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# THE INFLUENCE OF FINANCIAL FACTORS ON HOUSEHOLD MEAT CONSUMPTION PATTERNS

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In order to assist in the specification of the demand function for Australian meats a sample of housewives was interviewed in an attempt to ascertain how the financial position of a household influences its meat consumption pattern. The three most interesting findings are indicated below. (a) Except for a small proportion of low income households, financial considerations do not play a significant part in determining the quantity of meat purchased but do influence the meat types and cuts that are selected to satisfy the required quantity. (b) It is the "permanent" or "normal" income level of the household which is the dominant financial component influencing its expenditure on meats. (c) It appears that a desire for diet variation, together with the relative prices of the cuts within the various meat types, are the two main factors determining the particular meat consumption patterns followed by households.

Due to the existence of strong interrelationships within quantitative economic data, together with the fact that measured variables may not correspond to economic theoretical constructs it is often difficult to determine if an apparent relationship observed within such data is of the "derived"<sup>1</sup> or "invariant" type. It therefore follows when testing a set of alternative hypotheses with quantitative data, that a situation may arise where a number of these hypotheses appear to be supported. This problem arises particularly when attempts are made to determine empirically which component<sup>2</sup> (if any) of a household's purchasing power is dominant in influencing its consumption of a particular item. In connection with meat types, if it can be determined how a household's financial position influences the meat consumption pattern, it follows that it should be possible to determine which component is dominant. With this aim in mind, a sample of housewives was interviewed to gain their opinions on how their meat consumption decisions are influenced by financial factors.

The survey suffers in three ways as a result of limitations on both time and financial assistance. First, it was possible to use only one interviewer, with the result that only 50 housewives<sup>3</sup> were questioned. Although this did limit the sample size, it had the advantage of enabling a better assessment to be made of each piece of information than would have been possible if a number of interviewers had been used.

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<sup>1</sup> A "derived" relationship being defined as one resulting from chance inter-correlations within the data set, and would break down in time. An "invariant" relationship between a certain set of variables is taken to be one unaffected by changes in other variables, and would be relatively stable through time.

<sup>2</sup> For example, Permanent Income, Gross Income, Disposable Income, Relative Income, Expected Income.

<sup>3</sup>In the Newcastle, Maitland, and Cessnock areas.

Second, in an endeavour to keep time loss from refusals to co-operate at a minimum, the questionnaire was designed so that it was not time-consuming for the respondent and did not directly ask for information which may be considered personal. Although the questionnaire quality may have suffered as a result of this, it did receive a 100 per cent response rate. In any case, it was found that once the housewife's confidence had been obtained, the answers to the questions were detailed and informative.

Third, the households interviewed were not selected by the use of a rigorous sampling procedure<sup>4</sup>. The failure to employ rigorous sampling procedures may not be detrimental to this study (so long as a reasonable range of household types was covered) as its aim was to obtain information on decision making rather than to obtain data for the estimation of functional parameters. Further, it is unlikely that the net gain from the use of rigid sampling procedures with such a small sample would have been worthwhile.

The procedures followed, and the questions asked of each housewife, are outlined below.

## 1. INTRODUCTION

The first portion of the interview entailed an informal discussion with each housewife, in which the purpose of the survey was explained. In particular, it was pointed out that research was being conducted into the demand for different types of meat, and it was in connection with the isolation of those factors that influence this demand that their help was being sought.

## 2. GENERAL INFORMATION

Each housewife was asked to provide information on:

- (a) *Occupation of husband;*
- (b) *Number of wage earners in the household; and*
- (c) *Number of persons in the household.*

Because of the problems inherent in trying to directly ascertain the financial position of a household from a housewife, an attempt was made by combining the information given in parts (a), (b), and (c) to make an assessment by means of a ranking procedure of the likely variation between the households interviewed in regard to the income they have available per person.

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<sup>4</sup> The actual procedure used involved obtaining through personal contact the names of 100 households, within the required area, who were likely to differ markedly in income. These households were then randomly assigned a number from 0 to 99, then by using the first two digits in a series of six digit random numbers 50 of these households were selected for interview. Again it must be remembered that given the aim of the survey the only really important requirement was that the final sample of households should represent a wide range of income.

### 3. INFORMATION ON MEAT PURCHASES

QUESTION 1. Each housewife was asked the following hypothetical question:

*If your weekly meat budget were to increase by \$1 per day (i.e., \$7 per week) would you dispose of it by:*

- (i) *purchasing a greater quantity of meat than at present, or*
- (ii) *purchasing a quantity similar to that at present and, instead, use the additional funds to acquire more expensive meat types and cuts, or*
- (iii) *purchasing both an increased quantity of meat as well as buying more expensive cuts than you do at the moment?*

If the answer (iii) was given, the housewife was then asked to make an approximate assessment of how she would dispose of the funds by selecting one of the following possibilities:

- (a) *would you spend approximately half of the funds on the purchase of additional meat with the other half being used to buy more expensive cuts than those purchased at present,*
- (b) *use 75 per cent of the funds on purchasing an increased quantity of meat, while spending 25 per cent on quality improvements, or*
- (c) *use 75 per cent of the funds to purchase more expensive cuts with only 25 per cent being used to increase the quantity of meat purchased?*

QUESTION 2. The following question was asked of all housewives who had given the answer (ii) or (iii) in question 1.

*In other words, at present you cannot consume the amount and type of meat you would like, because it costs too much?*

Allowed answer: *YES or NO.*

This question was incorporated in order to isolate those households which at the time of the interview were following approximately their desired meat consumption pattern, so that any increase in their purchasing power would not influence their meat consumption. Those housewives who had answered "Yes" to part (i) were not asked this question, as it was believed that they can be considered by implication of their previous answer, to be restricted in their present meat purchases.

QUESTION 3. Those housewives who had answered (i) to question 1 or YES to question 2, were asked the following two questions:

- (i) *Do you deliberately put aside a certain amount of money each week for the purchase of meats? or*
- (ii) *Do you have some subjectively determined (i.e., some approximate) figure above which you would not let your meat expenditures increase?*

The housewife was then asked to comment as to how she reached or decided on the budget level employed.

QUESTION 4. All housewives were asked to answer YES or NO to each of the following questions, and then to comment, if they wished, on their answer:

- (i) *Do you have any procedure which determines the minimum amount of meat you should purchase each week? For example, do you decide on having at least one or two meals containing meat per day?*
- (ii) *For you, do financial considerations play an important part in determining the actual amount (not how much you will spend), of meat you will purchase during a week?*

(Special attention was given to explaining what was meant by this question.)

QUESTION 5. The following two hypothetical questions were then put to those housewives where it appeared that the meat consumption pattern of households was constrained by financial considerations.

- (i) *If your household was to receive a temporary increase (decrease) in income (say, from variations in overtime worked, a household member getting a temporary part-time job) would there be (or has there been, when this has occurred) a tendency for your meat budget to increase (decrease) accordingly?*

Allowed answer: *YES or NO, Comment.*

- (ii) *Instead of a temporary income change, consider in this case that your household has a permanent income change of between 15 per cent to 20 per cent. Now, is it likely that you would alter the amount spent on meat, in line with the income change? In other words, if it was an increase in income, would you spend any of this increase on meat or instead use the funds to buy something else?*

Allowed answer: *YES or NO.*

Those housewives who answered YES to question 5 (ii), were asked to make an assessment by using the possibilities listed below, of how long it is likely to take before they start to vary the amount they spend on meats.

- (a) *within 1 month.*
- (b) *within about 6 months.*
- (c) *between 6 to 12 months.*
- (d) *greater than 12 months.*

The housewives were asked to comment on their answers if they so desired.

QUESTION 6. The final request asked of all households was: *Could you please list those factors which cause you to buy different kinds of meat (e.g., beef, mutton, lamb, pork, etc.)?*

## 4. RESULTS OF THE SURVEY

(a) *Household Information*

TABLE 1

Household's characteristics from section 1 of the survey	Households	
	No.	%
<i>Occupational Classifications used—</i>		
(i) Professional, managerial .. .. .	8	16
(ii) Clerical, semi-professional .. .. .	12	24
(iii) Sales and service .. .. .	9	18
(iv) Skilled tradesmen .. .. .	11	22
(v) Production process worker .. .. .	10	20
	50	100
<i>Number of Wage Earners—</i>		
(i) Only one wage earner .. .. .	42	84
(ii) With two wage earners .. .. .	8	16
	50	100
<i>Number of Persons in the Household—</i>		
One .. .. .	2	4
Two .. .. .	8	16
Three .. .. .	17	34
Four .. .. .	12	24
Five .. .. .	11	22
Six and over .. .. .	0	0
	50	100

REVIEW OF MARKETING AND AGRICULTURAL ECONOMICS

By employing the information from the general information section of the questionnaire an attempt was made to rank the households sampled according to the income they are likely to have available per person, by placing them into one of five broad categories of descending order (A, B, C, D, and E). The process by which the households were classified is outlined in table 2, together with the percentage of households which fell into each class. The table suggests that the households surveyed differ widely in the income they have available.

TABLE 2

*Classification of Households According to Likely Income Per Person*

Household classification	Characteristics of the households in each group			Per cent of households
	Occupation of husband†	No. of wage earners	Size of the household unit*	
<i>Group A—</i>				
(a) .. ..	(i) and (iii) ..	2	Any size ..	6
(b) .. ..	(iii) and (iv) ..	2	Small ..	6
(c) .. ..	(i) .. ..	1	Small ..	6
				Total 18%
<i>Group B—</i>				
(a) .. ..	(v) .. ..	2	Small ..	2
(b) .. ..	(ii) .. ..	1	Small ..	12
(c) .. ..	(i) .. ..	1	Large.. ..	4
(d) .. ..	(iii) and (iv) ..	2	Large.. ..	0
				Total 18%
<i>Group C—</i>				
(a) .. ..	(v) .. ..	2	Large.. ..	2
(b) .. ..	(ii) .. ..	1	Large.. ..	12
(c) .. ..	(iii) and (iv) ..	2	Small ..	18
				Total 32%
<i>Group D—</i>				
(a) .. ..	(v) .. ..	1	Small ..	10
(b) .. ..	(iii) and (iv) ..	1	Large.. ..	16
				Total 26%
<i>Group E—</i>				
(a) .. ..	(v) .. ..	1	Large.. ..	6
				Total 6%

\* A household unit is classified as small if it has 3 or less members, and large if it has more than 3.

† See table 1.

(b) *Answers Obtained to Questions in Section 3 of the Interview*

QUESTION 1—PART (a)

**TABLE 3**

*Answers to First Part of Question 1*

Alternative answers	Percentage of all households who answered each way
	%
(i) Increase quantity .. .. .	4*
(ii) Increase quality .. .. .	34
(iii) Increase both quantity and quality .. .. .	62†

\* All of these households fell within Group E of table 2.

† Of the 62 per cent of households who answered this way, 96 per cent of them came from the Groups C, D, and E of table 2.

QUESTION 1—PART (b)

Of those households who nominated the third answer (iii) in part (a), table 4 gives a finer division as to how they would dispose of their increased funds.

**TABLE 4**

*Division of Funds Between Increasing Meat Quantity and Quality*

Alternative answers possible	Percentage of the households concerned who answered each way
	%
(a) 50 per cent to increase quantity and 50 per cent to increase quality .. .. .	32
(b) 75 per cent to increase quantity and 25 per cent to increase quality .. .. .	23*
(c) 75 per cent to increase quality and 25 per cent to increase quantity .. .. .	45

\* All of the households who answered (b) fell within the Groups D and E of table 2.

QUESTION 2

Of the 48 households to whom this question was asked, 94 per cent answered in the affirmative that their meat expenditure was restrained by financial considerations.



QUESTION 3

Of the 47 housewives of whom this question was asked, 23.4 per cent answered that they did operate with a strict meat budget. For the other 76.6 per cent of the housewives it was frequently claimed that although they did not keep a strict meat budget, they did know approximately how much they could afford to spend on the purchase of meats. From the comments given as to how the amount to be spent on meats is ascertained, it became apparent that most housewives have a definite foodstuff budget and allocate from this the portion to be spent on meat. The total food budget is usually determined indirectly by the husband when granting housekeeping finance, while the meat allocation is determined by previous purchasing experience.

QUESTION 4—PART (i)

From the answers to this question it was found that 96 per cent of housewives do operate with a type of predetermined acceptable minimum meat consumption for their household. For a majority of those interviewed the lower limit was a requirement that at least one meal a day contain meat of some kind.

QUESTION 4—PART (ii)

In answering this question 70 per cent of the housewives indicated that as far as they were concerned, financial considerations do not greatly influence the quantity of meat they purchase. Of the 30 per cent who answered that financial considerations were significant in influencing quantity, it is interesting to note that 93 per cent of them were contained in the lower income household Groups C, D, and E of table 2.

QUESTION 5—PART (i)

In answer to this question, only 6 per cent of the 45 housewives asked thought that they would vary their meat budget in response to temporary income variations. Of those housewives giving a negative answer, a few commented that occasionally an income increase may be used to finance the "eating out" of a meal, at which the family may consume better (or more expensive) cuts of meat than if the meal had been taken from home supplies.

QUESTION 5—PART (ii)

However, when confronted with a permanent change in income, 80 per cent of the housewives believed that they would eventually vary their meat budget. Concerning the timing of this adjustment, 38 per cent of these households claimed that this change would occur within 1 month of the income change, 34 per cent between 1 and 6 months, and only 4 per cent believed that such a budget variation may not occur within 12 months, but would eventually take place.

QUESTION 6

From the replies received to this question two factors appeared to be dominant in influencing the meat type selection, namely, the relative prices of the different cuts within the various meat types and a desire for diet variation.

## 5. CONCLUSIONS

On the basis of the findings in this survey the following general characteristics appear to underlie the behaviour pattern of Australian housewives with respect to meat purchases.

First, the housewife tends to have some minimum level, determined independently of income (usually by past experience) below which she will not allow the quantity of meat purchased to decline.

Second, a majority of housewives allocate a portion of their housekeeping funds, either deliberately or subjectively, to a meat budget (i.e., an amount which can be spent on the purchase of meats if required). Constrained by such a budget the housewife then decides on both the quantity and the quality of meat that will be purchased. Possibly one of the most interesting points revealed by the survey was that, except for a small proportion of low income households, financial considerations do not play a significant part in determining the quantity of meat purchased (this tends to have been set by previous experience) but do influence the meat types and cuts that are selected to satisfy the required quantity. It appears that a majority of Australian households are operating at or near a meat quantity saturation level, and that financial factors only influence the quality of meat purchased.

Third, it is the "permanent" or "normal" income level of the household which is the true financial factor influencing the expenditure level of households on meats. As a consequence, it follows that many of the variables (e.g., disposable and gross income) used in past meat demand studies in Australia may have been inappropriate for assessing what significance financial considerations have on household meat consumption. The main result of this would be to produce biased estimates of the income demand elasticity, because the use of any proxy variable in place of the true specification will lead to a biased estimate of the true parameter. The question of how serious the bias would be in any particular study depends upon how good the income measure employed is as a proxy for the "normal" income of households.

As far as prediction is concerned the use of inappropriate variables may not have serious consequences when the data used is 12 monthly time series. However, the predictions made on the basis of cross sectional data are likely to be biased. Since the Australian Bureau of Agricultural Economics used a gross income measure when analysing the demand for meats by Sydney and Melbourne households it is possible that their results suffer from this problem<sup>5</sup>. Furthermore, if the ranking of households given by the BAE income measure did not coincide with a ranking based on their "normal" income, it follows that predictions based on the estimated income elasticities may be unstable as well as biased.

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<sup>5</sup> Bureau of Agricultural Economics, *Household Meat Consumption in Sydney* (Beef Research Report No. 3), Canberra, 1967, and *Household Meat Consumption in Melbourne* (Beef Research Report No. 8), Canberra, 1970.

Finally, from the survey it appears that a desire for diet variation, together with the relative prices of the cuts within the various meat types, are the two main factors responsible for the particular meat consumption patterns followed by households. When this is taken in conjunction with the first and second findings above, some interesting marketing implications develop. The first of these concerns the possible results of meat promotional activities within the Australian community. It is unlikely that the returns from an increase in the promotion of meat as a total commodity will be very significant. However, if the promotion of one particular meat type leads to an increase in its consumption, it will probably be at the expense of some other meat type.

A second implication is that for maximum revenue to be achieved by the suppliers of meat, knowledge is required of the price elasticities of demand for each type and cut in order that relative prices can be set accordingly. One further implication is that *a priori* we are unable to specify the form of the relationship that holds between the consumption of both quantity and quality of each meat type and income. Those meat types which contain the greatest proportion of cuts believed to be of superior quality will tend to have a strong positive relationship with the household's level of income. The other meat types may be unrelated, negatively related, or positively related below a certain income level, before changing to a negative type as income increases.