, but that the actions unduly lessened competition. Simultaneous movement of gasoline prices and observed equality of prices in a given market are often cited by consumers as evidence of conspiracy. But in the retail gasoline market, it is competition not conspiracy that drives prices to equality. Dealers interviewed for this study made it abundantly clear that with even the slightest difference in prices, they would either gain or lose customers. They acknowledged that many consumers behave irrationally when it comes to purchasing gasoline, often driving long distances in an effort to save less than 1 cent per litre.
- **Price maintenance:** it is an offence for a supplier (e.g., a wholesaler) to attempt to influence another supplier (e.g., a retailer) either to increase a price or not reduce a price through the use of an agreement, threat or promise or any similar means. For a conviction under the price maintenance provision, it is enough to prove there was an *attempt* to influence prices through the means indicated. Proving that prices were *actually* changed or not changed is not necessary. The independent dealers interviewed during this study indicate they set their own prices if they take ownership of the fuel (though some wholesalers provide a "suggested" price). Practically, this means selling at what the market will bear, as determined by local competition.

¹⁵ Speaking notes for Richard Taylor, Acting Deputy Commissioner of Petroleum Pricing, to the Nova Scotia Legislature Select Committee on Petroleum Pricing, 2004.

- **Predatory pricing:** businesses are prohibited from engaging in a policy of selling products at unreasonably low prices (e.g., below cost) or at prices lower than in other markets in Canada *if* the intent or effect of the policy is to eliminate a competitor or substantially reduce competition. It is not enough to sell at relatively low prices; this has to be accompanied by the intent or design to reduce or eliminate competition. During the course of the study, the consultants saw examples of local price wars (one in Digby and another in Barrington) arising from battles for market share. The prices in these markets tend to be 2-3 cents per litre below prices in other areas of the province, though during the aftermath of the late-August price spike, the spread in Digby stayed at 6-9 cpl for several days. While inviting an explanation, it is unlikely this pricing behaviour would be considered predatory under the *Act*.
- **Price discrimination:** this occurs with respect to items of like quantity and quality when discounts or other price concessions offered to one buyer are not made available to competing buyers. So for example, the price discrimination provisions of the *Act* would not apply to volume discounts offered either by refiners to wholesalers, or to retailers by wholesalers, because the discount is linked to differences in quantity. Also, different discounts and concessions may be offered to different buyers where the buyers do not compete with each other. The practice of offering discounts and concessions (e.g., rebates and cross-lease payments not linked to loans), common in Nova Scotia and other provinces, does not violate the *Act* unless a wholesaler offers different concessions to retailers competing in the same market.
- **Abuse of dominant position:** using a position of dominance in a market to lessen or prevent competition is an abuse of power and is prohibited under the *Act*. To succeed in securing a remedy, it is necessary to meet a three-fold test: establishing that a firm substantially or completely controls a business in a market; that the dominant firm is acting in an anti-competitive manner; and that the anti-competitive act is substantially lessening competition in that market. Control is difficult to establish because it requires evidence of communication and coordinated conduct. The Competition Bureau has conducted investigations of the major gasoline companies (the latest in 1999) and found that none has a market share large enough to constitute a dominant position, and the evidence provided no indication of coordinated activity to raise prices. That prices tend to be identical in specific markets is the result of competition, not coordination.

2. REGULATION OF PRICES

The provinces have the jurisdiction to regulate prices, though most leave price formation to market forces. They accept that the market does a good job of allocating resources and ensuring efficiency, resulting in competitively determined gasoline prices.

Three provinces regulate the gasoline sector in some fashion: Prince Edward Island, Newfoundland and Quebec. The objective in each case is to influence prices, though providing support for retailers by setting margins also represents an important objective. Several states in the United States also regulate the industry through restrictions on retail selling prices (and Hawaii introduced controls on wholesale prices in September 2005).

Prince Edward Island – wholesale and retail price regulation

Objectives

The Petroleum Products Act (1988) provides the basis for regulation of distribution and sale of petroleum products in the province. The main objective is to ensure a just and reasonable price for heating fuel and motor fuel to consumers and licensees. More specifically, the main objective is to insulate consumers from the sharply fluctuating prices experienced in other provinces, while at the same time providing retailers with what is regarded as a reasonable margin. Officials with the Island Regulatory & Appeals Commission (IRAC) point out that regulation is not intended to result in lower retail prices in the long run, but to control the frequency with which they change.

Regulation of the industry began in 1947. Between 1957 and 1983, the Public Utilities Commission monitored wholesale prices and set maximum dealer mark-ups. Following a series of public hearings in the mid-1980s, government introduced the current system of full regulation of wholesale prices and retail margins. Base prices for wholesalers were introduced in 1989, with minimum and maximum retail margins set in 1991. These base prices reflected the spread between reference prices (initially crude oil and prevailing wholesale prices). Retail dealers are authorized to mark-up the base price within a range of 4.0 – 5.5 cpl for regular self-serve, and 5.0 – 7.5 cpl for regular full-serve (the maximum level for full-serve was increased from 6.5 cpl in May of 2005). Pump prices tend toward the maximum end of the range.

Process

The mechanics of the regulatory process are fairly straightforward. The wholesale base price is changed once a month based on the change in the New York Harbour (NYH) daily spot price of gasoline, averaged over a 30-day period. The reference period runs from the 24th of the previous month to the 23rd day of the current month, with price changes taking effect a week later (on the 1st of the next month).¹⁶ The base price is also adjusted periodically to allow wholesalers to recover losses due to the combined effects of regulatory lag and month-to-month volumetric differences. Wholesalers must file applications requesting adjustments.

In light of several sharp price increases in 2002 (and since), IRAC shifted to a bi-weekly adjustment period in late 2003. An increase (or decrease) would be triggered on or about the 15th of the month if product prices (based on NYH) increased or decreased by at least 4.0 cpl from the 24th on one month to the 10th of the next month. This is intended to address concerns of wholesalers whose margins tend to be squeezed in rising markets. Mid-month pricing adjustments do not require industry applications.

Results

IRAC officials advise that PEI consumers reportedly like the system because of the price stability it provides. Prices generally change once a month. This means that in the rising market experienced during much of 2004 and 2005, consumers were temporarily cushioned from sharp and unpredictable increases and decreases. This came to an abrupt end in early September, as consumers faced a 31.5 cents per litre increase within 24 hours.

¹⁶ Prior to March 2002 and the introduction of the current system, the base price was adjusted on a bi-monthly basis in relation to changes in crude oil prices. Wholesalers argued they were incurring heavy losses in part due to the regulatory lag, but also because the industry uses the NYH commodity spot market and not crude oil as a pricing reference.

Consumers may also like the system because pump prices tend to be lower in PEI than either Nova Scotia or New Brunswick for much of the time. But this has less to do with regulation than taxes. That pump prices are lower from time to time would be expected since no provincial sales tax is levied (just the federal 7% GST compared with 15% HST in Nova Scotia and New Brunswick).

To assess the impact of regulation on PEI consumers, the price of gasoline excluding taxes provides a more relevant basis for comparison. The month-long regulatory lag built into price changes means consumers gain temporary relief as prices are rising because of the delay in prices taking effect. But they pay more for longer as prices are falling. Whether they pay more or less in the long run depends not only on volume-adjusted prices, but also on the ability of the adjustment mechanism to mimic the timing and magnitude of price movements in non-regulated markets. Without detailed price and volumetric information, determining whether the regulatory system costs Islanders more or less in the aggregate remains an elusive question. Ex-tax price data suggests they may pay more in the long run. The price data in Figures 33 and 34 show that Charlottetown prices were higher than those in Halifax and Saint John most weeks between 2001 and 2005. Since 2001, the average price of regular gasoline in Charlottetown has exceeded the Halifax average by 2.30 cpl.

Figure 33
Ex-tax price difference for regular gasoline
Halifax vs. Charlottetown, Saint John and St. John's

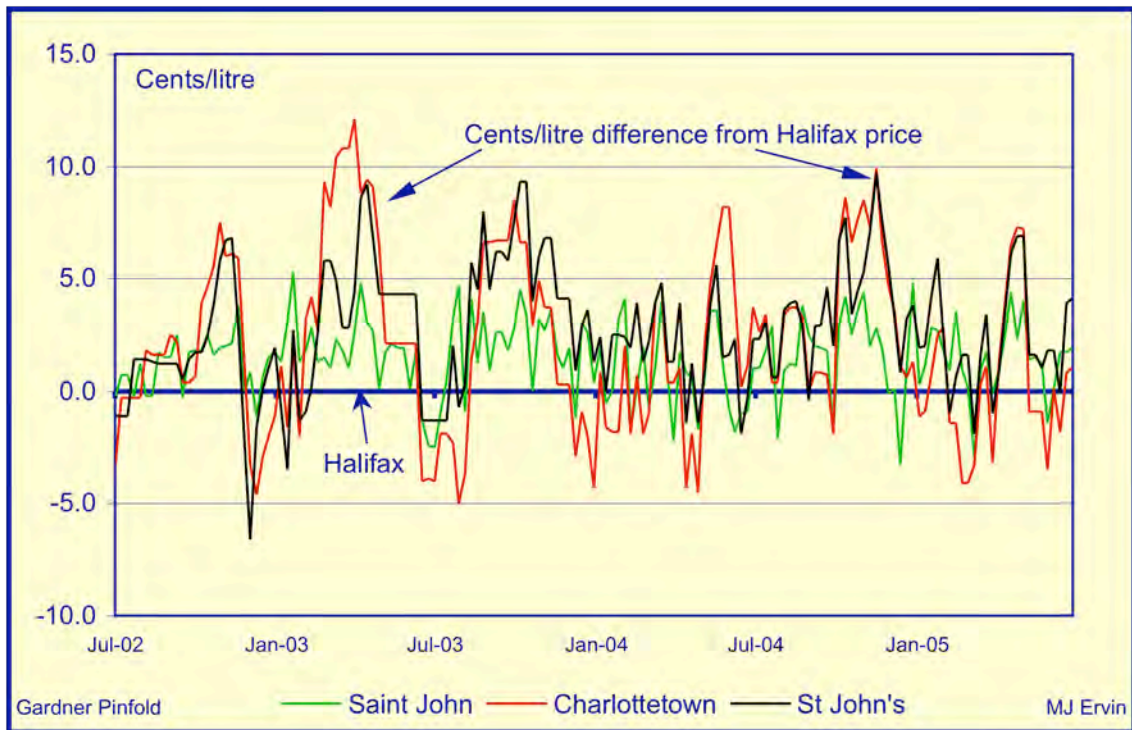
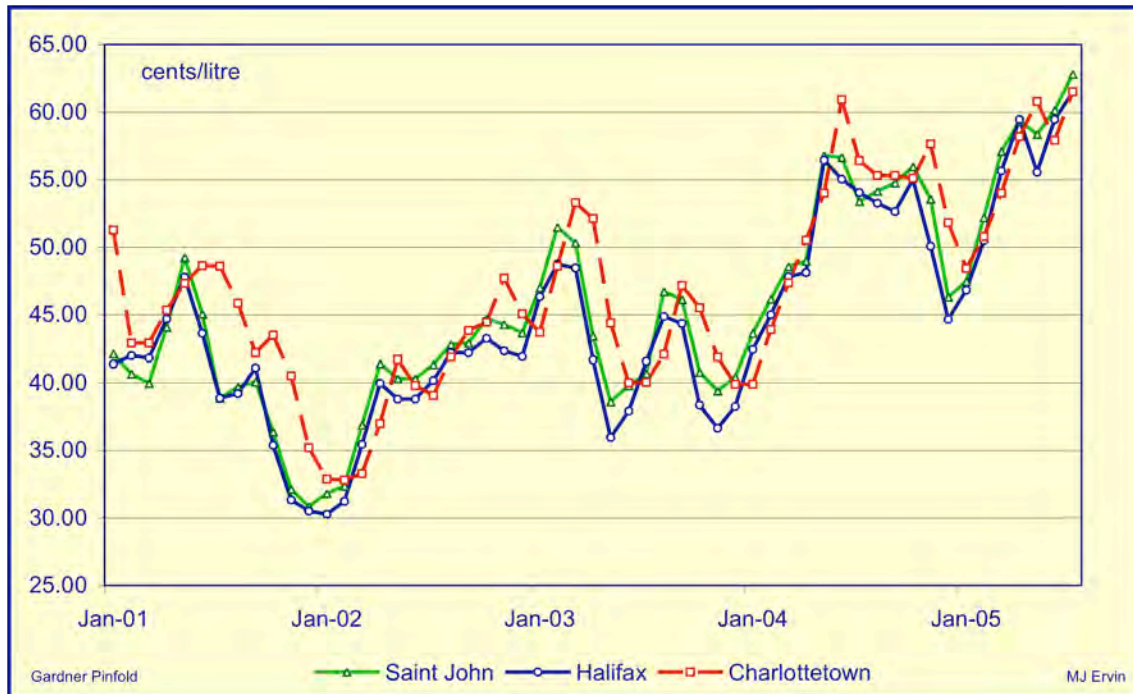


Figure 34 is of particular interest because it illustrates an asymmetry in the price gap, depending on whether prices are falling or rising.

- As prices decline through much of 2001, PEI prices are consistently higher than those in NS and NB, with a 5-8 cent/litre gap over several months. Once they begin to fall, PEI prices fall at the same rate as NS and NB, but because of the one-month lag, they never catch up until after prices have begun to rise again. This means that at the bottom of the price cycle, because of averaging, PEI prices do not reach the low levels experienced in NS and NB. The same pattern holds during the other periods of declining prices, though the gap has narrowed somewhat over the years. This may be linked to improvements in the price setting method, including the shift to the NYH spot price as the reference point for adjusting prices.

Figure 34
Pump price for regular gasoline (excluding tax)
Halifax, Charlottetown and Saint John



- As prices begin to rise (e.g., January 2002, 2004 and 2005), the regulatory lag means PEI prices turn up a month or so after prices elsewhere, and then they rise more or less in parallel with PEI prices slightly lower. Interestingly, the price advantage PEI enjoys on the way up is much less than the advantage enjoyed by NS and NB as prices fall. Without knowing more about the intricacies of the model used by IRAC, it is difficult to know why this should be the case. At the top of the cycle, PEI prices rise to higher levels and take longer to turn down.

Retailers clearly benefit from the mandated margin. It is set at a level providing a basis for profitable operations for relatively high volume stations. In 1991 when the current margins were introduced, PEI had 189 retail outlets. By 2003 that figure had dropped to 114, a decline of about 40%. Though detailed figures are not available, IRAC officials indicate the decline in stations occurred primarily in rural areas, and involved a mix of controlled and independent stations.

The decline in outlets in PEI closely parallels that experienced in Nova Scotia over the same period. Figure 21 (page 29) shows the relative change in outlets in PEI, NS and Canada. Though PEI stations enjoyed an effective 6 cents per litre margin over the period, even this was not high enough to prevent outlets from closing at a rate similar to closings in Nova Scotia.

Wholesalers are not provided the same protection (a guaranteed margin) as retailers within the PEI regulatory system. Their selling price is capped from month to month based on the NYH spot price. But the NYH price does not stand still. In a rising market, such as that experienced over much of 2005, the wholesaler's allowable selling price is likely to fall below their buying price (which is tied directly to the NYH spot price through contracts with refiners). In these circumstances, wholesalers incur financial losses. Whether they recover these losses depends on the size of periodic adjustments to the base price (as well as the monthly adjustments reflecting changes in the NYH spot price).

Of course, the converse holds when prices are dropping. Wholesalers benefit from the lag because they realize a net gain in each month of declining prices to the extent the daily price they pay for gas is below the regulated base price determined at the beginning of the month.

Interruption to supply is the ultimate risk the PEI market runs under the current regulatory system. Though a commitment to supply is a fundamental condition of the wholesale licence, selling below cost may constitute a *force majeure* that could nullify the contractual obligations. Selling below cost was the circumstance facing wholesalers in PEI in late August – early September 2005 following the rapid escalation of the NYH spot price resulting from Hurricane Katrina. The possibility of a curtailment of supply by at least one wholesaler was avoided when IRAC allowed two price adjustments within 24 hours, resulting in an increase at the pumps of about 33 cpl.

Newfoundland – maximum wholesale and retail prices

Objectives

The Petroleum Products Act (2001) provides the basis for regulation of distribution and sale of petroleum products in Newfoundland and Labrador by the Public Utilities Board. The Board has the authority to set maximum wholesale and retail prices charged, and also to determine the minimum and maximum mark-up between the wholesale price to the retailer and the retail price to the consumer. The main objectives are to ensure consumers are fairly treated, while taking into account the circumstances of wholesale and retail enterprises.

Regulation of the industry began in late 2001 with the establishment of base prices for all regulated products. The pricing structure for each product is based on the same benchmark market prices used by industry in its pricing decisions. Base prices are set using the historical difference between the benchmark prices and retail prices in St. John's (exclusive of taxes). Zone price differentials are applied to areas outside St. John's to reflect transportation and storage costs.

To arrive at applicable maximum prices, an overall mark-up is added to the base price. For gasoline, the allowed mark-up was set initially at 12.0 cents per litre based on the average margin between the NYH spot price and the St. John's retail price (excluding taxes) calculated over a two and a half year period (April 1999 to September 2001). This margin was increased in March 2003 to 13.5 cents per litre to allow for increased operating costs. This marketing margin is shared. The wholesaler realizes a maximum of 8.5 cents per litre and the retailer a minimum of 5.0 cents per litre. The wholesaler may sell for less than the maximum wholesale price, allowing the retailer a higher margin.

Process

The Board makes scheduled adjustments to the maximum wholesale and retail prices each month. These adjustments reflect movement in world market prices for refined products as reflected in the shifts in benchmark prices over the previous month. For gasoline, price changes are calculated by averaging Platts daily published prices for NYH spot market regular gasoline. The reference period runs from the 12th of the previous month to the 11th day of the current month, with price changes taking effect on the 15th.

The Board has the authority to make adjustments outside the regularly scheduled adjustments using an interruption formula. If benchmark prices rise or fall by at least 3.5 cpl over a period of five business days, the Board will adjust selling prices. The interruption formula was implemented in early 2003 following a review of the legislation and the pricing model.

Results

The introduction of price regulation in Newfoundland and Labrador was intended to insulate consumers from wide and unpredictable swings in pump prices, and also to ensure that retailers in remote markets did not take advantage of limited competition to charge exorbitant prices.

Before looking at the impact on prices, it is worth reviewing the analysis that preceded the introduction of regulation. It highlighted some of the characteristics of the provincial gasoline market in the late 1990s:¹⁷

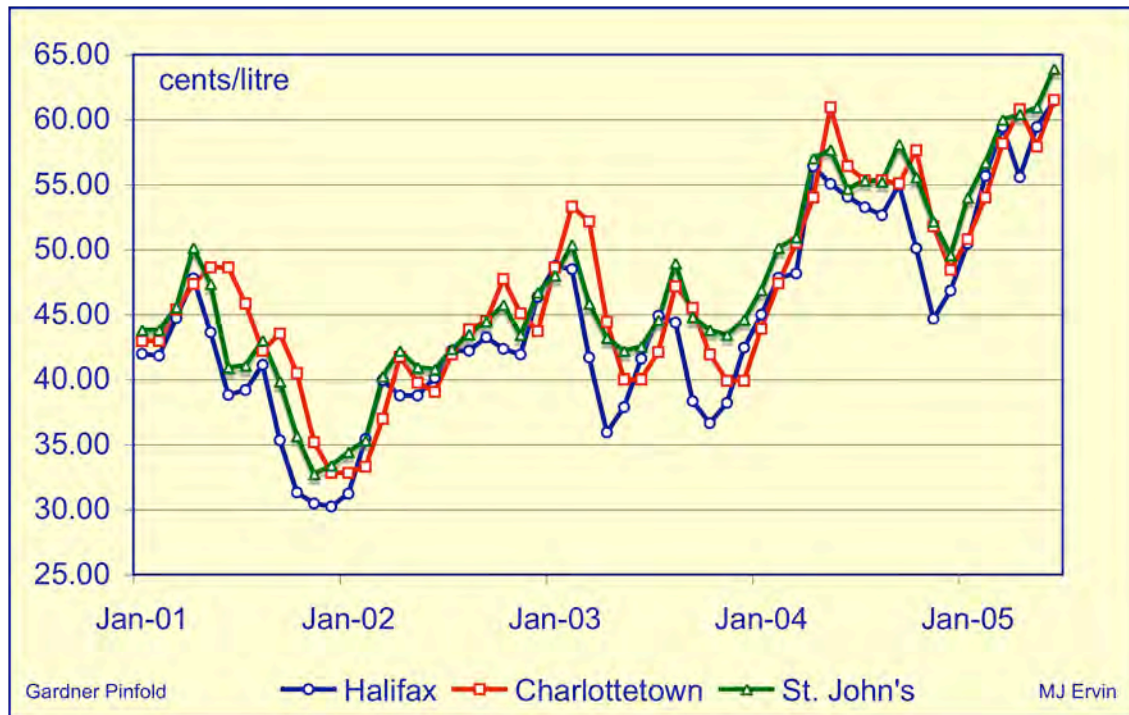
- **Declining retail margins:** these were found to have declined from the 10 cpl range in 1990 to the 4-6 cpl range.
- **Low average throughput:** in 1997, average volume was just over 1,000,000 litres annually, the lowest in Canada.
- **Industry rationalization:** the number of outlets had declined by about 25% over a five-year period as integrated wholesaler-retailers closed stations in an effort to increase throughput.
- **Changing service offering:** market participants are changing their outlets to large, multi-service convenience centres in order to increase non-gasoline revenues. Not all communities are large enough to support the investment required.
- **Rural-urban price variation:** attributable to cost differences, but also the lack of competition in some isolated communities.

The Consumer Advocate made several recommendations to government. Chief among these was the recommendation to use market forces rather than legislation to regulate price. Other recommendations included: establishing a price monitoring system, improving the flow of price information to consumers, full and timely explanations from industry for any price increases, structural adjustment to improve competitiveness, facilitating exit from the industry to improve efficiency, and mandatory posting of pump prices to improve competitiveness.

¹⁷ *Gasoline Prices and the Public Interest*, The Consumer Advocate's report on gasoline prices in the Province of Newfoundland and Labrador, December 1997.

Public pressure led government to ignore the main recommendation and implement regulation. Maximum prices tend to exceed those in Nova Scotia (using Halifax and St. John's as proxies for the provincial prices), following a price pattern similar to that of PEI. Figure 35 shows that St. John's prices are almost always higher than those in Halifax, while Charlottetown prices sometimes drop below Halifax in a rising market. Also, at their lowest points, St. John's prices are substantially higher than those in Halifax. At the high points, St. John's prices tend to exceed those in Halifax, though not by as much as Charlottetown prices. Since 2001, the average price of regular gasoline in St. John's has exceeded the Halifax average by 2.63 cents per litre.

Figure 35
Pump price for regular gasoline (excluding tax)
Halifax, Charlottetown and St John's



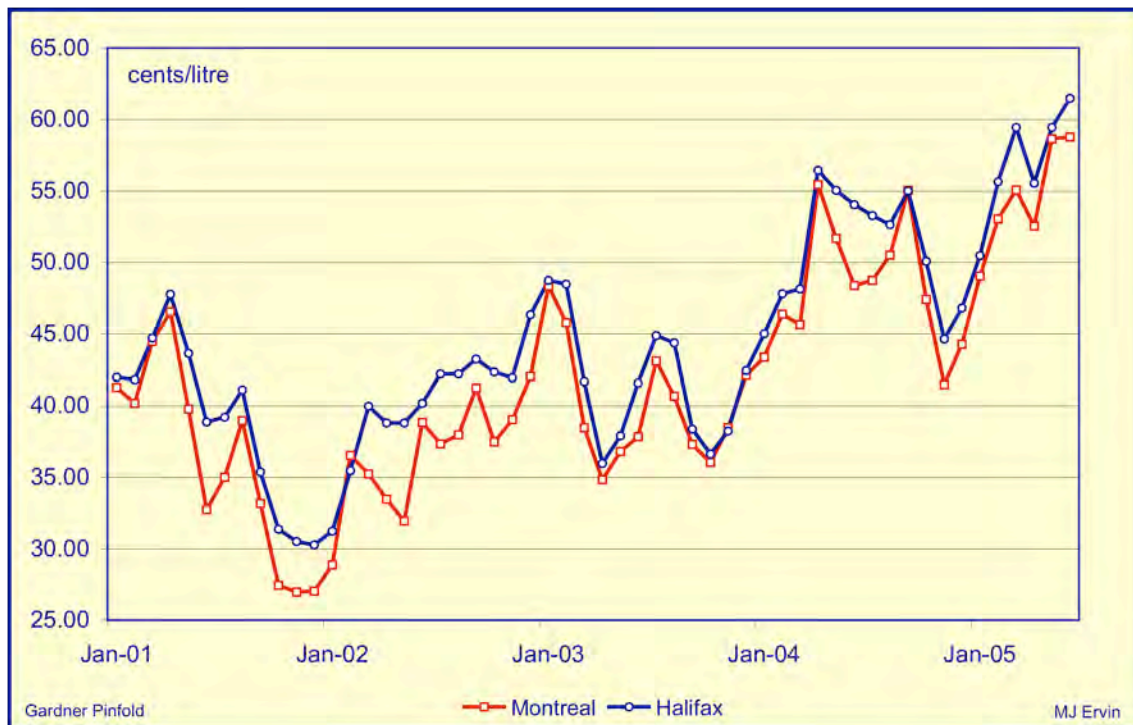
Québec – prohibition on selling below cost

Québec prohibits the retail sale of gasoline at prices below a calculated wholesale price (the floor price). The law is designed to protect independent retailers from predatory or discriminatory pricing by making it illegal for refiners to sell gasoline at the pumps at a price lower than they sell to independent retailers. It ensures that independent dealers are able to operate competitively with stations owned by the major oil companies. The floor price is derived using a formula that establishes the cost to a retailer taking into consideration market conditions, transportation costs, operating costs and taxes.

How effective this type of regulation is has received limited analysis in Canada. A 2004 study by a group of academics in Montreal concludes that setting a limit on how far a retail price may drop restricts the severity of price wars, but extends their duration.¹⁸ In this sense, the regulation would appear to offer some protection to independent dealers from integrated retailers with deeper pockets, though the net effect on revenues from less intense but longer price wars is not clear. Data on how the regulations have affected the number or profitability of stations is not available, though the presence of a significant number of independents in the major urban markets suggests it could be providing a more stable environment.

Whether this is good for consumers is difficult to say. Some would argue that floor price legislation acts as a cushion for relatively inefficient stations, resulting in turn in lower productivity and higher prices. The evidence suggests otherwise. Comparative price data indicate Québec consumers fare relatively well, at least in major urban centres. Montreal, for example, has consistently lower prices (ex-tax) than Halifax (Figure 36). The cent or so difference in recent years is explained by lower margins in the intensely competitive Montreal market (both wholesale and retail). The lower margins may be attributable to a combination of slightly higher average volumes than Halifax and a significant presence of independent dealers in Montreal (30% of outlets in 2001).¹⁹

Figure 36
Pump price for regular gasoline (excluding tax)
Halifax and Montreal



¹⁸ Gagné, R. et al, (2004) *Testing Optimal Punishment Mechanisms under Price Regulation: the Case of the Retail Market for Gasoline*, Centre for Interuniversity Research and Analysis on Organizations, Montreal.

¹⁹ The Conference Board of Canada, (2001) *The Final Fifteen Feet of Hose, The Canadian Gasoline Industry in the Year 2000*.

United States – selling below cost

About half of the states in the U.S. have sales-below-cost (SBC) laws of general application, but in recent years 8-10 or so have implemented laws aimed specifically at the retail gasoline market. The stated purpose of these laws is to protect small independent firms from predation by larger firms. Potential violations of state SBC laws occur when prices are set below the seller's cost of doing business, where cost is often defined as the invoice price plus freight and taxes.

SBC laws have come under fire in recent years because some reports indicate they lead to higher consumer prices while having no measurable impact on the independent dealers they are intended to protect. With respect to the latter point, a 1999 study commissioned by Industry Canada concluded that its results, "...fail to reveal significant and positive effects of SBC laws on the survivability of establishments in general and, in particular, the protection of smaller retail outlets."²⁰ The study went on to conclude that the general decline in smaller outlets (a trend in Canada also) appears to have been driven by changing market structure, not predatory pricing.

Whether SBC laws lead to higher consumer prices does not appear to be a settled matter, despite statements to the contrary.²¹ Those responsible for enforcing federal competition laws would appear to have an interest in supporting the proposition, since SBC laws address issues similar to those covered by predatory and discriminatory pricing. One advantage of SBC laws from a dealer's perspective is that they offer the potential for more or less instant relief from below cost pricing (compared with the months it takes to conduct an investigation under the *Competition Act* or similar statutes). A less onerous test must be met – selling below cost – than under competition laws where intent to harm and lessen competition must also be established.

Prior Notification Laws

Although we know of no jurisdiction requiring oil companies to announce price changes in advance, regulators sometimes give this some consideration. Indeed, during the time that pump prices were regulated in Nova Scotia (prior to 1991), the application requirements of those regulations had the effect of signaling notification of price increases (though the increases of the day tended to be relatively small).

With effectively no case-study material to draw upon, our examination of the effect of such a law is largely theoretical. The perceived benefit of such a law is clear: consumers would have a warning of an impending price increase, and would be able to take advantage of the lower price in effect during the interim period – the mandatory period between notification and price change (48 hours, for example). Similarly, assuming the law applied to price decreases as well, it would allow consumers to avoid fueling their vehicles, once they knew that a price decrease was imminent.

²⁰ Johnson, R. (1999) *The Impact of Sales-Below-Cost Laws on the U.S. Retail Gasoline Market*, A report prepared for Industry Canada, Competition Bureau, Quebec, Canada.

²¹ In his presentation to the Nova Scotia Legislature Select Committee on Petroleum Pricing, July 2004, the Acting Deputy Commissioner of Competition, Competition Bureau of Canada, stated that the U.S. Federal Trade Commission, "...believes that such (SBC) legislation is unnecessary and has a significant potential to be anti-competitive. Retail prices in States with below-cost sales legislation are higher and the retailers themselves do not enjoy higher margins." Regrettably, the Acting Deputy Commissioner referred to no studies or reports to support these conclusions. Similarly, in his report for the Competition Bureau, Johnson states that "...studies indicate that SBC laws have increased prices to consumers..." but fails to provide any specific references.

The drawbacks to such a law are equally clear. At best, consumers would be saving a few dollars on a cheaper tank of gas, but would inevitably pay more once the price were actually raised – the price itself would remain unregulated. Such a law implies that the (high) pump price is justified, but consumers ought not to be exposed to the "surprise" of an unheralded overnight price change. As a law, this would seem to be petty in nature.

There is a more significant drawback to such a regulation. A notification of a price change would likely create a "run" on the pumps just prior to the date of the announced increase, as many consumers would fill up their tanks. The day before the increase would be characterized by lineups at the pump, whereas the days after would be characterized by very little business at the pumps. Given that retail gasoline stations' storage capacities are limited, run-outs would be likely.

Such a scenario is not overblown. Just prior to Hurricane Rita coming ashore in 2005, consumers in some Eastern Canada markets lined up for gasoline, amid rumors of an impending significant pump price increase (which never actually materialized). Stations ran out of gas, fuelling a sense of panic that a shortage of gasoline existed, which in turn created an even greater sense of urgency, and more lineups and run-outs.

3. REGULATION OF INDUSTRY STRUCTURE

United States – divorcement (de-integration) of refining and retailing

So-called divorcement laws are aimed at preventing the integration of the refining (or wholesaling) and retailing segments of the industry. Such laws are in effect in six states and the District of Columbia and have been enacted largely in response to pressure from independent retailers. These laws are intended to prevent the exercise of market power by integrated oil companies against their affiliated branded independents. The underlying assumption is that integrated refiners have an interest in driving their efficient dealers out of business, and that they would do so through some form of predatory pricing.

While little has been written about whether the ultimate objectives of the divorcement legislation have been achieved, the impact on consumers has received considerable attention. In principle, divorcement legislation would be expected to increase retail prices because the potential economic efficiency gains from integration would be lost: eliminating double marginalization (margins set independently at the wholesale and retail levels tend to be higher than a marketing margin set by a single firm), reducing transaction costs (the costs associated with negotiating and policing supply contracts), preventing opportunism and eliminating input distortions.

Empirical studies of the impact of divorcement legislation confirm these expectations. They conclude that prices to consumers are higher in the states prohibiting vertical integration.²²

²² Geweke, J. (2003) *Empirical Evidence on the Competitive Effects of Mergers in the Gasoline Industry*, University of Iowa. Vita, M. (1999) *Regulatory Restriction on Vertical Integration and Control: The Competitive Impact of Gasoline Divorcement Policies*, Journal of Regulatory Economics, Vol 18 2000.

New Zealand – structure and price regulation abolished in 1988

Prior to 1988, the gasoline industry in New Zealand was highly regulated.²³ Statutory controls applied to:

- **gasoline supply:** wholesalers were required to buy from the local refinery (as a means of securing its viability) and to cooperate in coastal shipping. With the refinery running at close to full capacity, this acted as a barrier to entry. Site-specific licenses were issued, preventing rationalization as market conditions changed. A proliferation of licences meant relatively low average volumes and low margins.
- **wholesaling and retailing functions:** rules against vertical integration were introduced in 1953 in response to wholesalers tying up outlets for their exclusive use as a means of protecting market share.
- **prices and margins:** the Minister of Energy controlled fuel prices by setting maximum and minimum prices. Controls were introduced to protect the interests of established wholesalers and retailers against the competition of a new entrant who resorted to using price as a means of securing market share. By regulation a single wholesale price was set at all ports and a single pump price at the retail level. The refiner's margin was also set by regulation (the refinery was jointly supported by the four wholesalers operating in New Zealand at the time).

The *Petroleum Sector Reform Act 1988* removed all structural and price controls. Competitive behaviour emerged, though predictably, it was aimed primarily at non-price competition for market share. Within a year or two, the wholesalers had bought or otherwise tied up all the largest retail outlets. For the next decade a variety of barriers to entry limited participation to the original four wholesalers. As a consequence, price competition did not emerge until sparked by the entry of a fifth and sixth wholesaler in 1998 and 1999.

This is consistent with economic theory. Any attempt to engage in price-cutting by a few large firms would be mutually destructive. This is because the product is a commodity whose demand is not particularly responsive to price. Cuts would reduce total revenue without anything more than a slight increase in quantity sold. Profits would drop.

Predictably as well, as competition intensified and prices dropped, so did margins. Firms responded by closing stations and repositioning the remaining ones as multi-service outlets. The general conclusion of the most recent study is that, despite a reduction of independent retailers (including many in rural areas), consumers are well served by the transition to a competitive environment.²⁴

²³ New Zealand had become known as the “Albania of the south” prior to the wave of de-regulation that swept the country in the late 1980s. See Pickford, M. and Wheeler, C. (2001) *The Petrol Industry: Deregulation, Entry and Competition*, NZ Trade Consortium Working Paper No. 12.

²⁴ NZ Institute of Economic Research, (2002) *The decline of independent petrol retailing: rationalization or predation?* Report to Ministry of Economic Development, Wellington.

VI

OPTIONS TO ADDRESS THE ISSUES

1. KEY DRIVERS

Decline in gasoline outlets a common trend in Canada

The pattern of decline in retail outlets in Nova Scotia, both urban and rural, is fundamentally the same pattern observed across Canada in the past decade. The issue may be manifesting itself as declining margins, but to focus on this is to confuse symptoms and causes. Declining margins signal a response to more fundamental shifts as the industry adjusts to find its equilibrium. Two factors – mutually reinforcing – explain the adjustment: changes in economic geography and structural change of the industry.

Shifts in economic geography change patterns of demand

Demand for gasoline supplied by traditional rural stations in Nova Scotia has declined contributing to a decline in the number of these stations. The centre of gravity has shifted and continues to shift to urban areas. Populations decline as people move to areas offering greater opportunity. People drive longer distances in more fuel-efficient cars for work, recreation and entertainment. Shopping patterns have changed. Consumers drive longer distances to take advantage of the wider variety and lower prices offered at regional shopping centres. Improved secondary roads and major highways facilitate all this. Waiting for them at the off ramps and at their destinations are the new gas stations – convenient, multi-service, high volume, cross-merchandising retail enterprises.

As a result, rural consumers are much less dependent on local services than before, and this is likely particularly the case in Nova Scotia where, due to small size and particular geography few, if any, truly isolated communities exist. Unfortunately, rural outlets simply lack the traffic and therefore the volume enjoyed by their competitors.

Structural change drives down margins

The retail gasoline industry has responded to these changing patterns with a fundamental structural shift. New locations, new marketing approaches and new operating modes have driven petroleum margins to low levels over the past 10-15 years. In particular, expanded non-petroleum revenues have increased the contribution to retail profits, thereby creating an opportunity for marketers and dealers to be more price-competitive on gasoline.

This self-reinforcing cycle of declining margins leading to outlet closures, improving gasoline volumes at surviving outlets, and in turn creating additional margin-reducing opportunities, will continue in Nova Scotia. The entry of non-traditional "big-box" marketers has accelerated the pace and the impact of these factors, resulting in a steady decline in retail outlets, the need for greater non-petroleum revenues, and yet more downwards pressure on marketer margins.

2. PRICE REGULATION OPTIONS

Full regulation (wholesale prices/retail margins)

Approach

This approach is patterned after the PEI system (see Chapter V). The margin and stable price objectives are set against an underlying principle of fair and reasonable prices to all participants on the supply and demand sides of the market. In short, this approach to regulation seeks to dampen the price volatility while leaving wholesalers and consumers no worse off, and retailers arguably better off due to guaranteed margins. It is worth noting that if the only objective were to allow retailers a specified margin, then lagging the adjustment would not be necessary. The lag is there to minimize volatility.

The challenge is to design the system so that it mimics the market as closely as possible, while dampening the swings in prices. An important point to note is that the starting point for regulation – the acquisition cost of fuel – lies beyond the control of wholesalers, and hence, beyond the control of the regulator. The commodity cost of gasoline is determined in international markets. A regulatory body would have to recognize this and take a widely quoted price (e.g., New York harbour spot price) as its reference point for adjustments. This is what the industry does in its day-to-day operations.

What all this means is that the regulator has control over a small fraction of the final selling price – essentially the marketing margin – the difference between the acquisition cost of fuel and its final selling price. This is the amount shared between wholesalers and retailers. In recent years this has dropped to less than *\$0.10/litre* in Nova Scotia (allowing for the discount from the rack price that large wholesalers would receive). The rest of the retail price is composed of crude oil, refining costs, transportation and storage and taxes.

With retailers enjoying a fixed minimum margin, wholesalers and local distributors absorb the day-to-day fluctuations in the acquisition cost of fuel. In a declining market this leaves them better off since their margin expands between adjustments in the regulated price. In a rising market this leaves them worse off since their margin is squeezed between adjustments. The regulator faces the daunting task of striking a balance in the size and timing of price adjustments, a balance that would leave wholesalers no better or worse off in the long run. Setting a price consistently too high means a windfall for wholesalers and higher prices for consumers. Setting a price consistently too low may result in a reduction in supply since this would be asking wholesalers to sell into a losing market.

Pros and Cons

Pros

- Provides stable margins for retailers. These can be set at a level that provides retailers with a margin sufficient to run a business and earn a reasonable income.
- Stable margins enhance the viability of rural gasoline outlets, potentially reducing driving time to buy fuel, and allowing a more accessible supply in emergency situations.
- Would result in stable consumer prices between scheduled adjustments (if stability were an objective). This means greater predictability, thereby facilitating consumer buying decisions and reducing frustration.

- Provides a basis for compiling information about the industry. This allows a better understanding of market conditions, thereby enhancing the ability of government to respond to public concerns about what is seen by many as an essential service.
- Offers the potential to reduce the time spent by government responding to consumer complaints about fuel pricing.

Cons

- Potential to result in higher long-term fuel prices for consumers or lower margins for wholesalers in order to meet minimum retail margins.
- Has the potential to cause cash flow constraint for wholesalers and distributors during extended periods of rising prices. This may be difficult for smaller local distributors to absorb.
- Minimum margins could lead to entrenching inefficient outlets, thereby limiting innovation and inhibiting competitiveness.
- If stabilizing rural or remote outlets is the objective, government would face pressure to set minimum margins at the level needed to support the less efficient, thus providing windfall profits for high volume urban outlets (both corporate and independent).
- Avoiding windfall gains inherent in a province-wide system of minimum margins would be difficult if the increased margin is realized through higher retail prices (as it is in PEI). A dual pricing system (rural vs. urban) linked to volume, earnings or location would not only be complex, but unworkable, because consumers would by-pass higher priced rural retailers (as they do now) in search of lower urban prices.
- Consumers may come to expect that the system is intended to result in lower prices rather than simply more stable ones. This could be a difficult expectation to correct.
- The system would require resources for its development and implementation, as well as annual resources for its operation. These costs may be borne by taxpayers or recovered from industry through a special levy. Industry may attempt to pass on any levy to consumers through higher prices.
- For constitutional reasons, a province regulating prices could limit the applicability of the *Competition Act* in the Nova Scotia gasoline market.

Economic impacts

The economic impact of full regulation (maximum wholesale selling price and prescribed dealer margin with upper and lower bounds) would depend on the regulatory objectives and how those objectives would be met. If the main objective were to support dealers facing low and declining margins (particularly in rural areas), with stability for consumers a secondary objective, then the long lag between adjustments may not be necessary. A weekly or bi-weekly adjustment would be sufficient. Taking the long lag out should reduce the revenue distortions for wholesalers, though eliminating them altogether would depend on how well the model mimics the market.

Assuming a well-calibrated pricing model and at least weekly or bi-weekly adjustments, the question of impacts reduces to one of who bears the burden of the additional revenue to pay the higher dealer margin. The alternatives are consumers, wholesalers or both. In other words, if regulation takes a reference price as a given (as wholesalers do in unregulated markets), then any expansion of the retail margin must come about either as the result of higher retail prices (while holding wholesale prices constant), or from lower wholesale prices (while holding retail prices constant), or some combination of the two.

With about one billion litres of gasoline sold annually in Nova Scotia through retail outlets, each additional cent of retail margin means \$10 million in additional retail revenue. This assumes the regulatory approach does not discriminate between independent and corporate outlets in applying the regulated margin. It is difficult to see how anything but across the board application of the regulated margin could be considered, given the administrative costs and scope for abuse that would arise from a system targeted only at rural independent retailers.

To illustrate the nature and magnitude of the impacts, we assume a 2 cents per litre increase in the retail margin so that retailers would operate in the minimum-maximum range of 5.0 – 6.0 cents per litre. The PEI experience shows that when a range is established, retailers tend to operate at the upper end since this price reflects what is deemed to be fair and reasonable. An attempt by one dealer to price below the upper end of the range would be met by others, resulting in no change in market share and leading to an unnecessary transfer of revenue from retailers to consumers. To summarize the impacts:

- **Retailers:** the regulated margin would provide an improved basis for smaller rural retailers to stay in business. It would also provide larger urban outlets with a stronger revenue base to continue operations. The impact would vary by volume.
 - For the 145 (30%) stations with volumes less than one million litres (mainly rural independents), this means an average increase of just over \$10,000 in gross revenue (based on an average volume of just over 500 thousand litres). Unless these stations also had other sources of revenue (convenience store or bays), the increased margin would make a modest difference to the viability of the enterprise. It might allow stations to hang on for a year or two. But this increase is unlikely to be enough to provide the capital for replacing tanks or other major repairs as these arise.
 - For the 305 or so (70%) stations with volumes over one million litres, this means an average revenue increase of \$70,000 (based on an average volume of 3.5 million litres), ranging from a low of \$20,000 to a high of about \$250,000.
- **Consumers:** depending on objectives and design, consumers could face higher retail prices. If they bear the full brunt of the higher retail margins, then this increase would amount to as much as \$20 million. This amount would be proportionately lower to the extent the higher margins were gained by restricting wholesaler and distributor margins.
- **Wholesalers:** if a secondary objective were to keep consumer prices stable and as low as possible, then it follows that the additional revenue needed to fund the higher retail margin would be extracted from wholesalers. For sales by integrated wholesalers to their own retail outlets, this would be a matter of an internal adjustment of the transfer price with no decline in overall revenue. For sales to independent retailers (including sales on a consignment basis), wholesalers would incur a drop in revenue of 2 cents per litre times the litres sold. The estimated revenue loss would be in the order of \$70 Million, based on 2004 volumes sold by independents. It is difficult to predict how the wholesale sector would respond to the revenue loss, but their response could end up hurting independent retailers, the very group regulation would be trying to help:
 - The larger wholesalers would likely be forced to reduce or eliminate their sales to smaller independents, because even at current wholesale margins, the business is regarded as marginal because of the high cost of servicing these accounts.

- For the smaller independent wholesalers (such as XTR) and distributors who operate on thin margins, a 2-cent per litre drop in the wholesale margin could prove ruinous. The mostly smaller rural stations relying on these companies would have to look elsewhere for supply. Many of them are too small to be of interest to the larger wholesalers.
- **Government:** the regulatory system would have to be developed and responsibility for its operation assigned to an independent body with regulatory experience such as the NS Utility and Review Board. With the experience that has been developed in the region, the cost to develop a pricing model and establish the system would likely run to a few hundred thousand dollars. Three to five full time staff would be required to run the system, with responsibilities for compiling and analyzing data, running the model and applying the formula to adjust maximum wholesale prices. Annual operating costs would be expected to fall in the range of \$500,000. These costs could be recovered from general revenues or through a per litre levy on consumers or the petroleum industry (adding a fraction of a cent to the retail price or to the cut in the wholesale margin).
- **Employment:** the retail gasoline industry provides employment for some 2,500 to 3,000 people throughout the province. The jobs divide about equally between full-time (including owner-operators) and part-time. A stronger retail margin would protect jobs otherwise in jeopardy due to downsizing (inability to afford wages so owners work longer hours) and closure.
- **Investment:** the net effect on investment is difficult to predict because of opposing incentives. On the one hand, a regulated margin is good for weaker, low volume outlets (the target group) because it allows them to continue to operate. Some of the larger outlets may respond to the regulated margins by investing in revenue-enhancing services and enhancing their viability. On the other hand, the regulated margin may not be good for the hypermarkets – the “big box” stores – because it limits their ability to compete on price and consolidate volume. A regulated margin could forestall investment in gasoline facilities at new Superstore, Canadian Tire and Sobeys locations, particularly if the design nullified the effectiveness of discounting and coupons (as it would have to if were to achieve its stabilizing objective). While this works against the interests of consumers, it would help to insulate existing retail outlets (both independents and corporate owned) from this emerging source of competition. Of course, existing retail outlets could be protected more directly if the regulatory approach embodied licence control as well. Consumers might object, but retailers who stand to lose volume would be afforded a measure of protection if the licence were used as a barrier to entry.
- **Consumer spending patterns:** If higher retail margins were funded through higher gasoline prices, then the additional amount flowing to retailers (the assumed \$20 million) would mean less consumer spending on other items. Demand for gasoline tends to be relatively unresponsive to price change, so the higher prices would not deter gasoline purchases as much as they would cause discretionary spending to be drawn away from other goods and services.

Retail price regulation (maximum retail price)

Approach

This approach is patterned after the system in Newfoundland and Labrador (see Chapter V). A maximum retail price is set (in relation to an accepted reference price) with wholesalers allowed a maximum share of a specified marketing margin, and retailers a minimum share (e.g., at least 5 cents per litre). This approach seeks to dampen price volatility, while constraining opportunities to charge excessive prices when market circumstances might permit. Retail prices are adjusted once a month, or more often if the reference price rises or falls by more than a specified amount. This lagged adjustment is not essential if the main objective is to allow a specified retail margin.

This approach would have much in common with the full regulation option described above, including use of the same reference price (New York Harbour spot price for gasoline). Similarly, the regulator has control over a small fraction of the final selling price – the marketing margin – the difference between the acquisition cost of fuel and its final selling price. In recent years, this has fluctuated between *7 and 10 cents per litre* in Nova Scotia (Newfoundland has prescribed a marketing margin of 13.5 cents per litre, reflecting higher transportation costs).

Under this approach, wholesalers would be allowed a maximum share and retailers a minimum share of the prescribed marketing margin. Over the past several years various data sources suggest the margin in Nova Scotia has been shared on roughly a 60:40 basis in favour of wholesalers. Unless the proportions were changed by regulation to a 50:50 sharing (or even 40:60), retailers would not realize the extra margin that many are seeking in order to survive. But without more, a shift in favour of retailers would simply mean a shift against wholesalers. This could have supply consequences. To avoid this potential, a higher maximum retail price could be allowed, one that expanded the marketing margin, leaving wholesalers no worse off and retailers better off than they would have been in competitive circumstances. The latter, of course, means consumers would pay more.

Pros and Cons

Pros

- Provides higher and stable margins for retailers. Since the wholesale margin is a maximum (not a minimum), there is room for competition to secure a better deal.
- Improved margins enhance the viability of rural gasoline outlets, potentially reducing driving time to buy fuel, and allowing a more accessible supply in emergency situations.
- Results in stable consumer prices between scheduled adjustments. This means greater predictability, thereby facilitating consumer buying decisions and reducing frustration.
- Industry reporting requirements provide a basis for compiling information about the industry economics. This allows a better understanding of market conditions, thereby enhancing the ability of government to respond to public concerns about what is seen by many as an essential service.
- Built-in adjustment mechanism allows for interim price adjustments when conditions warrant.
- The maximum retail price prevents opportunism and excessive prices in non-competitive markets (isolated areas).
- Offers the potential to reduce the time spent by government responding to consumer complaints about fuel pricing.

Cons

- Potential to result in higher long-term fuel prices for consumers or lower margins for wholesalers in order to meet minimum retail margins.
- Depending on how the marketing margin is set, divided and adjusted, this approach has the potential to cause cash flow constraint for wholesalers and distributors during extended periods of rising prices. This may be difficult for smaller local distributors to absorb.
- Retail margins set through regulation could lead to entrenching inefficient outlets, thereby limiting innovation and inhibiting competitiveness.
- If stabilizing rural or remote outlets were the objective, the regulated margin needed to accomplish this would provide windfall profits for high volume urban outlets (both corporate and independent).
- Avoiding windfall gains inherent in a province-wide system of regulated margins would be difficult if the increased margin is realized through higher retail prices. A dual pricing system (rural vs. urban) linked to volume, earnings or location would not only be complex, but unworkable, because consumers would by-pass higher priced rural retailers (as they do now) in search of lower urban prices.
- Consumers, already facing rapidly rising prices, would object to paying higher prices to support rural outlets. Many of these same consumers already by-pass rural outlets on their way to more competitive higher volume stations, including those offering discounts tied to groceries and merchandise.
- The system would require resources for its development and implementation, as well as annual resources for its operation. These costs may be borne by taxpayers or recovered from industry through a special levy.
- May limit the applicability of the *Competition Act* in the Nova Scotia gasoline market.

Economic impacts

The net effect of the full and retail price regulation models on retail outlets is the same – providing retailers with a minimum-maximum margin range – though it is arrived at through different mechanisms. Since the main objective would be to support dealers facing low and declining margins, lagging price adjustments would not be necessary unless a secondary objective were to protect consumers from price volatility.

The key policy (and design) question becomes who would bear the burden of the additional revenue to pay the higher dealer margin – consumers, wholesalers or both. As with the previous model, any expansion of the retail margin must come about either as the result of higher retail prices (while holding wholesale prices constant), or from lower wholesale prices (while holding retail prices constant), or some combination of the two.

It is not necessary to repeat in detail the impact discussion in the preceding section. The impacts are essentially the same if the same assumption about the size of the increase in the retail margin is made (2 cents per litre increase). We also assume the regulatory approach does not discriminate between independent and corporate outlets in applying the regulated margin. Retailers would operate in the minimum-maximum range of 5.0 – 6.0 cents per litre. Funding this increase would cost \$20 million on the basis of one billion litres of gasoline sales.

To summarize the impacts:

- **Retailers:** the regulated margin would provide an improved basis for smaller rural retailers to stay in business. It would also provide larger urban outlets with a stronger revenue base to continue operations. The revenue impact would vary by volume.
- **Consumers:** depending on objectives and design, consumers could face higher retail prices. If they bear the full brunt of the higher retail margins, then this increase would amount to as much as \$20 million.
- **Wholesalers:** if a secondary objective were to design a system resulting in consumer prices no higher than under competitive conditions, it follows that the additional revenue needed to fund the higher retail margin would be extracted from wholesalers. The estimated revenue loss would be in the order of \$7 Million, based on 2004 volumes sold through independent dealers. It is difficult to predict how the wholesale sector would respond to the revenue loss, but their response could end up hurting independent retailers, the very group regulation would be trying to help.
- **Government:** the cost of administering the regulatory system would be expected to fall in the range of \$500,000. These costs could be recovered from general revenues or through a per litre levy on consumers or the petroleum industry (adding a fraction of a cent to the retail price or to the cut in the wholesale margin).
- **Employment:** a stronger retail margin would protect jobs otherwise in jeopardy due to downsizing and closure.
- **Investment:** some of the larger outlets may respond to the higher margins by investing in revenue-enhancing services and improving their viability. The regulated margin may not be good for the hypermarkets because it limits their ability to compete on price and consolidate volume. This would help to insulate existing retail outlets (both independents and corporate owned) from this emerging source of competition. Existing retail outlets could be protected more directly if the regulatory approach embodied licence control as well.
- **Consumer spending patterns:** if higher retail margins were funded through higher gasoline prices, then the additional amount flowing to retailers (the assumed \$20 million) would mean less consumer spending on other items.

Wholesale price regulation (Sales below cost)

Approach

This approach is patterned after the system used in Québec and several states in the U.S. (see Chapter V). Such a law would be implemented to address concerns about predatory pricing by wholesalers. SBC laws are designed to protect retailers from unfair competition. This approach makes it illegal for a refiner or wholesaler to set a pump price at its own outlets that is below the selling cost to independent dealers.

In practice, the applicable selling (wholesale) price used as the floor price would be calculated using average industry data including prices, transportation and storage costs and taxes. Industry data would be collected from wholesalers as a regulatory requirement.

Though predatory pricing is already prohibited under federal law, several jurisdictions have enacted SBC laws because proving a violation is more straightforward than under federal law (e.g., the *Competition Act*). Under Quebec law and the laws of several states, proving a violation is simply a matter of showing that retail prices are below an approved floor price. The more onerous task of proving criminal intent to reduce competition is not required.

Whether SBC legislation is currently needed in Nova Scotia is open to question. There is no evidence that selling below cost is an issue independent dealers have had to contend with, at least not yet. While many independent dealers interviewed during this study expressed concerns about low and declining margins, and some felt the competition with corporate sites was unfair because of their capacity to absorb lower prices, none pointed to examples where they were competing with retail prices set below cost. This does not mean this could not happen in future as competition intensifies in some markets, for example, where big box retailers or even larger convenience stores use gasoline as a loss leader (as is the case in markets elsewhere).

Pros and Cons

Pros

- Protects retailers from aggressive and predatory pricing practices.
- Relatively straightforward to implement and administer.
- Regulatory requirement to provide data allows better understanding of the industry.

Cons

- Effectively rules out price wars.
- Does not help independent retailers facing low margins due to ordinary competition.
- May limit the applicability of the *Competition Act* in Nova Scotia.

Economic impacts

Implementing a selling below cost law would have an impact only in circumstances where this practice exists or where there is an imminent threat that it could arise. The economic impact would centre on retailers, and to a lesser extent on consumers.

- **Retailers:** the floor price would protect retailers from unreasonably low or predatory pricing practices. This form of regulation would not address the retailer's need for higher margins under ordinary competitive conditions.
- **Consumers:** would not benefit from price wars reflecting below cost sales.
- **Wholesalers:** would avoid the need to provide price support to retailers facing competitors engaged in below cost selling.
- **Government:** the cost of administering the regulatory system (data gathering and price monitoring) would be expected to fall in the range of \$50-100,000 annually.
- **Employment:** to the extent that below cost selling were likely to have become a common practice, regulation would protect retailers and their employees.
- **Investment:** would limit the price-cutting ability of large retailers and cross-merchandisers thus providing a more predictable pricing and investment environment for retail gasoline dealers.
- **Consumer spending patterns:** this form of regulation would affect spending patterns only to the extent that it addressed an actual or imminent situation. By precluding below cost selling, regulation would even the playing field for retailers in so far as gasoline could be used successfully as a loss leader.

3. STRUCTURAL REGULATION OPTIONS

Separation of wholesale and retail

Approach

Introducing this form of regulation would be based on the premise that independent dealers need protection from the predatory practices of the refiners and wholesalers who supply them. The objective of predation presumably is to drive the independents out of business so that the wholesaler could either take over and operate the stations (thereby gaining retail margins), or close the stations and gain increased volume at controlled sites. Predation would occur through the pricing practices of the wholesaler-owned outlets with which the independents supplied by these same wholesalers may compete. Regulation prohibiting vertical integration would create a level playing field for all dealers. Successful implementation would require all wholesalers to divest themselves of their controlled outlets.

Accepting that predation with these objectives represents a harm for which dealers need protection seems at odds with industry trends. Though some independent dealers believe this to be the case (based on their low margins), the objective evidence suggests otherwise.

- From a direct ownership perspective, the major companies are interested in high-volume sites only (generally in the 5 million litre and over range). Most such outlets are located in urban centres and at important exits along major highways. Moreover, many of these high-volume sites are located in HRM, competing primarily with other corporate sites. If any predation is occurring, it is against rivals (how predation would be expected to occur), not against company-supplied independents.
- In order to maintain or grow overall sales volumes, the major companies need independent dealers since the number of corporate sites is steady or declining.
- Moreover, they are trying to *shed* networks, not take them over. This trend is well established in the U.S., where Exxon, Shell, Chevron and Conoco have sold large parts of their networks, keeping only the larger and more profitable sites under their control. Imperial has done the same in Canada (e.g., selling most of its stations in Atlantic Canada to Wilson Fuel Co.). Shell tried to divest stations in Nova Scotia in the mid-1990s, but could not find a buyer.
- The increased focus on return on capital, rather than market share, provides the impetus for divestitures. Low volume retail outlets generate relatively low return on capital. The major companies would dilute their returns by continuing to own and operate these sites. Simply relying on wholesale margins on low volume sites and letting independent dealers make the capital outlay generates higher overall returns on capital for the companies.

In light of these trends, the economic rationale for predatory practices in the Nova Scotia context would appear to be weak. Nonetheless, *if* a case could be made for divorcement on grounds of predatory pricing, actually implementing the regime could present its own set of challenges since it would require not one but several companies with the resources to buy the 220 or so stations currently operated as corporate or lessee sites.

Pros and Cons

Pros

- Precludes predatory pricing by controlled outlets thereby eliminating a potential source of downward pressure on retail prices facing independent dealers.
- Reduced pressure on retail prices could result in higher retail margins.
- Higher retail margins would enhance the viability of independent dealers.
- This approach targets a particular form of anti-competitive behaviour through a once and for all adjustment to industry structure (vertical integration). It does not require the creation of a bureaucracy to compile and monitor data.

Cons

- Evidence from other jurisdictions indicates this approach to supporting independent retailers results in higher operating costs and increased consumer prices.
- There is no guarantee that retail margins would improve since much of the pressure on prices (and volumes) today originates with the big boxes. Divorcement would not affect this segment of the market.

- The integrated companies are responsible for much of the investment in new retail gasoline outlets in the province. Most independent dealers lack the capital to build and operate large modern facilities favoured by most consumers. Divorcement legislation could inhibit growth and innovation in the industry.
- Finding independent companies with the resources to take over and operate the corporate-owned retail networks could present a major challenge. Before embarking on this approach to regulation, government would have to be satisfied that divorcement represents a practical option.

Economic impacts

Implementing laws to restrict or prohibit vertical integration with the objective of eliminating a potential source of predatory pricing would have an impact only in circumstances where this in fact existed, or if there were an imminent threat that it could arise. The economic impact would centre on retailers, and indirectly on consumers.

- **Retailers:** the law would protect retailers from predatory pricing practices. This form of regulation could be expected to improve retailers' margins, but if the law did no more than restore competition to some pre-predatory norm, then there would be no basis for expecting margins to expand beyond levels experienced in ordinary competitive circumstances. The number of retailers would continue to decline, though perhaps not as rapidly and to the same extent as in circumstances without divorcement.
- **Consumers:** evidence from other jurisdictions suggests consumers would face higher prices because eliminating vertical integration would result in higher costs.
- **Wholesalers:** would continue to realize wholesale margins from sales to independent retailers, but at a minimum in the short run wholesalers would lose retail margins on newly independent (former) corporate sites. What happens to the structure of the wholesale sector in the long run is more difficult to predict. There could be some consolidation of the industry (fewer wholesalers) as the number of retail outlets continues to decline through competitive forces.
- **Government:** beyond existing licencing requirements and hearings on the matter, there should be no recurrent implementation costs.
- **Employment:** to the extent the negative effect on prices and margins of predatory pricing were prevented, this measure would protect all independent retailers and their employees.
- **Investment:** would provide an investment opportunity for companies to enter the retail gasoline market. The withdrawal of the major companies from the retail segment of the industry could open the way for expansion of large retailers and cross-merchandisers. This source of competition could nullify any benefits that might have accrued to independent retailers from the withdrawal of wholesalers from the retail market. The prospect of the continued expansion of the hypermarket retail segment could also weaken the attractiveness of corporate retail networks to investors.
- **Consumer spending patterns:** higher retail prices would mean more spent on gasoline and less disposable income for other items.

Licencing control (limiting entry)

Approach

Under this approach, the regulator would control the entry (and possibly the exit) of new outlets through licencing. The licence application process would incorporate market related criteria such as impact on other outlets. Before the regulator would grant a licence, the applicant would have to show not only that the new outlet would be viable, but that its viability would not unduly undermine the viability of other retail outlets in the market area. Established enterprises would be undermined if the new outlet drew volume away from them, or if entry intensified price competition driving margins down to non-viable levels.

Regulating entry is not an approach used elsewhere, except in the case of natural monopolies – electricity, telephone, oil and gas pipelines – where considerable inefficiency would result from allowing in more capital than needed to meet total demand. Utilities are regulated because of the need to use capital efficiently, i.e., at high utilization rates. Applying the same logic to retail gasoline would mean allowing only enough stations (capital) into a market to meet (but not exceed) total demand, allowing for some redundancy to address emergencies. To ensure retailers did not abuse their position in the market by charging inflated prices (in rural communities where competition would be diminished), limited entry may have to be accompanied by price regulation or price monitoring.

Pros and Cons

Pros

- Would protect existing retail outlets from competition thereby reducing the impact of one contributing factor to attrition from the industry.

Cons

- Requires the development of what could turn out to be a complex regulatory framework.
- Requires a regulatory body to administer the application process and rule on appropriate prices.
- Regulated entry would constrain the evolution of the retail gasoline industry and protect inefficiency.
- Regulation would result in higher retail gasoline prices.
- Would not prevent consumers from continuing to by-pass rural stations to seek a price advantage elsewhere.
- If providing a more stable operating environment for rural retailers were the objective, it could be achieved more efficiently through direct regulation of the retail margin rather than indirectly through regulation of industry structure.

Economic impacts

Implementing a regulatory regime to limit entry with the objective of protecting existing retailers would rigidify the industry by constraining the impetus for innovation and investment. This would have an impact on consumers as well as the retail sector generally.

- **Retailers:** limiting entry could be expected to reduce one source of downward pressure on retailers' margins, but if the law did no more than hold competition at some pre-regulatory level, then there would be no basis for expecting margins to expand beyond levels experienced in ordinary competitive circumstances. The number of retailers would continue to decline, though perhaps not as rapidly and to the same extent as in circumstances without this limitation on entry. Depending on how the regulation were framed, it could have very limited impact. For example, if existing dealers were permitted to expand (number of pumps and service offering), or if a new (more modern) outlet were permitted to enter as one exited, this could nullify the objective.
- **Consumers:** consumers would face higher prices if the regulatory design were to achieve its objective of limiting the downward pressure arising from price competition.
- **Wholesalers:** unit margins could increase in the short run to the extent wholesalers were able to bargain away some of the increased marketing margin. Wholesalers would be restrained from expanding their networks thereby limiting innovation and investment.
- **Government:** the cost of developing and implementing the regulatory regime would be substantial.
- **Employment:** this measure would protect existing independent retailers and their employees, but would slow down new site construction with the employment this generates.
- **Investment:** would constrain an opportunity for companies and independent investors to enter the retail gasoline market. Failing to keep up with industry trends by investing in more efficient sites offering a wider range of services could leave the retail sector weaker in the long run.
- **Consumer spending patterns:** higher retail prices would mean more spent on gasoline and less disposable income for other items.

4. NO REGULATION

Market forces (status quo)

Approach

Operating subject to market forces means a continuation of the competitive environment the industry has experienced since de-regulation almost 15 years ago. The industry would not be subject to any regulation of market activity (investment, price and non-price competition) other than through the provisions of the *Competition Act* to prevent anti-competitive behaviour.

Market forces operating at a broader and more fundamental level will also continue to affect the viability of rural outlets. The economic geography of Nova Scotia is slowly changing, with most counties facing population decline as employment opportunities become more concentrated in urban areas. People also commute longer distances on better roads, both for work and to meet shopping needs. Declining population, coupled with changing driving and shopping patterns, result in reduced spending in local communities. The irony, of course, is that the same people who drive long distances to save a dollar or two on a tank of gas will be the first to complain when the local service is no longer available.

Competition is expected to intensify as larger retailers continue their expansion into the market, drawing volume away from existing outlets with discounts and coupon programs. New outlets will continue to spring up at highway exits and along major commuter routes, also drawing volume away from existing outlets. Downward pressure on margins is expected to continue. Existing retailers will look increasingly to non-petroleum revenues to support their enterprises, though expanding the array of services is not a viable option for many outlets due to lack of capital, physical limitations of the layout, unsuitable location, or simply lack of interest by the owner.

These economic forces make it inevitable that exit from the industry will continue. This will occur mainly in rural areas, but also in some urban areas where communities are over-supplied by outlets. Reduced numbers of outlets, particularly in rural areas, mean fewer service options. In some cases it also means longer travel to buy fuel. On the positive side, attrition allows remaining stations to gain higher volumes thereby improving site economics, though the evidence clearly indicates these gains are not evenly distributed. Many sites in weak locations continue to lose volume even as other outlets close up shop.

Pros and Cons

Pros

- Continued investment in new outlets featuring wider array of services and offering consumers greater choice. Over 120 outlets have opened since de-regulation.
- Fewer outlets each with higher volume means greater efficiency, with competitive pressures forcing the market to pass along efficiencies in the form of lower prices.
- Newer outlets rely heavily on non-fuel sources of revenue, resulting in less dependence on fuel sales to support the enterprise and leading to more competitive fuel prices.
- Attrition of outlets due to market pressures means higher volumes for those remaining.
- Market forces provide a basis for niche wholesalers, distributors and retailers to operate. These smaller companies are key to rural fuel supply.
- Outlets in rural and remote areas may charge what the market will bear in order to remain viable. Potential entry of new dealers and the need to be competitive with other outlets in the area will keep prices in check.

Cons

- Competitive pressures mean lower prices resulting in lower margins for the retailer, resulting in reduced viability.
- Rural retailers lack resources to adjust to meet competition from hypermarkets and outlets offering wider range of services. Access to capital from conventional lenders for investment in retail gasoline outlets is virtually impossible given notoriously low returns.
- Market forces are unrelenting in driving weaker participants out of business.

- Attrition of rural retail outlets will continue, though the rate of decline is expected to moderate from historical levels given the limited number of non-competitive outlets left.
- Continued attrition will reduce consumers' options and weaken the competitive environment in some areas, and result in the need to travel longer distances to obtain fuel in others.

Economic impacts

Allowing market forces to drive industry structure means a continuation of business, as we have known it for the past 15 years. All participants – wholesalers, retailers and consumers – feel the effects.

- **Retailers:** continued decline in the number of stations can be expected, particularly in rural areas where many low-volume outlets have limited ancillary service revenues. When current owners retire or when significant capital replacement is required (e.g., new tanks), these will close.
 - Overall, an average of 10-15 stations per year can be expected to close each year for the next few years.
 - Against these losses, the annual addition of 3-5 service outlets per year can be expected in each of the next five years. Some of these will be built by major retailers, serving to intensify competition in those market areas.
 - The province as a whole can expect an annual net decrease of 7-10 outlets.
 - The distribution of outlets will be increasingly out of rural areas in favour of areas of high population and/or high traffic.
 - Rural areas will continue to be served, though outlets will be fewer and farther between. No area, not even the most remote, will be without fuel supply. But it may be less accessible and could cost more.
- **Consumers:** the market will continue to adjust to the demand for outlets offering a greater array of services, greater convenience and lower prices. Consumers in rural areas are driving longer distances to work and to shop, contributing to the drop in demand many rural outlets are experiencing.
- **Wholesalers:** the emergence of a local firm, Wilson Fuel Co., as a major competitor in both the wholesale and retail segments of the industry represents the major market shift in the past several years. The departure of Imperial Oil from much of the retail segment in Atlantic Canada indicates its limited attractiveness in terms of return on capital. More generally, the major wholesalers will continue to compete aggressively for market share, though their focus tends to be on higher volume outlets where return on capital is greatest. This leaves a large (but diminishing) segment of the market (some 140 stations with volumes less than one million litres) served by a declining group of smaller wholesalers and regional distributors. This number has dropped by half from 20 in 1990 to 10 in 2004.
- **Government:** plays a limited role in regulating matters pertaining to the conduct of business and safety and the environment.
- **Employment:** station closures result in loss of employment, income and tax revenue, important sources of economic impact in rural areas. The closure of some 400 stations over the past 15 years would have resulted in the loss of 1,000-1,500 jobs. The net loss of another 35-50 outlets over the next five years means a drop of 100-150 jobs.

- **Investment:** the retail gasoline industry offers weak returns on investment, so would not appear to be an attractive prospect for small business. Securing the \$1-2 million needed for a modern full service outlet from conventional lenders is problematic, leaving private investors and the major oil companies as sources of capital.
- **Consumer spending patterns:** this is increasingly concentrated in regional service centres in the province, reducing the viability of commercial enterprises in rural areas generally. This has affected banks, pharmacies and grocery stores in the past. Moreover, spending on gasoline is increasingly linked to other services, including retail opportunities, reinforcing the downward pressure on rural outlets.

Reduction of Exit Barriers

It is a widely held industry view that many smaller, marginally or unprofitable petroleum dealers continue to sell gasoline because of the "exit barriers" that exist – that the high cost of decommissioning their petroleum operations is a deterrent to doing so.

To the extent that such exit barriers are responsible for an excess of service stations – and consequently, reduced market efficiency – this means lower volumes (and revenues) among all outlets, and higher marketer margins (and pump prices) experienced by consumers. One of the basic tenets of any efficient, competitive market is that the barriers to entry and exit (by the seller) be as low as possible.

The specific exit barrier that exists for retail gasoline dealers is the cost of removing underground storage tanks (UST's), and the cost of testing for and remediation of any soil that may have been contaminated by fuel which may have leaked from the tanks or piping over the years. These costs can be considerable, and are unavoidable – sites that no longer sell fuel must be decommissioned, soil-tested, and de-contaminated if necessary.

A financial program to assist small operators with the decommissioning of their gasoline outlets might be the key to reducing this significant exit barrier.

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Annex A: Retail margins

Annex A

Margin information submitted by independent dealers

Respondent Number		2000		2001		2002		2003		2004		2005	
		Margin	Cross Lease	Margin	Cross Lease	Margin	Cross Lease	Margin	Cross Lease	Margin	Cross Lease	Margin	Cross Lease
1	Self	4.0	na	4.0	na	3.9	na	3.4	na	2.9	na	2.4	na
	Full	5.0	na	6.0	na	5.0	na	4.0	na	4.0	na	4.0	na
2	Self	na	1.5	na	1.5	na	1.5	na	1.5	na	1.5	na	1.5
	Full	4.1	1.5	4.0	1.5	4.0	1.5	4.0	1.5	3.7	1.5	3.7	1.5
3	Self	na	na	na	na	na	na	4.25	na	4.25	na	4.25	na
	Full	5.25	na	5.25	na	5.25	na	5.25	na	5.25	na	5.25	na
4	Self	na	na	4.25	na	4.25	na	4.25	na	4.25	na	4.25	na
	Full	na	na	na	na	na	na	na	na	na	na	na	na
5	Self	3.0	2.5	3.0	2.5	3.0	2.5	2.0	2.5	1.0	2.5	1.0	2.5
	Full	5.0	2.5	5.0	2.5	5.0	2.5	4.0	2.5	3.0	2.5	3.0	2.5
6	Self	5.0	na	5.0	na	5.0	na	5.0	na	5.0	na	5.0	na
	Full	9.0	na	9.0	na	9.0	na	9.0	na	9.0	na	9.0	na
7	Self	3.0	1.75	3.0	1.75	3.0	1.75	2.0	1.75	2.0	1.75	2.0	1.75
	Full	5.0	1.75	5.0	1.75	5.0	1.75	4.0	1.75	4.0	1.75	4.0	1.75
8	Self	4.25	na	4.25	na	3	na	3	na	3	na	3	na
	Full	6	na	6	na	6.5	na	6.5	na	6.5	na	6.5	na
9	Self	na	1.2	na	1.2	3.2	1.2	2.3	1.2	2.5	1.2	2.0	1.2
	Full	5.4	1.2	5.7	1.2	5.2	1.2	4.3	1.2	4.0	1.2	4.0	1.2
10	Self	4.0	2.0	4.0	2.0	4.0	2.0	3.5	2.0	3.0	2.0	2.9	2.0
	Full	na	2.0	na	2.0	na	2.0	na	2.0	na	2.0	na	2.0
11	Self	na	1.9	na	1.9	na	1.9	na	1.9	na	1.9	na	1.9
	Full	4.5	1.9	4.0	1.9	4.5	1.9	4.0	1.9	4.2	1.9	4.0	1.9
12	Self	na	1.75	na	1.75	na	1.75	na	1.75	na	1.75	na	1.75
	Full	6.0	1.75	8.0	1.75	6.0	1.75	5.0	1.75	3.0	1.75	1.0	1.75
13	Self	6.0	na	6.0	na	5.0	na	5.0	na	4.5	na	4.5	na
	Full	na	na	na	na	na	na	na	na	na	na	na	na
14	Self	na	na	na	na	na	na	na	na	na	na	na	na
	Full	5.0	na	5.0	na	5.0	na	5.0	na	5.0	na	5.0	na
15	Self	na	na	na	na	na	na	na	na	na	na	na	na
	Full	5.0	na	5.0	na	5.0	na	5.0	na	5.0	na	5.0	na
16	Self	na	na	na	na	na	na	4.8	na	4.3	na	3.3	na
	Full	na	na	na	na	na	na	na	na	na	na	na	na
17	Self	5.0	na	5.0	na	5.0	na	5.0	na	5.0	na	5.0	na
	Full	na	na	na	na	na	na	na	na	na	na	na	na
18	Self	3.25	1.0	3.25	1.0	3.25	1.0	3.25	1.0	3.25	1.0	3.25	1.0
	Full	5.25	1.0	5.25	1.0	5.25	1.0	5.25	1.0	5.25	1.0	5.25	1.0
19	Self	5.0	2.0	5.0	2.0	4.0	2.0	4.0	2.0	3.0	2.0	3.0	2.0
	Full	na	2.0	na	2.0	na	2.0	na	2.0	na	2.0	na	2.0
20	Self	na	1.0	na	1.0	5.1	1.0	4.5	1.0	3.3	1.0	2.9	1.0
	Full	na	1.0	na	1.0	8.1	1.0	8.1	1.0	8.1	1.0	8.5	1.0
21	Self	na	1.65	na	1.65	na	1.65	na	1.65	na	1.65	na	1.65
	Full	6.0	1.65	5.0	1.65	5.0	1.65	4.0	1.65	3.0	1.65	na	1.65

Respondent Number		2000		2001		2002		2003		2004		2005	
		Margin	Cross Lease	Margin	Cross Lease	Margin	Cross Lease	Margin	Cross Lease	Margin	Cross Lease	Margin	Cross Lease
22	Self Full	na na	yes yes	na na	yes yes	4.0 7.0	yes yes	4.0 7.0	yes yes	4.0 7.0	yes yes	4.0 7.0	yes yes
23	Self Full	na na	na na	4.0 na	na na	4.0 na	na na	4.0 na	na na	3.5 na	na na	4.5 na	na na
24	Self Full	3.75 na	na na	3.75 na	na na	3.75 na	na na	3.75 na	na na	8 na	na na	8 na	na na
25	Self Full	4.5 4.5	2.0 2.0	4.5 4.5	2.0 2.0	4.5 4.5	2.0 2.0	4.5 4.5	2.0 2.0	na na	2.0 2.0	na na	2.0 2.0
26	Self Full	na na	yes yes	na na	yes yes	na na	yes yes	2.4 na	yes yes	2.6 na	yes yes	2.7 na	yes yes
27	Self Full	4.35 4.35	3.3 4.5	4.29 4.29	3.3 4.5	4.13 4.13	3.3 4.5	4.05 4.05	3.3 4.5	4.01 4.01	3.3 4.5	3.91 3.91	3.3 4.5
28	Self Full	na 5.0	na na	na 5.0	na na	na 5.0	na na	na 5.0	na na	na 5.0	na na	na 5.0	na na
29	Self Full	na 4.5	na na	na 5.0	na na	na 5.5	na na	na 3.5	na na	na 5.3	na na	na 3.7	na na
30	Self Full	na 5.0	1.5 1.5	na 5.0	1.5 1.5	na 4.0	1.5 1.5	na 4.0	1.5 1.5	na 4.0	1.5 1.5	na 4.0	1.5 1.5
31	Self Full	na na	2.2 2.2	na na	2.2 2.2	4.14 na	2.2 2.2	3.22 na	2.2 2.2	3.54 na	2.2 2.2	na na	2.2 2.2
32	Self Full	na 5.8	1.2 1.2	na 5.8	1.2 1.2	na na	1.2 1.2	na na	1.2 1.2	2.5 4	1.2 1.2	na na	1.2 1.2
33	Self Full	4 na	2.5 2.5	4 na	2.5 2.5	2 na	2.5 2.5	2 na	2.5 2.5	2.5 na	2.5 2.5	2.5 na	2.5 2.5
34	Self Full	7.0 7.0	na na	7.0 7.0	na na	6.0 6.0	na na	5.0 5.0	na na	4.0 4.0	na na	4.0 4.0	na na
35	Self Full	na 6.5	na na	na 6.5	na na	na 6.5	na na	na 3	na na	na 3.25	na na	na 3.25	na na
36	Self Full	na na	na na	na na	na na	na na	na na	na na	na na	3.5 na	na na	3.5 na	na na
37	Self Full	na 5.0	na na	na 5.0	na na	na 5.0	na na	na 5.0	na na	na 5.0	na na	na 5.0	na na
38	Self Full	na 5.0	1.5 1.5	na 5.0	1.5 1.5	na 5.0	1.5 1.5	na 5.0	1.5 1.5	na 5.0	1.5 1.5	na 5.0	1.5 1.5
39	Self Full	5.0 na	na na	4.0 na	na na	3.0 na	na na	3.0 na	na na	2.0 na	na na	1.0 na	na na
40	Self Full	na 5.0	na na	na 5.0	na na	na 5.0	na na	na 5.0	na na	na 3.5	na na	na 3.5	na na
41	Self Full	na 4.9	1.0 1.0	na 4.9	1.0 1.0	na 4.9	1.0 1.0	3.0 5.0	1.0 1.0	3.4 5.4	1.0 1.0	3.2 6.2	1.0 1.0
42	Self Full	na 7.0	1.25 1.25	na 7.0	1.25 1.25	na 5.0	1.25 1.25	na 3.0	1.25 1.25	na 3.0	1.25 1.25	na 3.0	1.25 1.25
43	Self Full	na 3.5	na na	na 3.5	na na	na 3.5	na na	na 3.5	na na	na 3.5	na na	na 3.5	na na

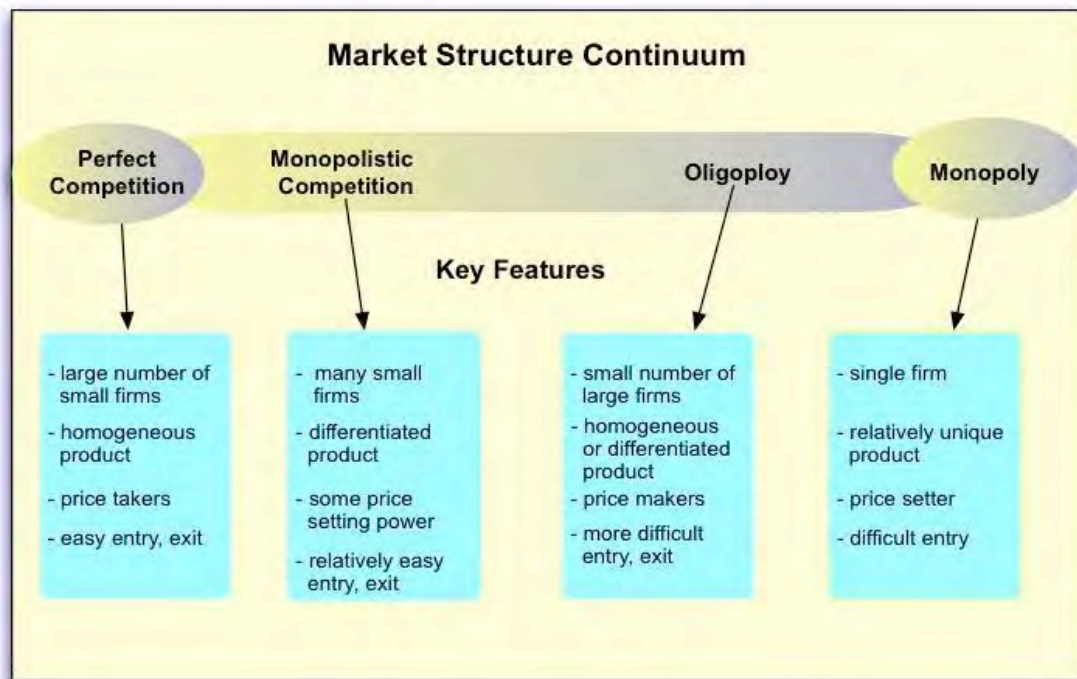
Respondent Number		2000		2001		2002		2003		2004		2005	
		Margin	Cross Lease	Margin	Cross Lease	Margin	Cross Lease	Margin	Cross Lease	Margin	Cross Lease	Margin	Cross Lease
44	Self Full	na 6.0	na na	na 5.8	na na	na 4.8	na na	na 4.8	na na	na 4.3	na na	na na	na na
45	Self Full	na 5.1	na na	na 4.4	na na	na 5.0	na na	na 4.6	na na	na 4.5	na na	na 5.5	na na
46	Self Full	na 4.0	na na	na 4.0	na na	na 3.5	na na	na 3.5	na na	na 3.5	na na	na 3.5	na na
47	Self Full	na na	1.0 1.0	na na	1.0 1.0	na na	1.0 1.0	na na	1.0 1.0	2.6 7.6	1.0 1.0	1.5 6.5	1.0 1.0
48	Self Full	na 4.0	na na	na 4.0	na na	na 4.0	na na	na 4.0	na na	na 4.0	na na	na 4.0	na na
49	Self Full	na na	1.75 1.75	na na	1.75 1.75	na na	1.75 1.75	na na	1.75 1.75	na na	1.75 1.75	na na	1.75 1.75
50	Self Full	na na	2.25 2.25	na na	2.25 2.25	na na	2.25 2.25	na na	2.25 2.25	na na	2.25 2.25	na na	2.25 2.25
51	Self Full	2.7 5.3	yes yes	2.7 6.1	yes yes	2.6 6.0	yes yes	2.5 6.9	yes yes	2.4 6.8	yes yes	2.2 6.6	yes yes
52	Self Full	na 5.5	1.0 1.0	na 5.1	1.0 1.0	na 5	1.0 1.0	na 4.8	1.0 1.0	3.2 5.2	1.0 1.0	3.1 5.4	1.0 1.0
53	Self Full	na 5.5	2.0 2.0	na 5.4	2.0 2.0	na 5.3	2.0 2.0	na 6.2	2.0 2.0	na 4.8	2.0 2.0	na 5	2.0 2.0
54	Self Full	na 4.0	na na	na 4.0	na na	na 3.5	na na	na 4.0	na na	na 3.0	na na	na 4.0	na na
55	Self Full	na 5.0	1.0 1.0	na 5.0	1.0 1.0	na 5.0	1.0 1.0	na 5.0	1.0 1.0	na 4.5	1.0 1.0	na 3.5	1.0 1.0
56	Self Full	na 7.0	na na	na 7.0	na na	na 5.5	na na	na 5.5	na na	na 5.0	na na	na na	na na
57	Self Full	6.0 na	1.5 1.5	6.0 na	1.5 1.5	5.0 na	1.5 1.5	5.0 na	1.5 1.5	2.9 na	1.5 1.5	2.9 na	na na
58	Self Full	na na	1.65 1.65	na na	1.65 1.65	na na	1.65 1.65	na na	1.65 1.65	na na	1.65 1.65	3.25 5.25	1.65 1.65
59	Self Full	na na	0.75 0.75	2.85 4.85	0.75 0.75	2.85 4.85	0.75 0.75	2.75 4.75	0.75 0.75	2.5 4.5	0.75 0.75	2.3 4.3	0.75 0.75
60	Self Full	na na	na na	na na	na na	na 4.0	na na	na 2.0	na na	na 2.0	na na	na 2.0	na na
61	Self Full	na na	0.5 0.5	na na	0.5 0.5	na na	0.5 0.5	na na	0.5 0.5	na na	0.5 0.5	4 na	0.5 0.5
62	Self Full	na 4.0	1.0 1.0	na 4.0	1.0 1.0	na 3.0	1.0 1.0	na 3.0	1.0 1.0	na 3.0	1.0 1.0	na 2.0	1.0 1.0
63	Self Full	5.0 na	yes yes	3.0 na	yes yes	3.0 na	yes yes	3.0 na	yes yes	2.8 na	yes yes	1.5 na	yes yes
64	Self Full	na 5.5	na na	na 5.0	na na	na 5.0	na na	na 5.0	na na	na 4.7	na na	na 5.0	na na
65	Self Full	na na	na na	na na	na na	6.5 6.5	na na	6.5 6.5	na na	6.5 6.5	na na	6.5 6.5	na na

Respondent Number		2000		2001		2002		2003		2004		2005	
		Margin	Cross Lease	Margin	Cross Lease	Margin	Cross Lease	Margin	Cross Lease	Margin	Cross Lease	Margin	Cross Lease
66	Self	na	1.2	na	1.2	na	1.2	2.9	1.2	3.4	1.2	3.2	1.2
	Full	na	1.2	na	1.2	na	1.2	4.8	1.2	5.5	1.2	5.5	1.2
67	Self	2.5	0	2.5	0	2.8	0	2.5	0	3.0	0	3.5	0
	Full	5.5	0	5.5	0	6.8	0	6.5	0	7.0	0	7.5	0
68	Self	4.0	na	4.0	na	4.0	na	3.0	na	2.5	na	2.0	na
	Full	6.0	na	6.0	na	6.0	na	4.0	na	4.0	na	3.5	na
69	Self	na	1.0	na	1.0	na	1.0	na	1.0	na	1.0	na	1.0
	Full	4.0	1.0	4.0	1.0	3.0	1.0	3.0	1.0	3.0	1.0	4.5	1.0
70	Self	3.8	2.0	3.8	2.0	3.5	2.0	3.5	2.0	3.0	2.0	3.0	2.0
	Full	5.8	2.0	3.8	2.0	3.5	2.0	3.5	2.0	5.0	2.0	5.0	2.0
71	Self	5.0	1.5	5.0	1.5	4.0	1.5	4.0	1.5	4.0	1.5	4.0	1.5
	Full	na	1.5	na	1.5	na	1.5	na	1.5	na	1.5	na	1.5
72	Self	na	na	na	na	na	na	na	na	na	na	na	na
	Full	5.0	na	5.0	na	5.0	na	5.0	na	5.0	na	5.0	na
73	Self	3.0	yes	3.0	yes	2.5	yes	6.5	yes	6.5	yes	6.0	yes
	Full	5.0	yes	5.0	yes	4.5	yes	6.5	yes	6.5	yes	6.0	yes

***Annex B: Oligopoly structure and price
behaviour***

MARKET STRUCTURE

In examining the economic behaviour of firms, one of the most important determinants is the economic context. This is usually called market structure, a term that refers to the intensity of the price competition that firms face. Theoretically, price competition can vary along a continuum from extremely intense to none. Economists usually characterize markets in terms of four basic market structures, ranging in declining intensity of price competition from perfect competition to monopolistic competition to oligopoly to monopoly. The following diagram shows this continuum and highlights the key features of the four market structures.



This discussion will focus on Oligopoly, as it appears to be the most applicable to the Nova Scotia gasoline market. Examining measures of concentration of sales in the industry indicates this.

Historically, competition regulators have used the concentration ratio¹ as a first test of the degree of competitiveness of industries [Miller, 1955]. It is still used in Canada as a benchmark [Canada, 1991]. The empirical evidence reviewed by Cubbin [1988] suggests that firms gain monopoly power when the four firm concentration ratio exceeds 60%. In Canada, under the Competition Act, a merger between firms in the same industry may be prevented if the four firm concentration ratio exceeds 65%.

¹ **Concentration ratio:** The proportion of total output in an industry that's produced by a given number of the largest firms in the industry. The two most common concentration ratios are for the four largest firms and the eight largest firms. The four-firm concentration ratio, as such, is the proportion of total output produced by the four largest firms in the industry and the eight-firm concentration ratio is proportion of total output produced by the eight largest firms in the industry.

The following table shows the market shares for the wholesale gasoline operators and the concentration ratio for the four largest firms. The 4-firm concentration ratio clearly exceeds the 60% test level noted above. At first glance, it would appear that the concentration ratio declined between 1990 and 2004, from 84 to 77, indicating a shift towards a more competitive market. Note however, the move by Imperial to focus on high volume stations, transferring the smaller stations to Wilson, largely accounts for this change. In any case, concentration ratios in the observed range are consistent with an oligopoly.

	MARKET SHARE (%)	
	2004	1990
Irving	28	32
Wilson*	16	-
Imperial	9	21
Petro-Canada	16	13
Shell	10	11
Ultramar	17	18
Other	4	5
Concentration ratio 4 largest firms (%)	77	84

Wilson in 2003 took over the wholesale supply for outlets formerly supplied by Imperial. Most still carry the Esso brand.
Source: data compiled by Gardner Pinfold.

The Herfindahl index provides another measure of concentration of the production in an industry. It is calculated as the sum of the squares of market shares for each firm. It tends to give greater weight to the largest firms. Some observers argue that the Herfindahl index gives a better indication of the relative market control of the largest firms than can be found with the four-firm concentration ratios.

Generally, higher index values indicate more concentration and (within limits) less open market competition. A monopoly, for example, would have an H index of 100^2 , or 10,000, by definition, the maximum score. In contrast, an industry with 100 competitors that each has 1% of the market would have a score of $1^2 + 1^2 + 1^2 + \dots + 1^2$ or a total of 100. For a duopoly, where each of the two firms has a market shares of 50%, the H index would be $(50)^2 + 50^2 = 2500 + 2500 = 5000$. With two firms that have of 75% and 25% respectively, the H index would be: $(75)^2 + (25)^2 = 5,625 + 625 = 6,250$

A 1,000-1,800 value generally indicates moderate concentration. Anything over 1,800 is taken to indicate acute concentration. The US Antitrust Department has traditionally judged the "seriousness" of a merger by using the Herfindahl Index. If a merger or acquisition increases the index by 100 or more or pushes the overall index over 1,000, it is likelier to attract Federal Trade Commission scrutiny.

For the Nova Scotia wholesale gasoline industry, the H index was 2,079 in 1990 and 1,171 in 2004. We take this as further evidence that the oligopoly market structure applies to the Nova Scotia case.

The remainder of this appendix describes the theory of oligopoly behaviour portrayed in industrial organization textbooks and micro-economic theory, often referred to as theory of the firm.

OLIGOPOLY

The most important characteristics of oligopoly are:

- ❑ an industry dominated by a small number of large firms,
- ❑ firms sell either identical or differentiated products, and
- ❑ the industry has significant barriers to entry.

In an oligopoly, the degree of market concentration is very high (i.e. a large percentage of the market is taken up by the leading firms). Firms within an oligopoly produce branded products (advertising and marketing is an important feature of competition within such markets) and there are also barriers to entry.

Text book examples of oligopoly are the sale of gasoline, supermarkets, telecommunications, and banks.

Behavior

Oligopolistic industries are very diverse. Some sell identical products, others differentiated products. Some have three or four firms of nearly equal size, others have one large dominant firm (a clear industry leader) and a handful of smaller firms (that follow the leader). Leaving aside the products they sell and how they are organized, oligopolistic industries share several behavioral tendencies, including:

- ❑ interdependence
- ❑ rigid prices,
- ❑ non-price competition,
- ❑ mergers, and
- ❑ collusion.

Put in another way, oligopolistic firm pays close attention to the decisions made by other firms in the industry (interdependence), are reluctant to change prices (rigid prices), try to attract the competitors customers using incentives other than prices (non-price competition), and if they tire of competing with their competitors they are inclined to cooperate either legally (mergers) or illegally (collusion).

Product Differentiation

Product differentiation applies where real or perceived differences among similar goods induce buyers to pay different prices. Some firms use product differentiation to achieve market control. The three methods of product differentiation are physical differences, perceived differences, and support services. The greater the differentiation is among products, then the more ability firms have to exert control over prices. Product differentiation is perhaps most important for market control by firms in monopolistic competition, but it also plays a role in oligopoly. Gasoline marketers attempt to differentiate their product through the use of additives.

Barriers to Entry

Barriers to entry exist when there are institutional, government, technological, or economic restrictions on the entry of firms into a market or industry. The four commonly recognized barriers to entry are:

- ❑ resource ownership,
- ❑ patents and copyrights,
- ❑ government restrictions, and
- ❑ start-up costs (high initial investment).

Barriers to entry are a key reason for market control and the inefficiency that this generates. In particular, monopoly and oligopoly often owe their market control to assorted barriers to entry. By way of contrast, perfect competition and monopolistic competition have few if any barriers to entry and thus little or no market control.

In the case of the gasoline industry, there may be a question as to whether the maintenance of existing storage tanks or installation of new ones acts as barrier to entry when margins are not adequate to finance new tanks.

Non-price Competition

Oligopoly firms are quite prone to non-price competition due to the interdependence, especially such as that illustrated by the kinked-demand curve (discussed below). Because oligopoly firms find difficulty competing through prices, they seek out alternative methods of competition, such as advertising, brand-name promotion, support services, selling a range of complementary products including convenience stores, car washes and so on, in effect, everything but the price.

Collusion

Collusion is a usually secret agreement among competing firms (mostly oligopolistic firms) in an industry to control the market, raise the market price, and otherwise act like a monopoly. The reason for the secrecy is that such behavior is illegal in the Canada under competition laws. Collusion is a well-known trait of oligopolistic industries, although it does not necessarily occur in every industry. Intense competition and interdependent decision-making encourages oligopolistic firms to cooperate. One way to lessen the competition among oligopolistic rivals is to join forces through collusion. It may be the result of a formal agreement among firms, or the result of tacit agreement on operating practices.

Competition Among the Few

This is another name for a market with a small number of sellers (or buyers), such that each seller (or buyer) has some degree of market control. Many think of this type of competition when the term competition arises (the other type is competition among the many). This sort of competition leads to intense rivalry where each participant achieves their objective only by beating the others. We point this out to note that competition can be very vigorous even when it is mainly non-price competition.

Oligopoly Pricing

As already noted, in an oligopoly firms tend to compete by non-price methods rather than by seeking to gain additional market share by lowering price. When one firm has a dominant position in the market the oligopoly may experience price leadership. The firms with lower market shares may simply follow the pricing changes prompted by the dominant firms.

Price nevertheless plays an important role and economists have studied price behaviour in oligopoly markets. Perhaps the most notable feature of oligopoly pricing is the tendency for prices to be “sticky”, that is, in the absence of underlying changes in cost or dramatic market changes affecting all firms in the industry, the current price tends to remain steady, moving neither up nor down. A widely accepted explanation for this observation may be found in the ‘kinked’ demand curve theory.

Kinked demand curve theory

This theory assumes that if an oligopolist raises its price its rival will not follow suit, as keeping their prices constant will lead to an increase in market share. The firm that increased its price will find that revenue falls by a proportionately large amount, making this part of the demand curve relatively elastic (flatter, the DD range in Figure 1).

Conversely if an oligopolist lowers its price, its rivals will be forced to follow suit to prevent a loss of market share. Lowering price will lead to a very small change in revenue, making this part of the demand curve relatively inelastic (steeper, the Dd range in Figure 1.)

The firm then has no incentive to change its price, as it will lead to a decrease in the firm's revenue. This causes the demand curve to kink around the present market price. Prices will further stabilize as the firm will absorb changes in its costs to a certain extent. The marginal revenue jumps (vertical discontinuity) at the quantity where the demand curve kinks, the marginal cost² could change greatly - e.g., between points E and F in Figure 1 and the profit maximizing level of output remains the same.

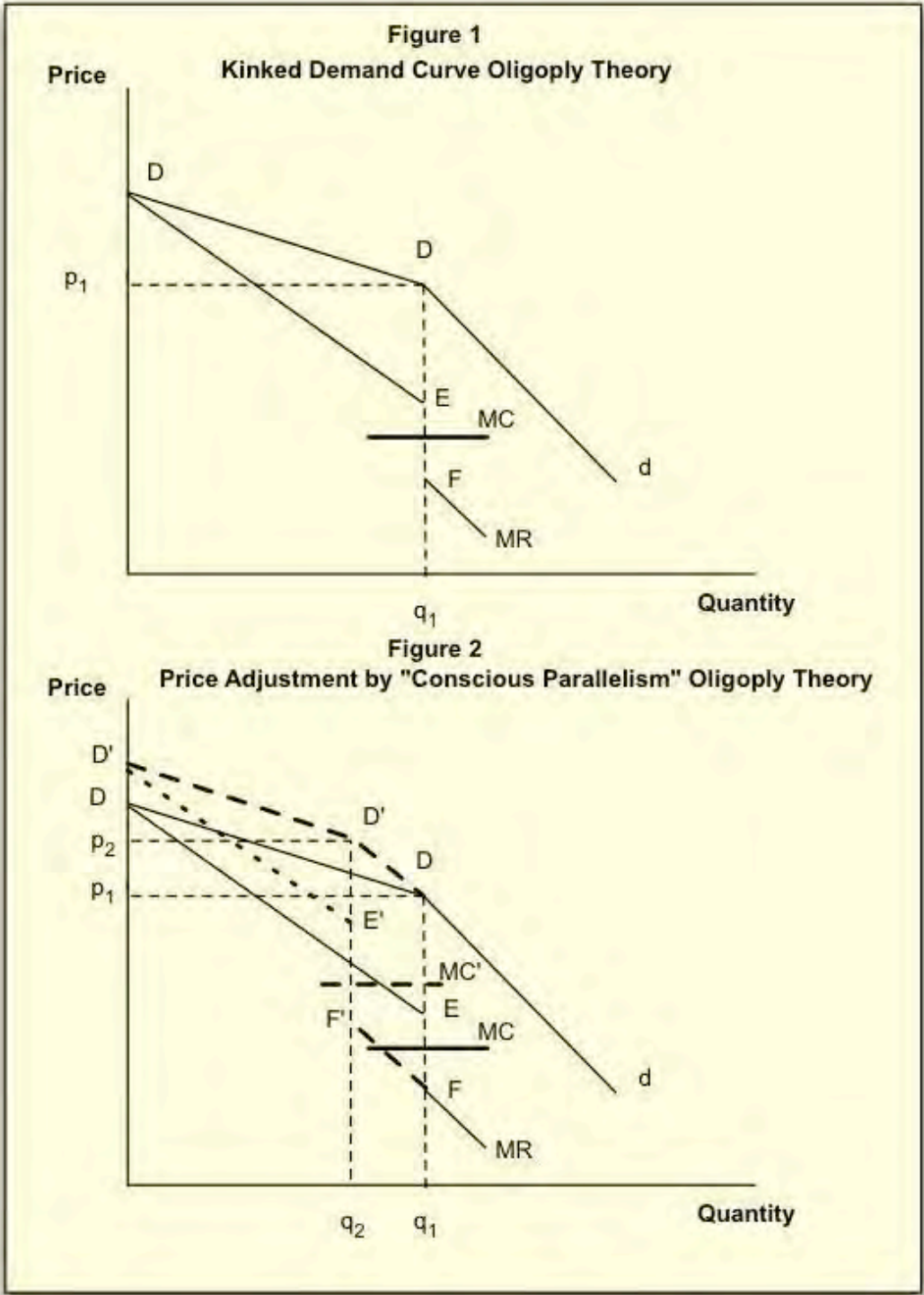
However, a larger increase in costs would see the marginal cost curve cut the upper DE part of its marginal revenue curve, as shown by MC' in Figure 2, implying that a price increase would be needed to maximize profit. In the Nova Scotia gasoline case, other firms would be experiencing the same cost increases, since all firms acquire their gasoline from the same source and are thus subject to the same cost increases. Hence, the firm's assumption that its rivals would not respond to its price increase may give way to an expectation that other firms would follow it, in order to pass the common cost increase through to consumers. This could give rise to a situation where all firms more or less simultaneously raise their prices in the expectation that the others will follow suit, especially in an industry like the gasoline industry which frequently experiences cost changes, and where prices have to be changed in a co-ordinated way in order to avoid large and unwanted changes in market share. This process has been called “conscious parallelism”³

² MC is shown as constant for convenience; it could be increasing and the analysis would still apply.

³ Conscious parallelism is a term used in anti-combine law to describe price-fixing between competitors in an oligopoly that occurs without an actual spoken agreement between the parties. Instead, one competitor will take the lead in raising prices. The others will then follow suit, raising their prices by the same amount, with the unspoken mutual understanding that all will reap greater profits from the higher prices so long as none attempts to undercut the others.

The adjustment to price is shown in Figure 2. If the firm's price rise is followed, it will move along a leftwards extension of the Dd segment of the kinked demand curve (an inelastic demand response) to a new kink point at price p_2 and quantity q_2 , leading to the formation of a new demand curve $A' D' Dd$, and marginal revenue curve $A' E' F' F$. Here, the new marginal cost curve, MC' , passes through the new gap $E' F'$, thereby indicating that equilibrium has been restored at price p_2 and quantity q_2 .

Although the kinked demand curve model does not show how price is set at a particular level, it is useful as a possible explanation as to why retail petrol prices are relatively “sticky” in the face of constant changes in crude oil prices—as shown in Figure 4—and how, with conscious parallelism, the interdependent firms may make necessary price adjustments.



***Annex C: Articles on competitive conditions
in retail gasoline markets elsewhere***

***Annex D: List of dealers and suppliers
consulted***

DEALERS

	Location	Name	Station
1.	Granville Ferry	Andrew Sabean	Granville Ferry Service Station
2.	Lower South River	Henry Overmans	Henry's Esso
3.	Albert Ridge	Paul Mullins	Paul Mullins Shell
4.	Sydney Forks	Cornelius MacIsaac	MacIsaac Fuels
5.	Sydney Mines	Mike McDonald	Joe Peck Enterprise
6.	Sydney Mines	Kelvin Reid	Reid's Auto
7.	Balls Creek	Rose/Doug MacKinnon	Balls Creek Store
8.	Debert	Duane Quigley	Duane Quigley Service Station
9.	Debert	Dave Rushton	Dave's Service Centre
10.	Oliver	John Jones	J&L Superline
11.	Amherst	Roy Pettigrew	West Amherst Centre
12.	Springhill	John D. Martin	Shavers Service Station (SP)?
13.	Conway	Allison/Jason Dickie	Scallop Shell
14.	Meteghan	Steven Comeau	Hubert Comeau Service Station Ltd.
15.	Half Island Cove	David Hanhams	Hanhams's Gas
16.	Canso	Bernard Kavanagh	Canso Garage Ltd.
17.	Moser River	Carl Naugler	Riverside Esso
18.	Kennetcook	Ricky Ettinger	Ettinger's Service Station
19.	Burlington	Doug Sanford	Sandford's Gas & Grocery
20.	Margaree Valley	Fred Hart	Fred Hart Services Ltd.
21.	Cheticamp	Richard/Hilda Cormier	H. Cormier's Service Station Ltd.
22.	Strathlorne	Bill McCarthy	Strathlorne Service Centre
23.	Judique	Duncan H. MacEachern	A & D Service Station
24.	Kingston	Lawrence England	Stronach Ultramar
25.	Lakeville	Paul/Gail Hatt	Lakeville General Store
26.	Cambridge	John Reeves	Cambridge Service Ctr
27.	New Germany	Ken Oickle	Oickle's Auto Services
28.	Bridgewater	Rodney Grace	Tinrod Automotive
29.	Bridgewater	Royden Zwicker	Hebbville Irving
30.	New Ross	Elaine Russell	Russell's Service Station
31.	Chester Basin	Aaron Kaizer	Kaizer' Ultramar
32.	Scotsburn	Wayne Murray	Wayne Murray's Service Station
33.	New Glasgow	Kevin Russell	Kevin's Service Centre Limited
34.	Tatamagouche	Kendall Tattrie	Errol's Trading Centre Ltd.
35.	Port Mouton	Arthur Anthony	George Verge Enterprise Ltd.
36.	River Bourgeois	Buckey/Anne Sampson	River Bourgeois Service Station
37.	Barrington	Arthur Smith	Arthur L. Smith Automotive
38.	Wreck Cove	Marcelle LaVoie	Trail Store Cabins
39.	Tusket	Carl Pothier	Pothier's General Stores
40.	West Pubnico	Paul d'Entremont	Paul d'Entremont Marine Ltd.
41.	New Minas	Scott Fraser	Petro-Canada

Oil Companies

David Collins
Wilson Fuel Company Inc.
Halifax

Steve Ecclestone
Warren Maynard
Dale Huestis
Ultramar
Eastern Passage

Christopher Borden
Mike Thompson
Matt Holland
Irving Oil Limited
Saint John

Francois Paquin
Randy Hall
Shell Canada
Montreal

Jean-Francois Lacasse
Imperial Oil Canada
Calgary

Geoff Scott
Petro-Canada
Toronto

Others

Graham Conrad
Nova Scotia Gasoline Dealers Association
Dartmouth

Donald Sutherland
Island Regulatory & Appeals Commission
Prince Edward Island

David Toms
Newfoundland & Labrador Public Utilities Board
Grand Falls