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MANDATORY UNBUNDLING OF RETAIL GASOLINE OUTLETS

-- Background Note by the Secretariat --

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The attached document is submitted to Working Party No. 2 of the Competition Committee FOR DISCUSSION under item III of the agenda at its forthcoming meeting on 20 October 2008.

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MANDATORY UNBUNDLING OF RETAIL GASOLINE OUTLETS[1]

By the Secretariat

1. Introduction

1. Retail gasoline prices[2] are a frequent object of public attention. Gasoline is a substantial element in the spending of many consumers and firms. Further, gasoline is purchased frequently and prices often are prominently posted so that consumers are aware of price trends for gasoline between purchases. Price elasticity of demand is often low, and prices fluctuate significantly and rapidly.[3] When retail prices go up, consumers complain and legislators look into the causes. The causes might include supply disruptions due to natural disasters, armed conflicts in petroleum producing areas or other security issues, faster growth in demand than in supply either locally or internationally, inefficiencies in the supply chain and market power. Market power might appear at several stages of the industry. At the extraction stage, OPEC tries to manage a cartel. The refinery stage is often characterized by relatively few producers and severe entry impediments. At the distribution and retail stages, market power could be due to locational advantages or to anticompetitive coordination.[4]

2. Unbundling retail gasoline outlets from refineries has often been promoted as a remedy for inefficiencies and market power. The promoters of mandatory unbundling are often independent retailers, including dealer-owned seller's of branded products, and their trade associations. Several jurisdictions have followed their advice and prohibit refiners from owning or operating retail outlets. Yet empirical analysis often finds that mandatory unbundling is associated with higher retail prices.

3. This background paper discusses the arguments for and against mandatory unbundling, first in the context of vertical integration into gasoline retailing (Section III) and then in terms of other effects on competition and consumer welfare (Section IV). Then it reviews experiences with mandatory unbundling of retail gasoline outlets (Section V) and studies about the impact of independent retailers on price (Section VI). Section VII concludes that the long-standing controversy about unbundling is tangential to current developments affecting competition in motor fuel retailing.

4. Vertical unbundling in this industry raises issues about vertical integration that have also been addressed in other OECD work, such as the roundtables on access to transportation infrastructure,[5]

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1 Prepared by John C. Hilke and Marta Troya-Martinez.

2 The term "gasoline" includes motor fuels in general. Many of the empirical studies are of markets where gasoline is the principal fuel.

3 Deck and Wilson (2004) and Deck and Wilson (2008).

4 One such assessment, by staff of the U.S. FTC, is concluded that supply disruptions, not collusive withholding of supply, were responsible for a period of unusually high retail gasoline prices in the mid-western states in the Spring of 2000.. Bulow, Fischer, Creswell and Taylor (2003)

5 OECD (2006).

regulation of sales below cost,[6] predation,[7] and integration and restructuring in electricity[8] and other utility services.[9]

5. This paper makes a number of observations:

- Distribution and retailing operate under a wide variety of vertical relationships with refiners, ranging from full integration to complete separation.
- Proponents of mandatory vertical unbundling point to opportunistic behaviour by refiners and contend that unbundling is a means to resolve recurring contract disputes.
- Opponents of unbundling point to benefits of vertical integration such as achieving operating efficiencies and avoiding double marginalization, and warn that mandatory unbundling would lead to higher retail price/cost margins.
- Resolving the controversy between the opposing parties is difficult, in part because proponents and opponents rely on different measures of success.
- Research suggests that the effects of vertical integration here are complex. Some studies find that efficiency gains from vertical integration by refiners into retailing are more than offset by associated weakening of competition at the refining stage.
- An important complicating factor is the rapid expansion of grocery stores and mass merchants into gasoline retailing, using low gasoline prices as a marketing tool to attract customers to buy other things. This entry puts pressure from a new source on the independent dealers, while integrated firms might try to cut off this new type of competition if it threatened their own retail outlets.
- Supporters of vertical integration need to address the problems of contract enforcement resulting from opportunism. Proponents of mandatory unbundling should examine whether concerns about opportunism and cross-subsidization can be addressed under the general laws against abuse of dominance and unfair competition.

2. Production and distribution stages in the industry

6. In order to provide context for the discussion of vertical and horizontal effects, it is useful to identify the range of vertical and horizontal arrangements at the various stages of the industry, with a focus on retailing.

7. Retail motor fuel is derived mostly from petroleum, although some comes from corn or other biofuels. Once the petroleum is extracted, it is transported and refined. Motor fuel is one of several distillates that result. Gasoline typically receives additives such as detergents before it is ready for retail distribution. Additives and their associated formulations can be proprietary to individual refiners, and these differences are a major basis for differentiation between brands. Retailers of unbranded gasoline cannot

6 OECD (2005).

7 OECD (2004).

8 OECD, Restructuring Public Utilities for Competition (2001b), OECD (2002a) and OECD (2002b).

9 OECD (2001a) and OECD (2002b).

legally claim to have the same proprietary additives as a particular branded gasoline, and they cannot claim that the additives in their gasoline are consistent if they buy from a variety of refiners.

8. Transportation to retail outlets can either be direct from the refiner or through intermediaries called jobbers.[10] Jobbers may have detailed contracts with refiners. Supply agreements of jobbers with refiners may include restrictions on who the jobber can sell to, volume discounts for the jobber or retailer, or other terms that can change the incentives and authorizations to sell to specific retailers at specific prices. Wholesale prices often include the product as well as the transportation, and accounting between these two components of the price involves an element of discretion. The bundled pricing of transportation and product means that the wholesale prices paid by retailers differ, and the bundling can make it more difficult for retailers to determine the extent to which refiners or wholesalers are basing price differences entirely on cost differences. In some instances, refiners explicitly offer lower wholesale prices in certain areas because competition is declared to be more intense in these regions.

9. Retail gasoline outlets can be:

- owned and operated by refiners;
- owned by the refiner but leased to an operator;
- operated but not owned by the refiner;
- owned as an independent franchisee of the refiner; or
- owned and operated as an independent and unaffiliated business.

Some franchisees, independent operators or independent owner/operators also may be jobbers.

10. Retail prices are also subject to a variety of vertical arrangements. Generally, if the retail location is owned by the refiner, the refiner sets the retail price. Where the retailer determines the price, the refiner can influence the price through wholesale prices or the retail prices that it sets at nearby company-owned retail locations.

11. Borenstein and Bushnell's[11] 2005 policy review of potential regulation of vertical relationships in the retail gasoline trade, commissioned by regulators in California, describes the tension that often flows from the complexity and variety of vertical arrangements:[12]

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10 For example, see Borenstein and Bushnell (2005).

11 Borenstein and Bushnell (2005).

12 Potentially, independent retailers could vertically integrate by investing in jobbing or refining, but this does not appear to be common, and laws and regulations mandating vertical unbundling do not appear to consider the possibility of groups of retailers jointly controlling refiners rather than refiners controlling retailers. Presumably, if the retailers controlled the refiners, the retailers would not object to such integration because they would not fear actions by refiners that would involuntarily reduce retailers' profits. Upstream vertical integration of this sort by coalitions of independent retailers does exist in other sectors, such as food processing and grocery retailing. Joint ventures by small retailers to reduce their supply costs do not generally raise competition concerns. Several countries have antitrust exemptions for cooperatives or production joint ventures even if there are potential competitive concerns about joint supply activities.

The relationship between refiners and their lessee-dealers is frequently contentious. Some tension is to be expected, given the fact that both sides would prefer to keep as much of the retail margin as possible. We could not conclude whether disputes were more or less common in gasoline than in other retail franchising businesses, such as fast food.

12. Narrowly defined, mandatory vertical unbundling laws or regulations preclude refiners from owning and operating retail gasoline outlets. Some jurisdictions do not prohibit vertical integration completely, but instead they limit the proportion of retail outlets that refiners can own or otherwise directly control.[13] Mandatory vertical unbundling is not the only policy approach advocated by dissatisfied gasoline retailers. Other regulations against vertical restrictions maintained by refiners address the same concerns as mandatory vertical unbundling. Examples include rules against restrictions by refiners on who jobbers can sell to or rules against restrictions by refiners on the jobbers that retailers can buy from. As discussed later, laws against sales below cost, either specific to gasoline or more general, are sometimes viewed as substitutes for mandatory unbundling of retail gasoline outlets as well.[14] In some instances, jurisdictions have explicitly switched from one approach to another approach in regulating retail gasoline outlets. The U.S. state of Florida is an example.[15]

3. Economic arguments about vertical integration

3.1 Retailers' arguments for mandatory unbundling

13. The central contention of advocates of mandatory vertical unbundling is that refiners pursue a holdup strategy against their independent-dealer and lessee-dealer gasoline retailer customers if the refiners are partially vertically integrated into retailing. Retailers contend that the holdup strategy is implemented through a price squeeze – according to some retailer groups, so deep that competition laws would treat the prices as as predatory,[16] as alleged by some gasoline retailer groups. Other ways to hold up a retailer could be refusing to renew a franchise agreement or demanding terms that do not allow a competitive rate of return on the investments of the retailer. A holdup in economics refers to a situation in which two parties would benefit from cooperating, but in which that cooperation is threatened by an asymmetry in their bargaining power once one party has made an investment that benefits both parties.[17]

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13 Australia until 2007 and Argentina are examples.

14 Anderson and Johnson (1999).

15 Kamerschen (2001).

16 Standards for defining or identifying predatory pricing include prices below average costs, average variable costs, or marginal costs. These standards are adopted in an effort to distinguish when prices are so low that the intent of the price is predation rather than vigorous competition. Economic evaluation of predation typically puts great weight on potential and actual recoupment of the losses from engaging in predatory pricing. Extensive discussion is available at OECD (2005) and OECD (2004).

17 Tirole (1988), pp. 24-29. The argument is strongest when the value of the investment is sunk, so the value cannot be recovered if the investor is no longer operating the business. For a more extended treatment, see Viscusi, Harrington, and Vernon (2005) at Chapter 13. Williamson (1975) applies the term "opportunism" to such holdups. The object of the underlying concern is the vulnerability of parties who have invested in highly specific, immobile or difficult-to-measure assets. Human capital associated with building consumer loyalty to a specific gasoline retail outlet could be such an asset. Other situations or conditions making contracting difficult and making ex post hold ups more likely include specialized equipment, site-specific equipment, uncertainty about the durability of equipment, information asymmetries, network coordination issues, uncertainty about the reliability of supply sources, externalities, and regulatory risk. Carlton and Perloff (2005) at Chapter 12.

Box 1. Canadian Investigation of Charges Price Squeezing

In 2006, the competition law enforcement agency of Canada, the Competition Bureau, investigated allegations by independent retailers that refinery suppliers were engaged in margin squeezing predation. These claims followed the increases in gasoline prices that in turn followed Hurricane Katrina. Here are the Bureau's conclusions, from its closing press release:

Ottawa, March 30, 2006 – The Competition Bureau has concluded its examinations of high gasoline prices following Hurricane Katrina and allegations by independent retailers of predation and margin squeezing in the Canadian gasoline industry.

"We have found no evidence of a national conspiracy to fix gasoline prices," said Richard J. Taylor, Deputy Commissioner of Competition, Civil Matters Branch. "Severe damage to North American refining capacity caused by Hurricane Katrina forced gasoline prices to spike in September 2005. This dramatic reduction in supply forced wholesale prices to jump, resulting in higher prices at the pumps."

While crude oil prices remained relatively stable, the Bureau found that gasoline supply was significantly reduced following Hurricane Katrina. The supply reduction caused a spike in the New York Harbour spot price for gasoline, which Canadian refiners use to determine their wholesale prices. This spike forced wholesale, and ultimately retail prices, to increase in Canada and the United States.

The Bureau also examined allegations from independent retailers of predatory pricing and margin squeezing in the gasoline industry especially in Ontario and New Brunswick. The complainants alleged that the refinery-owned retailers were reducing gasoline prices below their cost in these areas during certain periods and also charging higher wholesale prices to independent retailers who compete with their outlets at retail, causing profit margins to shrink.

The Bureau investigated these matters under section 79 of the *Competition Act* and found no evidence that pricing resulted from an attempt by a group of majors to discipline or eliminate the independent retailers in these markets, either through predation or margin squeezing.

In conducting its examination, the Bureau gathered information from publicly available resources, as well as direct contact with market participants who provided proprietary data. The Bureau also retained a consulting firm to understand the key determinants of profitability for retail gasoline stations. The independent report, What Determines the Profitability of a Retail Gasoline Outlet? A Study for the Competition Bureau of Canada, found that retailers are relying on higher volumes and ancillary services such as convenience stores and car washes to earn profits.

Source: Canadian Competition Bureau (2006).

14. Independent gasoline retailers and lessee-dealers with medium or long-term contract agreements[18] with refiners often claim that refiners try to force them out of business because that will increase the profitability of the retail locations owned and operated by the refiner. Independent gasoline retailers and lessee-dealers also often contend that they build up location-specific customer loyalty through better service, a better choice of complementary services, wiser marketing investments, or facilities improvements. Once a consumer perceives that a retail location provides better service on any or all of these dimensions, the customer is more likely to return and the consumer is more likely to be willing to pay a price premium in order to obtain these services at the next fill-up. The investment in providing better service could result in abnormal returns for the retailer if other retailers do not quickly compete them away. Subsequently, refiners could have incentives to expropriate the retailer's abnormal returns from these investments by terminating the franchise and reselling it at a higher price or by charging higher wholesale prices to this retailer in order capture the supra-competitive retail margins. These arguments might have

[18] Absent medium- or long-term supply contracts, an independent, unbranded retailer is less subject to these concerns if there are other refiners willing and able to supply the retailer at competitive terms.

been more plausible when more gasoline retailers commonly repaired cars or provided services such as pumping fuel, washing windshields and checking oil. As self-service takes over fuel sales, the arguments might shift to claims about services quality at the associated convenience store.

15. The final component of the retailers' position is that as long as refiners have their own captive retailers (the underlying cause of incentives to hold up independent gasoline retailers) or opportunities to terminate franchises without cause, enforcement of supply contracts by independent gasoline retailers is not sufficient to prevent ongoing efforts of refiners to hold up independent gasoline retailers.

16. The position of independent gasoline retailers is nicely summarized in a submission of the Independent Petroleum Marketers Association of Australia (PMAA) to the Senate Legal and Constitutional References Committee.[19]

> *The retail petroleum industry is unique in that it is the only industry where small business participants must directly compete with their own petroleum suppliers. ... As a result, manipulation and predatory behaviour in this unique industry is a reality. It is only within this industry that the discount prices available for retail petroleum purchases from the oil companies' chains are truly predatory to the wholesale cost prices for the same product available from the same oil companies to the independent operators.*

17. Borenstein and Bushnell (2005)[20] describe the wholesale pricing concerns of independent and leasee-owned gasoline retailers as follows:

> *Most of the controversy centers around the degree to which refiners can charge different prices to different retailers rather than a uniform price to all retailers whose gasoline comes from a given wholesale rack location. In other words, the degree to which wholesalers can price discriminate among their retail customers. In general, refiners are considered to be better able to price discriminate among direct supplied stations as the delivery charge can be varied down to the individual station level. Retailers have complained that these delivery charges sometimes bear little resemblance to the actual cost of taking the gasoline to the station.*[21]

18. Some opponents of mandatory vertical unbundling of gasoline retailing might contend that there is no economic rationale for these restrictions, however, the holdup argument is a well-recognized possibility.[22] It could be argued that the discovery of persistent discrimination in electric power transmission services in both the United States and Europe, despite severe behavioural rules against transmission discrimination,[23] should cause opponents of mandatory unbundling in gasoline markets to pause and think about the subtleties of detecting and documenting discrimination in supplying gasoline retailers as well. The argument of proponents of mandatory vertical unbundling of retail gasoline outlets is

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19 PMAA (2002).

20 Borenstein and Bushnell (2005).

21 Borenstein and Bushnell (2005) also observe that although direct supply allows refiners more scope for price discrimination, these practices are not limited to retail deliveries alone. Individual stations may have performance related incentives, such as discounts or penalties related to the volume of gasoline sold at the station. Further, even if the gasoline is distributed by a jobber, a refiner can still restrict the ability of the jobber to shop around for wholesale gasoline. Much of the fuel purchased by jobbers is sold under the terms of long-term contracts that could restrict the jobber's purchases to specific racks and could also include volumetric discounts in the marginal price.

22 Vita (2000), Carlton and Perloff (2005) at Chapter 12.

23 FERC (1999), Section III.

that neither enforcement of contractual terms against supply discrimination nor antitrust law enforcement actions against anticompetitive price discrimination are sufficient to protect independent gasoline retailers from hold-up strategies instituted by refiners against them.

19. A detailed understanding of the subtleties and costs of detecting and documenting discrimination in supplying gasoline retailers could help to resolve this assertion, but there does not appear to be a definitive literature in this regard.

20. In summary, retailers, both independents and lessee-dealers, are concerned about opportunism by refiners and anticompetitive terminations of supply relationships that are motivated by partial downstream vertical integration of refiners. The opportunism involves expropriation of returns (both abnormal and normal) on the investments of retailers. This can take the form of either terminations of supply relationships (so that that the expropriation can be capitalized by the refiner in reselling or re-leasing the location) or discrimination in wholesale prices charged to the retailers (capturing more of the retail margin for the refiner). The retailers contend that anticompetitive terminations benefit refiners by increasing margins at owned retail outlets. They attribute increased retail margins at vertically integrated retailers to resulting reduced intra-brand competition facing refiner owned and operated retail outlets.

3.2 Arguments against mandatory unbundling

21. Opponents of mandatory vertical unbundling can support their position by appealing to the economic literature on potential gains from vertical integration. Mandatory vertical unbundling can make it impossible or at least more difficult or costly to realize economies of vertical integration, including elimination of double marginalization and curtailment of free riding.[24] Contractual substitutes for vertical integration may be imperfect. This generally applies, for example, when monitoring of compliance with the terms of a contract is costly and the retailer has incentives not to comply.[25] Economies of vertical integration can include such operational advantages as:

- coordination of investments between stages of production,
- realization of economies of scale when similar operations subject to economies of scale occur at both the upstream and downstream stages of production,
- realization of economies of scope when vertically separate processes have operating or investment complementarities,
- reductions in transactions costs,
- prevention of some forms of opportunism, and
- avoidance of some forms of distortion in inputs.[26]

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24 Concerns about free riding could include the deleterious effects on overall customer perceptions of the quality of the brand when discretion amongst retailers leads some to delay or reject improvements in the quality of service or in facilities that other retailers are undertaking to improve consumer perceptions of the brand. New Zealand Institute of Economic Research (2005).

25 Shepard (1993).

26 The latter three are discussed in Vita (2000).

22. Double marginalization occurs when multiple stages of production have some degree of market power and the lack of coordination between stages of production results in retail prices higher than the joint profit maximizing price.[27] Double marginalization can cause even greater harm to consumers than monopolization because the resulting retail price exceeds even the monopoly price and this leads to larger dead weight losses as well as larger transfer effects that are contrary to the interests of consumers.

23. Although mandatory vertical unbundling could in theory be used to force a refiner that is fully vertically integrated to sell all of its retail gasoline outlets, in practice, political pressure for mandatory vertical unbundling occurs when some retail outlets are vertically integrated with the refiner while others are owned or operated by independent entities.[28] Only when some or all retailers are not vertically integrated do disputes arise between refiners and retailer outlets over the size of retail margins relative to wholesale margins.

24. Despite the potential benefits of vertical integration from the refiner's perspective, there is no consensus, even among refiners, about the optimum vertical structure. One explanation is that gasoline retailing can involve significant effort and investment by the retailer that is difficult to monitor by the refiner.[29] This argument is probably strongest when the retailer offers complementary services at the same location. Historically, car repair services were commonly offered by gasoline retailers. More recently, sale of convenience foods has become common.[30] If retail effort and investment are significant elements in retail sales, making the retailer the residual claimant may be advantageous to the refiner as well as to the retailer.[31] A similar argument could be made regarding risk sharing. From an economic perspective, risk should generally be borne by the party best able to hedge it or respond to it effectively at the least cost.[32] Hence, if the forms of risk applicable to gasoline retailing are best dealt with by gasoline retailers, it would be efficient for these retailers to be residual claimants. These arguments could be raised, but they are not the central focus of advocates of mandatory vertical unbundling in the gasoline industry.

4. Potential horizontal and consumer welfare effects

25. The discussion to this point has focused on potential efficiencies of vertical integration and of the persistence of vertical supply contract disputes in the retail gasoline business. However, the effects of regulations pertaining to vertical integration and supply contracts might not be limited to the refiners and retail gasoline outlets that are directly involved or to vertical unbundling. There are several types of concerns that extend beyond the level and division of retail margins.

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27 Viscusi, Harrington, and Vernon (2005), pp. 238-241.

28 In this sense, advocates of mandatory vertical unbundling might not object to an exemption for refiners that already own and operate the stations that, in the aggregate, dispense all of the refiner's output.

29 New Zealand Institute of Economic Research (2005) reported that refiners cite this reason in explaining the variety of arrangements between refiners and gasoline retailers.

30 Some empirical research links repair services to independent outlets and vertical integration to sale of snack foods. Bello and Cavero (2008), Shepard (1993), Blass and Carlton (2001), for example. However, it could be that these patterns are a result of changes in preferred vertical relationships that coincide with shifts in preferred complementary services.

31 Blass and Carlton (2001).

32 Williamson (1975), Chapter 5, spearheaded the discussion of the fundamental concepts as they relate to vertical integration. For a more recent discussion, see Tetrel (2007).

4.1 Effects of other regulations and diversified retailers

26. One indirect effect of precluding mandatory vertical unbundling regulations could be adoption of other regulations as a substitute for mandatory vertical unbundling. Substitute laws and regulations would target behaviour of refiners that would be moot under a mandatory unbundling approach or under full vertical integration. Examples include laws forbidding price discrimination against independent franchisees, laws forbidding retail prices that are less than wholesale prices, laws requiring minimum mark-ups over wholesale prices, laws against predatory pricing of gasoline, laws preventing involuntary termination of franchisees, laws limiting the maximum duration of supply contracts, and laws restricting wholesale pricing zones or preventing refiners from restricting arbitrage by retailers between jobbers or between wholesale pricing zones.[33] The minimum pricing provisions are intended to prevent refiner-owned stations from driving independents out of business. The open supply provisions are intended to prevent price discrimination based on geographic location.[34] The effects of these substitutes on efficiency and consumer welfare might be more or less intensive than mandatory unbundling of retail outlets and could apply to horizontal and well as vertical practices.

27. One of the most detailed economic defences of gasoline retailing regulations is a report for the Petroleum Marketers Association of America prepared by economist David Kamerschen.[35] However, Kamerschen (2001) favours laws and regulation against below-cost selling rather than mandatory unbundling of retail outlets. He observes that mandatory unbundling eliminates a segment of competitors and, thereby, is likely to reduce the diversity of retail outlets and restrict competition.

28. Instead, Kamerschen (2001) focuses on the long-term benefits of diversity in gasoline retail outlets. He concludes that cross-subsidization is the real concern and that cross-subsidization by mass merchandisers is just as much of a threat to the diversity of gasoline retailers as is cross-subsidization by refiners. The former is not treated at all by mandatory vertical unbundling because retailers rather than refiners are responsible for this type of cross-subsidization. Kamerschen portrays loss-leader selling by mass merchandisers as predation with simultaneous recoupment and sees prohibitions of sales below cost as the most appropriate remedy. Because simultaneous recoupment might not be reliably recognized in antitrust cases, he fears that the antitrust prohibitions against predation are not sufficient to address the cross-subsidization issue in gasoline retailing.

29. But the weaknesses and drawbacks of laws and regulations against retail sales "below cost" are well documented.[36] Reduced prices for selected items can be a lower-cost alternative to conventional media advertising for grocery stores and mass merchandisers. Loss leader pricing can be an effective store draw because consumers are well acquainted with the quality and regular prices of this subset of items.[37] Gasoline can be one element of an array of effective loss leader products.[38] To a traditional gasoline retailer, use of discounts on gasoline as a substitute for advertising or other promotional activities looks like cross-subsidization by grocers and mass merchants. But the large retailer sees it as a one-stop shopping option that attracts customers who would then buy other products. Prohibiting its use for this purpose could

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33 Borenstein and Bushnell (2005).

34 Borenstein and Bushnell (2005).

35 Kamerschen (2001).

36 OECD (2005).

37 OECD (2005) and Hilke and Nelson (1991). Frequent purchase of these products acquaints customers with typical prices. The presense of the same brand(s) in all outlets allows customers to be assured of equivalent quality across outlets.

38 ACCC (2007).

force affected retailers to revert to more costly forms of promotion with resulting higher prices for their customers and less competitive pressure on other retailers.[39]

30. The possibility of prohibitions against loss-leader sales raises more general questions that policy makers might wish to consider about variations in retail margins on different items. For example, are consumers harmed or deceived when low margins on some items are used to attract them to a store? Is it qualitatively different for a mass merchandiser to sell gasoline at low retail margins to attract customers who might buy something else too, than it is for a gasoline retailer to sell fuel at low retail margins and then make higher margins on selling soft drinks and coffee to the customers attracted by the low gasoline prices?[40]

4.2 Effects on entry conditions

31. Another indirect effect of policies about vertical integration in gasoline retailing could be to change entry conditions at the retail level or the refining level. In a world where all incumbent gasoline stations are owned and operated by refiners, retail entry would require the endorsement of a refiner that agrees to supply the new retailer. Profitable coordination among refiners could centre around agreements to increase market power by reducing existing competition[41] or by eliminating entry at the retail level in support of a geographic allocation of territories, for example. Absence of unaffiliated retail outlets also could slow or discourage entry of new refiners because refinery entry would require concurrent retail entry – simultaneous entry at two stages of production rather than one.

32. Borenstein and Bushnell (2005)[42] summarize much of the considerable economic literature on vertical integration:

> *Vertical control is not necessarily always in consumers' interests. From research of the last 20 years, it has become increasingly clear that vertical integration or close control can be used in some circumstances to raise barriers to entry and reduce competition. In the best known examples, which are also widely accepted in antitrust analysis, vertical control can be used to deprive a competitor of access to some critical input. If entry into gasoline retailing is difficult, for instance, a refiner might integrate downstream in order to reduce the number of outlets that competing refiners (or importers) might have through which they could sell their product. Concern has indeed been expressed by some in the California gasoline market that the low number of unbranded stations makes entry of new gasoline suppliers (through imports from other regions) more difficult.*

33. There are also many theories of the interaction between vertical integration and collusion among producers, most suggesting that integration increases the stability of collusion. For instance, if two refiners wish to collude on price, but cannot easily monitor one another's wholesale prices, vertical integration in some situations can allow monitoring of retail prices (at much lower cost) to substitute for wholesale price

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39 OECD (2005).

40 In the U.K., for example, margins on gasoline sales in 2007 were roughly half as large at high volume gasoline retailers with a forecourt shop compared to fuel-only retailers with similar volumes of gasoline sales. "The profitability of a filling station is improved by a forecourt shop, which can help to offset lower margins on fuel." UKIPA (2008), Chart 8.6.

41 Nocke and White (2007).

42 Also see Hastings (2004).

monitoring. Clearly, these incentives for vertical integration or control may benefit firms, but harm consumers.[43]

34. Full vertical integration at the retail level could also have adverse effects on the evolution of gasoline retailing itself.[44] New forms of gasoline retailing could be retarded both in terms of origination and rate of diffusion if all or nearly all refiners sell only to affiliated retail outlets. Refiners with investments at risk in retailing might find it profitable to delay retail innovation by independent retailers for this reason. Arguably, the most prominent innovations in gasoline retailing at present are from grocery and big box general retailers. These firms sometimes operate at low or even negative margins in selling gasoline because they sell very large volumes (which results in low per unit overhead costs), use low gasoline prices as a store draw or because they rely on membership fees for their profit margins on gasoline as well as on all of the products that they sell.[45] Refiners that are not part of a general merchandising conglomerate are generally not in a position to compete on this basis in retail gasoline sales. One concern about high levels of vertical integration by refiners is that it might enable them to limit or prevent low-margin gasoline retailing by supermarkets and mass merchants, to protect the retail margins of refiner-owned retail outlets or in order to appease retailer groups with monopsony power. In many markets, gasoline retailing by grocery chains and mass merchants may be too well established for this threat to be plausible.

Box 2. Alliances between Supermarkets and Oil Refiners in Australia

'Shopper dockets,' where grocery customers at supermarkets receive a discount voucher for petrol purchases from particular petrol retailers, commenced in Australia in mid 1990s. Woolworths, one of Australia's two leading supermarket chains, entered into petrol retailing by establishing its own Petrol Plus brand. While any customers could buy petrol from a Petrol Plus outlet, customers who purchased more than $30 of groceries at Woolworths would also be eligible to receive a four cent per litre discount at Petrol Plus.

In October 1996, the Woolworths arrangement was cleared and welcomed by the Australian Competition and Consumer Commission (ACCC).

In May 2003, the Coles supermarket, Woolworth's largest competitor, and Shell, a major petroleum company, announced an alliance covering 584 Australian petrol stations. A key feature of the alliance was the bundling of petrol and groceries. Customers who purchased $30 or more at Coles supermarkets would receive a four cent per litre discount on petrol purchases from Shell.

The Shell/Coles alliance differed from the Woolworths/Petrol Plus scheme in that it combined a major supermarket chain with one of the four largest petrol players in Australia. The deal did not facilitate new entry into either petrol retailing or wholesaling, unlike Petrol Plus. Further, the bundling-aspect of the Shell/Coles alliance could not be justified on the basis of complementarities between the products. While a consumer's demand for groceries might be related to their purchase of petrol, there is no particular reason to expect that a Coles supermarket customer will gain any intrinsic value by also buying petrol from Shell. In addition, unlike the United Kingdom, there was little

43 Concerns about the effects of limited wholesale competition on adjustments to international oil prices at the retail level are part of this literature. For example, see Delpachitra (2002) regarding the case of New Zealand. The author concludes that retail prices do not follow changes in international oil prices because competition between refiners is weak. Entry at the refinery level would likely require government assistance in the author's view.

44 The general topic of the effects of vertical restraints on the evolution of retailing has been the focus of numerous articles by economist Robert Steiner. Steiner's work and related articles were the subject of a symposium special edition of the Antitrust Bulletin. See Harbour (2004).

45 COSTCO, a high-volume, low-price retailer, is an example. Boyle (2006)

development of co-located supermarkets and petrol outlets. While the alliance involves Coles taking over the management of Shell's retail petrol station network and establishing 'Coles Express' outlets at these stations, the discount vouchers would be provided by regular supermarkets, regardless of their proximity to a Shell retail outlet. Indeed, grocery purchases made at Coles Express located in a Shell petrol station were explicitly excluded from the discount scheme.

In August 2003, Woolworths responded to the Coles/Shell alliance by announcing plans for a joint-venture with Caltex to deliver similar bundled discounts for fuel and groceries. The Woolworths/Caltex agreement covered more than 450 retail petrol outlets across Australia.

The agreements between two of Australia's largest supermarket chains and two of the four major petrol companies created considerable consternation in their respective industries. The Service Stations Association has predicted that the bundling schemes could result in the closure of 3000 independent petrol stations. In November 2003, IGA, one of Australia's smaller supermarket chains, announced that it would be "offering customers discounts on their grocery bills for fuel bought at any service station." Although these schemes are relatively new, anecdotal evidence suggests that smaller supermarkets and petrol companies other than Shell and Caltex are suffering a loss of sales due to these shopper docket schemes. At the same time, it appears that the two schemes have largely 'canceled each other out' in terms of profit, simply leaving the unassociated supermarkets and petrol companies the losers.

One set of economists examining this type of vertical integration argue that these alliances between retail grocery chains and refiners can cause social welfare reductions through distortions in consumer behaviour as well as through reduction in long-term competition as entry barriers are raised.[46] However, the ACCC found that prices were lower because of the emergence of grocery retailers as gasoline retailers. The ACCC understands that the shopper docket discount schemes are considered by the supermarket chains to be promotional and marketing tools. It may be that the costs of the shopper docket discount schemes provided to petrol consumers represent a substitution of promotional expenditure by the grocery division of the supermarket chain.

Source: ACCC (2006).

35. Critics of this form of unbundling assume that independent retailers are benefiting from either increasing retail margins or retaining a high proportion of these margins. However, the retailers claim that mandatory vertical unbundling cuts litigation costs and other costs of contract disputes (both monetary and personal) by reducing the incentives and ability of refiners to engage in opportunistic behaviour. Disputes between retailers and refiners about vertical integration have persisted for decades without clear resolution, by legislation or otherwise. By contrast, disputes in the United States between soft drink bottlers and concentrate manufacturers, which resulted in industry-specific legislation against discrimination between independent and vertically integrated bottlers, was ultimately resolved by the concentrate manufactures buying up nearly all of the bottlers.[47] In the coal industry, where contracts between coal mines and generators have long been subjects of dispute, analysis suggests that contracting patterns are markedly different in different regions based on the vulnerability of coal mines or generators to opportunistic behaviour.[48]

36. In summary, there are potential procompetitive and anticompetitive theories to explain mandatory vertical unbundling in gasoline retailing. Often the only available means to resolve the issue is empirical evidence from various nations or regions within nations. However, this is one instance where the use of statistical inferences from natural markets can be supplemented with results from controlled experimental markets, as discussed in Box 3.

46 Summarized from Gans and King (2004) unless otherwise footnoted.

47 Saltzman, Levy, and Hilke (1999), Table III.5.

48 Tirole (1988), pp. 24-29.

Box 3. Evidence of Double Marginalisation in Economic Laboratory Gasoline Markets

Economists Cary Deck and Bart Wilson created and analyzed results for a series of experimental economics retail gasoline markets involving variations in the degree of vertical integration between retailers and refiners. The experimental setup focused on direct relationships between refiners and branded retail gasoline dealers and involved a geography for the experimental markets with two types of locations. One type of location was at the center of the territory, close to retailers with competing brands. The other type of location was a corner location in the territory where there were no other close-by retailers. There were four brands available in the markets and each brand had one station in a corner location and one station at the center.

The information conditions in the markets included access to all information on retail prices by all participants (retailers and refiners), but each retailer only knew the wholesale price offered by his or her refiner. The automated consumers had full retail price information, but no wholesale price information. Retailers could set station-specific prices in the initial scenario, but faced costs in serving each customer and in obtaining gasoline inventory to sell. Refiners obtained raw materials and processed them before selling the consumer-ready gasoline to retailers. Refiners could offer different prices to different retailers if they chose to do so. Refiners received revenues from sales to retailers that were offset by refining costs, including crude oil acquisition costs. Each consumer had the same maximum willingness to pay unless purchasing the consumer's preferred brand. In that case, the maximum willingness was slightly (about 10%) higher. There was a 20% probability that any particular consumer preferred one of the four brands and a 20% chance that the consumer had no brand preference. The maximum price included a consumer drive-time calculation. The consumers purchased from the retail outlet that provided the greatest consumer surplus.

Full vertical unbundling resulted in higher prices for consumers for nearly all transactions in the experimental markets. Average retail prices were 13.2% lower in the centre areas and 16.5% lower in the corner locations under the vertical integration scenario. The benefit to consumers from vertical integration stemmed from the elimination of double markups. The authors also found that vertical integration eliminated asymmetries in the way that retail prices respond to upward versus downward shocks in oil prices, but vertical integration increased the length of the adjustment lags.

The experimental design also examined the effects of zonal versus uniform pricing by refiners and other territorial pricing restrictions that are sometimes proposed as alternatives to mandatory vertical unbundling. In these experimental markets, zonal pricing definitely lowered retail prices in the central location, but did not appreciably change the prices for consumers in the corner locations. Further, under uniform wholesale pricing, there were lower incentives for consumers located near a corner to travel to the center to obtain lower gasoline prices. Hence, the results in these experimental markets indicated that uniform wholesale pricing is more profitable for retailers, but harmful to consumers. Zonal prices hurt the corner retailers because the refiners increase wholesale prices to capture more of the locational rents at isolated retailers.

Source: Deck and Wilson (2008) and (2004).

5. Experiences with vertical integration or unbundling

5.1 Argentina

37. Argentina provides an interesting example of an intermediate policy on mandatory vertical unbundling. Argentina limits the proportion of retail outlets that can be vertically integrated and limits the length of supply contracts. The latter is designed to address the concern about foreclosing entry of new refiners.

38. In 1991, the Argentine gasoline market was deregulated and restrictions on prices, refining capacity, location and quantity of retail outlets were eliminated. The gasoline market is highly concentrated with four firms accounting for more than 85% of the market. During the 1990s, observers complained the retail gasoline prices stayed high, despite dramatic decreases in oil prices. Economic studies during this

period resulted in contradictory findings.[49] In 2000, the new competition authority, the Secretariat of Consumer Affairs and Defence of Competition, made the following recommendations.

- limit the duration of contracts between oil companies and dealers that operate gasoline stations and

- establish a ceiling on vertical integration, measured as the percentage of the network of gasoline stations that an oil company (refiner) can own and operate.

39. These recommendations were reviewed by the President and he subsequently issued a decree that implemented them. Serebrisky (2003), reviewed the evidence developed by the agency in support of its recommendations. Because there was little evidence or experience with alternative structures and the structure of the refinery sector was highly concentrated (four-firm concentration = 85%) even after the government's privatization initiative, the agency relied to a considerable extent on international comparisons. Competitive concerns focused on the refining and retail sectors because there are several oil producers operating in Argentina as well as many sources of imported, market-ready motor fuel. The inquiries about the effectiveness of competition at the refinery and retail levels concentrated on structural indicators (as described above, adjusted to changes in international oil prices, and entry conditions). Argentine retail gasoline prices were static compared to those in the U.S. in the 1990s and adjustments to oil prices were shallower in the early years of the new millennium. For example, diesel fuel prices in Argentina were nearly flat in the 1990s, despite fluctuations of more than 40% in the U.S. In 2001, diesel prices in the U.S. fell by approximately 35% compared to less than 5% in Argentina. Competitive concerns also arose from comparisons of market-ready gasoline import prices with retail prices. Data for the 1994 to 2001 period showed a widely varying premium for domestically produced gasoline which is difficult to explain through a product differentiation or a nationalistic demand preference amongst Argentine consumers. Seberrisky concludes that this evidence indicates that Argentine retail gasoline is isolated from changes in gasoline price internationally. Serebrisky (2003) also found that until major currency disruptions in 2002, relative retail prices of different brands remained stagnant after 1995. During the 1995 to 1999 period, the average retail prices of the four major brands stayed in lockstep relationships to each other.

40. The investigation by the competition agency examined retail conditions because oil extraction was considered competitive and oil refining was as competitive as it was likely to become under the government's privatization efforts. The focus on retail competition led to inquiries about entry conditions, including opportunities for entry at the refinery stage of production. The agency found that entry or expansion of a small refinery likely would be difficult because, although there were many independent dealers, very few operated without very long supply contracts from the major incumbent refineries. Serebrisky (2003) suggests that the preponderance of dealer owned and operated retail gasoline outlets is due to the restrictions on refiners closely monitoring the work effort of their employees. He suggests that the principal/agent problem drives firms to use supply contracts instead of vertical integration in response to the principal/agent issues they face. The length of these relationships is, however, a separate decision. Serebrisky (2003) posited that long-term supply contracts serve the purpose of raising impediments against entry by new refineries. A refinery entrant needs access to a distribution network. The refiner could build this from scratch, but getting established retailers to switch suppliers could be faster, less risky, and less costly absent high switching costs. Long-term supply agreements with retailers can effectively preclude building distribution by getting retailers to switch.

41. Consistent with this concern, the competition agency found that refiners were moving decisively toward longer supply contracts in the later 1990s. In the early 1990s, supply contracts in excess of 14 years

[49] Serebrisky (2003).

accounted for about 22% of the contracts. In the late 1990s, supply contracts in excess of 14 years accounted for about 38% of the contracts. Considering that the Argentine gasoline markets were served by the same largest firm as those in Spain, the 1999 decision of the EU to set a maximum duration for retail gasoline supply agreements spurred the decision to make a similar recommendation in Argentina. The Argentine competition agency also considered the 1998 study of the U.K. Office of Fair Trading that found that the average duration of retail gasoline supply contracts was less than three years in the U.K. and that competition is driven by the entry into gasoline retailing by supermarkets and big box stores.

42. Argentina decided that its higher costs of capital warranted a longer contract period and it settled on eight years instead of five. The second recommendation, to limit the proportion of outlets that can be owned and operated by the refiners, was adopted as a fencing in provision to preclude refiners from all totally vertically integrating to create a barrier to future entry by a new refinery. The proportion that was adopted, 40%, may have derived from European statistics about the existing level of vertical integration, or it may have represented a compromise between retailers promoting mandatory vertical unbundling and refiners promoting unlimited vertical integration and contractual controls.

5.2 Australia

43. Australia recently removed restrictions on vertical integration of gasoline retailing, but gasoline retailers continue to be concerned about low retail margins at grocery and mass merchant gasoline outlines. The Australian gasoline markets are served by four oil refinery majors (Mobil, Shell, BP and Caltex) and a small group of competing independent retailers plus recent entrants, notably supermarket chains. For instance, as described in Box 3, the supermarket Woolworths entered Australian gasoline retailing markets in 1996 and built a national network of nearly 300 gasoline retail sites by 2003, but initially it had no alliance with a refiner. Subsequently, there have been a number of alliances between oil companies and supermarkets with gasoline retailing locations. For instance, Woolworths later partnered with Caltex, which was a response to the Coles/Shell gasoline retailing alliance strategy. The latter was initiated in 2003 and it aimed to extend a discount gasoline offer to customers nationwide at up to 450 service stations.[50] By 2006, supermarket alliances handled 40% of retail fuel sales. [51] Hundreds of supermarket shopper docket discounts were in place and consumers responded actively to these programs. With these large partnerships so widely accepted by consumers, the refiners have been less actively involved in operating their own retail outlets.[52] Approximately 5% of retail outlets are directly operated by refiners compared to 64% that are independently operated. As a result of the introduction into petroleum retailing of Coles Express and the Woolworths/Caltex joint venture in 2003 and 2004, there have been lower petrol prices for consumers. The ACCC examined retail prices in the five largest metropolitan areas over similar periods before and after Coles Express began operating in those areas. Relative to an independent benchmark (i.e. the ACCC's import parity indicator, which reflects movements in the Singapore price for refined petrol and the Australian/US dollar exchange rate), petrol prices were lower after the entry of Coles Express and the Woolworths/Caltex joint venture into the retail petrol market. The extent to which prices were lower varied with cities and time. It ranged from around 0.5 cents per litre to over 3.0 cents per litre.[53]

44. Independent retail outlets have expressed concern regarding these types of alliances. They are afraid that the discounts offered by the alliances, which sometimes involve retail prices that are below wholesale prices, would have the effect of forcing independents from the market, thus substantially reducing competition in the long-term. The competition authority, on the other hand, believes that the

50 Roarty and Barber (2004).

51 ACCC (2006).

52 BP is an exception because it has not partnered with any retail grocery chain.

53 ACCC (2006).

introduction of such schemes has encouraged competition and lowered prices in Australia's retail fuel markets.[54]

45. The business structures currently observed in the Australian retail markets largely reflect the operation of two pieces of recently repealed legislation:

- the Petroleum Retail Marketing Sites Act 1980 (the Sites Act), which placed a quota on the number of retail sites that the refiner-marketers could operate directly or on a commission agent basis.

- the Petroleum Retail Marketing Franchise Act 1980 (the Franchise Act), which specified minimum terms and conditions for franchise arrangements.

46. The Acts were passed to address an imbalance in market power between the oil majors on the one hand, and their commission agents, on the other hand. The latter alleged that the majors had abused their market power. The solution was to require the majors to adopt franchises at most of the sites they owned. To do this, the Sites Act set a quota for each refinery major. The Franchise Act, in turn, contained provisions that sought to secure the positions of franchisees and thus encourage the entry of small businesses into the retail petroleum markets.

47. Under the Downstream Petroleum Reform Package, the Sites Act and the Franchise Act were repealed and a mandatory code (the Oilcode) under the Trade Practices Act was introduced as a substitute. The Oilcode, among other things, provides wholesalers and fuel resellers with specific rights and obligations in relation to fuel reselling arrangements.[55]

5.3 Canada

48. Canada sets no legal restrictions on vertical integration. Retail gasoline markets in Canada have been the subject of several economic studies, including studies of the effects of fringe firms on retail prices and of changes in the structure of gasoline retailing. Examinations of retail pricing have provided some indications of coordinated behaviour between retailers.

49. According to Sen (2005), the structure of Canadian gasoline markets fits in a framework of dominant vertically integrated firms with a competitive fringe of independent retailers. In 1991, vertically integrated firms served 65% to 97% of the markets in the eleven Canadian cities analysed in this study. Sen used monthly data on average retail gasoline prices and individual market shares across eleven Canadian cities between 1991 and 1997 to examine the effects on prices of the competitive fringe and the efficiency of retailers. The author found that although an increase in the aggregate market share of smaller firms is positively, but insignificantly, correlated with trends in retail prices (because small retailers may be less efficient relative to larger vertically integrated retailers), these effects are outweighed by lower prices resulting from a dilution in market concentration (interpreted as less market power) among vertically integrated firms – which is also a result of the increase in aggregate market share of smaller firms. Specifically, a 1% point increase in the aggregate market share of smaller firms is associated with a 1.0091 cent per litre drop in average retail prices. The author concludes that policies that strengthen or protect smaller retail firms are likely to reduce retail prices on net.

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54 A less positive view of lower prices offered by supermarket gasoline retailers is presented in Gans and King (2004).

55 ACCC (2007) contains more details and updates.

50. Eckert and West (2005a) examined the consolidation of gasoline retailing in Canada. In particular, the number of outlets declined from 35,703 in 1970 to 23,952 in 1980, 22,000 in 1989, and 13,250 in 2000. The authors argue that this rationalisation process could have been triggered by new market conditions. They observe that many companies converted to a network with fewer stations but higher capacity stations with no service bays. The remaining stations typically have other features such as convenience stores and car washes. At the same time, the authors find that this rationalisation process is also consistent with the alternative explanation of tacit collusion. In a separate review of retail pricing in Vancouver, Eckert and West (2005b) find that pricing patterns are consistent with tacit collusion.

51. Eckert and West (2004) studied retail price behaviour in two Canadian cities: Ottawa and Vancouver. In Ottawa, casual empiricism suggests that retail gasoline prices are subject to significant price dispersion and volatility. Conversely, in Vancouver, casual empiricism suggests that prices tend to greater stability and uniformity. Using station-specific retail gasoline price data, they find that these patterns are consistent with an economic theory in which firms in Vancouver are tacitly colluding while firms in Ottawa are engaged in an ongoing battle for market share.

52. Two findings from antitrust enforcement actions in Canada are particularly noteworthy. First, there was a case of predatory pricing in the Chatham gasoline market. An independent retailer complained that a vertically integrated company, Pioneer, was charging wholesale prices above prevailing retail prices. Using daily prices for February and March, the Canadian Competition Bureau[56] found that there was no evidence to support these allegations because wholesale prices where above retail prices only one day in the whole period. Second, in June, 2008, the Competition Bureau announced criminal collusion charges against retail gasoline station operators in several areas of Quebec and stated that the evidence suggests that the overwhelming majority of gasoline retailers in these areas participated in the retail cartel.[57]

5.4 Japan

53. In Japan, the gasoline industry is highly divided between the stages in the gasoline chain of supply, so vertical integration between retailers and refiners has historically been less of a policy focus in Japan than in countries where vertical integration has been more widespread. In particular, exploration and pumping of crude oil historically has been separated from the refining and distribution stages. The origin of this structure dates back to the period after World War II, when the Petroleum Industry Law was enacted in order "to achieve a stable supply of oil by controlling downstream oil refining, effectively authorizing the separation of upstream and downstream operations."[58] Moreover, complete vertical integration does not occur between the refining and distribution stages because the gasoline stations owned by the oil companies are often managed by special agents[59] or retail firms.[60] The end to prohibitions against self-serve retailing in 1998 resulted in rapid conversion to that format along with new retail entry. However, some partnerships have been formed between refiners and grocery retailers who sell gasoline and consolidation at the exploration and refining stages has increased since 2000.[61]

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56 Competition Bureau (1999).

57 Canadian Competition Bureau (2008).

58 Kikkawa (2002). Also see Masaki (2006).

59 Special agents are distribution companies that operate gasoline retail outlets and often sell to retailers.

60 Oyama (1998).

61 Masaki (2006) and Hofman (2003).

5.5 Netherlands

54. The Netherlands has examined vertical integration issues in gasoline retailing, but decided not to intervene. In 2001, the competition authority suspected that the system of vertical agreements between oil companies and retail gasoline operators was undermining the incentive to compete. To address the problem, the authority considered the possibility of rescinding the European block exemption for vertical agreements. After carrying out further research and calling for the market players' opinions on this issue, the authority decided not to intervene because there was insufficient evidence that such an intervention would result in lower retail prices. It decided instead to monitor the sector closely.[62]

5.6 New Zealand

55. Rationalization of the retail gasoline industry has been going on for many years in New Zealand. According to New Zealand Institute of Economic Research (2005), the number of gasoline stations declined from more than 4,000 stations prior to 1976 to approximately 1,600 stations in 2002. Most of closures were low-volume independent retailers, and the refiners have bought up most of the higher-volume locations from independent dealers. Most new retail locations are owned by refiners. Consequently, the structure of the retail markets is becoming more vertically integrated.

56. The New Zealand Institute of Economic Research (2005) concluded that increased vertical integration of gasoline wholesaling and retailing is unlikely to waste resources or harm consumers unless it leads to increased barriers to entry. The last two major entrants in recent years have focused primarily on newly constructed, high volume sites, rather than existing independent stations. Vertical integration by wholesalers into retailing has resulted in efficiencies in stock management and distribution, and increased price and non-price competition.

5.7 Spain

57. Spain's retail gasoline sector has experienced a great deal of regulatory change and subsequent restructuring during the past 15 years. Recently, litigation has been used to revise terms of vertical contracting in the industry. Until 1992, the Spanish gasoline industry at the retail level was operated by a state monopoly, which was supplied by several private and public refiners. That year, the monopoly was split up and the retail network was divided among the refineries. However, the distribution activities continued to be a monopoly. In 1990, the government replaced price regulation with a system of price ceilings. They remained in force until 1998.

58. The restructuring of the oil sector resulted in a highly concentrated oligopoly at the retail level in Spain. Bello and Cavero summarize the structure of gasoline retailing, using contemporaneous press coverage, in this way:

> *In 1993, the Spanish-based refiners controlled about 85% of the 5,983 service stations: Repsol, 54.8%, Cepsa-Elf, 23.8%, and BP, 6.3%. The low density of the Spanish retail network, as compared to other European countries, and the consequent high throughput of the outlets encouraged the construction of new service stations. Since 1993, the number of service stations increased by more than 200 outlets per year to 8,155 in 2003, although the rate of growth has slowed down over the most recent period. From the early 1990s onwards, about 30 new operators entered the market, involving Petrogal, Agip, Esso, Shell, Avanti, outlets operated by large supermarkets, independent service stations, etc. Hence, between 1993 and 2003, the market share of the new operators increased from 15% to 30%. The Spanish-based refiners currently control about 70% of the service stations: Repsol-YPF, 43.8%; Cepsa-Elf, 18.7% and BP, 6.9%.*

62 Netherlands Competition Authority (2002) report, 2002 (http://www.nmanet.nl)

Virtually all (95%) of the service stations which are not owned and managed directly by an oil company are operated through exclusive selling contracts with their suppliers, which establish prices and the fees for the stations' operators (Cinco Días, 24/2/1997). In this respect, the Spanish gasoline markets are distinctly different from those in many countries, where vertical integration is much less prevalent and where suppliers do not fully control final retail prices.

59. Bello and Cavero (2008) analysed the structure of the markets and the degree of brand differentiation across Spain. The authors found that the prices in independent stations are lower than in branded ones and that this difference is more prominent when the stations belong to minor brands. Furthermore, the authors find that independent non-branded retailers compete more directly with branded vertically integrated retail outlets than with branded leased retail outlets, at least in the region of Navarra. The authors view this as confirmation of a double marginalization problem and as confirmation of product differentiation between brands. They conclude that vertical differentiation means that the best choice of contractual format (from the refiner's perspective) between refiners and branded stations is one that features some degree of double marginalization as this enables refineries to weaken price competition in the retail market. Bellow and Cavero (2002) find that branded stations offer a higher number of services aimed at consumers while independent stations offer more services regarding vehicle maintenance and repair.[63]

60. There have been antitrust cases in the sector regarding whether retailers are commissioned agents or independent retailers. The most prominent court decision characterized retailers as independent entities and subjects vertical supply agreements to additional vertical pricing regulations. In particular, there was an intervention by the Court for the Defense of Competition in Decision 490/00 y 501/00 REPSOL-CEPSA. The case involved two complaints against the main two national petroleum undertakings for restrictive agreements (Art.1 National Law and Art. 81 European Community Treaty) consisting of vertical fixing of prices to their retailers and for the violation of Commission Regulation 1983/84, which establishes the conditions for the categorical exemptions concerning certain exclusive purchasing agreements.

61. The Court for the Defence of Competition found that there was vertical fixing of prices because petrol stations are resellers rather than commissioned agents. The latter was the contention of both petroleum company defendants. The Court determined that the retailers incurred several commercial and financial risks. This determination requires that petroleum retailers be classified as independent entrepreneurs, making Articles 1 and 81 applicable. Concerning the extension of the supply contract time periods, the Court did not find that the firms committed fraudulent practices with the objective of lengthening contract terms excessively.[64] However, half of the members of the court in both cases dissented in whole or in part on this aspect. The Court imposed fines against both firms, but the levels have been criticized as not large enough.[65]

62. There was also a case pertaining to Spain's petroleum retailing markets brought by the European Commission.[66] This case resulted in a settlement under which gasoline supply contracts with retailers cannot exceed five years. The case is described in Box 4.

63 Overall, these results are in line with the findings by Shepard (1993) and Blass and Carlton (2001).

64 Spain (2001).

65 Lloreda and Sanz (2001).

66 Case COMP/B-1/38348 – Repsol CCP SA.

Box 4. EU Intervention in Spain to Limit the Duration of Retail Gasoline Supply Contracts

"The European Commission adopted a formal decision under EC Treaty competition rules which renders commitments entered into by REPSOL to open up its long term agreements with service stations legally binding. REPSOL will free hundreds of service stations from long-term exclusive supply contracts. This will bring a wider choice and scope for reduced prices to the benefit of the consumer. The Commission had been investigating whether REPSOL's supply contracts violated EC Treaty rules on restrictive business practices (Article 81) but has now closed its investigation in the light of the commitments submitted by REPSOL." European Commission (2006a).

"According to the contracts signed with Repsol CPP, land owners granted a "right in rem" for a long period (from 25 to 40 years) to Repsol CPP on their land or on their land and building: Repsol CPP would then finance the construction/refurbishment of the station, rent the station back to the owner and, for the duration of the "right in rem" be the exclusive supplier of motor fuel to the station." European Commission (2006b).

These contracts were a problem because of the high degree of vertical integration in the market:

"The Commission's investigation has shown that access to the market is rather difficult because of its structure and in particular the vertical integration of all operators. Exclusivity contracts signed between the operators and the remaining independent service stations tie these stations for long periods of time to the operators, thereby further hampering competition. The contracts signed by Repsol CPP, in particular the long-term contracts which were based on "rights in rem" owned by Repsol CPP (see above), particularly contribute to close off the market. This diminishes ultimately the pressure to reduce prices and improve quality, to the detriment of consumers." European Commission (2006b).

Source: European Commission Case COMP/B-1/38348 – Repsol CCP SA.

5.8 United Kingdom

63. The gasoline industry is one of the most investigated industries in the UK. It has experienced in the past 20 years, three Monopolies (and Mergers) Commission (MC, 1965; MMC, 1979, 1990) industry investigations, two investigations by the House of Commons Trade and Industry Select Committee (1988 a, b), and one enquiry by the Price Commission (1979 a, b, c). In each of the investigations since 1979, the various committees have found that there is nothing evident in the industry's conduct which is against the public interest. Driffard (1999), however presents less sanguine interpretation of short-run pricing dynamics and entry conditions in the UK gasoline industry.

64. There is not a high degree of vertical integration in the U.K., so that there are few issues regarding potential foreclosure.[67] Cook (1997) examined vertical integration in the U.K.'s gasoline and brewing industries. His conclusions, after review and analysis of public materials and interviews, parallel the conclusions of the Monopolies and Mergers Commission. The Commission found that vertical integration in the gasoline industry was largely driven by efforts to gain efficiencies that would benefit consumers.[68] No remedies were recommended.[69]

65. Like many countries, the entry of supermarkets as gasoline retailers is a major form of upheaval in U.K. retail gasoline markets. Between 1994 and 2007, the share of gasoline sold by supermarket

67 See for instance "Competition in the supply of petrol in the UK", A report by the Office of Fair Trading, (May 1998).

68 Also see Cook (1998).

69 In contrast, vertical integration is the brewing industry was found to be driven by market power incentives and warranted "radical" structural remedies.

gasoline retailers rose from less than 20% to over 40% in the U.K.[70] Shopper dockets are common in the UK, similar to the Australian shopper dockets described in Box 1.

5.9 United States

66. Industrial organization economists have conducted several empirical studies of retail gasoline vertical integration and vertical unbundling in the United States. This area of research has been attractive because individual states have adopted quite different policies toward vertical integration in this industry, yet many troubling variables required in international comparisons can be controlled for or have the same values across states. Many states have no laws or regulations about vertical integration aside from application of federal and state general antitrust laws. However, regulations requiring vertical unbundling of retail gasoline outlets have been in place in a few states for several years.[71] Research has focused on whether retail prices are different in the states with mandatory vertical unbundling, controlling for other factors that are likely to impact retail gasoline prices. Based on this literature, the U.S. Federal Trade Commission has filed comments opposed to mandatory vertical unbundling of retail gasoline outlets in several states.[72] Indeed, FTC staff economists have contributed to the literature on this topic.[73]

67. The literature on mandatory vertical unbundling of retail gasoline outlets in the United States is nearly unanimous in concluding that mandatory unbundling is associated with higher retail gasoline prices rather than lower prices. In a review of competition in petroleum refining and marketing, Moss (2007) examined four relatively recent studies of the effects of mandatory unbundling[74] and two studies of the effects of open supply requirements.[75] All but one of these studies employed empirical analyses. Moss concluded: "The search appears to show that forced deintegration of refiners and retailers is associated with higher costs and/or consumer prices." The summary table from Moss is reproduced below. The coefficients on the variables representing mandatory vertical unbundling show price increases due to this policy or two to five cents per gallon, roughly two to five percent of average prices at the time of the studies. Earlier studies reached similar conclusions.[76]

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70 UKPIA (2008).

71 Maryland was the first state to mandate vertical unbundling.

72 A recent example is U.S. FTC (2007). This is one of several competition advocacy comments filed on this subject.

73 Vita (2000) and Taylor, Kreisle, and Zimmerman (2007) are examples.

74 Spears (1991), Slade (1998), Blass and Carlton (1999), and Vita (2000).

75 Marvel (2003) and Barron, Taylor, and Umbeck (2004).

76 Barron and Umbeck (1984) reported increases of 1.7 cents to 5.3 cents per gallon for full-service and self-service retail gasoline outlets respectively. Shephard (1993) found prices 1.5 cents to nearly 10 cents lower per gallon at refiner-owned gasoline retail outlets.

Table 1. Results of Studies on Divorcement and Open Supply

Study authors, year	Results
Divorcement findings	
Spears (1991)*	Divorcement laws result in subsidisation of gaoline product middlemen, at the expense of consumers.
Slade (1998)	Divorcement is associated with high retail gasoline prices.
Blass and Carlton (1999)	Vertical integration is motivated by efficiency, not predation. Costs of divorcement are high.
Vita (2000)	Divorcement policies raise retail gasoline prices.
Open supply findings	
Marvel (2003)	Enforceable open supply requirements can increase inventory holding, protect against price volatility, and reduce gasoline transportation costs.
Barron, Taylor and Umbeck (2004)	Retail stations with the most sources of supply have higher retail prices.

*Based on non-empirical analysis

68. Most commentators have interpreted these finding as being directly contradictory to the claims of mandatory unbundling proponents. Rather than lowering risk and lowering costs and prices, mandatory unbundling leads to higher prices according to several empirical research papers. Commentators generally conclude from this line of research that consumers are harmed by mandatory vertical unbundling laws.

69. There are several potential qualifications that stand between finding a price increase associated with mandatory vertical unbundling and concluding that such unbundling harms consumers in retail gasoline markets. One qualification is that the price increase could represent refiners discontinuing predatory strategies because the mandatory vertical unbundling laws preclude recouping the losses from predation. Blass and Carlton (2001) seek to address this concern by examining whether the mix of vertical integration and vertical separation in states without rules against vertical integration can be explained by characteristics of retail gasoline outlets that accord with efficiency explanations for vertical integration and separation. In particular, the authors suggest that retail outlets that provide automobile repair services and have a low volume of gasoline sales are outlets where monitoring the effort of the operator is particularly difficult. From an efficiency viewpoint, refiners should find it more profitable not to vertically integrate these retail outlets. Conversely, monitoring should be easier with retail locations that do not offer repair services and that have a high sales volume. The actual pattern of lessee versus refiner-owned retail locations corresponds to these predictions, according to Blass and Carlton. Further, refiners tended to use a lessee arrangement when establishing new locations with associated repair services and relatively low sales volume. The authors contend that if refiners were focused on forcing lessees out of business through predation, the refiners would not be expected to establish more such relationships at new locations and vertical efficiency variables should not significantly explain the pattern of actual vertical relationships.

70. Another important caution in examining the available literature is its predominant reliance on gasoline prices as the only relevant measure of consumer welfare. There are some major drawbacks to focusing exclusively on retail prices as a measure of consumer benefits. The principal complication is the familiar possibility that there is a significant quality-of-service dimension that is important to consumer welfare and that is not represented by the retail price. It could be, for example, that consumers prefer a bundle that consists of better service along with higher prices rather than a bundle that consists of poorer service and lower prices. Quality of service in gasoline retailing could be broader than the cleanliness of restrooms or the smile on the attendants' faces. In particular, a reduction in the population of retail outlets could increase the effective price of gasoline by increasing both drive times to refuel and fuel used to

search for a retail gasoline outlet. These increases in consumer search and access costs could exceed the benefits of any lower prices at the pump that can be attributed to the consolidation of retail outlets.[77] Fewer and more dispersed retail gasoline outlets could also have indirect price effects by curbing customer search and, consequently, reducing the price elasticity of demand as described in a tourist trap model of consumer search behavior.[78] On the other hand, both Barron and Umbeck (1984) and Slade (1998) found that mandatory vertical unbundling led to fewer hours of operation by retailers rather than more hours of operation, one known measure of service quality.

6. Influence of independent retailers on prices

71. The economic literature on direct effects of mandatory unbundling of retail gasoline outlets generally suggests that the effect of these rules has been to raise retail prices. But other empirical work, focusing on potential indirect effects of these rules finds that retail gasoline prices in an area are appreciably lower if the market share of unbranded, independent gasoline outlets is higher. The study by Hastings (2004), for example,[79] examined the effect of differences in vertical contract types at retail gasoline outlets and found that vertical integration, at the expense of independent gasoline retail outlets, raised prices by five cents per gallon.[80] The context of the study was the purchase of a chain of independent gasoline retail sites by ARCO (a major petroleum refiner). The purchase resulted in substantial changes in the share of the market served by independents and branded stations and allowed an effective means to control for station-level and city-level variables that are often omitted in empirical research because they are difficult to identify or quantify. Hastings (2004) concluded:

> *Results indicate that a decrease in the market share of independent stations has a significant positive impact on local retail price. However, a change in the market share of refiner owned and operated branded stations does not have a significant impact on local market price. These results have important implications as policy makers consider the regulation of vertical contracts as a means to increase competition in gasoline markets. The research design and detailed data also allow for inference on the underlying nature of retail gasoline competition.*

72. The results reported by Hastings (2004) may not be the last word on these vertical effects in general or even in specific. For example, Taylor, Kreisel, and Zimmerman (2007) found much smaller effects, less than a tenth as great, while using a similar, but not identical data set, in an attempt to replicate Hastings' (2004) findings.

73. Borenstain and Bushnell (2005) concluded their advice to regulators in California:

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77 The significance of this factor will depend on individual consumer driving patterns and might be expected to be the most significant in rural areas where the density of retail outlets is already lower. Note that arguments that vertical integration is being undertaken for internal efficiency reasons and will reduce prices at the pump, as suggested in the report of the New Zealand Institute of Economic Research (2002) does not necessarily mean that vertical integration and associated consolidation benefits consumers are better off.

78 Carlton and Perloff (2005), Chapter 13.

79 Similar results are reported by Moss (2007) for Adymir and Buehler (2002), Hastings and Gilbert (2005). A controversy between the Federal Trade Commission and the Government Accountability Office in 2004 revolved around interpretation of ex post merger analyses in the retail gasoline industry. Moss (2007)

80 Gilbert and Hastings (2002) similarly report that both retail and wholesale prices rose by three cents or nearly so per gallon when the degree of vertical integration of retail outlets in an area is above the median level.

> *In sum, previous work has demonstrated the importance of independently owned stations that are not marketed under one of the major brands. The presence of unbranded stations lowers retail margins and likely lowers wholesale margins also. The impact of independent branded owners is much less clear, as is the impact of the distribution method. Yet it is the latter effect that is most likely to be impacted by a branded-open supply proposal. ... To date, there is much more empirical evidence on the efficiency enhancing aspects of vertical controls at the retail level. But it should be noted that because of data and other factors, it is much more difficult to estimate the impact of such policies on wholesale competition than it is on the retail prices at specific stations. ... [P]roposals to regulate vertical policies could likely produce unexpected side-effects. The banning of specific pricing practices or contractual arrangements, for example, could spur a move toward greater direct vertical integration or spawn a new set of contractual arrangements that prove more damaging than the practices they are replacing.*

74. Their conclusion about the lack of relationship between the salutary effects associated with a strong presence of independent non-branded retailers and proposals for branded-open supply regulations appears equally true of proposals for mandatory vertical unbundling. Faced with mandatory vertical unbundling, it seems unlikely that refiners would convert these outlets to unbranded independent retailers if the rise of such retailers will hurt them by intensifying competition generally.

75. Given the previous discussion of the potential negative relationship between vertical integration and independent, non-branded retail outlets, a potential conflict between direct and indirect effects of mandatory unbundling of retail gasoline outlets may be present. Unfortunately, the available economic literature does not appear to address this potential confounding of effects as definitively as policy makers might hope. Perhaps the closest approximations are Chouinard and Perloff (2007), Aydemir and Buehler (2003), and Sen (2005).

76. Chouinard and Perloff (2007) find that both retail and refinery mergers increase retail prices, but that prices are negatively related to the percent of retail outlets that are company operated and positively related to the percent of retail outlets that are lessee-operated. Hence, this research does not resolve the opposing concerns.

77. In contrast, Aydemir and Buehler (2003), focus on separating efficiency from foreclosure effects of vertical integration. In their empirical model, conduct and unknown cost parameters are inferred from the responsiveness of prices to changes in demand elasticities and various known cost parameters (instrumental variables). Their results are more nuanced than other research in this area. They find both efficiency and foreclosure effects, but the relative importance of the two varies greatly based on the regional position of specific firms. The efficiency incentive predominates for refiners with relatively small market shares in regions with relatively low concentration. The foreclosure incentives predominate for refiners with relatively large market shares in regions with relatively high concentration. While this result could help to improve understanding of the relationship between vertical integration and wholesale prices of individual refiners, it does not resolve the question of overall effects of vertical integration across all refiners or the question of retail effects on average.

78. Sen (2005) reports countervailing effects from a larger aggregate market share of independent retailers. On one hand, independents foster increased competition at the refinery level. On the other hand, independents foster higher retail margins. The former predominates in Sen's data, but this might not be the case in other locations or in other time periods.

7. Concluding Observations

79. There are several conflicting propositions about the effects of mandatory vertical unbundling and vertical integration more generally in gasoline markets. On the narrow question of mandatory vertical unbundling, empirical evidence generally supports the proposition that such laws and regulations are of little or no benefit to consumers. However, the general policy issue of vertical integration in gasoline retailing is more complicated. Principally, there is evidence that the newest strong force for competition in gasoline retailing is the presence of independent retailers selling unbranded gasoline. The counterpoint to the ill effects of mandatory vertical unbundling is that entry of novel independent retailers (often grocery retailers) could be impeded and incumbent independent non-branded retailers could be forced to exit if refiners predominantly vertically integrate and sell only to branded retailers.

80. Laws and regulations about vertical integration in this sector are only tangentially related to relevant competitive concerns. Instead, they are focused on recurring and vigorous contractual disputes between refiners and franchisees regarding price discrimination and opportunism. Supporters of vertical integration need to address the problems of contract enforcement resulting from opportunism. Proponents of mandatory unbundling should examine whether concerns about opportunism and cross-subsidization can be addressed under the general laws against abuse of dominance and unfair competition.

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