

EXCLUSIVE DEALING IN NEW ZEALAND ALCOHOLIC BEVERAGE MARKETS

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I. Introduction

Exclusive dealing is the requirement that retailers who sell the brands of a particular supplier do not sell substitute brands. A number of explanations have been given for this vertical restriction. Two traditional explanations for exclusive dealing are i) that it increases rivals' costs by closing off markets for their brands, and ii) that it increases retailer effort by restricting the brands that they can sell¹. More recently, it has been explained as a means to prevent manufacturers free-riding, for example on the promotion and advertising expenditures of rivals².

This paper analyses exclusive dealing in New Zealand alcoholic beverage markets. Various explanations were used to argue against statutory prohibitions on exclusive dealing in New Zealand alcoholic beverage markets at the turn of the twentieth century. These markets were probably the first in New Zealand where exclusive dealing was used. Exclusive dealing had two sets of terms and conditions in these markets. First, retailers received concessionary interest rates on loans for retail amenity acquisition and improvement from manufacturers and wholesalers in exchange for exclusive deals (known as the 'loan-tie'). Second, retailers paid lower rentals on amenities leased from manufacturers and wholesalers. This second contract was a form of franchise tying³. Under it, retailers were required to purchase all their beverage requirements

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¹ See Scherer (1980) p 586; Mathewson and Winter (1987); Sass and Gisser (1989).

² See Marvel (1982).

³ For a discussion of franchise contracts in New Zealand alcoholic beverage markets, see Mulcare (1998).

from their lessor⁴, but under the loan-tie, manufacturers of different classes of beverage might share exclusive contracts⁵.

The paper is organised as follows. Following this introduction, Section II outlines organisational features of New Zealand alcoholic beverage markets from 1870 to 1931. Section III discusses motives for exclusive dealing in these markets. Section IV discusses the payments made to retailers as compensation for the reduction in choice under exclusive deals. The impact of exclusive dealing is analysed in Section V. Section VI concludes.

II. The Organisation of New Zealand Alcoholic Beverage Markets

The three major industry groups in New Zealand alcoholic beverage markets at the turn of the twentieth century were brewers, who manufactured beer, liquor wholesalers who imported beer, wine and spirits, and publicans, who operated the dominant class of retail outlet, the hotel. All manufacturers and retailers were licensed, and this was an important determinant of market structure. For example, from 1874 only imported spirits could be legally consumed in New Zealand after all licenses to manufacture spirits were revoked. The higher cost of imported beverages relative to domestically-produced beverages was one reason for the expansion of market share of beer relative to spirits⁶. Similarly, publicans' share of the retail market increased after 1896 with the withdrawal of the other important class of retail license, the bottle license.

Restrictions on new brewers' licenses were imposed from 1931, but local monopolies in beer manufacture existed prior to this for two reasons. First, beer is perishable. This limited the distance it could be shifted without spoiling prior to the application of chemical preservatives to

⁴ Exclusive retailers were allowed to sell rival brands of bottled beer, but for quality control reasons this concession did not extend to draught beer (see Section III).

⁵ Source: Proceedings (1945) p 6877.

⁶ Higher excise levies were also imposed on wine and spirits to reflect their higher alcoholic content. In 1882 the shares by volume of beer, wine and spirits consumed in New Zealand were 88 per cent, 2 per cent and 10 per cent respectively, and in 1931 they were 94 per cent, 4 per cent and 2 per cent respectively. Source: Bloomfield (1984) p 120-121.

brewing⁷. Travel times between markets fell over the twentieth century, but interbrand competition remained limited until after world war two by variations in brewers' yeast. Brewers' yeast was a barrier to new products because exposure to unfamiliar yeast could adversely affect consumers' digestive systems. Variations in yeast existed because beer was manufactured in open vats, which exposed brews to contamination by 'wild' airborne yeast. This open-vat practice persisted until the 1950's, and until this time the market was characterised by a proliferation of local brands (Figure 1).

Exclusive dealing became widespread from 1880 after entry to hotels was restricted. From 1880, new hotel licenses were only issued in licensing districts where the population had increased by twenty-five per cent, subject to at least sixty per cent of the electoral population of that district authorising this increase at a licensing poll. Owners of hotel licenses also risked license forfeiture without compensation. Prior to 1893, this risk arose if publicans were caught offending against the licensing act⁸, but from 1893 hotel license issue was subject to referenda. Between 1893 and 1911, either twenty-five per cent or all of the hotel licenses within a licensing district could be confiscated without compensation, according to the results of a triennial poll taken contiguously with parliamentary elections⁹. In the event of partial hotel license confiscation (known as license reduction), the licenses of hotels operated by publicans caught offending against the licensing act were automatically confiscated; licensing authorities could at their discretion revoke the licenses of other hotels that failed to meet minimum amenity standards. Licenses confiscated by reduction were permanently lost. In the event of confiscation of all the hotel licenses in a licensing district (known as no-license), licenses remained confiscated unless returned in

⁷ New Zealand brewers did not use chemical preservatives until after world war two. Alcohol is itself a preservative, and increasing the alcoholic content of beer was the main means by which brewers increased the 'life' of their beer. The average alcoholic content of New Zealand beer fell from 1917 after the imposition of higher excises on beer of a higher alcoholic content.

⁸ Offences against the licensing act that could result in hotel license confiscation ranged from brothel-keeping to trading outside of the hours prescribed by the license. Hotel licenses were transferable, and hotel license owners could transfer licenses from publicans caught offending against the act to other publicans. See [AJHR \(1946\) H-38](#).

⁹ Reduction was abolished after the 1911 licensing poll. In 1919, all electorates apart from those that had passed no-license by this time were given national but not local options. That is, electorates could either vote for the *status quo* (national continuance), a prohibition on the sale of alcoholic beverages over the whole country (national prohibition), or nationalisation of alcoholic beverage retailing and manufacturing (state control).

subsequent referenda. As a consequence, the number of hotels in New Zealand fell from the last decade of the nineteenth century (Figure 1).

Exclusive dealing was used in approximately seventy five per cent of New Zealand hotels by the turn of the twentieth century. Nearly all these hotels were in the North Island or the Canterbury province of the South Island¹⁰. Within these provinces, exclusive deals were used more in larger than in smaller population centres¹¹. Exclusive dealing's domination of these markets was briefly reversed around the formation of the leading twentieth century New Zealand brewer, New Zealand Breweries Ltd.. This company was formed in 1923, and it did not use exclusive deals until the latter half of the 1930's¹².

The incidence of the two forms of exclusive dealing varied. Twenty years after its establishment, New Zealand Breweries used loan ties and franchise ties in approximately equal proportions. More established brewers and liquor wholesalers used franchise ties more than loan ties, reflecting the fact that they owned more hotels than more recent entrants did. Franchise ties increased relative to loan ties over the twentieth century as hotel ownership by brewers and liquor wholesalers increased. They owned hotel freeholds and leaseholds, and used franchise ties for both forms of ownership. For quality control reasons, brewers used exclusive dealing more extensively than liquor wholesalers did (Section III)¹³.

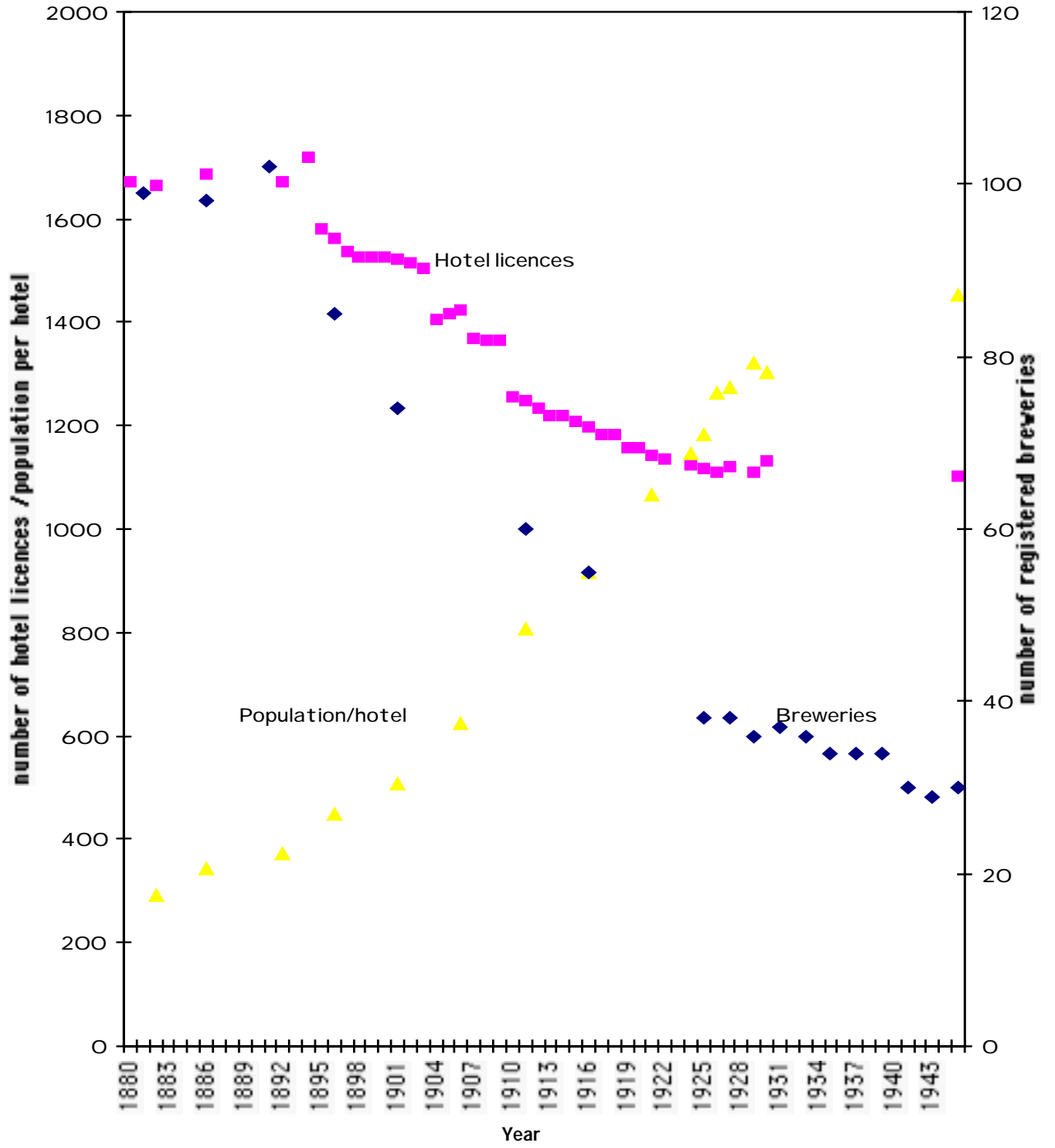
¹⁰ Exclusive dealing was used in South Island provinces other than Canterbury after world war two.

¹¹ For example, by the turn of the twentieth century, almost all the hotels in the largest city (Auckland) were under exclusive deals, but throughout the Auckland province approximately seventy five per cent of hotels were. Source: AJHR (1946) H-38 p 40-45; JALCNZ (1902) no 2 *passim*.

¹² NZB's share of the beer market was approximately 75 per cent in 1923. It is known to have undertaken exclusive deals by 1937, although it purchased its first hotel in 1933. Source: Gordon (1993) p 71; Statistics (1924) p 24; Proceedings (1945) p 4070, p 4211, p 6858; NZB Archives.

¹³ Source: AJHR (1946) H-38 p 40-45; JALCNZ (1902) no 2 *passim*.

Figure 1



Exclusive dealing in New Zealand alcoholic beverage markets was prohibited by statute in 1895. This prohibition was circumvented by making exclusive deals optional and penalising publicans who chose not to accept them. Those who did not accept exclusive deals paid higher hotel rentals or higher interest rates on loans than did exclusive dealers. In response to this circumvention, legislators introduced a bill in 1902 that prohibited alcoholic beverage manufacturers and wholesalers from owning retail outlets, or providing finance for this ownership. This bill was not passed, because legislators came to recognise the competitive aspects of exclusive dealing and the higher costs of alternative capital markets. Submissions by industry groups to the 1902 bill provide explanations for exclusive dealing discussed in Section III.

III. Motives for Exclusive Dealing

This section discusses four explanations for exclusive dealing in alcoholic beverage markets. Three of these were cited in submissions to the 1902 bill, two of which are quality control arguments. First, exclusive dealing maintained the quality of a perishable product by increasing its throughput. Second, it prevented brand misrepresentation. The third explanation is that exclusive dealing eliminated the risk of foreclosure of scarce retail outlets. The argument that in doing so, exclusive dealing eliminated local monopolies, is also discussed below.

i) Quality control

Brewers argued that restricting the brands of draught beer a retailer sold increased the throughput of franchised brands. Faster throughput reduced the period in which draught beers remained open to spoiling, which is why exclusive deals were rigorously enforced on draught beer but not bottled beer¹⁴. Bottled beer was less perishable than the same quantity of draught beer because it sold in a much smaller container. The absence of foreclosure of bottled beer

¹⁴ Source: JALCNZ no 2 p 11, p 16, p 26, p 44, p 64, p 66, p84, p 87, p 100; Proceedings (1945) p 4307, p 6878.

markets in turn encouraged bottled beer production relative to draught beer production¹⁵. This increased manufacturers' quality control, because retailers had no input to bottled beer quality to the consumer whereas they did affect draught beer quality through their dispensing technology.

Brewers also argued that exclusive dealing prevented rivals free-riding on investments in promotion and advertising. Hotels were the important advertising investment made by manufacturers in turn of the century beer markets; retail amenity quality signaled draught beer quality¹⁶. Brewers also claimed that exclusive dealing prevented retailers from misrepresenting brands by substituting lower price brands for name brands. Labeling prevented retailers from switching bottled beer brands, but consumers could not see the origin of draught beer dispensed from hotel cellars¹⁷.

ii) Market security

Securing scarce retail outlets was admitted to be the primary rationale for exclusive dealing. Restrictions on hotel license issue as alcoholic beverage consumption increased made hotel licenses scarce. Exclusive dealing eliminated the risk of foreclosure. Brewers argued that secure markets for their products provided security to new brewery capital formation, offsetting the risk of confiscation of these assets. It also aggregated demand and lowered demand uncertainty for a perishable product¹⁸.

¹⁵ Between 1911 and 1925, average bottled beer production in New Zealand markets subject to exclusive deals was approximately 47 per cent of their total beer production, whereas over the same period average bottled beer production in other New Zealand markets increased from 10 per cent to 14 per cent of their total beer production. In 1911 the Auckland province produced 25 per cent of national beer production but it accounted for over 75 per cent by value of bottling inputs purchased. This province had the highest incidence of exclusive dealing at this time. Source: Statistics.

¹⁶ This was related to the issue of throughput. A higher quality amenity suggested more vigorous business, and hence faster beer turnover, than a low quality amenity. See Proceedings (1945) p 6682, 6725; Hawkins and Pass (1979) p 84-85; Mulcare (1998) p 65.

¹⁷ Source: JALCNZ no 2, 10-11, 16, 26, 40, 44, 64; Proceedings (1945) p 4307, 6878. For similar arguments for US and UK beer markets, see Carlton and Perloff (1994) p 532 and Gourvish and Wilson (1994) p 44-45, 138-140, respectively.

¹⁸ See Carlton (1979). Source: JALCNZ (1902) no 2 p 15, 32 and *passim*; Proceedings (1945) p 4067, 4285, 4319.

Exclusive dealing increased rivals' costs, for two reasons. First, it made the hotels available to rival manufacturers more scarce, increasing the price that they paid to secure these outlets. Alternatively, higher distribution costs were incurred in selling through these hotels because of such factors as poor location¹⁹. Second, in order to avoid foreclosure new entrants needed to contemplate entry at two stages of production²⁰. They incurred sunk costs at both stages in doing so. Sunk costs were created by uncertainty over license renewals, which from 1893 to 1975 depended on the outcome of licensing referenda. License owners were not compensated in the event that licenses were not renewed. Retail licenses could also be confiscated without compensation if retailers contravened licensing laws, and as noted above this risk increased from the 1870's. Sunk costs also increased as hotel license prices rose to reflect increasing scarcity.

New Zealand legislators viewed exclusive dealing as a device to secure markets as anti-competitive, but it may have eliminated local monopolies by transferring demand to dominant manufacturers. Leading rather than following brands were generally sold under exclusive deals, since the opportunity cost of restricting choice is lower for the former than for the latter²¹. Brewers whose draught beer was excluded from hotels either specialised in the production of bottled beer or quit the market²². Differentiated local brands existed in part because of consumer resistance to the unfamiliar yeast of new products. Resistance was overcome by eliminating these local brands; consumers unwilling to alter their tastes drank (higher price) bottled beer.

IV. Compensation and Exclusive Dealing in Alcoholic Beverage Markets

¹⁹ Hotel license transfers between licensing districts were prohibited from 1881, and within licensing districts they were limited to a maximum of half a mile (urban licensing districts) or one mile (rural licensing districts) after 1904. A further issue for distribution is firm size. Economies of scale and scope may have existed in alcoholic beverage distribution, in which case exclusive dealing raises the costs of smaller brewers more than the costs of larger brewers. As is noted below, exclusive deals were generally used by larger rather than smaller firms.

²⁰ Brewers also owned hotels to monitor product quality and to moderate externalities associated with alcohol consumption: see Mulcare (1998).

²¹ See Mathewson and Winter (1987). Source: *JALCNZ* (1902) no 2 *passim*; *AJHR* (1946) H-38 *passim*.

²² Bottled beer could be sold direct from the brewery, through liquor wholesalers, and through hotels where exclusive deals on bottled beer were not rigorously enforced.

This section outlines the compensation that exclusive publicans received for restricting the brands they sold. Exclusive dealers are commonly compensated for lower choice through wholesale price reductions or lower franchise fees. In New Zealand, exclusive publicans either received hotel rental discounts or discounted interest on loans²³. Most publicans were either lessees or mortgagees, because hotel license scarcity made freehold hotel ownership beyond their financial resources. Exclusive dealing lowered their fixed costs. This is an example of a traditional argument for compensation in exclusive deals, namely that exclusive dealers exchange greater choice for the lower intrabrand competition of exclusive territories²⁴. Intrabrand and interbrand competition were lower under the fixed territories of alcoholic beverage licensing.

Lower fixed costs for exclusive publicans were associated with higher quality of retail amenity in markets where exclusive dealing was used. By the turn of the twentieth century, average hotel capital values in urban markets subject to exclusive dealing were four times higher than average hotel capital values in other urban markets²⁵. Brewers and liquor wholesalers improved hotels to advertise, and to comply with minimum amenity standards to lower the risk of license confiscation in the event of a successful vote for license reduction.

Unlike their British counterparts, New Zealand publicans who paid lower hotel rentals were not charged higher wholesale prices²⁶. This is supported by wholesale price trends; wholesale beer prices in markets subject to exclusive deals ('tied' markets in Figure 2) were similar to wholesale beer prices in other markets ('untied' markets in Figure 2²⁷). Regression analysis also did not find significant price divergence between tied and untied markets (Section V).

²³ Vertical restrictions promote non-price competition, and this is more effectively achieved through fixed cost reductions than variable cost reductions. Alcoholic beverages markets are also subject to low price elasticities, and this may have lowered the effectiveness of wholesale price reductions. Source: Winter (1993); Grant and Platt (1983) p 35-37, 110-112, 240-241.

²⁴ Source Scherer (1980) p 586. See also Marvel (1982) p 4.

²⁵ Source: *Statistics passim*. *JALCNZ* no 2 p 25, 27, 29, 85, 102, 123-132; *Proceedings* (1945) p 4220, 4180, 4285-4286, 5996, 6014, 6679-6680. Inter-provincial comparisons of hotel values are made problematic by different provincial license densities and locations, and different provincial levels of the accommodation facilities attached to hotels.

²⁶ Source: *Proceedings* p 4068, 4101, 6740, 6777-6784, 6804, 6877-6880; *JALCNZ* (1902) no 2 p 9, 10, 12, 20, 22, 24-25, 27-28, 41, 50-54, 65, 69, 74, 80, 89; Hawkins and Pass (1979) p 35, 91-92; Gourvish and Wilson (1994) p 137, 437-441.

²⁷ 'Tied' provinces are those indicated at 1902 as having at least 75 per cent of hotels subject to an exclusive deal (Auckland, Taranaki, Hawkes Bay, Wellington and Canterbury). The remaining provinces (Nelson,

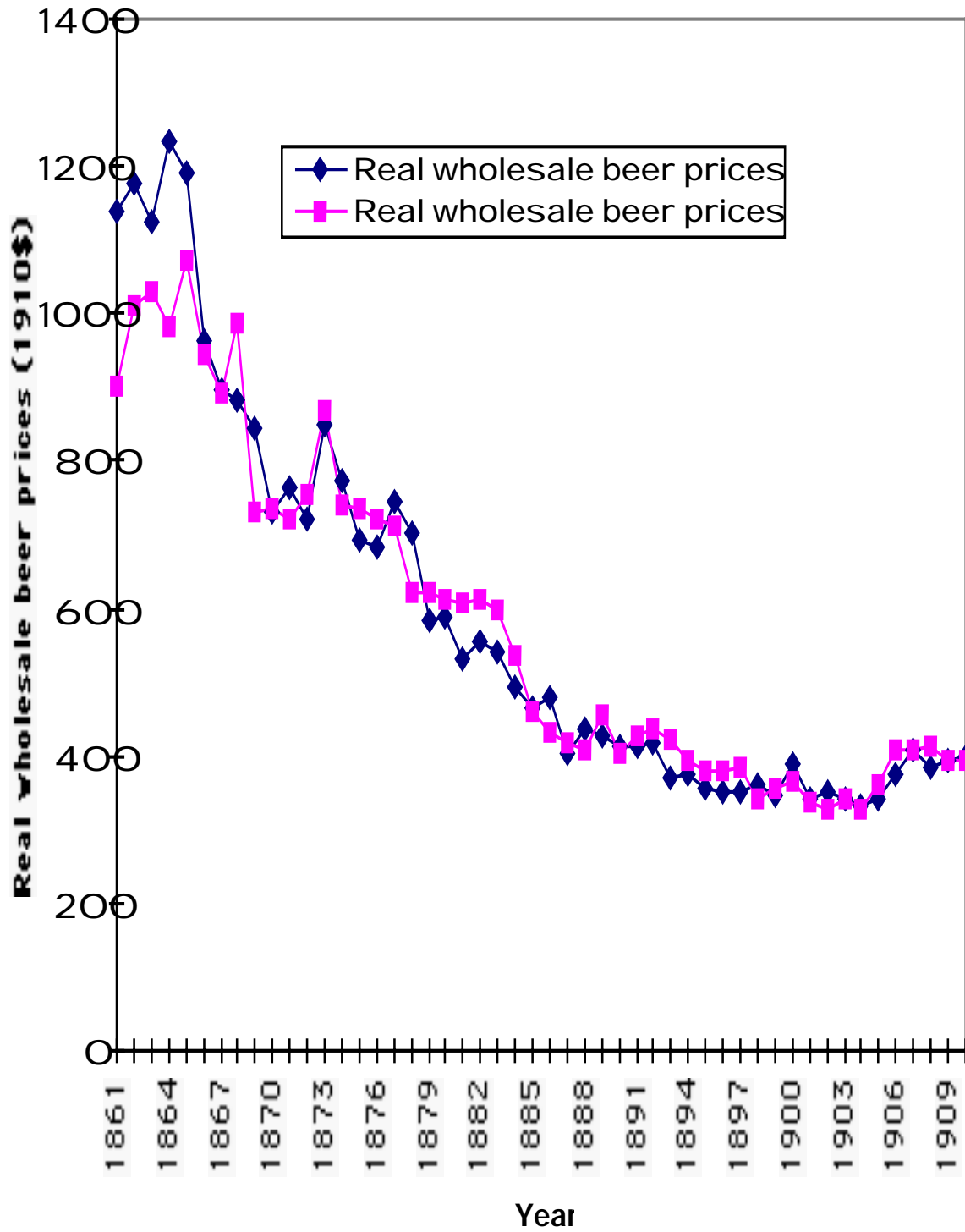
V. The Impact of Exclusive Dealing

This section tests for significant differences in outcomes in alcoholic beverage markets where exclusive dealing was and was not used. In the process, an assessment can be made of the relevance of the explanations for exclusive dealing discussed in Section III. Pooled cross-section regressions are undertaken in Tables 1 and 2 to test the significance of capital stock per brewery, output per brewery, the number of breweries and brewery input costs in explaining wholesale beer prices²⁸. The regressions of Table 1 cover the period 1881 to 1911, which is the period for which exclusive dealing was the dominant means of selling beer in a subset of markets. The regressions of Table 2 are for the period 1919 to 1931, when most beer did not sell under exclusive deals in this subset of markets.

Marlborough, Westland and Otago (including Southland)) are 'untied'. Source: *Statistics passim*; McIlraith (1911) p 51-61; Rankin (1991) p 58; *JALCNZ* no 2 (1902) p 20, p 108 - 113; New Zealand National Archives Wellington Napier Licensing Court Licensing Register reference AAOW W3244.

²⁸ For a discussion of the variables of Table 1 and 2, see the Appendix. Source: *Statistics* (1881-1920) *passim*; *Statistics of Industrial Manufacture* (1921-23) *passim*; *Statistics of Factory Production* (1924-32) *passim*; McIlraith (1911) p 51-61; Paul (1985) *passim*; Gordon (1993) p 60; New Zealand Breweries Archives Speights Branch Trading Account September 1927-March 1932.

Figure :



In Table 1, positive coefficients are expected on brewery input costs variables; an insignificant or positive coefficient is expected on the output per brewery variable²⁹. If the number of breweries is a measure of competitiveness, then prices are expected to be negatively correlated with the number of breweries. A negative coefficient on the capital stock per brewery variable is also expected, to reflect undercapitalisation of markets because of the risk of asset confiscation. Dummy variables are used to test the explanations for exclusive dealing of Section III. Price divergence between tied and untied markets is tested using a dummy variable that takes the value of one in tied markets, otherwise zero. A positive coefficient on this variable implies that prices were higher in tied markets than in untied markets, which would support the hypothesis that exclusive dealing prevented publicans from switching to lower price brands. The variable *dumcapitalstock/brewery*, which is the capital stock per brewery variable multiplied by the dummy variable, tests the hypothesis that exclusive dealing provided manufacturers with secure markets for brewery output. If this was the case, capitalisation should be higher in tied markets than in untied markets, and this would be revealed by a positive coefficient on *dumcapitalstock/brewery*. If exclusive dealing was used to maintain quality by increasing beer throughput, this would be revealed by a negative coefficient on the variable *dumoutput/brewery*, which is the output per brewery variable multiplied by the dummy variable³⁰. The variable *dumnumberbreweries* represents the impact of the elimination of follower brands by leading brands. A positive coefficient on this variable implies that wholesale prices fell as the number of breweries in tied markets fell, which would support the hypothesis that exclusive dealing eliminated local monopolies.

²⁹ The regression is:

$$\text{Price} = aq + bic + dk + gn + e$$

Where q = output per brewery

ic = input costs

k = capital stock per brewery

n = number of breweries

e = error

If price equals average costs (ac), then $a = dac/dq = [mc - ac]/q$,

where mc = marginal costs. It is expected that $mc = ac$ i.e. that $a = 0$.

³⁰ A negative coefficient on this variable would imply that brewery costs fell as throughput increased: see previous note.

With one exception, all dummy variables have insignificant coefficients. The one exception is dumnumberbreweries, which is positive. The coefficients on this variable and on the number of breweries variable in Regression (2) imply that falling wholesale beer prices were associated with falling brewery numbers in tied markets but not untied markets. This result is consistent with exclusive dealing eliminating local monopolies, and it is supported by the results of Table 2, which covers the period when most beer did not sell under exclusive deals.

Table 2 contains two new brewery input cost variables, bottling costs and residual costs, both of which are expected to be positively correlated with wholesale prices. The inputcosts variable in Table 2 is the residual of the extrapolated inputcosts variable of Table 1 and bottling costs and residual costs; it is expected to be negative. The variable output per brewery is expected to be insignificant. The capital stock per brewery variable is expected to be insignificant, to reflect the receding threat of asset confiscation over the interwar period. The number of breweries variable is expected to be insignificant, as per Table 1. Dummy variables now compare outcomes in untied markets and formerly tied markets³¹. Of the dummy variables, only the variable "dummy" may be expected to be significant explanatory variable of wholesale prices. This is because the insignificant coefficient on the variable "dummy" in Table 1 implied that there was no significant difference in wholesale prices between tied and untied markets; such a relationship might exist in the absence of exclusive dealing, that is between untied and formerly tied markets.

³¹ The expression 'formerly tied' is used to denote that most, but not all beer, no longer sold under exclusive deals after 1919.

Table 1
Pooled Cross Section Regressions of Wholesale Prices 1881-1911

Dependent variable	(1)	(2)
	Price	Price
Constant	-.012 (.010)	-.0098 (.025)
INPUTCOSTS	.61*** (.063)	.53*** (.065)
OUTPUT/BREWERY	.054 (.046)	.064 (.086)
CAPITAL STOCK/BREWERY	-.084*** (.034)	-.14* (.074)
NUMBER OF BREWERIES	.12*** (.044)	.0093 (.14)
DUMMY		-.023 (.028)
DUMNUMBERBREWRIES		.16* (.09)
DUMCAPITALSTOCK/BREWERY		.10 (.079)
DUMOUTPUT/BREWERY		-.043 (.093)
R ²	.84	.84

F

38

41

standard errors in parentheses

= significant at least at the 5% level; *** = significant at least at the 1% level

For a definition of variables, see Appendix

Table 2
Pooled Cross Section Regressions of Wholesale Prices 1919-1931

=====			
		(1)	(2)
Dependent variable		Price	Price
Constant		-0.023 (.010)	-.020 (.014)
INPUTCOSTS		.34*** (.067)	.41*** (.064)
OUTPUT/ BREWERY		-.41*** (.088)	-.62*** (.10)
CAPITAL STOCK/BREWERY		.065 (.046)	.17*** (.060)
NUMBER OF BREWERIES		-.48*** (.13)	-.91*** (.16)
BOTTLE COSTS/OUTPUT		.13*** (.030)	.12*** (.030)
RESIDUAL COSTS/OUTPUT	.092***	.068*** (.036)	.033 (.033)
DUMOUTPUT/BREWERY			.28*** (.11)
DUMCAPITALSTOCK/BREWERY			-.20*** (.089)
DUMNUMBERBREWERIES			.21 (.18)
DUMMY			.036* (.022)

R ²	.52	.63
F	12.0	12.0

standard errors in parentheses

* = significant at least at the 5% level; *** = significant at least at the 1% level

For a definition of variables, see Appendix

There are a number of important results of Table 2. First, in the absence of exclusive dealing, the number of breweries is negatively correlated with wholesale prices and the coefficient on $\text{dumnumberbreweries}$ is insignificant. This implies that rising wholesale beer prices were associated with falling brewery numbers in both untied and formerly tied markets. Furthermore, the positive coefficient on the dummy variable implies that wholesale prices were higher in formerly tied markets than in untied markets. The negative coefficient on output per brewery in Table 2 was not expected, but it is compatible with the existence of local monopolies in beer manufacture³². These results are interpreted as implying that interbrand competition was lower after exclusive dealing was no longer in common use. This is supported by the coefficients on the dumoutput/brewery and $\text{output per brewery}$ variables; in Table 2, a 1 per cent decrease in output per brewery in untied markets was associated with a 0.62 per cent increase in wholesale prices, whereas the same decrease in output per brewery in formerly tied markets was associated with a 0.34 per cent increase in wholesale prices. This suggests that interbrand competition was lower in untied markets than in formerly tied markets where a few brewers still used exclusive dealing.

The positive coefficient on the capital stock per brewery in Table 2 was not expected. The coefficients on this variable and on the $\text{dumcapitalstock/brewery}$ variable imply that markets in untied markets were overcapitalised but markets in formerly tied markets were not. This might be explained by superior information in formerly tied markets. New brewery capital formation increased as the threat of asset confiscation receded over the interwar period. Brewers in formerly tied markets were able to make accurate forecasts based on past information on demand derived from exclusive dealing³³. Brewers in untied markets did not possess this information, and inaccurate predictions of demand caused excess capacity in these markets.

VI. Conclusion

³² That is, $mc < ac$ (see note 29).

³³ Exclusive dealing allowed brewers to aggregate and directly observe demand at retail outlets: see Carlton (1979); Vaizey (1960) p 400; Hawkins and Pass (1979) p 105; *Proceedings* (1945) *passim*.

New Zealand brewers and liquor wholesalers explained exclusive dealing as a means to secure scarce retail outlets, to maintain quality of a perishable product, and to avoid misrepresentation of brands. Data support only the first of these explanations. Using exclusive dealing to secure markets was not anti-competitive, but on the contrary it eliminated local monopolies. Eliminating local brands was necessary to overcome consumer resistance and transfer demand to dominant manufacturers. Consumers were compensated for lower choice by lower wholesale beer prices and by improved retail amenities.

Foreclosure was primarily caused by the scarcity of retail outlets created by licensing. Legislators recognised this, but a prohibition on exclusive dealing was more feasible politically than market liberalisation was. That manufacturers and wholesalers would offer what was essentially a bribe to retailers to accept exclusive deals was viewed merely as a conveyancing device to circumvent this prohibition. Legislators did not recognise that such bribes were implicit in exclusive contracts, and that retailers were not compelled to take them. Instead, they sought to tighten up existing legislation by placing even greater restrictions on alcoholic beverage markets. This bill was not passed, in part because a majority of the legislature came to accept the pro-competitive arguments for exclusive dealing promoted not only by manufacturers but also by their exclusive dealers.

Appendix

Variables of Table 1

Dependent variable is average annual wholesale provincial draught beer prices.

All independent variables are quinquennial provincial observations converted to first differences of logarithms. They are as follows:

- i) Inputcosts is a five-year moving average of yearly provincial prices of barley, sugar, and coopers' wages, weighted by the relative expenditure on each variable by breweries in each province.
- ii) number of breweries is the number of registered breweries
- iii) capital stock/brewery is the real value of brewery capital divided by the number of registered breweries
- iv) output/brewery is brewery output divided by the number of registered breweries
- v) dummy is the dummy variable, with tied markets assigned a dummy of 1, otherwise 0 (see note 26 for a definition of tied markets)
- vi) dumnumberbreweries = dummy x number of breweries;
- vii) dumoutput/brewery = dummy x output/brewery
- viii) dumcapital stock/brewery = dummy capital stock/brewery.

Variables of Table 2

Except for the following variables, the variables of Table 2 are the same as those of Table 1 except that they are annual rather than quinquennial data and they include data on malthouses.

Dependent variable is the total provincial value of ale and stout (excluding duty) divided by the total provincial production of ale and stout.

Independent Variables:

- i) Inputcosts weights the provincial prices of barley, malt, sugar, and coopers wages (each estimated as expenditure divided by quantity purchased) by the relative expenditure on each variable by breweries in each province
- ii) Bottling costs equals expenditure on non-returnable bottles and casks, plus expenditure on corks, capsules, etc, plus expenditure on other brewing materials, all divided by brewery output.
- iii) Residual costs equal residual expenses divided by brewery output. Data on residual expenses was not given in 1919 and it is estimated by weighting total provincial expenses in 1919 by the share of residual expenses in total expenses in 1920.

- iv) Dummy - the dummy variable, with formerly tied markets assigned a value of 1, otherwise 0. Formerly tied markets are the same markets as Table 1's tied markets.

Bibliography

Bloomfield GT, New Zealand, A Handbook of Historical Statistics (Massachusetts, 1984).

Carlton, DW and Perloff JM, Modern Industrial Organisation (New York, 1994)

Carlton, DW (1979), Vertical Integration in Competitive Markets Under Uncertainty, Journal of Industrial Economics 27: 189-209.

Gordon D, Speights: the Story of Dunedin's Historic Brewery (Dunedin, 1993)

Gourvish TR and Wilson RG, The British Brewing Industry, 1830-1980 (Cambridge, 1994)

Grant M and Platt MA, Economics and Alcohol (Kent, 1983)

Hawkins KH and Pass CL, The Brewing Industry: a Study in Industrial Organisation and Public Policy (London, 1979)

Maclraith JW, The Course of Prices in New Zealand, (Wellington, 1911)

Marvel HP, Exclusive Dealing, Journal of Law and Economics 25 (1982) p 1-25

Mathewson GF and Winter RA, The Economics of Franchise Contracts, Journal of Law and Economics 28 (1985) p 503-26

Mathewson GF and Winter RA, The Competitive Effects of Vertical Agreements: Comment, The American Economic Review 77 5 (1987) p 1057-1062

Mulcare, TG, The Control of Alcoholic Beverage Markets, (Unpublished Ph.D Thesis, Victoria University of Wellington 1998)

New Zealand, Appendix to the Journal of the House of Representatives, (AJHR).

New Zealand, Journal and Appendix of the Legislative Council (JALCNZ)

New Zealand, Proceedings of the Royal Commission on the Sale of Alcoholic Liquor, (1945) (Proceedings)

New Zealand, Statistics of the Dominion of New Zealand,

New Zealand, National Archives Auckland, Wellington, Christchurch

New Zealand Breweries Archives, Auckland Office (NZB Archives)

New Zealand Breweries Archives, Speights Office

Rankin K, 'Gross National Product Estimates for New Zealand 1859-1939'. VUWGSBGM Working Paper Series 1/91, Victoria University Of Wellington (1991).

Sass TR and Gisser M, Agency Cost, Firm Size and Exclusive Dealing, Journal of Law and Economics 32 (1989) p 381-400

Scherer, FM, Industrial Market Structure and Economic Performance (Boston, 1980).

Vaizey, JE, The Brewing Industry 1886-1951: An Economic Study (London, 1960)

Winter RA, Vertical Control and Price Versus Nonprice Competition, Quarterly Journal of Economics p 60-76 (1993)