CT-2002-006

THE COMPETITION TRIBUNAL

IN THE MATTER OF *THE COMPETITION ACT*, R.S. 1985, c. C-34, as amended;

IN THE MATTER OF an application by the Commissioner of Competition pursuant to sections 79 and 77 of the *Competition Act*;

AND IN THE MATTER OF certain practices by Bibby Ste-Croix, a Division of Canada Pipe Company Ltd.

BETWEEN:

THE COMMISSIONER OF COMPETITION

Applicant

AND

CANADA PIPE COMPANY LTD./TUYAUTERIES CANADA LTÉE

Respondent

AFFIDAVIT OF THOMAS W. ROSS

I, **Thomas W. Ross**, of the District Municipality of Delta, in the Province of British Columbia, MAKE OATH AND SAY AS FOLLOWS:

1. I am the UPS Foundation Professor of Regulation and Competition Policy in the Sauder School of Business at the University of British Columbia.

2. I have been engaged in the study, writing about and teaching of economic issues relating to competition policy for over twenty years.

3. The Commissioner of Competition has asked for my opinion regarding the sale and supply of cast iron drain, waste and vent ("DWV") pipe and fittings and mechanical joint couplings ("MJ Couplings") used for DWV applications.

4. Attached as Exhibit "A" to this Affidavit is my Report and Opinion in respect of these questions.

5. Included in my Report at Appendix 1 is a detailed curriculum vitae setting out my consulting and academic background. At Appendix 2 to my Report are the References in support of my opinion, and at Appendix 3 is the Empirical Analysis underlying my conclusion.

Sworn before me at)
the City of Vancouver in)
the Province of British Columbia)
this 19th day of February, 2004.)
)
Karen Munro)
)
)

THOMAS W. ROSS

REPORT AND OPINION

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REPORT AND OPINION

PART I: Background and Qualifications

1. I am the UPS Foundation Professor of Regulation and Competition Policy in the Sauder School of Business at the University of British Columbia.

2. I have been engaged in the study of, writing about and teaching of economic issues relating to competition policy for over twenty years. A detailed CV setting out my academic and consulting background is attached as Appendix 1.

3. Academically, my background is:
   a) B.A. in Economics at the University of Western Ontario in 1977.
   b) M.A. (1979) and Ph.D. (1981) in Economics at the University of Pennsylvania.
   c) Post Doctoral Fellow at the University of Chicago 1981-84.
   d) Assistant and Associate Professor at Carlton University 1983-92.
   e) Associate Professor at the University of British Columbia from 1992 – 1996.
   f) Full Professor at UBC since 1996.
   g) UPS Foundation Professor of Regulation and Competition in the Faculty of Commerce and Business Administration (now the Sauder School of Business) UBC since 2000.
   h) I have published over 50 articles in economic journals, law reviews and books, of which at least 25 are in the area of competition policy.
   i) I served as a guest-editor of the journal *Review of Industrial Organization,* organizing a special issue devoted to Canadian competition policy.

4. For the last few years, I have taught a graduate-level course for the Economics Department at the University of British Columbia focussed largely on competition policy.

5. I spent the academic year 1990-91 as the first holder of the T.D. MacDonald Chair in Industrial Economics at the Competition Bureau (then called the Bureau of Competition Policy). This is a position set aside for a visiting academic to serve as a senior advisor to the Bureau with respect to general policy matters and selected cases. Since that time I have continued to provide advice to the Bureau on a host of matters including specific cases, legislative amendments and policy guidelines. I have also been retained by private sector clients on a number of occasions to provide advice on matters related to competition policy. I provide these consulting services now through my company, the Delta Economics Group Inc., of which I am the president.

6. I have appeared before the House of Commons Transport Committee and the Industry Committee on five occasions to discuss matters related to competition policy. Finally, I have appeared twice before the Competition Tribunal as an expert witness.

PART II: The Opinions Requested

7. The Commissioner of Competition has asked for my opinion regarding the sale and supply of cast iron drain, waste and vent ("DWV") pipe and fittings and mechanical joint couplings ("MJ Couplings") used for DWV applications (together referred to as "Relevant Products") as follows:

   a) Does the Bibby Ste-Croix ("Bibby") division of Canada Pipe Company Ltd. ("Canada Pipe") have market power with respect to the sale of the relevant products in Canada or any part of Canada?

   b) What are the competitive effects of Bibby's Stocking Distributor Program ("SDP") in the markets in which Bibby sells the relevant products?

PART III: Materials Relied Upon

8. In preparing my opinion I relied upon the following materials:

   a) The disclosure statements from the Commissioner and Bibby, and certain documents produced therewith.

   b) Articles listed in the body of this opinion and in Appendix 2.

   c) Statistics Canada data on building permits.

   d) Interviews with two industry participants.

PART IV: Statistical Tests

9. In rendering my opinion, my colleagues and I conducted statistical tests relevant to the issues. The results of these tests are referenced in the body of my opinion and in the appendices.

PART V: Opinion

10. It is my opinion:

a) that Bibby has market power in the relevant geographic and product markets; and

b) that Bibby's stocking distributor program[1] harms competition in the relevant markets, and preserves Bibby's market power by effectively deterring entry and limiting expansion by competitive foreign and domestic producers.

PART VI: Analysis – Market Power

Opinion

11. It is my opinion that Bibby has market power in the relevant geographic and product markets.

Section VI.1. Direct Evidence of Market Power

12. To establish that a firm -- in this case Bibby -- has market power in a relevant market, we can collect direct evidence of that market power in the form of high prices, margins or profits. Alternatively, we can look at what the Tribunal referred to in the *NutraSweet*

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[1] To be clear, when I refer to Bibby's SDP or "loyalty program" I include Bibby's preferential multipliers for stocking distributors as well as its various quarterly and annual rebate components. The stocking distributor program is discussed in many documents. For example, it is described in CONFIDENTIAL this way:

CONFIDENTIAL

case as "indicators of market power such as market share and entry barriers".[2] Difficulties in collecting and evaluating the direct evidence has made the evaluation of such indicators the most common approach.

13. However, in this case I think there is some interesting direct information on margins and prices that can be used to provide further confidence in the conclusion that Bibby does indeed have market power in relevant markets.[3]

14. While I will treat the question of the relevant geographic markets more completely below with respect to indirect evidence of market power and market definition, the very significant differences in price levels for identical products across the country is one indication that Bibby is not pricing at competitive levels (in at least the higher price regions). This would not necessarily be true if the higher price regions were associated with higher costs, perhaps for transportation, but the information I have seen does not suggest this is the explanation.

15. Most strikingly, when we compare Bibby's prices in B.C. to the prices for the same products in Quebec (where most of them are made and transportation costs would be minimized) we find that, generally, prices are lower (sometimes much lower) in B.C. despite the greater distance from the production facilities. In the following analysis I will focus on prices and sales of the three leading (by sales) pipe, fitting and coupling products. The shares that these products represent of all of Bibby's sales of pipe, fittings and MJ couplings is reported in Section 1.1 of Appendix 3.

16. The ratios of "final" prices of the leading (by sales) pipe, fitting and MJ couplings products between B.C. and Quebec and between Ontario and Quebec are graphed in Section 1.2 of Appendix 3. Final prices are the effective prices paid by stocking distributors; specifically they are the list prices, discounted by the relevant multiplier and then again by the relevant annual and quarterly rebates.[4] For some months, the prices in B.C. and Ontario are seen to be much lower (30% and more lower) than prices for the

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[2] The Tribunal recognized this in its *NutraSweet* decision, in which it accepted that the "substantially or completely control" condition of Section 79 was synonymous with "market power" which it explained was "an ability to set prices above competitive levels for a considerable period." The Tribunal further explained that to determine whether market power exists "one must ordinarily look to indicators of market power such as market share and entry barriers." *Canada (Director of Investigation and Research) v. NutraSweet Co.* (1990), 32 C.P.R. (3d) 1 (Comp. Trib.). See also Trebilcock et al [2002, pp. 508-511] who explain that market share and barriers to entry have been the central considerations in the determination of "control" in Tribunal decisions under Section 79.

[3] As pointed out by Salop [2000, p. 200], if it is determined from direct evidence that a particular restraint has resulted in prices higher than would be observed under the relevant competitive benchmark, a separate test of market power (including the process of market definition) is redundant.

[4] We did not reduce prices by the advertising allowance, in part because this could be more of a fee for service than a true rebate.

same products in Quebec. Under such circumstances it is hard to see how prices, particularly in Quebec, can be at competitive levels.

17. Combining these final prices with Bibby's own data on product costs, it would appear that Bibby in general earns margins high enough to permit it to cut prices significantly while still covering unit costs (at least costs as they report them). We have calculated margins for three pipe products and three fittings products in each of the six Bibby pricing regions for the months from January 1998 to September 2003.[5] The results of these calculations are provided in Section 1.3 of Appendix 3. The tables report both Gross Profit Margins and Contribution Margins.[6] The Contribution Margins are essentially mark-ups over variable cost per unit expressed as a fraction of price. The Gross Profit Margins are smaller because they employ a cost number that includes some amount of non-variable costs.

18. Section 1.3 of Appendix 3 also provides tabular and graphical summaries of the results on the Gross Profit Margins. For the three pipe products (CONFIDENTIAL) the large majority of margin observations fell in the CONFIDENTIAL% range, with Alberta and B.C. often a bit lower. The fittings margins (for which there are fewer observations) are somewhat more varied with many concentrated in the CONFIDENTIAL% range. Again, B.C. and Alberta have a number of observations much lower than this, apparently due to Bibby's response to the threat posed by imports into the western markets (more on this later in this affidavit). Based as they are on lower costs, the Contribution Margins are understandably even higher.

19. Without a detailed understanding of how the costs were calculated in the Bibby data it is hard to determine the extent to which these margins represent the exercise of market power. If the unit costs approximate marginal costs these data constitute evidence that the markets are not perfectly competitive. However, even that would not allow us to conclude that Bibby was making positive economic profits because the extra revenues (beyond marginal costs) might be necessary to cover fixed costs.[7]

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[5] The margin for product i at time t is defined as: $margin_{it} = [price_{it} - unit\ cost_{it}] / price_{it}$. Cost data were not available for MJ couplings in the same level of detail and I was concerned that the coupling cost data could represent internal transfer prices (between Bibby and its parent) that may not be fully reflective of true production costs. For these reasons we did not make use of the couplings cost data. We did not fill in any of missing data here – all the margins reported involve prices for which we had the data that month.

[6] The cost data used in these margin calculations come from Bibby and it is difficult to be sure what exactly they contain. The Gross Profit Margin would appear to employ a cost measure that includes some fixed as well as all variable costs attributable to the products. Multiplying this cost number by the proportion reported (by Bibby) to be "variable" we created a variable cost per unit which was used in the Contribution Margin calculations.

[7] While making these comparisons is always somewhat tricky because of different approaches to measuring costs, it might be worth noting that according to the Financial Post Industry Reports, the overall Operating Margin of the five companies included in its Building Materials group ranged between 15.03% and 16.89% from 1996 to 2002.

20. That said, there are some other places we can look for evidence that prices are currently above competitive levels. First, we can learn something from the landed price of imports. Let us make the following two assumptions: (i) the landed prices of imports reflect their full opportunity costs (i.e. they are not being priced artificially low to create a market here in Canada); and (ii) imports are of comparable quality to Bibby's products. If these assumptions are reasonable, the landed price of imports could be seen to serve as a sort of benchmark of the likely costs to Bibby. Indeed, they may actually be an overestimate. If they were significantly less than Bibby's costs, the profitable strategy for Bibby would have been to import itself. It appears that imports may be between 30 and 50% less expensive than Bibby's products, which roughly corresponds to the magnitude of the mark-ups measured above.

21. We can also learn something from Bibby's price cutting in response to the entry of imports in B.C. and Alberta and to the entry of Vandem in Ontario. It is possible that these price cuts were predatory, below-cost prices but I have seen no indication of this. If the price cuts did not lead to prices below cost, they demonstrate that pre-entry prices may indeed have been supra-competitive, reflecting market power.

22. Simple inspection of the price graphs in Section 1.4 of Appendix 3 suggests that imports (up to about mid-1999 and after early 2002) may have had some downward effect on Bibby's prices in B.C. and Alberta and that the entry of Vandem (in the summer or early fall of 1999) may have led to lower prices in Ontario. These graphs present the final prices for the three leading pipe, fitting and coupling products from January 1998 to September 2003.

23. To explore the question of whether the entry of imports had an effect on Bibby's prices in B.C. and Alberta and whether the entry of Vandem had an effect on Bibby's prices in Ontario, we performed some very simple regression experiments. Our purpose is not to measure in the most precise way possible the absolute magnitude of the price effects (though we will certainly have estimates of this) but rather just to demonstrate whether or not there were statistically and economically significant effects on prices. A much more detailed analysis could be conducted with these and additional data that would be able to further refine the estimates we provide below.[8]

The Operating Margin used in this report does include at least some selling, administration and general expenses. The URL for these Financial Post data: http://financialpost.infomart.ca/doc/doc_display.php?key=fp|fpir|23

[8] There were many cases in which prices for products were not reported in all months in the Bibby data. To fill in these missing observations for the purposes of the statistical tests conducted with respect to the effects of imports and the entry of Vandem and reported in Appendix 3, we assumed that if a price was not reported in a particular month it was unchanged from the previous month. Because this rule does not allow us to fill in missing prices at the beginning of the data set and we did not want to use any less conservative approach to deal with that problem, we begin our data set in July 1998, by which time we have observed prices for all the products we analyze.

24. To determine whether the withdrawal of imports from the B.C. and Alberta markets after Westburne agreed to buy from Bibby in 1999 (rather than import) had a significant effect on Bibby's final prices in these provinces, we estimated a number of regressions looking for the effects of imports in BC and Alberta on prices for the leading products. It was not absolutely clear to us what periods we should use to represent the periods in which imports were a significant threat to Bibby, so we worked with three "Import Effects". "Import Effect 1" assumes that imports were significant on and before September 1999 and on and after February 2002; not otherwise. "Import Effect 2" assumes they were important on and before May 1999 and on and after February 2002; and not otherwise. Finally, "Import Effect 3" assumes they were important on and before August 1999 and on and after February 2002; and not otherwise.[9]

25. The regression results are reported in Section 1.5 of Appendix 3 in which the dependent variables are the logarithms of final prices for the relevant products in the relevant province. An "Imports" dummy variable is used to indicate months in which imports were a factor. In the period for which we have data (January 1998 to September 2003), imports were a factor from the start, so in the early imports period the dummy variable is always 1. When imports became a factor again later in the sample period we phased in the dummy variable, on the belief that the full effects of the resumption of imports will not be perceived right away. Thus we gave the import variable the value of 0.33 for the first month, 0.67 for the second month and finally a value of 1 for remaining months. The other variables in this regression are a constant term, the logarithm of the unit cost of the product and quarterly dummy variables (to control for seasonal effects). The table in Section 1.5 reports only on the results directly relevant to this analysis, though complete results are available upon request.

26. It is clear from these results that imports have reduced prices in both B.C. and Alberta. For example the price decrease attributable to the presence of imports of the three pipe products in B.C. ranges from about 14% to over 24% depending on the pipe and the import variable used. The effect in Alberta was to lower prices about 15% to 22%. These estimated effects are all statistically very significant (with p values rounded to 0.000). The regressions do a reasonable job of explaining the variance of the dependent variable with R-squared statistics usually over 0.5. The effects on coupling prices in B.C. are even larger with estimated price reductions ranging about 25%-30%. Coupling price reductions are much lower in Alberta (12%-16%) but are still statistically significant. The fittings regressions fit less well for B.C. (i.e. lower R-squared values) however the import effect is still statistically significant (to the 5% level or better) in both provinces.

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[9] Bibby and Westburne came to an agreement in June 1999 but Westburne still had some imported material on order. By August 1999 most of this product had arrived. In June, Bibby internally announced a price increase of 27% for Western Canada to be phased in over several months. (BIB 5700). In July it determined that the price increase would be phased in over 4-6 months, rather than 18 months. (BIB 5701). The first price increase went into effect in B.C. in September 1999. (BIB 5703).

These results imply price reductions of 7% to 20% in B.C. and between 14% and 29% in Alberta.

27. With respect to the effects of Vandem's competition in Ontario, we looked for changes in Bibby's final pricing in that province around the following dates: (i) between July and August 1999; and (ii) between September and October 1999.[10] The results are reported in Section 1.6 of Appendix 3. Here again the dependent variables in the regressions are the logarithms of the final prices of the various products. In addition to the inclusion of a dummy variable (phased in over three months as above) for the presence of Vandem, the regressions include as explanatory variables the logarithms of product costs and quarterly dummy variables. Again, only the results on the variables of direct interest are reported here.

28. These results again illustrate how competition can lead to lower prices. Depending on the particular pipe product chosen and on the exact dates used to define the entry of Vandem, Bibby's pipe prices after the entry fell between 11% and 22%. Its fitting prices fell between 14% and 28%. Interestingly, for MJ couplings – which Vandem does not produce – Bibby's prices may have risen after Vandem's entry by between about 2% and 4%. Every one of these pipe and fitting regression results is statistically significant while some of the coupling regression results are not. The regression R-squared values for pipe and fittings range from about 0.5 to 0.9.

29. Once again, I want to stress that these regressions should not be viewed as the last word in the measurement of the effects of entry on prices. Our purpose was to use relatively straightforward and well-known techniques to measure the effects that were visible in the graphs. More elaborate analyses would permit the estimation of these price effects with greater precision if that were viewed as worthwhile.

30. There is some evidence of market power in this price-cutting. Since we would not normally expect a non-predatory response to involve prices below marginal costs, the price cuts indicate that prices may have been well above marginal costs before entry.[11]

31. Summarizing, there is a significant amount of direct evidence that Bibby has market power in the relevant markets coming from: (i) the presence of high margins; (ii) prices substantially above the levels at which imported product can be supplied; and (iii) evidence that prices are much lower in regions with competition.

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[10] In August 1999 Vandem was making sales calls and shipping product (VAI00044S). In October 1999, Bibby is aware that Vandem is getting contracts from smaller contractors (BIB 5704). In August and September of 1999 there is a lot of monitoring of Vandem by Bibby (BIB 2312 and 2331).

[11] If the firm had a rising marginal cost curve and produced less after entry, a price reduction would be consistent with more competitive pricing.

Section VI.2. Indirect Evidence of Market Power

VI.2.1. Definition of Markets – General

32. As explained above, to establish that a firm has market power in a relevant market we most often look for evidence of a large market share protected by significant barriers to entry. Evidence that there had been little or no sustained, successful entry in recent years would add to our confidence that the barriers are high enough to protect the incumbent firm(s). In the relevant markets of concern here, no entry has been particularly successful over the last several years. While imports have made inroads periodically, they have been met by aggressive responses from Bibby, and Bibby's market share remains very high. Similarly, Vandem has been trying to establish itself as a largely domestic competitor, but has had considerable difficulty.

33. The first step toward measuring market shares is to define the geographic and product dimensions of the market. A very important point to remember in defining markets in this case, is that we are dealing with a firm that may be dominant in some or all of its markets. If supported by the evidence, as I believe it is, this would imply that the firm would have market power now. Thus, while its loyalty program might be determined to represent exclusive dealing reviewable under Section 77(2) of the *Act*, this dominance would also make review under the abuse of dominance provisions of Section 79 appropriate.

34. In an abuse case we must be careful to recognize that "market definition and market power should be evaluated in the context of the alleged anticompetitive conduct and effect" (Salop [2000, p. 191]). Thus, for example, we must compare the price we observe with the alleged anticompetitive conduct or restraint, to the proper competitive benchmark – in this case the price that we would expect to observe absent that conduct or restraint.

35. Specifically, in dealing with a case in which a firm currently holds market power, we must avoid the cellophane trap.[12] This is not a case in which we believe that some future action (e.g. a merger) will enhance market power. On the contrary we believe there may be market power that is currently being exercised and that Bibby's actions may be preserving and entrenching that power. As a consequence, we should not be surprised if

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[12] From the famous cellophane case: *U.S. v. E. I. du Pont de Nemours & Co.*, 351 U.S. 377. See, for example, Church and Ware [2000, pp. 617-18]. I use the term cellophane trap more broadly than Salop [2000] who identifies a number of potential "traps" that can arise, two of which are relevant to this matter: (i) the cellophane trap under which we incorrectly define product markets to include products that have only become substitutes because of the high prices charged by the dominant firm, and; (ii) what he calls the "price-up trap" – that is the trap of "mistaking a firm's inability to profitably raise price above the current level for an inability to exercise market power by preventing competitors' conduct that otherwise would reduce price below the current level." (p. 194). Competitive entry would be an important example of "competitor's conduct" as referred to by Salop.

we find that, at current prices, there are products competing on at least some margins with Bibby's products. Indeed, if this was not the case Bibby should be raising its prices further. Even a monopolist will continue to raise price until demand for its product becomes elastic, at least to some degree.

36. The relevant consideration then, if we want to establish that a firm has market power, is whether effective substitutes would exist at competitive prices. We should not be fooled by the presence of substitutes at current prices.

VI.2.1.1. Geographic Market

37. On the geographic market front, there would appear to be a lot of data telling us that there is not one single price across Canada. Indeed, Bibby acknowledges having six pricing zones and even some price variance within zones. While recognizing that concentration levels and the potential for anticompetitive effects will be similar in all zones, at this point I would argue that the relevant geographic markets are smaller than Canada. Using Bibby's six zones might be a useful place to start. Of course, it could be the case that markets are even more local than provincial/regional. This would be supported by evidence that prices are frequently different in different communities within a province. While there may have been some of this, my reading of the documents suggests that Bibby's prices were generally the same across a zone.[13]

38. Even a casual study of Bibby's prices over time and across regions suggests that price movements are at least somewhat independent across regions. Again, some of these price series are illustrated in Appendix 3 (Section 1.4) which graphs final prices for Bibby's three leading pipe, coupling and fitting products from the beginning of 1998 to September 2003. It seems clear that B.C. (and Alberta) has distinct characteristics – probably related to the greater availability of imports from Asia. In addition, prices seemed to move significantly downward in Ontario after the entry of Vandem into that market, providing further evidence that markets are not national.

39. The statistical work described below is also consistent with an interpretation that there are different geographic markets across Canada.

40. There remains the interesting question of the importance of the Canada-U.S. border. In principle, we might imagine that, for example, the B.C. market might also include the American Pacific Northwest. However, we see that there is very little movement of product across the border through most of the period studied here, with the exception of

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[13] There are a few references in the documents to some prices being specific to certain cities at certain times, but I did not see enough to convince me that as a general rule prices varied by city within regions.

the intra-firm movement of MJ couplings by Bibby's parent.[14] I note as well that Charlotte Pipe and Foundry Company looked closely at entering the Canadian market and then decided not to proceed. If the Americans are not part of the market at current prices, it is difficult to see how we would include them in the market defined around lower competitive prices.[15]

VI.2.1.2. Product Market

41. For the purposes of this affidavit I have been instructed to assume that there are significant applications for which the alternatives to cast iron DWV products are not close substitutes. For this reason then, I am assuming that DWV products not made of cast iron are excluded from the relevant product market.

42. The evidence presented above regarding the market power currently held by Bibby with respect to its sales of the relevant products is consistent with this assumption. In order for Bibby to have market power, it must be the case that Bibby's products do not have very close substitutes.

43. The other product market question is whether the three cast iron products (pipe, fittings, MJ couplings) represent one market, two markets (e.g. pipe + fittings in one and MJ couplings in the other)[16] or three markets. When products are sold by a single seller and are used together in certain combinations it is often not unreasonable to treat them as a single package and therefore as one good for market definition purposes.

44. Similarly, when a set of products constitutes a "product line" in which the products, while different and not necessarily used together, are nevertheless subject to the same market pressures, we may view the full line as a product. Thus, the mergers of hospitals in the U.S. has often raised concerns over the effects on the prices of a line of services provided by those hospitals. In my view, this is not because economic theory says it should be so,[17] but rather because it is convenient. Rather than deal with all the hundreds of

[14] It may well be that there have been additional intra-firm flows of product between Bibby and its American parent, but I have not seen evidence of this.

[15] It is also noteworthy that after Asian imports retreated from the B.C. market, potential competition from the U.S. did not stop prices from rising in B.C.

[16] For reasons why pipe and fittings could be in the same market, but one different from MJ couplings, see paragraph 45.

[17] For example, the hypothetical monopolist test would not lead us to combine them together – they are complements, not substitute products.

medical procedures as separate services, since the merger will affect (or not affect) all of them at once, it is convenient to treat them as a package.

45. Both of these considerations suggest that we might want to treat the three categories as one product, but we should be careful. To the extent that demand or cost characteristics, or competitive conditions operate differently on these products, their prices could move independently. In this case the Bibby loyalty program could have a larger effect on some than on others. There is some reason to believe that the products are affected by somewhat different forces. Three points come to mind here. First, MJ couplings do seem to be a somewhat different product from a manufacturing perspective and so will be affected by different cost considerations. It could also be (and this seems to be true) that different firms could supply MJ couplings than could supply pipe and fittings. Second, there is evidence that imports may be more feasible for some products than others – in this regard I think it was MJ couplings that had not been imported successfully to any significant degree (except from the U.S.). Third, there is evidence that to some extent the set of producers and importers of the three products are different.

46. Certain statistical tests can be useful for determining whether or not two products or two geographic areas are in the same relevant market. These techniques require some description, to which I turn below. Here I simply note that this statistical evidence is consistent with the three products being in separate markets.

47. If the products are in fact in separate markets, there is a danger in mistakenly concluding that they are in the same market, even when market shares are equally high in either case. To the extent that a loyalty program such as Bibby's compels or induces buyers to buy all of their needs of all products from the incumbent producer this could represent a form of tied selling or full-line forcing which deserves attention. If we incorrectly conclude that these complementary products are in the same relevant market, we have essentially ruled out the possibility of investigating these potentially anticompetitive practices.

48. For these reasons, I feel most comfortable treating cast iron pipe, fittings and their associated MJ couplings as three separate markets.[18] Of course, the concentration of all of these markets is very high and Bibby is the dominant firm in each.

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[18] Of course we must recognize that even this approach lumps together products into groups. For example, there are many different pipe products combined into the pipe product market.

VI.2.2 Definition of Markets – Statistical Analysis

VI.2.2.1 Empirical Techniques

49. A number of statistical techniques have been developed to assist in the determination of the product and geographic dimensions of markets.[19] We have applied a number of these tests to the data provided on Bibby's prices from the beginning of the stocking distributor program. These tests include correlation analysis, cointegration analysis and Granger Causality tests. All of these tests can be, and were, applied to both geographic and product market definition questions. I will briefly describe these techniques, then proceed to discuss the results of our tests, first with respect to geographic market definition, then with respect to product market definition.

50. The simplest approach is to look at the statistical correlations between prices.[20] If two products or geographic areas are in the same market we might expect their prices to be highly (statistically) correlated. But there are problems associated with using simple correlations for market definition, among them:

(i) Correlation coefficients can range from -1 to +1 and there is no generally accepted cut-off that we can use as defining when correlations are "great enough" to consider the two prices as coming from the same market.

(ii) Two prices may be correlated for reasons other than that they are in the same market – that is, the correlation could be "spurious". For example, the correlation could be caused by some common shock to costs that leads the prices to move in the same direction.[21] We would expect this to be common in fact when it comes to geographic markets for products that are functionally equivalent. While transportation costs could prevent arbitrage between markets, there will be many common components of costs and it will not be unusual to see prices moving in similar patterns in markets that are clearly geographically distinct.

(iii) Two prices may be uncorrelated and yet they could come from the same market. This is most easily seen when prices move together but not instantly (i.e. long-run

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[19] A useful introduction to these techniques can be found in Part II of Office of Fair Trading [1999].

[20] See, for example, Stigler and Sherwin [1985].

[21] For example, if the world price of oil goes through a volatile period, we will likely observe correlated price movements between a number of products (e.g. petroleum, some other chemical products, electricity in some markets) that use oil as in important input.

correlation). Traditional correlation measures look only for contemporaneous correlation – correlations between prices in the same period. But in many markets it can be the case that price movements in one location (or of one product) will be followed by price adjustments in another place (or of another product) but with a short lag. The result could be that two locations (or products) that are clearly in the same relevant market for antitrust purposes will show relatively limited contemporaneous correlation.[22]

51. Despite these limitations, it is common to examine simple correlations for evidence that two prices represent products or locations in the same relevant market. Often it is the prices themselves that are correlated, but it is common to also test for correlations in the logarithms of prices and also in changes in prices and/or changes in the logarithms of prices.

52. Because of concerns about the adequacy of correlation tests for market definition, some more refined econometric techniques have been applied to the task of determining whether two price series come from the same market.[23] Employing two of these techniques we have conducted some additional tests.[24]

53. Cointegration tests look to see if two series might be related in the long run. The two series x_t and y_t are said to be cointegrated if two conditions hold: (a) both the time series x_t and y_t are non-stationary but become stationary on first differencing;[25] and (b) there is some linear combination of x_t and y_t that is stationary.[26]

54. Another technique used to determine whether or not two areas or products are in the same market employs the concept and methods of Granger Causality.[27] If two areas (or two products) form part of the same relevant market we would expect that a disturbance in one would spill over into the other. Although the effect might not be exactly contemporaneous (and therefore not show up in simple correlations) the two areas may be nonetheless connected to the point of being in the same relevant market. Roughly speaking in typical applications, a variable x is said to "Granger cause" another variable y

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[22] Werden and Froeb [1993] have another example in which two products clearly in the same relevant market would show little price correlation.

[23] Hamilton [1994] is a classic reference on time series econometrics.

[24] All of the statistical and econometric work done here was conducted using the Stata statistical package.

[25] In general terms, a series is stationary if it "tends to return to its mean value and fluctuate around it in a more or less constant range" (Harris [1995, p. 15]).

[26] On cointegration, see also Thomas [1997, Chapter 15].

[27] Granger [1969]. For an antitrust application, see Slade [1986].

if past values of x are helpful, in addition to past values of y, in predicting future values of y. If it can be shown that x "Granger causes" y and that y "Granger causes" x, we have evidence that the series x and y are related.

55. In conducting the following tests we have used the prices paid by stocking distributors, since the vast majority of Bibby's sales are at those prices.[28] To get these prices we begin with the net prices by region which are defined as Bibby's list prices multiplied by the multiplier relevant for that region and time. To confirm that these net prices are representative of the actual transaction prices (before rebates) we also calculated "average transaction prices" for individual products by dividing the dollar sales of those products by the quantities sold in a particular month and region. These average transaction prices were typically very close to the net price calculated as above, giving us confidence that the net price is the relevant price before rebates.[29] These ratios and their standard errors are reported in Section 2.1 of Appendix 3. Finally, the net prices are then adjusted downward by all the relevant rebates available to a stocking distributor in that region at that time. This gives us the "final price" that we use in the tests that follow.

VI.2.2.2 Geographic Markets

56. Using these Bibby data, we have looked at some of the price correlations across regions to determine how closely prices in one region track those in other regions.[30] The results of the correlation analysis for some of Bibby's largest selling products are included in Appendix 3.[31] Section 2.2 of Appendix 3 reports on our statistical analysis of geographic markets. To begin, Section 2.2.1 reports the simple correlations of the final prices of the leading products across regions. We would normally expect very high correlations if this was to be one geographic market, given that these are prices from one firm and that

[28] Data confirming the overwhelming importance of sales to stocking distributors is reported below in Section VII.3.

[29] The ratio of average transaction price to net price was typically very close to one with a standard deviation below 0.05 more than 75% of the time.

[30] We used the same procedure as discussed above to fill in missing monthly price observations for the purposes of the statistical tests conducted with respect to geographic and product market definition in Appendix 3. That is, we assumed that if a price was not reported in a particular month it was unchanged from the previous month. If we did not fill in the data in some fashion, we would have had an insufficient number of observations to conduct many of the tests below, particularly for fittings.

[31] We did correlations like these for the following products: Pipes 12100, 13100 and 14100; Couplings 20020, 20030 and 20040; and Fittings 31430, 31830 and 31840. These were all major products (in terms of sales) in their categories. In Section 1.1 of Appendix 3 the sales for each of these products are reported. In each case we used Bibby's "final price"; the list price adjusted for multipliers and rebates as described above.

changes in production costs should not obviously affect one region more than another.[32] Notice that a number of correlations are negative and relatively few are above the level of 0.8 or 0.9. While recognizing that it would be better to have a wider period of data, these data seem to be telling us that there is considerable independence between the prices in these regions.

57. As a check we have also correlated the logarithms of final prices across regions by product and the first differences (between months) of logarithms of final prices between regions by product. These results are reported in Sections 2.2.2 and 2.2.3 of Appendix 3. Some of these correlations turn out to be higher and some lower but overall do not change the conclusions offered here.[33]

58. Section 2.2.4 of Appendix 3 reports the results of the cointegration tests. Recall that, to test for cointegration of prices in two regions, we must first show that the price series in both regions are non-stationary. This is frequently not the case, limiting the number of region-pairs and products we can test. Looking at the regions and products for which we could complete the test, we see relatively little evidence of cointegration, or long-run correlation.[34] This is even true with respect to neighbouring regions in most cases, though there is evidence of cointegration between Alberta and the Prairies for one pipe (12100) and two fittings (31830 and 31840); and there is evidence of cointegration between Quebec and the Maritimes for two fittings (31430 and 31830). In sum, of the nine possible products for which two neighbouring regions could have cointegrated prices, we find cointegrated series in zero cases for BC-Alberta, three cases for Alberta-Prairies, zero cases for Prairies-Ontario, zero cases for Ontario-Quebec, and two cases for Quebec-Maritimes.

59. The Granger causality test results are reported in Section 2.2.5 of the Appendix 3. We tested for Granger causality between each geographic region for each of nine different

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[32] As indicated above, we do face the question of how high the correlation has to be before we would consider the prices to be from the same market. There is not a lot of guidance here. Stigler and Sherwin [1985] refer to correlations above 0.9 as high, correlations of the order of 0.5 as not high. Closer to our case, we can look for some guidance to the correlations we observe between products for which we would have strong prior beliefs they were in the same market – e.g. different lengths or styles of pipe. These correlations tended to be above 0.9, sometimes above 0.98.

[33] To attempt to control for the possible influence of changes in common costs on the correlation between the prices of the same product across regions we also estimated regression equations for pipes and fittings which included the available Bibby estimates of the unit costs of the products. These cost data change only annually, and so do not provide very sensitive measures of costs. Not surprisingly perhaps, these regressions did not provide any additional insights beyond those provided by the simple correlations.

[34] For example, a simple count reveals many more entries of "No" than "Yes" in these tables and little evidence of consistent "Yes" entries between two regions.

products.[35] That is a total of 135 comparisons. In only 3 cases (highlighted in bold) were we able to accept the hypothesis that two prices Granger-caused each other[36] and only one of these involved neighbouring regions in which you would expect the influences on each other to be greatest.[37]

VI.2.2.3 Product Markets

60. Section 2.3 of the Appendix 3 reports the results of our empirical tests related to defining product markets. Section 2.3.1 reports the correlations between the prices of major products in each class (i.e. pipe, fittings, MJ couplings). We also calculated the correlations between products within each class (e.g. between different pipe products) and these regularly produced correlations above 0.9, in many cases above 0.95. These high correlations give us some idea of the level of correlation possible when products are very closely related. In contrast, the correlations across classes are much lower, suggesting considerable independence in the movements of these prices. Interestingly, many of the correlations between the different classes are negative, particularly with respect to fittings and the other two classes.

61. Sections 2.3.2 and 2.3.3 repeat the correlation exercise, correlating the logarithms of final prices (in 2.3.2) and the first differences of the logarithms of final prices (in 2.3.3). While the correlations within classes are somewhat lower in Section 2.3.3, the essential conclusions are the same with respect to the differences between the classes.

62. Section 2.3.4 of Appendix 3 reports on the cointegration tests on the various products within each of the regions. There is clearly no consistent pattern. There is perhaps some evidence, in some regions, for cointegration between products of the same class, for example, fittings with fittings in the Maritimes; fittings with fittings in Ontario; pipe with pipe and MJ couplings with MJ couplings in the Prairies; fittings with fittings in Alberta; and pipe with pipe, fittings with fittings and MJ couplings with MJ couplings in B.C.

63. The tests for Granger causality are reported in Section 2.3.5 of Appendix 3. Again, they fail to provide evidence that products of the different classes are in fact highly related to each other. Out of 216 pairs, only 24 (14 of these in the Prairies) satisfy the conditions

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[35] One of the questions an analyst must address in testing for Granger causality is how many lags to include in the estimated model. Here we report on tests conducted with three monthly lags as initial tests revealed that lags more distant seldom had any significant effects. We also included into each regression the Bibby unit cost data for the product's price we were trying to explain.

[36] The test we are using requires us to find that x Granger causes y and y Granger causes x, both at the 95% confidence level.

[37] For Fitting 31830 the prices in the Prairies and Alberta Granger-cause each other.

for Granger causality in both directions (highlighted in bold). Six of these involved products within the same class (e.g. fittings with fittings etc.) which is where we would most expect the close relationship between the prices.

64. It should be noted that all of these statistical tests, beginning with correlations and including cointegration and Granger causality tests, are not without their critics.[38] We can say, however, that these tests give us no reason to reject as the relevant geographic markets for this case the regional markets Bibby has itself used for its business purposes. In addition, there would appear to be evidence here that the different classes of products, pipe, fittings and MJ couplings belong to different product markets. Further work along the lines presented here could certainly be done if this was desired – for example other forms of correlations could be calculated and other techniques to assess the robustness of the cointegration results here could be employed.[39] My view, however, is that more work is unlikely to change the conclusions reached here.

VI.2.3 Measuring Market Shares

65. Given these product and geographic market definitions, not surprisingly the values of the Herfindahl-Hirshmann Index (HHIs) are very large. I have not be able to obtain good market share information of the sort that would permit calculation of HHIs for the precise relevant markets defined here. However, by aggregating markets we can make use of some data provided in CONFIDENTIAL. These data provide sales by region (with BC and Alberta combined) but break them down according to "material" (i.e. cast iron, plastic, copper etc.) with Mission's MJ couplings getting a separate listing. There is no separate listing of Bibby's MJ couplings, so the best we can do is to add all the firms listed as providing "cast iron" product together with Mission's MJ couplings to create an HHI for pipe, fittings and MJ couplings combined. To the extent that the Mission couplings data include sales of products not used with cast iron pipe and fittings these numbers will understate the actual concentration levels. The HHIs calculated here use data from the period October 2001 to August 2002.

BC/Alberta:	Confidential	Bibby share:	Confidential%
Prairies:	Confidential	Bibby share:	Confidential%
Ontario:	Confidential	Bibby share:	Confidential%
Quebec:	Confidential	Bibby share:	Confidential%
Maritimes:	Confidential	Bibby share:	Confidential%

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[38] See, for example, Werden and Froeb [1993].

[39] Various econometric issues arise with respect to some of these tests and further work could be undertaken to assess the robustness of these results.

These numbers represent very high levels of concentration.

66. Additional HHI values (for different years) and market shares (for Bibby and other sellers) is provided in Section 2.4 of Appendix 3. Defined as they are here, these are consistently highly concentrated markets in which Bibby has a very large share.

VI.2.4. Barriers to Entry

VI.2.4.1 General

67. There is evidence of other barriers to entry in what I have seen. Even if the expense associated with creating capacity is not huge, it must be evaluated against the potential profits from successful entry. It appears that it would be very difficult to establish a new foundry in Canada now, with current environmental and labour concerns (and distribution problems related to Bibby). It would also appear to be expensive to adapt a current foundry to produce cast iron DWV pipe and fittings.

68. This all said, there appears to be excess capacity in the industry now, so we might not expect the industry to attract a great deal of new capital. And in an industry in which there is already excess capacity, much of what is spent to establish a new facility or adapt an existing foundry currently designed for other products to DWV cast iron products could represent risky, sunk investments. As sunk costs represent, to a considerable extent, the risk associated with entry into a new market, they are generally recognized to be an important type of barrier to entry.[40] In addition, much of the excess capacity is held by Bibby. (See, e.g., BIB 047) If used to produce (or threaten to produce) large quantities to be sold at low prices, this excess capacity could itself be a barrier to entry.[41]

69. While perhaps not formally a barrier to entry, it is worth reminding ourselves here that this is not a dynamic, rapidly growing industry. It is, in fact, mature – not an industry that presents entrants with grand opportunities through the introduction of new products or production processes.

70. Based upon the evidence I have seen, many participants in this industry appear to be of the view that if significant alternative new supply was to appear in Canada, it would likely be via imports from Asia. That said, there is evidence that imports face their own challenges, including less complete product lines, longer lead times for production and delivery and less confidence on the part of domestic buyers. And, as with potential domestic entrants, their inability to access established distribution networks is a very

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[40] See, e.g., Ross [1993].

[41] It is worth noting that Vandem also has a considerable amount of excess capacity. According to VAI 000342-3S, Vandem was running its pipe production at 20% and 22% of capacity in 1999 and 2000.

significant handicap. Established plumbing supply distributors carry a large variety of products, suggesting that economies of scope would further challenge entrants that decided to try to do their own distribution.

71. Backward integration by major distributors seems very unlikely – the products offered by Bibby represent only a fraction of the product line these distributors carry. It does not appear very plausible that plumbing distributors would want to make significant investments in a business so far removed from their distribution expertise.[42]

72. In a related way, we should not expect new distributors to enter to handle an entrant's output when access to incumbent distributors is prevented by Bibby's loyalty program. The range of products produced by Bibby is only a part of a much larger set of products carried by most distributors - undoubtedly because of certain economies of scope in distribution. As a result it is very unlikely that new distributors would appear just because an entrant needs them to distribute its products.

73. Finally, Bibby's strong response to entry by imports in the west and by Vandem in central Canada has undoubtedly contributed to a certain reputation for toughness that may discourage further attempts at entry.[43] This is not to allege that Bibby was predatory in its response, only to acknowledge that Bibby has shown a willingness to fight to preserve its strong market position. Such behaviour is not, in and of itself, objectionable, but will serve to discourage entry.

VI.2.4.2 Bibby's SDP

74. Of course, a key question in this case relates to the extent to which Bibby's loyalty program is itself an endogenously created barrier to entry – this I will discuss in Section VII below.

VI.2.4.3 Competition for the Market vs. Competition within the Market

75. In some cases, the most likely (and possibly only) feasible entry is by firms prepared to take over the whole market. Economists refer to this as "competition for the market" in contrast to the more familiar "competition within the market".[44]

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[42] Organized groups of distributors could, in principle, support a new entrant by promising significant volumes, but to this point it appears that Bibby's loyalty program has discouraged them from doing so.

[43] These responses were studied in Section VI.1 of this affidavit above.

[44] This was also explained by the Bureau's expert, Professor Ralph Winter, in the *Nielsen* case (p. 79).

76. There is one important difference between cases of induced exclusivity and those in which formal exclusive contracts exist. Without formal exclusivity, the incumbent is vulnerable every day to entry from a new firm that is prepared to match its program and take over the whole market.[45] The loyalty program type discounts will certainly inhibit small-scale entry, but they cannot stop someone from imitating the incumbent. So we need to address the question of whether or not this kind of entry is possible.

77. There are a number of reasons why such large-scale entry might be difficult. (On this see Tom, Balto and Averitt [2000, pp. 623-624].) It may well be that the candidate entrants are not poised to provide the full product line that consumers desire; that they lack credibility in the market (buyers may worry if they will honour warranties for example, or if use of the entrant's products would void other warranties); that consumers are uncertain about the quality of the entrant's product; that consumers are not sure how long the entrant will last and do not wish to risk their relationship with the incumbent when they recognize that they may have to return. There is also a coordination problem at work here – even if all consumers would be happy going to the new supplier, they know it will only succeed if enough of them sign up. Absent a way to coordinate their actions the many buyers may individually decide to play it safe and stay with the incumbent – with the result that entry that could have made them all better off does not occur. This coordination problem is at the heart of the well-known paper by Rasmussen et al. [1991].[46]

PART VII: Analysis – Competitive Effects of the SDP

Opinion

78. In my opinion, Bibby's SDP harms competition in the relevant markets, and preserves Bibby's market power by effectively deterring entry and limiting expansion by competitive foreign and domestic producers.

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[45] Of course, even with contracts, the incumbent is vulnerable to this kind of entry when contracts expire. However, if contacts are of a long duration and particularly if they expire in a staggered fashion, it may be difficult for an entrant to build up a client base supporting minimum efficient scale production. The *Laidlaw* and *Nielsen* cases dealt with some of these issues. *Canada (Director of Investigation and Research) v. Laidlaw Waste Systems Ltd.* (1992), 40 C.P.R. (3d) 289 (Competition Trib.) and *Canada (Director of Investigation and Research) v. the D & B Companies of Canada Ltd.* 175 N.R. 312 (Competition Trib.).

[46] See also the "correction" by Segal and Whinston [2000b]. Their correction does not alter the main point.

Section VII.1: Relevant markets

79. As discussed above, the relevant markets, with respect to which I will discuss the competitive effects of Bibby's SDP, are the various geographic markets in Canada for cast iron pipe, fittings and MJ couplings in DWV applications.

Section VII.2: Economic theory

80. While we must be careful not to be overly critical of vertical restraints generally, I certainly believe that there are circumstances in which restraints such as exclusive dealing can be anticompetitive – and any time the restraints are imposed by a dominant firm, they are worth study. This is especially true if the industry is not particularly dynamic.

81. An analysis of the competitive effects of Bibby's policies requires we address the following familiar questions:

(a) What are the relevant product and geographic markets?
(b) Are there barriers to entry?
(c) Can Bibby's loyalty program be anticompetitive and if so how?
(d) Are there alternative, efficiency-based, explanations for the loyalty program, and if so are they supported by theory and/or evidence?

82. Questions (a) and (b) have already been addressed. Here I deal with questions (c) and (d).

83. Modern economic theory recognizes that vertical restraints such as exclusive dealing can be anticompetitive or procompetitive. It is my opinion that the restraints embodied in Bibby's SDP are anticompetitive.

84. I begin by reviewing very briefly how firms can adopt policies that anticompetitively exclude rivals. Economists' views of the competitive effects of various vertical restraints such as exclusive dealing, exclusive territories, resale price maintenance and tied selling have evolved over time. At one time, perhaps thirty years ago, most vertical restraints were viewed suspiciously by antitrust experts and officials. Anything that deviated from behaviour assumed in the competitive model was thought to reflect an attempt to gain, enhance or protect market power. The Chicago School assault on this view was very successful at forcing us to think carefully before concluding anything about competitive

effects.[47] While many suspicious practices remain so after more careful analysis, the really positive legacy of the Chicago School is the demand for a model that demonstrates how the anticompetitive effect arises.

85. As a result of the Chicago School attack, and in the absence of formal models showing them to be inefficient, vertical restraints came to be viewed in a much more favourable light. Over time, however, most popular vertical restraints have come to be more carefully studied theoretically (and in some cases empirically). The result is that we now have a number of models that demonstrate when certain restraints can be efficient and when they can be anticompetitive.

86. Exclusive dealing is one of those vertical restraints that can represent an efficient arrangement between sellers (often manufacturers) and buyers (typically distributors), or an attempt to restrict competition at some level of the distribution chain. It can be efficient if it helps protect certain kinds of investments firms make. For example, if a manufacturer invests a lot of resources into creating a certain type of product and marketing it extensively to bring people into its retailers' stores, it might worry that the retailers would then switch customers over to a rival manufacturer's copy-cat product that was developed at lower cost (because it was a copy) and was not advertised. This free-riding on the first manufacturer's investments will destroy its incentive to invest and develop new products. By forcing the retailers to stock the first manufacturer's product exclusively, their ability to switch customers is removed. While I am not an expert on the American cases, as discussed in the literature, this story would seem to fit the facts of some such as *Standard Fashions* [1922] and *Beltone* [1982].[48] Ornstein [1989, pp. 74-79] has a short discussion of the possible efficiency effects of exclusive dealing arrangements.[49]

87. Exclusive dealing can also have negative effects on competition. There are at least two principle mechanisms through which anticompetitive effects can be realized. First, exclusive dealing can help to facilitate cooperative behaviour (even collusion, in some

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[47] Leading Chicago School scholars contributing to this area include Posner, Bork, Stigler, Marvel and Landes. Many of them acknowledge their academic debts to Aaron Director. Director and Levy [1956] is an example of a paper ahead of its time in which the authors challenge some of the orthodoxies later attacked by Bork [1978] and Posner. Whinston [2001] provides a short review of the development of theories of anticompetitive exclusive dealing and tying.

[48] *Standard Fashion v. Magrane-Houston Co*. 258 U.S. 346. (1922) and *Beltone Electronics Corp.* 100 F.T.C. 68 (1982).

[49] See Marvel [1982], for a nice discussion of the *Standard Fashions* case that emphasizes efficiencies. More recently, Masten and Snyder [1993] show that when it is desirable for sellers to invest in the training of buyers, exclusive contracts may be necessary to protect those investments. Otherwise, the buyers could apply their training to help them sell products provided by rival sellers. Segal and Whinston [2000a] have a more formal treatment of the types of efficient investments that might benefit from exclusive dealing protections.

cases) between firms that should be competitors.[50] The collusion theories would not appear relevant to this case, given the presence of only one dominant firm.

88. The other mechanism by which exclusive dealing can hurt competition is by disadvantaging or even excluding some competitors.[51] For example, if current manufacturers have lined up all established retailers and placed them into exclusive dealing arrangements, a new entrant into manufacturing will have a difficult time securing distribution channels for its product. It will either have to use higher cost or lower quality alternatives (e.g. retailers who do not normally carry these products and who would not really know how to sell them), or it will have to enter into retailing at the same time. Entering manufacturing and retailing at the same time is typically impractical when retailing involves selling a broad variety of products of various types and from various manufacturers.

89. If the potential entrant cannot enter at all because of a lack of access to distribution, we say that it is foreclosed from the market – this is an example of an endogenously created barrier to entry (sometimes called a "behavioural" barrier). But it is important to note that the entrant does not have to be completely excluded for the exclusive dealing contracts to be anticompetitive – if the exclusivity merely raises the entrant's costs it can hurt competition and market efficiency.

90. It is important to recognize that it is possible for an exclusive dealing arrangement to be anticompetitive and socially inefficient, even if entered into voluntarily by both parties. For example, it could be that small distributors sign on voluntarily but reluctantly, expecting that the manufacturer will not supply them and that no other sources of supply will be available should they refuse. In this case, the distributors as a group may prefer to refuse the arrangement, expecting that alternative supply would appear if there were enough of them to make it economically feasible, but a lack of coordination prevents this from happening. I return to this below.

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[50] For example, if all manufacturers had exclusive dealing arrangements with retailers, then it would be easier to determine which manufacturer might be cheating on the cartel agreement by watching the traffic at its retailers' places of business. To the extent that retailer actions are easier to monitor than manufacturer actions, tying them together with exclusive dealing helps the cartel members monitor each other. Also, if the products are differentiated, a retailer cartel may prefer that each of its members specialize in just one product for if they each carried all manufacturers' products, price competition would push all prices toward costs.

[51] Krattenmaker and Salop [1986] is a classic reference on strategies that may serve to harm competition by disadvantaging rivals. Ware [1994] offers a concise discussion with some Canadian perspectives. In the terminology of this literature, Bibby's SDP could be viewed as a "bottlekneck" strategy in which "a dominant firm purchases all of the low cost input, to the disadvantage of rivals" (Ware [1994, p. 10]). We can view Bibby as buying distribution from its distributors, and locking up so much in its exclusivity arrangements that an potential competitor has great difficulty getting efficient distribution.

91. It is also possible that the distributors signing on to the exclusivity arrangement benefit along with the manufacturer. This can happen at the expense of profits that would otherwise be earned by entrants into the manufacturing business and/or the consumers who buy products from the distributors at higher prices.

Section VII.3: Application of Theory to Bibby's SDP

92. In the present case, there is the question as to whether Bibby's loyalty program represents a *de facto* exclusive dealing strategy. In fact, the economics are quite clear – there is not really any important distinction (in economic theory, there may be in law) to make between an absolute requirement of exclusivity and a pricing policy that easily induces exclusivity from those same customers. The parallels between pricing policies that induce exclusivity and formal exclusive dealing have been noted by a number of authors, see e.g. O'Brien and Shaffer [1997], Tom, Balto and Averitt [2000] and Stefanadis [1998].[52]

93. The Tribunal also recognized the connection between loyalty programs and inducement to exclusivity in the *NutraSweet* decision. On page 70 of its decision it noted -- with respect to the company's logo and advertising discounts – that buyers who did not purchase all their aspartame requirements from NutraSweet (NSC), "are forced to purchase all of their supply from another supplier because it is too expensive to buy from NSC without the logo and advertising discounts." It went on (on page 71) to note that "it is clear that the logo and display and promotion allowances are essentially inducements to exclusivity." It returns to this on page 95, "Therefore, we conclude that the financial incentives and the exclusivity clause amount to exclusive dealing within the meaning of paragraph 77(1)(b): the customers clearly agreed to deal only or primarily in the products of NSC and in return received various rebates whose existence depends on exclusive use of NutraSweet brand aspartame." [53]

94. Upon my review of Bibby's SDP, it is the possible foreclosure of rivals or, at the very least, of "raising rivals' costs" that concerns me. To the extent that Bibby's loyalty program makes it more difficult for other producers to enter the market we may have an anticompetitive effect. For this anticompetitive effect to be realized, however, certain conditions must be met. First, the firm or firms using the loyalty program would have to control a large share of the market – if there are a number of other firms outside these

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[52] Steuer [1993] argues that discounts to induce exclusivity are common.

[53] And again at p. 101: "The Tribunal therefore concludes that NSC has induced exclusive dealing with its aspartame customers through its financial incentives or fidelity rebates, and its exclusivity clauses."

arrangements, there should be opportunities for entrants to find distribution partners. Second, there must be sufficient barriers to entry to stop new firms from coming to serve the market as soon as price increases above competitive levels. Here we refer to barriers at both the manufacturing and distribution levels. Obviously the exclusive dealing represents a significant barrier to new entry at the manufacturing level, but it helps the dominant firm if there are other barriers to entry as well, such as significant sunk costs, economies of scale (often involving sunk fixed investments), regulatory barriers or high capital costs of entry (combined with imperfect capital markets). Third, consumers must not be too concerned when their distributor carries only the products of one manufacturer. If, instead, consumers value highly the ability to see a variety of manufacturers' products (an example of economies of scope in distribution), distributors who offer that variety will be more attractive than those confined to exclusive dealing arrangements.

95. In my view, these conditions are met in this case: Bibby has a very large share of the relevant markets (defined above); there are significant barriers to entry, the most important of which is the loyalty program;[54] and I found no evidence that consumers care a great deal that their distributor carries only one line of product. In general, these products are homogenous -- that is, the versions produced by the different producers are largely interchangeable, not distinguished by differentiation based on, for example, style attributes or special features.

96. Bibby's loyalty program (by which I mean the stocking distributor and rebates programs combined) is a very strong inducement to exclusivity. It seems that the result has been exclusivity representing a large fraction of the relevant markets. Section 3.1 of Appendix 3 reproduces some data from the documents that show that a very large fraction of Bibby's sales between January 1998 and September 2003 were to distributors who are members of the stocking distributor program. Combining all the best-selling pipe, MJ couplings and fittings we see that almost 99% of the sales were to stocking distributors.

97. The rebates are very significant considerations to distributors – some say that they represent their total profits on those products. Stocking distributors often pay prices only 75% (often less) of the level of non-stocking distributors, and are eligible for annual rebates of 3% of purchases and quarterly rebates that varied over time but were often about 7% of purchases. (I believe this number was 7% in 1998, 9% in 1999 and 6% in

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[54] Ease of entry at the retailer (i.e. distributor) level is a relevant consideration as well. If a new manufacturer or importer was able to get into the market but existing retailers were tied up by Bibby, could new distributors enter to handle the new products? In this regard, one has to wonder to what extent we should expect entry into retailing in which firms typically carry hundreds (or even thousands) of products in response to competitive problems in a just a few lines of business. If retailing economies of scope dictate that retailers carry lots of products, entry into retailing will not be much influenced by profit opportunities in only a few. My understanding is that the major distributors of cast iron DWV products are building supply wholesalers/distributors who do carry hundreds or even thousands of products.

2000.) There are also indications in the documents that the allowances could be changed for short periods (e.g. a month or a few months) and that they would sometimes be different in different regions.[55] The rebates can also vary by product class (i.e. pipe v. fittings v. MJ couplings). For example, while the quarterly rebate on pipe in 2000 was 6%, for fittings it was 15% and for MJ couplings it was 8%. (BIB 5079)

98. To illustrate the amount of money involved, Section 3.2 of Appendix 3 reports on the total value of the rebates and discounts provided to stocking distributors for the leading pipe, MJ couplings and fittings and then uses the rates of these payments to project what the total might be for all pipe, MJ couplings and fittings.[56] Over the five and three-quarters years surveyed, the total projected rebates and discounts amount to over $160 million.[57]

99. Section 3.3 of Appendix 3 illustrates the effective percentage discount off list prices represented by the multiplier and rebate components of the SDP for the three leading products. As the graphs reveal, these discounts often exceed 50% and occasionally exceed 60% (and even 70%).[58]

100. The effect of the 100% loyalty requirement is to make the price of the last unit of purchase from Bibby very low (in an important sense, actually very negative) and the price of moving that last purchase to a competitor very high, as the buyer surrenders a significant rebate on all its previous purchases. This makes it very difficult for a distributor to justify giving only part of its business to someone else – the incentive is such that you either give all your business to Bibby or none.[59]

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[55] Documents such as BIB 298 and BIB 313 both mentions that the rebate program is offered on "a regional basis".

[56] This projection is completed using the shares of the totals accounted for by these top pipe, MJ couplings and fittings reported in Section 1.1 of Appendix 3.

[57] To be clear, the amount includes discounts attributed to the "multiplier" which Bibby uses to discount off list prices as well as the annual and quarterly rebates. In many cases the non-stocking distributors have a multiplier of their own which provides some (typically much smaller) discount – often a few percent – off the list price. The result is that the savings reported here due to the combined benefits of the stocking distributor program will overstate somewhat the benefits stocking distributors get relative to non-stocking distributors.

[58] While direct comparisons across different products is difficult, it is interesting to note that the Tribunal found that the 40% discounts from using the NutraSweet (NSC) logo (and the associated exclusivity) were large enough that "any customer who wants to buy from NSC is virtually compelled to use the logo…" (page 69). The Tribunal went on to note that "The logo and advertising discounts create an 'all-or-nothing' choice for customers… This means that new suppliers must become sufficiently established so that potential customers are willing to entrust all of their needs for a product line to the new supplier." (p. 70).

[59] Again, the data reported in the Empirical Appendix reveal that Bibby does only a very small fraction of its business in the DWV market with buyers who are not part of the stocking distributor program. As the OECD [2002,

101. The rebate components of Bibby's SDP provide, in fact, a very nice example of how contracts can serve as a barrier to efficient entry in the famous model by Aghion and Bolton [1987]. In their model, in order to leave its current supplier to give business to an entrant, the buyer must pay liquidated damages to the incumbent dominant firm. The required payment can be large enough that even an entrant pricing at a very low (i.e. marginal cost) level will not be able to induce buyers to switch. In the present case, the forgone rebates play the role of the liquidated damages since they are monies "owed" to the buyer by the incumbent which the buyer will forfeit if it buys from the entrant.

102. To get an example of how this can disadvantage an entrant, consider the following simple model. Let P_B represent the full price of Bibby product and P_E the full price of a potential entrant's product.[60] Further, let α represent the rebate paid to Bibby customers who buy 100% of their needs from Bibby. Consider now the choices available to a particular customer (A) who needs to buy X_o units.

If A were to buy X_E units from the entrant it will have costs of: $P_E X_E + P_B(X_o - X_E)$

But if A had bought all units from Bibby, its costs would have been: $P_B(1-\alpha)X_o$

For it to have purchased this quantity from the entrant, it would have to be less expensive, i.e.:

$$P_E X_E + P_B(X_o - X_E) \leq P_B(1-\alpha)X_o$$

This condition can be rearranged with some manipulation to give us:

$$[(P_B - P_E)/P_B]\, s_E \geq \alpha \qquad (1)$$

where $s_E = X_E/X_o$, is the share going to the entrant.

The term in the square bracket in (1) is the percentage price discount offered by the entrant. This shows us how large the entrant's share must be if it is to be less costly for customer A. For example, suppose the entrant offered prices at 50% of Bibby's non-stocking distributor (non-rebate) price. A reasonable estimate of α for some of this period would be about 33% (stocking distributors pay only 75% of the price paid by non-stocking distributors and rebates return another 10%). In this case, unless the customer is

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p. 4] report puts it, these kinds of programs make it very difficult for rivals to compete on the margin (i.e. for portions of the buyer's requirements), leaving them only the option of competing for the buyer's total requirements.

[60] Note that P_E is the "full" price paid by customers in units of quality equivalent to that of the Bibby product. If the entrant's product was viewed as somewhat inferior (e.g. it had a higher breakage rate) the actual purchase price would have to be adjusted upward in the formulae that follow to take account of the effective price purchasers pay. For example, if the customer had to buy twice as many units of the entrant's product to have as many usable units as if it had purchased from Bibby, P_E would be double the price actually paid to the entrant for each unit.

prepared to give 2/3 of its business to the entrant, it is less expensive to stay exclusive with Bibby.

103. Notice also that (1) implies that as s_E falls to the relatively low levels that might be expected for a new, untried entrant, the price discount required from the entrant gets very large indeed. For example, in order to make it worthwhile for a customer to give the entrant one half of its business (i.e. $s_E = 0.5$), the entrant would have to offer prices 66% below full price and even if it was prepared to give the product away (i.e. set $P_E = 0$), the entrant would not be able to attract a buyer who was not prepared to give the entrant more than a third of its business.[61]

104. As a result, entry by an alternative supplier trying to build itself gradually would be very costly – it would have to compensate its customers for all those lost rebates.[62] Even promising compensation for lost rebates may not be enough for customers who worry about upsetting a key supplier such as Bibby. After all, if the entrant fails, they will be back with Bibby for all their needs.

105. There remains the question of whether an entrant can overcome Bibby's program by copying it – that is by offering a similar program (or a better one) and trying to take over all of each customer's business.[63] For some of the reasons discussed above this could be very difficult. **First**, I understand that many potential entrants (e.g. those in Asia) do not produce complete enough product lines to provide for all of a customer's needs, meaning that a customer could be stuck with Bibby for some products.

106. **Second**, distributors may be reluctant to hand over all their business to an untested entrant and they may feel even less secure if the entrant is foreign with a limited domestic presence.

107. **Third**, there may be questions about the quality of the entrant's product (though securing CSA approval should help) or the extent to which it will "fit" with existing product. If, for example, the entrant's fittings did not work well with Bibby's pipe, a customer with a large inventory of Bibby pipe will be reluctant to stop purchasing Bibby fittings, at least until it has reduced this inventory.

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[61] Taking this even a bit further – equation (1) also implies that to make itself attractive for a customer who is only willing to give the entrant a small amount of its business at first, the entrant would have to pay customers to take its product. For example if $s_E = 1/6$ and $\alpha = 1/3$, the entrant will have to give the buyer an amount equal to P_B per unit to induce the buyer to forgo the Bibby discounts **.**

[62] The difficulties associated with so-called "toe-hold" entry in the face of exclusive contracts is a theme developed by Baziliauskas and Rivard [1995].

[63] Again, in the language of the OECD [2002] report, competing for the buyer's entire requirements rather than simply providing competition on the margin.

108. **Finally**, there may be concerns that the entrant is not likely to succeed, making buyers unwilling to risk their relationship with Bibby when they may be forced to return. This concern may have its roots in a coordination failure among buyers who could secure the entrant's future if only they could act together, but this seems unlikely in the Canadian market.

109. The introduction, followed by almost complete withdrawal of imports from the market, even when so many distributors would appreciate having some alternative, suggests that imports will not have an easy time breaking into this market. In addition to the loyalty program, Bibby has shown a willingness to cut price substantially to protect its market share. While I do not have anything against price-cutting that is not predatory, this type of reaction does further raise the costs of entry and make it less likely. A reputation for toughness on the part of incumbents can frighten away capital considering backing an entrant.

110. As mentioned above, there is a considerable literature regarding the efficiencies attributable to exclusive dealing arrangements under some circumstances. I have considered the possibility that the exclusivity is needed in this market but, based upon the information I have seen, I cannot see what these efficiencies could be. As a result, I do not currently see any efficiency justification for Bibby' loyalty program in its current form.

111. While it is true that Bibby provides support for local advertising and promotional activities, and that it has local representatives who visit sites to provide advice to customers, the advice could be provided to sites that have chosen Bibby products and need not be tied to exclusive distributorships. And advertising allowances are commonly supported in the distributive trades without the need for exclusivity.[64]

112. My conclusion with regard to the program, then, is that it is anticompetitive. It creates a very significant barrier to entry for new firms, including imports, in a mature, stable market with excess capacity.

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[64] To the extent that Bibby was able to encourage distributors to spend the advertising allowance in ways that promoted Bibby and the distributor but not Bibby's rivals, Bibby would not need exclusivity to protect its investment. It is my understanding that the approved promotional expenditures often did provide for the promotion of the Bibby name along side the distributor's.

Section VII.4: Statistical Evidence

113. To begin, it is worth recalling the results in Section VI.1 on the effects on prices in B.C., Alberta and Ontario. There we observed very significant (in terms of economic importance as well as statistical significance) downward effects on price when Bibby faced competition from imports (BC and Alberta) and Vandem (Ontario). Competition reduced pipe prices between about 11% and 24% and fittings prices between 7% and 28%. Interestingly, MJ couplings prices increased in Ontario when Vandem's competition seemed to push prices for fittings and pipe downward. Since Vandem did not provide MJ couplings this is not a surprise – with its market power reduced only in pipe and fittings, Bibby was able to regain some profits through higher prices on MJ couplings. The fact that prices could fall this far in response to even limited competitive entry strongly suggests that the SDP gives Bibby market power.

114. If these were markets in a state of significant decline, we might expect there to be little or no entry, however this alternative explanation is not supported by the data. Section 3.4 of Appendix 3 illustrates the levels of unit sales of the top product in each of the pipe, fitting and coupling categories and shows little evidence of decline.

115. To get a more precise measure of the degree to which cast iron sales have been changing in recent years we conducted a few simple regression experiments. These are reported in Section 3.5 of Appendix 3. In these regressions we used Bibby data (which was available monthly) to examine the extent to which units sold were rising or falling over time.[65] To do this we simply regressed unit sales on a time trend variable.[66] We did this with and without converting the variables by using their logarithmic values. Section 3.5 reports the results using the logarithmic transformations. We ran separate regressions for pipe (units measured in tons), fittings and MJ couplings. The results indicate that in almost every case the markets appear to be stable or growing, not shrinking.[67] We have to be careful interpreting these results, however, given that all of these data come from a relatively short period of time (April 1997-September 2003) and so are not well-suited to

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[65] Ideally, we would also like to use data on total industry output and sales, but these were not available to us on a monthly basis. Of course, the fact that Bibby's share of these markets is so large means that the differences may not be so large.

[66] These regressions included data (from Statistics Canada) on the number of building permits issued to account for changes in the demand for building materials. We also estimated equations with dummy variables for each of the months but the results of interest to us here were very similar.

[67] We also estimated equations in which the dependent variables were expressed in dollar sales to see if unit sales had only been preserved by deep price cutting. These regressions revealed that sales expressed in dollars have also been growing over the period.

determining if the industry is in some long term decline or growth. To do so, data from a longer period of time, and for the DWV market as a whole, would be preferable.[68]

116. Nevertheless, it is interesting to see that over these five plus years sales of Bibby's cast iron products have generally been growing. For example, the Pipe-Tons regression shows that unit sales (measured in tons) of pipe have been growing at a rate of approximately 0.3% per month (significant at almost the 10% level using a two-tailed test) over this period. To confirm that the unit sales have not been growing only because of deep price-cutting or a shift to lower value products we estimated the Pipe-Dollars equation which shows that dollar sales may have been growing at about the same rate (but the coefficient is not statistically significant). The Fittings-Tons regression shows that fittings unit sales (measured in tons) have been growing at a rate of about 0.6% per month (significant at the 1% level) but the estimate of the dollar sales growth (in the Fittings-Dollars regression) of 0.1% per month is not statistically significant. The Couplings-Units regression yields a negative coefficient on the time trend variable suggesting that unit sales were falling 0.2% per month, but the value of the t-statistic suggests that this is not statistically significant. The Couplings-Dollars regression reveals growth of 0.7% per month which is statistically significant.

Section VII.5: Treatment of exclusivity and loyalty programs in other jurisdictions

117. It is clear that the Americans see exclusive dealing as potentially anticompetitive. Exclusive dealing arrangements can be attacked under the *Clayton Act* (Section 3), the *FTC Act* (Section 5), and the *Sherman Act* (both Sections 1 and 2). As pointed out by Tom, Balto and Averitt [2000, pp. 619-622], the FTC has recently brought a number of actions related to exclusive dealing, using both theories of collusion and raising rivals' cost / foreclosure. [69]

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[68] There are a few data points available for the whole market. BIB 019-020 indicates growth of cast-iron DWV sales from 1998 to 1999 followed by a decline in 2000. However this decline corresponded with a decline for other DWV materials as well, with cast iron holding on to roughly the same share of all DWV products sold.

[69] The well-known *Brunswick* case in the United States did not ultimately support a finding of anticompetitive effects in Brunswick's discount plan, there are a number of factors that may serve to distinguish that case from this case. (i) The Brunswick plan did not require 100% of purchases go to Brunswick to get the best discount; (ii) buyers had demonstrated some countervailing market power in previous disputes; (iii) the expert economist's empirical evidence of damages was weak; and (iv) barriers to entry were not really established. The appeal court judgement reported that: "From 1984 to 1994, Brunswick offered a 3% discount to boat builders who bought 80% of their engines from the company, a 2% discount for 70% of all purchases, and a 1% discount for those who took 60% of their needs from Brunswick." From 1995 to 1997 the thresholds for the three discount levels were lowered (in all but the last case) to 70%, 65% and 60% respectively. (p. 5) While not explicitly discussed in the decision, it may also have been the case that the size of the Brunswick discounts were seen to be insufficient to create effective exclusivity. *Concord Boat Corp. v. Brunswick Corp*. 207 F3d 1039, 2000-1 Trade Cas (CCH) ¶ 72,573 (8th Cir. 2000).

118. Exclusive dealing can also be the subject of an action under EC competition law.[70] The action can be based upon either or both of Articles 81 and 82 of the Treaty Establishing the European Community (of 1957).[71] Article 81 focusses on agreements that might lessen competition, while Article 82 is directed toward controlling abusive behaviour by dominant firms. Spinks' [2000, p. 650] view of the current state of the law is that exclusive dealing by dominant firms is generally prohibited by Article 82 where it is capable of affecting trade between EC member states (where the Commission has authority).

119. The European Commission also recognizes that loyalty programs can have the same economic effects as exclusive dealing and can therefore pose the same risks to competition.[72] A recent background paper prepared by the Secretariat of the OECD describes a number of mechanisms by which "fidelity discounts and rebates" (of which Bibby's plan would be an example) can be anticompetitive. The paper reports that:

> "... harm to competitors is much more likely to be associated with harm to competition if : a) fidelity discounts are widespread in the market or practised by dominant firms; and b) too few firms are able to compete on roughly equal terms if the competition takes the form of rivalry to supply a buyer's total or near total requirements;...". [73]

I believe that both conditions a) and b) are satisfied in this case. The first is satisfied in my view because Bibby is a dominant firm in the relevant markets as defined above. The second is satisfied because the small competitors that are trying to establish themselves in the market are not capable of competing "on roughly equal terms" for the whole of distributors' business, for reasons discussed above.

120. The OECD report also reviews the legal battles between Virgin Atlantic Airways Ltd. and British Airways (BA), in both Europe and the U.S., in which it was alleged that the travel agent commission over-rides (TACOs) paid by BA to travel agents served to exclude Virgin by rewarding agents for sending more and more of their business to BA. The European Commission concluded that "The exclusionary effect of the commission

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[70] See, for example, Spinks [2000].

[71] The sections were originally numbered 85 and 86. The new numbering came into effect on May 1, 1999.

[72] Again, see Spinks [2000, pp. 650-651] who cites as particularly important the case, *Hoffman-LaRoche v. Commission*, Case 85/76, 1979 E.C.R. 461 [1979]. In this case the European Court of Justice indicated that loyalty rebates involve, "a strong incentive to purchasers to let [the dominant undertaking] alone supply...their requirements." [at page 547].

[73] OECD [2002, p. 2].

schemes affects all of BA's competitors and any potential new entrants. They therefore harm competition in general and so consumers, rather than harming only certain competitors who cannot compete with BA on merit." [74] BA is not the only airline using such policies to possibly anticompetitive effect – about two years after the BA decision the Italian Competition Authority determined that Alitalia Airlines had violated Article 82 in much the same way. In addition, the conditions under which Air Canada was permitted to acquire Canadian Airlines included limits on Air Canada's use of travel agent commission over-rides.

121. Interestingly, the European authorities also believe that making discounts conditional on the customer's buying different categories of products (e.g., this could correspond in the present case to basing the discounts on purchases of pipe, fittings and MJ couplings) also constitutes an abuse of dominant position.[75] As discussed by Davis [2000, pp. 70-71], the LePage's case in the U.S. (as in the SmithKline case in 1978), determined that bundled rebate programs could be illegal under Section 2 of the *Sherman Act*. This case involved a rebate program offered by 3M in which 3M set customer-specific target growth rates for each of its product lines. In some cases the only practical way for a customer to reach its targets was to drop competitors' (e.g. LePage's) lines. LePage's was trying to compete in the market for private label transparent tape, but anyone buying its product could forgo rebates on purchase of tape from 3M as well as on other purchases from 3M, such as PostIt notes.[76]

122. Of course a pricing policy that induces some distributors to exclusivity but not all, is indeed different from a blanket exclusivity arrangement – in the former case it does appear that the partners do actually have a choice. However, if the buyers who choose not to buy exclusively are of a different type from those who do, it could still be that, given their circumstances, the participating buyers feel they have no choice. It could be that the buyers differ with respect to, for example, size (i.e. volume of purchases), geographic location, location in the distribution chain (i.e. plumbing contractors vs. plumbing supplies distributors). In such a case, for example, evidence that plumbing contractors do not buy exclusively from Bibby is not, in and of itself, evidence that major distributors would find it economically feasible to drop out of Bibby's loyalty program.

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[74] European Commission [1999, paragraphs 106-107]. British Airways was fined 6.8 million Euros and is appealing.

[75] Inducing buyers to buy multiple products in this way is, in effect, a form of full-line forcing. See, e.g., Spinks [2000, 662] who cites *Tetra Pak (II)*, Case No. IV/34.043 (July 24, 1991), 1992 O.J. (L72) 1[1992] which involved the combining of different types of cartons for the purposes of establishing discounts. Shaffer [1991] discusses the connections between aggregate rebates, brand discounts and full-line forcing.

[76] *LePage's Inc. v. 3M*, 2000-1 Trade Cas. (CCH) ¶ 72,846. (E.D. Pa. 2000)

Section VII.6: Recent History of the Relevant Markets

123. While I do not propose to offer a history of this industry in the relevant markets, I do wish to make the point that such a history can provide further guidance as to the competition policy approach appropriate to a matter. For example, evidence of past anticompetitive actions – whether via agreement between competitors, via abuse by a dominant firm or via mergers that reduced competition – should make antitrust authorities that much more alert to the prospect that competition will not naturally flourish in these markets. For this reason it is often useful to inquire as to recent events in an industry. Market power is rarely built quickly;[77] if there is power in the hands of one or a few firms today, there will likely be a historical record of anticompetitive actions that built and protected that market power.

124. When a history indicates a build-up and exercise of market power we have evidence relevant to the determination of dominance of course. But should there be market power currently (as opposed to prospectively as in most merger cases), the situation compels us to be very careful before we permit actions that further reduce or entrench that market power. When prices exceed marginal costs by a substantial margin, even small reductions in output can carry significant social costs.

[77] Except perhaps when the result of a discovery protected by intellectual property laws.

PART VIII: Overall Conclusion

125. In my opinion, Bibby is a dominant firm in the relevant markets defined above involving cast iron DWV pipe and fittings and MJ couplings. Its loyalty program creates, in effect, an exclusive dealing arrangement. This arrangement serves to effectively limit entrants' access to the distribution network and thereby deters entry and hinders expansion by other domestic firms and imports. In my opinion, Bibby's loyalty program harms competition, competitors and efficiency.

APPENDIX 1: CURRICULUM VITAE

February 2004

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UPS Foundation Professor of Regulation and Competition Policy, Faculty of Commerce and Business Administration, University of British Columbia, since July 2000. Full Professor since July 1996.

Director, UBC Centre for the Study of Government and Business, since June 1997.

Director, UBC Election Stock Market Project, since March 1993.

Director, Summer Conference on Industrial Organization, since 1987.

Co-Editor, *Journal of Economics and Management Strategy*, since 2001.

Editor, *Canadian Competition Policy Page*, since 1996.

President (and Founder), *Delta Economics Group Inc.,* since December 2001.

Education

University of Western Ontario: Honours B.A. in Economics, May 1977.
University of Pennsylvania: M.A. (Economics), 1979 & Ph.D. (Economics), 1981.

Professional Experience & Honours

Outstanding Professor Award – from the MBA Class of 2004 (presented November 2003).

Faculty Research Prize, Faculty of Commerce and Business Administration, University of British Columbia, 2001.

Visiting Professor of Policy Modelling, Institute for Policy Analysis, University of Toronto, 1998-99.

Chair of Policy Analysis Division, Faculty of Commerce and Business Administration, 1993-96.

Associate Professor, Faculty of Commerce and Business Administration, University of British Columbia, 1992-96.

Member, Board of Editors, *Canadian Journal of Economics*, 1990-93 and 1996-99.

Guest Editor, *Review of Industrial Organization*, special issue, Vol. 13, Nos. 1-2, April 1998.

Associate Professor, Department of Economics, Carleton University, 1987-92. Assistant Professor, 1983-87.

Director - Carleton Industrial Organization Research Unit, 1985-92.

Holder of the T.D. MacDonald Chair in Industrial Economics, Bureau of Competition Policy, Consumer and Corporate Affairs Canada, 1990-1991.

National Research Fellow, Hoover Institution, Stanford University, 1987-88.

Research Fellow and Lecturer, Center for the Study of the Economy and the State, Graduate School of Business, University of Chicago, September 1981 - August 1984.

Publications in Scholarly Journals

"Canadian Competition Policy: Progress and Prospects", forthcoming, *Canadian Journal of Economics*, 2004.

"Protecting Underfunded Pensions: The Role of Guarantee Funds" (with Russell Cooper), forthcoming, *Journal of Pension Economics and Finance*.

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Other Publications, Conference Papers and Reports

"The Economics of Interdependence and Some Policy Options", paper prepared for the 2003 Competition Law Invitational Forum, Langdon Hall, Cambridge (Ontario), April 2003.

"The Treatment of Efficiencies in Merger Review: An International Comparison", (with Ann-Britt Everett), Report prepared for the Government of Canada, November 22, 2002, released to the public, March 2003.

"Some Thoughts on 'Chicago' and 'Post-Chicago' Antitrust and their Lessons for Canada", paper presented to the Canadian Bar Association Annual Conference on Competition Law, October 2002, to be released on CD.

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"On Letting Competitors Cooperate", Vol. 18, *Policy Options*, October 1997, 6-9.

"Globalization and Canadian Competition Policy", paper prepared for the Second Annual Meeting of the Competition Law Section of the Canadian Bar Association, Montreal, September 1994.

"Alternative Institutions for Resolving Coordination Problems: Experimental Evidence on Forward Induction and Pre-Play Communication" (with Russell Cooper, Douglas V. DeJong and Robert Forsythe), in James W. Friedman (ed.), *Problems of Coordination in Economic Activity*, Boston: Kluwer Academic Publishers, 1994.

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Other Papers

"The Efficiency Defense in Merger Law: Economic Foundations and Recent Canadian Developments", (with Ralph Winter), mimeo, February 2003.

"Sunk Costs and the Entry Decision", mimeo, revised February 2003.

“Markets Linked by Rising Marginal Costs: Implications for Multimarket Contact, Recoupment and Retaliatory Entry”, (with Zhiqi Chen), mimeo, revised January 2003.

Grants Received

2002-05, Social Sciences and Humanities Research Council of Canada ($91,020), for “Anticompetitive Effects of Joint Ventures and Strategic Alliances”.

1998-01, Social Sciences and Humanities Research Council of Canada ($48,000), for “Theory and Experiments in the Economics of Coordination” (with R. Cooper, Boston U.)

1998-99, University of British Columbia Hampton Fund ($8,000), for “Revising Canadian Competition Policy”.

1995-96, Vancouver Stock Exchange-Faculty of Commerce Research Fund ($7,500), for "The UBC Election Stock Market Project".

1994-97 (extended to 1998), Social Sciences and Humanities Research Council of Canada, ($38,000), for "On the Role and Optimal Design of Guarantee Funds" (with R. Cooper, Boston U.).

1994-95, U. of British Columbia, through small grants program (UBC-HSS) funded by the Social Sciences and Humanities Research Council of Canada, ($4,750), for "Markets as Predictors of Election Outcomes: the UBC Election Stock Market" (with M. Frank and V. Krishnamurthy).

1992-93, U. of British Columbia, through small grants program (UBC-HSS) funded by the Social Sciences and Humanities Research Council of Canada, ($4,750), for "Revising the Competition Act: Stage III".

1992-93, U. of British Columbia, through grants for new faculty funded by the Social Sciences and Humanities Research Council of Canada, ($2,000), for "Research in Competition Policy".

1992-93, Consumer and Corporate Affairs Canada (Bureau of Competition Policy), ($7,000), for "Research into Selected Topics in Competition Policy".

1992-93, Consumer and Corporate Affairs Canada (Bureau of Competition Policy), ($5,000), for "Market Definition in Merger Cases" (with Abraham Hollander, U. of Montreal).

1990-92, Social Sciences and Humanities Research Council of Canada ($25,120), for "Long Term Contracts Without Commitment to Market Participation" (with R. Cooper, Boston U.)

1988-90, National Science Foundation ($140,000 U.S.), for "Experiments on Equilibrium Selection in Coordination Games" (with R. Cooper, D. DeJong and R. Forsythe, U. of Iowa).

1986-1988, Social Sciences and Humanities Research Council of Canada ($22,950), for "Product Warranties: Insurance, Incentives and Signals" (with R. Cooper, Boston University).

1985-1986, Consumer and Corporate Affairs Canada (Bureau of Competition Policy), ($5,000) for "Competition Policy With Freer Trade".

1985-1986, Carleton U., through the GR-6 programme funded by the Social Sciences and Humanities Research Council of Canada, ($1,500) for "A Positive Theory of Military Recruitment".

1984-1985, Carleton U., through the GR-6 programme funded by the Social Sciences and Humanities Research Council of Canada, ($2,000) for "Moral Hazard, Insurance and Product Warranties".

Doctoral Thesis Supervisor For

Dr. Aslam Anis
University of British Columbia
Completed January 1990

Professor Richard Arend
University of Nevada, Las Vegas
Completed August 1995

Professor Philippe Cyrenne
University of Winnipeg
Completed August 1991

Professor Yuval Deutsch
York University
Completed July 2002

Papers Presented - Invited Seminars and Conferences (Recent years only.)

2002-2003:
Canadian Bar Association Competition Law Section Meetings (Ottawa), University of Calgary, University of Washington (Seattle)

2001-2002:
University of Toronto, New York University (Stern School of Business), Canadian Economics Association Meetings (Calgary)

2000-2001:
University of British Columbia, City University of Hong Kong, Honk Kong University of Science and Technology.

1999-2000:
Canadian Bar Association Competition Law Section Annual Meetings (Ottawa, September 1999), American Economic Association Meetings (Boston, January 2000).

1998-99:
European Association for Research in Industrial Economics Annual Meeting (Copenhagen, August 1998), University of Toronto, University of Guelph, University of Michigan, Cornell University, Université de Montréal, University of Windsor, Wilfred Laurier University, Queen's University

Expert Testimony Provided / Government Committee Appearances:

Director of Investigation and Research v. Hillsdown Holdings Canada (Competition Tribunal), 1992. Expert witness for Director.

Director of Investigation and Research v. Southam Inc. (Competition Tribunal), 1992. Expert witness for Director.

House of Commons Standing Committee on Transportation, November 17, 1999. Asked to appear (with W. T. Stanbury) to provide views on competition in the airline industry.

House of Commons Standing Committee on Industry, May 4, 2000. Asked to appear to provide views on the *Competition Act* and proposed amendments.

House of Commons Standing Committee on Industry, Science and Technology. Asked to appear to discuss proposed amendments to the *Competition Act* contained in Bill C-23, Oct. 23, 2001.

House of Commons Standing Committee on Industry, Science and Technology. Asked to appear to participate in Roundtable on Competition Policy, December 4, 2001.

House of Commons Standing Committee on Industry, Science and Technology. Asked to appear to discuss proposed amendments to the *Competition Act* contained in Bill C-249, April 2, 2003.

Professional Affiliations

American Economic Association
Canadian Economics Association
European Association for Research in Industrial Economics
American Bar Association, Section on Antitrust Law

Refereed Submissions For (recent years only)

American Economic Review, Canadian Journal of Economics, Economic Inquiry, Econometrica, Economica, International Economic Review, International Journal of Industrial Organization, International Journal of the Economics of Business, Journal of Business, Journal of Economics and Management Strategy, Journal of Economic Psychology, Journal of Law and Economics, Journal of Industrial Economics, Journal of International Economics, Journal of Political Economy, National Science Foundation, Queen's Law Journal, RAND Journal of Economics, Social Sciences and Humanities Research Council of Canada, Southern Economic Journal

External Promotion, Tenure and Theses Reviews For

Cleveland State University, Columbia University, Purdue University, Queen's University, Simon Fraser University, University of Alberta, University of British Columbia, University of Calgary, University of Guelph, University of Montreal, University of Toronto, University of Victoria, University of Waterloo, University of Windsor, Virginia Polytechnic Institute and State University, York University

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Section 1: Direct Evidence of Market Power

1.1 Bibby's Sales of Top 3 Products of Each Category

1.2 Graphs of Ratio of Final Prices of the Top Product in Each Category

Ratio of Final Prices of Pipe 14100 (Jan 98 - Sep 2003)

Date

Ratio of Final Prices of Coupling 20030 (Jan 98 - Sep 2003)

Ratio of Final Prices of Fitting 31830 (Jan 98 - Sep 2003)

Date

1.3 Margins of Pipes and Fittings

Summary of Gross Profit Margins

Summary of Contribution Margins

Distribution of Gross Margins of Pipe 12100

Distribution of Contribution Margins of Pipe 12100

Distribution of Gross Margins of Pipe 13100

Distribution of Contribution Margins of Pipe 13100

Distribution of Gross Margins of Pipe 14100

Distribution of Contribution Margins of Pipe 14100

Distribution of Gross Margins of Fitting 31430

Distribution of Contribution Margins of Fitting 31430

Distribution of Gross Margins of Fitting 31830

Distribution of Contribution Margins of Fitting 31830

Distribution of Gross Margins of Fitting 31840

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Distribution of Contribution Margins of Fitting 31840

1.4 Graphs of Final Prices of the Top 3 Products in Each Category

Final Price of Pipe 12100 (Jan 1998 - Sep 2003)

Final Price of Pipe 13100 (Jan 1998 - Sep 2003)

Final Price of Pipe 14100 (Jan 1998 - Sep 2003)

Final Price of Coupling 20020 (Jan 1998 - Sep 2003)

Final Price of Coupling 20030 (Jan 1998 - Sep 2003)

Final Price of Coupling 20040 (Jan 1998 - Sep 2003)

Final Price of Fitting 31430 (Jan 1998 - Sep 2003)

Final Price of Fitting 31830 (Jan 1998 - Sep 2003)

Final Price of Fitting 31840 (Jan 1998 - Sep 2003)

1.5 Regression Analysis of Effects of Imports into BC and Alberta

1.6 Regression Analysis of Effects of Vandem's Entry into Ontario

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Section 2: Indirect Evidence of Market Power

2.2 Geographic Market Definition

2.2.2 Correlations of Logarithm of Bibby's Final Prices between Regions by Product

2.2.3 Correlations of First Differences of Logarithm of Bibby's Final Prices between Regions by Product

2.2.4 Test of Cointegration between Regions by Product

Pipe 12100

	Maritimes	Ontario	Prairies	Alberta	BC
Unit Root I(1)	Yes	Yes	Yes	Yes	Yes
Cointegration	**Maritimes**	**Ontario**	**Prairies**	**Alberta**	**BC**
Maritimes		No	Yes	No	No
Ontario	No		No	No	No
Prairies	Yes	No		Yes	No
Alberta	No	No	Yes		No
BC	No	No	No	No	

Pipe 13100

	Ontario	Prairies	Alberta	BC
Unit Root I(1)	Yes	Yes	Yes	Yes
Cointegration	**Ontario**	**Prairies**	**Alberta**	**BC**
Ontario		No	No	No
Prairies	No		No	No
Alberta	No	No		No
BC	No	No	No	

Pipe 14100

	Ontario	Prairies	Alberta	BC
Unit Root I(1)	Yes	Yes	Yes	Yes
Cointegration	**Ontario**	**Prairies**	**Alberta**	**BC**
Ontario		No	No	No
Prairies	No		No	No
Alberta	No	No		No
BC	No	No	No	

Coupling 20020

	Maritimes	Quebec	Prairies	BC
Unit Root I(1)	Yes	Yes	Yes	Yes
Cointegration	**Maritimes**	**Quebec**	**Prairies**	**BC**
Maritimes		No	Yes	Yes
Quebec	No		No	No
Prairies	Yes	No		No
BC	Yes	No	No	

Coupling 20030

	Prairies	Alberta	BC
Unit Root I(1)	Yes	Yes	Yes
Cointegration	**Prairies**	**Alberta**	**BC**
Prairies		No	No
Alberta	No		No
BC	No	No	

Coupling 20040

	Prairies	Alberta	BC
Unit Root I(1)	Yes	Yes	Yes
Cointegration	**Prairies**	**Alberta**	**BC**
Prairies		No	No
Alberta	No		No
BC	No	No	

Fitting 31430

	Maritimes	Quebec	Ontario	Prairies	Alberta	BC
Unit Root I(1)	Yes	Yes	Yes	Yes	Yes	Yes
Cointegration	**Maritimes**	**Quebec**	**Ontario**	**Prairies**	**Alberta**	**BC**
Maritimes		Yes	No	No	No	No
Quebec	Yes		No	No	No	No
Ontario	No	No		No	No	No
Prairies	No	No	No		No	No
Alberta	No	No	No	No		No
BC	No	No	No	No	No	

Fitting 31830

	Maritimes	Quebec	Ontario	Prairies	Alberta	BC
Unit Root I(1)	Yes	Yes	Yes	Yes	Yes	Yes
Cointegration	**Maritimes**	**Quebec**	**Ontario**	**Prairies**	**Alberta**	**BC**
Maritimes		Yes	No	No	No	No
Quebec	Yes		No	No	No	No
Ontario	No	No		No	No	No
Prairies	No	No	No		Yes	No
Alberta	No	No	No	Yes		No
BC	No	No	No	No	No	

Fitting 31840

	Maritimes	Quebec	Ontario	Prairies	Alberta	BC
Unit Root I(1)	Yes	Yes	Yes	Yes	Yes	Yes
Cointegration	**Maritimes**	**Quebec**	**Ontario**	**Prairies**	**Alberta**	**BC**
Maritimes		No	No	No	No	No
Quebec	No		No	Yes	No	No
Ontario	No	No		No	No	No
Prairies	No	Yes	No		Yes	No
Alberta	No	No	No	Yes		No
BC	No	No	No	No	No	

2.2.5 Test of Granger Causality between Regions by Product

2.3 Product Market Definition

2.3.2 Correlation of Logarithm of Bibby's Final Prices between Products by Region

2.3.3 Correlation of First Differences of Logarithm of Bibby's Final Prices between Products by Region

2.3.4 Test of Cointegration between Products by Region

2.3.5 Test of Granger Causality between Products by Regions

2.4 Market Shares

Appendix 3

Section 3: Competitive Effects of the SDP

3.2 Value of Rebates and Discounts of Bibby's Top 3 Products in each Category

3.3 Graphs of Effective Percentage Discount off of List Prices

Graph-Discount Percentage of Pipe 14100

Graph-Discount Percentage of Coupling 20030

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3.4 Graphs of Sales of the Top Product in Units in each Category

Units Sold of Coupling 20030 (Jan 1998 - Sep 2003)

Units Sold of Fitting 31830 (Jan 1998 - Sep 2003)

3.5 Market Growth Regressions

Couplings

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Fittings