MARKETING COSTS

FOR NEW ZEALAND MEAT EXPORTS :

1970/71 to 1975/76

by

Chudleigh, P.D., Woods, L.D. and Clemes, M.

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PREFACE

The escalation of marketing charges for New Zealand's major export products in recent years is a continuing cause of concern to producers and to the nation. If the post-farm gate sector of the New Zealand agricultural system is to receive appropriate attention in terms of research and policy studies, it is important that marketing activities are defined and documented in a way that can contribute to efficient allocation of research resources.

This Report is the second in a series of studies carried out by the Agricultural Economics Research Unit for the Ministry of Agriculture and Fisheries. The series has been designed to investigate trends in marketing costs for major export products; the current report refers to meat marketing costs.

Professor J. B. Dent
Director

ACKNOWLEDGEMENTS

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The Ministry of Agriculture and Fisheries (Economics Division) has provided financial assistance that has enabled the completion of this study; this support is gratefully acknowledged.

SUMMARY

Marketing charges for lamb, mutton and beef from farm gate up to f.o.b. are identified for each of the six years ending 30th September 1971 to 30th September 1976. Trends in unit charges are presented and compared with wage rate and consumer price indices.

Transport data used suggest that the representative charges published by the New Zealand Meat Producers' Board may underestimate average transport charges from farms to processing works and from processing works to port.

Throughputs of livestock through individual processing works are estimated for each of the six years and have been applied to unit charges to estimate aggregate charges for marketing activities associated with different livestock categories. These aggregate charges have allowed a national 'Marketing Bill' for meat to be estimated for each of the six years.

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CHAPTER 1

INTRODUCTION

1.1 Objectives of Study

The objectives of the study were:

(i) To analyse changes in unit charges associated with export meat marketing between 1971 and 1976.

(ii) To estimate a national 'Marketing Bill' for New Zealand meat for the six years ending 30th September 1971 to 1976.

(iii) To ascertain the representativeness of the New Zealand Meat Producers' Board (NZMPB) time series data on meat marketing charges.

Original objectives of the project were defined more broadly and were orientated to costs rather than charges. However, it was decided that the breakdown of charges into factor costs such as labour, fuel etc., should be preceded by an analysis of meat marketing charges in order to establish priority areas for the more demanding factor cost investigation, to establish bases for charges, and to give an overview of the marketing charges for each product. Hence, this report is concerned mainly with unit charges incurred and product quantities involved in meat marketing from farm gate until free on board (f.o.b.).

1.2 Available Data Series on Meat Marketing Charges

The historical importance of meat as an export commodity of New Zealand is well known. Ample statistics are available on aggregate and average market values of various meat types and animal carcass grades for export meat (although rather less are

available for meat and animals marketed domestically). In contrast, the collection of statistics on charges associated with export meat production has been less regular. On-farm costs of meat production, apart from numerous conceptual difficulties, are inextricably intertwined with other forms of farm production on many properties and are difficult to satisfactorily isolate. Marketing and processing charges for export meat production have been collected on a "representative item" basis by the NZMPB and these do indicate trends in charge totals for various market operation aggregates but certain difficulties exist with their use in other applications.

Representative charges for marketing lambs, ewes and cattle, as reported by the NZMPB, are reproduced in Table 1. While such information on charges has the virtue of being readily and cheaply available, it is necessary to investigate the national representativeness of such information before being able to accurately gauge the size of the national meat marketing bill. The size of the national marketing bill, in theory, could be developed by multiplying the representative charges by aggregate volumes. However, such an approach is not strictly accurate because:

(i) The average killing charges associated with a kilo of manufacturing cow beef are likely to be different from those associated with a kilo of beef derived from a prime steer.

(ii) The structure of the kill is not constant.

(iii) The average weights of each class of animal are likely to alter between seasons.

(iv) There is some variation in killing and freezing charges within the New Zealand meat industry.

TABLE 1

Representative Charges for Marketing Lambs, Ewes & Beef Animals ($ per head)

Lamb (PM, 14.2 kg)	1970/71	1971/72	1972/73	1973/74	1974/75	1975/76
1. Transport to Works[a]	.165	.179	.187	.196	.266	.274
2. Charges to f.o.b.:						
(i) Killing, Freezing, Inspection, Works to Port, etc.	1.255	1.757	1.876	2.019	2.560	2.731
(ii) Buying, Administration, Interest and Insurance	.374	.382	.415	.498	.466	.543
(iii) Meat Producers Board Levy	.023	.023	.023	.105	.105	.105
Sub-Total Charges to f.o.b.	1.652	2.162	2.314	2.622	3.131	3.379
3. Total Charges: Farm Gate to f.o.b.[b]	1.817	2.341	2.501	2.818	3.397	3.653
Ewe (EL, 20.0 kg)						
1. Transport to Works[c]	.209	.218	.218	.256	.345	.384
2. Charges to f.o.b.:						
(i) Killing, Freezing Works to Port, etc.	1.845	2.200	2.326	2.553	3.901	4.283
(ii) Buying, Administration, Interest and Insurance	.363	.369	.475	.498	.452	.620
(iii) Meat Producers Board Levy	.033	.033	.033	.154	.154	.154
Sub-Total Charges to f.o.b.	2.241	2.602	2.834	3.205	4.507	5.057
3. Total Charges : Farm Gate to f.o.b.[d]	2.450	2.820	3.052	3.461	4.852	5.441
Beef (M Cow, 160.0 kg @ 64%)						
1. Transport to Works[e]	2.010	2.100	2.220	2.450	2.530	3.230
2. Charges to f.o.b.:						
(i) Killing, Freezing Works to Port, etc.	21.834	25.574[g]	25.574[g]	28.418[g]	43.575[g]	44.021
(ii) Buying, Administration, Interest and Insurance	3.889	4.313	4.938	4.846	5.031	4.621
(iii) Meat Producers Board Levy	.169	.169	.169	.791	.791	.791
Sub-Total Charges to f.o.b.	25.892	30.056	30.681	34.055	49.371	49.434
3. Total Charges : Farm Gate to f.o.b.[f]	27.902	32.156	32.901	36.505	51.927	52.664

a Based on transport of a lamb for 50 kilometres in the Northern and Central Hawke's Bay district during April 1970-75, January 1975/76.

b Costs incurred before the carcass leaves New Zealand.

c Based on transport of a ewe for 50 kilometres in the Northern and Central Hawke's Bay district during March 1970-75, January 1975/76.

d Costs incurred before the carcass leaves New Zealand.

e Based on transport of a cow for 50 kilometres in the Manawatu region during May 1970-75, January 1975/76.

f Costs incurred before meat leaves New Zealand.

g Excludes container servicing charge in New Zealand.

Source: NZMPB.

Also, an increase in competition between killing and freezing companies for killing stock could increase the average distances travelled between farms and slaughter, while the growth in port specialisation (containerisation, etc.) may have increased the average freight "works to port" distance in recent years. Such changes would not be shown by the representative charge approach.

1.3 Current Report in Perspective

This report details unit charges and throughputs for different classes of livestock associated with different marketing activities from farm gate to f.o.b. Aggregate charges for each activity and for each livestock type are estimated.

The report is organised in the following way.

Chapter Two deals with livestock flows and charges for transporting livestock from farm to processing works. Chapter Three deals with processing and killing charges and throughputs. Transport charges (processing works to port) are considered in Chapter Four, and additional charges (levies, buying and administration, etc.) are dealt with in Chapter Five. Chapter Six shows total charges for the meat marketing chain and presents an analysis of individual marketing charge increases over the six year period. Some implications of the results of the study and suggestions for further research are presented in Chapter Six.

CHAPTER 2

TRANSPORT - FARM GATE TO PROCESSING WORKS

2.1 Average Distances for Livestock Movements

During 1975/76 research was conducted at Lincoln College on national energy consumption in the meat freezing industry.[1] Arising from this research certain data on average livestock transport distances became available in aggregate form. These data originated from individual freezing works and indicated for each works, the 1974/75 season's numbers of sheep, lambs and cattle drawn from each of the 20 geographic regions listed in Table 2.

Also arising from this research were estimates of inward average haul distances from each region for each works. In making estimates the researchers had considerable knowledge of the individual works and the various geographic areas.

The average distances reported in Table 2 have been compiled by weighting appropriate distances by the various inter- and intra-regional flows of livestock destined for slaughter at each freezing works. Two distance statistics were thus calculated for each region, each sub-region and for each class of livestock. Firstly, "average inward distances" relate to the average distances travelled by all slaughter lambs, sheep and cattle respectively, that were slaughtered within a region. Secondly, "average outward distances" relate to average distances travelled by slaughter lambs, sheep and cattle produced within a region. Over New Zealand as a whole, these two statistics are equal, but within any single region they may differ.

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[1] Pilling, R.G. (1977) "Energy Conservation in the New Zealand Meat Export Industry", Report No.17, New Zealand Energy Research and Development Committee, University of Auckland.

TABLE 2

Average Distances Travelled by Livestock by Region and Sub-region (km farm to works, 1974/75 Season)

Region and Sub-Region	LAMBS		SHEEP		CATTLE	
	Average Inward Distance Travelled	Average Outward Distance Travelled	Average Inward Distance Travelled	Average Outward Distance Travelled	Average Inward Distance Travelled	Average Outward Distance Travelled
North North Island	118.60	165.12	127.56	184.40	102.40	121.64
North Auckland	66.18	90.92	101.72	91.63	56.91	64.76
Central Auckland	131.63	95.35	134.65	121.94	114.52	78.91
South Auckland-Bay of Plenty	84.06	153.32	108.72	148.58	100.10	134.21
East Coast	141.16	242.47	162.36	365.88	163.64	296.48
Hawke's Bay	108.53	123.20	100.00	131.71	100.00	137.83
Taranaki	191.78	129.50	178.82	132.13	155.03	134.89
Wellington	199.58	133.16	212.95	109.75	204.65	107.71
Nelson	96.65	99.33	91.80	97.92	122.27	98.35
Marlborough	90.01	112.78	93.02	114.53	86.78	106.81
Westland	-	325.76	-	327.83	-	349.03
Canterbury	102.12	71.49	134.61	68.41	135.73	84.02
North Canterbury	133.47	83.19	175.90	83.64	-	99.12
Central Canterbury	85.33	45.08	139.01	42.81	127.66	47.48
Mid Canterbury	55.91	73.09	71.05	62.21	-	104.57
South Canterbury	130.86	67.54	160.96	70.02	151.15	88.16
McKenzie	-	114.81	-	116.80	-	149.92
Otago	94.88	117.91	93.65	142.66	86.63	107.77
North Otago	93.49	89.55	92.10	85.06	91.35	90.60
East Otago	146.43	84.98	144.81	106.02	132.73	65.41
South Otago	72.81	74.31	66.76	112.24	61.79	60.35
Central Otago	-	230.67	-	250.75	-	213.64
Southland	109.29	116.06	107.61	132.70	118.80	104.32
NEW ZEALAND	120.64	120.64	135.34	135.34	122.52	122.52

Source: Pilling, R.G. and Pearson, R.G. (1976), unpublished data.

In the Central Canterbury Regions, for example, the average inward slaughter lamb haul of 85.33 kilometres (km) exceeds the outward haul of 45.08 km because in 1974/75 62 per cent of lambs slaughtered in Central Canterbury were drawn from outside the region, whereas only 46 per cent of lambs fattened in Central Canterbury were slaughtered outside the region. Table 3 gives further information on interregional livestock flows resulting from the survey.

Table 2 reveals that the New Zealand average hauls for slaughter lambs, sheep and cattle of 120.64, 135.34 and 122.52 km respectively are much greater than the representative distance of 50 km assumed by the NZMPB. It should be noted that this representative distance relates to where killing and final fattening are both performed within the same region. However, in practice this does not always occur.

TABLE 3

Livestock Numbers Slaughtered by Region and Sub-Region : 1974/75

Region and Sub-Region	LAMBS		SHEEP		CATTLE	
	Number Slaughtered in Region	Number Produced for Slaughter in Region	Number Slaughtered in Region	Number Produced for Slaughter in Region	Number Slaughtered in Region	Number Produced for Slaughter in Region
North North Island	4,001,270	4,448,711	1,218,078	1,421,489	851,031	886,115
North Auckland	419,854	558,330	142,196	148,521	194,687	211,309
Central Auckland	1,784,941	343,996	587,965	297,043	397,317	178,089
So. Auckland/ Bay of Plenty	731,594	2,343,140	325,809	666,229	186,002	414,204
East Coast	1,064,881	1,203,244	162,108	309,696	73,025	82,513
Hawke's Bay	3,174,220	3,598,760	710,000	862,853	114,500	156,645
Taranaki	958,910	1,277,369	258,200	402,962	102,231	123,073
Wellington	2,785,720	1,574,281	983,261	482,235	216,175	117,923
Nelson	182,272	168,057	67,147	56,265	21,544	18,463
Marlborough	316,195	431,732	36,823	59,334	4,410	5,902
Westland		89,805		15,313		18,909
Canterbury	5,056,766	4,526,577	1,003,910	815,596	82,920	65,237
North Canterbury	503,104	1,014,589	93,480	136,658	0	15,522
Central Canterbury	1,817,893	867,872	316,076	129,661	54,434	19,920
Mid Canterbury	852,069	1,237,852	232,585	245,753	0	13,321
South Canterbury	1,883,700	1,097,298	361,769	254,960	28,486	14,026
McKenzie	0	308,966	0	48,564	0	2,448
Otago	2,846,618	3,575,907	508,195	632,157	53,751	68,342
North Otago	1,003,518	650,461	214,051	116,193	13,036	8,169
East Otago	571,605	441,876	105,627	74,714	13,391	15,462
South Otago	1,271,495	1,579,972	188,517	276,273	27,324	25,690
Central Otago	0	903,598		164,977	0	19,021
Southland	5,332,508	4,963,281	959,001	996,411	103,207	89,160
NEW ZEALAND	24,654,479	24,654,479	5,744,615	5,744,615	1,549,769	1,549,769

Source: Pilling, R.G. and Pearson, R.G. (1976), unpublished data.

Note: Slaughtering figures reported here are only estimates and deviate slightly from the official slaughtering figures; however, they are sufficiently accurate for the purpose for which they are used in this chapter.

2.2 Transport Charges by Livestock Type

Except for livestock originating from the West Coast of the South Island, livestock transport in New Zealand is almost wholly by road. Even in the case of West Coast livestock, about 50 per cent is estimated to travel by road.

Unlike the position for many other goods, there are no restrictions on the distance that livestock can be transported in competition with rail. This creates problems when attempting to ascertain appropriate transport rates for the average distances indicated in Table 2, since for the period under study, the Secretary of Transport did not prescribe rates over 64 km (the road-rail competition limit for most goods). However, members of the N. Z. Road Transport Association have issued a standard long distance schedule for South Island livestock transport which served as a guide when individual regional schedules lacked long distance details.

Table 4 indicates estimated average charges for transporting livestock from farms to export works by regions and sub-regions during the 1970/71 to 1975/76 meat export seasons (years ending 30th September). These charges have been determined by relating district freight charges at March 31 in each of the meat selling seasons to the various distance components of Table 2 and weighting resulting charges by the various intra- and inter-regional livestock flows. It will be noted that average inward and outward charges are not exactly the same. This is because inward fatstock travel was charged at destination-district licensing authority rates and outward fatstock travel was costed at source-district rates.

While the charges listed relate only to 31/3/75, the fact that all districts are granted identical interim rate increase approvals by the licensing authority enables ready conversion of these charges to represent charges at other dates. For instance, inward costs of

TABLE 4

Average Road Transport Charges by Region and Sub-Region
($ per head at 31/3/75)

Region and Sub-Region	LAMBS		SHEEP		CATTLE	
	Inward Transport	Outward Transport	Inward Transport	Outward Transport	Inward Transport	Outward Transport
North North Island	0.410	0.549	0.668	0.866	5.696	5.274
North Auckland	0.233	0.370	0.547	0.515	2.058	2.219
Central Auckland	0.404	0.333	0.702	0.660	8.010	6.324
South Auckland-Bay of Plenty	0.349	0.516	0.576	0.699	4.672	5.709
East Coast	0.534	0.756	0.834	1.591	5.410	8.653
Hawke's Bay	0.420	0.459	0.498	0.565	4.791	5.694
Taranaki	0.576	0.434	0.834	0.634	3.644	3.604
Wellington	0.627	0.472	0.963	0.426	6.871	3.683
Nelson	0.420	0.436	0.553	0.585	6.464	5.403
Marlborough	0.395	0.465	0.598	0.714	4.928	5.663
Westland	-	1.006	-	1.470	-	9.900
Canterbury	0.402	0.319	0.710	0.445	6.163	4.346
North Canterbury	0.567	0.371	0.834	0.548	-	5.470
Central Canterbury	0.350	0.242	0.716	0.331	5.893	2.713
Mid Canterbury	0.268	0.319	0.460	0.420	-	5.003
South Canterbury	0.468	0.300	0.834	0.439	6.679	4.391
McKenzie	-	0.427	-	0.628	-	6.679
Otago	0.425	0.473	0.595	0.764	5.117	4.836
North Otago	0.384	0.376	0.507	0.489	5.151	5.121
East Otago	0.616	0.466	0.927	0.726	7.437	4.529
South Otago	0.373	0.378	0.509	0.695	3.965	3.881
Central Otago	-	0.713	-	1.092	-	6.253
Southland	0.452	0.467	0.647	0.723	6.238	5.587
NEW ZEALAND	0.451	0.454	0.700	0.673	5.707	5.082

Note: Multiplicative factors to convert above charges to those ruling at other dates:

31/3/71	0.686
31/3/72	0.745
31/3/73	0.787
31/3/74	0.823
31/3/76	1.122

Source: Pilling, R.G. and Pearson, R.G. (1976), unpublished data.

freighting lambs during the seasons 1970/71 to 1975/76 are indicated as being $0.31, $0.34, $0.35, $0.37, $0.45 and $0.51. In contrast, the NZMPB representative charges were $0.17, $0.18, $0.19, $0.20, $0.27 and $0.27 respectively.

It should be noted that not all these charges will be borne directly by producers. New Zealand producers traditionally pay freight costs only to the nearest meat export works, and companies agree to pay any excess.

Two points must be made at this juncture. Firstly, the charges recorded are only for the final hauls of fat stock but other freight expenses may have been also incurred in travel between different farms and between farms and saleyards, both within and between districts, for these same animals, either in store or fat condition. Such additional marketing charges are not recorded. Secondly, the average distance figures relate only to 1974/75. Depending on differing seasonal influences on fat stock availability and killing capacity limitations, somewhat different transport patterns could emerge in other seasons. A rough check on the stability of transport patterns is given below, but there is clearly a need for further data before full confidence can be placed in the above estimates. Equally, these comments refer to the NZMPB "representative charge" estimates.

2.3 Stability of Livestock Flows and Distances Transported

As indicated, Tables 2 and 4 have been developed for the six years concerned (1971/76) on the basis of livestock flows and average travel distances recorded in 1974/75. Earlier and later information has not been available as a check on the stability except for South Island data relating to 1973/74 lamb and sheep flows. Table 5 compares South Island results for 1973/74 with the 1974/75 information contained in Table 2. The average South Island distance travelled by lambs was apparently 4 per cent lower in 1973/74

TABLE 5

Average Distances Travelled by Livestock by South Island Region and Sub-Region (km farm to works, 1973/74 Season)

Region and Sub-Region	Average Inward Distance Travelled	Average Outward Distance Travelled	Average Inward Distance Travelled	Average Outward Distance Travelled
Nelson	96.55 (96.65)	98.83 (99.33)	96.05 (91.80)	98.63 (97.92)
Marlborough	86.68 (90.01)	119.76 (117.27)	97.70 (93.02)	117.08 (114.53)
Westland		324.28 (325.76)		327.66(327.83)
Canterbury	88.36 (102.12)	70.86 (71.49)	96.73 (134.61)	69.70 (68.41)
North Canterbury	115.32 (133.47)	81.89 (83.19)	115.01 (175.90)	83.42 (83.64)
Central Canterbury	73.76 (85.33)	44.80 (45.08)	72.26 (139.01)	45.00 (42.81)
Mid Canterbury	52.67 (55.91)	76.10 (73.09)	65.90 (71.05)	70.48 (62.21)
South Canterbury	113.69 (130.86)	66.50 (67.54)	131.25 (160.96)	69.09 (70.02)
McKenzie		122.25 (114.81)		124.53 (116.80)
Otago	101.67 (94.88)	111.75 (117.91)	106.30 (93.65)	126.87 (142.66)
North Otago	98.11 (93.49)	91.05 (89.55)	101.27 (92.10)	86.47 (85.06)
East Otago	141.62 (146.43)	65.39 (84.98)	154.71 (144.81)	68.61 (106.02)
South Otago	78.02 (72.81)	68.08 (74.31)	73.62 (66.76)	73.64 (112.24)
Central Otago		213.06 (230.67)		238.85 (250.75)
Southland	107.78 (109.29)	109.86 (116.06)	105.53 (107.61)	116.70 (132.70)
South Island	98.94 (103.05)	98.94 (103.05)	101.51 (114.76)	101.51 (114.76)

Note: 1974/75 Figures in Brackets.

Source: Pilling, R.G. and Pearson, R.G. (1976), unpublished data.

and for sheep it was 12 per cent lower. It is clear that average distances do vary season by season, depending on timing of stock availability, urgency of stock killing, availability of killing space,etc. However, insufficient evidence is available to gauge the extent of this variation.

2.4 Aggregate Transport Charges by Livestock Type

Aggregate transport charges have been calculated by applying the average inward transport charge per head for each class of livestock (Table 4) to the total numbers of each class of export livestock slaughtered each season. Appropriate per head charges have been adjusted by the factors detailed in Table 4 to derive transport charges for each season. The numbers of export livestock slaughtered for each livestock type in each season are shown in Table 6 of this Report. The resulting aggregate charges are also presented in Table 6.

TABLE 6

Aggregate Farm to Works Transport Charges for Export Livestock

	1970/71	1971/72	1972/73	1973/74	1974/75	1975/76
LAMB						
Number Transported	25,107,000	25,628,800	24,011,500	21,019,300	23,782,000	24,439,676
Average Charge($/head)	0.309	0.336	0.355	0.373	0.451	0.506
Aggregate Charge ($)	7,758,063	8,611,277	8,524,082	7,840,199	10,725,682	12,366,476
MUTTON						
Number Transported	5,649,300	4,998,700	6,948,700	6,076,900	4,659,500	4,652,569
Average Charge ($/head)	0.480	0.522	0.551	0.576	0.700	0.785
Aggregate Charge ($)	2,711,664	2,609,321	3,828,734	3,500,294	3,261,650	3,652,267
BEEF[a]						
Number Transported	1,381,600	1,341,400	1,551,500	1,278,092	1,559,372	2,005,914
Average Charge ($/head)	3.915	4.251	4.491	4.697	5.707	6.403
Aggregate Charge ($)	5,408,964	5,702,291	6,967,787	6,003,198	8,899,336	12,843,867
TOTAL AGGREGATE TRANSPORT CHARGE ($)	15,878,691	16,922,889	19,320,603	17,343,691	22,886,668	28,862,610

[a] Beef Statistics do not include bobby calves.

Source: Livestock numbers from NZMPB.

CHAPTER 3

KILLING AND FREEZING

3.1 Lamb

3.1.1 Throughputs by works. Lamb throughputs by works for each season are given in Table 7. Although most throughputs reported are actual, throughputs for several North Island works are only estimates. For these works, only total sheep and lamb throughputs were available; such totals were disaggregated using export lamb : sheep slaughtering ratios.

Throughputs are total throughputs of works rather than throughputs of export destined lambs.

3.1.2 Unit killing and freezing charges. Unit killing and freezing charges for the six seasons considered are presented by works on a per carcass basis in Table 8; charges have been calculated for a 13.2 kg lamb, the average carcass weight produced in New Zealand over the six seasons considered. All charges shown are f.o.r. (free on rail) except where indicated. Killing and freezing charges selected for each season were those charges that were in force for the longest part of the killing season; weighted averages were not used since monthly throughputs by freezing works were not available. A similar procedure was followed for establishing unit charges for mutton and beef.

3.1.3 Aggregate killing and freezing charges. Aggregate killing and freezing charges were initially calculated on a per works basis by applying the throughputs of Table 7 to the charges of individual works. Average carcass weights of lambs for each Island were used to calculate the per lamb charge for each works for each year (rather than the standard 13.2 kg lamb used in Table 8).

The average carcass weights for each season for each Island are shown in Table 9. Since the throughputs of Table 7 were total throughputs, the resulting total aggregate charge for each Island was adjusted by a factor representing the proportion of that Island's total throughput that was exported. NZMPB data were used to calculate such factors. These factors, along with estimates of the aggregate charges for export lambs for each Island, and for New Zealand, are shown in Table 10.

TABLE 7

Total Lamb Throughputs by Works

	1970/71	1971/72	1972/73	1973/74	1974/75	1975/76
NORTH ISLAND WORKS						
Moerewa	585,760	603,105	636,601	494,911	431,703	419,275
Hellabys	656,925	551,441	484,105	468,290	556,991	574,000
Westfield	1,125,910	935,312	943,954	664,846	672,804	694,238
Southdown	994,485	736,032	897,370	643,705	529,764	527,575
Horotiu	1,032,620	985,272	940,039	803,451	802,069	800,575
Kairi	687,696	723,578	801,309	723,749	724,809	630,946
Wairoa	333,846	332,263	333,028	292,775	323,979	317,993
Whakatu	1,640,772	1,810,164	1,514,657	1,587,457	1,697,103	1,730,936
Tomoana	1,586,270	1,659,374	1,428,743	1,490,341	1,617,422	1,538,345
Patea	509,576	533,843	569,665	401,120	402,311	352,915
Imlay	694,455	634,706	800,468	590,640	645,723	573,125
Waitara	629,091	677,535	837,268	718,651	577,773	559,387
Waingawa	641,823	790,562	778,851	528,696	584,316	469,939
Feilding	810,681	880,565	764,884	595,589	649,980	494,647
Longburn	650,140	621,405	603,805	545,940	549,940	406,671
W.M.E.[a]	333,925	420,529	410,000	0	0	0
Gear	808,325	849,033	750,622	579,369	568,724	602,950
NORTH ISLAND TOTAL	13,722,300	13,744,718	13,495,469	11,129,530	11,317,411	10,693,562
SOUTH ISLAND WORKS						
Picton	319,187	403,058	355,960	290,828	310,784	397,645
Nelson	206,452	210,972	182,019	131,823	207,190	190,740
Islington	731,929	904,986	885,733	702,955	801,331	888,969
Smithfield	757,098	804,101	752,310	665,588	788,004	841,886
Burnside	893,480	807,611	848,063	736,592	802,689	931,568
Belfast	560,428	563,926	544,441	462,682	5,762	0
Fairfield	759,608	876,892	825,840	638,043	842,069	1,008,958
Pareora	973,909	900,178	970,307	870,474	845,428	1,110,381
Kaiapoi	513,602	549,443	497,442	421,819	365,496	523,605
Canterbury	705,344	710,405	736,399	608,020	1,034,832	1,372,515
Pukeuri	864,762	881,560	854,737	772,882	845,427	982,014
Balclutha	1,323,335	1,340,961	1,308,521	1,127,608	1,152,988	1,379,405
Ocean Beach	1,267,387	1,146,932	1,081,375	988,522	1,174,132	1,002,138
Mataura	1,223,418	1,191,630	1,102,689	1,024,185	1,108,962	1,123,523
Makarewa	1,377,312	1,505,474	1,367,110	1,367,344	1,450,680	1,367,776
Alliance	1,815,442	1,866,922	1,698,444	1,534,083	1,565,339	1,590,856
SOUTH ISLAND TOTAL	14,292,727	14,665,051	14,011,390	12,388,448	13,301,113	14,711,979
NEW ZEALAND TOTAL	28,015,027	28,409,769	27,506,859	23,517,978	24,618,524	25,405,541

[a] Wellington Meat Export Co. ; ceased operations after 1972/73 season.

Source: South Island Freezing Association Sheep and Lamb Surveys 1973; Pilling and Pearson (1976), unpublished data; New Zealand Meat and Wool Boards' Economic Service; Various Meat Freezing Companies' Submissions to Meat Industry Authority and Meat Industry Commission.

TABLE 8

Unit Killing and Freezing Charges for Lambs by Works
($ per 13.2 kg Carcass)

	1970/71	1971/72	1972/73	1973/74	1974/75	1975/76
NORTH ISLAND WORKS						
Moerewa	1.17	1.60	1.68	1.79	2.55	2.68
Hellabys	1.17	1.60	1.68	1.79	2.55	2.68
Westfield	1.17	1.60	1.68	1.79	2.55	2.68
Southdown	1.17	1.60	1.68	1.79	2.55	2.68
Horotiu	1.17	1.60	1.68	1.79	2.55	2.68
Kaiti	1.15	1.59	1.68	1.79	2.55	2.68
Wairoa	1.25	1.97	1.97	2.07	2.87	2.77
Whakatu	.97	1.51	1.51	1.57	2.27	2.39
Tomoana	.97	1.51	1.51	1.57	2.27	2.39
Patea	1.19	1.71	1.70	2.04	2.55	2.68
Imlay	1.21	1.79	1.85	1.79	2.55	2.75
Waitara	1.15	1.66	1.66	1.79	2.55	2.68
Waingawa	1.15	1.66	1.66	1.79	2.55	2.68
Feilding	1.15	1.66	1.66	1.79	2.55	2.68
Longburn	1.19	1.69	1.69	1.79	2.55	2.68
W.M.E.	1.24	1.94	2.04	-	-	2.68
Gear	1.24	1.80	1.87	1.94	2.78	2.78
N.I.(Weighted Average)	1.1304	1.636	1.679	1.753	2.493	2.603
SOUTH ISLAND WORKS						
Picton[a]	1.44	2.09	2.09	2.13	2.94	3.03
Nelson[b]	1.68	2.09	2.09	3.10	3.31	3.03
Islington	1.30	1.94	1.94	1.98	2.74	2.82
Smithfield	1.30	1.94	1.94	1.98	2.74	2.82
Burnside	1.30	1.94	1.94	1.98	2.74	2.82
Belfast	1.30	1.94	1.94	1.98	2.74	2.86
Fairfield	1.30	1.94	1.94	1.98	2.74	2.86
Pareora	1.30	1.94	1.94	1.98	2.74	2.86
Kaiapoi	1.30	1.94	1.94	1.98	2.74	2.86
Canterbury	1.30	1.94	1.94	1.98	2.74	2.86
Pukeuri	1.30	1.94	1.94	1.98	2.74	2.82
Balclutha	1.36	1.95	1.95	1.96	2.72	2.82
Ocean Beach	1.30	1.94	1.94	1.98	2.74	2.86
Mataura	1.30	1.94	1.94	1.98	2.74	2.86
Makarewa	1.30	1.94	1.94	1.98	2.74	2.86
Alliance	1.30	1.94	1.94	1.98	2.74	2.86
S.I.(weighted average)	1.3142	1.947	1.947	1.988	2.752	2.853
N.Z.(weighted average)	1.224	1.797	1.816	1.877	2.633	2.748

[a] f.o.b. charges. [b] Ex works 1970/71-1973/74; f.o.r. 1974/75; f.o.b. 1975/76.

Source: NZMPB Annual Reports (various);
Ministry of Agriculture and Fisheries, Wellington.

TABLE 9

Average Lamb Carcass Weights by Island for Six Seasons (kg)

	1970/71	1971/72	1972/73	1973/74	1974/75	1975/76
North Island	13.1	13.4	12.8	12.9	12.7	13.4
South Island	13.4	13.9	12.7	13.3	13.0	13.9

Source: NZMPB Annual Reports.

TABLE 10

Aggregate Killing and Freezing Charges for Export Lambs

	1970/71	1971/72	1972/73	1973/74	1974/75	1975/76
NORTH ISLAND:						
Number exported[a]	11,457,000	11,438,500	10,800,800	9,024,700	10,348,900	10,127,007
Percentage exported[b]	83.49	83.22	80.03	81.08	91.44	94.70
Aggregate charge ($)	12,950,992	18,713,386	18,134,543	15,820,299	25,799,807	26,360,599
Less Rebates ($)	134,713	288,734	235,556	249,547	303,079	464,401
Net Aggregate Charge ($)	12,816,279	18,424,652	17,898,987	15,570,752	25,496,728	25,896,198
SOUTH ISLAND:						
Number exported[a]	13,650,000	14,190,300	13,210,700	11,994,600	13,433,100	14,312,669
Percentage exported[b]	95.50	96.76	94.29	96.82	101.00[c]	97.29
Aggregate charge ($)	17,938,830	27,628,514	25,721,232	23,845,264	36,967,891	40,834,044
Less Published Rebates($)	0	251,646	254,310	762,401	737,120	741,976
Net Aggregate Charge ($)	17,938,830	27,376,868	25,466,922	23,082,863	36,230,771	40,092,068
NEW ZEALAND:						
Number exported[a]	25,107,000	25,628,800	24,011,500	21,019,300	23,782,000	24,439,676
Net Aggregate Charge ($)	30,755,109	45,801,520	43,365,909	38,653,615	61,727,499	65,988,266

[a] Based on NZMPB data.

[b] Calculated as percentage of total throughput (Table 7) exported.

[c] Export lambs reported were 131,987 more than total throughputs derived by AERU.

3.2 Mutton

3.2.1 Throughputs by works. Throughputs of sheep, including ewes, wethers, rams and hoggets, were compiled from various sources and are presented in Table 11. For several works in the North Island, only total sheep and lamb throughputs were available; such totals were disaggregated by using national export lamb : sheep slaughtering ratios. Thus, most, but not all, throughputs given in Table 11 are actual throughputs.

3.2.2 Unit killing and freezing charges. Unit killing and freezing charges for the six seasons considered are presented by works on a per carcass basis in Table 12. Charges shown in Table 12 were calculated for a 19.5 kg ewe, the average ewe carcass produced over the six seasons considered. All charges shown are f.o.r., except where otherwise specified.

3.2.3 Aggregate killing and freezing charges. Aggregate killing and freezing charges for mutton were initially calculated on a per works basis by applying the throughputs of Table 11 to the charges of individual works. Average carcass weights of ewes for each Island were used to calculate the per sheep charge for each works for each year (rather than the standard 19.5 kg ewe used in Table 12). The average ewe carcass weights for each season for each Island are shown in Table 13. Since the throughputs of Table 11 were total throughputs, the resulting total aggregate charge for each Island was adjusted by a factor representing the proportion of that Island's total throughput that was exported. NZMPB data were used to calculate such factors. These factors, along with estimates of the aggregate charges for export sheep for each Island, and for New Zealand, are shown in Table 14.

The treatment of wethers, rams and hoggets as ewes for calculating the aggregate charge is not likely to lead to any significant errors since the numbers of sheep slaughtered other than ewes were relatively low (less than 2.5 per cent of total sheep throughput in each of the six years).

TABLE 11

Total Sheep Throughputs by Works

	1970/71	1971/72	1972/73	1973/74	1974/75	1975/76
NORTH ISLAND WORKS:						
Moerewa	168,170	137,810	182,485	163,638	143,901	121,761
Hellabys	308,216	259,503	183,700	218,858	198,997	186,000
Westfield	230,612	127,543	202,341	112,070	184,268	149,953
Southdown	426,209	354,054	341,145	275,874	206,588	185,425
Horotiu	296,463	225,136	288,770	267,883	294,023	232,425
Kaiti	197,435	165,524	152,326	113,750	128,270	183,178
Wairoa	95,846	75,922	102,303	97,592	107,981	78,264
Whakatu	409,901	327,099	490,370	418,862	379,140	342,478
Tomoana	398,271	307,743	438,894	363,447	365,573	291,739
Patea	146,297	121,983	112,250	91,085	94,137	102,460
Imlay	199,375	145,032	245,895	196,880	215,241	166,392
Waitara	180,610	154,817	159,480	126,823	192,591	162,096
Waingawa	184,265	180,644	239,255	176,232	194,772	136,434
Feilding	232,743	201,210	234,964	198,529	216,660	143,608
Longburn	245,965	176,273	199,015	120,747	120,747	103,192
W.M.E.	115,124	89,813	161,000	0	0	0
Gear	232,067	194,004	230,583	193,123	196,241	175,050
NORTH ISLAND TOTAL	4,067,569	3,244,110	3,964,476	3,135,393	3,246,547	2,760,445
SOUTH ISLAND WORKS:						
Picton	48,736	57,288	90,907	68,876	94,713	69,582
Nelson	89,897	90,739	103,555	70,620	120,401	83,111
Islington	211,149	221,209	275,586	208,802	152,634	259,005
Smithfield	177,776	173,748	290,406	238,825	150,096	286,995
Burnside	240,208	228,803	210,418	177,081	152,893	218,351
Belfast	102,111	111,193	176,140	140,791	1,097	0
Fairfield	159,125	174,711	282,949	253,919	232,586	282,390
Pareora	210,436	197,816	289,712	285,003	161,034	315,528
Kaiapoi	107,479	109,214	184,590	149,275	69,619	168,074
Canterbury	171,018	214,626	206,590	180,919	197,111	221,879
Pukeuri	213,157	189,991	302,234	253,160	161,033	229,134
Balclutha	194,119	208,557	292,674	222,987	219,617	272,346
Ocean Beach	219,099	254,568	273,069	176,194	222,634	187,767
Mataura	215,475	210,788	318,895	216,046	211,231	270,768
Makarewa	295,984	279,742	367,069	286,610	276,320	309,807
Alliance	364,419	327,435	466,958	432,500	298,159	328,914
SOUTH ISLAND TOTAL:	3,019,906	3,050,428	4,131,752	3,361,608	2,721,178	3,503,642
NEW ZEALAND TOTAL	7,087,475	6,294,538	8,096,428	6,497,001	5,967,725	6,264,087

Source: South Island Freezing Companies Association Sheep and Lamb Survey, 1973; Pilling and Pearson (1976), unpublished data; New Zealand Meat and Wool Boards' Economic Service; Various Meat Freezing Companies' Submissions to Meat Industry Authority and Meat Industry Commission.

TABLE 12

Unit Killing and Freezing Charges for Ewes by Works
($ per 19.5 kg Carcass)

	1970/71	1971/72	1972/73	1973/74	1974/75	1975/76
NORTH ISLAND WORKS						
Moerewa	1.44	1.999	2.098	2.22	3.64	3.80
Hellabys	1.44	1.999	2.098	2.22	3.64	3.80
Westfield	1.44	1.999	2.098	2.22	3.64	3.80
Southdown	1.44	1.999	2.098	2.22	3.64	3.80
Horotiu	1.44	1.999	2.098	2.22	3.64	3.80
Kaiti	1.45	1.977	2.08	2.22	3.64	3.80
Wairoa	1.594	2.42	2.526	2.477	3.78	3.78
Whakatu	1.29	1.93	1.93	2.02	3.31	3.47
Tomoana	1.29	1.93	1.93	2.02	3.31	3.47
Patea	1.512	2.15	2.15	2.70	3.64	3.80
Imlay	1.439	2.176	2.286	2.28	3.34	3.55
Waitara	1.463	2.09	2.098	2.22	3.89	3.80
Waingawa	1.463	2.09	2.098	2.22	3.89	3.80
Feilding	1.463	2.09	2.098	2.22	3.89	3.80
Longburn	1.50	2.124	2.124	2.22	3.89	3.80
W.M.E.	1.594	2.42	2.42	-	-	-
Gear	1.676	2.33	2.33	2.448	4.21	4.21
N.I. (weighted average)	1.441	2.066	2.117	2.212	3.631	3.73
SOUTH ISLAND WORKS						
Picton[a]	1.827	2.52	2.52	2.63	3.82	3.95
Nelson[b]	2.335	2.52	2.52	3.92	4.337	3.95
Islington	1.61	2.304	2.304	2.31	3.52	3.65
Smithfield	1.61	2.304	2.304	2.31	3.52	3.65
Burnside	1.61	2.304	2.304	2.31	3.52	3.65
Belfast	1.61	2.304	2.304	2.31	3.52	3.73
Fairfield	1.61	2.304	2.304	2.31	3.52	3.73
Pareora	1.61	2.304	2.304	2.31	3.52	3.73
Kaiapoi	1.61	2.304	2.304	2.31	3.52	3.73
Canterbury	1.61	2.304	2.304	2.31	3.52	3.73
Pukeuri	1.61	2.304	2.304	2.31	3.52	3.65
Balclutha	1.78	2.477	2.477	2.448	3.55	3.65
Ocean Beach	1.61	2.304	2.304	2.31	3.52	3.73
Mataura	1.61	2.304	2.304	2.31	3.52	3.73
Makarewa	1.61	2.304	2.304	2.31	3.52	3.73
Alliance	1.61	2.304	2.304	2.31	3.52	3.73
S.I. (weighted average)	1.647	2.328	2.326	2.359	3.569	3.71
N.Z. (weighted average)	1.529	2.193	2.224	2.288	3.602	3.718

[a] f.o.b. Charge. [b] Ex works 1970/71-1973/74; f.o.r. 1974/75; f.o.b. 1975/76.

Source: NZMPB Annual Reports (various);
Ministry of Agriculture and Fisheries, Wellington.

TABLE 13

Average Ewe Carcass Weights by Island for Six Seasons (kg)

	1970/71	1971/72	1972/73	1973/74	1974/75	1975/76
North Island	19.6	19.5	18.3	18.9	18.9	19.3
South Island	21.2	20.7	18.7	19.7	20.1	20.2

Source: NZMPB Annual Reports.

TABLE 14

Aggregate Killing and Freezing Charges for Export Sheep

	1970/71	1971/72	1972/73	1973/74	1974/75	1975/76
NORTH ISLAND						
Number exported[a]	3,310,300	2,611,100	3,316,700	2,984,700	2,253,100	1,971,737
Percentage exported[b]	81.38	80.49	83.66	95.19	69.40	71.42
Aggregate Charge($)	4,770,142	5,237,866	7,021,453	6,602,156	8,181,006	7,354,579
Less Rebates($)	32,884	51,097	77,742	74,467	51,683	66,924
Net Aggregate Charge($)	4,737,258	5,186,769	6,943,711	6,527,689	8,129,323	7,287,655
SOUTH ISLAND						
Number exported[a]	2,339,000	2,387,600	3,632,000	3,092,200	2,406,400	2,680,832
Percentage exported[b]	77.45	78.27	87.90	91.99	88.43	76.52
Aggregate Charge($)	3,852,333	5,558,332	8,448,032	7,294,499	8,588,441	9,945,886
Less Published Rebates($)	0	38,393	60,295	204,466	178,335	167,924
Net Aggregate Charge($)	3,852,333	5,519,939	8,387,737	7,090,033	8,410,106	9,777,962
NEW ZEALAND						
Number exported[a]	5,649,300	4,998,700	6,948,700	6,076,900	4,659,500	4,652,569
Net Aggregate Charge($)	8,589,591	10,706,708	15,331,448	13,617,722	16,539,429	17,065,617

[a] Based on NZMPB data.

[b] Calculated as percentage of total throughput exported.

3.3 Beef

3.3.1 Throughputs by works. Actual throughputs of beef animals for individual works were compiled from various sources and are shown in Table 15. These throughputs include all grades of beef animals excluding bobby calves. For South Island works, some throughputs for individual works were not available, necessitating the combination of throughputs for a number of works.

3.3.2 Unit killing and freezing charges. Unit killing and freezing charges for the six seasons considered are presented by works on a per carcass basis in Tables 16, 17 and 18 for the three major beef export grades (boneless cow beef, chiller/GAQ steer, and bull beef). Unit charges in this table were calculated for a 167.2 kg cow (boneless cow beef), 264.1 kg steer, and a 247.3 kg bull. These weights were New Zealand averages for the appropriate grades in the 1975/76 season. All charges are f.o.r. unless otherwise specified.

TABLE 15

Total Throughputs of Beef Animals by Works

	1970/71	1971/72	1972/73	1973/74	1974/75	1975/76
NORTH ISLAND WORKS						
Moerewa	122,929	31,086	141,505	121,726	140,745	149,603
Hellabys	145,071	120,903	120,998	103,505	134,602	143,948
Westfield	149,028	134,761	134,472	101,556	136,322	145,771
Southdown	141,380	126,402	127,673	123,984	133,323	142,458
Horotiu	134,858	124,311	116,542	108,891	120,969	129,206
Kaiti	42,639	35,808	42,507	42,157	38,644	41,412
Wairoa	27,481	27,480	37,281	35,461	40,503	43,068
Whakatu	67,387	67,441	81,651	61,795	68,133	77,448
Tomoana	69,727	66,244	71,802	59,635	70,298	75,204
Patea	41,463	40,095	43,584	32,444	36,388	39,755
Imlay	36,276	36,944	53,781	35,727	31,087	33,129
Waitara	69,932	66,535	71,060	60,761	68,021	72,885
Waingawa	44,072	40,430	52,729	37,106	51,245	54,829
Feilding	69,781	66,836	63,495	57,920	66,939	71,560
Longburn	32,039	17,095	26,024	22,075	15,111	24,333
W.M.E.	23,988	21,956	27,000	0	0	0
Gear	59,243	51,279	54,912	36,740	54,809	58,639
Northland (Hellaby)	0	14,288	59,560	49,290	67,845	72,543
Aotearoa Abattoir	0	0	0	54,158	38,589	41,246
Rangiuru (AFFCO)-Abattoir	56,516	46,571	65,935	69,048	81,955	82,794
Pacific	0	0	0	0	62,475	64,259
Eltham (J.C.Hutton)	44,331	42,601	44,189	34,357	40,494	40,600
Walker (Hawera)	39,765	41,812	52,347	51,123	51,091	51,799
NORTH ISLAND TOTAL	1,417,876	1,320,878	1,489,047	1,299,459	1,549,588	1,656,489
SOUTH ISLAND WORKS						
Picton	4,096	4,796	8,191	17,014	21,419	38,520
Nelson	13,207	13,020	19,176			
Islington	20,104	18,340	22,961			
Smithfield	-	17,012	-			
Pukeuri	4,037	3,526	8,999			
Belfast	24,069	17,850	23,024	(21,868)	(22,048)	(74,832)
Fairfield	-	-	-	100,358	106,814	194,835
Pareora	9,563		23,114			(40,243)
Kaiapoi	-	-	-			
Canterbury	25,166	22,862	30,348	(27,533)	(17,101)	
Burnside	14,483	12,538	17,603			
Balclutha	20,427	18,497	26,405			
Ocean Beach	5,185	3,957	2,233			
Mataura	-	10,883	31,496	19,259	151,184	239,551
Makarewa	29,434	22,644	33,555			
Alliance	35,813	31,120	37,594			
SOUTH ISLAND TOTAL	205,584	197,045	284,699	236,631	279,417	472,906
NEW ZEALAND TOTAL	1,623,460	1,517,923	1,773,746	1,536,090	1,829,005	2,129,395

Note: Figures in brackets represent individual works throughputs; these are also included in combined totals.

Source: Ministry of Agriculture and Fisheries, Wellington; South Island Freezing Works Association Sheep and Lamb Survey 1973; New Zealand Meat and Wool Boards' Economic Service; Various Meat Freezing Companies' Submissions to Meat Industry Authority and Meat Industry Commission.

TABLE 16

Unit Killing and Freezing Charges for Boneless Cow Beef
($ per 167.2 kg Carcass)

	1970/71	1971/72	1972/73	1973/74	1974/75	1975/76
NORTH ISLAND WORKS						
Moerewa	20.14	25.66	25.66	27.21	43.70	44.00
Hellabys	20.14	25.66	25.66	27.21	43.70	44.00
Westfield	20.14	25.66	25.66	27.21	43.70	44.00
Southdown	20.14	25.66	25.66	27.21	43.70	44.00
Horotiu	20.81	26.32	26.32	27.21	43.70	44.00
Kaiti	20.29	25.92	25.92	27.21	43.70	44.00
Wairoa	22.85	30.23	30.23	30.51	44.33	44.33
Whakatu	18.25	25.48	25.48	26.08	35.50	36.50
Tomoana	18.25	25.48	25.48	26.08	35.50	36.50
Patea	20.87	26.73	26.73	29.83	43.70	44.00
Imlay	18.67[c]	24.21[c]	24.21[c]	26.91[c]	50.05[c]	51.50
Waitara	20.70	26.54	26.54	27.21	43.70	44.00
Waingawa	20.70	26.54	26.54	27.21	43.70	44.00
Feilding	20.70	26.54	26.54	27.21	43.70	44.00
Longburn	NQ	NQ	NQ	27.21	43.70	44.00
W.M.E.	22.86	30.23	30.23	-	-	-
Gear	20.65[c]	25.51	26.57	27.25	42.21	42.21
SOUTH ISLAND WORKS						
Picton[a]	23.12[c]	28.81[c]	28.81[c]	31.12[c]	53.70	53.55[c]
Nelson[b]	NQ	28.81[c]	28.81[c]	31.12[c]	61.86	53.55[c]
Islington	19.91[c]	25.77	25.77[c]	28.08[c]	48.38[c]	49.88[c]
Smithfield	19.91[c]	25.77	25.77[c]	28.08[c]	-	-
Pukeuri	19.91[c]	25.77	25.77[c]	28.08[c]	50.05[c]	49.88[c]
Belfast	19.91[c]	25.77	25.77[c]	25.76	48.38[c]	51.88[c]
Fairfield	19.91[c]	25.77	25.77[c]	25.76	48.38[c]	-
Pareora	19.91[c]	25.77	25.77[c]	25.76	48.38[c]	51.88
Kaiapoi	NQ	NQ	NQ	NQ	NQ	NQ
Canterbury	19.91[c]	25.77	25.77[c]	25.76	NQ	NQ
Burnside	19.91[c]	25.77	25.77[c]	28.08	48.38	49.88[c]
Balclutha	19.91[c]	25.77	25.77[c]	28.08	50.05	49.88[c]
Ocean Beach	19.91[c]	25.77	25.77[c]	-	-	-
Mataura	19.91[c]	25.77	25.77[c]	28.08	48.38[c]	51.88
Makarewa	19.91[c]	25.77	25.77[c]	28.08	48.38[c]	51.88
Alliance	19.91[c]	25.77	25.77[c]	28.08	48.38[c]	51.88

[a] f.o.b. charges.

[b] Ex works 1970/71 - 1973/74; f.o.r. 1975/76; f.o.b. 1975/76.

[c] Converted from rate expressed on packed weight assuming a 65 per cent yield and where appropriate $\frac{1}{2}$ packed weight as cuts.

Note: NQ - Not quoted.

Source: NZMPB Annual Reports (various).

TABLE 17

Unit Killing and Freezing Charges for Chiller/GAQ Steer (Ox)
($ per 264.1 kg Carcass)

	1970/71	1971/72	1972/73	1973/74	1974/75	1975/76
NORTH ISLAND WORKS						
Moerewa	26.22	32.85	32.85	34.05	55.44	55.84
Hellabys	26.22	32.85	32.85	34.05	55.44	55.84
Westfield	26.22	32.85	32.85	34.05	55.44	55.84
Southdown	26.22	32.85	32.85	34.05	55.44	55.84
Horotiu	27.43	34.07	34.07	34.05	55.44	55.84
Kaiti	26.59	33.44	33.44	34.05	55.44	55.84
Wairoa	NQ	NQ	NQ	NQ	55.73	55.73
Whakatu	NQ	NQ	NQ	NQ	45.00	46.50
Tomoana	NQ	NQ	NQ	NQ	45.00	46.50
Patea	27.14	34.25	34.25	35.65	55.44	55.84
Imlay	29.75[c]	38.43[c]	38.43[c]	39.77[c]	50.45[c]	NQ
Waitara	NQ	NQ	NQ	34.05	55.44	55.84
Waingawa	NQ	NQ	NQ	34.05	55.44	55.84
Feilding	NQ	NQ	NQ	34.05	55.44	55.84
Longburn	NQ	NQ	NQ	34.05	55.44	55.84
W.M.E.	NQ	NQ	NQ	-	-	-
Gear	28.90[c]	40.77	40.77	41.86	53.83	53.94
SOUTH ISLAND WORKS						
Picton[a]	39.13[c]	45.70[c]	45.70[c]	46.44[c]	63.41[c]	65.41[c]
Nelson[b]	51.25[c]	45.70[c]	NQ	NQ	100.36	65.41[c]
Islington	31.68[c]	40.88	40.88	41.65[c]	58.77[c]	60.27[c]
Smithfield	31.68[c]	40.88	40.88	41.65[c]	58.77[c]	-
Pukeuri	31.68[c]	40.88	40.88	41.65[c]	58.77[c]	60.27[c]
Belfast	31.68[c]	40.88	40.88	40.89[c]	58.77[c]	60.27[c]
Fairfield	31.68[c]	40.88	40.88	40.89[c]	58.77[c]	-
Pareora	31.68[c]	40.88	40.88	40.89[c]	58.77[c]	60.27[c]
Kaiapoi	NQ	NQ	NQ	NQ	NQ	NQ
Canterbury	31.68[c]	40.88	40.88	40.89[c]	NQ	NQ
Burnside	31.68[c]	40.88	40.88	41.65[c]	58.77[c]	60.27[c]
Balclutha	31.68[c]	40.88	40.88	NQ	58.77[c]	60.27[c]
Ocean Beach	31.68[c]	40.88	40.88	41.65[c]	NQ	NQ
Mataura	31.68[c]	40.88	40.88	41.65[c]	58.77[c]	60.27[c]
Makarewa	31.68[c]	40.88	40.88	41.65[c]	58.77[c]	60.27[c]
Alliance	31.68[c]	40.88	40.88	41.65[c]	58.77[c]	60.27[c]

[a] f.o.b. charge

[b] Ex works 1970/71-1973/74; f.o.r. 1974/75; f.o.b. 1975/76.

[c] Converted from rate expressed on packed weight assuming a 65 per cent yield and where appropriate $\frac{1}{2}$ packed weight as cuts.

Note: NQ - Not quoted.

Source: NZMPB Annual reports (various).

TABLE 18

Unit Killing and Freezing Charges for Bull Beef
($ per 247.3 kg Carcass)

	1970/71	1971/72	1972/73	1973/74	1974/75	1975/76
NORTH ISLAND WORKS						
Moerewa	30.57	37.77	37.77	35.67	55.48	55.73
Hellabys	30.57	37.77	37.77	35.67	55.48	55.73
Westfield	30.57	37.77	37.77	35.67	55.48	55.73
Southdown	30.57	37.77	37.77	35.67	55.48	55.73
Horotiu	32.20	38.73	38.73	35.67	55.48	55.73
Kaiti	30.78	38.16	38.16	35.67	55.48	55.73
Wairoa	28.38	37.65	37.65	38.49	57.42	57.42
Whakatu	24.65	33.33	33.33	34.08	43.00	44.50
Tomoana	24.65	33.33	33.33	34.08	43.00	44.50
Patea	31.65	37.77	37.77	39.53	55.48	55.73
Imlay	26.91[c]	34.86[c]	34.86[c]	36.02[c]	54.80[c]	59.25
Waitara	31.40	39.07	39.07	35.67	55.48	55.73
Waingawa	31.40	39.07	39.07	35.67	55.48	55.73
Feilding	31.40	39.07	39.07	35.67	55.48	55.73
Longburn	NQ	NQ	NQ	35.67	55.48	55.73
W.M.E.	28.38	37.65	37.65	-	-	-
Gear	27.87[c]	37.60[c]	37.60[c]	38.39	57.27	57.27
SOUTH ISLAND WORKS						
Picton[a]	33.07[c]	41.58[c]	41.58[c]	42.28[c]	61.70	61.25[c]
Nelson[b]	NQ	41.58[c]	41.58[c]	42.28[c]	91.57	61.25[c]
Islington	28.60[c]	37.05[c]	37.05[c]	37.78[c]	54.80[c]	56.30[c]
Smithfield	28.60[c]	37.05[c]	37.05[c]	37.78[c]	54.80	-
Pukeuri	28.60[c]	37.05[c]	37.05[c]	37.78[c]	57.75[c]	56.30[c]
Belfast	28.60[c]	37.05[c]	37.05[c]	37.07[c]	54.80[c]	58.30
Fairfield	28.60[c]	37.05[c]	37.05[c]	37.07[c]	54.80[c]	-
Pareora	28.60[c]	37.05[c]	37.05[c]	37.07[c]	54.80[c]	58.30
Kaiapoi	NQ	NQ	NQ	NQ	NQ	NQ
Canterbury	28.60[c]	37.05[c]	37.05[c]	37.07	NQ	NQ
Burnside	28.60[c]	37.05[c]	37.05[c]	37.78[c]	54.80[c]	56.30[c]
Balclutha	28.60[c]	37.05[c]	37.05[c]	37.79[c]	57.75[c]	56.30[c]
Ocean Beach	28.60[c]	37.05[c]	37.05[c]	37.79[c]	-	-
Mataura	28.60[c]	37.05[c]	37.05[c]	37.79[c]	54.80[c]	58.30[c]
Makarewa	28.60[c]	37.05[c]	37.05[c]	37.79[c]	54.80[c]	58.30[c]
Alliance	28.60[c]	37.05[c]	37.05[c]	37.79[c]	54.80[c]	58.30[c]

[a] f.o.b. charge.

[b] Ex works 1970/71-1973/74; f.o.r. 1974/75; f.o.b. 1975/76.

[c] Converted from Rate expressed on packed weight assuming a 65 per cent yield and where appropriate $\frac{1}{2}$ packed weight as cuts.

Note: NQ - Not Quoted.

Source: NZMPB Annual Reports (various).

3.3.3 Aggregate killing and freezing charges. Aggregate killing and freezing charges for beef animals were calculated by disaggregating total throughputs for each Island by grades. The disaggregated throughput data have not been presented in the Report due to the number of grades concerned as well as the changing grading system employed during the six year period. The number of grades concerned in each of the six years 1970/71 to 1975/76 were 10, 13, 13, 15, 15 and 21 respectively.

Killing and freezing charges applied to North Island throughputs were drawn from a representative works in the North Island; each grade of animal was assumed to incur one of three charges; cow, steer or bull. However, the individual charges for each grade varied with the average carcass weight for that grade. Due to the complexity of grade changes over the years, average weights for each year for each grade were difficult to compile. Thus, average weights for each year were assumed equal to New Zealand averages for each grade for the 1975/76 season. Therefore, although this aggregation procedure used representative charges, numbers of animals in different grades were accounted for.

A similar procedure was used to estimate aggregate killing and freezing charges for South Island works.

Since the throughputs of Table 15 were total throughputs, the resulting aggregate charge for each Island was adjusted by a factor representing the proportion of that Island's total throughput that was exported. NZMPB data were used to calculate such factors. These factors, along with estimates of aggregate killing and freezing charges for all export beef animals for each Island, and for New Zealand, are shown in Table 19.

TABLE 19

Aggregate Killing and Freezing Charges for Export Beef

	1970/71	1971/72	1972/73	1973/74	1974/75	1975/76
NORTH ISLAND						
Number exported[a]	1,203,700	1,168,800	1,295,700	1,063,094	1,311,496	1,576,315
Percentage exported[b]	84.89	88.48	87.02	81.81	84.64	95.16
Aggregate Charge ($)	22,816,209	31,626,541	34,027,059	27,853,757	55,730,219	74,546,013
Less Rebates ($)	46,558	94,628	106,827	119,210	175,752	435,791
Net Aggregate Charge($)	22,769,651	31,531,913	33,920,232	27,734,547	55,554,467	74,110,222
SOUTH ISLAND						
Number exported[a]	177,900	172,600	255,800	214,998	247,876	429,599
Percentage exported[b]	86.53	87.65	89.02	90.06	88.71	90.84
Aggregate Charge($)	3,637,955	5,498,723	7,772,406	7,289,090	13,279,966	23,894,205
Less Published Rebates($)	0	0	0	157,211	139,476	214,887
Net Aggregate Charge($)	3,637,955	5,498,723	7,772,406	7,131,879	13,140,490	23,679,318
NEW ZEALAND						
Number exported[a]	1,381,600	1,341,400	1,551,500	1,278,092	1,559,372	2,005,914
Net Aggregate Charge($)	26,407,606	37,030,636	41,692,638	34,866,426	68,694,957	97,789,540

[a] Based on NZMPB and MAF data.

[b] Calculated as percentage of total throughput exported.

3.3.4 Bobby Calves. Although some information on throughputs and killing and freezing charges for bobby calves was assembled in preparation of this Report, information on transport and other marketing activities was unavailable. Hence, bobby calves have been excluded from the Report.

This is not an important omission since export income and aggregate charges up to f.o.b. are small in comparison with other beef types. Throughputs of bobby calves over the six years averaged 1,082,556 per annum. Fifty five to 65 per cent are exported in the form of veal and other fancy meats whilst 30 to 40 per cent are processed for the domestic market.

3.4 Aggregate Killing and Freezing Charges by Livestock Type

Aggregate killing and freezing charges for each livestock type exported and for all livestock are shown in Table 20.

TABLE 20

Aggregate Killing and Freezing Charges for Export Livestock

(million $)

	Year ending 30th September					
	1971	1972	1973	1974	1975	1976
Lamb	30.8	45.8	43.4	38.7	61.7	66.0
Mutton	8.6	10.7	15.3	13.6	16.5	17.1
Beef	26.4	37.0	41.7	34.7	68.6	97.9
TOTAL	65.7	93.6	100.4	87.0	146.9	181.0

Note: All figures rounded.

Aggregate killing and freezing charges for beef in the year ending 30th September 1976 were greater than for sheep and lambs combined, a reversal of the situation existing at the beginning of the period. The aggregate charges reflect the static lamb and sheep kill over the period, and the increase in the number of beef animals slaughtered.

CHAPTER 4

TRANSPORT AND HANDLING - PROCESSING WORKS TO PORT

4.1 Average Distances for Meat Movements

The NZMPB representative charges relating to internal meat transport assume that sheep meat and beef is freighted directly from the representative export works to the nearest port and thence exported. Leaving aside the question of whether the NZMPB representative works is located at a distance from the port which is typical of the average for all N. Z. meat export works, a further question can be raised concerning the representativeness of this component of the NZMPB charges. This is the question of port bypassing.

Just as slaughtered stock frequently bypass the nearest slaughtering facilities for capacity and availability reasons, so does export meat often bypass the nearest port. The advent of port specialisation in recent years (e.g. containerisation) has no doubt contributed to this.

An indication of the extent of this bypassing in the 1974/75 season is illustrated in Table 21, where statistics relating to port loadings for the output of individual meat export works are summarised in a manner to emphasise the degree of port bypassing. For each meat exporting works all ports utilised have been weighted by respective throughputs. Following district amalgamation the actual average distances (km) over which the three major classes of meat have been transported are recorded as the "actual" columns in Table 21. If each works had put their whole throughput of each meat class only through the closest of the various available ports in 1974/75, the figures would have appeared as in the "minimum" columns.

TABLE 21

Transport From Works to Port : Minimum and Actual Distances Travelled by Meat, 1974/75

	LAMB		MUTTON		BEEF	
Works Location	Min. (km)	Actual(km)	Min. (km)	Actual(km)	Min. (km)	Actual(km)
1. North North Island	37.2	89.8	41.1	103.6	50.0	185.9
1a. North Auckland	16.0	180.0	16.0	296.0	69.3	303.2
1b. Central Auckland	5.0	28.7	5.0	27.8	5.0	58.8
1c. South Auckland/ Bay of Plenty	124.0	135.1	126.7	162.3	175.9	219.7
1d. East Coast	32.1	109.4	48.9	168.3	49.8	450.8
2. Hawke's Bay	24.5	85.0	25.1	82.9	24.6	285.5
3. Taranaki	100.3	136.8	99.4	148.8	100.0	357.8
4. Wellington	116.0	194.0[a]	121.0	193.0	100.0	202.0
5. Nelson	1.0	7.7[a]	1.0	1.0	1.0	113.7
6. Marlborough	2.0	12.4[a]	2.0	131.0	2.0	56.4
7. Westland						
8. Canterbury	27.4	126.5[a]	32.8	80.0[a]	17.8	318.2
8a. North Canterbury	32.0	163.1[a]	32.0	112.6		
8b. Central Canterbury	23.2	169.1[a]	23.4	109.3[a]	23.2	320.8
8c. Mid Canterbury	82.0	87.7	82.0	87.5		
8d. South Canterbury	8.4	92.7[a]	8.0	45.7	12.0	315.5
9. Otago	74.5	190.3[a]	66.4	179.7	79.4	354.5
9a. North Otago	75.0	99.3[a]	75.0	107.8	75.0	396.4
9b. East Otago	19.0	262.4[a]	19.0	220.7	19.0	327.9
9c. South Otago	102.0	226.9[a]	102.0	204.5	102.0	350.3
10. Southland	38.6	96.0[a]	37.4	76.9	49.1	559.7
New Zealand	47.7	120.6[a]	55.5	117.4	61.1	245.8

[a] Distances exclude ferry travel across Cook Strait.
For New Zealand as a whole, 3.1 per cent of lamb meat and 6.5 per cent of beef was transported across Cook Strait prior to port loading in 1974/75.

Note: For all classes of meat combined, the minimum distance was 53.2 km, and the actual distance was 158.1 km.

Source: Pilling, R.G. and Pearson, R.G. (1976), unpublished data.

Port bypassing then, for New Zealand as a whole, means that lamb was transported between two and three times as far, mutton was transported at least twice as far and beef up to four times as far as would be the case if there was no port bypassing.[2]

In consequence of this, the NZMPB estimates for transport from works to port in 1974/75 might well be understatements of the true position. Although clarification is not available, the geographic notes appended to the NZMPB estimates indicate that the NZMPB costings refer either to the Whakatu or Tomoana works (lamb and mutton) and either to the Feilding or Longburn works (in the case of beef). If this is so, the lamb and mutton distances assumed by the NZMPB will be only 20 per cent of the national average (as indicated in Table 21) and the beef distance assumed will be only 60 per cent of the Table 21 national average.

4.2 Unit Transport and Handling Charges

It is difficult to relate average distances travelled by meat to actual charges. Most meat is transported by rail (Pilling and Pearson (1976)[3] estimate 87 per cent overall for 1974/75), and of this transport much is now in containers. However, container traffic is charged by N. Z. Railways at contract rather than published rates, and details of individual contracts are kept confidential.

It has been necessary to use the NZMPB representative charges to estimate aggregate charges for transport from works to port. These representative charges are given for railage, wharfage, wharf handling and a levy for centralisation; railage has been disaggregated from this total charge in some years. Representative charges for these activities are given in Table 22.

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[2] Allowing for Cook Strait travel would increase these ratios slightly.

[3] Pilling, R. G. and Pearson, R. G. (1976), Unpublished data.

TABLE 22

Unit Transport and Handling Charges for Meat - Processing Works to Port

	Year ending 30th September					
	1971	1972	1973	1974	1975	1976
LAMB			($ per carcass)			
Railage	NA	NA	.086	.1023	.12	.1288
Wharfage, Wharf Handling and Centralisation Levy	NA	NA	.218	.2227	.3155	.3447
TOTAL	.223	.265	.304	.3250	.4355	.4735
MUTTON			($ per carcass)			
Railage	NA	NA	NA	.1580	.1588	.1894
Wharfage, Wharf Handling and Centralisation Levy	NA	NA	NA	.2505	.3077	.3281
TOTAL	0.280[b]	0.318	0.334	0.4085	0.4665	0.5175
BEEF[a]			($ per carcass)			
Railage	NA	NA	NA	NA	NA	NA
Wharfage, Wharf Handling and Centralisation Levy	NA	NA	NA	NA	NA	NA
TOTAL	0.860	1.024	1.024	1.137	1.743	1.786

[a] These estimates have been derived as 4 per cent of the killing and freezing charge; whilst this is only a very rough estimate, it was the best available.

[b] Estimated.

Source: NZMPB.

It should be noted that the distance analysis reported in Section 4.1 suggests that the NZMPB representative charges may underestimate significantly the actual charges incurred since the representative charges are based on a 50 km distance from works to port.

4.3 Aggregate Transport and Handling Charges

If the unit charges shown in Table 22 are applied to the exports of the various meat types, an aggregate charge can be estimated. Estimates of aggregate charges for lamb, mutton and beef have been derived by this means and are shown in Table 23. Again, it is probable that these aggregates underestimate the actual charges incurred.

Additional information on aggregate meat transport costs (all meat types combined) are given in Table 24; these aggregates have been obtained from N. Z. Railways and only apply to meat transport by rail. Since about 87 per cent of meat is transported from works to port by rail, these aggregates have been inflated by a factor of 100/87 to obtain the "adjusted" estimates in Table 24. The total "adjusted" aggregate may be slightly high since the 13 per cent transported by road may incur a lower average charge; this would be because most road transport applies to short hauls in the Southland, Marlborough-Nelson, and Auckland regions.

Comparison of the adjusted revenue figure from N. Z. Railways with the current estimate of transport charges shows that the estimated figures are lower. This would be expected since the estimated figures are based on a representative average distance which has been shown to be unrealistic due to port bypassing. Aggregate transport charges based on representative distances in the three years for which comparisons are made, were lower by 33, 14 and 22 per cent respectively than the adjusted Railway Revenue figures.

TABLE 23

Aggregate Transport and Handling Charges for Meat - Processing Works to Port
($)

	Year ending 30th September					
	1971	1972	1973	1974	1975	1976
LAMB						
Railage	NA	NA	2,064,989	2,150,274	2,853,840	3,147,830
Wharfage, Wharf Handling, and Centralisation Levy	NA	NA	5,234,507	4,680,998	7,503,221	8,424,356
TOTAL	5,849,931	6,791,632	7,299,496	6,831,272	10,357,061	11,572,186
MUTTON						
Railage	NA	NA	NA	960,150	739,929	881,197
Wharfage, Wharf Handling, and Centralisation Levy	NA	NA	NA	1,522,264	1,433,728	1,526,507
TOTAL	1,581,804	1,589,587	2,320,865	2,482,414	2,173,657	2,407,704
BEEF						
Railage	NA	NA	NA	NA	NA	NA
Wharfage, Wharf Handling and Centralisation Levy	NA	NA	NA	NA	NA	NA
TOTAL	1,188,176	1,373,594	1,588,736	1,453,190	2,717,985	3,582,562
TOTAL (all meat types)	8,619,911	9,754,813	11,209,097	10,766,876	15,248,703	17,562,452

TABLE 24

Aggregate Revenue of New Zealand Railways
for Transporting Meat from Works to Port

Year ending 31st March	Actual Railway Revenue ($M)	Adjusted Revenue (Railway Revenue x 100/87) ($M)	Estimated Aggregate Transport Charges Works to Port[a] (year ending 30 September) ($M)
1971	3.398	3.906	NA
1972	4.837	5.560	NA
1973	5.132	5.899	NA
1974	4.645	5.339	3.590
1975	4.566	5.248	4.491
1976	5.820	6.690	5.211

[a] Railage charges for beef have been estimated by assuming 33 per cent of total railage, wharfage, wharf handling, and centralisation charges are accounted for by railage; the 33 per cent was derived from the composition of ex-works handling and transport charges for lamb and mutton.

CHAPTER 5

ADDITIONAL MARKETING ACTIVITIES

5.1 Meat Inspection

Unit charges for meat inspection are shown in Table 25, along with export totals of different livestock types. An aggregate charge for meat inspection was estimated for each livestock type and for all livestock types combined.

Inspection charges to producers were suspended from 3/2/75 to 31/3/76. However, the current study treated this suspension as a transfer charge from producer to Government and charges were assumed to apply throughout the two seasons concerned.

5.2 Meat Levy

The NZMPB levy and Federated Farmers (F.F.) levy are detailed in Table 26. These levies were applied to export totals of the various livestock types to give an estimate of aggregate levies incurred.

5.3 Buying and Associated Activities

Unit buying and administrative charges, and insurance and interest charges incurred by meat exporters are given in Table 27. Aggregate charges are shown in Table 28.

TABLE 25

Unit and Aggregate Charges for Export Meat Inspection

	Year ending 30th September					
	1971	1972	1973	1974	1975	1976
LAMB						
Unit Inspection Charge ($ per carcass)	.062	.062	.062	.1245	.1245	.1245
Number exported	25,107,000	25,628,800	24,011,500	21,019,300	23,782,000	24,439,676
Aggregate Inspection Charge($)	1,556,634	1,588,986	1,488,713	2,616,903	2,960,859	3,042,740
SHEEP						
Unit Inspection Charge ($ per carcass)	.062	.062	.062	.1245	.1245	.1245
Number exported	5,649,300	4,998,700	6,948,700	6,076,900	4,659,500	4,652,569
Aggregate Inspection Charge($)	350,257	309,919	430,819	756,574	580,108	579,245
BEEF CATTLE						
Unit Inspection Charge ($ per carcass)	.658	.658	.658	1.315	1.315	1.315
Number exported	1,381,600	1,341,400	1,551,500	1,278,092	1,559,372	2,005,914
Aggregate Inspection Charge($)	909,093	882,641	1,020,887	1,680,691	2,050,574	2,637,777
TOTAL AGGREGATE INSPECTION CHARGES (all meat types) ($)	2,815,984	2,781,546	2,940,419	5,054,168	5,591,541	6,259,762

Source: Inspection fees obtained from Ministry of Agriculture and Fisheries.

TABLE 26

Unit and Aggregate Levies

	Year ending 30th September					
	1971	1972	1973	1974	1975	1976
LAMB						
F.F. unit levy ($ per carcass)	0	0	0	.025	.025	.025
NZMPB unit levy ($ per carcass)	.023	.023	.023	.105	.105	.105
Aggregate Levy ($)	577,461	589,462	552,265	2,732,510	3,091,660	3,177,158
MUTTON						
F.F.unit levy ($ per carcass)	0	0	0	.025	.025	.025
NZMPB unit levy ($ per carcass)	.033	.033	.033	.1544	.1544	.1544
Aggregate Levy ($)	186,427	164,957	229,307	1,090,196	835,915	834,671
BEEF						
F.F.unit levy ($ per carcass)	0	0	0	.045	.045	.045
NZMPB unit levy ($ per carcass)	.169	.169	.169	.791	.791	.791
T.B.reactor meat levy ($ p/carcass)	0	0	0	.080	.080	.080
Aggregate Levy ($)	233,490	226,697	262,204	1,170,731	1,428,385	1,837,417
TOTAL LEVY ($) (all meat types)	997,378	981,116	1,053,776	4,993,437	5,355,960	5,849,246

Source: Unit levies from NZMPB.

TABLE 27

Unit Buying, Administration, Insurance and Interest Charges

	Year ending 30th September					
	1971	1972	1973	1974	1975	1976
LAMB ($ per carcass)						
Buying and Administration	NA	NA	.3234	.3880	.3650	.4333
Interest and Insurance	NA	NA	.0916	.1100	.1010	.1227
TOTAL	.374	.382	.4150	.4980	.4660	.5560
MUTTON ($ per carcass)						
Buying and Administration	NA	NA	NA	NA	NA	NA
Interest and Insurance	NA	NA	NA	NA	NA	NA
TOTAL	.363	.369	.475	.498	.452	.532
BEEF ($ per carcass)						
Buying and Administration	NA	NA	NA	NA	NA	NA
Interest and Insurance	NA	NA	NA	NA	NA	NA
TOTAL	3.889	4.313	4.938	4.846	5.031	5.513

Source: NZMPB.

TABLE 28

Aggregate Buying, Administration, Insurance and Interest Charges

	Year ending 30th September					
	1971	1972	1973	1974	1975	1976
Lamb ($)	9,390,018	9,790,201	9,964,773	10,467,611	11,082,412	13,588,459
Mutton ($)	2,050,695	1,844,520	3,300,632	3,026,296	2,106,094	2,475,168
Beef ($)	5,373,042	5,785,458	7,661,307	6,193,634	6,430,081	11,058,603
TOTAL ($) (all meat types)	16,813,755	17,420,179	20,926,712	19,687,541	19,618,587	27,122,230

5.4 Ageing and Conditioning

Unit charges for ageing and conditioning of lamb carcasses are shown in Table 29, together with the number of carcasses and aggregate charges involved. The number of carcasses involved was assumed equal to the DEVCO throughput.

5.5 Lamb Cutting

Unit charges for lamb cutting are shown in Table 30, together with the number of carcasses and aggregate charges involved.

5.6 Summary of Aggregate Charges for Additional Marketing Activities

A summary of estimates of aggregate charges for additional marketing activities is given in Table 31. The buying, administration, interest and insurance charges dominate these aggregate charges.

TABLE 29

Unit and Aggregate Charges for Ageing and Conditioning of Lamb

	Year ending 30th September					
	1971	1972	1973	1974	1975	1976
Unit Charge ($ per carcass)	0.45	0.45	0.45	0.50	0.55	0.58
No. of carcasses	926,000	1,190,000	1,500,000	1,170,000	1,300,000	1,800,000
Aggregate Charge ($)	421,200	535,500	675,000	585,000	715,000	1,044,000

Source: NZMPB Annual Reports.
Ministry of Agriculture and Fisheries.

TABLE 30

Unit and Aggregate Charges for Preparing Special Lamb Cuts

	Year ending 30th September					
	1971	1972	1973	1974	1975	1976
Unit Charge ($ per carcass)	1.90	1.84	1.93	2.12	2.75	3.10
No. of carcasses Devco	926,000	1,190,000	1,500,000	1,170,000	1,300,000	1,800,000
Other[a]	1,000,000	1,600,000	843,000	1,400,000	1,900,000	2,100,000
TOTAL	1,926,000	2,790,000	2,423,000	2,570,000	3,200,000	3,900,000
Aggregate Charge($)	3,659,400	5,133,600	4,521,990	5,448,400	8,800,000	12,090,000

[a] Estimated from NZMPB Statistics on chilled and frozen lamb cuts.

Source: NZMPB Annual Reports.

TABLE 31

Total Charges for Additional Marketing Activities for Export Meat

	Year ending 30th September					
	1971	1972	1973	1974	1975	1976
LAMB						
Meat Inspection	1,556,634	1,588,986	1,488,713	2,616,903	2,960,859	3,042,740
Meat Levies	577,461	589,462	552,265	2,732,510	3,091,660	3,177,158
Buying and Related Activities	9,390,018	9,790,201	9,964,773	10,467,611	11,082,412	13,588,459
Ageing and Conditioning	421,200	535,500	675,000	585,000	715,000	1,044,000
Cutting	3,659,400	5,133,600	4,521,990	5,448,400	8,800,000	12,090,000
TOTAL	15,604,713	17,637,749	17,202,741	21,850,424	26,649,931	32,942,357
MUTTON						
Meat Inspection	350,257	309,919	430,819	756,574	580,108	579,245
Meat Levy	186,427	164,957	229,307	1,090,196	835,915	834,671
Buying and Related Activities	2,050,695	1,844,520	3,300,632	3,026,296	2,106,094	2,475,168
TOTAL	2,587,379	2,319,396	3,960,758	4,873,066	3,522,117	3,889,084
BEEF						
Meat Inspection	909,093	882,641	1,020,887	1,680,691	2,050,574	2,637,777
Meat Levy	233,490	226,697	262,204	1,170,731	1,428,385	1,837,417
Buying and Related Activities	5,373,042	5,785,458	7,661,307	6,193,634	6,430,081	11,058,603
TOTAL	6,515,625	6,894,796	8,944,398	9,045,056	9,909,040	15,533,797
TOTAL (all meat types)	24,707,717	26,851,941	30,107,897	35,768,546	40,081,088	52,365,238

CHAPTER 6

OVERVIEW AND DISCUSSION

6.1 Total Charges

Estimates of total charges from farm gate to f.o.b. for each meat type are given in Table 32. Total charges for beef have exceeded lamb for the last years of the study, mainly as a result of the increased turnoff of beef in the latter years. Table 32 shows that killing and freezing charges have accounted for 57 to 65 per cent of total charges over the period considered. At over $181 million in 1975/76 this aggregate charge dominates all other marketing charges for export meat.

Table 33 shows that the proportion of total charges incurred in each broad activity area differs somewhat for each livestock type; killing and freezing represent a smaller proportion of total charges for lamb than for mutton and beef; on the other hand, additional charges are more important for lamb than for mutton and beef. This is largely because some processing charges (e.g. cutting) for lamb have been included in the additional charge category.

Transport and handling charges works to ship represent a smaller proportion of total charges for beef than for lambs and sheep; whilst the unit charge used for beef here is somewhat suspect (Section 4.2), most beef is transported in cut form rather than in carcass form. This could lead to relatively lower transport charges for beef due to improved stowage performance of the cut beef.

TABLE 32

Total Charges from Farm Gate to f.o.b. for Each Livestock Type (m.$)

		Year ending 30th September					
		1971	1972	1973	1974	1975	1976
Transport - Farm to works	LAMB	7.8	8.6	8.5	7.8	10.7	12.4
	MUTTON	2.7	2.6	3.8	3.5	3.3	3.7
	BEEF	5.4	5.7	7.0	6.0	8.9	12.8
	TOTAL	15.9	16.9	19.3	17.3	22.9	28.9
Killing and Freezing	LAMB	30.8	45.8	43.4	38.7	61.7	66.0
	MUTTON	8.6	10.7	15.3	13.6	16.5	17.1
	BEEF	26.4	37.0	41.7	34.9	68.7	97.8
	TOTAL	65.7	93.6	100.4	87.0	146.9	181.0
Transport & Handling- Works to Port	LAMB	5.8	6.8	7.3	6.8	10.4	11.6
	MUTTON	1.6	1.6	2.3	2.5	2.2	2.4
	BEEF	1.2	1.4	1.6	1.5	2.7	3.6
	TOTAL	8.6	9.8	11.2	10.8	15.3	17.6
Associated Marketing Activities	LAMB	15.6	17.6	17.2	21.9	26.6	32.9
	MUTTON	2.6	2.3	4.0	4.9	3.5	3.9
	BEEF	6.5	6.9	8.9	9.0	9.9	15.5
	TOTAL	24.7	20.8	30.1	35.8	40.0	52.3
TOTAL	LAMB	60.0	78.8	76.4	75.2	109.4	122.9
	MUTTON	15.5	17.2	25.4	24.5	25.5	27.1
	BEEF	39.5	51.0	59.2	51.4	90.2	129.7
	TOTAL	115.0	147.0	161.0	151.1	225.1	279.7

TABLE 33

Proportion of Farm Gate to f.o.b. Aggregate Charges Incurred Within Broad Activity Areas in 1975/76 Season

	Lamb %	Mutton %	Beef %
Transport - Farm Gate to Works	10.1	13.7	9.9
Killing and Freezing	53.7	63.1	75.4
Transport and Handling - Works to Ship	9.4	8.8	2.8
Additional Charges	26.8	14.4	11.9
	100.0	100.0	100.0

It should be remembered that in addition to the aggregate charges presented in this report, freezing companies also derive revenue from sales of by-products. Little information is available on by-product prices and revenues. However, in 1975/76 export receipts from sales of by-products totalled some $74 million; since not all by-products are exported (e.g. fertilisers derived from blood and bone), total revenue of works from killing and freezing operations may be up to 30-40 per cent greater than given in this Report. The extent to which by-product revenues influence works revenue from year to year is not well documented. Whilst the Ministry of Agriculture and Fisheries takes by-product revenue into consideration when considering applications for charge increases, further analyes of this area would be important in any subsequent investigation into freezing works' cost and revenue structures.

Table 34 shows the national export 'Marketing Bill' for each meat type together with its associated f.o.b. value. Although stock level changes can influence exports, it is felt that the percentages shown in Table 34 give a fair indication of the proportion of f.o.b. values made up by marketing and processing charges.

TABLE 34

National Export 'Marketing Bill' and f.o.b. Meat Values
(million $)

	1970/71	1971/72	1972/73	1973/74	1974/75	1975/76
LAMB						
Meat Value f.o.b. basis[a]	161.4	155.0	215.2	195.2	190.5	261.3
Marketing Charge from farm gate to f.o.b.[b]	60.0	78.8	76.4	75.2	109.4	122.9
Marketing Charge as % f.o.b. value	37.2	50.8	35.5	38.5	57.4	47.0
MUTTON						
Meat value f.o.b. basis[a]	25.3	25.8	42.1	61.8	46.4	33.7
Marketing Charge from farm gate to f.o.b.[b]	15.5	17.2	25.4	24.5	25.5	27.1
Marketing Charge as % f.o.b. value	61.3	66.7	60.3	39.6	55.0	80.4
BEEF						
Meat Value f.o.b. basis[a]	159.7	178.5	229.4	225.9	150.1	228.6
Marketing Charge from farm gate to f.o.b.[b]	39.5	51.0	59.2	51.4	90.2	129.7
Marketing Charge as % f.o.b. value	24.7	28.6	25.8	22.8	60.1	56.7
LAMB + MUTTON + BEEF						
Meat Value f.o.b. basis[a]	346.4	359.3	486.7	482.9	387.0	523.6
Marketing Charge from farm gate to f.o.b.[b]	115.0	147.0	161.0	151.1	225.1	279.7
Marketing Charge as % f.o.b. value	33.2	40.9	33.1	31.3	58.2	53.4

[a] for year ending 30th June.

[b] for year ending 30th September.

Source: f.o.b. values from NZMPB Annual Reports.

6.2 Unit Marketing Charges

Indices of selected unit charges for lamb, mutton and beef for the years examined are shown in Figures 1, 2 and 3.

It is evident that for all three types of livestock, killing and freezing charges have increased at a far greater rate than other charges, and at faster rates than either the wage or consumer price index.

FIGURE 1

Indices of Selected Unit Marketing Charges for Lambs

(1970/71 = 100)

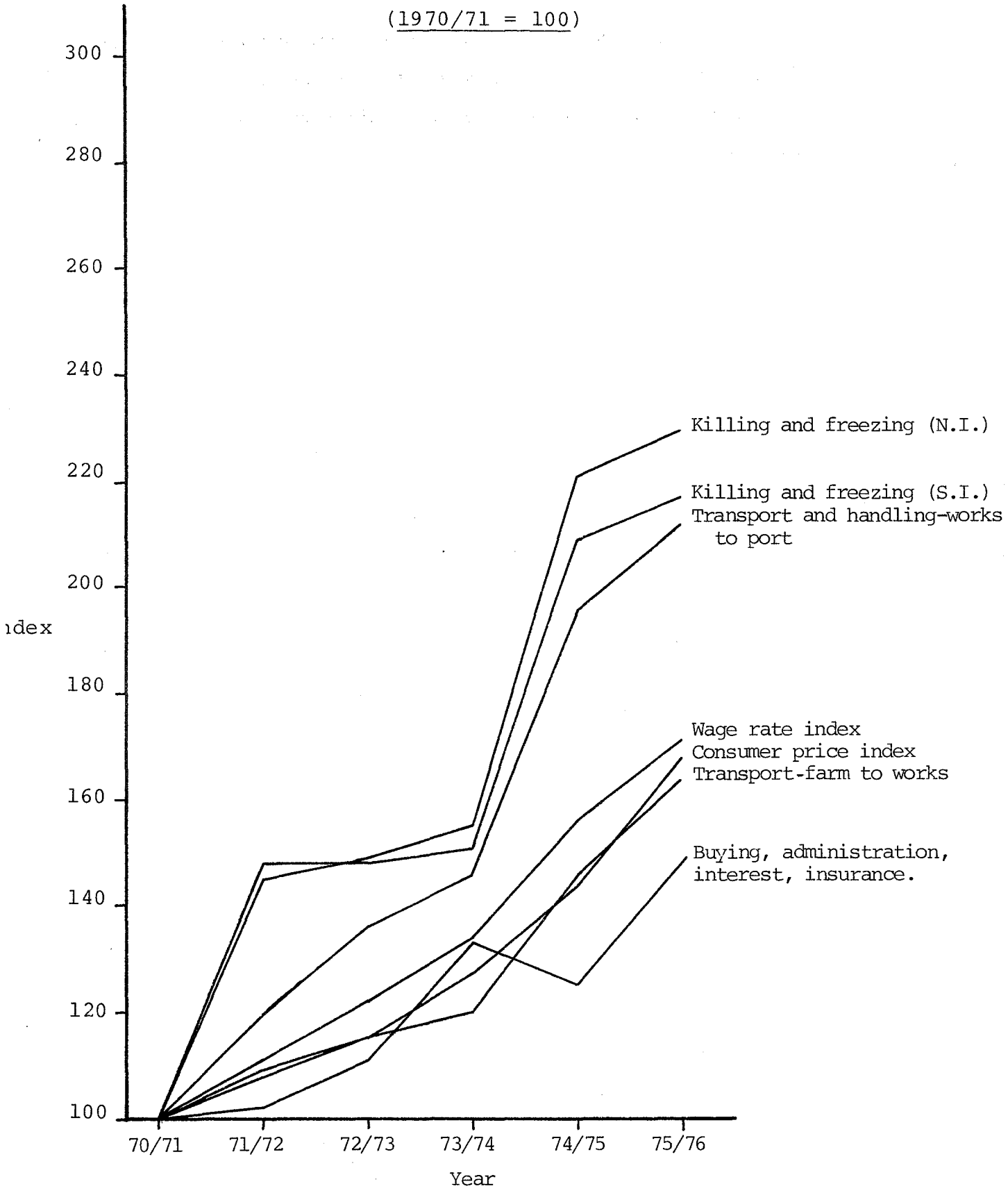


FIGURE 2

Indices of Selected Unit Marketing Charges for Ewes

(1970/71 = 100)

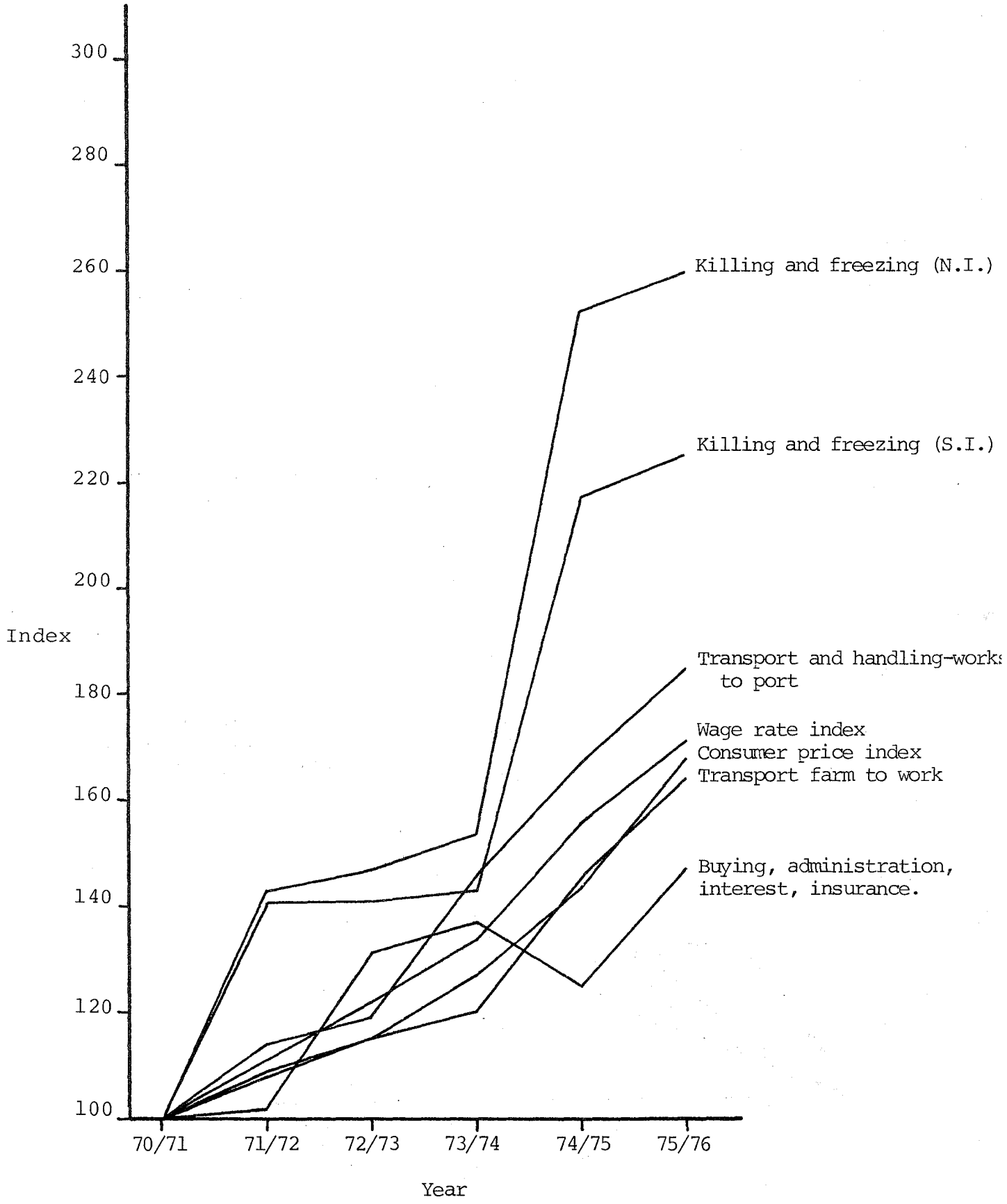
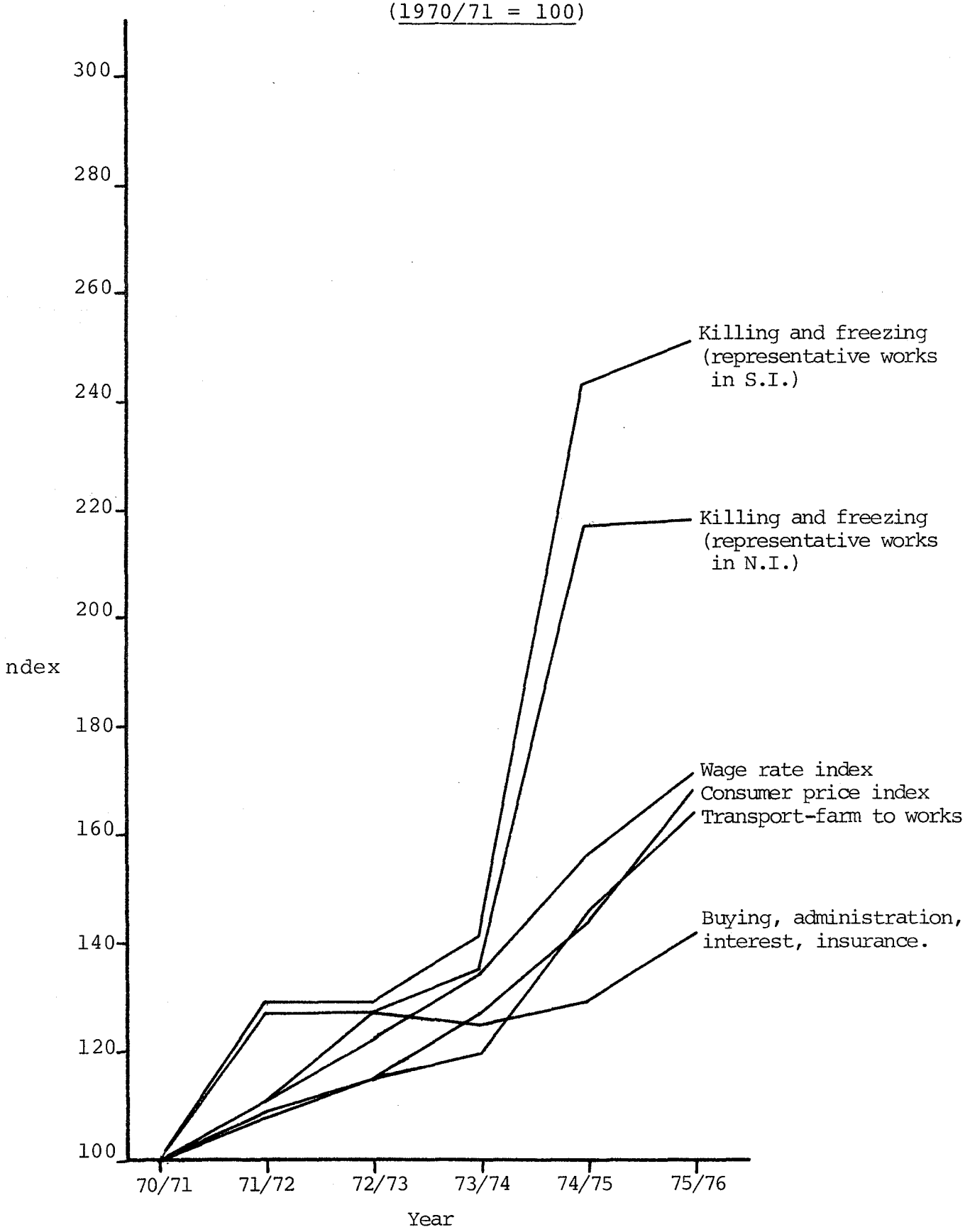


FIGURE 3

Indices of Selected Unit Marketing Charges for Cows

(1970/71 = 100)



6.3 Average Marketing Charges

Average marketing charges for each type of export livestock are shown in Table 35. Alongside the average marketing charge derived in this Report is shown the representative charge for the same type of livestock reported by the NZMPB.

Three reasons why the Agricultural Economics Research Unit charges for lamb are higher than the representative charge are:

(i) Lamb ageing, conditioning and cutting charges have been included in average charges.

(ii) AERU transport charges from farm gate to processing works are nearly double those of the representative charge.

(iii) The representative charge is based on a North Island lamb but South Island killing and freezing charges have been 10-20 per cent above North Island charges over the past six years (Table 8). The NZMPB representative charge is based on a 14.2 kg lamb carcass whilst AERU estimates are based on varying carcass weights from season to season. Actual average lamb carcass weights for the period considered were considerably less than 14.2 kg. This difference would tend to push up the representative charge in relation to the AERU average.

Average charges for mutton are also higher than representative charges. Transport from farm gate to processing works is a major cause of this difference. Another contributing factor is the higher killing charge in the South Island compared to the North Island in the earlier seasons. In the latter two seasons charges have been similar (Table 12).

TABLE 35

Average Marketing Charges from Farm Gate to f.o.b.
by Type of Export Livestock
($ per carcass)

	Year ending 30th September					
	1971	1972	1973	1974	1975	1976
LAMB						
Estimate	2.38	3.07	3.18	3.58	4.60	5.03
Corresponding NZMPB Representative Charge	1.82	2.34	2.50	2.82	3.40	3.65
MUTTON						
AERU Estimate	2.74	3.44	3.66	4.03	5.47	5.82
Corresponding NZMPB Representative Charge	2.45	2.82	3.05	3.46	4.85	5.44
BEEF						
AERU Estimate	28.59	38.02	38.16	40.22	57.84	64.66
Corresponding NZMPB Representative Charge	27.90	32.16	32.90	36.51	51.93	52.66

Average charges for beef are higher than representative charges, especially in the latter years of the study period. Different charges for transport from farm gate to processing works is probably a significant causal factor. However, the fact that the average charge reflects all grades of beef animals rather than just the manufacturing cow grade, is perhaps the major reason for the differences shown. The fact that the average charge has increased at a much faster rate than the representative charge may be a reflection of changing proportions of grades.

6.4 Priority Areas for Further Research

Both the absolute size of the killing and freezing bill for meat, and the relative increases in killing and freezing charges compared to other charges, point to the killing and freezing area as being of most importance in the meat marketing chain. This observation holds for all three types of meat exports considered. Another major feature of these results is the extent to which livestock have been transported past the nearest works to other works.

Both these results suggest that some priority should be given to a study of production-transport-processing interrelationships. Important questions to be answered include:

(i) What would be the saving in transport costs if livestock were transported to the nearest works?

(ii) To what extent does the seasonal production of livestock influence bypassing the nearest works?

(iii) How important are plant capacity and utilisation to the profitability of freezing works?

(iv) Why does a works processing under 700,000 sheep and lambs have the same killing and freezing charges as a works processing just under 2,000,000?

(v) If economies of scale do not exist in processing works, would future decentralisation of works be beneficial in terms of lowered transport costs and labour organisation?

Answers to many of these questions would appear to be dependent on a factor cost study of the freezing works operation.

This Report has highlighted the proportion of f.o.b. meat values made up by post-farm gate marketing and processing charges. Over the period studied, this proportion has averaged 44 per cent for lamb, 61 per cent for mutton and 36 per cent for beef. A recent study by the Ministry of Agriculture and Fisheries[4] has demonstrated that over a similar period to that referred to in the present study, 83 per cent of all agricultural research resources have been allocated to research within the farm gate and only 17 per cent beyond the farm gate. If this imbalance is to be rectified by allocating more research resources to activities beyond the farm gate, it is important that the various activities and charges are well defined and documented so that such resources can be allocated in a rational manner. It is hoped that the present Report contributes to this objective.

It is important that studies concentrating on overview and aggregate statistics, such as this Report, can be updated periodically to demonstrate trends and data inadequacies. Whilst the framework presented in this Report could be improved substantially, it does lay the basis for future monitoring and analysis of export meat marketing charges.

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[4] Sorrenson, W.J. (1977) "A Review of Resource Allocation in Agricultural Research in New Zealand 1968/69 - 1975/76", Research Paper 7/77, Research and Resource Section, Economics Division, M.A.F.

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