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Milk - marketing 03

AN ECONOMIC STUDY OF
VEHICLE MILK VENDORS
IN THE SYDNEY METROPOLITAN AREA
1975-76

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NEW SOUTH WALES DEPARTMENT OF AGRICULTURE

New South Wales Department of Agriculture
Division of Marketing and Economics

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PREFACE

Under the Dairy Industry Authority Act, 1970, the Division of Marketing and Economics undertakes regular surveys of the cost of production, processing and distribution of wholemilk. This information is used by the Dairy Industry Prices Tribunal for the purpose of making recommendations on the appropriate prices and margins for milk.

This bulletin presents the results of a survey of vehicle milk vendors' costs in the Sydney Metropolitan Area during the 1975-76 financial year. The survey data have been used to calculate the cost of distributing a litre of milk to retail outlets as requested by the Tribunal. In addition, analysis of the major factors affecting the cost of distribution has been undertaken.

The present survey is the second survey to be undertaken by the Division of Marketing and Economics of the cost of milk distribution since the introduction of the 1970 Act. The previous survey was undertaken in 1973 by F.H. Drane, Special Economist (Surveys). The procedures adopted in determining the cost of retail milk distribution follow those outlined in the previous survey. Changes have been introduced in the method of sample selection and a more detailed analysis of the cost components is provided. This report also includes information regarding vendors' incomes and the type of trade undertaken. The initial results of the survey were presented in two reports to the Dairy Industry Prices Tribunal in October, 1976.

The authors wish to thank officers of the Division of Marketing and Economics and the Dairy Industry Prices Tribunal who assisted in undertaking this project.

CONTENTS

	<u>Page</u>
1. INTRODUCTION	1
2. POPULATION CHARACTERISTICS	2
2.1 BACKGROUND	2
2.2 METHOD	2
2.3 SIZE OF RUN, RETAIL PERCENTAGE, ZONE	3
2.4 RESULTS	4
3. SURVEY PROCEDURE	14
3.1 SAMPLING METHOD	14
3.2 COLLECTION OF DATA	17
4. SURVEY RESULTS	18
4.1 KEY COMPONENTS	18
4.2 AVERAGE COST OF RETAIL MILK DISTRIBUTION	24
4.3 AVERAGE COST STRUCTURE	27
4.4 NON LABOUR COSTS	28
4.5 LABOUR COSTS	29
4.6 ANALYSIS OF LABOUR EFFICIENCY AND THE COST OF DISTRIBUTION	30
4.7 PRICE FIXATION AND APPARENT LABOUR EFFICIENCY	36
4.8 DISTRIBUTION COST AND RUN SIZE	39
4.9 CHANGE IN COST STRUCTURE SINCE 1973	40
5. VENDORS TRADE AND INCOME	41
5.1 NATURE OF TRADE UNDERTAKEN	41
5.2 INCOME STRUCTURE	42
6. RELATIONSHIP BETWEEN SAMPLE SELECTION CHARACTERISTICS AND SURVEY RESULTS	46
6.1 RETAIL PERCENTAGE	46
6.2 RUN SIZE	47
APPENDIX 1	49
DEFINITION AND TREATMENT OF SURVEY DATA	
APPENDIX 2	62
INDIVIDUAL VENDORS' RESULTS	
APPENDIX 3	74
APPROVED WHOLESALE AND MAXIMUM RETAIL PRICES FOR MILK AND CREAM	
APPENDIX 4	75
ZONE 5 CHARACTERISTICS	

<u>LIST OF TABLES</u>		<u>Page</u>
TABLE 1.	ZONAL CLASSIFICATION OF VENDORS' RUNS	4
TABLE 2.	DISTRIBUTION OF RUN SIZES	6
TABLE 3.	CLASSIFICATION OF VENDORS BY RUN SIZE	6
TABLE 4.	PERCENTAGE BOTTLE SALES	7
TABLE 5.	CLASSIFICATION OF VENDORS BY RETAIL PROPORTION	7
TABLE 6.	POPULATION PER VENDOR BY ZONE	8
TABLE 7.	SAMPLE SELECTION - PROPORTION OF VENDORS IN POPULATION AND SAMPLE BY BOTTLE SALE PERCENTAGE AND RUN SIZE CATEGORIES	14
TABLE 8.	SELECTION OF VENDORS ACCORDING TO RUN SIZE	15
TABLE 9.	SELECTION OF VENDORS ACCORDING TO BOTTLE SALE PERCENTAGE	16
TABLE 10.	SELECTION OF VENDORS ACCORDING TO ZONE	16
TABLE 11.	AVERAGE RUN SIZE	20
TABLE 12.	RUN SIZE DISTRIBUTION (RME)	21
TABLE 13.	ESTIMATED COST OF DISTRIBUTING MILK TO RETAIL OUTLETS: AVERAGE OF SAMPLE	24
TABLE 14.	AVERAGE VENDOR COST STRUCTURE FOR 1975/76 FINANCIAL YEAR	27
TABLE 15.	VEHICLE COST DISTRIBUTION	28
TABLE 16.	LABOUR UTILIZATION - PARTICIPATION OF VENDOR'S WIFE	29
TABLE 17.	LABOUR EFFICIENCY LEVEL IMPLICIT IN PRESENT SURVEY	38
TABLE 18.	AVERAGE COST OF RETAIL MILK DISTRIBUTION AND RUN SIZE	39
TABLE 19.	COMPARISON OF COST STRUCTURES BETWEEN THE 1973 VENDOR SURVEY AND THE 1976 VENDOR SURVEY: PERCENTAGE OF TOTAL COSTS	40
TABLE 20.	NATURE OF TRADE UNDERTAKEN	41
TABLE 21.	AVERAGE INCOME STRUCTURE FOR THE 1975/76 FINANCIAL YEAR	42
TABLE 22.	DISTRIBUTION OF RUNS BY RETURN TO VENDORS' LABOUR	42
TABLE 23.	DISTRIBUTION OF VENDORS' RUNS BY RETURN TO FAMILY (IMPUTED) LABOUR	43
TABLE 24.	COMPARISON OF BOTTLE SALE PERCENTAGE WITH RETAIL PERCENTAGE RESULTS ACHIEVED FROM SURVEY	46
TABLE 25.	COMPARISON OF BASE PRODUCT SALES (B.P.S.) WITH ACTUAL RUN SIZE MEASURED IN THE SURVEY	48

LIST OF FIGURES

	<u>Page</u>
1. PERCENT BOTTLE SALES X BASE PRODUCT SALES	9
2. RELATIVE PROPORTION OF RETAIL:WHOLESALE TRADE X RUN SIZE	10
3. DISTRIBUTION OF RUNS BY RETAIL SALES PROPORTION	22
4. DISTRIBUTION OF RUNS BY TOTAL LABOUR PER WEEK IN MAN HOUR EQUIVALENTS	23
5. DISTRIBUTION OF VENDORS BY THE COST OF DELIVERING A LITRE OF RETAIL MILK (AFTER ALLOWANCE FOR DELIVERY FEE)	26
6. FULLY-RETAIL VENDORS: LABOUR EFFICIENCY AND DISTRIBUTION COST	32
7. RELATIONSHIP BETWEEN COST/LITRE MILK EQUIVALENT AND COST/LITRE RMSQE FOR FULLY-RETAIL VENDORS	34

1. INTRODUCTION

This bulletin presents the results of a survey into the milk vending industry undertaken in July, 1976. The survey was undertaken following an initial study of the milk vending population which investigated size, retail proportion and location of the vendors' runs.

The results of the survey were supplied to the Dairy Industry Prices Tribunal which requires information for the purpose of establishing appropriate prices and margins for milk and cream. At the request of the Tribunal, the survey data have been used to calculate the cost of distributing a litre of milk to retail outlets¹. The methods used for estimating allowances for certain costs and for performing the cost of distribution calculations follow procedures outlined by the Tribunal. The results of the survey and of the initial study were contained in two reports entitled:

" A Report on the Characteristics of the Milk Vehicle Vending Industry in the Sydney Metropolitan Area", J.F. Martin and K.J. Munro (October, 1976).

" Report to the Dairy Industry Prices Tribunal on a Survey of the Cost of Distributing Retail Milk in the Sydney Metropolitan Area", K.J. Munro and J.F. Martin (October, 1976).

This bulletin undertakes an investigation of the milk vending industry in the Sydney Metropolitan Area with particular emphasis on the retail component. It brings together the results of the above reports and analyses key components of the cost of distribution of retail milk. The bulletin includes detailed information of the structure of retail milk vendors' runs.

1. In this bulletin, the term "retail" applies predominantly to deliveries made to households (retail outlets). Deliveries to shops and factories (wholesale outlets) are referred to as "wholesale" trade. Retail vendors are defined as those delivering predominantly to households.

2. POPULATION CHARACTERISTICS

2.1 BACKGROUND

Milk distribution from milk depots to retail and wholesale outlets is undertaken by vendors referred to as vehicle milk vendors. All persons operating as milk vendors are required to be registered with the Dairy Industry Authority. This entitles them to service a particular zoned area, known as a milk run (or run). Runs may be transferred between vendors, either whole or in part. When runs are transferred (i.e. sold) the value of this sale is referred to as the goodwill value of the run. The term "goodwill" is adopted because in fact the vendor cannot sell the run, only the right to service the run. The purchasing vendor inherits the "goodwill" existing between the former vendor and his customers in the form of existing trade, and this is the basis on which the goodwill value is determined.

Registrations and transfers are administered by the Dairy Industry Authority under the Dairy Industry Authority Act of 1970. Under the Act, vendors are entitled to supply whole milk and cream within a defined zoned area. By-products are not included in this registration and vendors may supply by-products to areas outside their own run locality.

The majority of vendors undertake both wholesale as well as retail trade. Sales to households form the bulk of retail trade, while wholesale trade consists of sales to shops and factories. The return the vendor receives on his per unit sales (i.e. the vendor's margin) varies greatly between retail trade and wholesale trade, with the retail margin for milk presently being 2.5 times that of wholesale milk. In addition, retail sales to hospitals, armed forces and national fitness camps are subject to a lower retail margin, as are bulk sales to other retail outlets. All prices and margins for whole milk and cream are controlled by the Dairy Industry Prices Tribunal. Purchase prices, wholesale prices and retail prices pertaining to the time of the survey are presented in Appendix 3.

2.2 METHOD

The following information was obtained for all registered vendors operating in the Sydney Metropolitan Area.

1. Name
2. Registration Number
3. Locality of Run (Zone)
4. Value of Total Purchases for a specific week
5. Bottle Sale Percentage for the same week.

This enabled the characteristics of size, retail percentage and locality of run for the milk vehicle vending population to be studied. The data regarding value of total purchases and bottle sale percentage were obtained

for all vendors for the week ending Thursday, 18th March, 1976. This cross-sectional approach provided a common basis of comparison for all vendors.

2.3 SIZE OF RUN, RETAIL PERCENTAGE, ZONE

The three characteristics under consideration for each vendor were

- (i) size of run
- (ii) retail percentage
- (iii) zone

Size of Run

Size of run was estimated using the Value of Total Purchases. This is the value of all milk, cream and by-products purchased from the depot during the week ending Thursday, 18th March, 1976. Since these purchases are obtained each day and are not readily stored, weekly purchases can be presumed to be equal to the quantities sold. In this context the Value of Total Purchases is thus referred to as Base Product Sales, (B.P.S.) where "product" refers to the three items of milk, cream and by-products, with orange juice being classified as a by-product.

The actual value of gross sales for each vendor is not readily obtainable because of the differing margins between products and the different composition of each vendor's run in terms of retail and wholesale trade. Thus although the value of B.P.S. can be used to indicate size of run in terms of sales, it cannot be directly used to indicate gross incomes of vendors.

Retail Percentage

To determine the composition of vendors' runs in terms of retail and wholesale trade, it was considered that a suitable measure was the percentage of bottled milk purchased. This is obtained by:

$$\text{Percentage of Bottled Milk Purchases} = \frac{\text{Value of Bottled Milk Purchases}}{\text{Value of Total Purchases}} \times \frac{100}{1}$$

This measure is readily obtainable and enables comparison of all vendors. Since bottled milk is normally supplied to householders (at the retail margin), then the higher the proportion of bottled milk sales, the greater the likely involvement in retail trade. This can thus enable a general distinction to be made between retailers (having a high Percentage Bottle Sales) and wholesalers (having a low Percentage Bottle Sales). Although it does not measure the actual proportion of retail and wholesale trade of the vendor, it does allow an assessment of the likely importance of retail and wholesale trade on vendors' runs.

Zone

Vendors were classified according to the locality of their run. It has been suggested that the proportion of high-rise dwelling units on a vendor's run has a significant bearing on the operation and viability of the run. Municipalities were thus divided into four categories according to the proportion of high-rise dwellings in the area (Table 1)². Vendors were then allocated to one of these categories according to the municipality within which their run was located.

TABLE 1

ZONAL CLASSIFICATION OF VENDORS' RUNS

Zone	1	2	3	4
Proportion of Street-level dwellings to total dwellings	85% - 100%	71% - 85%	51% - 80%	0% - 50%
Classification	"housing area"	"medium housing area"	"medium high-rise area"	"high rise area"
Number of Municipalities	11	11	8	10
Population (x 1000)	996	738	491	653

Source: Australian Bureau of Statistics.

All other vendors who had made purchases, but for whom insufficient information was available, were classified as Zone 5, an artificial zone. This involved 16 vendors. Inclusion of these vendors enabled a more accurate indication of the total value of all purchases of milk and related products made by vehicle vendors in the Sydney Metropolitan Area.

2.4 RESULTS

Basic Characteristics

(i) The vehicle milk vendor population.

The results of the study indicated that there were 1479 vendors operating in the Sydney Metropolitan Area. The value of Base Product Sales for these vendors for one week amounted to \$1,955,602. The potential retail value of these sales has been estimated at \$2.6 million per week. This figure is based on the retail margin for milk,

2. In practice, classification was based on the proportion of street-level dwellings to total dwellings. On this basis, high-rise dwellings are defined as those other than street-level dwellings.

which is 25% of the retail price (or a one-third mark up on purchase price). This would be a slight under-estimate of the retail value because cream and by-products have a higher retail margin than milk. The estimated retail value of sales by vehicle vendors is not equivalent to the gross value of sales because goods are sold by vendors at both wholesale and retail prices.

The above values include the sales of the 16 vendors in Zone 5. These have been excluded from subsequent analysis because of insufficient information and are discussed separately (see Appendix 4). Their exclusion does not significantly affect results since their sales represent only 2.3% of Base Product Sales. The estimated retail value of sales by vendors in Groups 1 to 4 is \$2,546,897 per week. All subsequent discussion, except where indicated, refers to vendors in Zones 1 to 4 who account for 98.9% of the vendor population.

(ii) Run Size.

The distribution of run sizes according to Base Product Sales for the 1463 vendors is presented in Table 2. The Table also indicates the relationship between B.P.S. and the quantity of milk equivalent delivered. This is achieved by assuming that all purchases are in the form of milk, and dividing the B.P.S. by 0.2875 which represents the vendors' purchase price per litre of bottled milk. It must be stated that this estimate of run size in terms of milk equivalents is based on the purchase price for milk. In the next section of the report where survey results are analysed, the conversion to retail milk equivalents is based on the vendor's margins³.

The purpose of this present conversion method is to give readers an indication of what B.P.S. means in terms of milk quantities⁴.

The total value of B.P.S. per week for the 1463 vendors was \$1,910,173 or an average of \$1,306 per vendor per week. The estimated average run size for the population in terms of milk equivalents is thus 650 litres (143 gallons) per day. From Table 2, it can be seen that the majority of vendors have weekly B.P.S.'s of between \$751-\$1500 (i.e. 376-750 litres of 83-165 gallons milk equivalent per day). This enables vendors to be grouped into four broad size classification (Table 3).

-
3. The margin is the difference between the vendors' selling and purchase prices.
 4. Results of the survey indicated that this method of conversion generally overstated run size, particularly for larger runs. (See Chapter 6).

TABLE 2

DISTRIBUTION OF RUN SIZES

BASE PRODUCT SALES PER WEEK \$	ESTIMATED MILK EQUIVALENT QUANTITY		No. OF VENDORS
	LITRES PER WEEK	GALLONS PER DAY	
0 - 250	0 - 870	0 - 27.5	5
250 - 500	871 - 1740	27.6 - 55.0	11
500 - 750	1741 - 2610	55.1 - 82.5	202
750 - 1000	2611 - 3480	82.6 - 110.0	379
1000 - 1250	3481 - 4350	110.1 - 137.5	297
1250 - 1500	4351 - 5220	137.6 - 165.0	204
1500 - 1750	5221 - 6090	165.1 - 192.5	130
1750 - 2000	6091 - 6960	192.6 - 220.0	69
2000 - 2500	6961 - 8700	220.1 - 275.0	77
2500 - 3000	8701 - 10440	275.1 - 330.0	35
Over 3000	Over 10440	Over 330.0	54
TOTAL			1463

TABLE 3

CLASSIFICATION OF VENDORS BY RUN SIZE

GROUP	BASE PRODUCT SALES (\$)	ESTIMATED MILK EQUIVALENT QUANTITY PER DAY		PERCENTAGE OF VENDORS	SIZE CLASSIFI- CATION
		LITRES	GALLONS		
A	0 - 750	0 - 375	0 - 82.5	14.9	Small
B	750 - 1500	376 - 750	82.6 - 165.0	60.2	Average
C	1500 - 2000	751 - 1000	165.1 - 220.0	13.6	Above - Average
D	Above 2000	Above 1000	Above 220	11.3	Large

Thus, the most common vendor is one purchasing between \$750-\$1500 B.P.S. per week. Smaller vendors make up 14.9% of the population while a quarter of the population may be considered as being "above-average" of "large" vendors.

(iii) Retail Proportion.

Table 4 categorises vendors according to their Percentage Bottle Sales.

TABLE 4

PERCENTAGE BOTTLE SALES

<u>% BOTTLE SALES</u>	<u>No OF VENDORS</u>
0 - 10%	38
10 - 20%	46
20 - 30%	63
30 - 40%	90
40 - 50%	157
50 - 60%	208
60 - 70%	263
70 - 80%	257
80 - 90%	265
90 - 100%	76
TOTAL	1463

Table 4 shows that the majority of vendors have a Bottle Sale Percentage of between 50% and 90%. The sharp increase in the number of vendors at the (40 - 50%) Bottle Sales level suggests that wholesale vendors may be generally regarded as those having less than 40% Bottle Sales. Retail vendors may then be categorised as:

- (a) low - retail: vendors having 40% - 60% Bottle Sales
- (b) medium - retail: vendors having 60% - 80% Bottle Sales
- (c) high - retail: vendors having a Bottle Sale Percentage in excess of 80%.

This classification is summarised in Table 5.

TABLE 5

CLASSIFICATION OF VENDORS BY RETAIL PROPORTION⁵

<u>% BOTTLE SALES</u>	<u>TYPE</u>	<u>CLASSIFICATION</u>	<u>% OF VENDORS</u>
0 - 40	Wholesale	Wholesale	16.2
40 - 60	Retail	Low - Retail	25.0
60 - 80	Retail	Medium - Retail	35.3
80 - 100	Retail	High - Retail	23.3
TOTAL			100.0

5. Survey results revealed that the Bottle Sale Percentage characteristic was able to distinguish retail vendors. On average, Retail Percentage was 5.9 per cent higher than the corresponding Bottle Sale Percentage. (See Chapter 6).

Table 5 shows that the majority of vendors are involved in retailing, with the most common group, the medium-retail vendors, having 60-80% of their sales in the form of bottled milk. High-retail vendors would be almost exclusively involved in retail trade with their sales of bottled milk supplemented by sales of cartoned milk and products at the retail level. The low-retail vendors have approximately half their sales in the form of bottled milk, with the remainder being made up of wholesale trade together with some retail trade in cartoned milk and products.

Classification of vendors on this basis enables a broad distinction between wholesale and retail vendors. However, it must be remembered that the relationship between the Percentage Bottle Sales and proportion of retail trade will be more pronounced at the higher bottle sale percentages since it can be assumed that bottled milk will normally be supplied to retail outlets. A low bottle sale percentage may not necessarily be indicative of wholesale trade, but of an increased proportion of cartoned milk and product sales. This limitation must be remembered in the subsequent discussion.

(iv) Zone

Analysis of the distribution of vendors according to zone revealed that zones 1 and 2 contained the highest number of vendors. However, the population per vendor was independent of zone, as shown in Table 6. On average there is one vendor per 1985 head of population.

TABLE 6

POPULATION PER VENDOR BY ZONE

ZONE	No. OF VENDORS	POPULATION PER VENDOR
1	488	2040
2	417	1770
3	228	2150
4	330	1980
TOTAL AVERAGE	1463	1985

In this report zonal analysis is not considered in depth. Attention is directed towards the key parameters of size and retail percentage of the run, as well as the economic characteristics of the surveyed vendors.

Major Relationships Between Characteristics

(i) Size of Run and Retail Percentage

One of the most important characteristics of the population is the relationship between run size and proportion of retail trade.

FIGURE 1

PERCENT BOTTLE SALES X BASE PRODUCT SALES

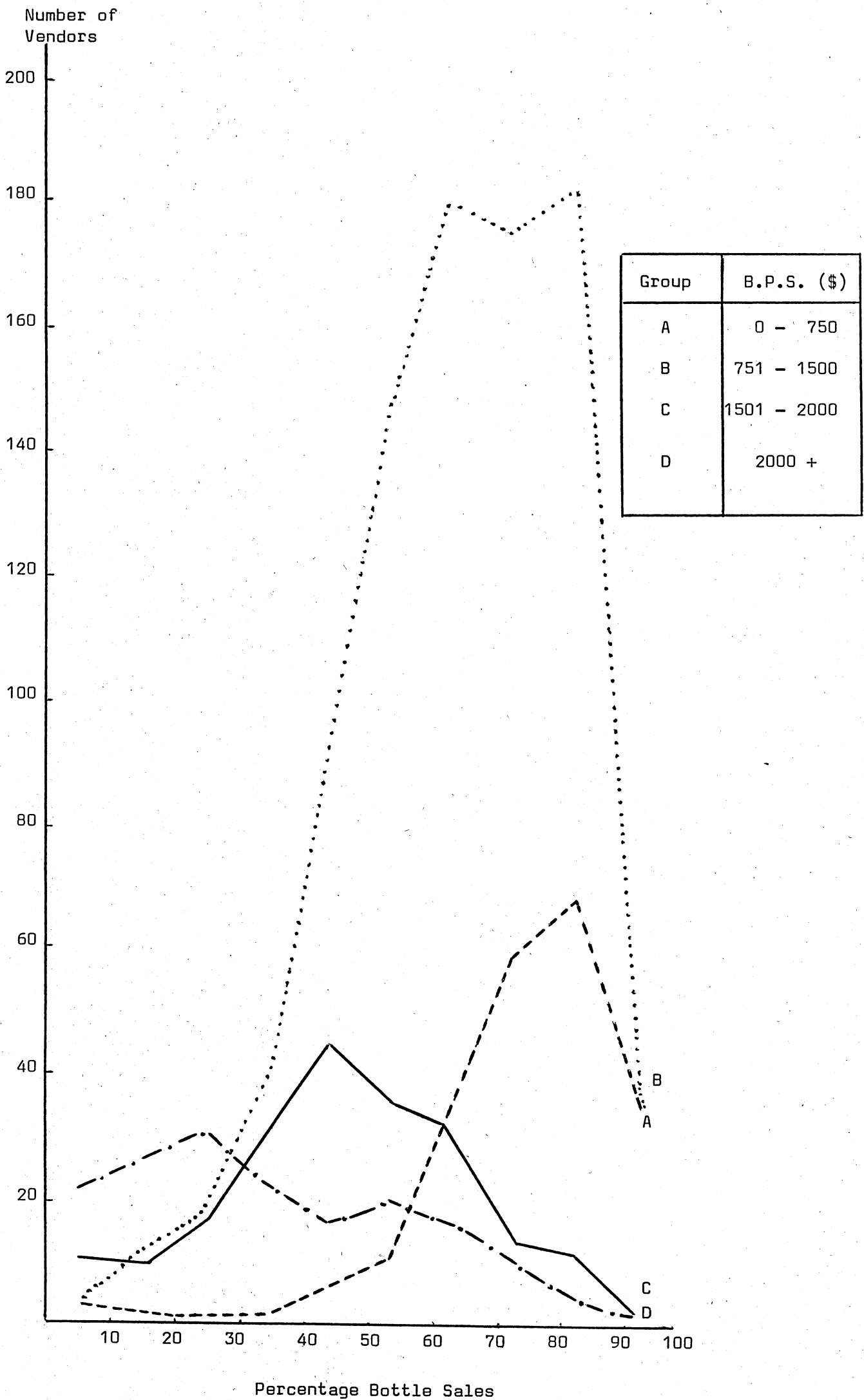
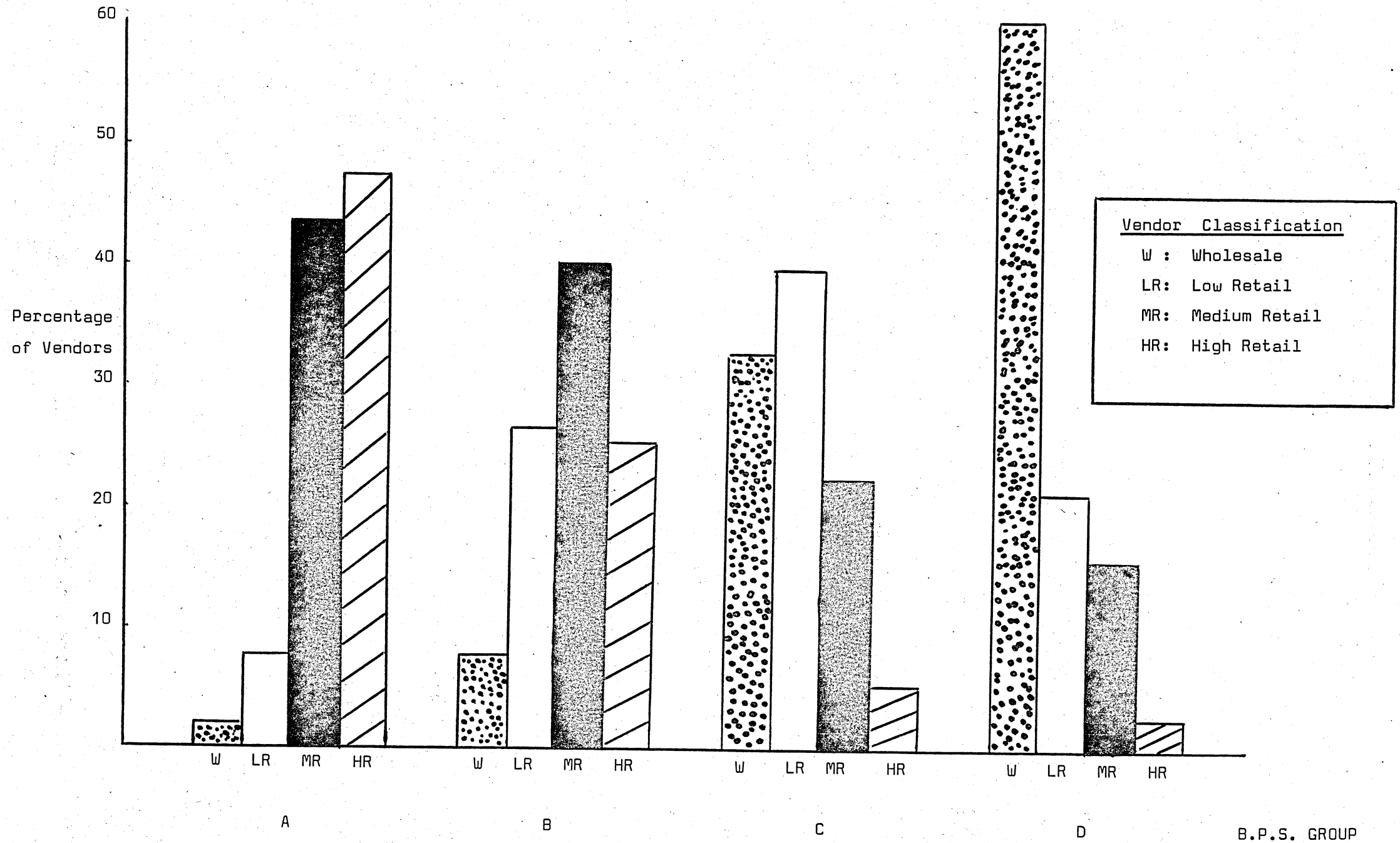


FIGURE 2

RELATIVE PROPORTION OF RETAIL: WHOLESALE TRADE X RUN SIZE



B.P.S. GROUP

This is seen in Figure 1 where the distribution of vendors according to run size (B.P.S.) and Percentage Bottle Sales is presented.

Figure 1 demonstrates the dominance of Group B vendors, particularly in the retail section of the graph, and the decreasing proportion of retail trade (Bottle Sale Percentage) as run size is increased. Group B vendors, who are regarded as having average sized runs, account for 66.3% of all retail vendors (that is, vendors with more than 40% Bottle Sales). Small and average sized vendors (Groups A and B) collectively account for 83.8% of all retail vendors. It is thus apparent that the majority of small to medium sized vendors also constitute the majority of retail vendors.

The relationship between run size and retail proportion can be clearly seen when vendors are classified into the four retail/wholesale groups and the results expressed on a percentage basis. This has been done in Figure 2 where the results for the different size groups are presented. The graph shows clearly the inverse relationship between size of run and proportion of retail trade.

As run size is increased, the proportion of vendors in the wholesale category increased markedly. In Group D, which is composed of the largest runs, wholesale vendors account for 60.8% of the group total. The proportion of vendors in the high-retail and medium-retail categories declines markedly as run size is increased.

From an examination of Figures 1 and 2, it can be concluded that the majority of retail vendors in the population occur in Group B and consequently have \$750 - \$1500 gross purchases (B.P.S.) per week. The most common type of vendor in this group is the medium-retail vendor. There is also a significant proportion of low-retail and high-retail vendors, indicating considerable diversification within the group. The average Bottle Sale Percentage of this group is 64.8% which would suggest an average retail percentage of 70%-80%. Since Group B vendors account for 60.2% of the vendor population and 66.3% of all retail-type vendors, this group provides the focal point for the study of retail milk vendors.

(ii) Zonal Characteristics

The relationship between size of run and zone indicated no significant difference between zones. In terms of type of run, however, considerable differences existed between zones, with the proportion of retail trade undertaken being less in areas of high-rise residential development.

This factor enabled greater specification of retail vendors. The decline in retail percentage as run size increased was less marked in the housing zones. In Group D, which is composed of the largest runs and which is clearly orientated towards wholesale trade, this was particularly apparent. In Zone 1, the principal housing zone, 36.8% of vendors in Group D were medium-retail vendors.

Thus, retail vendors were able to be identified by zone as well as size and retail proportion of their runs.

(iii) Characteristics of the Four Run Size Groups

Group A (\$0-\$750 B.P.S.): Small Run Size

The majority of small vendors are either high-retail or medium-retail vendors, with the average Bottle Sale Percentage of this group being 77.3%. The average value of gross purchases (B.P.S.) of these vendors is \$633 per week, which is equivalent to an estimated 315 litres (69 gallons) milk equivalent per day. Since the potential gross revenue for a run of this size is approximately \$211 per week, runs in this group would generally be of insufficient size to enable full-time employment once costs had been taken into account.

Group B (\$751-\$1500 B.P.S.): Average Run Size

Vendors in Group B account for 60.2% of the population and constitute the bulk of full-time retail vendors. The average Bottle Sale Percentage is 64.8%, indicating a high degree of involvement in retail trade. The estimated range in run size is 376-750 litres (82.6-165.0 gallons) milk equivalent per day. The average value of Gross Purchases (B.P.S.) for this group is \$1074, which suggests that the average run size of retail vendors is in the region of 534 litres (117 gallons) milk equivalent per day. These retail vendors formed the predominant group in the selection of the survey sample.

Group C (\$1501-\$2000): Above-Average Run Size

Vendors in this group have runs of above-average size and are predominantly involved in wholesale trade. Sixty per cent of these vendors fall within the wholesale classification of less

than 40% Bottle Sales with the average Percentage Bottle Sales being 47.7%. There are, however, a significant number of vendors in this group having above-average size retail runs. Vendors in this range constituted the second largest group in the survey. Selection of vendors in this category enabled retail vendors with above-average sized runs to be included in the survey.

Group D (\$2001 and above B.P.S.): Large Runs

Vendors in this group operate the largest sized runs and form the predominant group of wholesale vendors with an average Percentage Bottle Sales of 34.9%. Although there are only 166 vendors (11.3% of the population) in this group, they account for just over a quarter of the sales made by vehicle milk vendors in the Sydney Metropolitan Area. The average B.P.S. per vendor is \$2933, or an estimated run size of 1457 litres (320 gallons) per day. Because of the high proportion of wholesale trade undertaken by vendors in this group, there was a lower proportion of these vendors in the survey sample.

Zonal analysis of Group D vendors revealed significant differences between zones in regard to type of trade undertaken. In the high-rise zones, wholesale vendors clearly predominated, with almost ninety per cent of zone 4 vendors being in the wholesale classification. In the housing zone, zone 1, 36.8% of the vendors were in the medium-retail category. Classification on this basis was thus able to distinguish between large wholesale vendors and large retail vendors.

3. SURVEY PROCEDURE3.1 SAMPLING METHOD

The purpose of the survey was to examine the characteristics of the retail milk vending industry and to determine the cost of distribution of milk to retail outlets (householders). In selecting vendors to be surveyed, the main objective was to obtain a representative cross section of retail vendors. Selection was based on the results of the population study in which the retail vendors were able to be identified.

A sample size of forty-two vendors was selected. Restraints on time, finance and labour prevented a larger number of vendors being surveyed. The sample size was thus a compromise between obtaining a sufficiently large sample to produce meaningful results while at the same time being able to effectively undertake the survey with the available resources.

Criteria used in the initial selection of the sample were that the vendor should have a high proportion of retail trade, that the run should be sufficiently large to be regarded as a full-time run and that each zone should be represented according to its relative proportion in the population. Bottle Sale Percentage and Base Product Sales were used to indicate retail percentage and run size respectively. On this basis, small runs (\$0-\$750 B.P.S.) are under-represented as are wholesale-type runs (0-40 per cent Bottle Sales), which tend to be the largest runs. The results of this selection process are seen in Table 7 which presents the proportion of vendors in the population and sample according to run size and bottle sale percentage.

TABLE 7

SAMPLE SELECTION - PROPORTION OF VENDORS IN POPULATION AND SAMPLE BY BOTTLE SALE PERCENTAGE AND RUN SIZE CATEGORIES

BOTTLE SALE PERCENTAGE	POPULATION AND SAMPLE PERCENTAGES	R U N S I Z E (B.P.S.)				TOTAL
		A 0-\$750	B \$751-\$1500	C \$1501-\$2000	D \$2000 +	
0 - 40	popn. (sample)	0.3 (-)	4.6 (2.4)	4.4 (2.4)	6.9 (-)	16.2 (4.8)
40 - 60	popn. (sample)	1.1 (-)	16.1 (23.8)	5.4 (-)	2.3 (2.4)	24.9 (26.2)
60 - 80	popn. (sample)	6.5 (4.8)	24.3 (26.2)	3.0 (9.5)	1.8 (2.4)	35.6 (42.9)
80 - 100	popn. (sample)	7.0 (-)	15.2 (23.8)	0.8 (2.4)	0.3 (-)	23.3 (26.2)
TOTAL:	popn. (sample)	14.9 (4.8)	60.2 (76.2)	13.6 (14.3)	11.3 (4.8)	100.0 (100.1)

The upper figure shows the percentage that the particular category forms in the vendor population whilst the lower figure in parentheses shows the proportion that the particular category forms in the sample. Thus, vendors having 60-80 per cent Bottle Sales (classified as "medium-retail" vendors) and a run size of \$751-\$1500 B.P.S. per week formed 24.3 per cent of the vendor population. This category of vendor formed 26.2 per cent of the sampled vendors. The Table shows that the sample was weighted towards vendors in size groups B and C who had greater than 40 per cent Bottle Sales. In addition to the above stratification, the sample was selected so that the proportion of vendors in each zone was similar to their zonal distribution in the population.

Within each category, vendors were randomly selected according to the relative proportions presented in Table 7. For each vendor selected, two substitute vendors within the same category were also randomly chosen. One of the additional criteria for selection was that vendors must have operated their present run for at least twelve months. Approximately one-third of the vendors originally selected had to be eliminated on this basis. Of the vendors selected, some were unable to be interviewed and thus had to be replaced. Because of the high degree of stratification, this resulted in some slight discrepancies between the original sample and the actual sample interviewed.

The effectiveness of adopting Bottle Sale Percentage and Base Product Sales as measures of retail percentage and run size respectively is considered in Chapter 6, pages 46-48. This section of the report compares the selection criteria with the results obtained in the survey.

In Tables 8 to 10, the results of the sample selection are summarized for each of the characteristics of run size, bottle sale percentage and zone. In each Table, the distribution of the particular characteristic in the population is presented. The next column shows the distribution of vendors in the sample following the initial selection process (this corresponds to Table 7). The distribution of vendors appearing in the final selection is shown in the column headed "Proportion of Vendors in Final Selection".

Run Size

TABLE 8

SELECTION OF VENDORS ACCORDING TO RUN SIZE

B.P.S.	Group	Proportion of Vendors in		
		Population (%)	initial selection (%)	final selection (%)
0 - 750	A	14.9	4.8	4.8
751 - 1500	B	60.2	76.2	73.8
1501 - 2000	C	13.6	14.3	16.7
Above 2000	D	11.3	4.8	4.8
TOTAL:		100.0	100.1	100.1

Table 8 shows that selection was weighted towards vendors in Group B in particular and also Group C. Since Group A vendors were generally considered insufficiently large to be considered full-time vendors and Group D vendors were predominantly wholesale vendors, both these groups were deliberately under-sampled. Group B vendors, with average-sized runs, were felt to be the main group of fully-employed retail vendors, while Group C also contains a significant number of larger retail vendors.

Retail Percentage

The selection of vendors according to bottle sale percentage is presented in Table 9.

TABLE 9

SELECTION OF VENDORS ACCORDING TO BOTTLE SALE PERCENTAGE

Bottle Sale Percentage (%)	Classification	Proportion of Vendors in		
		Population (%)	initial selection (%)	final selection (%)
0 - 19.9	Wholesale	5.7	0	0
20 - 39.9	Wholesale	10.5	4.8	4.8
40 - 49.9	Low - retail	10.7	9.5	9.5
50 - 59.9	Low - retail	14.2	16.7	19.0
60 - 69.9	Medium - retail	18.0	21.4	21.4
70 - 79.9	Medium - retail	17.6	21.4	16.7
80 - 89.9	High - retail	18.1	21.4	23.8
90 - Above	High - retail	5.2	4.8	4.8
TOTAL:		100.0	100.0	100.0

From the population study, it was considered that the majority of retail vendors were contained in the 50-90 per cent B S. range. Vendors below 40 per cent Bottle Sales were generally considered to be wholesale vendors and were under-sampled. Vendors with less than 20 per cent Bottle Sales were excluded from the sample.

Zone

TABLE 10

SELECTION OF VENDORS ACCORDING TO ZONE

Zone	Classification	PROPORTION OF VENDORS IN		
		Population (%)	initial selection (%)	final selection (%)
1	housing	33.4	33.3	31.0
2	medium housing	28.5	28.6	31.0
3	medium high-rise	15.6	16.7	16.7
4	high - rise	22.6	21.4	21.4
	TOTAL:	100.1	100.0	100.1

It can be seen from Table 10 that selection of vendors on a zonal basis endeavoured to maintain proportional representation between zones.

3.2 COLLECTION OF DATA

An initial contact with selected vendors was made by letter. This was followed by a telephone call explaining time involvement and other matters. Interview times were organized by Dairy Industry Authority (D.I.A.) Health Inspectors. Interviews were commenced in July and all but two of the selected vendors had been surveyed within two weeks. Interviews were carried out by staff from both the Dairy Industry Prices Tribunal and the Division of Marketing and Economics. D.I.A. Health Inspectors gave assistance in the conducting of interviews as well as providing background information on individual vendors' runs. Individual interviews were, on average, completed within one and a half hours.

4. SURVEY RESULTS

4.1 KEY COMPONENTS

The results of the surveyed vendors revealed that the average run has a retail milk equivalent of 102.2 gallons per day, a retail sales proportion of 75.3% and a labour input of 74.6 hours per week. These three characteristics are subject to further analysis in the following section.

Run Size

(i) Measurement

There are a number of possible methods of measuring size of vendors' runs. These include:

Retail Milk Equivalentents

Retail Milk Sales Quantity Equivalent (RMSQE)

Quantity of Milk, Cream and By-Products delivered
(Total Quantity of Trade)

Total Trading Revenue

Value of Purchases from Depot (Base Product Sales)

1. Retail Milk Equivalentents.

Because of the substantial differences between retail and wholesale milk margins, the retail component of the vendor's run will have a major effect on gross revenue. In this context, expression of run size without distinguishing between wholesale and retail trade does not give an indication of the earning capacity of the run or provide a common basis to compare vendors. To account for the varying retail percentages of individual vendor's runs and to provide a common basis of comparison, the most common method of expression of run size used by vendors is retail milk equivalentents (RME). This is obtained by dividing the wholesale milk quantity (litres) by 2.5 and adding it to the retail milk quantity (litres). The factor of 2.5 represents the ratio of the retail margin for milk divided by the wholesale margin for milk. This measure does have its limitations in that the conversion from wholesale milk to retail milk equivalent is undertaken on the basis of the ratio of vendors' margins. Although one litre of retail milk is equivalent to 2.5 litres of wholesale milk in terms of the vendor's gross revenue, this ratio may not be applicable to the relative cost of distribution between retail milk and wholesale milk. In this survey this problem was apparent but was lessened by the fact that vendors were selected on retail percentage as well as size.

2. Retail Milk Sales Quantity Equivalent (RMSQE).

This measure has been used in this report in the determination of the cost of distribution of retail milk. The Dairy Industry Prices Tribunal uses this measure in its determination of retail milk prices and

margins. The RMSQE is defined as the quantity of milk (litres) sold to retail outlets plus the quantity of cream (in litres of retail milk equivalent) sold to retail outlets plus the quantity of by-products sold (in litres of retail milk equivalent) of all by-products sold.

This measure excludes wholesale milk and cream sales. It is assumed that the cost of distributing wholesale milk and cream is equal to the return from wholesale milk and cream. In calculating the distribution cost per RMSQE, wholesale costs for milk and cream are first deducted from the total distribution costs, and the quantities of wholesale milk and cream are excluded by using the RMSQE calculation. Because prices and margins for by-products are not controlled by the Tribunal, sales of by-products are included as milk equivalent quantities. Each by-product sold is converted to a similar size and quantity of milk (e.g. 200 gm yoghurt equals 300 ml milk) for both the retail and wholesale quantities. Wholesale quantities are then divided by 2.5 (the ratio between retail and wholesale milk margins) and added to the retail quantity to obtain the quantity of RMSQE in litres of by-products.

One of the limitations in using RMSQE is that because of the underlying assumptions regarding wholesale trade, it does not permit analysis to be readily undertaken of the factors affecting the cost of distribution. In this bulletin analysis has been undertaken using retail milk equivalent and total quantity of trade as measures of run size.

3. Total Quantity of Trade (milk, cream, by-products) delivered.

Total Quantity of Trade is the size of the vendors' run after inclusion of all quantities of milk, cream and by-products sold whether wholesale or retail. In this measure, the number of litres of milk and cream (both wholesale and retail) are added to the milk equivalent quantity of by-products. By-products are converted to litres of milk on a quantity basis, as indicated previously (e.g. 200 gm yoghurt equals 300 ml milk).

This measure provides an overall measure of run size in terms of litres of milk, cream and by-products delivered. From this, the total cost of distribution per litre of milk equivalent can be calculated. This measure is limited in that it does not distinguish between retail and wholesale trade, which may be expected to have different costs of distribution. To account for this problem, analysis has been undertaken of 20 vendors having more than 80 per cent retail trade (classified as "fully-retail vendors"). The determination of cost of distribution per litre of milk equivalent for these vendors may be regarded as the cost of distribution per litre of retail milk.

4. Total Trading Revenue.

The Total Trading Revenue is determined by multiplying the number of units (milk, cream and by-products) sold at retail and wholesale prices by the respective retail and wholesale vendor margins. Run size expressed in terms of Total Trading Revenue also has the limitation that it does not distinguish between retail and wholesale trade. Thus, vendors with high-volume wholesale sales are not readily distinguishable from smaller-volume retail vendors. (In this report Gross Revenue is defined as Total Trading Revenue plus the Delivery Fee).

5. Value of Purchases from Depot (Base Product Sales).

The value of gross purchases by the vendor from the depot (referred to as Base Product Sales) enables vendors' run sizes to be compared without further adjustment for retail and wholesale trade. This measure was used in the population study and was one of the criteria for selection of vendors to be surveyed. Because of the difference in purchase price for milk, cream and by-products, this measure is limited in its ability to estimate the actual quantities sold, particularly for high gross purchase values, and can only be used to provide a general guide of run size.

(ii) Average Run Size.

Table 11 presents the average run size of the sample according to various measures.

TABLE 11
AVERAGE RUN SIZE

	Average from Survey	
	litres/wk ⁶	Gal/day
(i) Retail Milk Equivalents ⁷ (RME)	3250.4	102.1
(ii) Retail Milk Sales Quantity Equivalent (RMSQE)	3047.9	95.7
(iii) Total Quantity of Trade (milk equivalents)	4033.5	126.6
(iv) Total Trading Revenue		
\$ per annum		\$17,978
\$ per week		\$ 346

The results show that the average vendor sells 120 gallons of milk per day (3820 litres per week). Of this, 90 gallons is retail milk and 30 gallons is wholesale. This is equivalent to 102 gallons RME per day. When all milk, cream and by-products are considered, the average vendor sells 127 gallons of milk equivalent per day, for which he receives a Total Trading Revenue of \$346 per week.

6. The metric conversion is expressed on a per week basis since the majority of runs are now conducted on something less than a seven day per week delivering basis.
7. Flavoured milk is included by some vendors in the measure of the quantity of retail milk delivered, however, it is not included here.

(iii) Run Size Distribution.

The distribution of run sizes of the vendors surveyed is presented in Table 12.

TABLE 12

RUN SIZE DISTRIBUTION (RME) (Milk Only)

RME		No. of Vendors
Gal/Day	Litres/wk	
40 - 59.9	1274 - 1910.9	4
60 - 79.9	1911 - 2547.9	8
80 - 99.9	2548 - 3184.9	12
100 - 119.9	3185 - 3821.9	8
120 - 139.9	3822 - 4458.9	3
140 - 159.9	4459 - 5095.9	4
160 - 179.9	5096 - 5732.9	2
180 - 199.9	5733 - 6369.9	-
200 - 219.9	6370 - 7006.9	-
220 - 239.9	7007 - 7643.9	-
240 - 259.9	7644 - 8280.9	1
Total		42

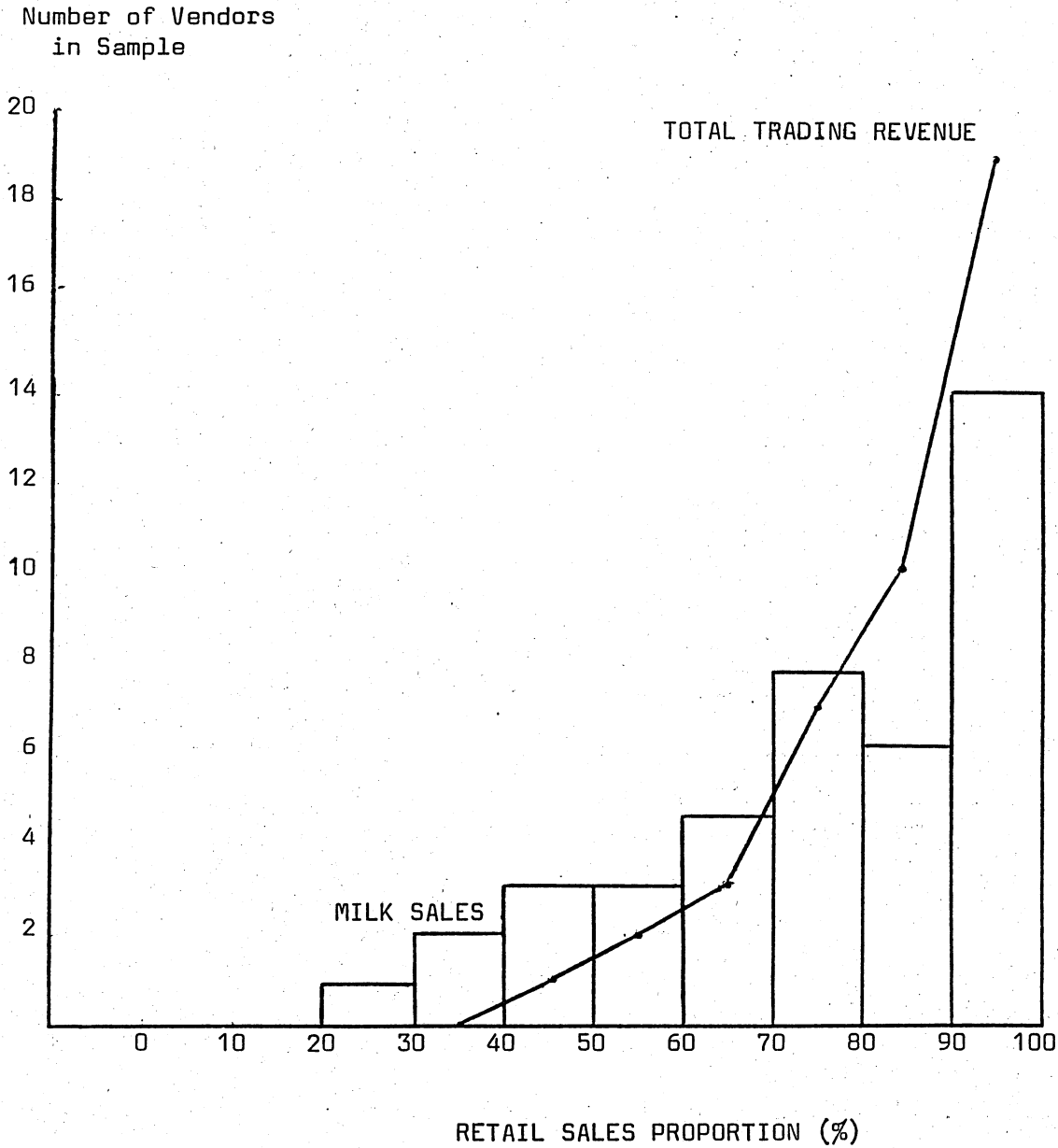
Table 12 reveals that the most common run size for surveyed vendors was in the range of 80 - 100 gallons RME/day. Two thirds of the vendors had runs between 60 - 120 gallons RME/day. There are more vendors with runs above the average size range (80-100 gallons/day) than below this range.

Retail Sales Proportion:

The distribution of vendors in the survey according to the proportion of retail sales (by volume of milk) for each of their runs is given in Figure 3. From the column graphs it can be seen that runs having a retail sales proportion of between 90% and 100% occurred most frequently in the survey. The higher concentration of runs at the upper retail percentage levels partly reflects the sampling procedure adopted. That is, as far as possible, the sample was designed to include "retail-type" milk runs. The average retail percentage for the sample was 75.3%.

The retail percentage distribution presented in the column graphs of Figure 3 is based only on milk quantities. An analysis of retail percentage was also undertaken using the total quantity of milk, cream and by-products. This analysis revealed no significant difference in the sample distribution between the two methods. This result can be expected since milk accounts for over 90% of the volume of sales for the majority of vendors.

FIGURE 3

Distribution of Runs by Retail Sales Proportion

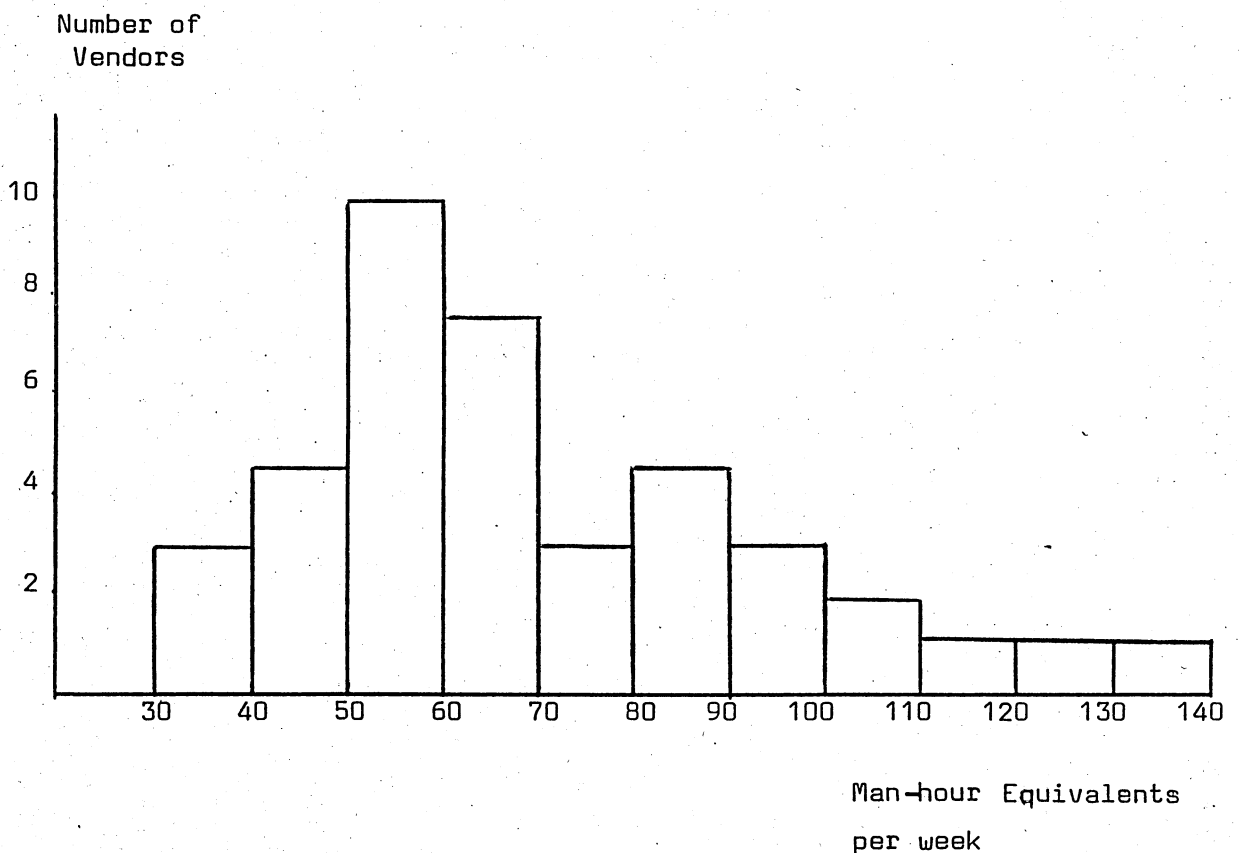
The above result is based on quantities of milk sold. The histogram presented in Graph III also presents the distribution of retail percentages of the vendors surveyed on the basis of the value of milk and products sold. It can be seen that almost all vendors surveyed obtain more than 70% of their Total Trading Revenue from sales at retail margins. The average Retail Percentage on this basis is 86.4%, which reflects the higher vendor margin for retail sales.

Labour:

Analysis of labour input on vendors' runs revealed that milk runs are highly labour intensive. The average weekly labour input in man hour equivalents⁸ is 69.8 hours (74.6 hours of actual labour). This indicates a heavy commitment by the vendor, and in many cases his family, to the conduct of the average milk-run. However, the survey revealed considerable variations in labour content of individual runs as Figure 4 demonstrates. From this graph it can be seen that runs having a labour input of between 50 and 60 man hour equivalents per week occurred most frequently and that the majority of runs were above this range.

FIGURE 4

Distribution of Runs by Total Labour per Week
in Man Hour Equivalents



This graph does not provide any indication of the efficiency of labour utilization. Because of this factor and the degree of subjectivity involved in collecting labour data on milk runs, considerable care must be taken in the interpretation of survey results relating to labour. In this survey, interpretation of labour results is complicated by the fact that on vendors' runs, labour consists of the vendor's labour, the wife's labour, other family labour, employed adult labour and employed non-adult labour. These may be further classified as 'permanent' or 'casual' labour.

8. Man hour equivalents: the number of hours of adult labour plus the number of hours of non-adult labour converted to adult man hours on the basis of relative award rates.

The value of these labour categories varies considerably, both in regard to their monetary value as well as their usefulness on the run. Because of these limitations, a more detailed study of labour has been confined to a later section of this report.

4.2 AVERAGE COST OF RETAIL MILK DISTRIBUTION

A summary of the calculation of the average cost of distributing a litre of retail milk is given in Table 13. The allowable distribution cost after the delivery fee is deducted is 9.81 cents per litre of retail milk quantity equivalent. It can be seen that the effect of the 1.0 cent delivery fee is to reduce the average distribution cost by 0.87 c per litre from 10.68c per litre.

TABLE 13

ESTIMATED COST OF DISTRIBUTING MILK TO RETAIL OUTLETS:
AVERAGE OF SAMPLE

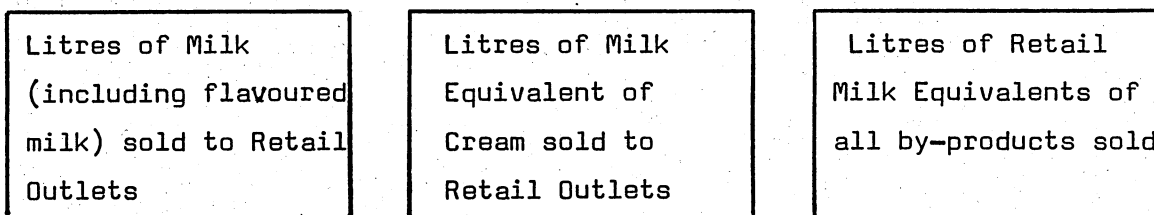
	Sample Average	Average cost per litre of retail milk quantity equivalent (RMSQE)
	\$	(Cents)
Cash costs	3,718	2.35
Imputed Interest	1,265	0.80
Imputed Labour	<u>13,991</u>	<u>8.83</u>
Total Distribution Cost	18,974	11.97
<u>Less:</u> Recovery Margin from wholesale sales	<u>2,048</u>	<u>1.29</u>
Allowable Distribution Cost	16,926	10.68
<u>Less:</u> Potential Delivery Fee	<u>1,372</u>	<u>0.87</u>
Allowable Distribution Cost (After delivery fee deducted)	<u>15,554</u>	<u>9.81</u>
<u>Retail Milk Sales Quantity</u> <u>Equivalent (litres)</u>		
- Milk	149,631	
- Cream (RMSQE)	1,683	
- By-products (RMSQE)	<u>7,176</u>	
<u>Total RMSQE (litres)</u>	<u>158,490</u>	

Method of Calculating the Distribution Cost of Retail Milk

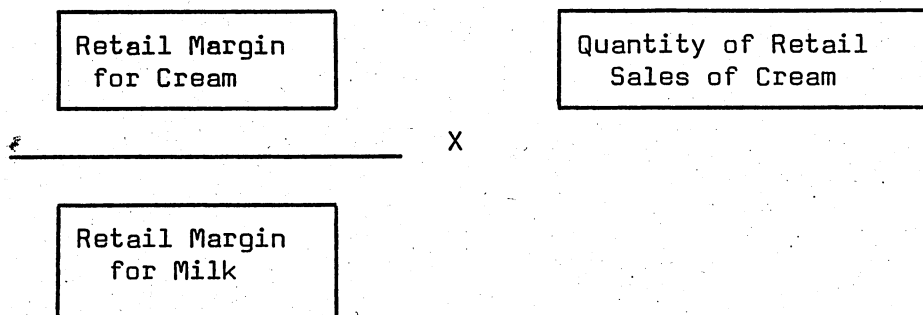
The approach used in the calculation of the cost of distributing milk to householders (retail milk) is that recommended by the Dairy Industry Prices Tribunal and is the same as used in previous vendor cost surveys. The method involves, firstly, the determination of an amount for "total allowable retail distribution costs". This amount is arrived

at by subtracting from total costs the trading margin (revenue) obtained from sales of milk and cream to non-retail outlets. It is assumed that the revenue received in sales to non-retail outlets is equal to the costs involved in servicing those outlets. This is then divided by the average "retail milk sales quantity equivalent" (R.M.S.Q.E.) per vendor.

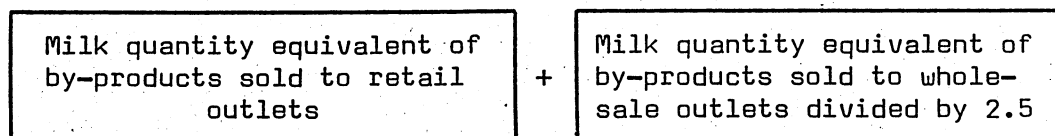
The RMSQE is defined as:



The milk equivalent of cream sold to retail outlets is defined as:



The retail milk equivalent of all by-products sold by the vendor was calculated by firstly converting all by-products into an equivalent size and type of milk container. For example, a 600 ml. carton of dairy custard was assumed to be equivalent to a 600 ml. carton of milk. Similarly, a 250 g carton of sour cream was equated with a 300 ml carton of milk. Given the conversions, the quantity equivalent of by-products sold was defined as:



The factor of 2.5 used above is the ratio of the retail margin to the wholesale margin for milk. This factor allows the conversion of milk sold at wholesale margins into an equivalent volume of milk sold at retail margins. That is, a vendor would need to sell 2.5 times the volume of wholesale milk to obtain the same net revenue as that for retail milk.

Range in Vendors' Milk Distribution Costs

For each vendor in the survey, a breakdown of the costs involved in the distribution of a litre of retail milk is provided in Appendix 2, Table 3. Figure 5 presents these individual costs of distribution after allowing for the delivery fee.

FIGURE 5

DISTRIBUTION OF VENDORS BY THE COST OF DELIVERING A LITRE OF RETAIL MILK (AFTER ALLOWANCE FOR DELIVERY FEE).

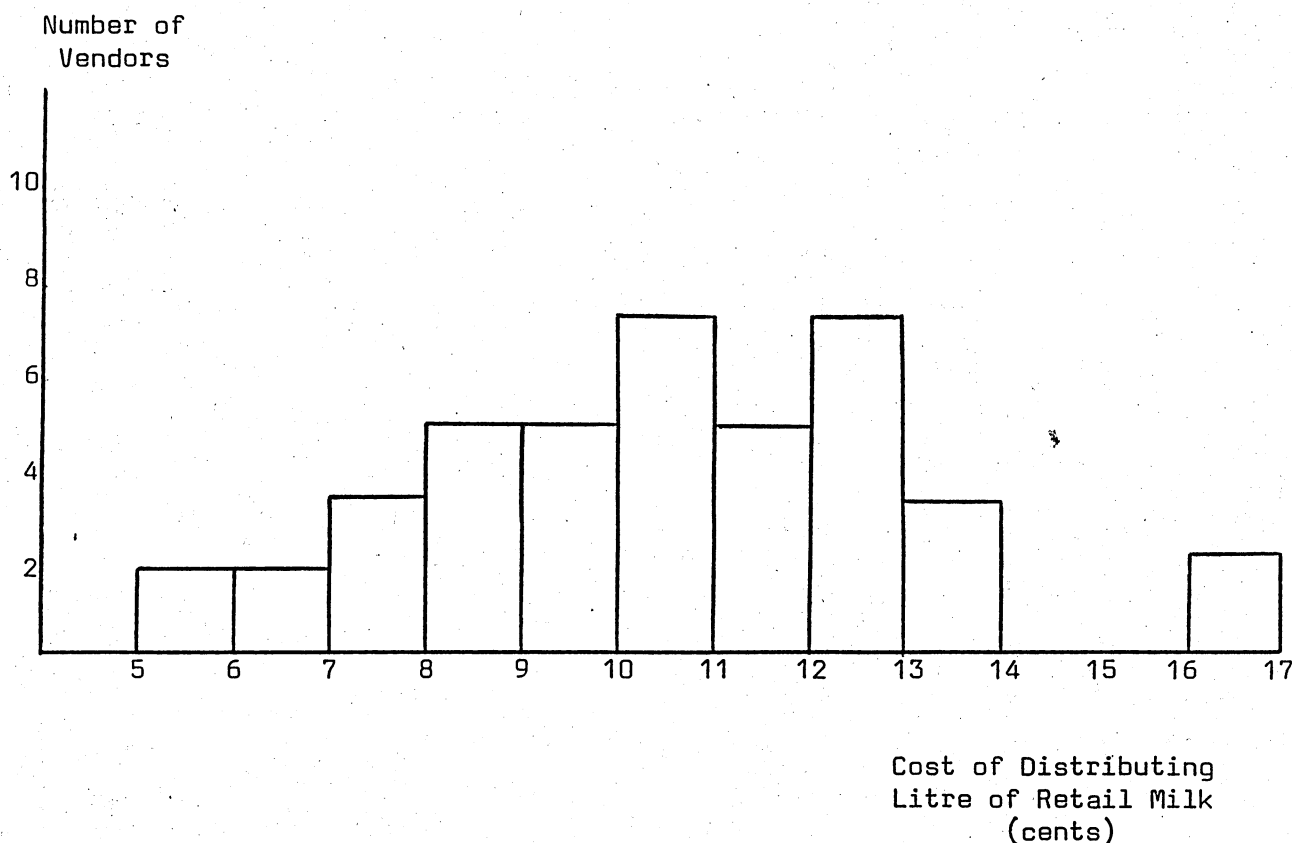


Figure 5 reveals a considerable range in average unit costs from a low of 5c - 6c per litre up to a high of 16c - 17c per litre. In addition, there is no concentration of vendors at any particular average unit cost level. In fact, an even distribution of vendors between the cost categories of 8c - 9c per litre and 12c - 13c per litre is evident. Further analysis of the cost structure is required to determine the cause of this variation.

4.3 AVERAGE COST STRUCTURE

The definition and treatment of the various costs associated with milk vending are outlined in Appendix 1. The average cost structure for the survey is summarised in Table 14. For a breakdown of individual vendor costs reference should be made to Appendix 2, Table 1.

TABLE 14

AVERAGE VENDOR COST STRUCTURE FOR 1975/76 FINANCIAL YEAR

		Average per Vendor	Percentage of Total Cost
		\$	%
A. <u>CASH COSTS</u>			
1. Vehicle Costs			
Truck Fixed Cost	\$1,287		
Truck running cost	504		
Car running cost	75	1,866	9.83
2. Material Costs			
Batteries etc.	20		
Cleansing	16		
Clothing	53	89	0.47
3. Administrative Costs			
Subscriptions	37		
Telephone	97		
Stationery	74		
Advertising	20		
Accountant	109		
Banking	89	426	2.26
4. Insurance Costs			
Workers Compensation	55		
Personal Accident	243	298	1.57
5. Miscellaneous	38	38	0.20
6. Hired Labour	1,001	1,001	5.28
<u>TOTAL CASH COSTS</u>		3,718	19.61
B. <u>IMPUTED LABOUR</u>			
1. Vendor's labour		9,741	51.34
2. Other Vending Labour		2,323	12.24
3. Clerical		1,927	10.16
<u>TOTAL LABOUR</u>		13,991	73.74
C. <u>IMPUTED INTEREST</u>			
1. Tangible Assets + Working Capital		402	2.12
2. Goodwill		863	4.55
<u>TOTAL INTEREST</u>		1,265	6.67
D. <u>TOTAL COSTS</u>		18,974	100.02

The most significant aspect of this Table is the high proportion which labour costs form in the vendors' cost structure. In the following section, vendors' costs are analysed on the basis of labour and non-labour costs.

4.4 NON-LABOUR COSTS

The major component of non-labour costs is vehicle expenses which accounts for almost 10 per cent of costs. The frequency distribution of vendors' vehicle costs is presented in Table 15.

TABLE 15

VEHICLE COST DISTRIBUTION

Annual Vehicle Cost	No. of Vendors
1000 - 1499	8
1500 - 1999	24
2000 - 2499	8
Above 2500	2
Total	42

It can be seen that most vendors had annual vehicle costs between \$1,500 - \$2,000 per annum. This lack of variation between vendors is in part caused by the method of determination of vehicle costs. Assessment of vendors' vehicle costs was undertaken using a standard cost approach. Figures were based principally on a one tonne Holden Truck which was shown to be the most common vehicle used by vendors (see Appendix 1). Although run size and run compactness⁹ vary greatly between vendors, it is apparent that for the majority of vendors, vehicle costs do not vary significantly. From these results it can be concluded that vehicle costs are not a major determinant of the wide fluctuations in the cost of distribution of retail milk as presented in Figure 5.

The survey revealed a number of vendors economising on some costs. In most cases such vendors were paying off the capital value of the run and/or had a small run. Economies commonly occurring were in personal accident insurance, advertising, materials, subscriptions and telephone charges. However, as Table 14 indicates, the impact of such economies would only be very slight.

9. Run compactness is defined as the quantity of milk delivered (litres RME) per kilometre travelled on the run.

Because of the high proportion that labour costs form of the total, the low variation in vehicle costs and the minor importance of other costs, the major cost factor affecting the cost of distribution of milk is that of labour. In the following section, this cost is subject to further analysis.

4.5 LABOUR COSTS

The survey revealed that on average, labour costs account for almost 80% of a vendor's total costs. Variations in labour costs can thus be expected to have a major impact on the cost of distribution of retail milk.

Investigation of labour usage on vendors' runs revealed that:

- (i) there were 16 runs in the survey that employed non-family labour (usually teenage school children) for 10 or more hours per week. When these runs were compared with the other 26 runs there was no apparent difference between the two groups with regard to labour efficiencies.
- (ii) There were 10 runs in which the wife of the vendor regularly participated in the distribution of milk. "Regular participation" is defined as more than 2 days (14 hours) work each week. Comparison of "wife" and "non-wife" runs revealed a significant difference in the quantity of milk delivered per hour (man hour equivalent) of labour between the two groups (Table 16).

TABLE 16

LABOUR UTILIZATION - PARTICIPATION OF VENDOR'S WIFE

	Run Type		Total Sample
	Wife actively involved	Non-Wife	
Number of Runs	10	32	42
Average number of man hour equivalents per week	95.1	61.9	69.8
Run Size (RME) litres/week	3541.7	3159.3	3250.4
Litres of milk (RME) per man hour equivalent	37.2	51.0	46.6

From Table 16, it is apparent that the volume of milk delivered per hour of labour is significantly lower on runs where the wife actively participates. This suggests that the main effect of the wife's presence is the reduction in the burden of delivering milk¹⁰, rather than an improvement in the efficiency of labour utilization. This presents problems in estimating the value of the wife's labour. Although technically a vendor's permanent assistant, the adoption of the full rates applying under the award may be an over-estimate of the value of the wife's labour in this situation. Because of the lack of a suitable alternative, full award rates were adhered to in this study. This factor should be taken into account when considering labour cost and efficiency.

4.6 ANALYSIS OF LABOUR EFFICIENCY AND THE COST OF DISTRIBUTION

Changes in the volume of milk delivered per hour have a significant impact on the cost of distribution of milk. In this section of the report, an analysis is undertaken of the effect of labour efficiency on the cost of distribution. There are however, a number of problems in determining the relationship between the cost of distribution and labour utilization. These include:

- (i) the proportion of retail: wholesale trade varies between vendors. The relationship between the costs of distribution of retail and wholesale milk is not readily determinable. Conversion of wholesale milk to retail milk equivalent on the basis of vendors' margins (to obtain the quantities of RME and RMSQE) may not be a true indication of the relative costs involved in distributing wholesale and retail milk.
- (ii) because of the different types of labour involved and their award rates, a consistent measure of labour content is difficult to determine.

To overcome the first problem, runs with greater than 80 per cent retail trade were selected. Vendors operating these runs were classified as fully-retail vendors and all trade undertaken was regarded as retail trade (i.e. to households). This eliminated the need to make adjustments for wholesale trade. In this analysis, it is assumed that when converted to milk equivalents, the per unit cost of delivering milk is the same as that for cream and by-products. On the basis of these assumptions, the total cost per litre of milk equivalent calculated will be equal to the actual cost of distributing a litre of retail milk.

10. Runs with active participation of the wife were, on average, larger than other runs.

In regard to the second problem, labour was expressed in man-hour equivalents. Non-adult labour was converted to man-hour equivalents as follows:

$$\text{No. of Man-hour Equivalents (Non-adult Labour)} = \text{No. hrs.} \times \frac{\text{Appropriate award rate for the age category}}{\text{Award rate for adult}}$$

The effect of this measure was to discount the influence of non-adult labour. This adjustment did not however, affect the value of the wife's labour.

This estimate of total labour does not distinguish between time spent on actual deliveries, and time spent on collection of accounts and clerical work. It is difficult to separate these types of labour, particularly since afternoon runs often include account collection during the actual deliveries. Analysis of labour efficiency in this bulletin is undertaken on the basis of total labour where the number of litres of milk equivalent delivered per man-hour equivalent of labour¹¹ is designated apparent labour efficiency and is referred to simply as labour efficiency.

Of the forty two runs surveyed, twenty were found to have a retail percentage of not less than 80 per cent. These twenty runs were distributed across all size ranges from 1791 litres milk equivalent per week to 8694 litres milk equivalent per week. Six of these had active participation of the wife.

The relationship between cost of distribution and labour efficiency for these 20 vendors¹² is presented in Figure 6. Runs with wives participating are denoted 'w', small runs of less than 2000 litres milk equivalent per week (63 gals/day) are denoted 's'.

It is readily apparent that there is a strong relationship between labour efficiency and the cost of distribution. Regression analysis on these vendors relating the cost of distribution (Y) to labour efficiency (X) for both linear and quadratic functions gave the following equations:

Equation 1:

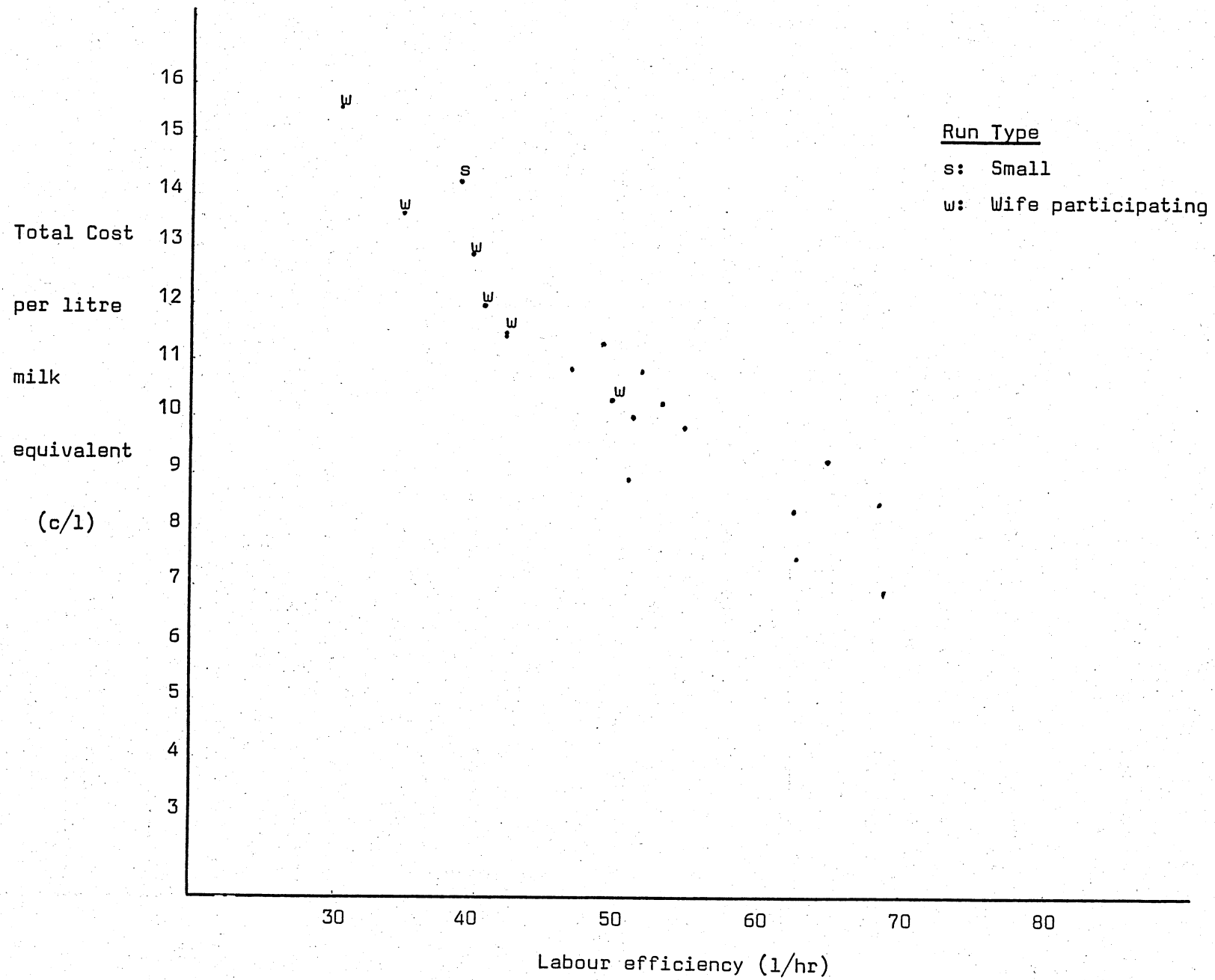
$$Y = 19.8202 - 0.1814^{**} X \quad R^2 = 0.86$$

Standard error (0.8748) (0.0171)

-
11. Litres of milk equivalent per man-hour equivalent of labour is here referred to simply as litres per hour (l/hr).
 12. Analysis was undertaken of the wholesale component of the 20 vendors in the above 80 per cent retail category to ensure that the decrease in the cost of distribution was a function of labour efficiency and not of the wholesale component. There was no apparent relationship between labour efficiency and retail percentage over this retail percentage range.

FIGURE 6

FULLY-RETAIL VENDORS, LABOUR EFFICIENCY AND DISTRIBUTION COST



Equation 2:

$$Y = 28.6882 - 0.5461^{**} X + 3.579 \times 10^{-3} X^2 \quad R^2 = 0.90$$

standard error (3.3112) (0.1335) (0.0013)

Where: Y = cost of distribution (cents/litre milk equivalent)
 X = labour efficiency (litres milk equivalent/man-hour equivalent)
 * = significant at 5 per cent level
 ** = significant at 1 per cent level.

The results show that for the linear function, 86 per cent of the variation in cost of distribution is explained by the change in labour efficiency. When labour efficiency increases by ten l/hr, the cost of distribution declines by 1.81 cents per litre. For the quadratic function, 90 per cent of the variation in the cost of distribution is explained by the change in labour efficiency level. Equation 2 thus, provides a slightly better explanation of the variation in distribution cost.

From Equation 1, it can be seen that with a labour efficiency level of 50 l/hr (the average for the twenty vendors), the cost of distribution is 10.75 cents per litre. Under the same efficiency level using Equation 2, the cost of distribution is 10.33 cents per litre. An examination of the individual labour efficiency levels in Figure 6 reveals that full-retail vendors have labour efficiencies within the range 30-70 l/hr. Of the runs with labour efficiency levels of less than 45 l/hr, five have active participation of the wife, and the other is a small run. All these vendors have a cost of distribution in excess of 11.0 cents/litre.

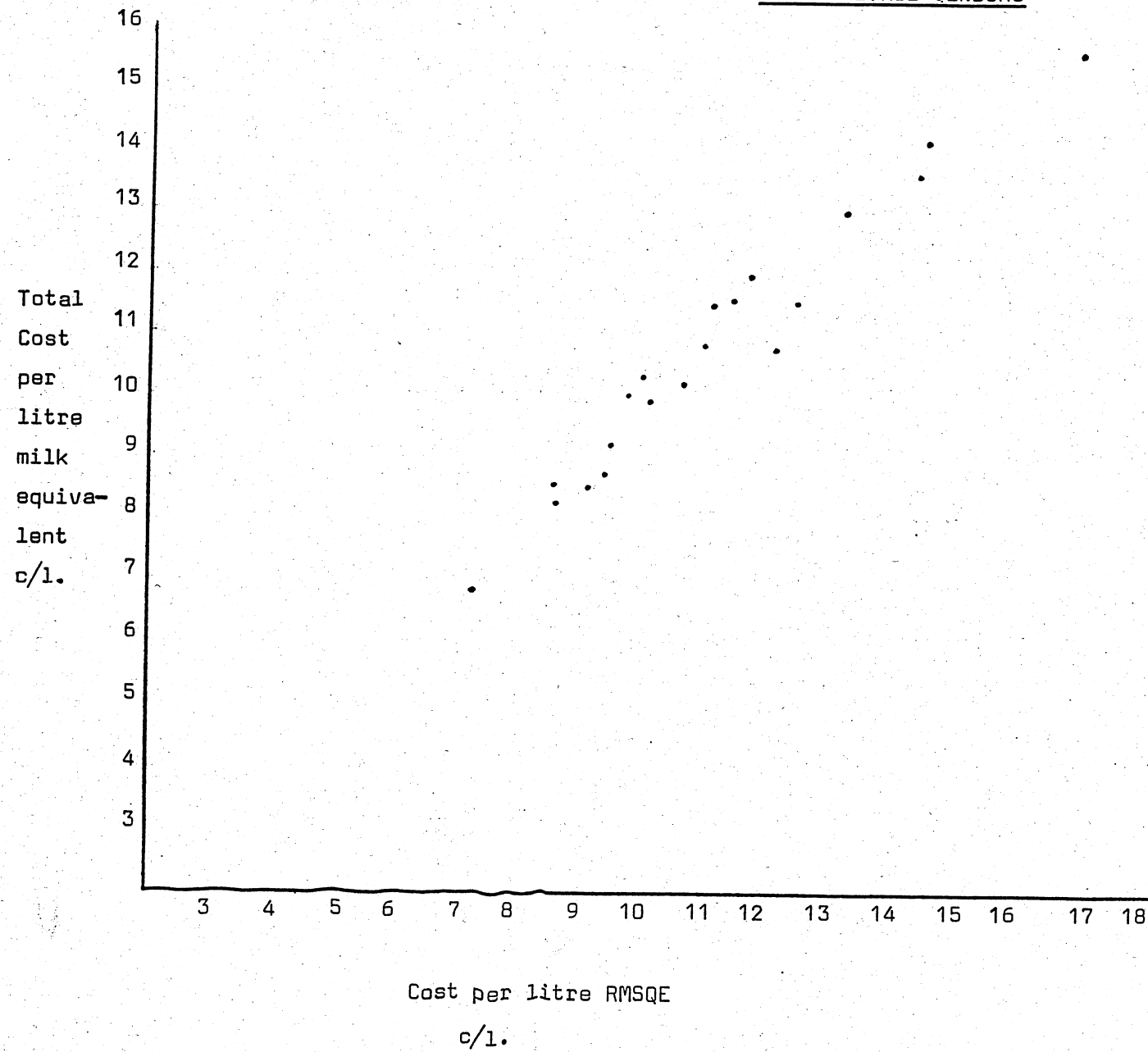
Of the two vendors delivering in excess of 65 l/hr, one who was leasing an additional section of run during the survey period had to dispose of this section because of excessive demands on his health. The other vendor had two youths under 18 years working with him. Conversion to man-hour equivalents on the basis of relative award rates appeared to understate the real labour value of these two youths and thus, overstate the apparent labour efficiency.

Fully-retail vendors whose wives do not participate on the run can thus be expected to have labour efficiency levels within the range of 45-65 litres l/hr. As labour efficiency increases, the cost of distribution decreases according to Equations 1 and 2.

Further regression analysis was undertaken to determine the relationship between the cost of distribution per litre of milk equivalent as used in the above analysis, and the cost per litre RMSQE as required by the Dairy Industry Prices Tribunal (Figure 7). The linear regression gave the following equation:

FIGURE 7

RELATIONSHIP BETWEEN COST/LITRE MILK EQUIVALENT AND COST/LITRE RMSQE FOR FULLY-RETAIL VENDORS



Equation 3:

$$Y = 0.9113^{**} R + 0.5942 \quad R^2 = 0.96$$

Standard error (0.0422) (0.4797)

$$Y = \text{cost/litre milk equivalent}$$

$$R = \text{cost/litre RMSQE.}$$

The Equation shows that the cost/litre (milk equivalent) and the cost/litre (RMSQE) are highly correlated for these twenty retail vendors. A one cent change in the cost/litre RMSQE is equivalent to a 0.91 cent change in the cost per litre milk equivalent.

It is apparent that for the retail vendors used in this analysis, the conclusions reached in regard to the changes in the cost of distribution per litre of milk equivalent are valid when cost is measured in terms of RMSQE. This enables the preceding analysis to be used by the Dairy Industry Prices Tribunal in their investigation of factors affecting the cost of distribution in litres RMSQE. Thus, on the basis of a labour efficiency level of 50 l/hr, the cost of distribution according to Equation 2, is 10.33 cents per litre. Using Equation 3, this is equivalent to 10.68 cents per litre RMSQE. (NOTE: This is the same value as the average allowable Distribution Cost calculated in Table 13).

From this labour efficiency study of fully-retail vendors, it can be concluded that:

- (i) Variation in the cost of distribution of retail milk can be largely explained by the variation in labour efficiency. Using the following quadratic function (Equation 2), 90 per cent of the variation is explained, while the linear function (Equation 1) explains 86 per cent of the variation.

$$\text{Equation 1: } Y = 19.8202 - 0.1814 X$$

$$\text{Equation 2: } Y = 28.6882 - 0.5461 X + (3.579 \times 10^{-3}) X^2$$

where: $Y = \text{cost of distribution (cents/litre milk equivalent)}$
 $X = \text{labour efficiency (lm eq./mn hr. eq.)}$

- (ii) Fully-retail vendors may be expected to deliver 45-65 litres milk equivalent per man-hour equivalent of labour.

- (iii) Of the six vendors delivering less than 45 l/hr, five had wives participating and the other run was small. Inclusion of the wife's labour on an equivalent basis to that of the vendor over-estimates the true labour requirement and lowers apparent labour efficiency. Consequently, the cost of distribution for these vendors is substantially higher than

for the other fully-retail runs.

(iv) The average labour efficiency for the twenty vendors is 50.1 l/hr. Once vendors with wives actively participating are excluded, the average labour efficiency level rises to 54.6 l/hr.

(v) The relationship between the cost per litre determined on a milk equivalent basis (Y) and that determined on the RMSQE basis (R) for fully-retail vendors is given by the Equation:

Equation 3: $Y = 0.9113 R + 0.5942$

For fully-retail vendors the cost per litre milk equivalent is lower than the cost per litre RMSQE.

4.7 PRICE FIXATION AND APPARENT LABOUR EFFICIENCY

The results of the survey have demonstrated that labour utilization is the most important factor in the cost of distribution of retail milk. Labour costs form 79 per cent of the cost of distribution for vendors in the current survey. This presents a major obstacle when price fixation is undertaken on the basis of "average cost of production" since efficiency in operation is not readily determinable.

The preceding analysis of the relationship between cost of distribution and labour efficiency for fully-retail vendors provides the opportunity to derive the vendor's margin on the basis of an expected labour efficiency. The margin (prior to the inclusion of the delivery fee) can be derived simply as follows:

1. Establishment of a certain desired level of labour efficiency:
e.g. 50 litres of retail milk per man-hour equivalent.
2. Determination of the relationship between labour cost and total cost of distribution.
3. Determination of the labour cost per man-hour equivalent.

4. Determination of the cost of distribution using the formula:

$$\text{Cost of retail milk distribution} = \frac{(\text{Total Cost of Distribution})}{(\text{per man-hour equivalent})} \times \text{Desired Labour Efficiency Level}$$

Where:

$$\begin{aligned} \text{Total cost of distribution per man-hour equivalent} &= (\text{Current Labour Cost per Man-hour Equivalent}) \times \frac{100.0}{\text{Percentage Labour Costs form of Total Costs.}} \end{aligned}$$

$$= \text{\$/man-hour equivalent}$$

$$\begin{aligned} \text{Desired Labour Efficiency} &= \text{No. of litres of retail milk delivered/man-hour equivalent of labour.} \end{aligned}$$

$$= \text{litres/hour.}$$

Example:

$$\text{Desired Labour Efficiency} = 50 \text{ litres/man-hour equivalent}$$

$$\text{Current Labour Cost} = \$4.13 \text{ per man-hour equivalent}$$

$$\begin{aligned} \text{Percentage labour costs form of total costs} &= 79.0\% \end{aligned}$$

Therefore:

$$\begin{aligned} \text{Total Cost of Distribution per man-hour equivalent} &= \frac{100.0}{79.0} \times 4.13 \end{aligned}$$

$$= \$5.23$$

$$\begin{aligned} \text{Cost of Distribution c/per litre} &= \frac{\$5.23}{50} \times \frac{100}{1} \end{aligned}$$

$$= 10.46\text{c/l.}$$

It can be seen that once the desired level of labour efficiency for retail milk has been established, this will be unaffected by cost and price rises. Current labour cost can be derived from the award rates, with an average cost per man-hour equivalent being determined by establishing a set formula for hours worked at ordinary, penalty and 'clerical' rates.

Total distribution costs can be determined from the labour costs on the basis that labour costs represent a fixed percentage of total costs. The results of the survey revealed that 79 per cent of the total cost of distribution was attributable to labour. Since this figure is 5 per cent higher than that obtained in the 1973-74 survey (reflecting the relatively high increase in wage rates during this period), this relationship between labour cost and total cost would need to be periodically re-assessed.

This method of price determination has the advantage of incorporating a minimum efficiency level which must be achieved if the vendor is to receive the expected return to his labour and capital. This does not represent a radical change in approach, since the establishment of the vendors' margin based on a survey of the cost of distribution implicitly assumes a certain level of labour efficiency. In the present survey of the cost of distribution of retail milk, this implicit labour efficiency level is determined in Table 17.

TABLE 17

LABOUR EFFICIENCY LEVEL IMPLICIT IN PRESENT SURVEY

Average labour cost per man-hour equivalent	<u>Survey Average</u> \$4.13
$\frac{\$14,992}{52} \times \frac{1}{69.8}$	
Average labour component of cost of distribution	79.0%
Average total cost of distribution per man-hour equivalent	\$5.23
$\frac{\$4.13}{1} \times \frac{100}{79.0}$	
Average cost of distribution of retail milk determined from survey	10.68c/l.
Implicit labour efficiency level	49.0 retail litres per man-hour equivalent
$\frac{\$5.23}{10.68c} \times \frac{100}{1}$	

For the forty-two vendors surveyed, the cost of distribution of retail milk thus assumes that an average of 49.0 litres of retail milk are delivered per man-hour equivalent of labour. In the analysis of the sub-sample of the twenty "fully-retail" vendors, the average apparent labour efficiency level was estimated at 50.1 litres of retail milk per man-hour equivalent. After exclusion of the six runs whose wives actively participated in the run, the average labour efficiency level was raised to 54.6 litres retail milk per man-hour equivalent.

The foregoing analysis demonstrates the importance of labour and shows that labour efficiency is the major determinant of the cost of distribution of retail milk. It suggests the adoption of a minimum labour efficiency level in determining the cost of distribution. This would eliminate one of the major limitations of the "average cost of production" method of price fixation.

4.8 DISTRIBUTION COST AND RUN SIZE

To determine whether any relationship existed between the cost of retail distribution and run size, the same twenty retail vendors used in the previous analysis were selected. The results are presented in Table 18.

TABLE 18

AVERAGE COST OF RETAIL MILK DISTRIBUTION AND RUN SIZE

Run Size (Total litres milk equiv. per week)	Average Cost of Distribution					
	All Fully-retail Vendors			Excluding Wives		
	Total Cost per litre of milk equivalent c/l	Cost per litre RMSQE c/l	No. of vendors	Total Cost per litre of milk equivalent c/l	Cost per litre RMSQE c/l	No. of vendors
1000-2000	14.2	14.5	1	14.2	14.5	1
2000-3000	10.3	10.7	6	10.3	10.7	6
3000-4000	12.3	12.9	5	9.8	10.2	1
4000-5000	10.4	10.8	4	9.3	9.6	3
5000-6000	9.0	9.3	3	8.5	8.6	2
6000-7000						
7000-8000						
8000-9000	8.2	8.7	1	8.2	8.7	1

The results show that for the 20 vendors, there is some indication of a decline in the cost of distribution with increasing run size. This trend becomes more apparent when runs with wives actively participating are excluded. When runs under 2000 litres of milk equivalent per week (63gals/day) are also excluded, there is a continual decrease in cost/litre from 10.3c/l milk equivalent to 8.2c/l (the same trend is also evident in the distribution cost per litre RMSQE). However, since this analysis has been undertaken on only twenty vendors, some size categories are represented by only one vendor. The above results do give a general indication of decreasing retail distribution costs with increasing run size but further analysis with a larger sample of vendors is required to determine the full extent of any economies of size in retail milk distribution.

4.9 CHANGE IN COST STRUCTURE SINCE 1973

A comparison of the proportion of the individual cost items between the "1973 Vendors Survey" and this current survey is given in Table 19. The Table shows that the relative proportions of individual cost items in the total cost structure have remained fairly constant between the surveys. The one exception is the increase in importance of imputed labour costs at the expense of imputed interest costs. This can be explained in part by the relatively large movement in labour costs that have occurred and in part by the fact that the value of the goodwill of a run has been kept constant at \$80.00 per gallon for both surveys.

TABLE 19

COMPARISON OF COST STRUCTURES BETWEEN THE 1973 VENDOR SURVEY
AND THE 1976 VENDOR SURVEY: PERCENTAGE OF TOTAL COSTS

	<u>1973 Survey</u>	<u>1976 Survey</u>
	%	%
Vehicle Costs	9.51	9.83
Material Costs	0.60	0.47
Administrative Costs	2.83	2.26
Insurance Costs	1.72	1.57
Miscellaneous	0.18	0.20
Hired Labour	5.31	5.28
Total Cash Costs	20.15	19.61
Imputed Labour	68.65	73.70
Imputed Interest	11.21	6.67
<u>TOTAL COST</u>	<u>100.01</u>	<u>100.02</u>

Because of the rapid increase in labour costs, it may be expected that this cost will continue to be the dominant characteristic in the milk vendors' cost structure.

5. VENDORS TRADE AND INCOME5.1 NATURE OF TRADE UNDERTAKEN

The results of the analysis of the type of trade undertaken by the vendors surveyed are presented in Table 20.

TABLE 20

NATURE OF TRADE UNDERTAKEN

Type of Product	Proportion of Total Trade			
	On Quantity Basis		On Value Basis	
	Average	Range	Average	Range
Milk	94.6%	85.1%-98.5%	91.3%	70.7%-97.9%
Cream	0.6%	0.1%- 1.5%	1.3%	0.3%- 3.9%
By-products	4.8%	1.4%-14.7%	7.3%	2.5%-28.9%
Total	100.0%		99.9%	

In quantity terms, milk forms over 85 per cent of the trade for all vendors surveyed, with the average being 94.6 per cent. Sales of by-products, which averaged 4.8 per cent, showed considerable variation between vendors with the maximum quantity sold being 14.7 per cent of total trade. Cream accounted for a relatively insignificant portion of the trade, forming an average of 0.6 per cent of trade and a maximum of 1.5 per cent for the vendors surveyed.

Because of the higher margins for cream and by-products, the revenue from these two products forms a higher proportion of the total trade than is indicated by quantity figures. Cream sales remain relatively insignificant, averaging 1.3 per cent with a maximum of 3.9 per cent of total trade. Sales of by-products, however, are of increased significance. In one exceptional case, a vendor operating a small run received almost 30 per cent of his trading revenue from by-products, predominantly flavoured milk. On average, the vendors surveyed obtained 7.3 per cent of their revenue from by-product sales. The major part of by-product sales consisted of flavoured milk and orange juice.

From these results it can be concluded that milk is the main source of revenue for all vendors. Cream sales are of little significance but by-products (principally flavoured milk and orange juice) do form a significant part of vendors' incomes. The importance of by-product sales varies considerably between vendors, with the average return per vendor being \$1,231 per annum.

5.2 INCOME STRUCTURE

The income situation of the average vendor under prevailing costs and margins is estimated in Table 21.

TABLE 21AVERAGE INCOME STRUCTURE FOR THE 1975/76 FINANCIAL YEAR

	\$
Trading Revenue	
- Milk Sales	16,414
- Cream Sales	243
- By-Product Sales	1,321
	<hr/>
Total Trading Revenue	17,978
<u>add</u> Potential Delivery Fee	1,372
	<hr/>
Gross Revenue (defined as TTR + PDF)	19,350
<u>less</u> Cash Costs	3,718
<u>less</u> Imputed Interest	1,265
	<hr/>
Return to Imputed Labour	14,367
<u>less</u> Family + Clerical Labour Allowance	4,250
	<hr/>
Return to Vendors Labour	10,117
	<hr/>

The average return to the vendors' labour in the Sydney Metropolitan Area is \$10,117 p.a. This calculation exhibited wide fluctuations between vendors as is evidenced by Table 22.

TABLE 22DISTRIBUTION OF RUNS BY RETURN TO VENDORS' LABOUR

Return to Vendor's Labour \$'000	Number of Vendors	
	Total	No. with wife Participating
2 - 3.99	2	2
4 - 5.99	4	3
6 - 7.99	8	1
8 - 9.99	6	2
10 - 11.99	10	1
12 - 13.99	3	
14 - 15.99	5	
16 - 17.99	2	
18 - 19.99		
20 - 21.99		
22 - 23.99		
TOTAL	41 ¹³	9

13. Cash costs for one vendor were unavailable.

The most common return to vendor's labour is \$10,000 - \$12,000 per annum. However, there are as many vendors earning less than \$10,000 p.a. as earn more than this figure. Vendors whose wives actively participate in the run tend to have a lower return to labour than the rest of the surveyed vendors.

Because of the effect of wife participation on the vendor's return to labour, a more appropriate measure of return to labour is the return to family (imputed) labour. This is presented in Table 23.

TABLE 23

DISTRIBUTION OF VENDORS' RUNS BY RETURN TO FAMILY (IMPUTED) LABOUR

Return to Imputed Labour	Number of Vendors	
	Total	No. with wife Participating
6,000 - 7,999	3	
8,000 - 9,999	7	
10,000 - 11,999	3	
12,000 - 13,999	11	3
14,000 - 15,999	4	2
16,000 - 17,999	7	3
18,000 - 19,999	1	
20,000 - 21,999	1	1
22,000 - 23,999	1	
24,000 - 25,999	2	
32,000 - 33,999	1	
TOTAL	41	9

The most common return to family (imputed) labour is \$12,000 - \$14,000 per annum, with the majority of vendors receiving a return to family labour in excess of \$12,000 p.a. It can be seen that runs where wives actively participate earn a minimum of \$12,000 p.a. return to family labour. On average, these runs had a return to family labour \$1,453 p.a. higher than those runs where the wife did not participate.

Since the average milk run in Sydney is conducted on a family business basis, the vendor is less concerned with the return to his own labour than with the return to family labour. On average vendors received a return to family labour of \$14,367 p.a. Although runs where the wife actively participated tended to show a lower efficiency in labour usage, the return to family labour was 10.5 per cent higher than runs where this did not occur. Thus, where the opportunity cost¹⁴ of the wife's labour

14. The value of the opportunity cost is the value of the income the wife would have received were she not working on the milk run. There is a cost to the vendor when the wife could be deriving income from another activity.

is zero, vendors whose wives work on the run have on average a 10.5% higher gross family income.

An assessment as to whether the returns to imputed and vendor labour as revealed in the survey are adequate should be made in the light of the following:

- (i) Virtually all runs surveyed were conducted as family partnerships, apparently for taxation reasons. There are distinct taxation advantages in the operation of a husband and wife partnership over that of a sole income earner. For this reason, it would be invalid to directly compare the return to a vendor (or his family) with the salary of an individual.
- (ii) The average return to vendor's labour of \$10,117 is net of the clerical allowance. That is, this figure is the return to the vendor for his labour included in milk distribution and account collection only. The average time involved in these activities, from the survey, was 42 hours per week. If it is assumed that the vendor does his own clerical work (i.e. preparation of accounts, banking, etc.) then he would obtain an extra average return of \$1,927 per annum for 11.1 hours of clerical work per week.

There are two further points which should be considered since, in certain individual situations, they may result in substantial reductions in vendor returns. Firstly, it must be recognised that vendors may pay a higher purchase price for the goodwill of the run than the \$80 per gallon allowed for costing purposes in this report. If this occurs then those vendors that have very little equity in their runs will be faced with a greater cost for interest than allowed in the imputed interest cost item. In addition, such vendors will be faced with high capital repayments which must be met from their own return to labour figure calculated in Table 10. That is, vendors purchasing their runs under present conditions could experience low net cash incomes. This problem was often raised by vendors during the survey.

Secondly, an allowance for the cost of bad debt and/or stolen money has not been made. Even though such "costs" are allowable business deductions for taxation purposes they cannot be regarded as valid items in the calculation of distribution costs since they are of a personal nature. That is, such costs must be met from the "return to vendor's labour". However, if such a "cost" is assumed to be $2\frac{1}{2}\%$ of the value of total purchases of milk and milk products then this cost for the average vendor

would amount to approximately \$1,200 per annum. It is obvious that such a cost item could have a large impact on vendor returns and this would explain the number of times the problem was raised during interviews.

6. RELATIONSHIP BETWEEN SAMPLE SELECTION CHARACTERISTICS
AND SURVEY RESULTS

Selection of sample vendors in the survey was based on the population study. This study categorized all vendors according to their purchases from the factory (Base Product Sales) and their Bottle Sale Percentage for a specific week. These characteristics provided an indication of run size and retail proportion of vendors in the population.

From this categorization, retail vendors were more readily able to be identified and selected for the survey. To determine the reliability of this procedure, a comparison was undertaken between the results obtained from the survey and the characteristics of Bottle Sale Percentage and Base Product Sales adopted in selecting the sample.

6.1 RETAIL PERCENTAGE

Bottle Sale Percentage proved to be quite successful in estimating retail percentage as is shown in Table 24.

TABLE 24

COMPARISON OF BOTTLE SALE PERCENTAGE WITH RETAIL PERCENTAGE
RESULTS ACHIEVED FROM SURVEY

Bottle Sale Percentage	Average Survey Results				No. of Vendors
	Bottle Sale Percentage		Retail Percentage		
	Average	Range	Average	Range	
0 - 40	32	26 - 38	37	29 - 45	2
40 - 60	53	43 - 59	62	35 - 96	12
60 - 80	69	61 - 79	75	45 -100	15
80 - 100	86	80 - 97	95	87 -100	13

Bottle Sale Percentage generally under-estimates the proportion of retail trade undertaken since retail sales of products other than bottled milk are not included. A Strong relationship between increasing Bottle Sale Percentage and increasing Retail Percentage is clearly evident from the results obtained. Vendors with over 80 per cent Bottle Sales have an average of 95 per cent retail trade. At Low Bottle Sale Percentages the relationship is not as distinct. Vendors with a low Bottle Sale Percentage may have a high retail percentage because of retail sales of cartoned milk, by-products and cream. Thus increasing Bottle Sale Percentage is definitely indicative of an increasing proportion of retail trade, but low Bottle Sale Percentages do not necessarily indicate a higher component of wholesale trade.

From this analysis it can be concluded that 'fully-retail' vendors are relatively simple to identify in the population. Since Bottle Sale Percentage figures are easily obtainable for the milk vending population, vendors with over 80 per cent Bottle Sales can be presumed to be fully-retail vendors, with an average retail percentage in excess of 90 per cent (95% in this survey). These vendors may provide the basis of the determination of the cost of distribution of retail milk in future surveys, thus eliminating the problem of determining costs associated with the wholesale component.

6.2 RUN SIZE

The value of gross purchases (Base Product Sales) made by each vendors during the week selected provided a basis for the estimation of the relative sizes of vendors' runs. However, no simple relationship between run size measured in milk equivalent quantities based on B.P.S. and that based on actual survey results was apparent. This was partly due to fluctuations in individual vendors weekly trade during the year through various factors including sickness, holidays, temporary lease of additional runs, weather and changes in the number and type of customers.

A further problem arose in the population study in endeavouring to convert the gross purchase figure (B.P.S.) to milk equivalent quantities on the assumption that \$0.2875 of purchases was equivalent to 1 litre of milk equivalent (the vendor's purchase price for 600 ml bottled milk is \$0.2875/litre). This proved unsatisfactory because of the fluctuations in the vendors' trade as indicated previously, and because of the variability between the purchase price of bottled milk and that of cream, by-products and milk other than bottled milk.

Table 25 presents the results obtained of the relationship between Base Product Sales determined from the population study, and run size determined from the survey.

The results show that in the size categories adopted (A-D) increasing purchases by the vendor (B.P.S.) were associated with increasing size in terms of milk quantity equivalents. However, the conversion from B.P.S. to milk quantity equivalents on the basis that all purchases were in the form of bottled milk over-estimated the vendors' actual quantities of milk quantity equivalents.

TABLE 25

COMPARISON OF BASE PRODUCT SALES (B.P.S.) WITH ACTUAL
RUN SIZE MEASURED IN THE SURVEY.

B.P.S. \$/week	Size Category	SURVEY RESULTS				
		Average B.P.S. (\$/wk)	Milk Equi- valent quantity based on average B.P.S. (1/week)	Milk equivalent quantity determined from Survey (1/week)		No. of Vendors
				Average	Range	
0 - 750	A	620	2,155	2,017	1,791 - 2,243	2
751-1500	B	1,113	3,872	3,725	2,380 - 7,911	31
1501-2000	C	1,684	5,859	4,674	3,000 - 5,388	7
Above 2000	D	2,473	8,600	7,716	6,738 - 8,694	2

It can be concluded from this analysis that Base Product Sales could be used as a general indication of the vendors' expected run size, but that the actual run size in terms of milk quantity equivalents was not readily determinable from the vendors' gross purchase (B.P.S.) figures.

APPENDIX 1DEFINITION AND TREATMENT OF SURVEY DATA1. COST STRUCTURE

The treatment of cost items basically follows the procedures as adopted by the 1973 Vendors' Survey. Information on cost items relates to the 1975/76 financial year.

1. Vehicle Costs

Vehicle costs of milk vendors have been estimated using a 'Standard Cost' approach. Figures are based on a One Tonne Holden Truck which was shown to be the most common vehicle used by vendors. Standing costs were also calculated for 1½ tonne and 2 tonne trucks.

In assessing vehicle costs, methods adopted by the N.R.M.A. were employed using data from their most recent assessment (made in April, 1976). The major differences occur in the areas of:-

1. Opportunity cost of capital. No allowance has been made. N.R.M.A. use a figure of 10%.
2. Comprehensive Insurance. A 30% no-claim bonus has been assumed for each year. N.R.M.A. uses 0%, 20% and 30% for each of the three years respectively.

(a) Standing Costs

Data regarding purchase price, registration, third party insurance and comprehensive insurance were obtained from private firms, the motor registry and N.R.M.A. Stamp duty rate and delivery charge were those used by the N.R.M.A. in their assessment.

(i) Purchase price:-

Chassis :	\$4,566
Canopy :	<u>\$ 977</u>
	\$5,543

(ii) Cost over 3 years:-

Y E A R	1	2	3
	(\$)	(\$)	(\$)
Stamp Duty (\$2/\$100)	111		
Delivery Charge	90		
Registration 3rd Party Insurance	147	147	147
Comprehensive Insurance	257	257	257
Depreciation (22½% p.a.)	1,247	967	749
<u>Total:</u>	1,852	1,371	1,153
3 Yearly Total:	\$4,376		
Average p.a. :	\$1,459		

(b) Running Costs

It is assumed that the running costs for a One Tonne Holden Truck are the same as those for a Holden Kingswood 3300 Automatic. Running costs are based on a travelling distance of 16,000 km per annum.

Y E A R	1	2	3
	(\$)	(\$)	(\$)
<u>Petrol</u>			
30 km/gal. (18 mpg)	402.23	402.23	402.23
551 gals. @ 73c/gal.			
<u>Oil</u>			
Change 20 pints (allowing 1 filter change) @ \$0.50/pint.	10.00	10.00	10.00
Running Consumption 10 pints.	5.00	5.00	5.00
<u>Service and Replacements</u>			
Servicing mechanical repairs, oil and air filters & incidental items.	<u>61.48</u>	<u>511.52</u>	<u>340.39</u>
<u>Total</u>	478.71	928.75	757.62
Average/week	9.21	17.86	14.57
Average/km (cents)	2.99	5.80	4.74
Average for 3 year period = $\frac{13.53}{3}$ cents/km			
= 4.51 cents/km.			

For travelling distances of 24,000 kms and 32,000 kms per annum, this figure becomes:-

<u>Distance Travelled</u> (km)	<u>Running Cost/km</u> (cents)
16,000	4.51
24,000	5.19
32,000	5.51

Comparative standing costs for larger vehicles are presented in the following tables. These tables also indicate the effect of increasing the assessment period from three to five years.

Comparative Standing Costs

<u>Year 1</u>	<u>Holden</u> 1 tonne	<u>Toyota Stout</u> 1½ tonnes	<u>Toyota Dina</u> 2 tonnes (Single rear wheels)
	(\$)	(\$)	(\$)
Purchase Price:-			
Chassis	4,566	4,365	4,532
Canopy	<u>977</u>	<u>1,050</u>	<u>1,250</u>
Total Purchase Price	5,543	5,415	5,782

Comparative Standing Costs (Continued)

<u>Year 1</u>	<u>Holden</u> 1 tonne	<u>Toyota Stout</u> 1½ tonnes	<u>Toyota Dina</u> 2 tonnes (Single rear wheels) (\$)
	(\$)	(\$)	(\$)
Stamp Duty	111	108	116
3rd Party Insurance & Reg.	147	169	190
Delivery Charge	90	90	90
Comprehensive Insurance (N.C.B. 30%)	257	267	277
	<u>6,148</u>	<u>6,049</u>	<u>6,455</u>
Depreciated Value (@22½%)	<u>4,296</u>	<u>4,197</u>	<u>4,481</u>
<u>TOTAL</u>	<u>1,852</u>	<u>1,852</u>	<u>1,974</u>
 <u>Year 2</u>			
Third Party Ins. & Registration	147	169	190
Comprehensive Insurance	257	267	277
Depreciation	<u>967</u>	<u>944</u>	<u>1,008</u>
<u>TOTAL</u>	<u>1,371</u>	<u>1,380</u>	<u>1,475</u>
 <u>Year 3</u>			
Third Party Ins. & Registration	147	169	190
Comprehensive Insurance	257	267	277
Depreciation	<u>749</u>	<u>732</u>	<u>781</u>
<u>TOTAL</u>	<u>1,153</u>	<u>1,168</u>	<u>1,248</u>
 <u>Year 4</u>			
Comprehensive/3rd Party./ Registration	404	436	467
Depreciation	<u>581</u>	<u>567</u>	<u>606</u>
 <u>Year 5</u>			
Comprehensive/3rd Party./ Registration	404	436	467
Depreciation	<u>450</u>	<u>440</u>	<u>469</u>
 <u>Years 1-5</u>			
<u>TOTAL</u>	<u>\$6,215</u>	<u>\$6,279</u>	<u>\$6,706</u>
<u>Average/Year</u>	<u>\$1,243</u>	<u>\$1,256</u>	<u>\$1,341</u>

Summary

Truck standing costs increase with the size of truck and decrease with the length of time the truck is kept. For these reasons an examination of the trucks used and their ages was made for those vendors surveyed. It was found that 22 vendors used one tonne vehicles and the average age of these was 5 years. Of the other vehicles used (that is 1½ and 2 tonnes mainly) their average age was 10 years.

It was felt then that the smaller the truck on average the less time it was kept. Conversely, the larger the truck there is more likelihood that it will be kept longer. Thus, it was assumed that all trucks, no matter what size, would have an approximate equal standing cost per annum. The cost selected was for a one tonne truck over 5 years, namely \$1,243.00 per annum.

During the survey vendors were asked to indicate whether the milk truck was used for private or other business purposes. If either of these situations arose the standing cost for the truck was reduced by the proportion of time the truck was used for non-milk vending purposes.

The running cost used for trucks varied according to the size of the truck and the total number of kilometres travelled per annum. Thus the running costs calculated for a one tonne Holden (calculated above) were used as a base. The running costs were then increased by 12.5% for 1½ tonne trucks and 25% for 2 tonne and over trucks.

A garage allowance of \$104.00 per annum was allowed and included in the truck fixed expenses.

Where the vendor used his car for collections, banking, etc., costs were assessed on the basis of 9.4 c per kilometre (the casual mileage rate applied by the N.S.W. Public Service for vehicles of over 1600 cc capacity).

2. Materials

The cost of items such as cleaning materials, protective clothing, torch batteries, etc., were included in this cost category.

3. Administrative Expenses

Costs included in this category were: Dairy Industry Authority registration fee (\$10.00 each two years); subscriptions (e.g. A.M.V.A. fees); telephone and postal expenses; printing and stationery; advertising; accountancy fees; bank charges (excluding overdraft interest).

4. Insurance

This item included the cost of Workers Compensation cover and

Personal Accident and Sickness cover.

A standard rate of 5.05% of wages was allowed in all cases where the vendor paid wages for hired labour. In addition, all vendors were allowed a minimum cost of \$225 per annum to cover personal accident insurance. This rate was selected as that premium recommended by the A.M.V.A. and covers the vendor for loss of wages of \$150.00 per week plus provides certain capital cost expenses. Where the vendor already held a personal accident policy and he was paying more than the minimum allowance then the actual cost was included.

5. Miscellaneous Costs

This included, in the main, lease charges paid by vendors. That is, in some cases vendors were leasing additional run portions and since this extra sales data had been included in the analysis the charges associated were deducted under this heading. In addition, expenses relating to repairs and maintenance of vending equipment (other than the truck) were included under this heading.

It should be noted that no allowance was made for theft of monies or bad debts.

6. Labour

Labour was divided into those involving a cash outlay for hired labour and those involving non-paid (usually vendor, vendor's wife, and some family members) labour. Details of daily labour involvements were obtained during interviews. Such times involved starting and finishing times for truck loading, unloading and milk deliveries; booking-up sales; counting cash and collection of accounts. In addition time involved with clerical activities was obtained, which included preparation of accounts, organising run-book, banking and collection of accounts by persons other than the milk vendor or his assistant/s.

Clerical time was calculated at a flat rate of \$3-3225 per hour. Vending time was calculated according to the Milk Treatment and Distribution (State) Award as applied at 1st July 1976. The calculation of the vending allowance was based on the following directions:

(1) Casual Labour

(a) When to Apply Casual Rates of Payment to Vendors' Assistants.

When a vendor's assistant works less than 40 hours per week over less than 6 shifts per week he should be paid in accordance with provisions and rates applicable to casual labour.

- (b) Penalty time - 1 1/4 time ordinary hourly rate Mondays to Saturdays
 - 2 time ordinary hourly rate on Sundays.

(2) Provisions With Respect to Calculation of Wages for Vehicle Vendors and Permanent Assistants.

(a) Hours Worked Per Week

Normal time worked by vehicle vendors and permanent assistants shall consist of 40 hours per week over not more than 6 shifts per week.

(b) Vehicle Vendor Wage Rates

Provisions and rates relating to milk carters on round shall be observed in calculating vehicle vendors' wages irrespective of age or whether or not time worked is less than 40 hours per week.

(c) Permanent Assistant - Wage Rates

Providing time worked over 6 shifts amounts to 40 hours per week or more, provisions and rates applicable to milk carters on round shall apply to adult permanent assistants. Those applicable to Milk Carters Assistants and Boys on Round shall apply where a permanent assistant is less than 21 years of age.

Otherwise provisions and rates applicable to casual labour shall apply (see Section (1)).

(d) Overtime Entitlements

Monday to Friday - in excess of 8 hours worked daily

Saturday and Sunday - in excess of 6 hours worked with maximum allowable time of 8 hours on each day.

Weekly - in excess of forty hours ordinary time worked during week (after excluding daily overtime hours).

(e) Overtime Rates

Monday to Friday - 1 1/2 time for first three hours worked in excess of 8 hours and 2 time thereafter.

Saturday and Sunday - 2 time for hours worked in excess of 6 hours with a maximum payable on overtime rates of 2 hours for each day.

Weekly - 1 1/2 time for first three hours worked in excess of forty ordinary hours for week (after excluding daily overtime hours worked) and 2 time thereafter.

(f) Treatment of Time Worked on Seventh Day Where Distribution Consists of Seven Retail Deliveries

Where normal distribution on a milk round consists of 7 retail deliveries, the seventh shift worked by a vehicle vendor and/or permanent

assistant should be regarded as an overtime shift and should be disregarded in computation of ordinary hours for the purpose of determining weekly overtime (refer Sections (d) and (e)).

Time worked on such seventh shift should be paid for at 2 times the ordinary rate.

(g) Public Holidays - Vehicle Vendors and Permanent Assistants

In determining entitlements for vehicle vendors and permanent assistants with respect to public holidays, daily hours to be taken into account shall relate to the number of days worked during a normal week. That is, where a normal week consists of 5 shifts or less, 8 hours per day should be taken into account. Where the normal week consists of 6 shifts or more, 6 $\frac{2}{3}$ hours per day should be taken into account.

(h) Treatment of On-Costs Where a VEHICLE VENDOR'S Normal Working Week Consists of less than 40 Hours

Where total weekly time worked by a vehicle vendor over 6 shifts is less than 40 hours the provision made for labour oncosts (annual leave, leave loading sick leave, public holidays and long service leave) is not to exceed the percentage that actual hours WORKED per week bears to 40 hours. That is, if a vehicle vendor worked 30 hours per week over 6 shifts, he would be entitled to payment of 75% ($\frac{30}{40}$) of a full 12 months entitlement.

(i) Vendor's Wife

Where the vendor's wife works on the run on a regular basis then she should be treated in the same manner as that adopted for the vendor himself.

(3) Actual Labour Rates to be Adhered to -

(a) Milk Carter on Rounds - Award Rates

	Per Week	Ord. Time Per Hour	1 $\frac{1}{4}$ Time	1 $\frac{1}{2}$ Time	Double Time
	\$	\$	\$	\$	\$
Vehicle Vendor and Adult Assistant	145.50	3.6375	4.5469	5.4563	7.2750

(b) Milk Carters' Assistants and Boys on Cart - Award Rates

Under 18	74.30	1.8575	2.3219	2.7863	3.7150
18 to 19	91.50	2.2875	2.8594	3.4313	4.5750
19 to 20	101.80	2.5450	3.1813	3.8175	5.0900
20 to 21	107.50	2.6875	3.3594	4.0313	5.3750

7. Interest

A standard interest rate of 10.5% was used to calculate imputed interest charges on tangible assets and working capital together with a value of "goodwill" on milk runs. The valuations of the capital cost items involved

- (a) Tangible Assets - this included the present day value of the milk truck along with items of necessary equipment associated with milk vending. Truck values were obtained at interviews and were an estimate given by the vendor himself.
- (b) Working Capital - this included the cost of the average weekly purchases of milk, cream, and by-products from the depot together with the value of one week's labour cost (imputed plus actual).
- (c) Goodwill - the capital value of this item was assessed at \$80 per gallon on the net retail milk gallonage equivalent.

2. DEFINITION OF TERMS

Allowable Distribution Cost

The allowable distribution cost (ADC) is defined as follows:

$$\text{ADC} = \text{Total Distribution Cost} - \text{Recovery Margin for Wholesale Sales.}$$

This provides a measure of the total cost of delivering retail milk. It is assumed that the return from wholesale milk (recovery margin) is equal to the cost of distribution of wholesale milk. Thus, the allowable distribution cost for retail milk is obtained by subtracting the cost of distribution of wholesale milk from the total cost of distribution.

Apparent Labour Efficiency (labour efficiency)

Apparent labour efficiency is the number of litres of milk equivalent delivered per man-hour equivalent of labour. This measure was used in the analysis of fully-retail vendors to determine the labour efficiency involved in distributing retail milk. It is regarded as apparent labour efficiency because of the problems mentioned in the report regarding the estimation of run size and labour.

Base Product Sales (B.P.S.)

This value is also referred to as the Value of Total Purchases. This is the value of milk cream and related products (dairy products and orange juice) purchased from the Depot during the week in question. Since these items are obtained each day and are not readily stored, weekly purchases can be presumed to be equal to the quantities sold. This provides a common measure of size of run for all vendors and is referred to as Base Product Sales.

By-Products

By-products are goods sold by the vendor other than whole milk and cream. Flavoured milk is regarded as whole milk for the purpose of valuing Goodwill but for other calculations is regarded as a by-product. The most commonly sold by-products are flavoured milk, yoghurt, skim milk, dairy custard and cheese. Fruit juice, although not a dairy product, is regarded as a by-product since it is purchased from the factory and sold on the run. The vendors' margin for by-products is significantly higher than for whole milk.

Delivery Fee

The delivery fee is a charge made to householders for home delivery of milk. The present charge is one cent per delivery, irrespective of the quantity delivered. In estimating the potential delivery fee, it is assumed that the vendor receives one cent per day from each of his customers.

Fully-retail Vendors

For the purpose of analysis, vendors with over eighty per cent retail trade have been defined as fully-retail vendors so that no adjustment is required for wholesale trade. Under this definition, the number of litres of milk equivalent is equal to the number of litres of retail milk equivalent. This simplifies the analysis of the factors affecting the cost of distributing retail milk.

Goodwill

Goodwill represents the cost involved in being permitted to service the run. Although the run itself has no intrinsic value, it assumes a value because profit can be derived from servicing the run. When a vendor buys a run from another vendor he is only buying the right to service that run. The cost of that "right to service" is referred to as the value of goodwill. The value of goodwill depends on a number of factors including the locality of the run, type of trade undertaken and the ease of servicing the run. During the survey, a value of \$17.60 per litre (i.e. \$80 per gallon) was assumed. This may under-estimate the present value of this 'asset' for a number of vendors.

Labour Efficiency

See apparent labour efficiency.

Man-Hour Equivalent

Man-hour equivalents are obtained by the conversion of non-adult labour (persons under 21 years) to adult labour on the basis of relative award rates. This quantity is then added to the quantity of adult labour where one hour of adult labour equals one man-hour equivalent. This measure is considered to provide a more accurate indication of labour involvement than the total number of hours worked.

Milk Equivalent

See wholemilk equivalent.

Percentage Bottle Sales (P.B.S.)

This measure is used to indicate the likely involvement of the vendor in retail trade. It is defined as:-

$$\text{Percentage Bottle Sales} = \frac{\text{Value of Bottled Milk Purchased}}{\text{Value of Total Purchases}} \times \frac{100}{1}$$

Since bottled milk is predominantly sold to householders, the higher the P.B.S., the greater the likely involvement in retail trade.

This measure was chosen since it is readily obtainable for all vendors in the population and does allow a broad distinction to be made between retail-type and wholesale-type vendors.

Recovery Margin

The recovery margin is the return obtained from sales of wholesale milk and cream. It is assumed that the return from these sales is sufficient to 'recover' the cost involved in wholesale milk and cream trade. This simplifies the procedure in calculating the distribution costs for retail milk. The recovery margin is subtracted from the total distribution cost to obtain the allowable distribution cost for retail milk.

Retail

The term 'retail' refers to deliveries made to households. Thus, retail vendors are vendors delivering to households (retail outlets) and this trade is referred to as retail trade. The per unit return that the vendor receives from retail sales is called the retail margin. Other retail outlets of lesser importance and not distinguished in this survey are hospitals and similar institutions, the Armed Services and National Fitness Camps. Wholesale refers to deliveries made to shops and factories (see wholesale).

Retail Milk Equivalent

This measure of run size is obtained by dividing the quantity (litres) of wholesale milk sold by 2.5 and adding it to the quantity (litres) of retail milk sold. The factor of 2.5 represents the ratio of the retail:wholesale milk margins.

Flavoured milk may be included in this measure, but is excluded in the present analysis.

Run (milk run)

The area in which a registered vendor is licensed to operate.

Retail Milk Sales Quantity Equivalent (RMSQE)

This is the method of expressing the size of a retail milk run as used by the Dairy Industry Prices Tribunal and is defined as:-

$$\text{RMSQE} = \text{Litres of milk sold to retail outlets} + \text{litres of milk equivalent of cream sold to retail outlets} + \text{litres of retail milk equivalents of all by-products sold.}$$

In this definition, the components of milk, cream and by-products are obtained by:-

Milk: litres of whole milk delivered to retail outlets, excluding flavoured milk.

Cream: convert retail cream sales to milk equivalents by dividing the value of retail cream sales by the appropriate retail margin for milk. On this basis one litre of retail cream is approximately equal to 3 litres of RMSQE.

By-Products: the quantity of by-products sold are converted to an equivalent quantity of milk (1) based on the size of the container. The wholesale quantity is then divided by 2.5 (reflecting the ratio between wholesale and retail milk margins) and added to the retail quantity to give the RMSQE for by-products.

In the determination of vendor margins, the Dairy Industry Authority uses the RMSQE as a measure of the size of the retail milk run. The cost of delivery of retail milk is estimated as cost/litre of RMSQE.

Run Compactness

Run compactness is defined as the quantity of milk delivered per kilometre (gallons/mile) where the quantity of milk is expressed in litres of retail milk equivalent and the length of the run in kilometres. This measure provides an indication of the geographical lay-out of the run, whether it is well spread out or concentrated.

Trading Revenue

Trading revenue is the gross return to the vendor from sales of milk, cream and by-products. The value of the trading revenue is obtained by multiplying the quantity of each of the items sold at retail and wholesale levels by the appropriate margins. Gross Revenue is the Trading Revenue plus the delivery fee.

Vehicle Vendor

There are two main types of milk vendors. Those who operate from shops and sell milk and products to the public defined as shop vendors. Vendors who operate a licenced run and deliver by vehicle to households, shops, factories and other outlets are defined as vehicle vendors. This bulletin only examines the vehicle vendor category.

Whole Milk Equivalent (milk equivalent)

Whole milk equivalents represent a means of converting items other than milk into equivalent litres of milk. This is particularly applicable to by-products, which are predominantly expressed in weight, rather than volume, terms. Thus, a 200 gm carton of yoghurt is assumed to be equal to a 300 ml. carton of milk, and thus has a milk equivalent of 0.3 litres.

Wholesale

This term is used mainly to describe deliveries made to shops (wholesale outlets). Wholesale vendors are defined as those delivering predominantly to these wholesale outlets. The margin the vehicle vendor

receives from sales to shops is referred to as the wholesale margin.

Zone

Vendors were classified into four area zones according to the degree of high-rise development in the area. This involved a two-step process. The municipalities within the Sydney Metropolitan Area were first divided into four categories based on the extent of high rise buildings within the area. The vendor was then allocated to one of these categories according to the municipality within which his run was located.

To determine the extent of high-rise buildings in each municipality, the following index was used:-

$$\frac{\text{Number of Street - Level Dwellings}}{\text{Total Dwellings}} \times \frac{100}{1}$$

In this context 'high-rise' refers to dwellings other than street-level dwellings.

Classification was undertaken on this basis because it was suggested that the degree of high-rise development within the vendors' run had a significant bearing on the operation and viability of the run.

APPENDIX 2

TABLE 1 : Individual Vendors' Cost Structures for the Year Ending June 30th 1976

Vendor Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. CASH COSTS																		
Truck Fixed Cost	726	1,347	1,347	1,161	1,347	1,347	1,347	1,347	1,347	2,694	1,192	992	1,347	1,347	1,347	1,347	1,347	1,347
Truck Running	351	778	317	310	443	314	523	219	736	2,556	242	1,412	504	269	306	414	450	389
Car Running	-	16	173	-	-	65	210	-	86	173	16	-	-	31	86	94	79	145
TOTAL VEHICLE	1,077	2,141	1,837	1,471	1,790	1,726	2,080	1,566	2,169	5,423	1,450	2,404	1,851	1,647	1,739	1,855	1,876	1,881
Batteries, etc.	-	2	10	10	10	34	-	15	15	33	-	-	49	20	35	22	n.a.	24
Cleansing	-	2	10	32	21	24	30	-	33	35	20	30	-	50	20	-	n.a.	24
Clothing	40	8	58	74	50	60	60	41	22	83	38	112	45	20	36	6	n.a.	67
TOTAL MATERIALS	40	12	78	116	81	118	80	56	59	141	48	132	94	80	81	28	n.a.	115
Subscriptions	53	58	5	5	5	53	53	5	53	53	53	53	53	5	53	53	n.a.	53
Telephone	-	174	100	86	98	113	58	154	52	79	120	77	123	120	90	159	n.a.	105
Stationery	100	90	53	60	50	40	30	75	50	344	67	61	50	50	40	29	n.a.	70
Advertising	20	-	86	-	-	12	10	-	-	-	-	-	-	85	-	8	n.a.	-
Accountant	200	450	65	80	50	90	25	100	40	75	94	160	100	120	130	25	n.a.	80
Banking	59	460	96	30	60	45	60	177	91	71	36	95	117	70	60	85	n.a.	141
TOTAL ADMINISTRATION	432	1,232	405	261	263	353	236	511	286	622	370	446	443	450	373	359	n.a.	449
Workers Compensation	105	66	-	-	92	228	-	-	115	105	110	-	-	-	53	-	53	25
Personal Accident	225	225	225	225	312	225	225	225	225	496	225	225	225	225	225	225	225	225
TOTAL INSURANCE	330	291	225	225	404	453	225	225	340	601	335	225	225	225	278	225	278	251
MISCELLANEOUS	-	-	-	-	-	-	96	-	-	52	-	968	27	52	-	-	n.a.	54
HIRER LABOUR	2,080	1,300	-	-	1,820	1,248	-	-	2,288	2,080	2,184	-	-	-	1,040	-	1,040	520
TOTAL CASH COSTS	3,959	4,976	2,545	2,073	4,358	3,898	2,717	2,358	5,142	8,919	4,387	4,175	2,640	2,454	3,511	2,467	n.a.	3,270
2. IMPUTED LABOUR																		
VENDOR	6,185	11,530	7,977	8,454	7,640	7,566	8,754	7,776	9,536	9,724	5,251	11,629	12,617	8,412	13,232	12,475	10,418	11,341
OTHER VENDING	-	-	6,833	-	-	3,260	-	7,495	8,920	12,617	-	-	3,428	1,655	-	-	9,194	-
CLERICAL	691	2,177	1,140	1,901	1,080	2,764	1,253	3,455	2,108	3,231	1,140	2,896	1,918	1,590	1,861	1,011	3,023	1,425
TOTAL LABOUR	6,876	13,707	15,950	10,355	8,720	13,590	10,007	18,726	20,564	25,572	6,391	14,525	17,963	11,657	15,093	13,486	22,635	12,766
3. IMPUTED INTEREST																		
Assets + Working	614	1,063	287	421	223	688	127	209	307	667	569	859	245	317	233	290	800	408
Goodwill	818	1,512	844	498	805	1,268	414	915	1,285	2,108	613	720	803	748	685	631	1,262	732
TOTAL INTEREST	1,432	2,575	1,131	919	1,028	1,956	541	1,124	1,592	2,775	1,182	1,579	1,048	1,065	918	921	2,062	1,140
TOTAL COSTS	12,267	21,258	19,626	13,347	14,106	19,444	13,265	22,208	27,298	37,266	11,960	20,279	21,651	15,176	19,522	16,874	n.a.	17,176

62.

TABLE 1

Vendor Number	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
1. <u>CASH COSTS</u>																		
Truck Fixed Cost	1,347	1,347	726	2,019	1,347	477	1,347	1,347	1,347	1,347	1,347	1,347	726	1,347	1,223	1,161	1,347	1,285
Truck Running	595	386	283	467	396	636	831	793	366	484	410	291	650	249	250	430	378	656
Car Running	118	71	-	-	173	189	330	-	94	31	-	102	-	-	-	39	134	-
TOTAL VEHICLE	2,060	1,804	1,009	2,486	1,916	1,302	2,508	2,140	1,807	1,862	1,757	1,740	1,376	1,596	1,473	1,630	1,859	1,941
Batteries, etc.	20	15	-	58	24	-	61	24	5	10	-	13	-	4	106	-	49	14
Cleansing	-	44	-	30	10	-	52	25	-	2	-	11	78	6	20	20	-	6
Clothing	124	60	60	42	26	40	60	38	36	47	65	55	35	42	119	55	36	20
TOTAL MATERIALS	144	119	60	130	60	40	173	87	41	59	65	79	113	52	245	75	85	40
Subscriptions	53	5	5	53	5	53	58	5	5	53	53	5	53	53	5	53	53	53
Telephone	60	54	-	115	130	85	150	149	50	123	100	60	86	150	182	52	69	20
Stationery	86	30	70	34	65	32	96	249	10	140	81	11	82	59	114	50	91	71
Advertising	200	20	-	-	-	-	66	-	-	-	20	-	100	20	36	-	-	10
Accountant	25	25	125	160	185	68	115	150	105	120	100	25	140	90	200	175	41	65
Bakking	130	19	24	117	86	70	220	250	12	58	67	25	78	10	164	92	74	73
TOTAL ADMINISTRATION	554	153	224	479	471	308	705	803	182	494	421	126	539	382	701	422	328	292
Workers Compensation	105	-	-	66	357	171	-	53	-	26	105	-	23	-	126	55	-	-
Personal Accident	300	260	225	225	225	225	450	225	225	225	225	225	225	225	225	225	225	225
TOTAL INSURANCE	405	260	225	291	582	396	450	278	225	251	330	225	248	225	351	280	225	225
MISCELLANEOUS	-	-	-	-	-	-	-	126	-	-	-	-	-	-	-	-	23	-
HIRED LABOUR	2,080	-	-	1,300	7,072	3,380	-	1,040	-	520	2,080	-	446	-	2,493	1,092	-	-
TOTAL CASH COSTS	5,243	2,336	1,518	4,686	10,101	5,426	3,836	4,474	2,255	3,186	4,653	2,170	2,722	2,255	5,263	3,499	2,520	2,498
2. <u>IMPUTED LABOUR</u>																		
VENDOR	10,754	12,027	8,678	10,048	10,017	8,960	9,544	10,418	7,722	8,952	7,217	13,610	8,311	11,908	7,581	8,610	11,625	7,444
OTHER VENDING	-	935	-	4,651	-	-	9,864	10,135	-	-	-	543	-	7,082	4,965	-	5,995	-
CLERICAL	1,901	2,346	866	2,272	2,472	1,745	3,214	3,283	1,572	1,901	1,425	2,346	2,004	2,246	3,369	1,210	1,572	777
TOTAL LABOUR	12,655	15,308	9,544	16,971	12,489	10,705	22,622	23,836	9,294	10,853	8,642	16,499	10,315	21,236	15,915	9,820	19,192	8,221
3. <u>IMPUTED INTEREST</u>																		
Assets + Working	208	195	679	429	276	227	517	445	414	172	429	486	681	168	536	382	199	182
Goodwill	1,011	907	550	1,042	1,067	732	1,384	1,033	512	554	990	799	572	727	878	756	675	581
TOTAL INTEREST	1,219	1,102	1,229	1,471	1,343	959	1,901	1,478	926	727	1,419	1,285	1,253	895	1,414	1,138	874	763
TOTAL COSTS	19,117	18,746	12,291	23,128	23,933	17,090	28,359	29,788	12,475	14,765	14,714	19,954	14,290	24,386	22,592	14,457	22,586	11,482

TABLE 1

Vendor Number	37	38	39	40	41	42	Average Sample
1. <u>CASH COSTS</u>							
Truck Fixed Cost	726	1,347	1,347	1,347	1,347	1,223	1,287
Truck Running	339	339	191	322	611	347	504
Car Running	-	-	94	314	212	-	75
TOTAL VEHICLE	1,065	1,686	1,632	1,983	2,170	1,570	1,866
Batteries, etc.	57	61	10	8	8	-	20
Cleansing	52	-	-	8	10	20	16
Clothing	70	65	60	25	25	165	53
TOTAL MATERIALS	179	126	79	41	43	185	89
Subscriptions	5	5	53	53	53	53	37
Telephone	-	124	175	100	90	144	97
Stationery	52	68	119	41	34	110	74
Advertising	-	23	-	-	35	60	20
Accountant	72	175	100	150	90	84	109
Banking	21	55	54	52	71	72	89
TOTAL ADMINISTRATION	150	450	501	396	373	523	426
Workers Compensation	-	26	-	39	184	-	55
Personal Accident	269	225	225	225	225	225	243
TOTAL INSURANCE	269	251	225	264	409	225	298
MISCELLANEOUS	-	28	-	-	60	55	38
HIRED LABOUR	-	520	-	780	3,640	-	1,001
TOTAL CASH COSTS	1,663	3,061	2,428	3,464	6,695	2,558	3,718
2. <u>IMPUTED LABOUR</u>							
VENDOR	6,122	10,035	10,111	12,363	13,851	12,712	9,741
OTHER VENDING	-	-	-	-	-	-	2,323
CLERICAL	1,037	950	1,339	2,220	1,684	2,505	1,927
TOTAL LABOUR	7,159	10,985	11,450	14,583	15,535	15,217	13,991
3. <u>IMPUTED INTEREST</u>							
Assets + Working	148	269	210	219	662	419	402
Goodwill	449	649	899	769	1,114	917	863
TOTAL INTEREST	597	918	1,109	988	1,776	1,336	1,265
TOTAL COSTS	9,419	14,964	14,987	19,035	24,006	19,111	18,974

TABLE 2 : Individual Vendors' Annual Sales of Milk, Cream and By Products and Weekly Hours Worked

Vendor Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. <u>MILK SALES (Litres)</u>															
- Retail	104,610	230,444	124,988	80,706	135,271	238,451	85,718	180,000	245,169	391,674	113,851	232,547	154,175	147,220	94,957
- Wholesale	134,345	165,177	95,554	37,371	37,969	27,831	3,290	-	15,937	38,097	14,640	-	6,720	-	95,807
TOTAL	238,955	395,621	220,542	118,076	173,240	266,282	89,008	180,000	261,106	429,771	128,491	232,547	160,895	147,220	190,764
RETAIL %	43.8	58.2	56.7	68.4	78.1	89.5	96.3	100.0	93.9	91.1	88.6	100.0	95.8	100.0	49.8
2. <u>CREAM SALES (Litre)</u>															
- Retail	270	655	329	129	505	832	499	914	831	807	187	401	729	130	156
- Wholesale	1,707	2,700	735	149	345	230	-	-	163	321	235	-	172	-	2,563
TOTAL	1,977	3,355	1,064	278	850	1,062	499	914	994	1,128	422	401	901	130	2,719
RETAIL %	13.7	19.5	30.9	46.4	59.4	78.3	100.0	100.0	83.6	71.5	44.3	100.0	80.9	100.0	5.7
3. <u>BY-PRODUCT SALES</u>															
- Retail	4,843	4,689	2,003	2,001	5,943	7,423	3,612	6,488	3,970	12,286	5,938	3,295	4,078	2,028	7,094
- Wholesale	-	7,688	8,647	5,614	3,727	5,390	-	-	422	8,906	261	-	2,135	-	9,613
TOTAL (MSQE)	4,843	12,377	10,650	7,615	9,670	12,813	3,612	6,488	4,392	21,192	6,199	3,295	6,213	2,028	16,707
RETAIL %	100.0	37.9	18.8	35.6	61.5	57.9	100.0	100.0	90.4	58.0	95.8	100.0	65.6	100.0	42.5
4. <u>WEEKLY LABOUR (HRS)</u>															
- Vendor	27.0	48.2	35.5	38.5	31.0	34.5	39.0	35.0	41.8	38.3	24.5	49.5	57.5	37.9	53.5
- Family	-	-	31.0	-	-	27.0	-	36.3	38.7	52.2	-	-	14.5	7.0	-
- Clerical	4.0	12.6	6.6	11.0	6.3	16.0	7.3	20.0	12.2	18.7	6.6	16.3	11.1	9.2	10.3
- Paid Labour	16.0	8.5	-	-	28.0	28.0	-	-	20.5	57.0	39.0	-	-	-	10.0
TOTAL (HRS)	47.0	69.3	73.1	49.5	65.3	105.5	46.3	91.3	113.2	166.7	70.1	66.3	83.1	54.1	74.3

TABLE 2

Vendor Number	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1. <u>MILK SALES (Litres)</u>															
- Retail	103,316	195,183	135,286	185,574	153,036	94,032	170,829	207,035	143,844	271,325	195,617	59,262	85,155	171,642	120,920
- Wholesale	42,891	130,696	-	31,651	48,093	35,246	66,345	7,227	1,040	-	19,419	97,048	55,724	47,288	65,543
TOTAL	146,207	325,879	135,286	217,225	201,129	129,278	237,174	214,262	144,884	271,325	215,036	156,310	140,879	218,930	195,463
RETAIL %	70.7	59.9	100.0	85.4	76.1	72.7	72.0	96.6	99.3	100.0	91.0	37.9	60.4	78.4	66.5
2. <u>CREAM SALES (Litre)</u>															
- Retail	372	573	1,025	503	192	339	785	568	470	1,593	1,006	125	172	218	339
- Wholesale	433	3,566	-	851	408	683	499	163	-	-	417	589	932	525	1,019
TOTAL	805	4,139	1,025	1,353	601	1,022	1,284	736	470	1,593	1,423	714	1,104	743	1,408
RETAIL %	46.2	13.8	100.0	37.2	31.9	33.2	61.1	77.2	100.0	100.0	70.7	17.5	15.6	29.3	27.6
3. <u>BY-PRODUCT SALES</u>															
- Retail	4,635	9,152	14,358	6,562	5,320	2,316	8,791	6,387	3,088	11,367	3,253	1,062	436	5,160	1,897
- Wholesale	14,061	11,183	-	437	12,207	1,145	9,910	-	-	-	45	10,308	9,726	11,438	3,435
TOTAL	18,696	20,335	14,358	6,999	17,527	3,461	18,701	6,387	3,088	11,367	3,298	11,370	10,162	16,598	5,332
RETAIL %	24.8	45.0	100.0	93.8	30.4	66.9	47.0	100.0	100.0	100.0	98.7	9.3	4.3	31.1	35.6
4. <u>WEEKLY LABOUR (HRS)</u>															
- Vendor	50.0	47.9	43.5	46.1	49.8	30.3	45.4	40.5	39.5	42.3	47.5	33.5	39.3	32.5	59.3
- Family	-	40.9	-	-	7.7	-	19.7	-	-	46.3	46.5	-	-	-	4.5
- Clerical	5.9	17.5	3.3	11.0	13.6	5.0	13.1	14.2	10.1	18.6	19.0	9.1	11.0	8.3	12.5
- Paid Labour	-	7.0	4.5	23.5	-	-	30.0	36.5	19.0	-	8.0	-	6.0	19.0	-
TOTAL (HRS)	55.9	113.3	61.3	80.6	71.1	35.3	108.2	91.2	67.6	107.2	121.0	42.6	56.3	59.8	75.8

TABLE 2

Vendor Number	31	32	33	34	35	36	37	38	39	40	41	42	Average Sample
1. <u>MILK SALES</u> (Litres)													
- Retail	102,645	136,261	162,067	73,861	104,177	100,681	71,569	104,923	155,246	90,136	147,658	174,420	149,630
- Wholesale	18,701	16,304	24,762	176,305	57,099	4,672	37,107	28,619	39,945	145,595	174,697	13,343	49,002
TOTAL	121,346	152,565	186,830	250,166	161,276	105,353	108,677	133,542	195,191	235,731	322,354	187,763	198,632
RETAIL %	84.6	89.3	86.7	29.5	64.6	95.6	65.9	78.6	79.5	38.2	45.8	92.9	75.3
2. <u>CREAM SALES</u> (Litre)													
- Retail	627	375	1,104	281	546	205	131	1,338	184	1,926	658	635	564
- Wholesale	253	63	552	2,480	-	-	1,048	710	185	188	549	-	605
TOTAL	880	438	1,657	2,761	546	205	1,179	2,048	369	2,114	1,207	635	1,170
RETAIL %	71.3	85.6	66.6	10.2	100.0	100.0	11.1	65.3	50.0	91.1	54.5	100.0	48.2
3. <u>BY-PRODUCT SALES</u>													
- Retail	3,566	3,232	7,109	4,956	2,968	17,239	1,376	4,121	2,155	2,667	2,646	6,059	5,177
- Wholesale	7,090	123	534	12,400	16,960	943	5,380	1,402	12,518	10,195	6,035	-	4,997
TOTAL (MSQE)	10,656	3,355	7,643	17,256	19,928	18,182	6,756	5,523	14,673	12,862	8,681	6,059	10,174
RETAIL %	33.5	96.3	93.0	28.1	14.9	94.8	20.4	74.6	14.7	20.7	30.5	100.0	50.9
4. <u>WEEKLY LABOUR</u> (HRS)													
- Vendor	36.2	54.0	33.5	39.7	51.0	32.3	28.0	43.5	42.8	50.9	55.8	54.0	42.0
- Family	-	36.0	21.0	-	27.0	-	-	-	-	-	-	-	10.8
- Clerical	11.6	13.0	19.5	7.0	9.1	4.5	6.0	5.5	7.7	12.9	9.8	14.5	11.1
- Paid Labour	3.0	-	30.5	15.0	-	-	-	3.0	-	10.1	24.0	-	10.6
TOTAL (HRS)	50.8	103.0	104.5	61.7	87.1	36.8	34.0	52.0	50.5	73.9	89.6	68.5	74.6

TABLE 3 : Individual Vendors' Estimated Cost of Distributing Milk to Retail Outlets. 1975/76

Vendor Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
CASH COSTS (\$)	3,959	4,976	2,545	2,073	4,358	3,898	2,717	2,358	5,142	8,919	4,387	4,175	2,642	2,454	3,511
IMPUTED INTEREST (\$)	1,432	2,575	1,131	919	1,028	1,956	541	1,124	1,592	2,775	1,182	1,579	1,048	1,065	918
IMPUTED LABOUR (\$)	6,876	13,707	16,000	10,355	8,720	13,590	10,007	18,726	20,564	25,572	6,391	14,525	17,963	11,656	15,093
TOTAL DISTRIBUTION COST (\$)	12,267	21,258	19,676	13,347	14,106	19,444	13,265	22,208	27,298	37,266	11,960	20,279	21,653	15,175	19,522
LESS RECOVERY MARGIN															
- Wholesale Milk (\$)	5,460	6,711	3,858	1,522	1,741	1,144	126	-	638	1,536	580	-	272	-	3,879
- Wholesale Cream (\$)	188	297	81	16	38	25	-	-	18	35	26	-	19	-	282
TOTAL RECOVERY MARGIN (\$)	5,648	7,008	3,939	1,538	1,779	1,170	126	-	656	1,571	606	-	290	-	4,161
ALLOWABLE DISTRIBUTION COST (\$)	6,619	14,250	15,737	11,809	12,327	18,274	13,139	22,208	26,642	35,695	11,354	20,279	21,363	15,175	15,361
RETAIL MILK QUANTITY															
- Milk Sales	104,610	230,444	124,988	80,706	135,271	238,451	85,718	180,000	245,169	391,674	113,851	232,547	154,175	147,220	94,957
- Cream Sales (RMSQE)	782	1,898	951	374	1,460	2,395	1,480	2,645	2,404	2,335	542	1,161	2,112	375	452
- By Product Sales (RMSQE)	4,843	7,758	5,458	4,244	7,431	9,575	3,612	6,488	4,138	15,841	6,041	3,294	4,931	2,028	10,927
TOTAL RMSQE (Litres)	110,234	240,100	131,397	85,325	144,162	250,422	90,810	189,133	251,711	409,850	120,435	237,002	161,217	149,623	106,336
COST PER LITRE (Cents) (RMSQE)	6.00	5.94	11.98	13.84	8.55	7.30	14.47	11.74	10.58	8.71	9.43	8.56	13.25	10.14	14.45
POTENTIAL DELIVERY FEE (\$)	764	1,476	1,092	842	1,383	2,303	593	1,560	1,716	2,730	939	1,529	2,246	936	1,365
COST PER LITRE (RMSQE) after delivery fee allowance (cents)	5.31	5.32	11.15	12.85	7.59	6.38	13.82	10.92	9.90	8.04	8.65	7.91	11.86	9.52	13.16

TABLE 3

Vendor Number	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
CASH COSTS (\$)	2,467	n.a.	3,155	5,243	2,336	1,518	4,686	10,101	5,426	3,836	4,474	2,255	3,186	4,653	2,170
IMPUTED INTEREST (\$)	921	2,062	1,140	1,219	1,102	1,229	1,471	1,343	959	1,901	1,478	926	726	1,419	1,285
IMPUTED LABOUR (\$)	13,486	22,635	12,766	12,655	15,308	9,544	16,971	12,489	10,705	22,622	23,836	9,294	10,853	8,642	16,501
TOTAL DISTRIBUTION COST (\$)	16,874	n.a.	17,061	19,117	18,746	12,291	23,128	23,933	17,090	28,359	29,788	12,475	14,765	14,714	19,956
LESS RECOVERY MARGIN															
- Wholesale Milk (\$)	1,724	5,242	-	1,274	1,924	1,411	2,695	277	43	-	787	3,877	2,260	2,033	2,653
- Wholesale Cream (\$)	48	392	-	94	45	75	55	18	-	-	46	65	102	58	112
TOTAL RECOVERY MARGIN (\$)	1,772	5,634	-	1,367	1,969	1,486	2,750	295	43	-	833	3,942	2,362	2,090	2,765
ALLOWABLE DISTRIBUTION COST (\$)	15,012	n.a.	17,061	17,750	16,777	10,805	20,378	23,638	17,047	28,359	28,955	8,533	12,403	12,624	17,191
RETAIL MILK QUANTITY															
- Milk Sales	103,316	195,183	135,286	185,574	153,036	94,032	170,829	207,035	143,844	271,325	195,617	59,262	85,155	171,642	129,920
- Cream Sales (RMSQE)	1,074	1,658	2,974	1,460	556	980	2,273	1,643	1,359	4,611	2,912	362	499	629	1,126
- By Product Sales (RMSQE)	10,243	13,638	14,358	6,736	10,188	2,774	12,747	6,387	3,088	11,367	3,269	5,177	4,319	9,727	3,266
TOTAL RMSQE (Litres)	114,633	210,479	152,618	193,770	163,780	97,786	185,849	215,065	148,292	287,303	201,798	64,801	89,973	181,998	134,311
COST PER LITRE (Cents) (RMSQE)	13.7	n.a.	11.18	9.16	10.24	11.05	10.96	10.99	11.50	9.87	14.35	13.17	13.79	6.94	12.80
POTENTIAL DELIVERY FEE (\$)	1,248	2,184	998	1,810	1,229	1,019	1,186	2,330	1,716	2,122	1,872	468	874	1,435	780
COST PER LITRE (RMSQE) after delivery fee allowance (cents)	12.09	n.a.	10.52	8.23	9.49	10.01	10.33	9.91	10.34	9.13	13.42	12.45	12.81	6.15	12.22

TABLE 3

Vendor Number	31	32	33	34	35	36	37	38	39	40	41	42	Average Sample
CASH COSTS (\$)	2,722	2,255	5,263	3,499	2,520	2,498	1,663	3,061	2,428	3,464	6,695	2,558	3,718
IMPUTED INTEREST (\$)	1,253	895	1,414	1,138	874	763	597	918	1,109	988	1,776	1,336	1,265
IMPUTED LABOUR (\$)	10,315	21,236	15,915	9,820	19,192	8,222	7,159	10,986	11,450	14,583	15,536	15,217	13,991
TOTAL DISTRIBUTION COST (\$)	14,290	24,386	22,592	14,457	22,586	11,483	9,419	14,964	14,987	19,035	24,006	19,111	18,974
LESS RECOVERY MARGIN													
- Wholesale Milk (\$)	739	548	984	7,145	2,368	185	1,505	1,152	1,657	5,776	6,976	511	1,981
- Wholesale Cream (\$)	28	7	61	273	-	-	115	78	20	21	60	-	67
TOTAL RECOVERY MARGIN (\$)	767	555	1,045	7,418	2,368	185	1,620	1,230	1,678	5,797	7,037	511	2,048
ALLOWABLE DISTRIBUTION COST(\$)	13,523	23,831	21,547	7,039	20,218	11,298	7,799	13,734	13,309	13,238	16,969	18,600	16,926
RETAIL MILK QUANTITY													
- Milk Sales	102,645	136,261	162,067	73,861	104,177	100,681	71,569	104,923	155,246	90,136	147,658	174,420	149,531
- Cream Sales (RMSQE)	1,825	1,085	3,194	3,332	1,580	600	379	3,959	533	5,568	1,289	1,864	1,683
- By Product Sales(RMSQE)	6,398	3,281	7,318	9,807	9,722	17,613	3,667	4,680	7,153	6,741	5,053	6,059	7,176
TOTAL RMSQE (Litres)	110,868	140,627	172,579	87,000	115,479	118,894	75,615	113,562	162,932	102,445	154,000	182,344	158,490
COST PER LITRE (Cents) (RMSQE)	12.20	16.95	12.49	8.09	17.51	9.50	10.31	12.09	8.17	12.92	11.02	10.20	10.67
POTENTIAL DELIVERY FEE (\$)	1,220	1,186	1,560	624	1,560	1,030	624	1,092	1,716	801	1,456	2,002	1,372
COST PER LITRE (RMSQE) after delivery fee allowance (cents)	11.10	16.10	11.58	7.37	16.16	8.64	9.49	11.13	7.12	12.14	10.07	9.10	9.81

70.

TABLE 4: Major Characteristics Analysed in Survey

Vendor Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. <u>RUN SIZE</u>															
(i) Retail Milk Equivalents (litres per week)	3,045	5,702	3,139	1,840	2,893	4,800	1,674	3,462	4,837	7,825	2,302	4,472	3,017	2,831	2,563
(ii) Total Quantity of Trade (litres milk equivalent/week)	4,726	7,911	4,466	2,423	3,534	5,388	1,791	3,597	5,125	8,694	2,598	4,543	3,231	2,873	4,042
2. <u>RETAIL PER CENT (TOTAL TRADE)</u>	44.6	57.3	54.8	65.7	77.1	88.0	96.5	100.0	94.0	89.5	88.1	100.0	94.6	100.0	48.6
3. <u>LABOUR CONTENT (Man-Hour equivalents/week)</u>	41.1	65.1	73.1	49.5	51.6	78.6	46.3	88.6	103.1	138.8	51.0	66.3	83.1	54.1	69.4
4. <u>APPARENT LABOUR EFFICIENCY (litres milk eq./man-hour eq.)</u>	115.0	121.5	61.1	49.0	68.5	68.6	38.7	40.6	49.7	62.6	50.9	68.5	38.9	53.1	58.2
5. <u>TOTAL COST/LITRE MILK EQUIVALENT (¢/l)</u>	4.99	5.17	8.45	10.59	7.68	6.94	14.24	11.87	10.24	8.24	8.85	8.58	12.89	10.16	9.29
6. <u>RUNS WITH WIFE PARTICIPATION</u>			wife					wife	wife				wife		
7. <u>ANNUAL GROSS REVENUE (\$) (including delivery fee)</u>	17,656	32,147	18,069	10,998	17,985	28,332	9,854	20,056	27,092	45,306	13,613	24,637	18,280	15,353	16,456

TABLE 4 (CONTINUED)

Vendor Number	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1. <u>RUN SIZE</u>															
(i) Retail Milk Equivalents (litres/week)	2,317	4,759	2,602	3,812	3,313	2,079	3,796	4,037	2,774	5,218	3,911	1,886	2,066	3,665	2,830
(ii) Total Quantity of Trade (litres milk equi- valent/week)	3,187	6,738	2,897	4,338	4,216	2,572	4,945	4,257	2,848	5,467	4,226	3,238	2,935	4,549	3,696
2. <u>RETAIL PER CENT</u> (Total Trade)	65.4	58.5	100.0	85.4	72.3	72.6	70.2	96.7	99.3	100.0	91.0	35.9	56.2	74.8	64.1
3. <u>LABOUR CONTENT</u> (Man-hour equi- valents/week)	55.8	113.3	59.1	69.1	67.3	35.3	93.6	91.2	67.6	107.3	121.0	42.6	53.3	50.5	73.6
4. <u>APPARENT LABOUR</u> <u>EFFICIENCY</u> (Man-hour equiva- lent)	57.1	59.5	49.0	62.8	62.6	72.9	52.8	46.7	42.1	51.0	34.9	76.0	55.1	90.1	50.2
5. <u>TOTAL COST/LITRE</u> <u>MILK EQUIVALENT</u> (¢/l)	10.18	n.a.	11.36	8.48	8.55	9.19	8.99	10.81	11.54	9.98	13.56	7.41	9.67	6.22	10.38
6. <u>RUNS WITH WIFE</u> <u>PARTICIPATION</u>		wife					wife				wife				
7. <u>ANNUAL GROSS</u> <u>REVENUE (\$)</u> (including delivery fee)	14,900	29,412	17,793	22,475	19,885	12,121	23,488	23,590	16,050	30,554	22,506	11,143	12,367	21,827	16,748

TABLE 4 (CONTINUED)

Vendor Number	31	32	33	34	35	36	37	38	39	40	41	42	Average Sample
1. <u>RUN SIZE</u>													
(i) Retail Milk Equivalents (litres/week)	2,118	2,746	3,307	2,777	2,443	1,972	1,662	2,238	3,293	2,853	4,183	3,457	3,250
(ii) Total Quantity of Trade (litres milk equivalent/ week)	2,555	3,007	3,772	5,196	3,495	2,380	2,243	2,714	4,043	4,821	6,389	3,740	4,034
2. <u>RETAIL PER CENT</u> (Total Trade)	80.4	89.0	86.8	29.2	59.2	95.5	62.7	78.0	75.0	37.8	45.0	93.0	75.5
3. <u>LABOUR CONTENT</u> (Man-hour equiva- lents/week)	49.6	98.6	89.6	54.3	87.1	36.8	34.0	52.0	50.5	68.9	82.4	68.5	69.8
4. <u>APPARENT LABOUR</u> <u>EFFICIENCY</u> (litres milk/man- hour equivalent)	51.5	30.5	42.1	95.7	40.1	64.7	66.0	52.2	80.1	70.0	77.5	54.6	60.3
5. <u>TOTAL COST/LITRE</u> <u>MILK EQUIVALENT</u> (¢/l)	107.6	15.60	11.52	5.35	12.43	9.28	8.08	10.60	7.13	7.59	7.23	9.83	9.51
6. <u>RUNS WITH WIFE</u> <u>PARTICIPATION</u>		wife	wife		wife								
7. <u>ANNUAL GROSS</u> <u>REVENUE</u> (including delivery fee)	13,162	15,445	19,602	17,407	15,889	15,149	9,810	13,533	19,931	17,024	23,685	21,368	19,350

Approved Wholesale and Maximum Retail Prices for Milk and Cream Effective from Friday, 19th December, 1975

APPENDIX 3

Area of Application

ALL MILK DISTRIBUTING DISTRICTS

Except Queanbeyan, Murray and Tweed Heads Districts

WHOLESALE PRICES**MILK**

	Vehicle Vendors Rate per Litre cents	Shop Vendors Rate per Litre cents
Bulk or in sachets of 1 litre or more	28.50	32.30
600 ml bottles or sachets	28.75	32.58
300 ml bottles or sachets	32.50	36.83
2 litre cartons	30.38	34.43
1 litre cartons	30.75	34.85
600 ml cartons	31.25	35.41
300 ml cartons	35.00	39.66

CREAM

	Vehicle Vendors Rate per Litre \$	Shop Vendors			Quantity exceeding 45 litres Rate per Litre \$
		Quantity not exceeding 4 litres Rate per Litre \$	Quantity exceeding 4 litres but not exceeding 20 litres Rate per Litre \$	Quantity exceeding 20 litres but not exceeding 45 litres Rate per Litre \$	Quantity exceeding 45 litres Rate per Litre \$
Bulk	1.19	1.30	1.29	1.27	1.26
600 ml containers	1.21	1.32	1.31	1.29	1.28
300 ml containers	1.22	1.33	1.32	1.30	1.29
200 ml containers	1.23	1.34	1.33	1.31	1.30

MAXIMUM RETAIL PRICES

(i) Supplies to or for Hospitals and similar institutions, to or for the Armed Services and to or for National Fitness Camps—

MILK

Delivery on any one day

	4 to 45 litres Max. Rate per litre cents	Exceeding 45 litres but not exceeding 450 litres		Exceeding 450 litres	
		First 45 litres Max. Rate \$	Each Add. litre Max. Rate per litre cents	First 450 litres Max. Rate \$	Each Add. litre Max. Rate per litre cents
Bulk or in sachets of 1 litre or more	32.30	14.54	31.75	143.13	31.20
600 ml bottles or sachets	32.58	14.67	32.03	144.40	31.48
300 ml bottles or sachets	36.83	16.58	36.28	163.52	35.73
2 litre cartons	34.43	15.50	33.88	152.72	33.33
1 litre cartons	34.85	15.69	34.30	154.61	33.75
600 ml cartons	35.41	15.94	34.86	157.13	34.31
300 ml cartons	39.66	17.85	39.11	176.25	38.56

(ii) Supplies through automatically operated Milk Vending Machines—

MILK

	Maximum Price
In 600 ml cartons	26 cents per carton
In 300 ml cartons	15 cents per carton

(iii) Supplies to retail outlets other than elsewhere specified. In respect of quantities exceeding nine litres—

MILK

	Deliveries in quantities exceeding 9 litres on at least 5 days of a week ending on a Thursday Max. Rate per Litre cents	Other deliveries in quantities exceeding 9 litres Max. Rate per Litre cents
	Bulk or in sachets of 1 litre or more	32.30
600 ml bottles or sachets	32.58	38.33
300 ml bottles or sachets	36.83	43.33
2 litre cartons	34.43	40.50
1 litre cartons	34.85	41.00
600 ml cartons	35.41	41.67
300 ml cartons	39.66	46.67

CREAM

	Deliveries in quantities exceeding 9 litres on at least 5 days of a week ending on a Thursday Max. Rate per Litre cents	Other deliveries in quantities exceeding 9 litres Max. Rate per Litre cents
Bulk	129.00	150.00
600 ml containers	131.00	150.00
300 ml containers	132.00	153.00
200 ml containers	133.00	155.00

(iv) Supplies to retail outlets other than elsewhere specified. In respect of quantities of nine litres or less—

MILK

Number of Containers	600 ml bottles or sachets Max. price cents	600 ml cartons Max. price cents	1 litre cartons Max. price cents	2 litre cartons Max. price cents	1 litre sachets Max. price cents
1	23	25	41	81	38
2	46	50	82	162	76
3	69	75	123	243	114
4	92	100	164	324	152
5	115	125	205		190
6	138	150	246		228
7	161	175	287		266
8	184	200	328		304
9	207	225	369		342
10	230	250			
11	253	275			
12	276	300			
13	299	325			
14	322	350			
15	345	375			

300 ml bottles or sachets Max. Price 13 cents per unit
300 ml cartons Max. Price 14 cents per unit
Bulk Max. Price 38 cents per litre

CREAM

	Max. Price cents
600 ml containers	90
300 ml containers	46
200 ml containers	31

Bulk maximum price—\$1.50 per litre.

(v) Charge for delivery by Vehicle Vendors—

PROVIDED THAT IN RESPECT OF MILK AND/OR CREAM DELIVERED TO PURCHASERS' PREMISES BY VEHICLE VENDORS, THE TOTAL MAXIMUM PRICE PAYABLE IN RESPECT OF EACH COMPLETE DELIVERY OF MILK AND CREAM IN ACCORDANCE WITH SUB-SECTION (iv) BUT NO OTHER SUB-SECTION OF THIS NOTICE SHALL BE INCREASED BY 1 CENT.

ANY PERSON WHO SELLS MILK OR CREAM BY RETAIL AT A PRICE EXCEEDING THE MAXIMUM PRICE NOTIFIED OR MILK BY WHOLESALE AT A PRICE OTHER THAN THE PRICE NOTIFIED IS GUILTY OF AN OFFENCE AGAINST THE DAIRY INDUSTRY AUTHORITY ACT.

APPENDIX 4ZONE 5 CHARACTERISTICS

Zone 5 consists of sixteen vendors (1.1 per cent of the population) who could not be allocated to a particular area or regarding whom insufficient information was able to be obtained. The majority of vendors in this category are wholesalers serving factories or ships. The high wholesale component of these vendors is evidenced by the fact that their average bottle sale percentage is 15.1 per cent.

Base Product Sales for this zone amount to \$45,429 or an average of \$2,839 per vendor per week. Eleven of the sixteen vendors had in excess of \$2,000 B.P.S. per week. Vendors in this zone are on average significantly larger than the remainder of the population. Exclusion of these large wholesale vendors from the study thus has little effect on the survey of average retail vendors in the Sydney Metropolitan Area.