# AN ECONOMIC STUDY OF

# VEHICLE MILK VENDORS

# IN THE SYDNEY METROPOLITAN AREA

# 1975–76

J. F. MARTIN

K. J. MUNRO

MISCELLANEOUS BULLETIN 27

Division of Marketing and Economics

NEW SOUTH WALES DEPARTMENT OF AGRICULTURE

AN ECONOMIC STUDY OF VEHICLE MILK VENDORS

IN THE SYDNEY METROPOLITAN AREA

1975-76

J.F. MARTIN

K.J. MUNRO

## PREFACE

Under the <u>Dairy Industry Authority Act, 1970</u>, 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

LIST OF TABLES                                              Page

## LIST OF FIGURES

# 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 outlets[1]. 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 <u>vehicle milk vendors</u>.  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 <u>run</u>).  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 <u>goodwill value</u> 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 <u>vendor's margin</u>) 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.

<u>Zone</u>

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

<u>ZONAL CLASSIFICATION OF VENDORS' RUNS</u>

| 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 |

<u>Source</u>: 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    <u>RESULTS</u>

<u>Basic Characteristics</u>

(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 <u>potential retail value</u> 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 <u>estimated retail value</u> of sales
by vehicle vendors is <u>not</u> equivalent to the <u>gross value</u> 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 <u>purchase price</u> for milk. In the next section
of the report where survey results are analysed, the conversion
to <u>retail milk equivalents</u> is based on the vendor's margins[3].

The purpose of this present conversion method is to give readers an
indication of what B.P.S. means in terms of milk quantities[4].

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

| % BOTTLE SALES | No  OF VENDORS |
|:---:|:---:|
| 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 PROPORTION[5]

| % BOTTLE SALES | TYPE | CLASSIFICATION | % OF VENDORS |
|:---:|:---:|:---:|:---:|
| 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



| Group | B.P.S. ($) |
|-------|-------------|
| A | 0 — 750 |
| B | 751 — 1500 |
| C | 1501 — 2000 |
| D | 2000 + |

Number of Vendors

Percentage Bottle Sales
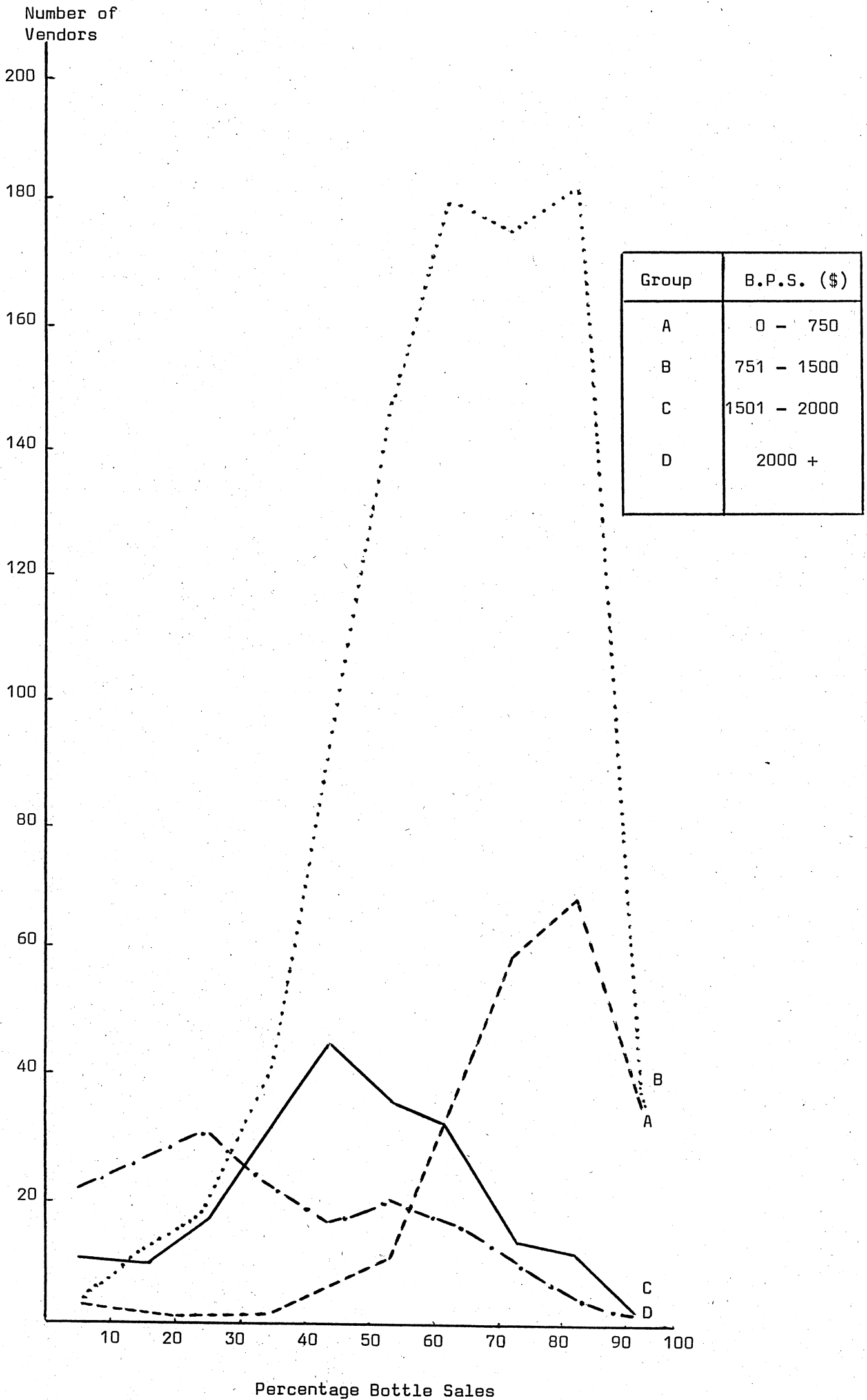
# FIGURE 2

## RELATIVE PROPORTION OF RETAIL: WHOLESALE TRADE X RUN SIZE



Vendor Classification
- W : Wholesale
- LR: Low Retail
- MR: Medium Retail
- HR: High Retail
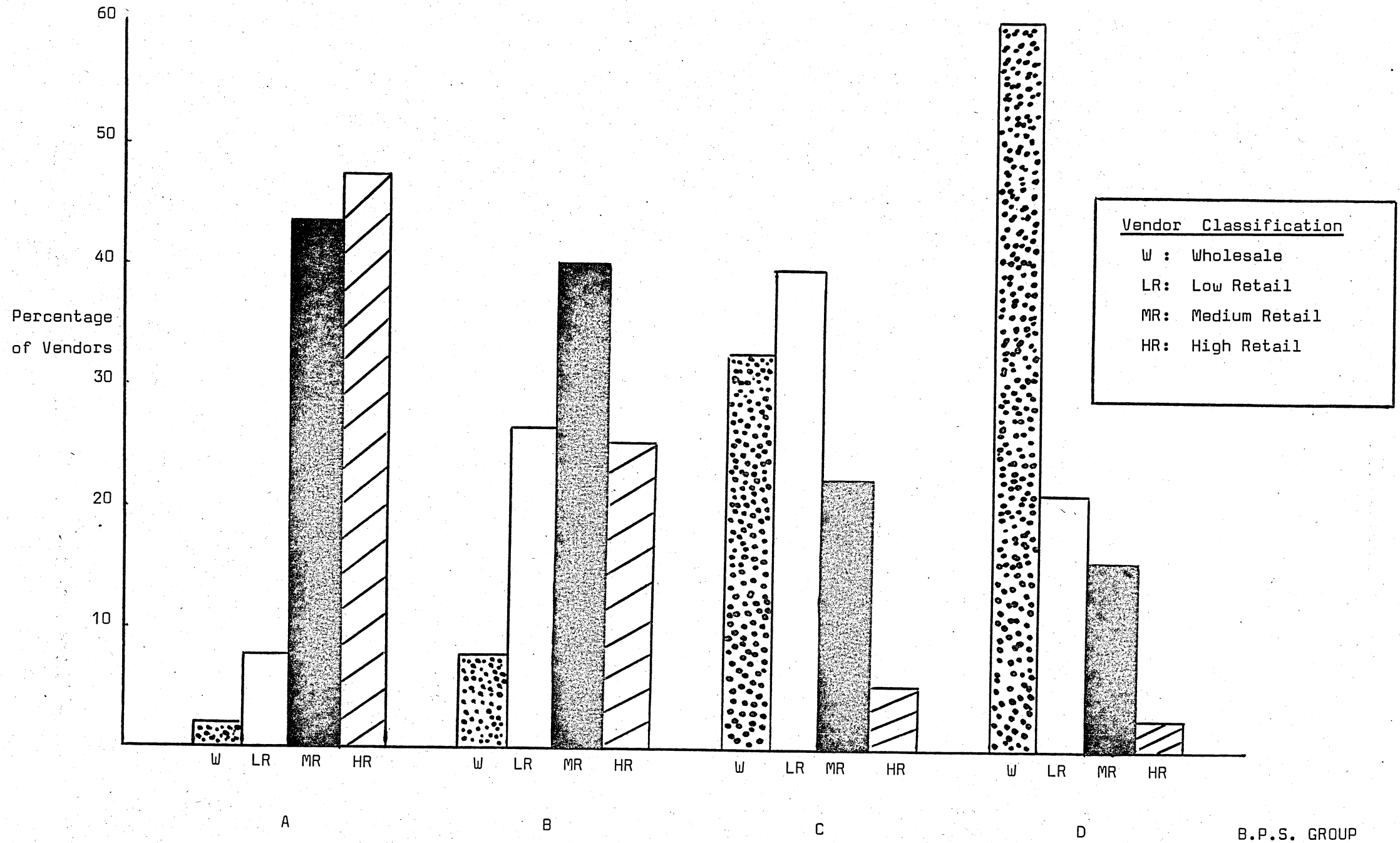
B.P.S. GROUP

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 <u>size</u> of run and zone indicated
no significant difference between zones.  In terms of <u>type</u> 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

<u>Group A ($0-$750 B.P.S.):   Small Run Size</u>

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.

<u>Group B ($751-$1500 B.P.S.):   Average Run Size</u>

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.

<u>Group C ($1501-$2000):  Above-Average Run Size</u>

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  PROCEDURE

### 3.1  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. | 0.3 | 4.6 | 4.4 | 6.9 | 16.2 |
| | (sample) | (- ) | (2.4) | (2.4) | (- ) | ( 4.8) |
| 40 - 60 | popn. | 1.1 | 16.1 | 5.4 | 2.3 | 24.9 |
| | (sample) | (- ) | (23.8) | (- ) | (2.4) | (26.2) |
| 60 - 80 | popn. | 6.5 | 24.3 | 3.0 | 1.8 | 35.6 |
| | (sample) | (4.8) | (26.2) | (9.5) | (2.4) | (42.9) |
| 80 - 100 | popn. | 7.0 | 15.2 | 0.8 | 0.3 | 23.3 |
| | (sample) | (- ) | (23.8) | (2.4) | (- ) | (26.2) |
| TOTAL: | popn. | 14.9 | 60.2 | 13.6 | 11.3 | 100.0 |
| | (sample) | (4.8) | (76.2) | (14.3) | (4.8) | (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 Equivalents
>
> 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 Equivalents.

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 equivalents (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

Number of Vendors
  in Sample



RETAIL SALES PROPORTION (%)
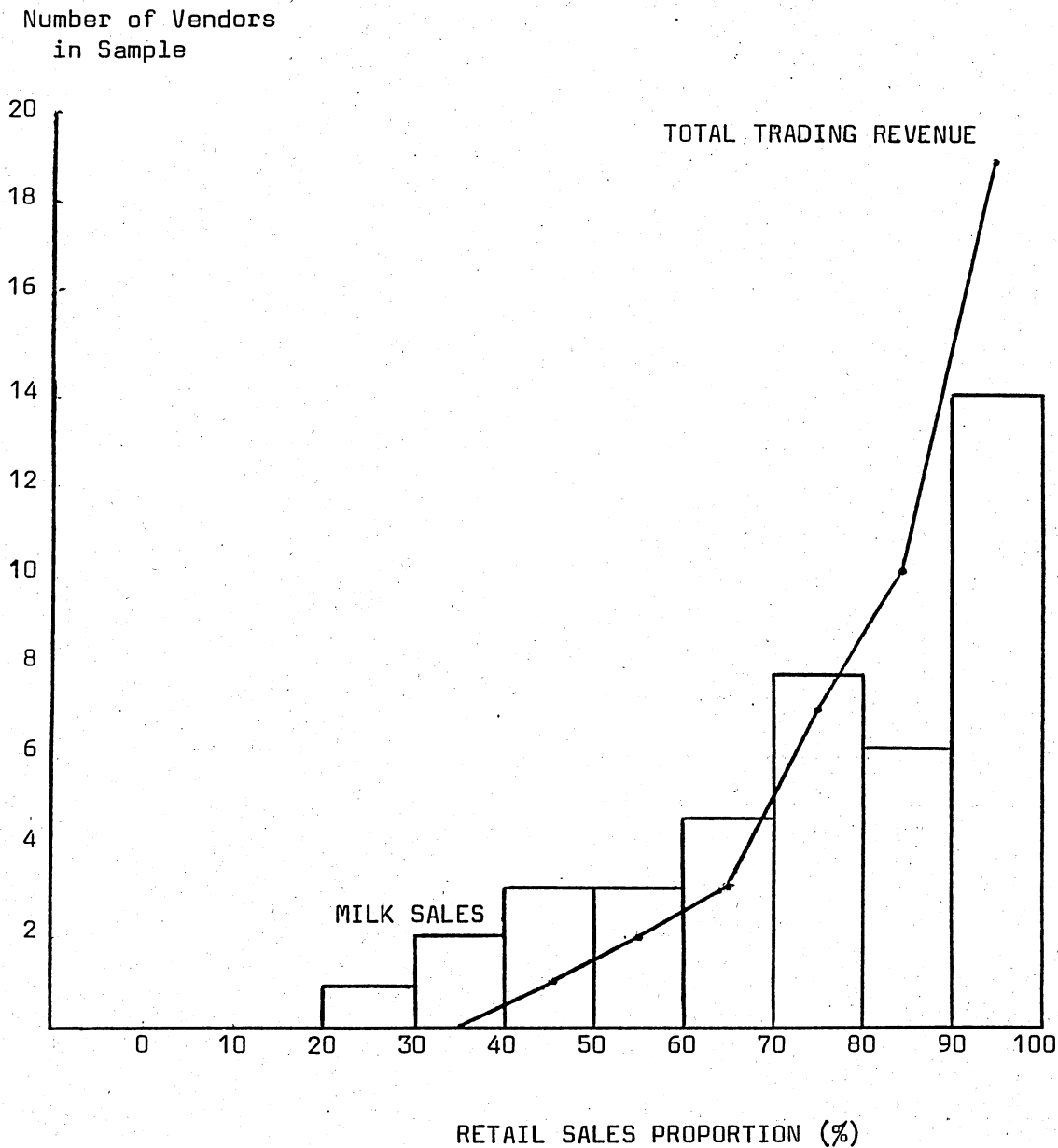
    The above result is based on <u>quantities</u> of milk sold.  The histogram presented in Graph III also presents the distribution of retail percentages of the vendors surveyed on the basis of the <u>value</u> of milk and products sold.  It can be seen that almost all vendors surveyed obtain more than 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
equivalents[8] 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



Number of Vendors (vertical axis); Man-hour Equivalents per week (horizontal axis)
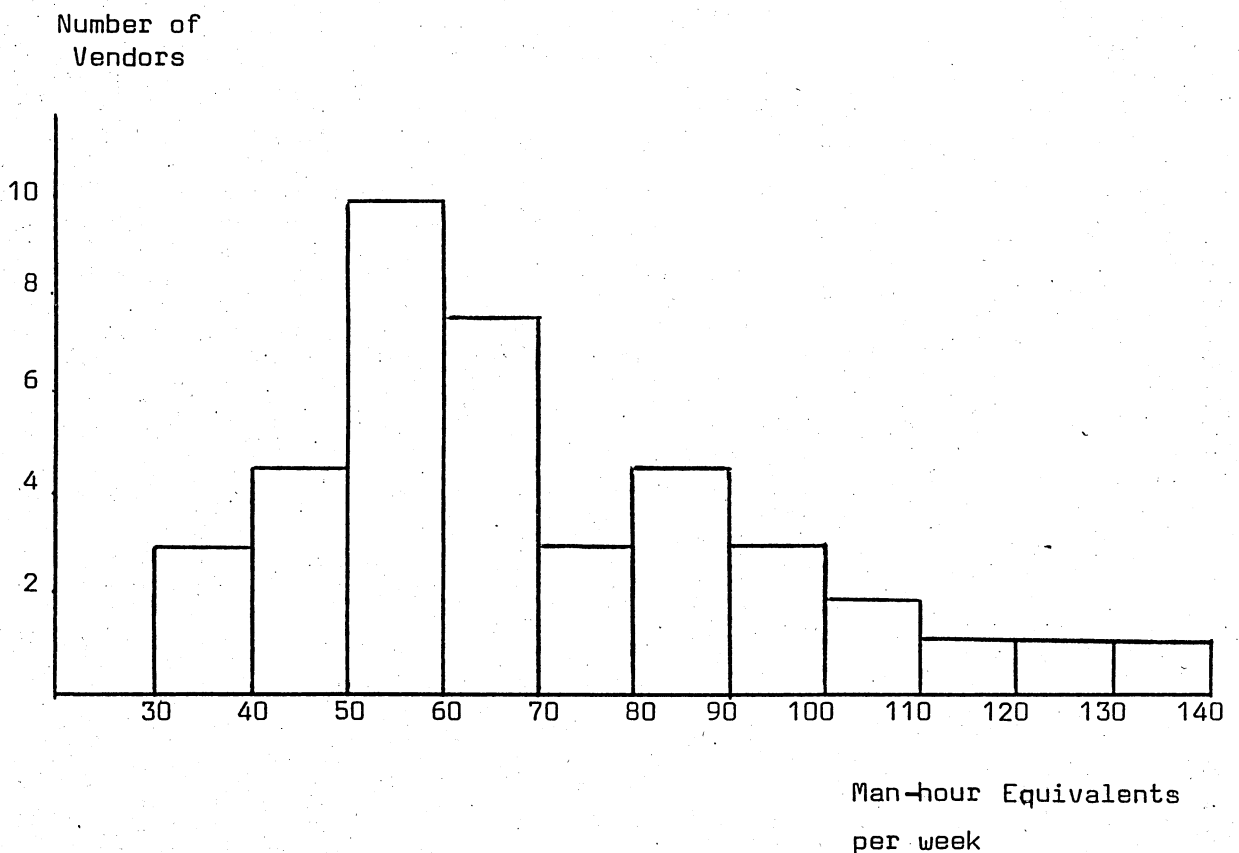
  This graph does not provide any indication of the efficiency of
labour utilization. Because of this factor and the degree of subjectivity
involved in collecting labour data on milk runs, considerable care must be
taken in the interpretation of survey results relating to labour. In this
survey, interpretation 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 | 13,991 | 8.83 |
| Total Distribution Cost | 18,974 | 11.97 |
| Less:   Recovery Margin from wholesale sales | 2,048 | 1.29 |
| Allowable Distribution Cost | 16,926 | 10.68 |
| Less:   Potential Delivery Fee | 1,372 | 0.87 |
| Allowable Distribution Cost (After delivery fee deducted) | 15,554 | 9.81 |
| Retail Milk Sales Quantity Equivalent (litres) | | |
| - Milk | 149,631 | |
| - Cream (RMSQE) | 1,683 | |
| - By-products (RMSQE) | 7,176 | |
| Total RMSQE (litres) | 158,490 | |

## 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:

| Litres of Milk (including flavoured milk) sold to Retail Outlets | Litres of Milk Equivalent of Cream sold to Retail Outlets | Litres of Retail Milk Equivalents of all by-products sold |
|---|---|---|
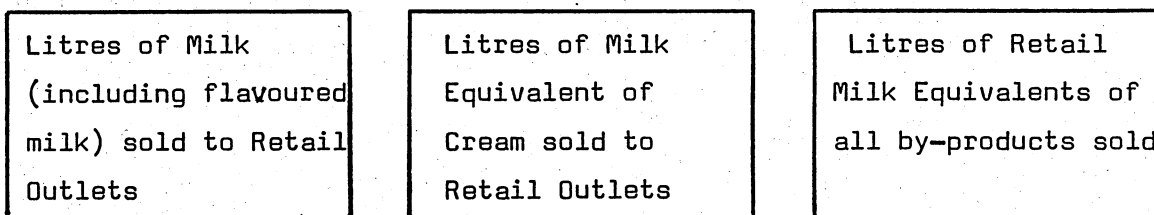
The milk equivalent of cream sold to retail outlets is defined as:

$$\frac{\text{Retail Margin for Cream}}{\text{Retail Margin for Milk}} \times \text{Quantity of Retail Sales of Cream}$$
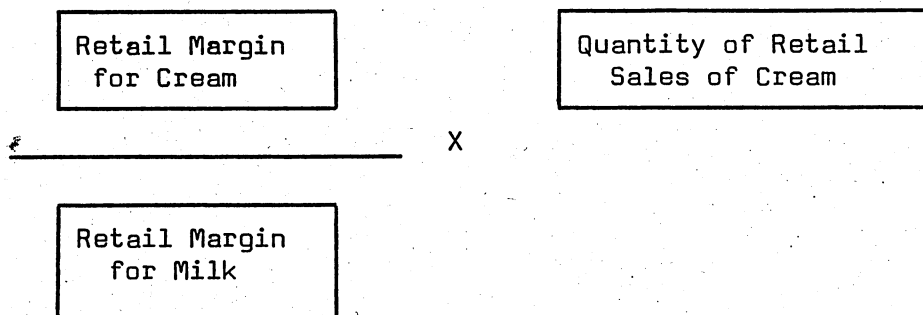
The retail milk equivalent of all by-products sold by the vendor
was calculated by firstly converting all by-products into an equivalent
size and type of milk container. For example, a 600 ml. carton of dairy
custard was assumed to be equivalent to a 600 ml. carton of milk.
Similarly, a 250 g carton 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:

| Milk quantity equivalent of by-products sold to retail outlets | + | Milk quantity equivalent of by-products sold to whole-sale outlets divided by 2.5 |
|---|---|---|
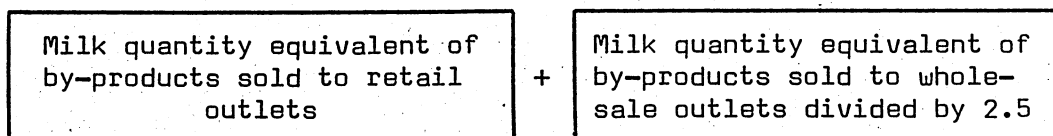
The factor of 2.5 used above is the ratio of the retail margin to
the wholesale margin for milk. This factor allows the conversion of milk
sold at wholesale margins into an equivalent volume of milk sold at retail
margins. That is, a vendor would need to sell 2.5 times the volume of
wholesale milk to 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).
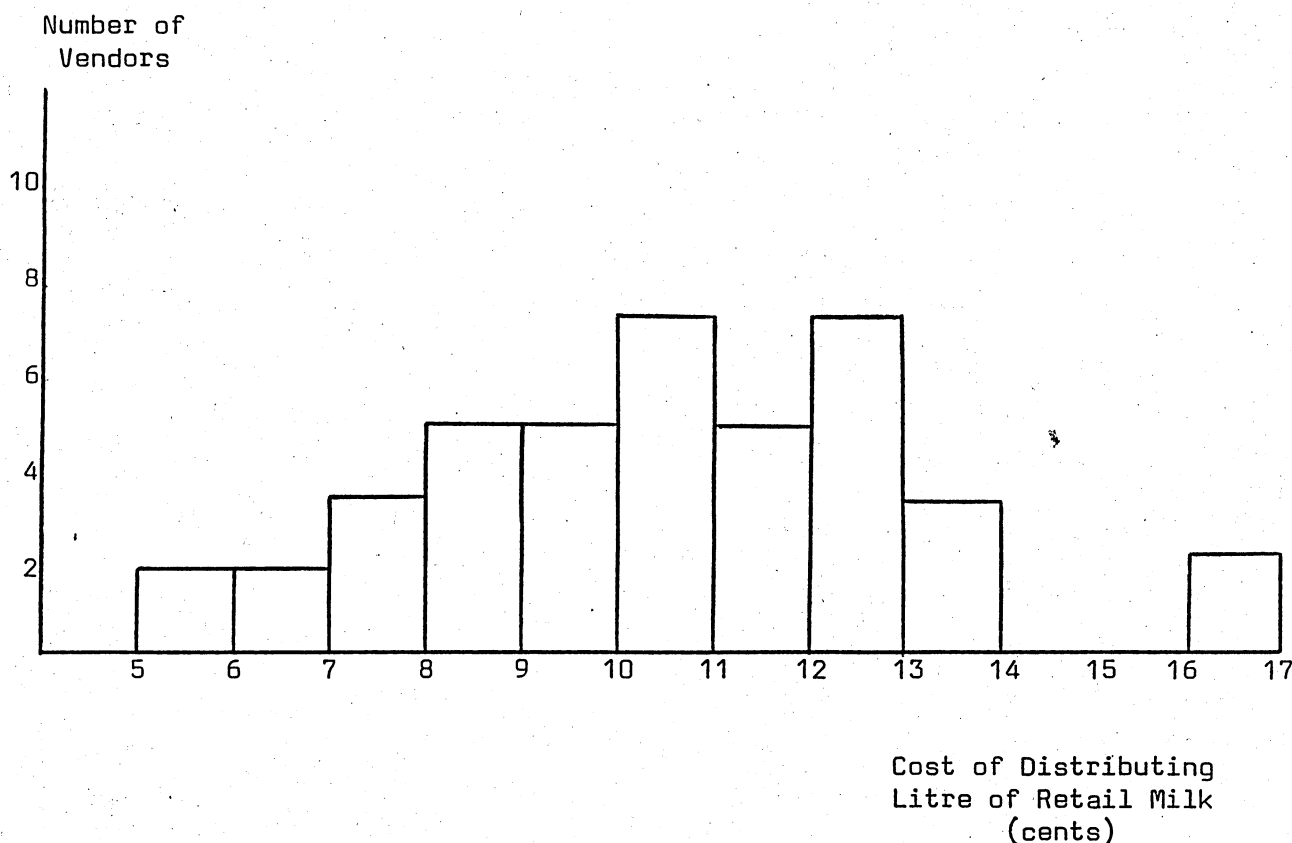


Figure 5 reveals a considerable range in average unit costs from a low of 5c - 6c per litre up to a high of 16c - 17c per litre. In addition, there is no concentration of vendors at any particular average unit cost level. In fact, an even distribution of vendors between the cost categories of 8c - 9c 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. | CASH COSTS |  |  |  |
|  | 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 |
|  | TOTAL CASH COSTS |  | 3,718 | 19.61 |
| B. | IMPUTED LABOUR |  |  |  |
|  | 1. | Vendor's labour | 9,741 | 51.34 |
|  | 2. | Other Vending Labour | 2,323 | 12.24 |
|  | 3. | Clerical | 1,927 | 10.16 |
|  | TOTAL LABOUR |  | 13,991 | 73.74 |
| C. | IMPUTED INTEREST |  |  |  |
|  | 1. | Tangible Assets + Working Capital | 402 | 2.12 |
|  | 2. | Goodwill | 863 | 4.55 |
|  | TOTAL INTEREST |  | 1,265 | 6.67 |
| D. | TOTAL COSTS |  | 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 <u>labour</u> and <u>non-labour</u> 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.

<div align="center">

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 |

</div>

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 compactness[9] 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 milk[10], 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 labour[11] 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 vendors[12] 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:

$$Y = 19.8202 - 0.1814^{**} X \qquad R^2 = 0.86$$
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 (1/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
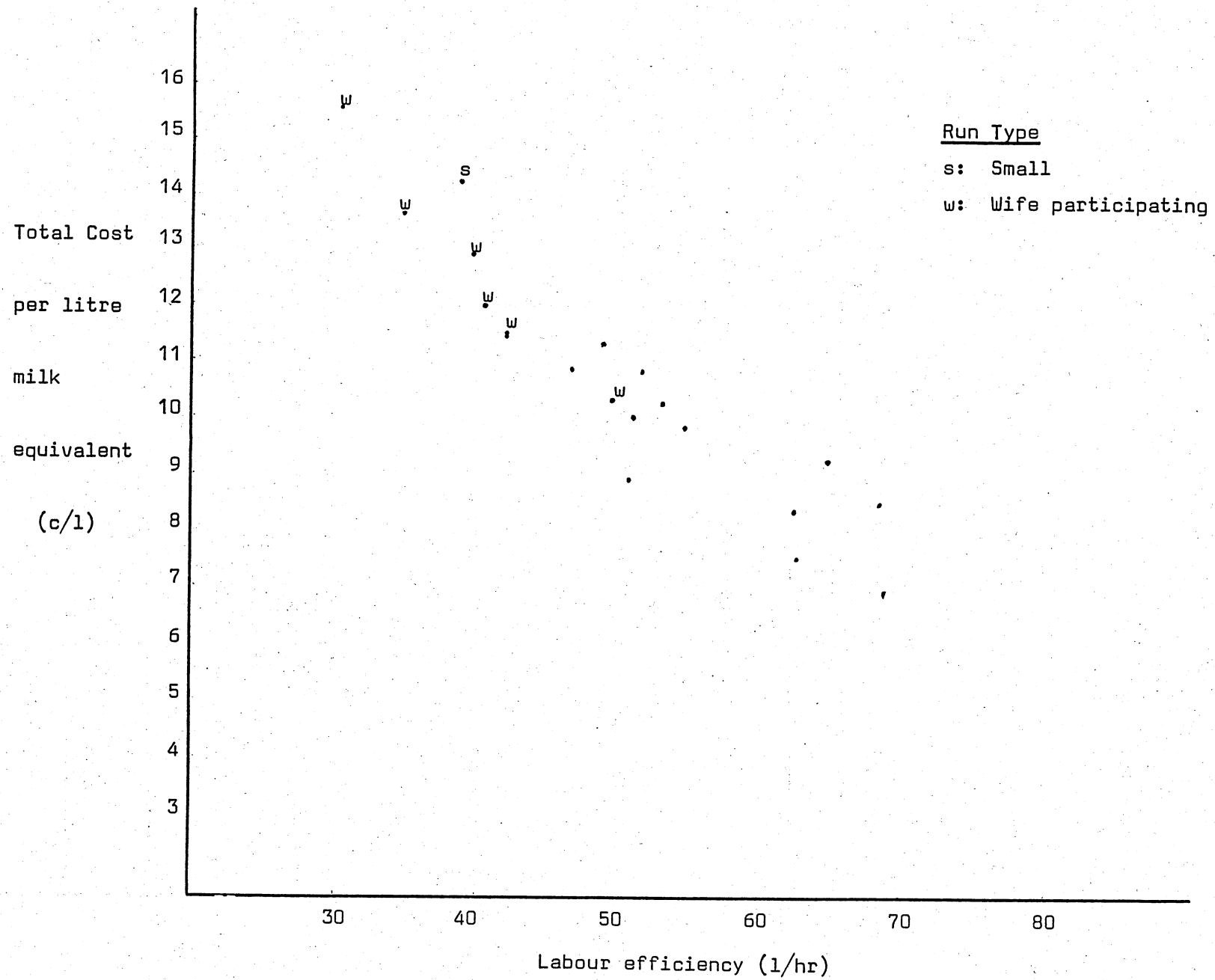
### Equation 2:

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

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

Total
Cost
per
litre
milk
equiva-
lent
c/l.

Cost per litre RMSQE

c/l.
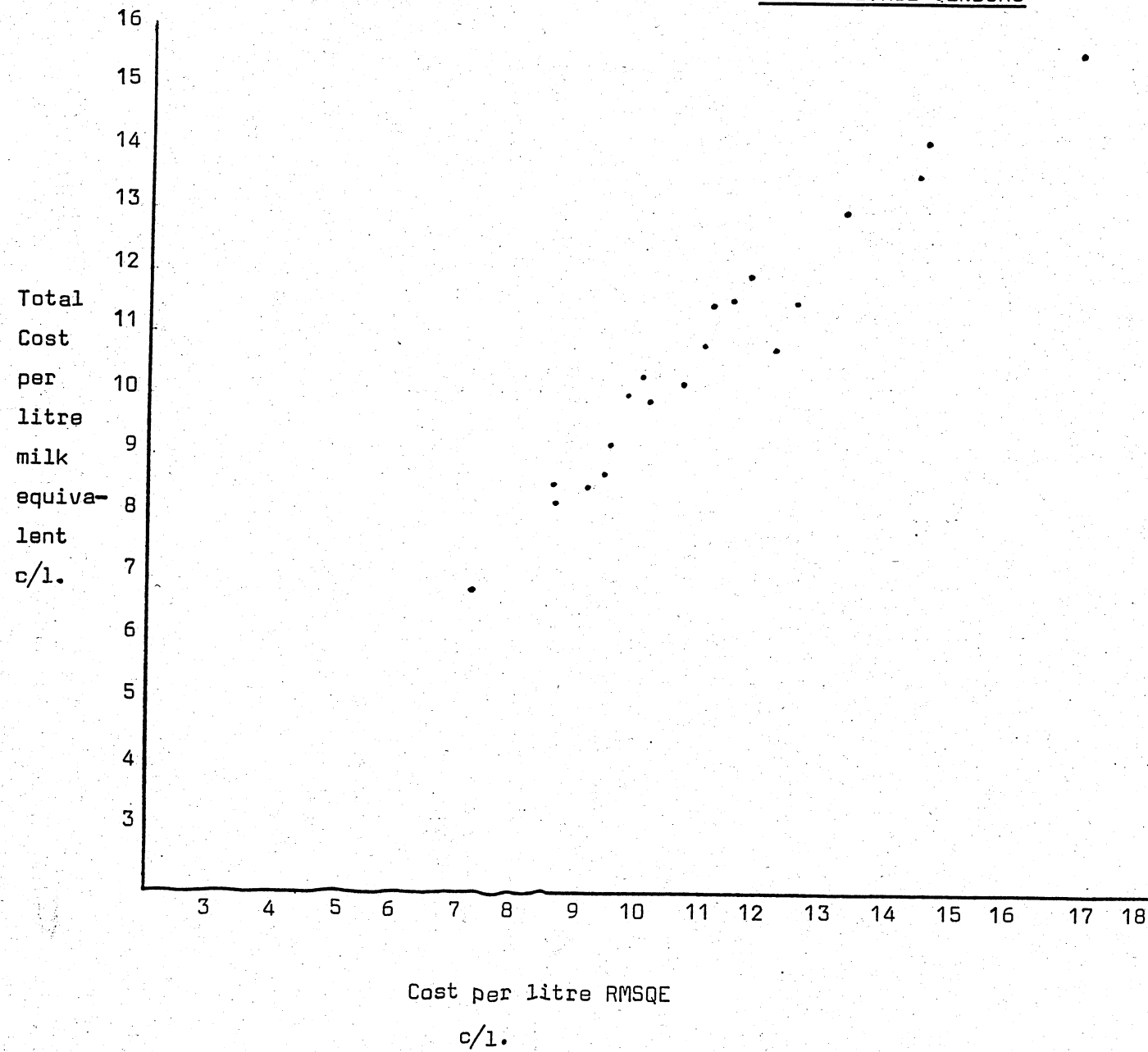
Equation 3:

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

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.

Equation 1:   $Y = 19.8202 - 0.1814 X$

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 distri-
bution and labour efficiency for fully-retail vendors provides the opportu-
nity 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:

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

Where:

Total cost of distribution per man-hour equivalent = (Current Labour Cost per Man-hour Equivalent) x $\dfrac{100.0}{\text{Percentage Labour Costs form of Total Costs.}}$

= $./man-hour equivalent

Desired Labour Efficiency = No. of litres of retail milk delivered/man-hour equivalent of labour.

= litres/hour.

Example:

Desired Labour Efficiency = 50 litres/man-hour equivalent

Current Labour Cost = $4.13 per man-hour equivalent

Percentage labour costs form of total costs = 79.0%

Therefore:

Total Cost of Distribution per man-hour equivalent = $\dfrac{100.0}{79.0}$ x 4.13

= $5.23

Cost of Distribution c/per litre = $\dfrac{\$5.23}{50}$ x $\dfrac{100}{1}$

= 10.46c/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 incorpora-
ting 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

|  | Survey Average |
|---|---|
| Average labour cost per man-hour equivalent | $4.13 |
| $\dfrac{\$14,992}{52} \times \dfrac{1}{69.8}$ |  |
| Average labour component of cost of distri-bution | 79.0% |
| Average total cost of distribution per man-hour equivalent | $5.23 |
| $\dfrac{\$4.13}{1} \times \dfrac{100}{79.0}$ |  |
| 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 |
| $\dfrac{\$5.23}{10.68c} \times \dfrac{100}{1}$ |  |

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

|  | 1973 Survey | 1976 Survey |
|---|---|---|
|  | % | % |
| 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 |
| TOTAL COST | 100.01 | 100.02 |

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 INCOME

### 5.1   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 21

### AVERAGE INCOME STRUCTURE FOR THE 1975/76 FINANCIAL YEAR

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

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 22

### DISTRIBUTION 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 cost[14] 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 partner-
ship 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 collec-
tion 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 2½% 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 Equivalent quantity based on average B.P.S. (l/week) | Milk equivalent quantity determined from Survey (l/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 1

## DEFINITION AND TREATMENT OF SURVEY DATA

### 1. 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 $1\frac{1}{2}$ 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  : $  977
          $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 ($22\frac{1}{2}$% p.a.) | 1,247 | 967 | 749 |
| Total: | 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 ($) |
|---|---|---|---|
| Petrol<br>30 km/gal. (18 mpg)<br>551 gals. @ 73c/gal. | 402.23 | 402.23 | 402.23 |
| Oil<br>Change 20 pints (allowing 1<br>  filter change) @ $0.50/pint. | 10.00 | 10.00 | 10.00 |
| Running Consumption  10 pints. | 5.00 | 5.00 | 5.00 |
| Service and Replacements<br>Servicing mechanical repairs,<br>  oil and air filters &<br>  incidental items. | 61.48 | 511.52 | 340.39 |
| Total | 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:-

| Distance Travelled (km) | Running Cost/km (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

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

Comparative Standing Costs (Continued)

| Year 1 | Holden 1 tonne ($) | Toyota Stout 1½ tonnes ($) | Toyota Dina 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 |
| | 6,148 | 6,049 | 6,455 |
| Depreciated Value (@22½%) | 4,296 | 4,197 | 4,481 |
| TOTAL | 1,852 | 1,852 | 1,974 |

| Year 2 | | | |
|---|---|---|---|
| Third Party Ins. & Registration | 147 | 169 | 190 |
| Comprehensive Insurance | 257 | 267 | 277 |
| Depreciation | 967 | 944 | 1,008 |
| TOTAL | 1,371 | 1,380 | 1,475 |

| Year 3 | | | |
|---|---|---|---|
| Third Party Ins. & Registration | 147 | 169 | 190 |
| Comprehensive Insurance | 257 | 267 | 277 |
| Depreciation | 749 | 732 | 781 |
| TOTAL | 1,153 | 1,168 | 1,248 |

| Year 4 | | | |
|---|---|---|---|
| Comprehensive/3rd Party./ Registration | 404 | 436 | 467 |
| Depreciation | 581 | 567 | 606 |

| Year 5 | | | |
|---|---|---|---|
| Comprehensive/3rd Party/ Registration | 404 | 436 | 467 |
| Depreciation | 450 | 440 | 469 |

| Years 1-5 | | | |
|---|---|---|---|
| TOTAL | $6,215 | $6,279 | $6,706 |
| Average/Year | $1,243 | $1,256 | $1,341 |

## 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 $1\frac{1}{2}$ 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) where used as a base. The running costs were then increased by 12.5% for $1\frac{1}{2}$ 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) <u>Penalty time</u>  –  11/4 time ordinary hourly rate Mondays to Saturdays

                     –  2 time ordinary hourly rate on Sundays.

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

(a) <u>Hours Worked Per Week</u>

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

(b) <u>Vehicle Vendor Wage Rates</u>

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

(c) <u>Permanent Assistant – Wage Rates</u>

Providing time worked over <u>6 shifts</u> amounts to <u>40 hours per week</u> <u>or more</u>, provisions and rates applicable to <u>milk carters on round</u> shall apply to adult permanent assistants. Those applicable to <u>Milk Carters</u> <u>Assistants and Boys on Round</u> 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) <u>Overtime Entitlements</u>

Monday to Friday – in excess of 8 hours worked <u>daily</u>

Saturday and Sunday – in excess of 6 hours worked with <u>maximum</u>
                                 <u>allowable time</u> of 8 hours on each day.

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

(e) <u>Overtime Rates</u>

Monday to Friday – 1½ 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 <u>maximum payable</u> on
                        overtime rates of <u>2 hours</u> for each day.

Weekly – 1½ time for first three hours worked in excess of
            forty <u>ordinary hours</u> for week (after excluding daily
            overtime hours worked) and 2 time thereafter.

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

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

assistant should be regarded as an <u>overtime shift</u> 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 <u>seventh shift</u> should be paid for at 2 times the ordinary rate.

(g)  <u>Public Holidays - Vehicle Vendors and Permanent Assistants</u>

In determining entitlements for vehicle vendors and permanent assistants with respect to public holidays, <u>daily hours to be taken into account</u> shall relate to the <u>number of days worked</u> during a normal week. That is, where a normal week consists of <u>5 shifts or less</u>, 8 hours per day should be taken into account.  Where the normal week consists of <u>6 shifts</u> or more, 6⅔ hours per day should be taken into account.

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

Where total weekly time worked by a <u>vehicle vendor</u> over <u>6 shifts</u> is <u>less than 40 hours</u> 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 <u>actual hours WORKED per week</u> 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 <u>a full 12 months entitlement.</u>

(i)  <u>Vendor's Wife</u>

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)  <u>Actual Labour Rates to be Adhered to -</u>

(a)  <u>Milk Carter on Rounds - Award Rates</u>

| | Per Week | Ord.Time<br>Per Hour | 11/4 Time | 1½ Time | Double<br>Time |
|---|---|---|---|---|---|
| | $ | $ | $ | $ | $ |
| Vehicle Vendor and<br>Adult Assistant | 145.50 | 3.6375 | 4.5469 | 5.4563 | 7.2750 |

(b)  <u>Milk Carters' Assistants and Boys on Cart - Award Rates</u>

| | Per Week | Ord.Time Per Hour | 11/4 Time | 1½ Time | Double Time |
|---|---|---|---|---|---|
| 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) <u>Tangible Assets</u> - 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) <u>Working Capital</u> - 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) <u>Goodwill</u> - 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:

ADC = Total Distribution Cost - 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:-

RMSQE = Litres of milk sold to retail outlets + litres of milk equivalent of cream sold to retail outlets + 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 <u>wholesale margin</u>.

## 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:-

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

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 | 26 |
| 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 |
| HIRED 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 |

TABLE 1

| Vendor Number | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1. CASH COSTS** | | | | | | | | | | | | | | | | | | |
| 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 |
| Banking | 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. IMPUTED LABOUR** | | | | | | | | | | | | | | | | | | |
| 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. IMPUTED INTEREST** | | | | | | | | | | | | | | | | | | |
| 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. CASH COSTS** | | | | | | | |
| 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. IMPUTED LABOUR** | | | | | | | |
| 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. IMPUTED INTEREST** | | | | | | | |
| 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 |

64.

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. MILK SALES (Litres)** | | | | | | | | | | | | | | | |
| – 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. CREAM SALES (Litre)** | | | | | | | | | | | | | | | |
| – 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. BY-PRODUCT SALES** | | | | | | | | | | | | | | | |
| – 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. WEEKLY LABOUR (HRS)** | | | | | | | | | | | | | | | |
| – Vendor | 27.0 | 48.2 | 35.5 | 38.5 | 31.0 | 34.5 | 39.0 | 35.0 | 41.8 | 38.8 | 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 | 16.8 | 11.1 | 9.2 | 10.8 |
| – 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. MILK SALES (Litres)** | | | | | | | | | | | | | | | |
| – 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 | 129,920 |
| – 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. CREAM SALES (Litre)** | | | | | | | | | | | | | | | |
| – Retail | 372 | 573 | 1,025 | 503 | 192 | 339 | 785 | 568 | 470 | 1,593 | 1,006 | 125 | 172 | 218 | 389 |
| – 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. BY-PRODUCT SALES** | | | | | | | | | | | | | | | |
| – 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. WEEKLY LABOUR (HRS)** | | | | | | | | | | | | | | | |
| – 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 | 58.8 |
| – Family | — | 40.9 | — | — | 7.7 | — | 19.7 | — | — | 46.3 | 46.5 | — | — | — | — |
| – Clerical | 5.9 | 17.5 | 8.3 | 11.0 | 13.6 | 5.0 | 13.1 | 14.2 | 10.1 | 18.6 | 19.0 | — | 11.0 | 8.3 | 4.5 |
| – Paid Labour | — | 7.0 | 4.5 | 23.5 | — | — | 30.0 | 36.5 | 18.0 | — | 8.0 | 9.1 | 6.0 | 19.0 | 12.5 |
| 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. MILK SALES (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. CREAM SALES (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. BY-PRODUCT SALES** | | | | | | | | | | | | | |
| – Retail | 3,566 | 3,232 | 7,109 | 4,856 | 2,968 | 17,239 | 1,376 / 5,380 | 4,121 / 1,402 | 2,155 / 12,518 | 2,667 / 10,195 | 2,646 / 6,035 | 6,059 / – | 5,177 / 4,997 |
| – Wholesale | 7,090 | 123 | 534 | 12,400 | 16,960 | 943 | | | | | | | |
| 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. WEEKLY LABOUR (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 |

67.

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 | 149,631 |
| – 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. RUN SIZE | | | | | | | | | | | | | | | |
| (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. RETAIL PER CENT (TOTAL TRADE) | 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. LABOUR CONTENT (Man-Hour equivalents/week) | 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. APPARENT LABOUR EFFICIENCY (litres milk eq./man-hour eq.) | 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. TOTAL COST/LITRE MILK EQUIVALENT (¢/1) | 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. RUNS WITH WIFE PARTICIPATION | | | wife | | | | | wife | wife | | | | wife | | |
| 7. ANNUAL GROSS REVENUE ($) (including delivery fee) | 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. RUN SIZE | | | | | | | | | | | | | | | |
| (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 equivalent/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. RETAIL PER CENT (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. LABOUR CONTENT (Man-hour equivalents/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. APPARENT LABOUR EFFICIENCY (Man-hour equivalent) | 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. TOTAL COST/LITRE MILK EQUIVALENT (¢/1) | 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. RUNS WITH WIFE PARTICIPATION | | wife | | | | | wife | | | | wife | | | | |
| 7. ANNUAL GROSS REVENUE ($) (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 |

72.

TABLE 4 (CONTINUED)

73.

| Vendor Number | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | Average Sample |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1. RUN SIZE** | | | | | | | | | | | | | |
| (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. RETAIL PER CENT** (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. LABOUR CONTENT** (Man-hour equivalents/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. APPARENT LABOUR EFFICIENCY** (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. TOTAL COST/LITRE MILK EQUIVALENT** ($\cancel{c}$/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. RUNS WITH WIFE PARTICIPATION** | | wife | wife | | wife | | | | | | | | |
| **7. ANNUAL GROSS REVENUE** (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 not exceeding 4 litres Rate per Litre $ | Shop Vendors Quantity exceeding 4 litres but not exceeding 20 litres Rate per Litre $ | Shop Vendors Quantity exceeding 20 litres but not exceeding 45 litres Rate per Litre $ | Shop Vendors 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 First 45 litres Max. Rate $ | Exceeding 45 litres but not exceeding 450 litres Each Add. litre Max. Rate per litre cents | Exceeding 450 litres First 450 litres Max. Rate $ | Exceeding 450 litres 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 | 38.00 |
| 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 | | | |

### CREAM

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

Bulk maximum price—$1.50 per litre.

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

(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.

Authorised by the P...

## APPENDIX 4

### ZONE 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.