AGRICULTURAL ECONOMICS RESEARCH UNIT

Lincoln College

AN ECONOMIC ASSESSMENT OF THE MIDDLE CLASS AND UPPER MIDDLE CLASS MARKET IN MALAYA AS A POTENTIAL OUTLET FOR N.Z. MEAT AND DAIRY PRODUCTS

by

K. Y. HO

THE AGRICULTURAL ECONOMICS RESEARCH UNIT

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PREFACE

This Research Report is based on a Masterate thesis submitted by K. Y. Ho of Malaysia, to this University in 1968.

It was a happy thought on Ho's part that, when he was choosing a topic on which to do research and write his thesis, he suggested to me that he should work on the potential of Malaysia as an export market for New Zealand food products; but, further, that he should do this by organising a postal questionnaire survey of a sample of Malaysian families. We acted on Ho's suggestion because it seemed a valuable way of carrying out some home-based overseas market research by using Ho's special knowledge of his homeland.

The subject of this Report is of vital interest to all those concerned with the expansion and diversification of New Zealand's export trade. Ho shows how different income groups in Malaya have markedly different reactions to western food, and how increasing purchasing power will affect these attitudes. He has found that an immediate market is available for dairy products and mutton in upper income groups, but that for the majority of low income people, market prospects for New Zealand products will take many years to develop.

I am grateful to Mr R. C. Jensen for supervising this work at its formative stages; to the Department of Industries and Commerce who, in addition to a financial grant for the survey, arranged the collection and transport of the questionnaires from Malaya; and to the Faculty of Agriculture, University of Malaya, who also helped organise the survey. Dr R. W. M. Johnson has been responsible for editing the manuscript.

I conclude this preface on a very sad note. Shortly after he completed this work and returned to Malaysia Ho was killed in the riots of May 1969 and the present publication of his work is therefore posthumous.

B. P. Philpott

Lincoln College,
July 1970.

CHAPTER 1

THE NEED TO DEVELOP NEW MARKETS

It is only recently that the need for New Zealand to find and develop new food markets has become apparent. Up till then, her established markets, mainly the United Kingdom, have been able to absorb all the food products she produced and to pay the price she expected for them. In recent years, a number of adverse developments, mainly in the field of international trade, have made it necessary for New Zealand to re-examine her traditional trade pattern and to consider seriously, the prospects and problems of developing markets in Asia and other under-developed regions of the world.

These adverse developments are:-

(a) The increasing tendency of developed countries to adopt national agricultural support policies, which aim at maintaining domestic farm price and income at levels higher than would otherwise prevail and which imply higher costs and obstructing imports. For example, Eastern and Western European markets are virtually closed to New Zealand's dairy produce; Canada has imposed an embargo against most types of dairy produce New Zealand is interested in selling; the United States only very recently imposed heavy restrictions against the entry of dairy products to that market and the United Kingdom Government is supporting meat producers with subsidies and guarantee payments - the annual cost of which to the British Treasury, is not far behind New Zealand's total earnings from all her exports.

Often, excess production by these highly protected producers are "dumped" in the world's commercial markets, affecting adversely countries like New Zealand whose economy is vitally dependent on the overseas earnings from the exports of these products. For example, it has been reported that Eastern European butter oil is offered in S.E. Asian markets at a ridiculously low price of about $200 f.o.b. (at butter value).

(b)   Virtually all the established markets for New Zealand's food produce are found in the high income countries where food consumption per head is reaching a relatively high level both in quantitative and qualitative terms. With such high food consumption levels, therefore, market expansion in these countries can only come from an increase in the population. But the rate of increase in population of developed countries is generally low and in some cases, for example, the United Kingdom, the main market for New Zealand's produce, it is almost static.

(c)   There is an increasing possibility of the United Kingdom entering the E.E.C. in the very near future. If this materialises, New Zealand farmers would find themselves in the unenviable position of having to compete with the European primary producers. The seriousness of this adverse effect on the New Zealand economy will be aggravated if the United Kingdom fails to secure concessions from the E.E.C. countries for New Zealand's export products especially butter, to the United Kingdom market.

One of the countries that New Zealand is showing increasing interest in in recent years is Malaya. Her thriving economy, friendly government and the gradually changing tastes of her consumers are attractive attributes to a food exporter like New Zealand.

The main purpose of the present study is to shed some light on the nature of a particular section of the Malayan market, namely the "middle" and "upper middle" class market for meat and dairy products.

In developing the new market in Malaya, it is extremely

important to recognise the fact that there is virtually no one single market serving the whole population, but in reality three distinct markets depending on the standard of living of the particular section of the people. This is so in practically all under-developed countries where there is a great disparity in the distribution of wealth and hence living standards.

The three markets are:-

(a) A relatively small group of consumers with a great deal of wealth. This group provides most of the purchasing power particularly for the better quality goods and luxury items.

(b) A second group consisting of the great majority of the population whose purchasing power is extremely limited and this is spent on absolute necessities.

(c) The third group - "middle" and "upper middle" class - has a living standard in between the above two extremes.

In general, it is fair to say that it is the third group which will provide the main market for New Zealand products in the present, as well as for the foreseeable future. However, in the very long run, it is the market below this level, namely, the group making up the great majority of the population, which is important, and the rate at which this market could be developed will of course depend on the rate of economic development of the country as a whole.

CHAPTER 2

FUNDAMENTAL OBJECTIVES OF THE SURVEY

This survey was an experimental, as well as an exploratory, piece of research. It was experimental in the sense that this was probably the first time that a postal questionnaire consumer survey had been conducted in Malaya and as such, the problems of execution of the survey (many of which would be peculiar to local conditions) have their own interest and value. Experience gained would be of help to similar surveys in the future. The survey was exploratory in that it did not aim to provide conclusive solutions to problems, but rather to gain useful information on the basis of which a clearer picture of the nature and potentiality of the middle and upper class market in Malaya for New Zealand's export foods might be established. Very briefly then, the specific objectives of the survey were:-

(a)   To record and present a fairly detailed description of the various stages; the problems involved and the ways to overcome them, in the survey.

(b)   To gather sufficient data from which significant relationships between the purchase of "western" type food (dairy products and lamb) and various economic and demographic characteristics (such as ethnic origin, occupation, income, educational background and so forth) might be derived. It was also hoped to be able to find out from the data the attitudes and opinions of the ultimate consumers themselves, concerning matters that could be of relevance and importance to the improvement

of future promotion campaigns.

(c)   To identify consumer preference for the products concerned.

(d)   To estimate Engel's curves and the related elasticities.

It had initially been planned to include questions from which some indications of the price elasticity of demand of meat and dairy products could be derived. (For example - "If the price of meat were to increase by 10 cents per kati, what changes would you make to your meat purchase?".) However, knowing from past experience of other surveys, it was decided that although it was quite satisfactory to ask people how they would behave if certain developments should take place but certainly not much reliance could be put on the answers to such "iffy" questions. Such answers are most likely to be very unreliable since most people would not have given much thought to this hypo-thetical situation before and, therefore, would not be able to predict their likely behaviour. For this reason, questions relating to price elasticity of demand were left out from the final draft of the questionnaire.

The study on the potentiality of the middle and upper middle class market in Malaya for New Zealand food exports was based on the beliefs that:-

(1)   Urban households in the middle and upper middle income range, that is above M\$200 per month (i.e. approximately NZ\$700 per year), offer the best opportunities for new outlets of New Zealand's dairy products and meat in this country, at least for the present time and for the foreseeable future. Although at present consumers of these households, admittedly, are in the minority in relation to total population, knowledge of the "western type" food they buy is highly relevant to the present study. It may be, for instance, that this category of house-hold accounts for all or nearly all the consumption of the food items in

question.

In terms of its size, which is growing (a characteristic shared by other economically progressive countries in South-East Asia) and its ability to pay (Malaya has one of the highest per capita incomes in the region), the market of the "middle-upper" class consumers in Malaya undoubtedly deserves more than just the flirting interests currently shown by the New Zealand food exporters.

(2) The urbanisation pattern that has emerged in Petaling Jaya (the chosen area of survey) is likely to be followed in other parts of Malaya and the type of consumption and expenditure habits its residents have adopted is an outstanding example of the sort of trend that is most likely to be developed by the great majority of the people in Malaya in the next 20 years or so, as their incomes reach the required magnitude. Indeed, in Malaya, and as in other countries, the "ostentation effect" of the consumption of the relatively wealthy may influence the spending, even of those who may never succeed in enjoying a similar income. This means that in a decade or two, the proportionate expenditure even of those house-holds whose income remains less than $200 a month, may more closely resemble that of today's "middle-upper income" households than that of those whose present income falls below that figure. The Japanese experience certainly supports this view. A study of Petaling Jaya, representative of the few households in Malaya who now fall into the "middle-upper" income range, will, therefore, not only yield vital basic information about the nature and potentiality of the market at present, but will also serve as a good guide to what the future larger fraction of the population will buy.

(3) Going a step further, if one accepts the opinion that the process of westernisation that has been going on in Japan is an indication of what is to be expected in other economically progressive countries in South-East Asia, then a study of the household habits of Petaling Jaya consumers,

who are in many ways perhaps more representative of the middle and upper classes in South-East Asia than their Japanese counterparts, may produce results on the basis of which broad generalisations and implications could be derived and judiciously applied to similar markets in neighbouring countries like Singapore, Thailand and, possibly, even Taiwan where fairly rapid economic growth is being experienced.

Unfortunately, relevant statistical information on Petaling Jaya was not available through secondary sources, either because such data did not exist altogether, or because the information available did not fit the needs of the investigation concerned. To obtain information on expenses and consumption habits and also the attitudes towards "western" food that was prevailing in Petaling Jaya, it was necessary to make an investigation that covered the area of survey and all the households in it. For the above-mentioned reasons, and especially in view of the negligible amount of conclusions that could be derived from secondary sources, it was necessary to make an original survey of the Petaling Jaya households.

In this study, the mail questionnaire technique was used. Although, ideally, the decision against the use of one technique or the other should be based on the thinking as to the inaccuracies of the data which will be obtained, the deciding factors against the use of personal interview in this case were -

(i)   the difficulty in recruiting the necessary field staff;

(ii)   the time consuming process of training such a staff

and(iii)   the high costs involved.

Strongly against this decision to use the mail questionnaire technique was the real risk of the response rate being so low that no useful results could be obtained from it. Lending weight to this possibility was the fact that although a number of studies based on surveys of Malaya had been reported in the past, the data was all collected by

personal interviews rather than by mail questionnaire.[1]   In fact, it was

suspected that besides the census survey conducted by the Department of

Statistics, no other mail questionnaire type of survey had ever been

attempted in Malaya.

　　　To insure against a return from the random sample that would be

far too low for analysis purposes, a second line of approach consisting of

another sample (of two English schools in Petaling Jaya) was added to the

survey.   The schools, Assunta and La Salle secondary schools, were

selected in the hope that only a few of their pupils came from low income

households since they were of no interest to the present survey.

　　　It was felt though, that such a sample could be rather limited in

its representativeness of the population in question and definite conclusions

could not be made without lengthy qualifications about this population; it

would certainly be more reliable as far as response rate was concerned.

It would produce, at least, some useful information for analysis and

thereby avoid the survey being rendered a complete failure.

　　　An immediate problem for a survey of this nature was the choice

of the survey area; since only "middle-upper" income households were

to be included in the sample, the town or area to be surveyed needed to

be carefully selected.   A number of considerations pointed to Petaling

Jaya. . The most important of these was the fact that it provided a

population whose income structure and standard of living matched very

well with those required for the purpose of this survey (in this respect

Petaling Jaya is least representative of a "typical" town in contemporary

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[1] For example - (a) T. G. McChee and W. D. McTaggart "Petaling Jaya -
a socio-economic survey of a new town in Malaysia" 1963 (Pacific
Viewpoint Monograph no. 2), also
　　　　(b) Lo Sum Yee 1961 "Economic survey of Petaling
Jaya" (Ekonomi, 2, 1 : 88-90).

Malaya); and the fact that the surveyor himself came from Petaling Jaya and, therefore, personal knowledge and better contacts would be most helpful in the construction of the questionnaire as well as in the organising of "field work" during data collection. Another advantage was its close proximity to the University of Malaya which was an ideal return address for the random sample, and to the New Zealand Trade Commission's Office in Kuala Lumpur (the Malayan capital) some six or seven miles away, which agreed to act as a sort of "middle-man" between the surveyor in New Zealand and the "survey centre" in Petaling Jaya.

Since the purpose of this survey was to gather facts about a particular population of consumers, it was essential that the exact geographical area to which this population belonged be defined in a precise manner. For the purposes of the present survey, Petaling Jaya was defined as the area popularly known as "New Petaling Jaya". This area was within the larger Petaling proper (including "Old Petaling Jaya") administered by the Petaling Jaya Corporation - the municipal authorities.

The size of sample finally decided on was 1000 households for the random sample and 1000 households for the school sample. It was felt that since this was only an exploratory study, the importance of precision and details should not be over-emphasised and that the decided sample size was more than adequate to cover the extent of breakdown of classes into sub-groups intended in the analysis.

It was difficult to predict the possible size of response to a survey of this nature because, as stated earlier, no such survey of the mail questionnaire type has ever been attempted before in Malaya. Reports on similar types of surveys in other countries are abundant in survey literature. They all seem to indicate that a 20-25% response would be the average although responses as low as 10% and as high as 90% have been recorded, for certain surveys.

Practically all the returned questionnaires (both samples) were received at the "survey centre" by the end of the second week since the questionnaires were posted and distributed. By the end of the third week, the replies had dwindled down to about one a day by which time the delivery of return was "cut off" and the questionnaires returned after this were excluded from further consideration.

The final number of returns to the "survey centre" were 292 for the random sample and 689 for the school sample (or 29.5% and 68.9% of the total respectively). These numbers were far beyond the greatest expectation, especially considering the fact that survey research is in its infancy in Malaya. This large response certainly rewarded the pains-taking efforts put into the preparation of this survey.

In spite of the serious lack of reference for this study, two pieces of research were quoted for comparison purposes where relevant, in the report of this survey. The first was the "Household Budget Survey of the Federation of Malaya 1957-58" published by the Department of Statistics. The results from this budget survey covered the population of the whole country and for this reason, it could only be used to provide a standard against which magnitudes of variables obtained in the present Petaling Jaya Survey might be compared. A second and more compatible source for comparison and reference was T. G. McGee and W. D. McTaggart's "Petaling Jaya - a socio-economic survey of a new town in Selangor, Malaysia.[1] This survey, conducted in 1963, was a random sample survey using the personal interview technique. Its results referred to in this report where relevant, were aimed to give supporting evidence

[1] Pacific Viewpoint Monograph No. 2 - Department of Geography, Victoria University, Wellington.

of the representativeness and accuracy of some of the basic data (such as ethnic composition, occupational and income structure of Petaling Jaya) derived from the present survey.

Apart from the methods of the sampling and analysis procedures, the accuracy of a survey such as the present one, depended greatly on the information which each respondent gave in his reply. It was suspected that some respondents even gave answers they did not know. Such answers were sometimes honest mistakes and other times given to make an impression. For this reason, the greatest care was exercised in the editing part of the project. This task was definitely made simpler by the fact that the surveyor was from the survey area, Petaling Jaya itself, and therefore could claim to be in the best position to assess the validity and accuracy of most of the information given. A few doubtful questionnaires were discarded after careful consideration.

The value of any survey depends on the extent to which generalisation about the sample population can apply to the survey population. In other words it depends on how representative is its sample group. To discover how closely the achieved sample of 285 households resembled the survey population one could compare the characteristics of those surveyed with those obtained from other similar surveys. The comparison may strengthen or weaken the confidence in the present survey. Unfortunately, census figures for Petaling Jaya were not obtainable. The only other source of data which could provide a basis for an approximate comparison was that of T. G. McGhee and W. D. McTaggart's "Socio-economic survey of Petaling Jaya" referred to earlier.

The percentages by ethnic groups of that survey and of the present one are presented below. For the purpose of further comparison, similar percentages for the total population of Kuala Lumpur at the 1957 census have been added.

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TABLE I

Ethnic Division of Petaling Jaya Sample Population

Ethnic Group	Sample Population of present survey (1967)	Sample Population of "McGee and McTaggart's" survey (1963)	Ethnic Group as % of Kuala Lumpur Population 1957 census
	% of total sample population	% of total sample population	
Malays[1]	11.5	12.4	15.0
Chinese	67.4	67.2	62.0
Indians[2]	18.4	14.8	16.9
Europeans[3]	0.9	2.1	
Eurasians[4]			6.1
	1.8	3.5	
Others			
Total	100.0	100.0	100.0

(1)   Including persons of Indonesian origin.

(3)   Including persons from North America, Australia and New Zealand.

(4)   Mixture between any European and any Asian group.

(2)   Including Ceylonese and Pakistanis.

(5)   Includes Japanese, Tibetans, Thais etc.

It will be observed that the agreement between them is very good.   In all three cases, the Chinese make up the bulk of the population followed by the Indians and then the Malays.   The relatively low percentage of Europeans is expected but it could be biased against, since, in this Survey, only Europeans who are Malayan subjects or those who have moved into a house previously occupied by a local citizen are liable to be selected in the random sample.

The sex composition by ethnic groups is shown in Table II.

TABLE II

Sex Composition by Ethnic Groups

Ethnic Group	Sex Ratio[*] 1967 survey	Sex Ratio[*] 1965 survey	Sex Ratio[*] K. L. census (1957)
Malays	114. 0	116. 0	113. 0
Chinese	106. 0	108. 0	103. 0
Indians	123. 0	110. 0	149. 0
Europeans		124. 0	
Eurasians	118. 0		129. 9
Others		130. 0	
Total	112. 0	110. 0	113. 0

[*] Number of males per 100 females.

Again it can be seen that the figures do not differ to any extent. The small discrepancies that exist could be located more precisely if the age groupings of the surveys are compared, but unfortunately the groupings used differed and therefore no exact comparisons could be made. It is important to note that although the above comparisons and checks are useful in revealing any unrepresentativeness in the selected sample, they can never prove the representativeness of the sample.

Petaling Jaya (as defined here) is not a typical community in contemporary Malaya in that its residents are virtually all in the "middle-upper" class and are therefore quite different in many of their buying and food habits especially in relation to the type of food products concerned in this study. For this reason, any conclusions that may emerge from this survey cannot be extended in its representativeness to the population of Malaya as a whole.

CHAPTER   3

CHARACTERISTICS OF THE SAMPLE

The aim of this chapter is to provide an exploratory profile of the Petaling Jaya market from which it is hoped that useful background information regarding consumer attitudes and buying habits can be derived. Such information could help to strengthen and improve New Zealand's promotional activities in this type of market.   The precise scope of the following analyses is to provide the following information:-

(a)   Basic Characteristics

    (i)   Occupational and Income Structure.

    (ii)   Type of household.

    (iii)   Use of a refrigerator.

    (iv)   Type of school children go to.

    (v)   Language spoken at home.

(b)   Householders' purchase of meat and milk

    (vi)   Place of purchase of meat and milk.

    (vii)   Availability of milk, butter and cheese from shop.

    (viii)   Whether household purchase butter and cheese.

    (x)   Reasons for purchasing a particular brand of butter and cheese (and mutton from a particular country).

    (xi)   Whether householders consider meat and milk too costly.

    (xii)   Reasons for non-purchase of butter and cheese.

    (xiii)   Some general comments made by respondents.

Although cross-classifications are very useful for indicating possible relationships between variables they cannot prove cause and effect relationships. In the analyses to follow, only the more meaningful relationships are cross-tabulated.

The basic characteristics for which tabulations were carried out, have the following definitions:-

(a)   'Other households' in the classification of respondents according to ethnic group is a combination of (i) European, (ii) Eurasian and (iii) other households as originally specified in the questionnaire. Such a combination was found necessary because the individual numbers involved in each case was far too small to allow a valid description (in percentage terms) of them in many of the cross classifications carried out.   It was felt that such a procedure is justified in view of the very similar consumption patterns between the European and the Eurasian households.   The number of other households (as specified in the questionnaire) was negligible.

(b)   For ease of description, the eight income classes were reduced to three categories:-

(i)   High income ($1200 and over)

(ii)   Medium income ($600 and under $1200)

(iii)   Low[1] income (under $600).

(c)   In connection with language spoken at home, respondents were classified according to whether the English language was at all spoken at home.

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[1] Low only in relative terms.

(d) The occupational categories were broadly defined as:-

(i)   Managerial and Professional

(ii)   Clerks

(iii) Artisans

(iv)   Labourers

(v)   Not in labour force.

Results from both the random sample and the school sample are presented. It will be observed that the two sets of results correspond to each other reasonably well. For sake of convenience in description, the figures from the random sample are quoted in all cases except where the number of respondents for a particular answer is too small to make its presentation in percentage terms meaningful. In this case the corresponding results from the school sample will be quoted instead.[1]

Information on the occupational and income structure of Petaling Jaya is of value not only in so far as it helps to establish the character of the town itself but it also allows an analysis to be carried out to see whether groups of people vary in their eating habits and attitudes. For example "Do people with white-collar jobs buy more dairy products and meat than say labourers and artisans?". It is believed that different social classes, even within the relatively homogeneous (income and occupational sense) community of Petaling Jaya have different buying habits and different degrees of response to Western ideas. Consequently, occupational and income classes within the community were distinguished and the results were analysed separately for different groups.

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[1] Results from school sample if quoted will be identified by brackets.

(a)   Occupation

The survey clearly shows that persons with "low" status occupation - labouring and other unskilled jobs - who form the great majority of Malaya's working population, are in Petaling Jaya in the minority and conversely, the percentages in the "medium" status (artisans and clerks) and "high" status (managerial and professional) occupations are much higher. From the occupational point of view then, the population of Petaling Jaya represents an elite.

Within the "professional" category, there appears to be a fairly distinct ethnic difference in the specific nature of occupations. The Chinese and the Indians are predominantly big businessmen and professionals whereas the Malays and Europeans are mostly senior civil servants.

(b)   Income

TABLE III

Income Distribution of households in
Petaling Jaya sample 1967 and for Malaya
1957/58

Income Group (Malayan $)	Petaling Jaya sample survey 1967 (RS) (%)	1957/58 National Distribution [#] (%)
200	0.4	65.0
200-400	9.2	26.0
400-600	55.6	6.0
600-800	22.5	3.3
800-1000	10.8	1.0 [*]

[#] "Household budget survey, Federation of Malaya 1957-58" - Department of Statistics.   Figures for All Households (Rural & Urban).   The figures given above are only approximate for the income categories specified.

[*] Figures available for household incomes below M$1000 only.

It can be seen from the above table that Petaling Jaya undoubtedly has a large percentage of its population in the higher incomes bracket. Of the three major ethnic groups, the Chinese and the Indians show the greatest proportion in the lowest income group. This reflects the presence of some of the earliest inhabitants who were drawn from the low income groups. (The percentages of these low income groups would have been higher if "Old Petaling Jaya" where most of these low income residents are concentrated had not been excluded from the area of survey.)

The table above also compares the findings of the Petaling Jaya survey with that of the 1957/58 household budget survey which gives the income distribution of Malays, Chinese and Indian households in urban and rural areas in Malaya. The table provides a rough indication of the difference in income distribution pattern between Petaling Jaya and Malaya as a whole.

The conclusion is obvious. In comparison with the nation at large, the residents of Petaling Jaya have a vastly superior earning power. Although the lower income groups are certainly represented they are however in the great minority.

(c)   Standards and Patterns of Living

One may argue that high status occupations and large incomes do not necessarily lead to high material standards of living since people in the East may have different sets of values. This may be true to some extent but it is strongly believed that for the great majority of the "elite" population, a better job and a higher income means a greater capacity to satisfy their desire for a better materialistic life. To show that at least this holds for the population of Petaling Jaya some relevant results from McGhee

and McTaggart's survey[1] are quoted below. This survey collected information on the possession of a number of durable consumer goods which may be assumed to 'material standards and signs of affluence. It will be noted that in this respect, their standards and patterns of living are no different from those of their counterparts in the western world.

TABLE IV

Indices of Living Standard in Petaling Jaya[2]

	Percentage of Population
Ownership of residence	58%
Possession of cars	62%
Possession of refrigerators	74%*
Possession of car & refrigerator	53%
Employment of paid domestic help	38%

*Compared with 92% obtained from the present survey.

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[1] T. G. McGhee and W. D. McTaggart "Petaling Jaya - a socio-economic survey of a new town in Malaysia" 1963 (Pacific Viewpoint Monograph No. 2).

[2] These figures represent the whole of Petaling Jaya (as defined by the Petaling Jaya Corporation) and therefore includes "Old Petaling Jaya". For this reason the above percentages would be higher if the results had been obtained from the present survey.

Households are distinguished between those which have children under 12 years of age and those without. It is suspected that household purchase of food that contains "goodness to health" (particularly milk and milk products) depend greatly on whether there are children in the family. The choice of the age, 12 years old, although very arbitrary, seems fairly reasonable. The survey shows that 77% of Malay households, 65% of Indian households and 60% of Chinese households have children under that age.

A good measure of standards of living is very difficult to devise, since it has to take account of different outlooks and at the same time be relatively simple to apply. The survey collected information on the use of refrigerators by households. Such a durable consumer good, although by no means uncommon in Malay, is still to be regarded as a luxury item. Results show that the use of the refrigerator is widespread in Petaling Jaya. Out of the 276 households for which information was obtained, about 91% has the use of the refrigerator. It appears to be less common among the Malays and Indians than among the Chinese and the other minor groups. It is quite possible that the explanation of this is not entirely an economic one. For instance most Malays and Indian households rely heavily on spicy foodstuffs which do not require storage in the refrigerator. The very high percentage among the Europeans partly reflects their heavy reliance on imported frozen foodstuffs such as meat and dairy products.

The fact that a refrigerator is still being regarded as a luxury item in many households is brought out by the cross classification between the use of a refrigerator and income group.

Several interesting and important points emerge from the analysis with respect to schools.

(a)   There is a very marked preference for an English education.[1]

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[1] English medium of instruction.

The survey shows that 76% of all householders stated that their children
go to English schools only. The highest proportion among the three
main ethnic groups is to be found in the Indian households (86.7%)
and the lowest in the Malay households (65.3%). These percentages
are increased if households which send their children to English
as well as a vernacular school (Malay, Chinese and Tamil[1]) are
included. The obvious popularity of English schools is due mainly to
the prospects it offers in further education and opportunities for
better jobs.

(b)   Whilst 9% of the Malay households sent their children to
Malay schools only (26% to both English and Malay schools[2]), and
8% of the Chinese households sent their children to Chinese schools
only (12% to both English and Chinese): none of the Indian house-
holders sent their children to Tamil schools (only 1 respondent
reported sending the children to both English and Tamil schools).

It is strongly believed that the type of school children are sent to is
a reflection of the householder's attitude towards the process of western-
isation and a measure of the value he places on his own tradition, and
cultural heritage. The high percentage of householders who send their
children to English schools only clearly indicate the wide acceptance of
the importance of a western education for their children. In this respect,
the Chinese and the Malays are less westernised than their Indian
counterparts. This is shown by the fact that many Malay and Chinese
householders still prefer a non-English education for their children in
spite of the economic advantages that can be derived from a western education.

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[1] Tamil is the official language of the Indians.

[2] Generally, children attend English schools in the morning
and a vernacular school in the afternoon.

The more westernised outlooks of the Indians appears to be reflected in their greater purchase of western foodstuffs such as milk, butter and cheese as will be shown later.

Although English is rarely the sole language spoken at home, it is very commonly used as a secondary language. About half of the households surveyed belongs to this category. There appears to be little difference between the three main ethnic groups in this respect. This high percentage of households speaking English at one time or another partly explains the excellent response obtained for this survey.

The survey shows that about 72% of the respondents did their meat marketing regularly at a specific type of market.[1] More than half (58%) stated that they shopped in the Petaling Jaya market. Generally the pattern seems to be that people find that they can satisfy all their normal meat purchases in Petaling Jaya and shopping in the Kuala Lumpur market (11.5%) arises from the convenience of shopping in the city if one happens to work there anyway. It is important to note that less than 2% of the respondents did their meat purchasing at the supermarkets (and many of these are undoubtedly Europeans). It follows therefore that promoting sales of New Zealand meat in supermarkets is unwise. Promotion arrangements should be made instead with the more conventional retail meat outlets such as the Petaling Jaya and Kuala Lumpur municipal markets as in this case.

As with the case of meat, the great majority (74%) of the total respondents did their milk marketing regularly at a specific type of shop. Of these, 64% shopped at a Petaling Jaya shop, about 6% at a

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[1] Unlike western countries, butcheries in Malaya are usually concentrated in a particular site and often in one building, generally run by the city council.

Kuala Lumpur shop and only 4% get their order delivered to the door.[1]

In the survey, householders who purchased milk were asked whether their shops always sold the type of milk they wanted to buy. The answer to this question could be used as an indicator of the efficiency of the internal and/or external milk marketing system. The very high percentage of "yes" in the replies indicates that a regular supply of the retail outlets is maintained and consumers are therefore able to obtain the milk type of their choice at all times.

As with the case of milk, the results indicated that householders have little trouble buying the type of butter they wanted from their shops.

The analyses show that virtually all households buy milk of one type or another. Only one respondent in the random sample and eight in the school sample, reported non purchase of milk of any type. The reason given by all nine respondents was "Family does not like it".

The survey shows that four households in five reported purchase of butter. In contrast, cheese purchase is reported by a fewer respondents. Only about one-quarter of total respondents purchased cheese.

Virtually all the "other" households which responded to this question stated that they purchased both butter and cheese. Among the three main ethnic groups, purchase of both butter and cheese were more common with Indian households than with Malay or Chinese households.

The incomes on households which purchased cheese and butter were definitely in the 'medium' and 'high' income categories.

The major income earner of households which purchased butter and cheese was most likely to be employed as a 'white collar' worker with the professionals at 88% for butter (50% for cheese) and the clerks

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[1] Most of them are Indians who purchase local fresh milk from milk vendors who sell from door to door.

at 83% for butter (39% for cheese). For both products, artisans more commonly reported purchase than labourers. (Artisans have figures of 59% for butter and 18% for cheese while labourers have 33% for butter and 11% for cheese).

The study also revealed that English speaking households are more likely to purchase butter and cheese than non-English speaking households (84% and 57% respectively).

The percentage of butter and cheese buyers were consistently higher in households that have the use of a refrigerator (81% compared with 58% of households which did not have the use of a refrigerator). However, this difference could be a reflection of a difference in income since, as shown earlier, higher income households are more likely to have the use of a refrigerator.

Finally, the tabulation also shows that the suspicion that households with children under 12 years old are more likely to purchase butter and cheese is not upheld.

On the question of brands of butter and cheese purchased,[1] there were altogether 173 usable answers to this question in the random sample. Ninety-five (54.9%) of these reported purchase of Australian butter, 28 (12.9%) reported purchase of New Zealand butter and 50 (32.2%) reported purchase of butter from other countries (mainly Denmark and The Netherlands). In each case, the major reasons given were as expected, i.e. 'tastes better', 'better quality' and 'cheaper'.

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[1] The classification of respondents have been changed from according to name of brand bought to name of country from which the brand comes from.

An important result shown in the tables is that about 10% of those who buy Australian butter stated that their reason was because it is 'well known' or 'used it for a long time and used to it'. Virtually no respondents who buy New Zealand butter, or butter from other countries, gave this as a reason for their choice. This confirms the general belief that Australia is unquestionably better established in this market than any other supplier.

Five per cent purchased Australian butter because it is conveniently packed in small quantities.

As in the case of butter, Australian cheese is the most commonly bought of the 91 usable answers to this question in the random sample; 55 (60.5%) of them indicated Australian cheese is purchased, 21 (23.1%) reported purchase of New Zealand cheese and the remaining 15 (16.4%) stated their preference for cheese from other countries.

The major reasons given for their choice were the same as for butter. The only notable difference was that a far greater percentage (50-60%) based their choice on taste. This strongly reflects consumers' unfamiliarity with taste of cheese, and the fact that probably a number of cheeses from different countries have been tried before a choice is made on the one that is compatible with their palate.

Again, as with butter, a sizeable percentage of those who purchased Australian cheese stated their reasons as 'because it is well known'.

Finally, 9% prefer Australian cheese because it is conveniently packed in small quantities.

All respondents who indicated purchase of imported mutton stated their preference for either Australian or New Zealand mutton only.

Altogether 143 householders purchased imported mutton. As with the dairy products, 'better quality', 'better taste' and 'cheaper' were the main reasons given for their choice. A few in both cases indicated their preference for meat that is known to have been killed by Muslim rites.

The only significant difference in the reasons given between the two sources of import was that 12% of householders who purchased Australian mutton pointed out that it has less fat, while no respondent who purchased New Zealand mutton gave this as a reason for the choice. This is explained by the fact that much of the Australian mutton available in the market is from lean merino sheep.

As expected, imported frozen meats were 'ticked' more often as too costly than the corresponding local meats (imported frozen beef, 23%, imported frozen pork, 36% and imported frozen poultry, 31%).

Less than 1 in 5 households complained that lamb is too costly but more than 1 in 4 'ticked' goat meat as too costly.

The lowest percentage of complaint was for fish, less than 1 in 10. This is partly responsible for the popularity of fish in Malayan households.

Not unexpectedly, canned meat and other meat have very high percentages (about 3 in 5 in the case of other meat).

Local fresh milk and milk powder are considered too costly by the greatest number of respondents (41% for the former and 33% for the latter). About 1 in 4 households considered reconstituted bottled milk too costly and 1 in 5 for canned sweetened condensed milk. However, less than 3% of households ticked evaporated milk as too costly.[1]

The analyses show that less than half the households which purchased butter considered it to be too costly. In contrast more than 70% of cheese buyers complained that cheese costs too much.

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[1] As explained elsewhere in this thesis, answers to question as evaporated milk is most likely to be downward bias since it was not specified as a separate milk category in the questionnaire.

'Too costly' and 'Family dislike' were the reasons given by an equal percentage of householders who did not purchase butter (about 50%). On the other hand more than 60% of those who did not purchase cheese gave "Family dislike" as the reason, while a relatively small percentage of about 30%, specified the reason as 'too costly'. In both butter and cheese 'hard to keep' was given by a negligible number of respondents as the reasons for non purchase.

Ethnically, Indians and 'others' were less likely not to buy butter or cheese because of 'Family dislike' than the Chinese and the Malays. The reason given instead was 'too costly'.

A surprisingly large number of respondents made general comment (93 in the random sample and 126 in the school sample). This shows the great interest some respondents have for the survey.

As expected, a high percentage of those who answered complained about the high cost of living and the high prices of foodstuffs especially those imported from overseas.

Six per cent in the random sample (14% in the school sample) stated that New Zealand foods are not well known.

Eight per cent in the random sample (4% in the school sample) confessed that they are not used to the taste and smell of merino sheep meat.

A relatively high proportion (13% in the random sample and 16% in the school sample) pointed out that dairy products, although nourishing, cost too much.

Six to seven per cent of respondents suggested that lack of knowledge of cooking lamb is their main reason for not buying the meat more often. Three respondents in the random sample and five in the school sample asked for New Zealand recipes for cooking lamb.

Five per cent in the random sample and 2% in the school sample stated that they prefer margarine and Ghee.

Conclusions

The information contained in this study should provide a factual basis for objective discussions on some aspects of the type of market examined here. In the paragraphs to follow, a summary of the main points made earlier will first be presented and those which could be of interest and use to the New Zealand exporter will then be further discussed and the relevant implications drawn.

The study revealed the following points:-

(a) Practically every household buys milk of one sort or another.

(b) Meat, milk and butter products are readily available to consumers from all retail outlets. However, little meat is bought from supermarkets.

(c) Butter is more commonly bought than cheese. The main reason given for not buying is that 'Family dislike them'. Ethnically, Indians are more likely purchasers of butter and cheese than the Chinese and the Malays. Households with higher income; with head of household employed as a 'white-collar' worker and which are English speaking, are more likely to purchase butter and cheese.

(d) As expected, imported frozen meats were considered too costly by more households than local meats and more for cheese than for butter.

(e) New Zealand foods were considered to be less well known than those of its main competitor, Australia. The detrimental effect of this on New Zealand as an exporter is clearly brought out by the fact that many respondents bought Australian products purely because they have been on the market for a long time and they are therefore used to them. This points up the disadvantage New Zealand

suffers as a newcomer to the market. It therefore suggests the need for tremendous effort in promotion and advertising if New Zealand is to secure a foothold in this highly competitive market.

(f)   The need for acquainting consumers with sheep meat is real. The study shows that many householders are not familiar with the taste and smell of sheep meat and some even lack knowledge of cooking it. This can be remedied by increasing exposure of sheep meat to the public through promotions, advertising and publicity in general, especially in terms of an informational and educational approach. This approach should be considered simplified by the fact that the English language is so commonly spoken, at least in the middle-upper class households. Further, it is not expected that resistence to the assimilation of western ideas would be as great as evidenced by the number of householders who send their children to English schools.

(g)   The results also show that there is a definite need for improving the products supplied to better conform to what the consumer prefers. For example, lean mutton is preferred to fat mutton and meat killed by Muslim rites is preferred by some sections of the community. For the latter case, it would appear that some form of assurance that New Zealand meat is killed in this way has to be provided. Sponsoring occasional inspection trips to New Zealand abbatoirs for local religious officials is one way this could be done.

Turning to butter and cheese, a great many of the respondents who purchased butter and cheese indicated 'better taste' as the reason for their choice of the particular brand. Some have specifically stated that butter that is 'not too saltish' and cheese that is 'mild' are definitely preferred. More research into the Oriental palate for both these products is required. A reason often given for purchasing Australian butter and cheese is that

they are conveniently available in 1 oz. packs. To households who are not regular consumers of these products, such small packs are obviously most suitable. For the low income consumers, small pack is important for another reason. Few of them have the use of a refrigerator and in hot humid climates, butter and cheese is best bought in small daily requirements.

The implications of the results discussed above should be taken more as suggestions and hypotheses than as final conclusions. It is hoped that they will lead to more detailed research along the lines of inquiry attempted here. The results from such investigations will supplement and expand or perhaps contradict some of the results and hypotheses here presented. Further knowledge of consumers' habits such as menu planning, frequency of marketing and responses to advertising and promotion will provide a firm basis for many decisions and courses of actions for the New Zealand food exporters.

CHAPTER 4

CONSUMER PREFERENCES FOR DIFFERENT PRODUCTS

A number of conclusions and implications can be drawn from the analysis. Some of these should be of direct interest to the New Zealand exporter since they suggest ways and means of improving the effectiveness of New Zealand's promotional and advertising programmes and increasing sales of New Zealand's products in the Malayan market in general. The discussion on this (for both the Random and the School Samples) will be presented immediately following the analysis of each of the four ranking questions for the Random Sample.

Ranki ng the types of milk in the order of preferences[1]

The results of this question are shown in Table V and the response of the random sample is discussed in what follows.

(a)   Most people in Malaya, with the exception of the relatively few Indians and Europeans, generally still regard milk as a foreign food. For this reason, it is held that household preferences are influenced to a great extent by the length of period the particular milk has been on the market, and to an even greater extent by the length of period members of households have been exposed to that particular milk.

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[1] The word "preference" is used here to mean "liking for" regardless of price.

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TABLE V

Ranking the Types of Milk in the Order of Preferences

Type of Milk	Rank	Sum of Scores
Canned Sweetened Condensed Milk	1st	522.5
Milk Powder	2nd	766.0
Reconstituted Milk	3rd	821.0
Local Milk	4th	825.0
Other	5th	1185.0

Number of valid observations[1] = 275

Coefficient of Concordance (W) = 0.3245

Fisher's Z = 2.4399

$V_1 \simeq 4$, $V_2 \simeq 1094$

Using Fisher's Z - Distribution tables, the coeffient of concordance is significant at the 0.1% level.[2]

(b)   Canned sweetened condensed milk is undoubtedly the most preferred milk type.   Millions of tins are consumed each year by all ages, races and income groups.   From the New Zealand exporter point of view, this immediately suggests that this line of production would probably be the most suitable for this particular market at the present time, in view of the already highly developed taste for the commodity.

[1] An observation is considered invalid only if more than two milk types are left unranked.   If only one milk is unranked, then it is given the fifth ranking and if two milk types are unranked, then the ranking of fifth or last equal is edited in.

[2] Fisher & Yates "Statistical Tables for Biological, Agricultural and Medical Research" - (Published by Oliver & Boyd).

Unfortunately, New Zealand is currently showing little interest in the canned milk market and the main reason often given is that it is uneconomical to export this type of milk since its production requires a high import content of tin plate and sugar. However, the fact that other suppliers such as Australia, Netherlands and even the United Kingdom, who also need to import these ingredients, are finding this line of production lucrative, does not seem to support the above reasoning. Moreover, New Zealand's overwhelmingly greater efficiency in raw milk production should outweigh any such apparent disadvantage. Alternatively, containers made of cheaper materials (possibly New Zealand aluminium) could be used instead.

(c)   Milk powder[1] is well established as a milk that is superior in quality and contains greater amounts of "goodness to health" than any other milk type. For this reason, it is popularly used by householders in the middle and upper classes as an infant food. The high ranking of milk powder probably reflects the highly developed tastes acquired by these consumers for this milk as a result of their exposure to it from an early age.

(d)   The importance of reconstituted milk[2] to the New Zealand

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[1] Milk powders available in the market are mainly in the form of whole milk powder sold as "milk powder full cream" and "milk powder infant food". Skimmed milk powder is imported mainly for animal feed and for further processing into products such as reconstituted milk.

[2] Reconstituted milk is skimmed milk powder reconstituted into liquid milk. It has all the properties of milk other than fat. In fact, it is the nearest equivalent to the sort of bottled fresh milk that is so readily available in New Zealand. It is reasonably cheap at M30c. a pint but its purchase is still mainly confined to the middle and upper classes of consumers. Lack of refrigerating facilities could also be a factor deterring purchase by low income households.

exporter lies in the fact that the New Zealand Dairy Board has established

in Kuala Lumpur and Singapore, with the assistance of local Malayan

capitalists, reconstituted milk plants that use New Zealand produced

skimmed milk powder and butter and butter oil.   Therefore, increased

sales of reconstituted milk means greater quantities of the required raw

materials New Zealand can export to this market.   The low ranking of

this milk by the respondents is probably due to the fact that it is a

relatively new product compared with the well established canned sweetened

condensed milk and milk powder and, therefore, consumers have not had

much time to acquire a taste for it.   However, there are indications

that reconstituted milk, especially those flavoured, is growing in

popularity amongst the younger generation.   This is very encouraging

since it is the taste of these young consumers that New Zealand must

develop in the interests of long term market development.   This

development could be further encouraged if New Zealand could work

out with the appropriate authorities some form of a school lunch

programme whereby New Zealand would supply free, or at a concessional

rate, reconstituted milk for use in such a programme.   It is also

suggested that research be carried out to find out more about the various

flavours that are compatible with consumers' palates.   The possibility

of using flavouring extracts from popular local fruits should be

investigated.

(e)   Local milk[1] is well known for its very low quality.   It is

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[1] There is no town milk supply system similar to that in Western
countries.   Whatever little milk produced is the result of the
fact that there is no existing law that prohibits the selling of
raw unpasteurised milk and a small number of Indian farmers
on the outskirts of the main cities have found it profitable to
milk their cattle and buffaloes regularly to provide fresh milk
to some sections of the community, particularly the Indians,
who, unlike the Malays and the Chinese, are traditionally regular
consumers of milk.

generally produced under most unhygienic conditions, as the result of which bacterial count is high. Often, the unclean milk is diluted with equally unclean water. For these reasons, it is not surprising that local milk is the least preferred of the four milk types specified in the question.

(f)   Table VI shows that virtually all those respondents who had specified the "other" milk type had expressed their preference for evaporated milk. There were 26 of them in the Random Sample (75 in the School Sample) of which 14 (40) stated evaporated milk as their first preference, 6 (15) as second preference, 2 (14) as third preference, 3 (10) as fourth preference and 1 (6) as fifth preference. The fact that such a large number of respondents had even bothered to fill in the "other" category and specify their preference for evaporated milk strongly suggests that if evaporated milk had been specified in the question as a distinct separate category of milk type, it could have gained a fairly high ranking on the scale of preference in relation to the other four milk types specified. This is supported by the fact that the great majority of those who had specified evaporated milk had ranked it as first or second preference. However, this is only a suggestion which may or may not be confirmed by a more detailed survey.

TABLE VI

	"Other" not specified	Evaporated Milk Specified as -					Total Other Specified			Total Valid Sample Observations
		1st	2nd	3rd	4th	5th	as evap-orated	not as evapor.		
		preference								
Random Sample	247	14	6	2	3	1	26	3	29	276
School Sample	550	40	15	4	10	6	75	7	82	632

Preference for Evaporated Milk

Reasons for purchasing a particular milk type in
                order of importance:

The results of this question are shown in Table VII and the
response of the random sample is discussed in what follows.

(a)   The widespread impression that South-East Asian consumers
are extremely price conscious is not wholly true because growing sections
of the population, the middle and upper classes, demand quality just as
much as their western counterparts.   This is clearly brought out in this
question where 'price' was only ranked third after 'quality' and 'family
likes it' on the ranking scale.   Therefore, from the New Zealand
exporter point of view, to cut quality and to think only of a low price
would prove a false economy, at least in sections of the market that
demand something better.   This means that emphasis on quality as a
selling factor should be the basis of all promotional and advertising
programmes.   Taking it further, it might even be suggested that selling
at a slightly higher price (to emphasise quality) could prove to be an
effective marketing stratagem in the market being studied.   Such an
approach is not only compatible with the exploitation of existing markets
namely, the middle and upper classes of consumers, but it is also in
line with long term market development, since for the lower income
consumers, the significance of the price factor will be reduced as
the nation's economy and living standards improve.

(b)   The relatively low position of price on the ranking scale
indicates that a low price elasticity of demand can be expected for
milk as a whole and for individual milk types.   This is of special signi-
ficance to milk exporters who are new to the market (for example, New
Zealand), and is also of great relevance when introducing cheaper milk
types to the market (for example, reconstituted milk) because any
difference in price needs to be large before any response from consumers
can be expected.

TABLE VII

Reasons for Purchasing a Particular Milk Type
in Order of Importance

Reasons[1]	Rank	Sum of Scores
Quality	1st	477.0
Family likes it	2nd	583.0
Price	3rd	662.5
Keeps easily	4th	874.5

Number of valid observations[2] = 265

Coefficient of Concordance (W) = 0.2884

Fisher's Z = 2.3363

$V_1 \approx 3$, $V_2 \approx 790$

Using Fisher's Z - Distribution tables, the coefficient of concordance is significant at the 0.1% level.

(c) Admittedly, 'quality' is a difficult term to define. It may refer to different attributes, not only to peoples of different countries but to different consumers of the same country. This is especially so in Malaya where religion and customs play such important roles in the food habits of its peoples. Nevertheless, it is undeniably obvious to anyone who has

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[1] The 'other' reasons were excluded in the analysis because:-
(a) Most of them could be incorporated into the reasons given above;
(b) Only a very few respondents filled in 'other' reasons.

[2] An observation is considered invalid if more than one reason is left unranked. If only one reason is unranked, then the ranking of fourth position is edited in.

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any experience with peoples of Malaya at all, that there is a rapidly
growing awareness and understanding of the scientific relationship
between the food they eat and their general well being.   Consumers in
the middle and upper classes are increasingly looking for food with high
nutritive value and tending to associate quality food with those that
contain plenty of "goodness to health".   For this reason, it is not surprising
that 'quality' is ranked first and 'taste', the main component of 'Family
likes it', is only second in importance.   The implication of this, for
the New Zealand exporter, is that themes for any promotion campaigns
should aim at presenting a good simple story which directly associates
the consumption of that produce with the general well-being of the consumer.
For example, "New Zealand milk is good for your eyes" or "New
Zealand milk makes you strong and healthy" and so forth, are themes that
could be effectively used.   Although to a westerner they may sound far-
fetched, in a country like Malaya where consumers are relatively
unfamiliar with dairy products and where superstition and ignorance
still prevail, the importance of presenting a simple but convincing story
cannot be over-emphasised.

(d)   The reason 'keeps easily' occupies the lowest position on the
ranking scale: this may be explained by the following consideration:-
   (i)   The possession, or at least the use, of a home refrigerator
          is common with the middle and upper class families.
   (ii)   With the exception of local milk and reconstituted milk, all
          the other milk types generally keep well even under hot humid
          conditions.
   (iii)   A large enough daily consumption coupled with the fact that
          a regular supply is readily available makes keeping milk
          unnecessary.

       For the New Zealand exporter this simply suggests that
'keeping quality' need not be overstressed in promotion campaigns since

it is relatively unimportant as far as the ultimate consumers are concerned.

Ranking the types of meat in order of preference

Due to the unavoidably large number of types of meat to be ranked, the quality of the answers to this question was not as good as those to the other ranking questions in the questionnaire. The majority of the rankings were incomplete; for this reason, considerable doubt is cast upon the meaningfulness of such answers. For the purpose of analysis, it was decided that only those responses which ranked at least five types of meat would be considered as valid answers. To test the consistency of the rankings thus obtained, further analysis was carried out separately for those responses with at least 6, 7, 8 and 9 rankings.[1] As can be seen from Table VI, the number of valid answers becomes progressively smaller as the number of rankings required is increased. Even with those responses with five rankings, only 121 observations for the Random Sample (327 for the School Sample) were valid for the analysis. Obviously, with such incomplete answers and the small number of valid answers involved, severe limitations are imposed on the interpretation of the results from the analysis which may or may not be confirmed if a more exhaustive and detailed study using depth interview techniques were taken.

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[1] Since unranked meats were given the ranking of 10, the rankings for 9 ranks and 10 ranks are the same.

TABLE VIII

Types of Meat[1]

Ranking Scale	5 Ranks	6 Ranks	7 Ranks	8 Ranks	9 Ranks
1st	Local Pork	Local Pork	Local Pork	Local Pork	Local Pork
2nd	" Poultry	" Poultry	" Poultry	" Poultry	" Poultry
3rd	" Beef	" Beef	" Beef	" Beef	" Beef
4th	Fish	Fish	Fish	Frozen Pork	Canned
5th	Goat	Frozen Beef & Frozen Pork	Canned	Fish	Fish
6th	Frozen Beef and Lamb		Frozen Pork	Canned and	Frozen Pork
7th		Canned and	" Poultry	Frozen Beef	" Beef
8th	Canned and Frozen Poultry	Frozen Poultry	" Beef	" Poultry	" Poultry
9th		Goat & Lamb	Goat	Lamb	Goat & Lamb
10th	Frozen Pork		Lamb	Goat	
No. of Valid Observations =	121	93	59	50	36
W =	0.3932	0.4224	0.4154	0.4664	0.4901
Z =	2.1767	2.1044	1.8593	1.8786	1.7578
V_1 =	9	9	9	9	9
V_2 =	1078	826	520	439	313

Using Fisher's Z - Distribution tables, all of the above coefficients of concordance are significant at the 0.1% level.

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[1] Fish is included since it is competitive with "true" meats.

Due to the small number of valid answers involved and the inconsistencies in the rankings (except for the first three rankings), not much confidence can be placed on the exact ranking position of the individual meat computed. However, keeping this limitation in view, certain broad generalisations and trends can be noted -

(a)   The various meats may be broadly classified in their order of preference into four main groups:-

Types of meat by group	Order of Preference
Local Fresh : Pork, Poultry and Beef	1st
Fish and Canned	2nd
Imported Frozen : Pork, Beef and Poultry	3rd
Imported Frozen : Lamb and Local Fresh: Goat	4th

(b)   The above ranking confirms the expectation that locally produced fresh meats are preferred to the corresponding imported frozen meats. This is one of the main deterring factors to sales of New Zealand meats in this market. Since the exporting of livestock for slaughter is uneconomical in view of the high transportation cost, the only other possible way to overcome this problem is through consumer education and promotion aiming at dispelling misconceptions about the desirability of frozen meats and pointing out the various advantages of frozen meat over fresh meat, especially in relation to its convenience of use in the modern household. The increasing use of home refrigerators and the adoption of western attitude of speed and convenience in the preparation of meals are trends that are bound to play a major part in developing tastes for frozen meats in the future.

(c)   Of the three main local fresh meats, pork is consistently being ranked first, poultry second and beef third on the Preference Scale. For

the corresponding frozen meats, pork is still the most preferred but there appears to be a general preference for frozen beef to frozen poultry. The high preference for pork (both local and imported) undoubtedly is a reflection of the predominance of the Chinese consumers in the Petaling Jaya market. In this respect, it is fairly typical of the urban markets in Malaya as a whole.[1]

(d)   The high preference for fish and its relative cheapness is reflected by the popularity of this meat in the diet of the average Malayan household. The important implication for the New Zealand exporter is that fish is not only the most preferred of all the meats which New Zealand could export to Malaya but it also has the added advantage of a market which has no objection to its frozen form, since locally caught fish in the main, are also sold frozen especially in markets away from the coastal areas.

(e)   Canned meat is also highly ranked on the preference scale. Dislike for frozen meat, the inconvenience of daily marketing for fresh meat and the lack of refrigerating facilities, especially amongst the low income consumers, often confine meat purchase to canned meat only. However, there are two main obstacles facing New Zealand in the canned meat market. The first is competition from China whose canned meat, besides being generally of a much lower price than that of anyone else (some by as much as 30 to 40%), are prepared in the traditional way to suit the taste of the Asian palate. For this reason, they are extremely popular, and it is unlikely that New Zealand will be able to make much inroad into such a market. New Zealand, and other suppliers, will be restricted to competing among themselves to the relatively small market provided by the European and the more westernised Malayans who have

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[1] The Malays, who form about 50% of Malaya's total population, are forbidden by religion to consume pig meat of any kind.

not developed a taste for Chinese prepared meats. The second obstacle is the high cost of tinned containers which could put New Zealand at a disadvantage in a highly competitive market. However, as with the case of canned condensed milk, this could be overcome by using cheaper material containers.

(f)   Goat meat and lamb, not unexpectedly, are the least preferred meats. This again, is a reflection of the fact that the great majority of the urban middle class consumers are Chinese who are not, traditionally, sheep or goat meat eaters. Only the Indians seem to have a preference for these meats.

The results do not indicate any definite preference for one or the other. The close association and the inconsistency in the relative ranking of the two meats seems to support the suspicion that many consumers are not familiar with the difference between the two meats. This suspicion is further supported by the fact that both sheep meat and goat meat are called "mutton" in the Chinese dialects. This close identification of sheep meat with goat meat is detrimental to the sales of sheep meat in the Malayan market because goat meat is well known for its extremely strong smell and taste - attributes which are least compatible with the palate of the Chinese consumers. This suggests the tremendous need for consumer education concerning the fallacy of such adverse attitudes towards sheep meat.

Increased exposure of sheep meat to consumers through publicity, promotion and advertising, especially in terms of an informational or educational approach, would appear to be highly desirable. New Zealand's experience in the Japanese market clearly indicates the soundness of such an approach. The Japanese consumers had initially rejected sheep meat because it was thought to be a low grade meat not much different from the little preferred whale meat. However, as a

result of carefully planned promotion programmes, Japan is today the most important customer for New Zealand's mutton. From the long term market development point of view, New Zealand's promotional efforts should be directed at the relatively large and growing proportion of young people in the population, especially those in the schools. This suggests the desirability of working out, as in the case of reconstituted milk, some form of school lunch programmes with the appropriate authorities, whereby New Zealand would supply free, or at a concessional rate, mutton for such programmes. Such an arrangement would not only benefit Malaya but also New Zealand since it is in her long term interest to cultivate now the taste for sheep meat of those who stand to be her consumers tomorrow.

Reasons for Purchasing a particular Meat Type
in Order of Importance

TABLE IX

Reasons for Purchasing a Particular Meat Type
in Order of Importance

(Random Sample)

Reasons[1]	Rank	Sum of Scores
Quality	1st	548.1
Family likes it	2nd	600.3
Price	3rd	835.2
To get variety in meals	4th	887.4
Suitability for a particular type of cooking	5th	965.7

Number of valid observations[2] = 261

Coefficient of concordance (W) = 0.2156

Fisher's Z = 2.1347

V_1 ___ 4, V_2 ___ 1038

Using Fisher's Z - Distribution tables, the coefficient of concordance is significant at the 0.1% level.

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[1] See footnote 1, page 37.

[2] An observation is considered invalid only if more than two reasons are left unranked. If only one reason is unranked, then it is given the fifth ranking and if two reasons are unranked, then the ranking of fifth or last equal is edited in.

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As with the case of milk, 'Quality' is ranked first, 'Family
likes it' second and 'Price' third. All that has been said about the relative
ranking positions of these three factors applies just as much here to meat
as to milk discussed in the previous section. In addition, it is noted
here that the above ranking order is identical with that established in
C.A. Yandle's Consumer survey of meat consumption in Christchurch[1]
and thus giving further evidence of the existence of a highly sophisticated
pattern of meat consumption amongst the middle and upper class house-
holds in Malaya, a pattern not dissimilar to that found in more advanced
countries. A further point which emerges from this analysis is that the
suspicion that Asian housewives are likely to be more fussy about the
suitability of meat for a particular type of cooking than their western
counterparts, is not supported by the results. This could be a reflection
of the process of westernisation that is now going on in the well-to-do
households and of the extent to which the typical western housewives'
attitude of simplicity and speed in the preparation of meals have invaded
the oriental kitchen.

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[1] "A Survey of Christchurch consumer attitudes to meat",
C.A. Yandle - Agricultural Economics Research Unit Publication No. 43.

CHAPTER   5

THE   ANALYSIS OF CONSUMER EXPENDITURE

It will be convenient in this Chapter to begin by giving a brief
note on family budget studies before tabulating the specific purposes of
the analyses to be carried out.   The statistical material and the method-
ology adopted will then be discussed in detail before finally presenting
the results obtained and the conclusions drawn from them.

A brief note on family budget studies.

Although extensive compilation of budgets had been done as
early as in the 1790s, it was in 1857 when the first statistical analysis
involving empirical generalisations from budget data was made.   On
the basis of this study, Ernst Engel made his now famous pronouncement
that the demand for food increases (or decreases) at a smaller proportion-
ate rate than income or, in technical language, that the income elasticity
of demand for food is less than unity.   This is a simple, empirical and
qualitative generalisation of the relationship between income and food
consumption.   In some respects, it is comparable to the formulation
of the relationship between price and consumption in the law of demand.

While Engel's law has been verified in Western countries for
working class and middle class incomes, it is questionable whether it is
applicable to nations at a lower stage in their economic development.
For example, it is quite possible that in societies with very low average
income and where hunger still exists, rising incomes are associated
with greater proportionate food expenditure for the very low ranges of

income. In fact, for people close to starvation, any increase in income would most likely be entirely devoted to food. In other words, the income elasticity of demand is equal to 1.0. Also, it is possible that among the very wealthy, the proportion of expenditure devoted to food satisfaction has no significant relationship to the income level. However, the present survey concerns only the middle and upper class households and there is no reason to suspect that their income elasticity of demand for food is not less than unity.

Traditionally, the analysis of consumers' expenditure is based either on time series or cross-section studies (or a combination of both). For the present study, a time series approach is impractical since the required relevant data is not available. Instead, the effects of relevant factors on consumption are studied by a single budget survey of the consumption in a given short period of a sample of households drawn from a chosen locality (Petaling Jaya). Such a cross sectional study has several limitations. The most important of these is that it does not allow for possible price differences paid by different house- holds. This limitation luckily, however, does not seriously apply to the present study since all the households in the survey have access to the same market so that prices are likely to be uniform.

A second serious limitation is that it ignores the question of time that it takes consumers to adjust to a higher income. When a man enters a new occupation or moves from the country into the town or gets a raise in pay, the effect of these changes on his food consumption will not be immediate. They may take a matter of years. The gradual awareness of other possibilities of expenditure, the recognition of the difference between his own habits and those of his new colleagues or neighbours will induce adjustments in his consumption pattern long

after the original stimulus occurred.[1] On the other hand, it may be argued

that in Malaya, like in most of the progressive under-developed countries,

the "demonstration effect" from the example of the wealthier households is

very strong and this, together with the sustained pressure of advertising,

westernisation and the rapid advance of education and communication,

combine to cause the acceptance of new ideas and patterns of consumption

more rapidly than expected.

The purposes of the present analyses

The nature of the relationships between food consumption and

factors affecting it in under-developed countries is imperfectly understood

due to the lack of relevant data and to insufficiently elaborated economic

theory. This study has been undertaken to provide some knowledge of

these relationships for specific food commodities (milk and meat) through

the use of existing economic theory and empirical data collected in a

single family budget survey.

Specifically, the aim of the following exercise is to investigate

the manner in which Petaling Jaya households' consumption of these

selected food items is affected by its income and size. It is essential

that such an investigation should be limited to one fairly homogeneous

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[1] M. Friedman has argued that people tend to spend in accordance
   with what they regard as their probable average income - measured
   by the weighted average of their incomes in recent past years,
   with weights exponentially diminishing as we go further back into
   the past. This would give a good approximation to their estimate
   of their "permanent" income in accordance with which they
   control their spending. This concept of "permanent" income is
   generally inadequately represented by "income" as obtained from
   ordinary budget survey.

people; otherwise, differences in customs and habits might be so large as to "overshadow" the variations one wants to measure. For this purpose, Petaling Jaya is a fairly satisfactory unit, both from the economic, occupational and ethnic viewpoint, being predominantly middle to upper class, medium to high status workers of Chinese origin. It is believed, therefore, that households included in the analysis exhibit no great heterogeneous characteristics which would disturb too violently the effects on consumption of income and household size for which this study wishes to consider.

The relationship between household consumption (dependent variable) and the independent variables household income and household size is examined in terms of elasticities. The elasticity of consumption is approximately defined as the percentage difference in consumption associated with a one per cent difference in a causal variable assuming other variables are the same. If the causal variable is income, the elasticity is called "elasticity with respect to income" (or "income elasticity"). If household size is the causal variable, then elasticity with respect to household size (or household size elasticity).[1] For many purposes, elasticity is preferred to slope because it has the great advantage of being a non-dimensional number independent of units of measurement and, therefore, directly comparable for different commodities.

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[1] More strictly, the measure is defined as: $e_1 = \dfrac{dy}{dx_1} \cdot \dfrac{x_1}{y}$
where y is household consumption
x_1 is household income
x_2 is household size
$e_2 = \dfrac{dy}{dx_2} \cdot \dfrac{x_2}{y}$
and e_1 and e_2 are elasticities of consumption with respect to income and household size respectively.

Specifically, the analysis aims to:-

(a)   Reflect the difference in consumption of Petaling Jaya house-

holders of a certain food type or food group, in terms of dollars

at constant prices to a difference in income and household size.

(b)   Measure the reaction of Petaling Jaya householders to quantity

consumed of a certain food item or food group to a difference in

income and household size.   (Quantity Elasticities).

(c)   Indicate the percentage difference in the average unit price

of a certain food item or food group consumed by Petaling Jaya

householders (Quality Elasticites).

(d)   Determine the nature and degree of interrelated demand

between selected pairs of food types, assuming incomes constant for

Petaling Jaya households reporting consumption of these pairs of

food types.

The Data

(a)   Quality of Answers.

Although it was emphasised in clear print that only expenditure

on food was to be filled in, quite a few respondents put down food expend-

iture figures which were well out of proportion to the number of people

eating in the household (even after allowances made for possible quality

variations).[1]   This seems to suggest that respondents may have filled in

total household expenditure instead.   In cases where detailed information

was given for other questions, such as ethnic origin, size and composition

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[1] A list showing the price range of meat and milk was compiled
for the various Petaling Jaya and Kuala Lumpur retail outlets
at the time of the survey.

of households, occupation and income, it was possible to make some intelligent adjustments to these figures. In other cases, it was decided that it was best to declare the whole answer to that question invalid that exclude it from further consideration.

It is believed that, on the whole, the figures given by the respondents are likely to be fairly representative of an average weekly purchase of the products under consideration, for several reasons:-

(i)   Although respondents were asked to list their purchase for the last seven days, such a question on periodic behaviour is likely to cause respondents to give their estimate of the household average purchase for a seven day period rather than the actual figure for the last week. The longer the period chosen, the more likely is this to happen.

(ii)   Most of the food commodities considered, with the exception of milk powder (tin) and, possibly, canned condensed milk, are generally purchased on a daily or, at least, on a weekly basis.

(iii)   Although some of the purchases specified in the answers were obviously too small (because of the fact that little or no purchases had been made for the past weeks since old stocks had not been depleted yet) or too large (because householder had just depleted his monthly stock and had already started a new purchase) for the number of people in the household, no attempt was made to correct the figures returned since it was believed that the distorting effect of these two types of purchase would tend to cancel out one another.

Some of the figures on household size reported, may appear to be abnormally large by western standards, but in Asian societies, it is quite acceptable for married brothers and sisters and their families to live together as one household.

(b)   Number of households included in the Analyses.

This attribute varies from commodity to commodity since all households showing no expenditure on a particular item are excluded.   The following table shows the number of observations for each commodity and commodity group in both the random and school samples.

TABLE X

Commodities and Commodity Groups	Random Sample	School Sample
Total food expenditure	210	375
Meals eaten out	210	375
Milk and Milk Products		
Canned sweetened condensed milk	203	391
Local Fresh Milk	57	81
Reconstituted bottled milk	57	53
Milk powder	115	193
Evaporated milk	31	31
Butter	204	371
Cheese	92	149
Total dairy	253	468
Meat		
Local fresh beef	129	226
Imported frozen beef	19	34
Local fresh pork	181	321
Imported frozen pork	7	18
Local fresh poultry	182	319
Imported frozen poultry	11	24
Lamb	29	34
Goat meat	51	97
Fish	229	402
Canned meat	64	125
Other meat	14	6
Total meat	245	433

As can be seen from the table, in some cases the number of respondents who reported purchase is very small, particularly in the

random sample. (Imported frozen pork = 7; imported frozen poultry = 11; other meat = 14.) This suggests that the results derived from them should not be accepted too readily as they could be quite meaning-less.

(c) Concepts and Definitions.

If ambiguity is to be avoided, the precise meaning of the terms used in the analysis must be carefully defined.

(i) Income - This is a difficult concept to define precisely; one of the complications is "Income in Kind". Where farming is the major or an important secondary occupation, a substantial part of a household's total consumption of food products can be expected to come from its own production rather than from purchases in the market. However, this difficulty is less serious in the present study since this proportion of total consumption diminishes rapidly as householders in the middle and upper ranges of full time urban employment are reached.

Another problem concerning the income variable is that its under-estimation is almost inherent in most surveys of this nature. In some cases, for example in the Philippines,[1] under reporting of household income was found to be as much as 30% in some areas surveyed. In view of this income under-reporting, it is possible to argue that the reported household consumption obtained from the survey is actually for income levels higher than

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[1] "Long Term Projections of Supply and Demand for Selected Agricultural Products - Philippines", USDA - (ERS - Foreign) series 34.

reported. Theoretically, then, adjustments should be made by shifting the demand curve upwards with respect to income. Due to the lack of relevant statistical data from secondary sources, it is not possible to gauge the degree of such divergence, if any, existing in the incomes reported for the present survey. However, a method often used to overcome this problem of under-reporting on income is to base the analysis on recorded "total expenditure of household" rather than on "household income" as the determining or independent variable. This method, however, gives rise to an additional problem in that while it is not unreasonable to assume for statistical purposes that income does not depend on consumption, the same cannot be said for total expenditure. As is well known, by estimating regression coefficients by least squares when the independent variable is not truly independent of the stochastic term in the regression equation, biased estimates of the parameters will result.[1] The income data was given in the form of eight income classes. For the analysis, the average of each income class was taken to represent that class.

(ii)   Household size and composition - A simple function such as

$$Log \; E = \alpha + \beta \; Log \; y + u$$

assumes that, apart from a random error term (u), income (y) is the only thing that influences expenditure (E). In actual fact, "household size" is also an important factor affecting expenditure pattern. In some studies, it has even been found that the magnitude of the variations in consumption due to household size variations,

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[1] Livatan M. (see Reference 7) suggested that such a bias can be eliminated by using both "income" and "total expenditure" variables in the estimation procedure. This is done by applying the method of "instrumental variables" to Engel curve analyais with income as the instrumental variable.

is greater than due to income variations. For this reason it is important to take account of this factor in the formulation of Engel curve. In practice, this can be done by deflating income and expenditure for each household by the number of persons in that household. Unfortunately, households not only differ in the number of persons in them but also in their composition in terms of sex and age. Prais and Houthakker have pointed out that "the analysis of the effects of household composition arises as a refinement of the analysis of the effects of household size in consumption, as such, would lead to more accurate estimate of elasticities of demand". To take account of variations in household composition, it is necessary to devise a "unit consumer" scale by means of which the effective number of consumers in each household may be computed.

For the purposes of the investigation, it was planned to derive scales based on information regarding nutrition requirements of consumers differing in age and sex. For this an exhaustive search into the literature for suitable consumer unit scales was made. Unfortunately, virtually all the scales that have been compiled refer to consumers in the western world.[1] It is extremely doubtful whether such scales could be validly applied to Asian consumers whose nutritional requirements are quite different from those of their western counterparts.

The only scale available which appeared to overcome this problem was the "International scale of man-units" drawn up by an expert committee of the Health Organisation of the League of Nations. Unfortunately, this scale applies to "All Food" only. It was felt that

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[1] Examples - "Amsterdam Scale" see Reference (13)
"Prais & Houthakker Scale" see Reference (11)
"German Austrian Scale" - Wold - See Reference (15)

although it may be convenient to use this same scale for each of the various food types being studied, its validity for such a wide application was questionable, because while it may be reasonable to regard a child as equal to say 0.2 man-unit on the consumer man-unit scale, with regard to, say meat, requirements, it is unreasonable to assume that the same scale could be applied to say, milk requirements. Common sense would tell one that a higher value than 0.2 man-unit would be more realistic.

Finally, as a last resort, the Nutrition Department of the School of Home Science at the University of Otago was approached. This approach failed, too, to solve the problem on hand. Consequently, out of sheer necessity the analyses were carried out simply in terms of per person in household rather than in terms of the more desirable form per consumer unit in household. In other words, all persons in a household, irrespective of age or sex, are given the same weight in relation to their requirements for the various food types.

(iii)   <u>Economies of Scale</u> - Although the above reformulation is an improvement of the basic function

$$\text{Log } E = \alpha + \beta \log \bar{y} + u,$$

it is still limited by its assumption that personal expenditure depends only on the level of income per person thus disregarding the possible existence of economies of scale in consumption of the commodities concerned. Briefly speaking, such economies of scale mean that the same income allows consumption to "go further" in larger households. Goreux[1] calls it the "economic efficiency of household management" - the smaller the size of household, the lower the

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[1] See Reference (2).

efficiency of management and, therefore, the larger the expenditure.
This "scale effect" may be taken into account by including household
size as a separate explanatory variable in the equation which, there-
fore, becomes

$$\text{Log } \frac{E}{N} = \alpha + \beta \text{ Log } \frac{Y}{N} + \lambda \text{ Log } N + u$$

(iv)   Consumption - "Consumption" was measured in terms of both
expenditure and quantities purchased. It is believed, however, that
information in the latter form is probably less accurate because
generally speaking a householder can know that he spent say, a dollar,
on a tin of milk, without being able to say with any accuracy how
much either by weight or volume he received. Consumption
expressed in terms of expenditure also has the following advantages -

(a) It allows for changes in quality to be reflected in "Consumption".
Such changes may explain why one household spends more than
another on the same weight or volume of a commodity.

(b) Expenditures on specific items can be directly compared
with income and with each other.

(c) Unlike "quantities consumed", consumption in expenditure
terms is expressed in a single uniform unit (dollar). This
fact makes it possible for the analysis to be carried out on
broad food groups such as "All food", "All milk" and
"Meals eaten out".

Statistical Analysis of the Data

(a)   Functional forms of Engel Curves[1]

The choice of the function should be based on three criteria:-

(i)   The economic interpretation of the function in the framework of the consumption theory as applied to the particular study.

(ii)   Goodness of fit.

(iii)   Convenience and ease of handling and simplicity of computation.

The function chosen for the present analysis was the double-logarithmic function which takes the following form:-

$$\text{Log } Q \text{ (or Log } E) = \alpha + \beta \text{ Log } y + \lambda \text{ Log } N + u$$

where   Q is the quantity of the food type of food group consumed

(or E) the expenditure on the food type or food group,

y the total household disposable income,

and   N the number of persons in household,

Other factors have been ignored so since we cannot hope to isolate all these sources of variations, only income and household size have been introduced explicitly.   The effects of other factors (e.g. ethnic origin) are summarised by the error term u which is assumed to conform to

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[1] Since Marshall economists generally use the term "demand curve" to mean the curve showing how consumption of a commodity varies with price of that commodity; they often use the term "Engel curve" to mean the curve showing how the consumption of a commodity varies with consumer income.

some probability distribution.[1]   The double log function assumes a constant

elasticity.   This is not unrealistic in view of the narrow range of income

levels taken into consideration.   One of the main reasons for its popularity

in use is its practical advantage over other forms in that the regression

coefficient is equal to the elasticity coefficient.   However, there is an

important difficulty arising from the use of the double log form.   This

is the problem of treating households with zero consumption.   There

were some households reporting non-purchase of food commodities under

consideration.   Zero purchase by any particular household might be due

either to:-

(a)   Households never buying the commodity.   For example,

Muslim households will not buy pork or the vegetarian

households never buy meat.

(b)   Households do buy but did not buy any for that specific

week.   This was thought less likely to happen with food

than with non-food items.   Also, the Asian habit of very

frequent marketing (mostly daily) would keep this

possibility down to a minimum.

(c)   Householders forgetting to report the consumption of the

commodity, in which case there is an error of observation.

For purposes of the present study, all zero consumption has

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[1] The effect of ethnic origin on consumption may be measured by
extending the above equation to
$$\text{Log } Q(\text{or Log } E) = \alpha + \beta \text{ Log } y + \lambda \text{ Log } N + \theta_1 E_1 + \theta_2 E_2 + \theta_3 E_3 + \theta_4 E_4,$$
where E_1, E_2, E_3 and E_4 are dummy variables for householders
of Chinese, Malay, European and Eurasian origin, i.e. these
variables assume a value of 1 in the relevant ethnic group and
0 in the other groups, θ_1, θ_2, θ_3 and θ_4 are the numerical
coefficients to be estimated.
(Households of Indian origin are taken as the norm.)

been classified as falling under the first possibility. This was thought to be the best way to avoid the problem of taking the logarithms of zero.

(b)   Estimation of Expenditure and Quantity
              Elasticities of Demand

Estimation of the relevant parameters presents little difficulty once the form of the equation is specified. In this study, the estimates of the elasticities were computed by least squares regression. Both the expenditure and quantity elasticities were derived for each type of food and for each food group.[1] Two series of equations were used. In both series, the dependent variable (expenditure and quantity consumed) and the independent variable (income) are deflated by the number of persons in household to take account of the effect of household size.

Equation
Series 1

$$\text{Log}_e \frac{E_i}{N} \ \left(\text{or Log}_e \frac{Q_i}{N}\right) = \alpha + \beta \text{ Log}_e \frac{Y}{N}$$

Equation
Series 2

$$\text{Log}_e \frac{E_i}{N} \ \left(\text{or Log}_e \frac{Q_i}{N}\right) = \alpha + \beta \text{ Log}_e \frac{Y}{N} + \lambda \text{ Log}_e N$$

Where E_i is the household expenditure on the commodity in
              dollars per month (for "total food" and "meals
              eaten out") and in dollars per week (for each
              food type).
     Q is the quantity of the food type or food group consumed.
     Y is the household disposable income in dollars per month.
     N is the number of persons in household.
     α, β, and λ are the parameters to be estimated by
              least squares.

Since the function is a double-log, these regression coefficients correspond to their respective expenditure (or quantity) elasticities

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[1] Except for "total food", "meals eaten out" and "total dairy products" for each of which there was no single quantitative measure.

(β with respect to income and λ with respect to household size).
Equations Series 1 differs from Series 2 in that a second independent
variable namely, household size, has been added to take account of
any "Scale effect" that may exist. Both series of Equations were
fitted to the data for each type of food and for each food group being
studied.

Discussion of results obtained

(a) General

The simple relationships used in the analyses on the whole
gave plausible and, in most cases, significant values of the parameters.
Where they fail it would appear that no simple alternative form of
equations should improve matters and it is not easy with available data
to see in what way more complex forms could fruitfully be used.

For most of the expenditure items, the regression explains
under half of the variance in the dependent variable as indicated by
the relatively low coefficients of determination. This gives warning
evidence that much remains unexplained. Series 2 equations (that is,
equation in which both income and household size appear as independent
variables) as expected, gave significantly larger values of this
coefficient. Almost all of these coefficients of determination are
significant at the 1% level using an F - test. The only exception is
that for goat meat and imported frozen pork in the random sample and
reconstituted bottled milk, evaporated milk and imported frozen poultry
in the school sample. The picture of consumption of these items as
indicated by these results is, therefore, not too clear.

As was mentioned before, the investigation through the schools
was not based on a strictly random sample. But, there is no reason to
suspect that the respondents had been chosen in a seriously biased way.
The sizes of the elasticities are comparable and there is no systematic

tendency for the results of the one enquiry to be either higher or lower than those of the other.   Any difference that exists may be attributed mainly to the difference in the number of observations for the various commodities between the two samples.   In particular, the number for some of the commodities in the random sample is very small and the statistical error is, therefore, necessarily large.   These results lend support to the hypothesis that the behaviour of households in both samples can be described largely by the same set of Engel curves.

Other obvious results that emerge include

(i)   The quantity elasticities are virtually all smaller than the corresponding expenditure elasticities.   This is consistent with the idea of quality elasticity - of demand - a concept which will be defined and its analyses presented. later.

(ii)   The elasticity measures for individual commodities are generally less accurate than results for commodity groups as evidenced by their relatively larger standard errors.   This partly reflects the smaller number of observations involved in the former than in the latter.

(iii)   The sign of the regression coefficients are consistent with a priori expectation, the consumption of all the food items being considered increases with income (positive parital elasticity in relation to income) and the consumption of most of the items, decreases with household size (negative partial elasticity in relation to household size).   In other words, the two factors generally work in opposite directions.

(iv)   Most of the regression coefficients are statistically significant and are acceptable on a priori grounds.

(b)   The choice of estimates

When the second independent variable, household size, is added to the equation, the income coefficient becomes statistically less

significant and, in some cases, non-significant even at the 10% level.
The reason for this can be traced to the very high inter-correlation between
the two independent variables,[1] (the correlation coefficients were generally
above 0.6). Consequently, the measure of the separate effect of the two
explanatory variables on household consumption or expenditure is not
possible.

As pointed out earlier, the multiple regressions of equations
series 2 all have much higher R^2 which indicate that they provide a better
explanation of the variance in the dependent variable than their correspond-
ing simple regressions of series 1. This advantage, together with the
highly significant household size coefficients obtained, make equations
series 2 highly desirable. It was finally decided that estimates of
income elasticity of demand derived from series 2 equations will be
taken in all cases except where the income coefficients become unrealist-
ically small or large (on a priori grounds) and statistically non-significant
even at the 10% level in which case the equation is rejected and the
corresponding statistically more significant and more realistic estimate
from equations series 1 will be presented. (Table XI).

(c)   Discussion of income elasticity of demand

The summary of the income elasticities is presented in
Table XI. The interpretation of the results is, on the whole, straight-
forward. An income elasticity of demand of say, 0.6, means that,
broadly speaking, households with a 10% higher income spend 6% more
on the commodity concerned. It does not necessarily follow, but it
is generally assumed, that it implies that a 10% increase in household
income would be accompanied by a 6% increase in food expenditure;
(A dynamic as compared to a static interpretation).

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[1] The correlation between household size and income per person is,
as expected, negative.

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The estimates are all significantly different from zero at least at the 5% level, except for canned sweetened condensed milk, local fresh milk and imported frozen pork which are significant only at the 10% level. On the other hand, on *a priori* grounds, there is no strong reason to suspect that these elasticities are greatly out of order.

Expenditure on the consumption of a few of the commodities were reported only by a very small number of respondents in the survey.[1] However, the coefficients in these cases are all statistically non-significant. One of the most striking facts brought out by the table is the unexpectedly high income elasticity estimate for "All Food" (around 0.7). This is contrary to what was expected from personal experience and *a priori* considerations. It might be expected that Petaling Jaya, being a relatively wealthy community (even by New Zealand's standards), would have a lower elasticity than the value derived from the analyses. Although the elasticity is high, it is still far below 1.0 and thus supports Engel's law.

As expected, the value of the estimates for "Meals eaten out" is high, although relatively low at 0.7 compared with results obtained for other countries. Measures of income elasticity of demand are useful for a rough ranking of foods according to the extent to which they are regarded by the average household as luxuries and necessities. The analyses show that all the commodities are "Normal" goods (positive income elasticity of demand). This is in line with the expectation that meat and dairy products, being "quality" foods, are purchased to a greater extent by households with larger incomes. In other words, there are no inferior goods (negative income elasticity of demand). Income elasticities of demand of meat are generally higher than those for milk and milk products. However, there are considerable variations between

[1] In the random sample, imported pork has 7 and imported poultry 11. In the school sample, other meat has 6 only.

TABLE XI

Summary of Parameter Estimates of Statistically Significant Expenditure
and Quantity Elasticities of Household Demand in Relation to Household

Income for Food (Both Samples)

Commodities and Commodity Groups (1)	Equation Series (2)	RANDOM SAMPLE Expenditure Elasticities (3)	RANDOM SAMPLE Quantity Elasticities (4)	Equation Series (5)	SCHOOL SAMPLE Expenditure Elasticities (6)	SCHOOL SAMPLE Quantity Elasticities (7)
Total Food Expenditure	1	0.649^{xxxx}	-	1	0.623^{xxxx}	-
Meals eaten out	1	0.737^{xxxx}	-	1	0.653^{xxxx}	-
Milk & Milk Products						
Canned Sweetened Condensed Milk	2	0.105^{x}	0.104^{x}	2	0.108^{x}	0.107^{x}
Local Fresh Milk	2	0.342^{x}	0.202^{x}	2	0.381^{x}	0.212^{x}
Reconstituted bottles milk	1	0.657^{xxxx}	0.519^{xxxx}	(x)	(x)	(x)
Milk powder	1	0.322^{xxxx}	0.339^{xxxx}	1	0.325^{xxx}	0.339^{xxx}
Evaporated milk	(x)	(x)	(x)	1	0.489^{x}	0.483^{x}
Butter	1	0.416^{xxx}	0.362^{xxxx}	2	0.271^{xxxx}	0.219^{xxxx}
Cheese	2	0.224^{xx}	0.210^{x}	2	0.228^{xx}	0.221^{xx}
Total Dairy	2	0.318^{xxxx}		2	0.303^{xxxx}	-
Meat						
Local fresh beef	2	0.291^{xx}	0.267^{xx}	2	0.293^{xxx}	0.268^{xxx}
Imported frozen beef	1	0.691^{xxxx}	0.540^{xxx}	2	0.982^{xxx}	0.745^{xx}
Imported frozen pork	(x)	(x)	(x)	1	1.024^{x}	0.767^{x}

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Table XI (cont'd)

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Local fresh poultry	2	0.435^{xxxx}	0.366^{xxx}	2	0.320^{xxxx}	0.233^{xxxx}
Imported frozen poultry	(x)	(x)	(x)	1	0.881^{xxx}	0.702^{xxx}
Lamb	1	0.423^{xxx}	0.394^{xxx}	(x)	(x)	(x)
Goat meat	(x)	(x)	(x)	2	0.334^{xx}	0.277^{x}
Fish	1	0.396^{xxxx}	0.277^{xxxx}	1	0.315^{xxx}	0.170^{xxxx}
Canned Meat	1	0.555^{xxxx}	0.540^{xxx}	1	0.569^{xxxx}	0.515^{xxxx}
Other Meat	2	1.155^{xxx}	1.015^{x}	(x)	(x)	(x)
Total Meat	2	0.476^{xxxx}	0.419^{xxx}	2	0.375^{xxxx}	0.292^{xxxx}

(x) Calculation of these elasticities has been omitted
since they are statistically non-significant.

x   Significant at 10%
xx   Significant at 5%
xxx   Significant at 1%
xxxx Significant at 0.1%

individual meats. Imported frozen pork and other meat are the only

meat categories that are considered by householders as "luxuries"

(income elasticity of demand > 1.0). The chief necessity is,

undoubtedly, canned sweetened condensed milk which has an elasticity

of only 0.1. The demand for this commodity is very inelastic since

its consumption is well satisfied even at a low income level. The

majority of the other commodities exhibit moderate income elasticities

(around 0.3 - 0.4). Imported frozen poultry (0.9), imported frozen

beef (0.7), canned meat (0.6), and reconstituted bottled milk (0.7),

may be regarded as "semi-luxuries". It is a common notion that butter

and cheese belong to the "luxury" class of commodities. This

certainly does not hold true for the middle-upper class consumers

as is shown in these analyses.

Evaluation of results obtained

      Although the standard errors of the estimated regression

coefficients are generally small[1], it was felt desirable to further

evaluate the reliability of the results by comparing the estimated

elasticities for different consumption items with those obtained in

studies carried out in other countries.[2] While such a comparison is

not strictly applicable in view of the diverse conditions among countries,

they do show some similar variations between commodity groups.

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[1] Some statisticians consider that in a regression analysis of
non-experimental data such as that derived from a relatively
small household budget survey, the standard errors carry little
weight as significance indicators. Small standard errors, there-
fore, may give a false impression of accuracy. (For an explanat-
ion of this point, see Reference (14a), pages 260-261.)

[2] The table is not complete due to the difficulty of obtaining the
relevant measures for commodity groups which are at least
roughly comparable.

TABLE XII

Commodity Groups	Petaling[a] Jaya	Philip-[b] pines	United[c] States	Austria[d]	Sweden[e]
Total food expenditure	0.6	-	0.4	0.5	-
Meals eaten out	0.7	-	1.14	1.2	-
Fish	0.3	0.3[f]	-	0.5[g]	0.3[f]
Total meat	0.4	0.4[h]	0.4	0.4[i]	0.4[j]
Total dairy	0.3	0.7	0.3	-	-

[a] Expenditure elasticities from school sample.

[b] Quantity elasticities "Agreco" family budget survey - urban, outside Manila of the Philippines" 1960.

[c] Expenditure elasticities "Household budget survey 1948" - U.S.A.

[d] Expenditure elasticities "Austrian Consumption Survey - 1955/56" - Austria.

[e] Information reproduced from Reference (15).

[f] Includes fish products.

[g] Fresh fish and shell animals.

[h] Fresh beef only.

[i] Fresh beef only.

[j] Includes meat products.

(d)   Discussion of household size elasticity of demand.

Table XIII below shows that statistically significant influence of household size is obtained for virtually all except six commodities (both in expenditure and quantities consumed). Many are significant even at the 0.1% level. In terms of size, the coefficients are unusually large and have a negative sign, indicating that larger households spend much less per person on the commodities than smaller households. For

example, canned sweetened condensed milk has a household size

elasticity of around -0.4 indicating at at equal levels of income per

person, larger households spend 40% less per person than do smaller

households on this commodity. These results would appear at first

sight to be rather unrealistic since they suggest that households are

driven to considerable economies when the household is at all large.

It is logical to expect middle upper class households to have a sufficient

margin of income to allow for what increase in food expenditure is needed

to meet the increase in household size. In other words, there is no

reason for them to stint expenditure on food commodities to the

extent indicated by the elasticities.

Four explanations are offered for this. Firstly, by western

standards, the size of eastern households is very large.[1] For this

reason, even if they are in the middle upper class income category,

the need to practise economy in food expenditure is real and unavoidable.

Secondly, the high elasticity reflects the high degree of

economies of scale achieved in the larger households by keeping kitchen

wastage to a minimum and by buying lower grade commodities. This

applies more so to the meat than to the milk commodities. Also, the

manner in which meat is served in eastern meals (cut up into very small

pieces and cooked together with vegetables etc.) probably allows a

piece of meat "to go further" than in a western meal.

Thirdly, the household size elasticity may not necessarily

reflect economies of scale effect. In Malaya, food commodities such

as butter, cheese, milk and the imported meats are not commonly eaten.

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[1] In the Petaling Jaya survey some households reported having as
many as twenty five persons in it. This certainly suggests a
case of "multiple household", as explained earlier.

TABLE XIII

Summary of Parameter Estimates of Expenditure Elasticities of Demand
in Relation to Household Size for Food (both Samples)

Commodities and Commodity Groups	Random Sample	School Sample
Total Food Expenditure	-0.029	-0.108
Meals eaten out	-0.035	-0.009
Canned Sweetened Condensed Milk	-0.392^{xxx}	-0.363^{xxxx}
Local Fresh Milk	-0.597^{x}	-0.839^{xx}
Reconstituted Bottled Milk	-0.763^{xx}	-0.588
Milk powder	-0.786^{xxxx}	-0.498^{xxx}
Evaporated milk	-1.304^{xxxx}	-0.472
Butter	-0.717^{xxxx}	-0.593^{xxxx}
Cheese	-0.780^{xxxx}	-0.818^{xxxx}
Total Dairy	-0.800^{xxxx}	-0.765^{xxxx}
Local Fresh Beef	-0.511^{xxxx}	-0.499^{xxxx}
Imported Frozen Beef	-0.859^{xxx}	-0.624
Local Fresh Pork	-0.202^{x}	-0.291^{xxxx}
Imported Frozen Pork	-0.709	-1.173^{xx}
Local Fresh Poultry	-0.374^{xxx}	-0.413^{xxxx}
Imported Frozen Poultry	-0.282	-0.192
Lamb	-0.743^{xx}	-0.733^{xx}
Goat meat	-0.141	-0.541^{xxx}
Fish	-0.537^{xxxx}	-0.287^{xxx}
Canned meat	-0.692^{xx}	-0.525^{xxxx}
Other meat	-0.469	-1.463^{xxxx}
Total Meat	-0.184^{x}	-0.283^{xxxx}

In fact it may even be said that they are strongly disliked by at least
some members of every household. Consequently, the unusually high
negative value of household size elasticity for these commodities may
arise merely as a result of larger households having the same number
of effective consumers (and, therefore, the same total expenditure)
but a much smaller expenditure on a per person basis, than smaller
households.

Fourthly, there is also the possibility of the substitution
effect operating as households become larger. For example, larger
households may reduce purchase of butter and buy more margarine
instead.

Other than the above considerations, the household size
elasticities are, on the whole, fairly consistent with what was expected.
Those items that are more income elastic generally have higher
household size elasticities thus reflecting the fact that the need for
economising is greater in luxuries than in necessities. The elasticities
for meals eaten out is very small (0.01 - 0.04). However, the values
are statistically non-significant.

(e)   Discussion of Quality Elasticity of Demand.

Caution is needed in the interpretation of the quality elast-
icities as derived from the analyses since no significance tests were
carried out to see if the expenditure and quantity elasticity estimates
were significantly different from each other.

As can be seen from Table XV, the quality elasticities
calculated from the two samples are very similar. On the whole, the
values are all very small. Unlike non food items, the scope for quality
variations in food is rather limited. Nevertheless, there are some
notable differences in the magnitudes of the elasticities between
individual food items. Among the meats, imported frozen meats

(Pork = 0.26; Poultry = 0.17; Beef = 0.15-0.24) as expected, have the highest quality elasticities. These commodities have the greatest variations in the varieties (in terms of cuts, grades and sources of import) available in the market and, therefore, have the widest scope for quality variations. Other meat[1] (0.14) covers a wide range of commodities mainly consumed as delicacies. These include shrimps, prawns and crabs. Fish (0.12 - 0.15) is also available in a great number of varieties and qualities to the consumers. Among the dairy products, only local fresh milk has a notably high quality elasticity (0.14 - 0.17). Unlike in most western countries, fresh milk production in Malaya is not under official control or supervision. Consequently, milk qualities and prices charged for them vary greatly.

For all the food commodities being considered, the effects of quality variations is virtually always positive. The only exception is that of milk powder which has a negative quality elasticity of 0.05. This negative relationship indicates that qualitative demand is not only unimportant but, with rising incomes, consumers actually purchase greater quantities of the lower quality grades and varieties of the commodity, thus reflecting the fact that consumers do not yet feel that they have consumed sufficient quantity of it. However, it is to be expected that this negative relationship could change as income increases still further, by which time the quality factor would be taken into account in the purchase of this commodity.

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[1] The values of the quality elasticity derived in a study, of course, depends partly on the commodity nomenclature adopted in the survey. Where the commodities included under each heading were rather homogenous, the quality elasticities would be relatively smaller than if the classification of commodities was more aggregative.

Moderate quality elasticities (0. 05 - 0. 09) were exhibited in the cases of reconstituted bottled milk, butter, cheese, local fresh pork, local fresh poultry, goat meat and total meat.   For the remainder of the items, the magnitude of the quality elasticities is very small, ranging from 0. 04 to 0. 00 (canned sweetened condensed milk in the latter case).

The following table is a summary of quality elasticities of relevant commodities derived from the "United Kingdom Working Class Budget Collection (1937-1939) and the "Urban Consumption Survey of Austria 1954-1955".

TABLE XIV

Food Commodities	U.K.	Austria
Milk & Milk Products		
Fresh milk	0. 09	0. 02
Condensed milk	0. 02	
Butter	0. 01	0. 02
Cheese	0. 05	0. 06
Meat		
Fresh beef	0. 18	0. 06
Frozen beef	0. 20	
Fresh mutton	0. 28	
Frozen mutton	0. 21	
Pork	0. 13	0. 02
Poultry		0. 15
Canned meat		0. 27

TABLE XV

Parameter Estimates of Quality Elasticities of Demand of
Selected Food by Commodities and Commodity Groups

Commodities and Commodity Groups	Elasticities estimates derived from the	
	Random Sample	School Sample
Milk & Milk Products		
Canned sweetened condensed milk	0.00	0.00
Local fresh milk	0.17	0.14
Reconstituted bottled milk	0.06	(x)
Milk powder	-0.04	-0.01
Evaporated milk	(x)	0.01
Butter	0.05	0.05
Cheese	0.01	0.01
Meat		
Local fresh beef	0.03	0.03
Imported frozen beef	0.15	0.24
Local fresh pork	0.07	0.06
Imported frozen pork	(x)	0.26
Local fresh poultry	0.07	0.09
Imported frozen poultry	(x)	0.17
Lamb	0.03	(x)
Goat meat	(x)	0.06
Fish	0.12	0.15
Canned meat	0.02	0.04
Other meat	0.14	(x)
Total meat	0.06	0.08

(x) = Calculation of these quality elasticities has been
omitted since the respective expenditure and/or
quantity elasticities are non-significant.

It can be seen from Table XIV that most of the quality

elasticities roughly correspond to those obtained from the Petaling

Jaya meat. These variations probably reflect the diverse market

conditions that exist between countries. In the United Kingdom, where

mutton is a commonly eaten meat and where many cuts and grades of

the meat are therefore available, the quality elasticity is relatively

high (> 0.2), while in Petaling Jaya it is only 0.03, thus reflecting

the very limited choice available to the consumers. In Malaya, canned

meat from China is the most popular, especially with the Chinese

population. Although there is no lacking in the varieties (in terms of

style of preparation)available, the prices are uniformly low and this

predominance of canned meat from China in the Malayan market

probably explains the very low quality elasticity of canned meat in the

Petaling Jaya survey (only 0.02-0.04) as compared to 0.27 in Austria.

(f)   Analysis of Interrelated demand for some Commodities.

An analysis of the interrelated demand between the following

commodities has been undertaken:

(1) Goat meat and lamb;

(2) Beef and pork;

(3) Pork and lamb.

The results are summarised in the following table. The analysi s has

been limited to a study of regression of two commodities (Y on X),

assuming incomes constant, for households reporting consumption of

the above pairs of commodities.

(Log Y = a + b Log X)

The negative relationship between beef and pork indicates

that as incomes change and the consumption of beef increases, pork

consumption decreases. They are, therefore, substitutes for each

other. In the case of the other pairs of commodities, the relationships

TABLE XVI

(Random Sample)

Commodities		Number of Observations	Regression Coefficients (b)	Intercept Value (a)	Simple coefficient of determination (r^2)
Y	X				
1. Goat meat	Lamb	7	0.9937 (0.5677)	1.4422	0.3800
2. LF Beef	LF Pork	175	-0.3993[xxxx] (0.0085)	0.2763	0.2532[xx]
3. LF Pork	Lamb	144	0.7433[xxxx] (0.0900)	3.1543	0.3246
(School Sample)					
1. Goat meat	Lamb	6	0.5298[xxxx] (0.0950)	1.8034	0.8861[xxx]
2. Beef	Pork	300	-0.4226[xxxx] (0.0143)	2.5092	0.1036[xxx]
3. Pork	Lamb	242	0.4389[xxxx] (0.0649)	4.4949	0.1602[xxx]

are all positive which, to some extent, was unexpected. Meat and fish increases (decreases) together, as income changes and so do goat meat and lamb, pork and lamb. However, this phenomenon may be explained as follows. Most households are not consuming what they consider sufficient quantities of say meat and fish. Therefore, increases in income result in an increase in the consumption of both commodities. Although it is likely that at some very high income level this positive relationship will change, there are not sufficient observations of these consumers on which to base such a conclusion.

Conclusions and Implications

Many developing nations, including Malaya, have in recent

years experienced severe shortages of food. Many have had to increase
food imports greatly to cope with the situation. Increased demand for
food has also forced up food prices and contributed to national inflation.
In addition to rapid population growth, an important cause of the greater
demand for food has been the increased per capital income, particularly
in urban areas.

To obtain a better insight into the specific relationship between
food consumption and income, a family budget survey of Petaling Jaya
was carried out. The selection of Petaling Jaya as the site of survey
is justified by the fact that it is a relatively wealthy community whose
consumers are, therefore, likely to be comparatively more sophisticated
in their food consumption pattern. A knowledge of their behaviour in
food consumption would provide a reasonable guide to the possible trends
in food consumption habits for the nation as a whole as Malaya's national
income per capita rises, in the years ahead. All this is of utmost
relevance to New Zealand, particularly in the light of her increasing
difficulties in selling her primary food exports, namely, milk and meat,
to traditionally established markets in the western world.

It is not difficult to see why knowledge of the size and sign
of the elasticities of demand of food commodities as derived from a
study such as this, is extremely useful from New Zealand's point of
view. Such knowledge would put her in a better position to foresee
the importing nation's future requirements of the food commodities
New Zealand is interested in selling. In this way, specific plans
concerning the direction and size of effort required in an export drive,
can be worked out for each relevant commodity.

The results derived from the analyses presented earlier
are by no means conclusive. Although no sweeping conclusions
can be made from them, they do suggest certain implications which
will now be discussed. Firstly, the very high positive income

elasticity of demand for "Total food" means that an increase in income is likely to have a very significant upward effect on total food consumption and expenditure. It also suggests that the income elasticity of demand of food for the nation as a whole, is most likely to be close to or even greater than unity. However, there is no information on which the discussion of this point may be expanded. This very high income elasticity of demand of food should be encouraging to food producers like New Zealand, especially in the light of the fact that a fair proportion of this increased food expenditure will be devoted to protein foods such as milk and meat as indicated by the moderate income elasticities of total dairy and total meat.

As pointed out earlier, the majority of the commodities considered are only moderately income elastic. Therefore, sizeable increase in consumption can be expected only for a very limited number of foods. These are -

        (a) imported frozen pork;

        (b) imported frozen beef;

        (c) imported frozen poultry;

        (d) canned meat;

        (e) other meat.

Among the milk and milk products, reconstituted bottled milk is the only commodity which has a high income elasticity of demand. The implications are obvious. It will be in New Zealand's long term interest to promote the sale of those commodities which are highly income elastic since, with increased income, the consumption of these commodities may be expected to increase sharply. In fact, in the case of imported frozen pork and other meat, consumption is likely to grow even faster than income. Of all the commodities mentioned above, reconstituted bottled milk is the only one which New Zealand is at present actively engaged in selling. Imported frozen pork and imported

frozen beef are not likely to be New Zealand's major exports to the region in view of her concentrated effort in the production of sheep meat. However, this high income elasticity of demand of imported frozen beef lends weight to the argument for increased beef production in New Zealand.

The canned meat market is, and will be, dominated by mainland China in view of the very low price she asks for her goods and, moreover, the Chinese population in Malaya generally prefers canned meat prepared in their traditional styles.

Other meat - which includes shrimps, prawns, edible offal and the like, are also likely to be purchased in greater quantity as income goes up. New Zealand has a much higher potential in the export of these foods than generally realised. Chicken liver, gizzards, pork liver, abalone (paua) and other marine food, which are generally of low value in New Zealand, are highly prized in the Orient. There is no reason why New Zealand should not at least look seriously into the possibilities of these lines for export, especially in view of the very low marginal costs involved in their production.

The high income elasticity of demand derived for reconstituted bottled milk lends support to the New Zealand Dairy Board's view on the long term prospects for the commodity in the region. The joint establishment of reconstituted milk plant with local business interests is a move in the right direction.

Butter, cheese and lamb - the three exports which are of greatest interest to New Zealand at present, are only moderately income elastic. In other words, income effect is relatively unimportant in the purchase of these commodities. Other factors, such as taste and preference, are likely to be of greater importance.

The income elasticities of demand of "meals eaten out"
though relatively low at 0.7 compared with values obtained for western
countries, is still very high compared with other commodities and
commodity groups studied. By western standards, eating out is
relatively cheap in most Asian countries and for this reason it is
quite common for the reasonably well-off families to dine out at
least once a week. Also, it is not customary for working members
of the household and school children to have "cut lunches" which means
that for many households eating out would include lunches as well.
For the New Zealand food exporter, this would suggest that no
effort should be spared in attempting to make inroads into the food
catering business in the country. There are thousands of
restaurants and eating stalls of all descriptions throughout Malaya
and they are all constantly seeking an easy and cheap supply of
meats and other ingredients required for their special dishes. New
Zealand mutton should be quite acceptable, especially to those that
cater for the Indian and Malay sections of the population. As for
beef, New Zealand's "air freight" steak has already established
itself as a name in many high class restaurants. With the import
of venison from New Zealand now permitted by the Malayan and
Singapore Agricultural Authorities, the prospect of establishing a
market for venison in this part of the world seems promising. For
the time being, at least, the demand will be mainly confined to
restaurants and hotels catering for tourists but considering the
fact that the deer is regarded as a "high class animal" in the Orient,
it should not be too long before "Venison Chow Mein" and "Venison
Chop Suey" become well established dishes in the Oriental recipe
books.

The size and sign of the household size elasticities derived

from the study indicate that even with the relatively wealthy house-
holds, a very high degree of economies of scale for most of the
food commodities considered, is achieved. This would reduce,
to some extent, the effectiveness of the often quoted argument that
market potential in Asia is great because families are large and,
therefore, a small increase in purchase per person would add up
to an impressive total.

The positive quality elasticities obtained in the analysis
indicates that, like consumers anywhere else, higher grades and
better varieties of a commodity are generally preferred as one's
income goes up. The lesson from this, obviously, is that New
Zealand must not look upon the Malayan market as a permanent
"dumping ground" for her lower grade meat amd milk exports.[1]
The market should be closely watched for signs of changes in
quality preferences as income rises, so that this change in
demand can be met accordingly.

Results from the analysis of interrelated demand suggests
that lamb is not a substitute for local fresh pork or goat meat.
The latter case was rather unexpected since goat meat and lamb
are generally regarded as one and the same meat. This result
would appear to suggest that those households that do purchase
the two meats regularly, however, do know the differences between
them. As it is believed that many households do not purchase
lamb because of their associated image for lamb with the very

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[1] Although milk powder has a negative quality elasticity, this,
as pointed out earlier, is likely to change with further rise
in income.

strong smell and taste of goat meat, it seems strongly desirable
for lamb exporters to provide non-lamb consumers with as many
opportunities as possible for tasting their meat if this problem is
to be overcome.   The distribution of free samples to housewives,
the inclusion of mutton in school lunch programmes, the holding
of occasional receptions featuring New Zealand lamb for local
press reporters, dieticians, chefs and housewives, are some of
the methods by which this could be done.

CHAPTER   6

GENERAL CONCLUSIONS

Many viewpoints have been expressed in the New Zealand
press in recent years concerning the potentialities of South East
Asian markets for New Zealand's export food.   One extreme view
tends to be biased and "glamourise" trade with the area without
mentioning the numerous problems involved.   One often hears
of the "success story" of New Zealand's sale of mutton in the
Japanese market.   This claim, usually by over-enthusiastic
trade officials, is to a certain extent justified, but it does not
tell the whole story.   For instance, Japanese statistics show that
a great bulk of the mutton that is imported into Japan is used in
the form of manufactured meat for sausages and the like, and not
used in its original identity as mutton, on which New Zealand's
costly promotion and advertising effort were concentrated and
for which success was claimed.

At the other extreme, some critics tend to be over-
pessimistic and brush aside altogether any possibility of profitable
trade with the area.   Often, their so-called "arguments" are
nothing but sweeping statements and unsupported generalisations.
For instance, statements such as "Asians are too poor to buy
New Zealand food" are strong emotional assumptions which tend
to obscure the facts.

Such extreme viewpoints are unrealistic and if they become
accepted in New Zealand's trade circles, could greatly reduce the
effort that is urgently needed and the prospects for a better trade
relationship with South East Asia. What is needed is an imaginative
but yet cautious approach to the task of market development.
Optimists, on the one hand, must recognise that developing food
markets in an under-developed country is a difficult task and must
take into serious consideration the many problems and obstacles
that such a venture entails. The pessimists, on the other hand,
must realise that many of the so-called "unfavourable factors" are
liable to change with time and that the great effort must be made now
if New Zealand is to establish itself in South East Asian markets for
the future.

In the following paragraphs various factors will be pointed
out which are clearly favourable to New Zealand, as a food exporter,
in developing trade with the countries of South East Asia, with
particular reference to Malaya. At the same time, the many
problems and obstacles that are involved will be mentioned.

(a)   Large Population but Low Consumption Level

There are an awful lot of hungry people in South East Asia
and this fact fulfils a basic requirement for a potential food market to
be considered worthwhile. The population of South East Asia is
large by any standard. Malaya, with an area even smaller than
the South Island of New Zealand, alone has a population of about
seven million which is nearly three times that for the whole of New
Zealand. It is estimated that this figure will reach ten million
by 1975.

The average intake of calories per person in South East Asia

is well below the 3000 average of developed countries.   In terms
of quality, the food consumed by Asians is even more inferior
to that consumed by their counterparts in the more advanced nations.
Diets are very unbalanced and generally heavily weighted towards
carbohydrates.   Proteins are seriously deficient, especially proteins
of animal origin.   Although consumption level is low, but because
of the large population, even a very small individual purchase would
make an impressive total.   To use a hypothetical calculation, it
has been estimated that if an income rise permits the daily consumpt-
ion of one extra ounce of milk per person on present population of
the Far East alone, nearly 1800 million gallons more milk a year
would be needed and this is 350 million gallons more than the record
output of milk in Australia.

It is obvious that in terms of physical size of demand,
the potential is tremendous, but in terms of economic effective
demand, market potential will depend on the rate of growth of
purchasing power in the countries concerned.

(b)   Local Government's Recognition of the Nutritional Value
         of Dairy Products and Meat in the National Diet

Deficiency diseases, due to the inadequate and unbalanced
diets, are common in South East Asia.   Protein malnutrition is
the common cause of many diseases especially amongst infants
and children; it retards growth and development, and reduces
resistance to infection.   Incidences of protein deficiency are more
acute in the countryside than in the cities and more serious in
some countries than others.   Fortunately, most governments of
South East Asia recognise the importance of taking nutritional
considerations into account when planning for economic development.

Food such as meat and dairy products are considered as essential items and in countries like Malaya, where home production of these products is negligible, the local authorities are liable to be more liberal with their imports.

(c)   Closeness of South East Asia to New Zealand
Other than Australia, New Zealand is much closer geographically to South East Asia than many other established suppliers of milk and meat to the region. Closeness to markets reduces costs of tranportation and this, in turn, means that New Zealand foods could be sold at a more competitive price.

(d)   Programme for Industrialisation in South East Asia
Most of the South East Asian countries have decided to diversify their agricultural economy by developing light manufacturing industries in order to promote economic growth and provide employment opportunities for the growing labour force. The establishment of dairy factories and other "essential" food processing plants rank high in priority in these programmes. For example, there is now established in Kuala Lumpur, the Malayan capital, a reconstituted milk processing plant which is a joint venture between the New Zealand Dairy Board and Malayan private capitalists. This plant and others in other South East Asian countries offer a potential outlet for New Zealand's milk products for further processing. The advantages to New Zealand of such joint ventures in industrial projects are

(i)   Use of cheaper local labour;

(ii)   Overcome transport costs;

(iii)   Preserve entry to a market in which future import restrictions may be applied.

(e)   New Zealand Is the World's Most Efficient Producer of
        Meat and Dairy Products

The advantages accruing to this factor alone should outweigh
all other disadvantages which New Zealand may suffer in her
competition with other suppliers to the markets of South East Asia.
Efficiency in production means lower costs per unit output and this
could be reflected in the lower price offered to the ultimate consumers.

(f)   New Zealand is Realatively Free from Nuclear Contamination

The pastures of New Zealand and also of Australia, unlike
those of the other food producers in the Northern Hemisphere, are
relatively free from nuclear contamination.   This is a very strong
selling point especially in a country like Malaya where ignorance
and superstition prevail.   Even among the educated, this factor is
of psychological value.   For example, people prefer to buy milk
from tuberculosis free herds rather than pasteurised milk from herds
which have not been established as TB free, although it is widely
known that pasteurisation kills TB germs.   The recent nuclear tests in
the Pacific by France must be considered as a direct economic threat
to New Zealand's future export trade.

(g)   Acceptance of Dairy Products and Mutton by
            the Local Population

In discussing the extent to which "western" food and eating
habits are accepted in Malaya, one must distinguish between the
educated, higher income group on the one hand and the uneducated,
lower income group on the other.   The difference between the two
groups in this respect reflects the difference in their opportunities
for exposure to western influence.

(i)   For the first group, it is believed that foods such as dairy
products and mutton are bound to make a considerable impact
in the near future.   Such a prediction would be accurate if
one accepts that the trend in Japan is a good indication of what
is to be expected in other economically progressing nations in
South East Asia.   Mutton is extremely popular for curry
dishes with the Indian and Malay population and a survey seems
to indicate a consumer's preference for mutton to locally
produced goat meat.   The apparent objection of the Chinese
population to the smell of sheep meat is difficult to understand
in view of the fact that their ancestors are no strangers to sheep
meat.   In fact, there are about 57 million sheep in China today.
Such prejudice can be changed over time, especially if exposed
to a proper programme of advertising, promotion and consumer
education.   In recent years, with the emergence of the middle
class in Malaya, kitchen accessories such as refrigerators and
electric ranges have gradually invaded the traditional kitchens
and have enabled the housewives to further explore the possibilities
of absorbing western foods and eating habits into their daily
life.   As far as dairy products are concerned, milk and butter
are commonly consumed by all races, and cheese is slowly but
surely finding its way into the diet of those who can afford to
buy it.   Ice creams and chocolates are cheap and enjoyed by
children of all races and income groups.   One big advantage of
dairy products over other foods is that they are widely recognised
as superior in nutritional value and it is logical to assume that
with higher living standards promised for the future, consumers
in Malaya will increasingly look towards food exporting countries

like New Zealand for such foods.

(ii)   In the second group, to which the great majority of the people
in Malaya belong, prejudice against western food still exists.
Although prejudices arising from religious, superstitious and
traditional beliefs are difficult to overcome, prejudices originating
from ignorance or unfamiliarity could be changed with consumer
education and time.

(h)   Home Production of Meat and Milk is Inadequate
        Local production of milk in Malaya is negligible and climatic
conditions and the comparative disadvantage factor prohibits any large
scale expansion in the future.   The production of meat is well below
the present effective demand.   This gap which will widen as consumer
income increases will have to be filled by imports.   Although the
Malayan Government encourages farmers to increase production of
fish, pig and poultry meat, and considerable success has been
achieved, the contribution of home producers to meet the total demand
for meat is still insignificant.   However, even if local production does
get under way, Malaya would still provide a large outlet for New
Zealand's buttermilk powder for the manufacture of animal feedstuffs.
Unfortunately, this development, if it materialises, could be in conflict
with New Zealand's effort in establishing a market for mutton.

(i)   Rising Income and Purchasing Power
        Independence has brought political stability and economic
advance to Malaya.   With living standards almost the highest in South
East Asia, Malaya is obviously one of the best hopes for New Zealand
exporters in the region.   Per capita income is about M$300.00 as

against M$120.00 average for all Asia (Japan excluded). With the economy growing at between 5% and 7% per year, and with the declared policy of expanding on the basis of international trade, future growth prospects of the economy are very good.

Like many other progressive South East Asian countries, there is now in Malaya a trend towards the emergence of a sizeable middle class. This trend brings with it the tendency towards the consumption of more sophisticated goods of all kinds including food. Looking at the wider picture of the whole of South East Asia, the New Zealand Department of Industries and Commerce has estimated that there are approximately two million people out of a total of 180 million in South East Asia who have a living standard higher than the New Zealand average. In other words, there is at present in this part of the world, a market which is at least as large as that of New Zealand and which is able to pay the price New Zealand demands for its products.

However, from the long term point of view, New Zealand must look to the vast majority of the population in Malaya who, at present, are unable financially to become New Zealand's customers. Their ability to buy will, of course, depend on the rate at which their income rises. Since independence, purchasing power of all sections of the community, especially the poorer rural folks, has increased significantly. Most of the people now are in the position not only of being able to eat enough but also to choose what they eat.

(j)   Goodwill and Friendship between the Peoples of
        New Zealand and Malaya.

Although there are no cultural or traditional trade ties, there is abundant goodwill and friendship in Malaya for New Zealand arising

from an appreciation for New Zealand's interest in the peoples
and their well being, and irrespective of the self-interests that
are involved. This good relationship is also partly a heritage
of the past, of links through common British Colonial rule,
excellent communications, a common official language and
institutions.

More recently, the development of close trade, political
and military relations with South East Asia reflects New Zealand's
growing awareness of the importance of her links with the area.
New Zealand is a member of SEATO and is also associated with
the Anglo-Malaysian Defence Agreement and maintains naval, air
and ground forces in Malaya. With the recent announcement of
Britain's decision to pull out from their military bases in the Far
East, the need for greater co-operation and understanding between
the democratic countries of South East Asia and New Zealand is
becoming more urgent. Finally, as a founder member of
Colombo Plan and a regional member of ECAFE, New Zealand
has played an active role in helping South East Asian countries
in their economic development. Such aid, friendship and goodwill
is not likely to be overlooked by South East Asian consumers and
this factor could be decisive in New Zealand's challenge to the
more established food suppliers such as Denmark and/The
Netherlands, in South East Asia.

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