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Contributed Paper presented at the 35th  
Annual Conference of the Australian  
Agricultural Economics Society,  
Arisdale, 11-14 February 1991

## BRAND PREMIUMS AND DISCOUNTS FOR IMPORTED FROZEN BEEF SOLD AT THE LIPC'S TOKYO AUCTIONS

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### ABSTRACT

Japan's beef import quotas will be abolished on 1 April 1991. Imports will then be subject only to a 70% ad valorem tariff which will decline to 50% by 1 April 1993. Recent changes to the import quota system increased the scope and interest in, promotional and other activities by beef exporters designed to secure brand premiums. This scope and interest will increase markedly from 1 April 1991.

This study measures the brand premiums and discounts paid by meat wholesalers for imported frozen beef at the Livestock Industry Promotion Corporation's (LIPC) monthly wholesale auctions from November 1987 to May 1990. This beef was purchased under a tender system which allocated tenders to exporters for beef of specific quality on their price competitiveness. Consequently, significant quality differences between brands were not likely and buyers were not expected to pay brand premiums.

Data on over 7 000 individual lots of grass fed and grain fed beef was analysed by cut. On average significant premiums were paid for some brands of grainfed beef within some cut categories. However, the premiums were inconsistent over time as also was the ranking of the brands.

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The assistance of Richard Lange, (AMLC, Sydney), Vivienne Doogan, (Biometry Branch, QDPI) and Arlene Rutherford (Marketing Development Branch, QDPI) is gratefully acknowledged. However, the authors accept responsibility for any errors or omissions.

## 1. INTRODUCTION

From 1 April 1991 foreign access to the Japanese beef market will no longer be controlled by volumetric import quotas which have been set by the Japanese Government since 1964. Access will be controlled only by an ad valorem tariff starting at 70% during JFY 1991 declining to 50% by JFY 1993. For detailed accounts of the development and administration of the quota system see Longworth (1983), Johnston and Fisher (1988) and Australian Bureau of Agricultural and Resource Economics (1988).

As described by Jarratt (1989), until mid 1988 aspects of the quota controls greatly reduced the scope, and incentive, for exporters in countries such as Australia, New Zealand and the USA to use promotion and product differentiation to earn brand premiums from the market. This mainly reflected the tender system used by a quasi government agency, the Livestock Industry Promotion Corporation (LIPC), to purchase imported frozen beef for subsequent resale to the meat trade via auctions or at specified prices. Under this system, tenders were allocated to suppliers for nominated cuts of specific minimum quality only on the basis of their price competitiveness. Until mid 1988, this tender system accounted for 61% of total beef imports and Jarratt (1989) estimated there was scope for brand promotion of only 23% of total beef imports.

Jarratt (1989) analysed the prices of imported frozen beef purchased by the LIPC under the tender system and sold at the Tokyo auction from October 1986 to September 1987. Contrary to expectations, significant premiums were paid for some brands of selected imported cuts of grass and grainfed beef. The premiums were greatest for some brands of the grainfed cuts, short plate and tenderloin, all of which were supplied by US exporters. Premiums for brands of grassfed chuck and aged beef full sets were considerably lower. These brands were all from Australia. Possible explanations for the existence of these premiums included: actual differences in quality (possibly achieved at low cost); assumed differences in quality because of actual differences in beef imported under other arrangements, especially the Simultaneous Buy Sell (SBS) system; and the general influence of brand promotion.

Since Jarratt's analysis the annual import quota has increased rapidly, especially the SBS component. Furthermore, individual exporters have shown increasing interest in, and have undertaken, individual brand promotion. This interest reflects the increased scope to earn brand premiums and/or increase market share under the new quota arrangements, especially under the changed SBS system. It also reflects the possible scope for profitable individual brand promotion after 1 April 1991. The Japanese meat trade's interest in brands of imported frozen beef was also reflected in the introduction by the LIPC of a new frozen beef tender system in May 1990. The new system was designed to reflect the brand preferences of end users.

Brands are widely used in the marketing of many agricultural products in Japan at wholesale and retail level and beef is no exception. As reported by Jarratt and Longworth (1987) substantial premiums are paid at carcass auctions for several brands of domestic wagyu (traditional) beef.

The need for the promotion of individual brands of imported Australian beef in Japan after 1 April 1991 was a key conclusion of a market survey, "Winning in the Japanese Beef Market", undertaken for the AMELC in 1990. Furthermore, it is widely recognised that the promotion of individual brands of imported beef will be a major issue for the Australian and Queensland beef industries. Consequently, this study was undertaken to further develop and update previous work on this subject by Jarratt (1989).

As discussed in Jarratt (1989), the LIFCs monthly auctions of imported frozen beef are the only publicly available sources of data on the wholesale price of brands of imported beef in Japan. Consequently, this study also uses this data.

The main objectives of the study were to:

- investigate the existence of brand premiums and discounts for a wider range of cuts and longer periods of time than was possible in Jarratt's (1989) study; and
- investigate changes in, and the level of, brand premiums and discounts over time.

## 2 DATA AND METHODOLOGY

Data was obtained on individual lots of beef sold by the LIFC at monthly auctions in Tokyo for 31 months between November 1987 and July 1990 (data was not available for April and June 1990). Over 7000 lots were sold during this period covering 32 different cuts, of which 14 were graded cuts and 18 graded cuts. One hundred and three different brands were represented of which 42 were from Australia, 38 from the US, 18 from New Zealand and 5 from Canada. Two brands originated from both Australia and New Zealand.

Contrary to original expectations, there was insufficient data to allow the measurement and comparison of premiums/discounts for country of origin or, in the case of Australia, state of origin. Consequently, it was only possible to investigate brand premiums and discounts.

Sufficient data was available for the examination of the cuts and for the time periods shown in Table 1. The cuts and time periods were selected on the basis of the availability of sufficient sales of lots of selected brands each month.

Data for several cuts over the same time period, April 1989 to March 1990, was also analysed to permit the comparison of results over a uniform period. However, the results were very similar to those obtained for the longer time periods and are not shown here to simplify the presentation of the results.

OLS analysis of variance was selected as the analytical method for the study rather than OLS multiple linear regression analysis used by Jarratt (1989). The main reasons for the use of analysis of variance were:-

- the ability to handle unbalanced data sets;
- the ability to estimate mean values for brands;

- the facility of the investigation of interactions between possible explanatory factors of price variation.

None of the data sets examined exhibited any definite trend in price nor was any seasonality apparent. Consequently, time was treated as a categorical variable in all the analyses.

The factors included in the preliminary analysis for each cut and time period were: time (month); brand; brand x time; and weight of lot (yen/kg). However, weight of lot was not a statistically significant factor for any of the analyses undertaken. Consequently, weight of lot was excluded from the final analysis for each cut and time period.

### 3. RESULTS

The key results are summarised in Tables 2 and 3. The factors analysed (time, brand and brand x time) explained a very high proportion of the variation in price for each cut. The  $R^2$ s ranged from 0.87 to 0.99.

The price of most cuts fluctuated considerably over time. Consequently, time was a highly significant explanatory factor ( $P < 0.001$ ) for each cut and explained a very large proportion of the variation. Brand alone was only significant ( $P < 0.05$ ) for the grainfed cuts rib eye roll, short plate and tenderloin, i.e. for only 3 of the 7 cuts analysed. The brand x time interaction was significant ( $P < 0.001$ ) for 5 of the 7 cuts analysed.

The time x brand interaction indicates mainly that premiums and discounts and the ranking of brands were not constant over time. This was investigated further by calculating the percentage difference each month between the average price of each brand and the average price of all brands. This was done for each month in which there were sales of each brand. The results obtained for grainfed rib eye roll and short plate are shown in Figures 1 and 2. In both cases the percentage premiums and discounts fluctuated considerably over time. Separate analysis indicated that the premium for brand 10 grainfed short plate appeared to be inversely related to average price.

Significant ( $P < 0.05$ ) premiums were paid for some brands relative to the lowest priced brand only for the grainfed cuts rib eye roll, short plate and tenderloin, i.e. for only 3 of the 7 cuts analysed. The highest significant brand premium was 4% for brand 5 grainfed rib eye roll relative to brand 1. Brand 5 also achieved a statistically significant premium of 3.8%, relative to brand 1 for grainfed tenderloin. Brand 10 also achieved a significant ( $P < 0.05$ ) premium over brand 1 in the grainfed tenderloin category. However, brand 10 was the premium grainfed short plate brand achieving a premium of 3% over brand 5.

These results for average brand premiums and discounts are broadly comparable with those reported by Jarratt (1989) i.e. the largest premiums and discounts were found within some of the grainfed cuts. However, they differ substantially in some areas. Firstly, the grainfed short plate and tenderloin brand premiums were smaller in this than the previous analysis. Secondly, in this analysis no brand premiums or discounts for grassfed cuts were significant whereas Jarratt (1989) measured relatively small but significant premiums and discounts for some brands. Both these

results are probably due to the brand x time interaction. Thirdly, in the previous study for grainfed short plate the price of brand 10 was not significantly different from brand 5 but in this study brand 10 was the premium brand for this cut.

#### 4. DISCUSSION

This study has reconfirmed the findings of Jarratt (1989) that brand premiums and discounts have been paid for some cuts of imported frozen beef sold at the LIPC's auctions in Tokyo. This is despite the apparent lack of a financial incentive for exporters to undertake brand promotion for beef purchased under this tender system or to supply product above the specified minimum quality.

As discussed in the previous study, the exact reasons for the payment of these premiums and discounts are not known but may relate to actual differences in quality between brands for the beef sold or to perceptions of quality/image transferred from other imported beef. Scope for the latter could have been expected to have increased since mid 1988 due to the changes in the SBS import arrangements mentioned earlier and to increased expenditure on brand promotion by exporters. Consequently, it was surprising that the brand premiums and discounts measured as statistically significant for the grainfed cuts short plate and tenderloin were smaller than those measured in the previous study from October 1986 to September 1987. This probably reflect the significance of the time x brand interaction. It may also reflect the non transfer to these lots of beef of the quality/image perceptions attached to imported beef supplied under other import arrangements.

However, it is clear from this and the previous study that buyers have been more willing to pay brand premiums for frozen grainfed than grassfed beef, and particularly for the higher priced cuts. This may reflect differences in brand promotion etc by these exporters which in turn may reflect their assessment of the scope to earn premiums. It may also reflect differences in the end use of cuts.

The instability of brand premiums and discounts over time shown in Figures 1 and 2 is an important conclusion of this study. This suggests that although some brands achieved an overall premium over several months it was unstable and unpredictable. Thus, quality differences may not have been constant or the brand images were not strong enough to result in a sustained premium. Also, preliminary analysis of the influence of average price on brand premiums and discounts suggested that for grainfed short plate the premium brand, brand 10, achieved higher percentage premiums when prices were low than when prices were high. This was in accordance with expectations since trading margins could be expected to be lower when prices are high and the capacity to pay large premiums may be reduced.

The results of this and the previous study represent the only known attempt to measure brand premiums and discounts at wholesale level for imported beef in Japan. Therefore, the results should be of interest and assistance to exporters and the AMLC in determining future promotional strategies for Australian beef in this market.

The study highlights the need for suitable data to be available to measure the influence of all types of promotional and product differentiation activities by exporters on price as well as market share. Although data from LIPC's auctions of frozen beef will be available for about a year after 1 April 1991 the LIPC will not be importing any beef during this period. All the imported beef will be purchased after direct negotiations between exporters and buyers. Consequently, it is important that alternative information on the price of imported beef by cut and brand at wholesale and, if possible, retail level be obtained and analysed by the AMLC after 1 April 1991 to assess whether or not brand promotion is resulting in higher prices for any brands of Australian beef. Such information will facilitate decisions on brand promotion, including the possible need to amalgamate brands.

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TABLE 1: Summary of Data Analysed

Cut	Period Analysed	No of Brands	No of Lots	Price of lot (yen/kg)			
				Mean	SD	Maximum	Minimum
Grainfed Ribeye Roll	04/88 - 05/90	3	332	2 349	226	3 029	2 030
Grainfed Squarecut Chuck	04/89 - 07/90	3	180	897	58	1 023	826
Grainfed Shortplate	11/87 - 07/90	3	527	767	127	1 251	590
Grainfed Tenderloin	01/88 - 12/88	3	237	2 420	71	2 657	2 312
Grassfed Chuck/Blade	04/89 - 07/90	7	291	817	129	1 218	713
Grassfed Cowmeat	06/88 - 05/90	3	321	778	101	1 161	667
Grassfed Aged Full Sets	11/87 - 07/90	8	1 470	1 225	130	1 577	1 000

**TABLE 3: Summary of Results - Part 2**

Cut	Time	Brand	Estimated Mean Price	Percentage Premium Relative to Lowest Priced Brand	Premium Significant = s Non Significant = n/s
Grainfed Ribeye Roll	04/88 - 05/90	5	2 333	4.1	s
		10	2 245	0.2	n/s
		1	2 241	-	-
Grainfed Square Cut Chuck	04/89 - 07/90	5	893	0.4	n/s
		10	891	0.2	n/s
		1	889	-	-
Grainfed Short Plate	11/87 - 07/90	10	784	3.0	s
		1	768	0.9	n/s
		5	761	-	-
Grainfed Tenderloin	01/88 - 12/88	5	2 431	3.8	s
		10	2 383	1.8	s
		1	2 341	-	-
Grassfed Chuck/Blade	04/89 - 07/90	5	837	0.2	n/s
		51	837	0.2	n/s
		19	836	0.1	n/s
		21	836	0.1	n/s
		54	836	0.1	n/s
		18	835	-	n/e
		20	835	-	n/s

**TABLE 2: Summary of Results - Part 1**

Cut	Period	R <sup>2</sup>	Factor Significance		
			Time	Brand	Brand x Time Interaction
Grainfed Ribeye Roll	04/88 - 05/90	0.98	***	***	***
Grainfed Square Cut Chuck	04/89 - 07/90	0.97	***	n/s	n/s
Grainfed Short Plate	11/87 - 07/90	0.9	***	***	*
Grainfed Tenderloin	01/88 - 12/88	0.92	***	***	***
Grassfed Chuck/Blade	04/89 - 07/90	0.99	***	n/s	***
Grassfed Cowmeat	06/88 - 05/90	0.99	***	n/s	***
Grassfed Aged Full Sets	11/87 - 07/90	0.87	***	n/s	n/s

\* = P < 0.05  
 \*\* = P < 0.01  
 \*\*\* = P < 0.0001

TABLE 3: Summary of Results - Part 2 (continued)

Cut	Time	Brand	Estimated Mean Price	Percentage Premium Relative to Lowest Priced Brand	Premium Significant = * Non Significant = n/s
Grassfed Cowmeat	06/88 - 05/90	21	802	0.5	n/s
		22	801	0.4	n/s
		18	798	-	-
Grassfed Aged Full Sets	11/87 - 07/90	14	1 231	1.8	n/s
		15	1 226	1.4	n/s
		21	1 224	1.2	n/s
		12	1 224	1.2	n/s
		20	1 223	1.2	n/s
		18	1 223	1.2	n/s
		22	1 221	1.0	n/s
		51	1 216	0.6	n/s
		23	1 215	0.5	n/s
		54	1 215	0.5	n/s
19	1 209	-	-		

Figure 1: Monthly Deviation of Mean Brand Price from Overall Monthly Mean (Unweighted) - Grain Fed Rib Eye Roll

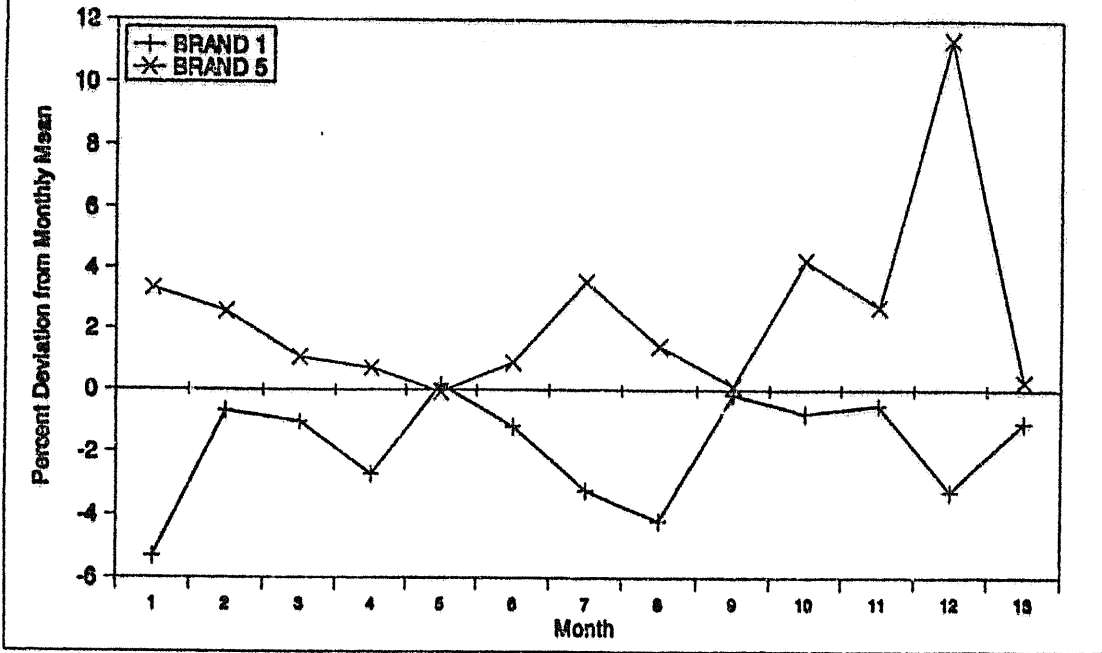


Figure 2: Monthly Deviation of Mean Brand Price from Overall Monthly Mean (Unweighted) - Grain Fed Short Plate

