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Report on

SHOPPER QUESTIONNAIRE SURVEYS AT CONVENIENCE FOODSTORES IN WEST YORKSHIRE

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APPENDICES

1. INTRODUCTION

This report sets out the preliminary findings of a series of questionnaire shopper surveys at five convenience foodstores in West Yorkshire. The surveys, which form the second phase of a current research study, followed an earlier series of surveys, the results of which were given in a report produced earlier this year [1].

The questionnaire surveys were carried out in May-June 1983 and the information obtained comprised that on the shopper and shopper's household together with trip, travel mode and attitudinal data.

1.1 Background to the Surveys.

The work described forms part of a wider study into shopper travel characteristics, one of the aims of which is to provide guidelines and recommendations for inclusion in car parking design standards for retail facilities. The research has been funded by the Science and Engineering Research Council (SERC) and West Yorkshire Metropolitan County Council (WYMCC).

1.2 Objectives

The emphasis of the study is on parking and the car-borne shopper. The objectives of the questionnaire surveys did, however, encompass other mode users and were as follows:-

(1) To obtain information to enable the assessment of household constraints on the choice of shopping destination and shopping day to be made.

(2) To obtain information on store "catchment" characteristics and relate these to the store's attractiveness and accessibility.

(3) To obtain information relating to the way in which perceived parking difficulties affect the choice of shopping destination, shopping day, and shopper's attitudes to the stores.

(4) To obtain information on shopper attitudes and examine the way such attitudes vary between stores and between days of the week; and to examine the effect on shopper's attitudes due to their chosen travel modes of arrival to the stores.

1.3 Note on Results Presented

Because of limitations of time and space, the results have been aggregated, usually either by store, day of week, or by travel mode. This aggregation was considered to be the most useful way in which the information could be presented given the need to convey an overall picture of the data obtained. Hence, the analyses have been limited to means, medians, percentiles, etc. and cross-tabulations.

2. THE QUESTIONNAIRE

2.1 Development and Evolution

The final form of the questionnaire, as given in Appendix 1, evolved over some eight months during which time both self-completion and interview type approaches were considered.

Briefly, the factors which determined the eventual method - self-completion using "Freepost" - were:-

(i) Considerations of interviewer bias: the number of interviews to be carried out would have dictated up to four interviewers on site at any one time. This could have led to inconsistency in terms of "between interviewer" bias especially since available personnel would have lacked interviewing experience.

(ii) Cost and manpower constraints: given an overall budget and a target response of about 1000 completed questionnaires, the costs per questionnaire were 37.2 pence for interviews compared with 28.9 pence for self-completion questionnaires using "Freepost".

(iii) Organisational considerations: within the limited

resources available the logistic, organisational and indeed, practical problems associated with the need to use a team of interviewers effectively ruled out data gathering by interview.

Before finalisation the questionnaire was tested on both research staff and laypersons, both of whom provided valuable comment and advice. The final version took between five and ten minutes to complete.

Virtually every question (except those asking for an address) contains an implicit hypothesis relating to shopper behaviour and likely causal factors concerning such behaviour. In a study, whose overall aim is to provide guidelines on design parking standards for retail facilities, the objectives must necessarily be directed toward not only the factors which cause traffic to be attracted to a particular location, but also to those factors - usually constraining factors - which influence shoppers in both their choice of shopping destination and choice of day (or time of day) for their shopping trip.

Some questions, even though they would have provided valuable information on the shopper and his/her household, had to be omitted to ensure a good response rate; thus questions on household income, occupation and age were not included. However, these variables are ascertainable indirectly since, for example, car ownership (question 18) was included and this has been shown to be closely connected with income [2]. Age may be proxied to some extent by household composition (question 17) whilst occupation of head of household is obtainable "probabilistically" from classifications of residential neighbourhoods.

2.2 Survey Methodology

The survey methodology adopted for the main surveys was founded on experience gained during a pilot survey held in November 1982 when 205 questionnaires were distributed for postal return. The return rate was 20%. Average distribution rate during the pilot was 32 questionnaires per hour per person (although a maximum distribution rate of 41/person hour was achieved during the busiest times).

For the main surveys it was considered feasible to increase the distribution rate to over 60/person hour (where necessary) and to increase the return rate by improved questionnaire layout. Also, in the interests of a larger return rate, it was decided that respondents need give only their postcodes, not their full addresses if they so desired.

The main surveys were carried out over three days at each store: Friday, Saturday and the following Tuesday. This was designed to detect differences in store trading characteristics and in shoppers modal, shopping and attitudinal characteristics between peak and off-peak days.

Because of the need to look at peak parking demand the survey periods were restricted to the two-hourly periods thought most likely to contain the daily peaks. Here, results obtained during the previous year[1] were used to determine the probable peak times and, as a consequence, the survey periods chosen were:-

11.30 to 13.30 on Saturdays and Tuesdays, and

16.30 to 18.30 on Fridays.

The surveyors were instructed to give one questionnaire per shopper party: either to a lone shopper, or to a group whose members all belonged to the same shopping party (usually easily defined); shoppers should clearly have purchased something in the store. This latter point dictated that distribution should be to recipients as they left the store and was intended to prevent more than one questionnaire going to any individual household. Distribution to shoppers on exit was also desirable since question 7 asked for the time spent in the store.

The questionnaires were apportioned to each store on the basis of the previous year's maximum (either Friday or Saturday) parking accumulation. This was done (in the absence of actual customer figures) to approximate to the relative number of customers likely at each of the stores. The total number of questionnaires per store was then converted to an hourly

distribution rate or "target" rate to be aimed at during each survey session. In practice the target rate for each five minute period was derived to facilitate monitoring of the distribution and so prevent under or overshooting.

Other information obtained during each survey session included: (1) Number of customer transactions;

(2) Number of parked vehicles (parking accumulation);

and (3) The weather conditions.

(1) The total customer transactions during survey periods were obtained by recording the "customer number" at individual check-outs within the stores at the beginning and end of each period. The total customer transactions were obtained to permit the "sampling fraction" to be calculated.

(2) Parking accumulation was recorded at regular intervals at each store as follows:- 20 minute intervals at stores 5 and 9, 30 minute intervals at stores 3, 6 and 8.

(3) The weather condition was recorded at the end of each survey period with a view to assessing the effect of inclement weather on shopper behaviour.

2.3 The Surveyed Stores

The five stores, which had also been surveyed as part of the parking surveys the previous year were chosen for the questionnaire surveys on the basis of both their individual store and probable catchment population characteristics. With regard to store characteristics: some had shopper bus services or cheap petrol available on site; their parking facilities also varied in terms of both size and quality; the stores displayed a range of sizes from the smallest (Store 5) of "average" supermarket dimensions through to the largest - Store 6, of large superstore proportions. Catchment population characteristics of the stores were intended to reflect a range of car ownership and socio-economic groupings.

A description of each of the stores is given in Table 2.1 in which store, site, locational and catchment population characteristics are summarised. In the Table, "Store type" refers to the location of each store with respect to the immediate retail environment (ie. whether the store was close to other retail outlets or not). "Road type location" was the classification of the road on which the store was located. "Car ownership" is given relative to West Yorkshire's mean of 0.66 cars per household (in 1981) and applies to car ownership levels of Wards near to, or in which the stores reside. "Predominant SEG's" refers to the socio-economic classes predominating in the Wards in or near to which the stores were located. (The 1978 National Dwelling and Housing Survey has been used for socio-economic data whilst car ownership has been derived from the 1981 National Census.)

The store identification numbers have been retained from last year's surveys and Table 2.1 gives data for each store in the order in which they were surveyed. All the stores were in the Leeds/Bradford conurbation. Store's 3, 5 and 8 are managed by the same operator; Store's 6 and 9 are managed by other operators. The stores have varying levels of parking provision (which result in varying degrees of difficulty for parking and circulation); these are referred to (where relevant) in Section 3.3.21 below.

3. SURVEY RESULTS

3.1 Survey Response and Distribution Rates

Table 3.1 gives a summary of the surveys carried out at the five stores. The number of questionnaires distributed was quite satisfactory with 93% of the target figure being achieved. In all 1053 questionnaires were returned giving an acceptable 27.2% return rate for the surveys overall. The response between stores varied from 23.5% at Store 3 up to 30.7% at Store 9.

The maximum parking accumulations conformed, in general to those obtained the previous year at the stores, with the widest

disparity occurring at Store 8, where the size of the car-park had been increased.

3.2 The Returned Questionnaires

Overall, the questionnaire (see Appendix 1) appeared to present little difficulty to respondents. The open-ended questions (Q's 10, 13a and 13b) were most frequently left uncompleted with, for example, 6.5% of respondents failing to complete question 10.

The questions asking for respondents address (home and trip origin - Q.'s 3 and 22) were generally well completed. Most gave either a postcode or an address which permitted conversion to a postcode. (The percentages of respondents returning a postcode for trip origins (Q.3) were: 82.1% with a further 7.6% giving an address sufficient to enable a postcode (and hence a grid-reference) to be derived. Home postcodes (Q.22) were given by 91.9% of respondents, with an additional 2.9% giving a sufficiently "usable" address.) All postcodes were converted to eight figure Ordnance Survey grid references.

The attitudinal question (Q.14) was also completed very satisfactorily with only 4% of the questionnaires showing invalid or missing responses to individual items in the list given.

3.3 Preliminary Analysis of the Returned Questionnaires

After coding and inputting the data, various "range" and "logic" checks were performed to check the internal consistency of variables within individual cases, (a "case" being a returned questionnaire).

It should be noted that although the checking was extensive and that the "integrity" of the data can be assumed to be very good, a few minor errors are still present. However, these only apply to a few individual cases; examples are the shopper whose usual main food shopping day was coded as Sunday, and the use by one shopper of a (non-existent) free shopper bus to Store 8 (the operators of Store 8 do not run a free shopper bus).

3.3.1 Proportion of Respondents as "Main" Shopper

Table 3.2 shows a cross-tabulation of Store by Shopper Type from which it can be seen that 84.6% of respondents declared themselves to be their household's main food and grocery shopper. Some 5% stated that they were not the main shopper and 10.4% of respondents' households had no main shopper whatsoever.

3.3.2 Trip Origins

Table 3.3 is a cross-tabulation of Trip Origin by Day of Week. The differences between days to note are:-

(1) Work origins were highest on Fridays with 32.8% of all trips originating there. Saturday produced the least work origins at 2.3%.

(2) Home predominated as the origin for all Store shopping trips, accounting for 79.1% of origins over all three distribution days and 95.4% of Saturdays.

(3) Other origins were by comparison much less frequent, being only 1.9% of trips overall.

3.3.3 Mode of Arrival

Table 3.4 gives a summary cross-tabulation of arrival modes to each of the stores. Car/van predominated with 83.7% of all respondents using this mode. Store 5 recorded the lowest incidence of car-borne shoppers with 50% walking; conversely, Store 6 had nearly 90% of its shoppers using a car/van and only 5.5% walkers.

Scheduled bus users were the third most frequent of all visitors to the stores at 3.2% of shoppers overall. Shopper buses, operating at Stores 6 and 9 accounted for less than 1% of all shoppers. (The shopper bus at Store 8 is erroneous). Other modes contributed less than 0.9% overall.

3.3.4 Frequency of Household Visits to Store

Table 3.5 shows the reported frequencies of visit to each of the surveyed stores. The most common frequency was "once a week" (57.1% of households overall) although this was the case for only

37.3% of Store 5 shopper's households: the tendency at Store 5 being for more frequent visits with nearly 21% shopping there "3 or more times a week". At the other stores, the individual shopping trip frequencies conformed more closely to the overall distribution.

3.3.5 Proportion "Main" Store Shoppers

Table 3.6 shows that nearly 81% of all respondents considered the store at which they received their questionnaires to be their "Main" store for food and grocery shopping. It can also be seen that there was remarkably little variation between the stores - the range being 77.2% for Store 3 to 83.9% at Store 6.

3.3.6 Shopping Party Size

Table 3.7 shows that two persons was the most common party size with 40.8% of all shopping parties this size. The mean party size based on the figures returned was 2.03; however, it is clear on inspection of the table that some respondents considered their party size to have comprised nil persons (that is they excluded themselves and this may be the case for the other party sizes also). Assuming this error to be uniform across all the stated party sizes the mean becomes 2.05.

3.3.7 Number of Children under 5 years in the Shopping Party

Question 16, which asked for the number of children under 5 years of age, was included to see whether their presence influenced the day of week on which shopping was undertaken. Some differences were apparent between survey days with 22% of shopping parties on Friday's comprising at least one child in this age group compared with 16.4% on Saturdays, and only 4.8% on Tuesdays.

3.3.8 Household Composition

The most common number of adults over 16 years was 2 per household (63% of households, mean 2.31). The mean number of children per household, between the ages of 5 and 16 years was

0.62 with 63.4% of households without children in this age group. The mean number of children under 5 years was 0.25 with 80.8% of households without children in this age group.

3.3.9 Number of Cars/Vans owned per Household

Table 3.8 shows that nearly 83% of households owned at least one car/van; (this percentage is very close to the figure for the proportion of shoppers using car/van for the trip to store; see 3.3.2). Mean car ownership was 1.1 per household which may be compared with the county (West Yorkshire's) average of 0.66 cars per household in 1981.

Shoppers at Store 5 had by far the lowest car ownership with 47.6% of respondents' households without a car; nevertheless, the mean car ownership rate (0.6 cars per household) for shoppers at Store 5 is double the rate for the Ward in which the Store was located and reflects the degree to which such stores are reliant upon patronage by car owning households.

3.3.10 Number of Company Cars per Household

Predictably, the greater proportion of shopper's did not have access to a company car, with only 14.2% of households possessing one or more. Store 5's shoppers returned the least households with company cars - only 11.1%. The other store's shopper households had similar company car ownership figures.

3.3.11 Number of Car Licence Holders per Household

The mean number of car licence holders per household was 1.6 - nearly 50% greater than the car ownership rate as given in 3.3.9 above.

3.3.12 Refrigerated Home Storage

Store 5's shoppers had the least separate freezers and the highest percentage of households without refrigerated storage - 13.4% of households without any form of refrigeration compared with 1.7% over all stores.

3.3.13 Choice of Shopping Day

Here, as elsewhere in the report, "day of week" (see Table 3.9) refers to the day on which the questionnaire was distributed which is not necessarily the same as the "Usual Main food shopping day" as given by respondents to question 9. Up to two usual main food shopping days were coded (some shoppers ticking more than one box for Q.9); where more than two days were given the response was coded as "No Main Shopping day" (see Coding Manual in Appendix 2).

Table 3.9 is a cross-tabulation of "Usual Main food shopping day" (where only one day was given) by day of week. The Table shows that 54.2% of households received their questionnaire on the same day they usually do their main food shopping.

Of Tuesdays shoppers only 35.2% considered that day to be their usual shopping day compared with 69.2% of Friday's shoppers and 49.3% of Saturday's.

Of those who gave two "usual main food shopping days" (6.4% of shoppers), it can be seen from Table 3.10 that nearly 82% of those who gave Tuesday as one of their usual days also gave a week-end (ie Friday or Saturday) day as their other usual day. (It should be noted that the "first" usual day is only first in a chronological sense and does not necessarily denote first choice).

3.3.14 Reasons for Shopping Day Choice

Up to two reasons were coded for the open-ended question (Q.10) which asked respondents for the reasons which most frequently affected or influenced their household's choice of day for their main food and grocery shopping day.

Table 3.11 shows, for respondents who gave one reason and one day only, a cross-tabulation of reasons by "Usual Main Shopping day". On inspection, the column percentages reveal insights underlying shopper behaviour; for example of those who preferred to shop on Fridays 31.3% did so because that day was also pay day or had some other money-related connection. Time

constraints (27.6%) and the need to replenish near the week-end (23.3%) were the next most important reasons for Friday shoppers.

For Saturday's shoppers time availability, or the fact that that was a day off work, was the most important reason accounting for 64.1% of all who preferred to shop on that day. Person and car availability were next most important at 10.4% and 9.9% respectively of all reasons given by Saturday's shoppers.

The prospect of a quiet store figured highly for 59.7% of those who preferred to shop on Tuesdays and 45.2% of Wednesday's shoppers, revealing perhaps the willingness of those not otherwise constrained to "divert" to another day in the week in order that they might enjoy their chosen store's particular attributes.

Over all stores and all days, time availability, (including "regular day" or "part day off" - see coding manual in Appendix 2) was the most common reason given by those who gave one reason and one usual shopping day only - being given by 35.9%. Money-related factors accounted for 19.1% of reasons and third overall was the need to replenish at 13.5%. Transport (mainly in the form of private car) availability was a factor in only 4.6% of cases.

Table 3.12 is a cross-tabulation of first reason by second reason for the 216 (23.2%) respondents who gave two reasons. It can be seen that the best correlated reasons are 4 with 5 (Person availability with car availability), and 3 with 7 (time availability with quiet store).

When all shoppers who gave reasons are combined, time availability was pre-eminent at 39.2% followed by money-related factors (20.2%) and the need to replenish (17.9%). Car availability was cited by 7.1% of combined shoppers and shows, (when compared with the lower percentage returned by the "single reason" shoppers above), that lack of a car did not in itself preclude shopping trips; rather, it was non-car availability allied to other factors which often dictated whether a shopping trip was to be made on a particular day.

3.3.15 Reasons for Not Shopping at Main Store

In Section 3.3.5 it was seen that less than 20% of respondents were not at their main food and grocery store; of these: 15.9% stated that they did not have a "main" store - amounting to less than 3.2% of shoppers overall.

As with "main" shopping day reason, up to two reasons were coded but of those giving just one, "convenience" was the most common (26.5%) as shown in Table 3.13. This was followed by the need to purchase goods which were unavailable at their main choice store.

Since only 18 respondents gave a second reason for not shopping at their main store a cross-tabulation of first reason by second is not given - the small sample size prohibiting any useful inferences being drawn.

3.3.16 Time and Money Expenditures

Table 3.14 gives aggregate statistics relating to time and money expenditures at each store. Values in excess of 99 given in response to Q.'s 4, 7 and 8 were coded as "99" hence the means given are not strictly correct although since this value was exceeded in only 3 cases the means are not significantly different. (indeed where the maximum values do not exceed 99 the means are of course true means).

From Table 3.14, which applies to all shoppers and is aggregated over all travel modes, it can be seen that mean perceived trip times are similar for each store at about 10.5 minutes whilst the perceived "in store" mean times display greater variation, from 26.4 minutes at the smallest store - Store 5 - to 49.1 minutes at the largest - Store 6. The median times spent in each store were 30, 23, 45, 35 and 35 minutes at Store's 3, 5, 6, 8 and 9 respectively.

Figure 3.1 shows in graphical form, the mean trip times to stores by the four most common travel modes used, and shows that

on average, perceived bus (scheduled and shopper) times exceeded those for both car and walk; this is possibly a reflection of the enhanced disutility attributable to perceived waiting times commonly associated with bus transportation.

Figure 3.2 gives a distribution of trip times to all stores with vertical bars sub-divided to show the variation in modal split with trip time. It can be seen that times are concentrated for all modes up to 10 minutes, followed thereafter by a rapid "decay" in reported times for car and walk modes, with a less rapid fall-off in bus user's times. Median trip times to stores were 10, 20, 20 and 10 minutes for car, scheduled bus, shopper bus and walk modes respectively.

Figure 3.3 is a plot of reported trip time against "crow-fly" (ie. straight line) distance (trip-origin to store) for all shoppers over the range of distances encountered, and shows the mean linear regression lines for each mode. It can be seen that the car was perceived to be by far the quickest mode to the stores, being on average some 2.6 times quicker than shopper bus, 3.2 times quicker than scheduled bus but only 4.5 times quicker than walking.

Mean monetary expenditures were very close for Store's 3, 8 and 9 at about £19.50 per shopping trip - a value within the range £23.50 at Store 6 to Store 5's low of £12.70. Median money expenditures were respectively, (£'s) 19, 11, 21, 19 and 17 at Store's 3, 5, 6, 8 and 9. (It is of interest to note that the average weekly expenditure on food items for household's in Metropolitan areas in 1981 was £26.71[3]). Figure 3.4 is a bar chart showing mean expenditures by mode and shows that whilst car and scheduled bus users spent, on average, about the same, the mean expenditure for walkers was only about 52% of the mean for car-borne shoppers.

3.3.17 Trip Distance to Stores

The postcodes given by respondents for their trip origins were converted to O.S. grid-references from which the "crow-fly" (ie. straight line) distances: origin to store and store to home

were derived. Only trip-ends within the study area (West Yorkshire) were grid referenced, but as this represents more than 99.5% of all respondents, those excluded do not seriously affect the results. The analysis of distance also excluded those shoppers not at their main stores since it was considered that the extent of a store's "true" catchment area would be best represented by its "main" shoppers. Hence only those respondents who declared the store at which they received their questionnaires to be their "main" store have been included in the data set for this particular analysis, (ie.80.9% of all respondents).

Table 3.15 gives mean crow-fly distances to stores from trip origins for all "main" store shoppers (ie. shoppers who were at their main choice store). The mean for Store 5 reflects the shorter distances travelled to that store compared with the other surveyed stores - the range of means over the stores being less than 1.2km at Store 5, up to 2.9km at Store 3, with the overall mean being 2.5km. Median crow-fly distances were 2.1, 0.8, 2.5, 1.9 and 1.6km at Store's 3, 5, 6, 8 and 9 respectively.

Table 3.16 shows the mean crow-fly distances by mode with walk giving the shortest mean distance at 0.6km (the longest crow-fly distance for walk was 2.0km). The mean distance by car was 2.8km and the greatest origin-store distance by this mode from within the study area was 23.2km.

3.3.18 Store to Home Distances

As with Origin to Store distances above only "main" store shoppers were included in the data set for the analysis of distance from Store to home. Hence, Table 3.17 gives the mean crow-fly distances from Store to home for "main" store shoppers at each store. Again, Store 5 had the shortest mean (1.0km), with the largest mean (2.9km) at Store 6. Mean Store-home crow-fly distance was slightly less than Origin-Store distance at 2.4km. Median distances were 1.9, 0.7, 2.5, 2.1 and 1.6km at Store's 3, 5, 6, 8 and 9 respectively.

Figures 3.5 to 3.9 give Store-home distributions for each

store in turn, together with sub-divisions showing the variation in arrival mode with distance from store; they clearly show the concentration of walkers over distances less than about 2km and a preference for bus modes for distances in excess of 1km where (presumably) no private car was available.

The effect of Store-Home distance on frequency of visit to stores is shown in Figures 3.10 to 3.14 which reproduce the preceding distributions except, in this instance, the sub-divisions are according to frequency of visit. They show that very frequent trips to stores (3 or more times per week) were generally confined to the shorter distances and this can be seen to be especially marked for Store's 3 and 5 (these stores were in relatively close proximity to each other at about 1.3km apart, and this may be a factor affecting the frequency of visit and the distances travelled to these stores).

3.3.19 Parking Difficulties at the Stores

Question 6b on the questionnaire was designed to elicit information on parking problems, both common and peculiar to, each of the surveyed stores. The question asked all respondents who travelled to the store by car/van to tick boxes next to the following statements if they experienced difficulties in parking at the store; the statements were:-

(a) No Difficulty

(b) Vehicles badly parked

(c) Difficult to find any spaces

(d) No empty spaces near store entrance

(e) Any other difficulty? (Please Specify).....

Respondents could tick more than one box if necessary. It was surmised that the various car-park layouts, design parking indices and differing parking demands at the stores might very well be reflected in the frequency of affirmation with the above statements at each of the stores. Results of a preliminary analysis did indeed confirm this hypothesis as can be seen from

Figures 3.15 to 3.17

The Figures, (which are bar charts), show the frequency of affirmation with a particular statement (ie. ticked), and the frequency of negation (ie. left unticked), grouped by store with the vertical bars sub-divided to show the splits between days. Affirmations are represented by "1" and negations by "0". The sizes of the bars at individual stores allow the severity (or otherwise) of problems at the stores to be gauged, (the sizes of bars at individual stores simply reflects the relative numbers of car's/van's which visited them).

To derive the percentages given in the remainder of this section below, it is important to remember that the sum of the "1" and "0" bars at an individual store represents 100% of the car-borne shoppers at that store, thus the percentage which either a "1" or "0" bar represents at a particular store is found by dividing the height of that bar by the combined heights of "1" and "0" bars for the store in question. For example, the percentage of car-borne shoppers who experienced "No difficulty" on Friday at Store 3 was (from Figure 3.15) equal to:-

$$(12.0-3.3)/((12.0-3.3)+(1.3-0.1)) \times 100 = 88\%$$

ie. 88% of shoppers who went by car to Store 3 on Friday experienced "No difficulty" in parking at the store.

Figure 3.15 shows the frequency with which "No difficulty" was affirmed ("1") or negated ("0"). It clearly shows that parking difficulties were worst at Store 6 - the store had an irregular, elongated and sloping site. Friday at this store was the most acute day for problems with 36% of car users not ticking the box next to the aforementioned statement; Friday was also the survey day on which the maximum parking accumulation was recorded at this store.

On Tuesday's, when vehicular activity was lower, a much higher percentage affirmed "No difficulty" - only Store 8 had less than 90% experiencing no difficulty. Store 5 scored 100% over all three survey days for this statement, reflecting the ease with which car-users can park at the store due to under-

utilisation of its car-park (small though it is).

Figure 3.16 shows the frequency of response to the statement: "No empty spaces near the store entrance"; again the 1's and 0's denote frequency of affirmation and negation respectively. The relative sizes of the 1 and 0 bars show that Store 8 recorded the highest number of affirmations with 20.9% of car-borne shoppers over the three survey days ticking the box. Respondents also returned a high frequency of affirmation to the statement on the Tuesday survey at Store 8 - this a consequence of an insufficiently small number of car-parking spaces immediately outside the entrances to the store.

Figure 3.17 depicts the frequency of affirmation ("1") or negation ("0") to the statement "Difficult to find any spaces". Store 6 can be seen to have fared worst for this statement with 9.9% of car-users ticking the box in affirmation; Store 8 was the next worst with 9.0%. Of the days of the week: Friday at Store 6 incurred the highest frequency of affirmations with 16.0% of car users on that day, compared with only 8.2% for Saturday - again, a reflection of the higher parking demand on the former day. At Store 8, where the parking demand was more uniform over both week-end days (Friday and Saturday), the "split" was a more even 12.0% to 8.4%, reflecting again a distinct sensitivity on the part of frequency of affirmation to the level of parking demand.

However, accumulation alone did not appear to explain fully the degree to which perceived parking problems were reported. For example, at Store 9 where the highest percentage parking occupancy was recorded (79.2% : obtained by dividing the maximum number of parked vehicles at Store 9 - ie. 198 vehicles from Table 3.1, by the Store's car park capacity of 250 spaces as given in Table 2.1) only 18.1% of car-borne shoppers negated the "No difficulty parking" compared to a 36% negation at Store 6 where a lower maximum occupancy (76.1%) obtained. The newer store - Store 9 - had a much better car-park layout on an essentially flat site, whereas Store 6's car-park was of irregular plan-form on an appreciably sloping (approx. 6% to 8% slope) site. Clearly, it may be concluded therefore, that other factors

apart from car-park size and occupancy affect the ease with which vehicles can park and circulate within the parking area.

Problems associated with vehicles being badly parked (usually at times of extremely high parking demand) were not so widely reported, as evidenced by the comparatively lower number of affirmations to the statement: "Vehicles badly parked". Store 6 recorded the highest frequency at 5.8% over all three survey days.

"Other difficulties" was affirmed most at Store 5 with 6.5% of car-users specifying some other difficulty. However, because of the small sample size this number is probably misleading. In general "Other difficulties" commonly involved such problems as the obstruction or use of disabled persons parking spaces by vehicles belonging to the able-bodied.

3.3.20 Importance Scale Values

Question (Q.14) on the questionnaire was designed to elicit information on shopper's attitudes with regard to their choice of store for food and grocery shopping. The question employed a technique developed by Osgood, Suci and Tannenbaum[4] known as the "Semantic Differential" and, in this study, individual's were asked to allocate a number from 1 to 5, to indicate the importance they assigned to particular items when choosing a store. The list of items was composed of attributes of the goods to be bought, store attributes, and attributes of the transport system associated with a store, (see questionnaire in Appendix 1).

For the preliminary analysis presented here, the scores returned by individual respondents were aggregated by store, day of week and mode to allow univariate statistical techniques to be applied.

Figure 3.18 shows the mean importance scale values for the data aggregated by store and shows that the magnitude of the mean for a particular item was reflective, not only of the shoppers' aggregate characteristics and preferences at particular stores, but also whether that item had, in some way, an association

between the shoppers and the store. For example, the mean score for "Parking facilities" at Store 5 was the lowest for that item between stores; and was due, probably, to the smaller proportion of car-borne shoppers at this store compared to the other stores. Also Stores 6 and 8, both of which had petrol filling stations on site, had the highest mean importance scores returned for "Cheap petrol at the store". Stores 6 and 9, where a free shopper bus service operated, recorded the highest means for "Free shopper bus". To underline the point: Store 8, (the only surveyed store within a district centre and thus near to a variety of other shops) had the highest mean importance score for "Other shops nearby" - the mean here being 2.0 compared to the means at the other stores which were in the range 1.52 to 1.63.

Table 3.18 gives the item lists "ranked" (ie. sorted in descending order) according to their mean importance scores aggregated by store, and shows that "Quality of goods" was considered by shoppers at all the stores to be of paramount importance followed by either "Lower prices" or "Wide choice/selection". "Parking facilities" came 4th. at Store 8, 5th. at Store's 3, 6 and 9, and equal 7th. at Store 5. "Ease of getting to by car" was ranked 6th. at Store's 3 and 8, and 7th. at Stores 5 (equally with "Parking facilities"), 6 and 9.

Because of the large numbers using car/van for their travel mode of arrival, the low mean importance score for "Good bus service" meant that this item was ranked only 9th. or lower. Similarly "Free shopper bus" was not ranked higher than 10th. when the results were analysed by store.

Overall the mean importance scores tend to suggest that in general (and dependent upon mode - see below), the highest importance is given by shoppers to the goods to be purchased. Hence if attitudes can be said to connote behaviour, store attributes, parking facilities and other transport related items are, in the main, of only secondary importance to consumers when choosing a store at which to do their main food and grocery shopping.

When looked at by day of week, the means between days for

the importance scores were found to be very similar. The only significant difference, as shown in Figure 3.19, was for "Late opening hours" where Friday's shoppers returned the highest mean of the three survey days for this item. Table 3.19 gives the item lists for the three days, again ranked in descending order according to the mean scores for each item but this time grouped by day of week. Once more, "Quality of goods" was ranked highest, followed by "Lower prices" and "Wide choice/selection". Between days, "Parking facilities" was consistently 5th. with "Ease of getting to by car" 6th. on Tuesday and Saturday, and 7th. on Friday. "Opening hours" was ranked two places higher on Friday at 6th. compared with Tuesday's and Saturday's ranking.

Figure 3.20 shows the mean importance scores for each item when grouped by travel mode. It can be seen that the scores were reflective of the mode of arrival since significant differences in the means are apparent for transport related items. For example, whilst the mean derived from car-users for "Parking facilities" was 3.9, the mean score fell to 2.6 or less for the other modes. Similarly, for "Cheap petrol at the store" car-borne shoppers returned the highest mean when scores were grouped by mode.

Of the four major modes, those who travelled by shopper bus gave the lowest mean score for "Store layout" and "Fast check-outs", implying perhaps that if a store's management was benign enough to supply a free bus service, they (the shoppers) would not quibble over such inconsequential items as the way the store was laid out or the speed of its check-outs. It is also of interest to note that of those shoppers who travelled by the four major modes, "Quality of goods" was ranked lowest by those who travelled by shopper bus; instead shopper bus travellers placed the greatest importance on "Lower prices" and "Free shopper bus" - these items were ranked equal first by them as can be seen from Table 3.20.

Table 3.20, which gives the items ranked and grouped by travel mode, also shows that car-users ranked "Parking facilities" 5th. most important overall, behind "Quality of goods",

"Wide choice/selection", "Lower prices" and "Fast check-outs. They also ranked "Ease of getting to by car" 6th. and "Cheap petrol" 9th.

It may be concluded from the discussion of the results presented in this section that definite associations exist between the mean importance scores for individual items and the travel characteristics of shoppers. These associations are most apparent when scores are aggregated either by store, day of week or mode of arrival.

4. SUMMARY

(1) A postal return questionnaire at five medium to large convenience foodstores was carried out, with 3874 questionnaires being distributed overall.

(2) Overall return rate was 27.2%.

(3) Nearly 85% of respondents declared themselves to be their household's "main" food and grocery shopper but just over 10% of households were without a "main" shopper. "Convenience" was the reason most commonly given as to why shoppers were not at their main stores.

(4) "Home" predominated as the origin for the trip to store at 79% of all trips.

(5) Car/van was by far the most common travel mode to the stores at 84% over all the stores.

(6) Shoppers most commonly visited their stores "once a week". Frequency of visit was also found to be influenced by nearness to home and mode of transport.

(7) Almost 81% of respondents considered the store at which they received their questionnaires to be their main store for food and groceries.

(8) Two persons was the most common shopping party size. The likelihood of there being children under five years in the shopping party was found to be lower for Tuesdays than for Fridays or Saturdays.

(9) The mean number of adults per household was 2.31 with, on average, 0.62 children in the age bracket 5 to 16 years, and 0.25

children less than 5 years.
(10) Shoppers' Car ownership was 67% above the County average, with 83% of households owning at least one car/van; 14% of households had a company car.
(11) Less than 2% of households were without any form of refrigerated food storage.
(12) For 54% of respondents the day on which they received their questionnaire was also their household's main food shopping day.
(13) Time-related factors were the most commonly cited reasons affecting choice of main food shopping day at 39% of responses. Transport availability was given as a factor in only 7% of cases and was often given with another factor.
(14) Mean perceived trip times to each of the stores were uniformly close around 10.5 minutes. Mean time spent within the stores was however, more variable and reflected the differences in size between the stores.
(15) Mean monetary expenditures were very close for the three mid-range stores; the largest store returned the highest mean expenditure at £23.50 per trip, and the smallest store the lowest mean at £12.70. The overall mean was £22.10 per shopping trip.
(16) Over all "main store" shoppers the quickest travel mode was car/van which, of the four most commonly used modes, was perceived to be more than twice as quick as the the next fastest mode.
(17) Mean "crow-fly" distance to store by car/van was 2.8km, whilst shoppers on foot walked, on average, only 0.6km. Mean Origin-store distances for shopper and scheduled bus modes were 2.8 and 2.1km respectively.
(18) The reported incidence of parking difficulties varied between the stores and was thought to be a consequence, not only of the amount of parking provision and demand, but also car-park layout and general site characteristics.
(19) In terms of the importance which shoppers ascribed to a list of 12 items when choosing a store at which to do their household's main food and grocery shopping, goods-related items were found to have the highest priority followed by both store-related

and transport-related items. The mean scores of transport-related items were also found to be associated with the mode of travel used.

5.CONCLUSION

Shopper questionnaire surveys at five convenience foodstores in West Yorkshire have been described and their results presented. Two types of conclusion are drawn in this final section relating firstly to the data gathering, and secondly to the results obtained from the analysis of shopper travel behaviour. The section concludes with a brief discussion on "future work".

5.1 Conclusions about method

The chosen data gathering method - that of self-completion using "Freepost" - comprised essentially three elements: the questionnaire, questionnaire distribution and questionnaire coding.

The questionnaire presented, in the great majority of cases, little difficulty to respondents. Response was considered to be very satisfactory and a better than expected return rate was achieved due to:

(a) Good questionnaire layout and design,

(b) Absence of questions asking for income, occupation or age,

and (c) Use of Postcodes to ascertain respondents trip-ends as opposed to full addresses.

The method adopted for the distribution of questionnaires worked well. The target distribution rates were, in the main, achieved except at the largest store where survey staff were impeded somewhat because of a single exit, and at the smallest store because of lower than expected shopper flows.

Coding of questionnaires was straightforward and was again facilitated considerably by the use of postcodes in the establishment of trip ends.

5.2 Shopper Behaviour and its implications for Design Standards

Various factors were seen to influence shopper behaviour;

perhaps the most significant of which were travel mode, distance to and from store, and "socio-cultural" factors.

Travel mode was also found to "condition" people's attitudes to store choice as revealed by the importance scores assigned by respondents to a range of store attributes.

Shoppers who travelled by car/van were more likely to travel further than those who travelled by other modes - a consequence of the car's speed and convenience for the "one-stop" shopping trip. The car predominated as the mode of arrival at the larger stores. However, where car ownership was low (as in the case of the smallest store surveyed), the incidence of shoppers who walked to the store was higher - a result also of the store's location within a residential neighbourhood.

The reasons people gave concerning their choice of main food shopping day showed the importance of socio-economic and socio-cultural factors. In particular, the constraints of pay-day, or of the need to replenish, or simply just time constraints were often those which governed the day on which shopping was carried out. For those with (presumably) fewer time constraints, the preference for shopping earlier in the week was often predicated on the belief that the store would be less crowded.

The implications for shopper behaviour of these social factors will become clear if present social trends are considered: for example, the trends toward shorter working weeks and toward more widespread payment by (monthly) cheque instead of weekly (cash-in-hand) wages.

Clearly such trends could promote a "re-distribution" of shopping trips throughout the week, particularly if household freezer ownership also continues to increase (thus diminishing even further the need to replenish near the week-end); all of which have ramifications for design standards since problems associated with peak vehicular activity would be expected to become less acute if the aforementioned re-distribution were to take place. Needless to say, further investigations will be necessary to assess to what extent increases in car ownership and changes in the pattern of retail outlets "counter-balance" these social trends.

5.3 Future Work

In the Interim Report to West Yorkshire[1], design guidelines were given which were considered appropriate for large convenience foodstores located "in-town". A parking index between 10.0 and 11.0 was recommended which was based on the results obtained from a series of parking surveys undertaken as part of this research and from earlier studies. Those guidelines have not been superseded by results obtained to date from the questionnaire surveys, nevertheless the results presented herein have shown that shopper characteristics should play an important part in the formulation of design standards. Therefore, analyses will be carried out to investigate further the effects of increasing car ownership, changes in the pattern of retail outlets and of social factors and their associated trends. Attention will also be paid to the question of store attractiveness, in terms of "inherent" characteristics and in terms of "inter-store" competition. Store accessibility will be explored in depth and particular emphasis will be placed on the role of relative accessibility in the store choice process. Finally, the importance of car-park layout and the way in which perceived parking problems affect both store choice, and the choice of day for the shopping trip will, it is hoped, also be studied.

Table 2.1

THE SURVEYED STORES-SITE, LOCATION AND CATCHMENT CHARACTERISTICS

Store No.	3	5	6	8	9
Store Type[a]	F	F	F	D	F
Year Opened	1976	1967	1969	1969	1981
Retail Floor Area (m^2)	2982	1542	4929	2155	2453
Gross Leasable Area (m^2)	4692	2731	8278	3809	4156
Approx. % of Retail Floor area for "Durables"	30%	15%	35%	25%	25%
No.Entry/Exits to Store	2	2	1	3	3
Car-park size (No.spaces)	452	90	461	392	250
No. parking spaces per 100m^2 Retail Floor Area	15.2	5.8	9.4	18.2	10.2
No. parking spaces per 100m^2 Gross Leasable Area	9.6	3.3	5.6	10.3	6.0
No.Entry/Exits to car-park	3	2	3	3	1
Petrol station	No	No	Yes	Yes	No
Tyre service bay	No	No	Yes	No	No
Free shopper bus	No	No	Yes	No	Yes
Near scheduled bus routes	Yes	Yes	Yes	Yes	Yes
Other shops nearby	Yes*	No	No	Yes	No
Road type location[b]	P	L	L	S	L
Car ownership[c]	<	<<	=	<	>
Predominant SEG's[d]	5-10	8-10	8-9	8-10	5-9

a Store Type Key: F=Freestanding (from other retail outlets);
D=Anchor trader within District Centre

b Road Type Key: L=Local distributor; P=Primary ("A") Road;
S=Secondary ("B") Road

c Car Ownership Key: << Very low (ie.less than 0.5xCounty Mean);
< Below County Mean; = Same as County Mean;
> Above County Mean

d Socio-Econ.Group Key: (as Registrar General's classification)
5-7 Non-manual; 8-9 Skilled manual; 10 Semi-skilled manual

* There is one DIY store(1475 m^2 RFA) on the periphery of Store 3's car-park. Store 3 is by far the largest attractor

Table 3.1

QUESTIONNAIRE SURVEYS - SUMMARY SHEET

Store Number	9			6			3			5			8			Total
Day	Fri	Sat	Tues	Fri	Sat	Tues	Fri	Sat	Tues	Fri	Sat	Tues	Fri	Sat	Tues	
Date (1983)	6/5	7/5	10/5	13/5	14/5	17/5	20/5	21/5	24/5	20/5	21/5	24/5	3/6	4/6	7/6	
Time From:	1630	1130	1130	1630	1130	1130	1630	1130	1130	1630	1130	1130	1630	1130	1130	
To:	1830	1330	1330	1830	1330	1330	1830	1330	1330	1830	1330	1330	1830	1330	1330	
Target No. Q'aires	280	280	140	476	476	238	448	448	224	104	104	104	342	342	171	4177
No. Q'aires Distributed (Total)	312	280 (737)	145	395	415 (995)	185	417	445 (1049)	187	74	105 (261)	82	333	318 (832)	181	3874
No. Customer Transactions	528	612	201	871	1019	471	826	929	482	543	556	340	869	994	599	9840
Percentage Sample (Overall %)	59.1	45.8 (55.0)	72.1	45.4	40.7 (42.1)	39.3	50.4	47.9 (46.9)	38.8	13.6	18.9 (18.1)	24.1	38.3	32.0 (33.8)	30.2	39.4
No. Q'aires Returned (Totals)	82	97 (226) !	46	108	116 (276) !	51	101	104 (247)	42	23	25 (67)	19	88	93 (237)	56	1053
Percentage Returned (Overall %)	26.3	34.6 (30.7)	22.9	27.1	28.0 (27.6)	27.6	24.2	23.4 (23.5)	22.5	31.1	23.8 (25.7)	23.2	26.4	29.2 (28.5)	30.9	27.2
Percentage Customer Trans. (Overall %)	15.5	15.8 (16.9)	16.5	12.3	11.4 (11.7)	10.8	12.2	11.2 (11.0)	8.7	4.2	4.5 (4.6)	5.6	10.1	9.3 (9.6)	9.3	10.7
Max. Parked Vehs & Peak Time 1982	185 17:00	193 11:55	--	329 19:00	289 11:10	--	270 17:25	310 11:45	--	68 16:45	47 12:10	--	* 230 16:55	* 218 11:25	--	
Max. Parked Vehs & Peak Time 1983	198 17:50	168 11:55	57 11:35	351 18:30	297 11:35	143 11:35	267 18:10	273 11:35	103 11:35	56 16:50	43 11:30	21 13:10	$ 271 17:05	$ 285 11:40	$ 152 12:00	

! Includes 1 q'aire whose day of distribution is unknown

* Car park capacity 1982 = 350
$ Car park capacity 1983 = 392

TABLE 3.2

TABLE OF STORE BY SHOPPER TYPE

STORE	MAIN SHOP-PER	NOT MAIN SHOP-PER	NO MAIN SHOP-PER IN H.HOLD	TOTAL
3	204	16	26	246
Row%	82.93	6.50	10.57	
5	59	1	6	66
Row%	89.39	1.52	9.09	
6	231	18	24	273
Row%	84.62	6.59	8.79	
8	204	8	22	234
Row%	87.18	3.42	9.40	
9	186	9	31	226
Row%	82.30	3.98	13.72	
TOTAL	884	52	109	1045
Row%	84.59	4.98	10.43	100.00

TABLE 3.3

TABLE OF DISTRIBUTION DAY OF WEEK BY TRIP ORIGIN

	TRIP ORIGIN						
DAY OF WEEK	HOME	WORK	SCHOOL	FRIENDS - RELATIONS	OTHER SOCIAL RECREAT'L	OTHER	TOTAL
TUESDAY	150	57	0	3	3	1	214
Row%	70.09	26.64	0.00	1.40	1.40	0.47	
FRIDAY	265	131	0	1	1	1	399
Row%	66.42	32.83	0.00	0.25	0.25	0.25	
SATURDAY	412	10	1	1	2	6	432
Row%	95.37	2.31	0.23	0.23	0.46	1.39	
TOTAL	827	198	1	5	6	8	1045
Row%	79.14	18.95	0.10	0.48	0.57	0.77	100.00

TABLE 3.4

TABLE OF STORE BY MODE OF ARRIVAL

STORE	CAR/ VAN	SCH. BUS	SHOP. BUS	WALK	BIKE	M.BIKE	TAXI	HIRE CAR	TOTAL
3	210	6	0	26	2	1	1	0	246
Row%	85.37	2.44	0.00	10.57	0.81	0.41	0.41	0.00	
5	31	2	0	33	0	0	0	0	66
Row%	46.97	3.03	0.00	50.00	0.00	0.00	0.00	0.00	
6	244	9	5	15	0	0	0	0	273
Row%	89.38	3.30	1.83	5.49	0.00	0.00	0.00	0.00	
8	201	13	1	19	0	2	0	1	237
Row%	84.81	5.49	0.42	8.02	0.00	0.84	0.00	0.42	
9	191	3	4	26	0	2	0	0	226
Row%	84.51	1.33	1.77	11.50	0.00	0.88	0.00	0.00	
TOTAL	877	33	10	119	2	5	1	1	1048
Row%	83.68	3.15	0.95	11.35	0.19	0.48	0.10	0.10	100.00

TABLE 3.5

TABLE OF STORE BY FREQUENCY OF H.HOLD VISITS TO STORE

STORE	3 OR MORE TIMES A WEEK	2 TIMES A WEEK	ONCE A WEEK	ONCE A FORTNIGHT	ONCE A MONTH	LESS FREQ-UENTLY	FIRST VISIT	TOTAL
3	25	38	139	21	10	10	2	245
Row%	10.20	15.51	56.73	8.57	4.08	4.08	0.82	
5	14	19	25	5	1	2	1	67
Row%	20.90	28.36	37.31	7.46	1.49	2.99	1.49	
6	9	36	169	26	16	15	2	273
Row%	3.30	13.19	61.90	9.52	5.86	5.49	0.73	
8	22	41	136	21	6	8	0	234
Row%	9.40	17.52	58.12	8.97	2.56	3.42	0.00	
9	16	41	127	22	6	5	7	224
Row%	7.14	18.30	56.70	9.82	2.68	2.23	3.13	
TOTAL	86	175	596	95	39	40	12	1043
Row%	8.25	16.78	57.14	9.11	3.74	3.84	1.15	100.00

TABLE 3.6

TABLE OF STORE BY PATRONAGE TYPE

STORE	MAIN STORE SHOP-PERS	NOT M.STORE SHOP-PERS	TOTAL
3	190	56	246
Row%	77.24	22.76	
5	55	11	66
Row%	83.33	16.67	
6	229	44	273
Row%	83.88	16.12	
8	195	42	237
Row%	82.28	17.72	
9	178	47	225
Row%	79.11	20.89	
TOTAL	847	200	1047
Row%	80.90	19.10	100.00

TABLE 3.7

TABLE OF STORE BY SHOPPING PARTY SIZE

	REPORTED PARTY SIZE (NUMBER OF PERSONS)							
STORE	0	1	2	3	4	5	6	TOTAL
3	1	88	102	33	13	8	1	246
Row%	0.41	35.77	41.46	13.41	5.28	3.25	0.41	
5	1	36	23	5	1	0	0	66
Row%	1.52	54.55	34.85	7.58	1.52	0.00	0.00	
6	4	79	107	41	26	13	2	272
Row%	1.47	29.04	39.34	15.07	9.56	4.78	0.74	
8	1	84	96	32	15	6	1	235
Row%	0.43	35.74	40.85	13.62	6.38	2.55	0.43	
9	2	68	98	31	22	3	1	225
Row%	0.89	30.22	43.56	13.78	9.78	1.33	0.44	
TOTAL	9	355	426	142	77	30	5	1044
Row%	0.86	34.00	40.80	13.60	7.38	2.87	0.48	100.00

TABLE 3.8

TABLE OF STORE BY H.HOLD CAR OWNERSHIP

	NUMBER OF CARS/VANS IN HOUSEHOLD							
STORE	0	1	2	3	4	5	6	TOTAL
3	38	152	50	4	1	0	0	245
ROW%	15.51	62.04	20.41	1.63	0.41	0.00	0.00	
5	30	28	4	1	0	0	0	63
ROW%	47.62	44.44	6.35	1.59	0.00	0.00	0.00	
6	32	169	51	13	2	2	0	269
ROW%	11.90	62.83	18.96	4.83	0.74	0.74	0.00	
8	32	149	49	5	0	0	0	235
ROW%	13.62	63.40	20.85	2.13	0.00	0.00	0.00	
9	46	132	36	6	2	1	1	224
ROW%.	20.54	58.93	16.07	2.68	0.89	0.45	0.45	
TOTAL	178	630	190	29	5	3	1	1036
ROW%	17.18	60.81	18.34	2.80	0.48	0.29	0.10	100.00

TABLE 3.9

TABLE OF DISTRN DAY OF WEEK BY USUAL MAIN SHOPPING DAY

	USUAL MAIN FOOD SHOPPING DAY (WHERE 1 GIVEN ONLY)								
DAY OF WEEK	NO MAIN DAY	MIS-CODE	MONDAY	TUESDAY	WEDNES-DAY	THURSDAY	FRIDAY	SATURDAY	TOTAL
TUESDAY	13	1	3	68	23	33	39	13	193
ROW%	6.74	0.52	1.55	35.23	11.92	17.10	20.21	6.74	
COLUMN%	27.66	100.00	30.00	80.95	37.10	20.75	10.43	5.44	
FRIDAY	13	0	3	8	11	55	261	26	377
ROW%	3.45	0.00	0.80	2.12	2.92	14.59	69.23	6.90	
COLUMN %	27.66	0.00	30.00	9.52	17.74	34.59	69.79	10.88	
SATURDAY	21	0	4	8	28	71	74	200	406
ROW%	5.17	0.00	0.99	1.97	6.90	17.49	18.23	49.26	
COLUMN%	44.68	0.00	40.00	9.52	45.16	44.65	19.79	83.68	
TOTAL	47	1	10	84	62	159	374	239	976
ROW%.	4.82	0.10	1.02	8.61	6.35	16.29	38.32	24.49	100.00

TABLE 3.10

TABLE OF FIRST BY SECOND USUAL DAY FOR H.HOLD MAIN FOOD SHOPPING

1st USUAL MAIN FOOD SHOP. DAY	2nd USUAL MAIN FOOD SH. DAY*				TOTAL
	WEDS	THURS	FRI	SAT	
MONDAY	0	1	0	1	2
ROW%	0.00	50.00	0.00	50.00	
COLUMN%	0.00	20.00	0.00	2.50	
TUESDAY	1	3	9	9	22
ROW%	4.55	13.64	40.91	40.91	
COLUMN%	100.00	60.00	42.86	22.50	
WEDS	0	1	3	4	8
ROW%	0.00	12.50	37.50	50.00	
COLUMN%	0.00	20.00	14.29	10.00	
THURSDAY	0	0	9	6	15
ROW%	0.00	0.00	60.00	40.00	
COLUMN%	0.00	0.00	42.86	15.00	
FRIDAY	0	0	0	20	20
ROW%	0.00	0.00	0.00	100.00	
COLUMN%	0.00	0.00	0.00	50.00	
TOTAL	1	5	21	40	67
ROW%	1.49	7.46	31.34	59.70	100.00

*FOR RESPONDENTS WHO GAVE 2 USUAL MAIN SHOPPING DAYS

TABLE 5.11

TABLE OF SHOPPING DAY REASON BY USUAL MAIN FOOD SHOPPING DAY

NOTE: TABLE GIVES RESULTS FOR RESPONDENTS WHO GAVE 1 REASON & 1 DAY ONLY

	USUAL MAIN FOOD SHOPPING DAY								
REASON (SEE KEY)	NO MAIN DAY	MIS-CODE	MON	TUES	WEDS	THURS	FRI	SAT	TOTAL
1	13	0	0	1	4	6	1	4	29
% OF TOTAL	1.82	0.00	0.00	0.14	0.56	0.84	0.14	0.56	4.06%
ROW%	44.83	0.00	0.00	3.45	13.79	20.69	3.45	13.79	
COLUMN%	54.17	0.00	0.00	1.61	9.52	5.41	0.36	2.08	
2	1	1	1	3	2	17	64	7	96
% OF TOTAL	0.14	0.14	0.14	0.42	0.28	2.38	8.96	0.98	13.45%
ROW%	1.04	1.04	1.04	3.13	2.08	17.71	66.67	7.29	
COLUMN%	4.17	100.00	14.29	4.64	4.76	15.32	23.27	3.65	
3	4	0	4	9	8	32	76	123	256
% OF TOTAL	0.56	0.00	0.56	1.26	1.12	4.48	10.64	17.23	35.85%
ROW%	1.56	0.00	1.56	3.52	3.13	12.50	29.69	48.05	
COLUMN%	16.67	0.00	57.14	14.52	19.05	28.83	27.64	64.06	
4	0	0	1	2	2	1	8	20	34
% OF TOTAL	0.00	0.00	0.14	0.28	0.28	0.14	1.12	2.80	4.76%
ROW%	0.00	0.00	2.94	5.88	5.88	2.94	23.53	58.82	
COLUMN%	0.00	0.00	14.29	3.23	4.76	0.90	2.91	10.42	
5	1	0	0	2	1	3	7	19	33
% OF TOTAL	0.14	0.00	0.00	0.28	0.14	0.42	0.98	2.66	4.62%
ROW%	3.03	0.00	0.00	6.06	3.03	9.09	21.21	57.58	
COLUMN%	4.17	0.00	0.00	3.23	2.38	2.70	2.55	9.90	
6	0	0	0	0	1	2	12	2	17
% OF TOTAL	0.00	0.00	0.00	0.00	0.14	0.28	1.68	0.28	2.38%
ROW%	0.00	0.00	0.00	0.00	5.88	11.76	70.59	11.76	
COLUMN%	0.00	0.00	0.00	0.00	2.38	1.80	4.36	1.04	
7	1	0	1	37	19	10	2	1	71
% OF TOTAL	0.14	0.00	0.14	5.18	2.66	1.40	0.28	0.14	9.94%
ROW%	1.41	0.00	1.41	52.11	26.76	14.08	2.82	1.41	
COLUMN%	4.17	0.00	14.29	59.68	45.24	9.01	0.73	0.52	
8	0	0	0	4	1	35	86	10	136
% OF TOTAL	0.00	0.00	0.00	0.56	0.14	4.90	12.04	1.40	19.05%
ROW%	0.00	0.00	0.00	2.94	0.74	25.74	63.24	7.35	
COLUMN%	0.00	0.00	0.00	6.45	2.38	31.53	31.27	5.21	
9	4	0	0	4	4	5	19	6	42
% OF TOTAL	0.56	0.00	0.00	0.56	0.56	0.70	2.66	0.84	5.88%
ROW%	9.52	0.00	0.00	9.52	9.52	11.90	45.24	14.29	
COLUMN%	16.67	0.00	0.00	6.45	9.52	4.50	6.91	3.13	
TOTAL	24	1	7	62	42	111	275	192	714
ROW%	3.36	0.14	0.98	8.68	5.88	15.55	38.52	26.89	100.00

KEY: 1=NO USUAL DAY, 2=REPLENISH, 3=TIME AVAILABILITY,
4=PERSON AVAILABILITY, 5=TRANSPORT AVAILABILITY, 6=HABIT,
7=QUIET AT STORE, 8=MONEY RELATED, 9=OTHER

TABLE 3.12

TABLE OF 1ST. BY 2ND. REASONS FOR USUAL MAIN SHOPPING DAY

NOTE: WHERE 2 REASONS GIVEN ONLY

KEY: 1=NO USUAL DAY, 2=REPLENISH, 3=TIME AVAILABILITY,
4=PERSON AVAILABILITY, 5=TRANSPORT AVAILABILITY, 6=HABIT,
7=QUIET AT STORE, 8=MONEY RELATED, 9=OTHER

	2ND SHOPPING DAY REASON (SEE KEY)								
1ST. REASON (SEE KEY)	2	3	4	5	6	7	8	9	TOTAL
1	9	5	0	0	0	1	1	2	18
ROW%	50.00	27.78	0.00	0.00	0.00	5.56	5.56	11.11	
COLUMN%	23.68	10.64	0.00	0.00	0.00	2.63	5.00	8.00	
2	0	7	1	1	3	10	5	5	32
ROW%	0.00	21.88	3.13	3.13	9.38	31.25	15.63	15.63	
COLUMN%	0.00	14.89	4.76	4.35	75.00	26.32	25.00	20.00	
3	9	0	10	7	0	20	8	8	62
ROW%	14.52	0.00	16.13	11.29	0.00	32.26	12.90	12.90	
COLUMN%	23.68	0.00	47.62	30.43	0.00	52.63	40.00	32.00	
4	0	10	0	13	0	0	3	1	27
ROW%	0.00	37.04	0.00	48.15	0.00	0.00	11.11	3.70	
COLUMN%	0.00	21.28	0.00	56.52	0.00	0.00	15.00	4.00	
5	0	0	6	0	0	2	1	1	10
ROW%	0.00	0.00	60.00	0.00	0.00	20.00	10.00	10.00	
COLUMN%	0.00	0.00	28.57	0.00	0.00	5.26	5.00	4.00	
6	3	4	0	0	0	0	1	1	9
ROW%	33.33	44.44	0.00	0.00	0.00	0.00	11.11	11.11	
COLUMN%	7.89	8.51	0.00	0.00	0.00	0.00	5.00	4.00	
7	5	7	0	0	0	0	1	4	17
ROW%	29.41	41.18	0.00	0.00	0.00	0.00	5.88	23.53	
COLUMN%	13.16	14.89	0.00	0.00	0.00	0.00	5.00	16.00	
8	11	11	4	2	0	3	0	1	32
ROW%	34.38	34.38	12.50	6.25	0.00	9.39	0.00	3.13	
COLUMN%	28.95	23.40	19.05	8.70	0.00	7.89	0.00	4.00	
9	1	3	0	0	1	2	0	2	9
ROW%	11.11	33.33	0.00	0.00	11.11	22.22	0.00	22.22	
COLUMN%	2.63	6.38	0.00	0.00	25.00	5.26	0.00	8.00	
TOTAL	38	47	21	23	4	38	20	25	216
ROW%	17.59	21.76	9.72	10.65	1.85	17.59	9.26	11.57	100.00

TABLE 3.13

TABLE OF DISTRN DAY OF WEEK BY REASON NOT AT MAIN STORE

KEY: 0=MIS-CODE, 1=WANTED CHANGE, 2=GOOD(S) UNAVAILABLE, 3=CONVENIENCE,
4=COMBINED TRIP, 5=NO MAIN STORE, 6=PERSON(S) UNAVAILABLE,
7=CAR/VEH. UNAVAILABLE, 8=STORE ATTRIBUTE(S) SOUGHT, 9=OTHER

	REASON* NOT AT MAIN STORE (SEE KEY)									
DAY OF WEEK	0	1	2	3	4	5	7**	8	9	TOTAL
TUESDAY	0	0	10	14	4	10	0	0	7	45
ROW%	0.00	0.00	22.22	31.11	8.89	22.22	0.00	0.00	15.56	
FRIDAY	1	5	4	19	6	5	1	1	3	45
ROW%	2.22	11.11	8.89	42.22	13.33	11.11	2.22	2.22	6.67	
SATURDAY	0	7	26	12	14	12	0	2	7	80
ROW%	0.00	8.75	32.50	15.00	17.50	15.00	0.00	2.50	8.75	
TOTAL	1	12	40	45	24	27	1	3	17	170
ROW%.	0.59	7.06	23.53	26.47	14.12	15.88	0.59	1.76	10.00	100.00

* FOR RESPONDENTS WHO GAVE 1 REASON ONLY.
**'7' FOLLOWS '5' SINCE FREQUENCY FOR '6' = 0

TABLE 3.14

TIME & MONEY EXPENDITURES AT STORES

	No IN SAMPLE	MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE
STORE=3					
DURATION OF TRIP TO STORE (MINS)	235	10.2	7.8	1.0	55.0
TIME SPENT IN STORE (MINS)	244	36.3	18.7	5.0	90.0
MONEY SPENT IN STORE (POUNDS)	244	19.7	12.3	0.0	73.0
STORE=5					
DURATION OF TRIP TO STORE (MINS)	65	9.8	6.6	2.0	30.0
TIME SPENT IN STORE (MINS)	67	26.4	16.3	5.0	90.0
MONEY SPENT IN STORE (POUNDS)	66	12.7	9.6	1.0	40.0
STORE=6					
DURATION OF TRIP TO STORE (MINS)	265	12.5	9.7	2.0	65.0
TIME SPENT IN STORE (MINS)	269	49.1	20.4	10.0	99.0
MONEY SPENT IN STORE (POUNDS)	269	23.5	13.4	3.0	99.0
STORE=8					
DURATION OF TRIP TO STORE (MINS)	233	9.6	6.4	2.0	45.0
TIME SPENT IN STORE (MINS)	235	37.4	17.0	5.0	90.0
MONEY SPENT IN STORE (POUNDS)	237	19.7	11.3	1.0	65.0
STORE=9					
DURATION OF TRIP TO STORE (MINS)	225	9.4	7.2	0.0	60.0
TIME SPENT IN STORE (MINS)	223	37.1	16.9	5.0	99.0
MONEY SPENT IN STORE (POUNDS)	232	19.0	11.3	1.0	66.0

TABLE 3.15

TRIP ORIGIN TO STORE DISTANCES FOR "MAIN STORE" SHOPPERS (BY STORE)

	No. IN SAMPLE	MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE
STORE=3					
CROW-FLY DISTANCE TRIP ORIGIN-STORE(KM)	169	2.9	3.3	0.1	23.2
STORE=5					
CROW-FLY DISTANCE TRIP ORIGIN-STORE(KM)	47	1.2	1.4	0	8.5
STORE=6					
CROW-FLY DISTANCE TRIP ORIGIN-STORE(KM)	212	2.9	2.3	0.1	14.4
STORE=8					
CROW-FLY DISTANCE TRIP ORIGIN-STORE(KM)	166	2.3	1.6	0.1	11.0
STORE=9					
CROW-FLY DISTANCE TRIP ORIGIN-STORE(KM)	161	2.1	2.3	0	15.2

TABLE 3.16

TRIP ORIGIN TO STORE DISTANCES FOR "MAIN STORE" SHOPPERS (BY MODE)

	No. IN SAMPLE	MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE
ARRIVAL MODE=1					
CROW-FLY DISTANCE TRIP ORIGIN-STORE(KM)	622	2.8	2.6	0.1	23.2
ARRIVAL MODE=2					
CROW-FLY DISTANCE TRIP ORIGIN-STORE(KM)	22	2.1	1.0	0.6	4.5
ARRIVAL MODE=3					
CROW-FLY DISTANCE TRIP ORIGIN-STORE(KM)	10	2.8	0.9	1.1	4.2
ARRIVAL MODE=4					
CROW-FLY DISTANCE TRIP ORIGIN-STORE(KM)	96	0.6	0.4	0	2.0

MODE KEY 1 = CAR/VAN 2 = SCHEDULED BUS 3 = SHOPPER BUS 4 = WALK

TABLE 3.17

TRIP ORIGIN TO STORE DISTANCES FOR "MAIN STORE" SHOPPERS (BY STORE)

	No. IN SAMPLE	MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE
STORE=3					
CROW-FLY DISTANCE STORE-HOME(KM)	172	2.5	2.2	0.1	11.4
STORE=5					
CROW-FLY DISTANCE STORE-HOME(KM)	47	1.0	1.0	0	5.2
STORE=6					
CROW-FLY DISTANCE STORE-HOME(KM)	209	2.9	2.5	0.1	15.6
STORE=8					
CROW-FLY DISTANCE STORE-HOME(KM)	175	2.7	2.0	0.1	13.0
STORE=9					
CROW-FLY DISTANCE STORE-HOME(KM)	167	2.0	1.9	0.2	15.2

TABLE 5.14

MEAN IMPORTANCE SCALE VALUES FOR Q.14 (BY STORE)
(SORTED IN DESCENDING ORDER OF MEAN)

STORE=3

ITEM	MEAN
QUALITY OF GOODS	4.36
LOWER PRICES	4.26
WIDE CHOICE/SELECTION	4.17
FAST CHECK-OUTS	3.94
PARKING FACILITIES	3.62
EASE OF GETTING TO BY CAR	3.26
OPENING HOURS	3.19
STORE LAYOUT	3.17
CHEAP PETROL AT THE STORE	2.09
GOOD BUS SERVICE	1.66
FREE SHOPPER BUS	1.60
OTHER SHOPS NEARBY	1.53

STORE=5

ITEM	MEAN
QUALITY OF GOODS	4.39
LOWER PRICES	4.23
WIDE CHOICE/SELECTION	4.04
FAST CHECK-OUTS	3.85
STORE LAYOUT	3.09
OPENING HOURS	2.99
PARKING FACILITIES	2.82
EASE OF GETTING TO BY CAR	2.82
GOOD BUS SERVICE	1.91
FREE SHOPPER BUS	1.72
OTHER SHOPS NEARBY	1.63
CHEAP PETROL AT THE STORE	1.58

STORE=6

ITEM	MEAN
QUALITY OF GOODS	4.40
LOWER PRICES	4.31
WIDE CHOICE/SELECTION	4.25
FAST CHECK-OUTS	4.12
PARKING FACILITIES	3.85
OPENING HOURS	3.30
EASE OF GETTING TO BY CAR	3.28
STORE LAYOUT	3.10
CHEAP PETROL AT THE STORE	2.86
GOOD BUS SERVICE	1.95
FREE SHOPPER BUS	1.95
OTHER SHOPS NEARBY	1.52

STORE=8

ITEM	MEAN
QUALITY OF GOODS	4.43
WIDE CHOICE/SELECTION	4.23
LOWER PRICES	4.16
PARKING FACILITIES	3.94
FAST CHECK-OUTS	3.93
EASE OF GETTING TO BY CAR	3.47
OPENING HOURS	3.30
STORE LAYOUT	3.10
CHEAP PETROL AT THE STORE	2.49
OTHER SHOPS NEARBY	2.00
GOOD BUS SERVICE	1.93
FREE SHOPPER BUS	1.60

STORE=9

ITEM	MEAN
QUALITY OF GOODS	4.38
LOWER PRICES	4.19
WIDE CHOICE/SELECTION	4.18
FAST CHECK-OUTS	4.11
PARKING FACILITIES	3.65
STORE LAYOUT	3.34
EASE OF GETTING TO BY CAR	3.17
OPENING HOURS	3.10
GOOD BUS SERVICE	1.76
CHEAP PETROL AT THE STORE	1.74
FREE SHOPPER BUS	1.73
OTHER SHOPS NEARBY	1.52

TABLE 3.19

MEAN IMPORTANCE SCALE VALUES FOR Q.14 (BY DISTRN DAY OF WEEK)
(SORTED IN DESCENDING ORDER OF MEAN)

DAY OF WEEK=TUESDAY

ITEM	MEAN
QUALITY OF GOODS	4.41
LOWER PRICES	4.27
WIDE CHOICE/SELECTION	4.17
FAST CHECK-OUTS	3.96
PARKING FACILITIES	3.52
EASE OF GETTING TO BY CAR	3.14
STORE LAYOUT	3.11
OPENING HOURS	2.74
CHEAP PETROL AT THE STORE	2.37
GOOD BUS SERVICE	1.84
OTHER SHOPS NEARBY	1.66
FREE SHOPPER BUS	1.63

DAY OF WEEK=FRIDAY

ITEM	MEAN
QUALITY OF GOODS	4.40
WIDE CHOICE/SELECTION	4.23
LOWER PRICES	4.22
FAST CHECK-OUTS	4.09
PARKING FACILITIES	3.75
OPENING HOURS	3.56
EASE OF GETTING TO BY CAR	3.35
STORE LAYOUT	3.18
CHEAP PETROL AT THE STORE	2.23
GOOD BUS SERVICE	1.85
FREE SHOPPER BUS	1.73
OTHER SHOPS NEARBY	1.60

DAY OF WEEK=SATURDAY

ITEM	MEAN
QUALITY OF GOODS	4.38
LOWER PRICES	4.23
WIDE CHOICE/SELECTION	4.18
FAST CHECK-OUTS	3.98
PARKING FACILITIES	3.77
EASE OF GETTING TO BY CAR	3.26
STORE LAYOUT	3.18
OPENING HOURS	3.11
CHEAP PETROL AT THE STORE	2.27
GOOD BUS SERVICE	1.83
FREE SHOPPER BUS	1.77
OTHER SHOPS NEARBY	1.66

TABLE 3.20

MEAN IMPORTANCE SCALE VALUES FOR Q.14 (BY MODE OF ARRIVAL)

ARRIVAL MODE=CAR/VAN

ITEM	MEAN
QUALITY OF GOODS	4.38
LOWER PRICES	4.21
WIDE CHOICE/SELECTION	4.19
FAST CHECK-OUTS	4.04
PARKING FACILITIES	3.92
EASE OF GETTING TO BY CAR	3.46
OPENING HOURS	3.25
STORE LAYOUT	3.20
CHEAP PETROL AT THE STORE	2.34
GOOD BUS SERVICE	1.69
FREE SHOPPER BUS	1.60
OTHER SHOPS NEARBY	1.60

ARRIVAL MODE=SCHEDULED BUS

ITEM	MEAN
QUALITY OF GOODS	4.65
WIDE CHOICE/SELECTION	4.46
LOWER PRICES	4.35
FAST CHECK-OUTS	3.96
GOOD BUS SERVICE	3.34
STORE LAYOUT	3.09
FREE SHOPPER BUS	2.80
OPENING HOURS	2.77
PARKING FACILITIES	2.64
EASE OF GETTING TO BY CAR	2.29
CHEAP PETROL AT THE STORE	2.06
OTHER SHOPS NEARBY	1.83

ARRIVAL MODE=SHOPPER BUS

ITEM	MEAN
LOWER PRICES	4.38
FREE SHOPPER BUS	4.38
WIDE CHOICE/SELECTION	4.11
QUALITY OF GOODS	4.00
GOOD BUS SERVICE	3.55
FAST CHECK-OUTS	3.22
OPENING HOURS	2.77
STORE LAYOUT	2.22
PARKING FACILITIES	1.62
CHEAP PETROL AT THE STORE	1.62
EASE OF GETTING TO BY CAR	1.50
OTHER SHOPS NEARBY	1.50

ARRIVAL MODE=WALK

ITEM	MEAN
QUALITY OF GOODS	4.44
LOWER PRICES	4.39
WIDE CHOICE/SELECTION	4.23
FAST CHECK-OUTS	3.95
OPENING HOURS	3.13
STORE LAYOUT	3.02
PARKING FACILITIES	2.45
GOOD BUS SERVICE	2.36
EASE OF GETTING TO BY CAR	2.21
FREE SHOPPER BUS	2.12
OTHER SHOPS NEARBY	1.90
CHEAP PETROL AT THE STORE	1.88

TABLE 3.20

MEAN IMPORTANCE SCALE VALUES FOR Q.14 (BY MODE OF ARRIVAL)

ARRIVAL MODE=CAR/VAN

ITEM	MEAN
QUALITY OF GOODS	4.38
LOWER PRICES	4.21
WIDE CHOICE/SELECTION	4.19
FAST CHECK-OUTS	4.04
PARKING FACILITIES	3.92
EASE OF GETTING TO BY CAR	3.46
OPENING HOURS	3.25
STORE LAYOUT	3.20
CHEAP PETROL AT THE STORE	2.34
GOOD BUS SERVICE	1.69
FREE SHOPPER BUS	1.60
OTHER SHOPS NEARBY	1.60

ARRIVAL MODE=SCHEDULED BUS

ITEM	MEAN
QUALITY OF GOODS	4.65
WIDE CHOICE/SELECTION	4.46
LOWER PRICES	4.35
FAST CHECK-OUTS	3.96
GOOD BUS SERVICE	3.34
STORE LAYOUT	3.09
FREE SHOPPER BUS	2.80
OPENING HOURS	2.77
PARKING FACILITIES	2.64
EASE OF GETTING TO BY CAR	2.29
CHEAP PETROL AT THE STORE	2.06
OTHER SHOPS NEARBY	1.83

ARRIVAL MODE=SHOPPER BUS

ITEM	MEAN
LOWER PRICES	4.30
FREE SHOPPER BUS	4.30
WIDE CHOICE/SELECTION	4.11
QUALITY OF GOODS	4.00
GOOD BUS SERVICE	3.55
FAST CHECK-OUTS	3.22
OPENING HOURS	2.77
STORE LAYOUT	2.22
PARKING FACILITIES	1.62
CHEAP PETROL AT THE STORE	1.62
EASE OF GETTING TO BY CAR	1.50
OTHER SHOPS NEARBY	1.50

ARRIVAL MODE=WALK

ITEM	MEAN
QUALITY OF GOODS	4.44
LOWER PRICES	4.32
WIDE CHOICE/SELECTION	4.23
FAST CHECK-OUTS	3.95
OPENING HOURS	3.13
STORE LAYOUT	3.02
PARKING FACILITIES	2.45
GOOD BUS SERVICE	2.36
EASE OF GETTING TO BY CAR	2.21
FREE SHOPPER BUS	2.12
OTHER SHOPS NEARBY	1.90
CHEAP PETROL AT THE STORE	1.88

FIG. 3.1

TRIP TIMES TO STORES (MINS)
FOR MAIN MODES 1 4 ALL STORES MAIN SHOPPERS GROUPED BY STORE

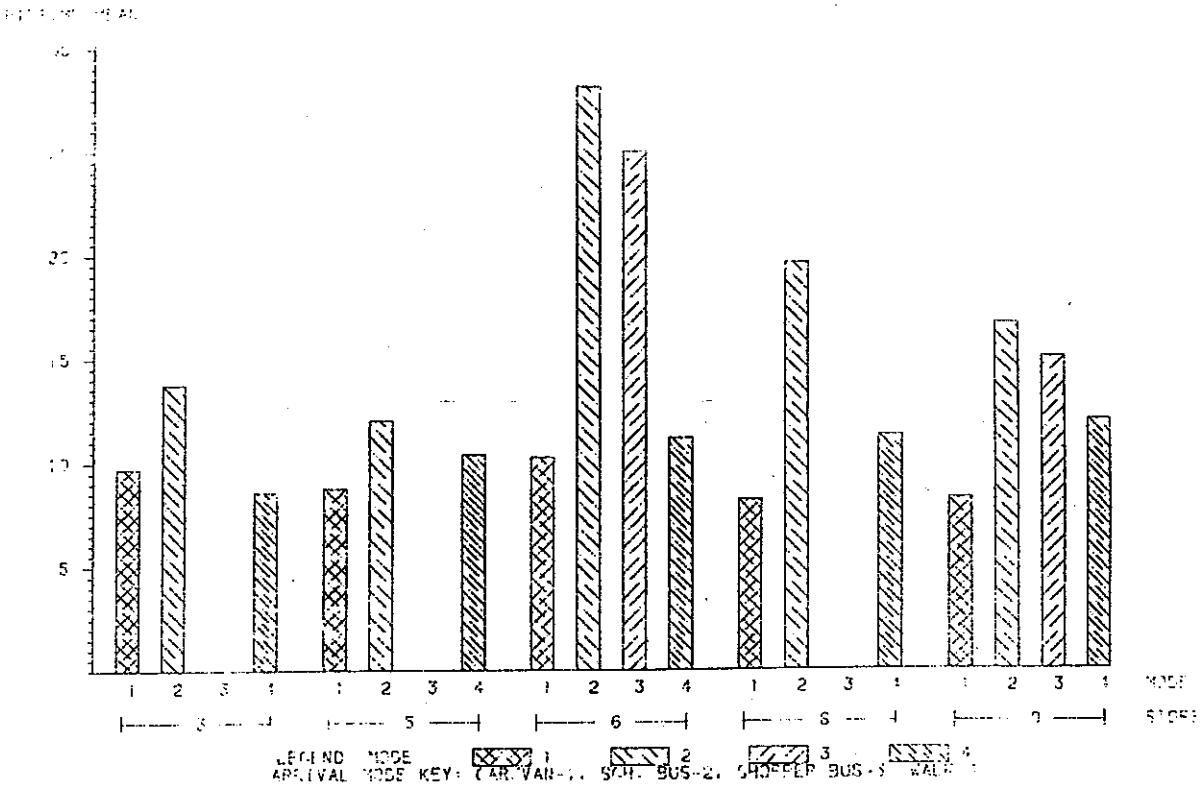


FIG 3.2

ORIGIN-STORE TRIP TIME DISTRIBUTION
SHOWING MODE OF ARRIVAL (ALL STORES, MAIN SHOPPERS)

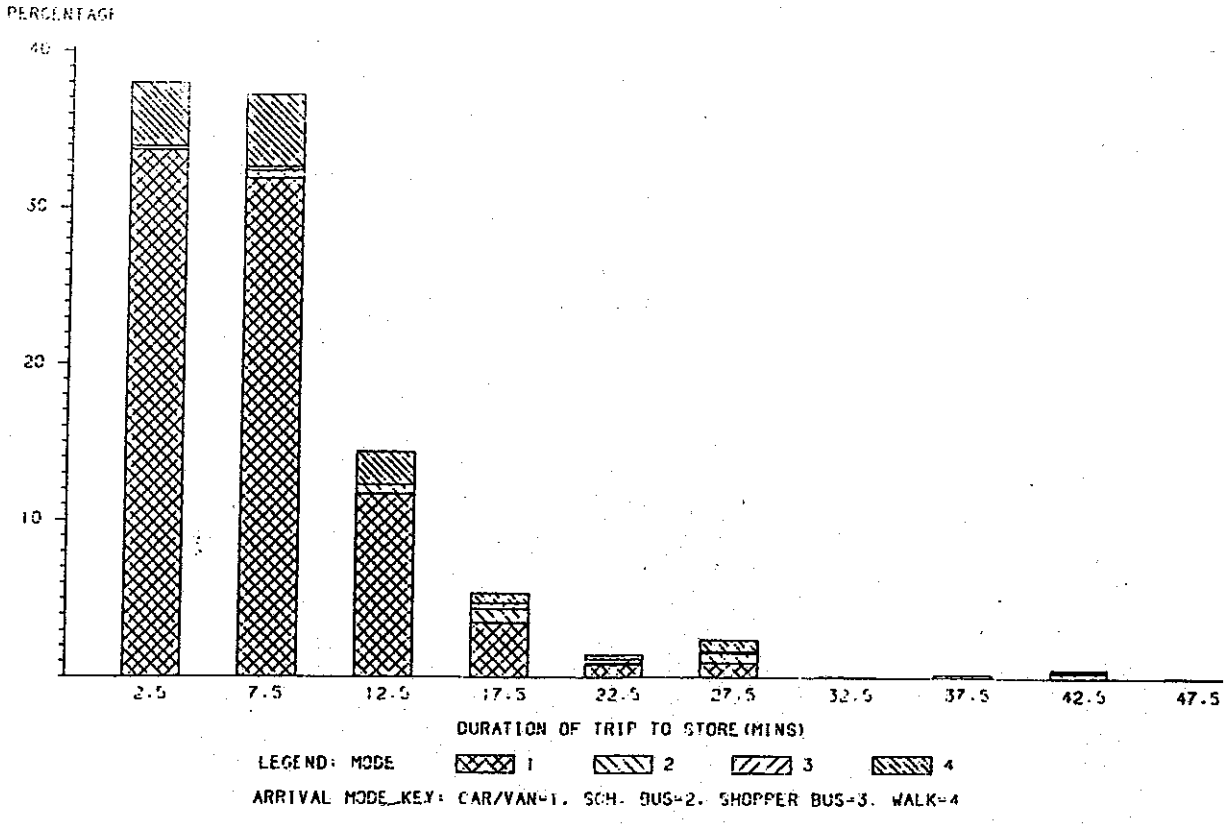


FIG 3.3

DISTANCE TO STORE VS TRIP TIME

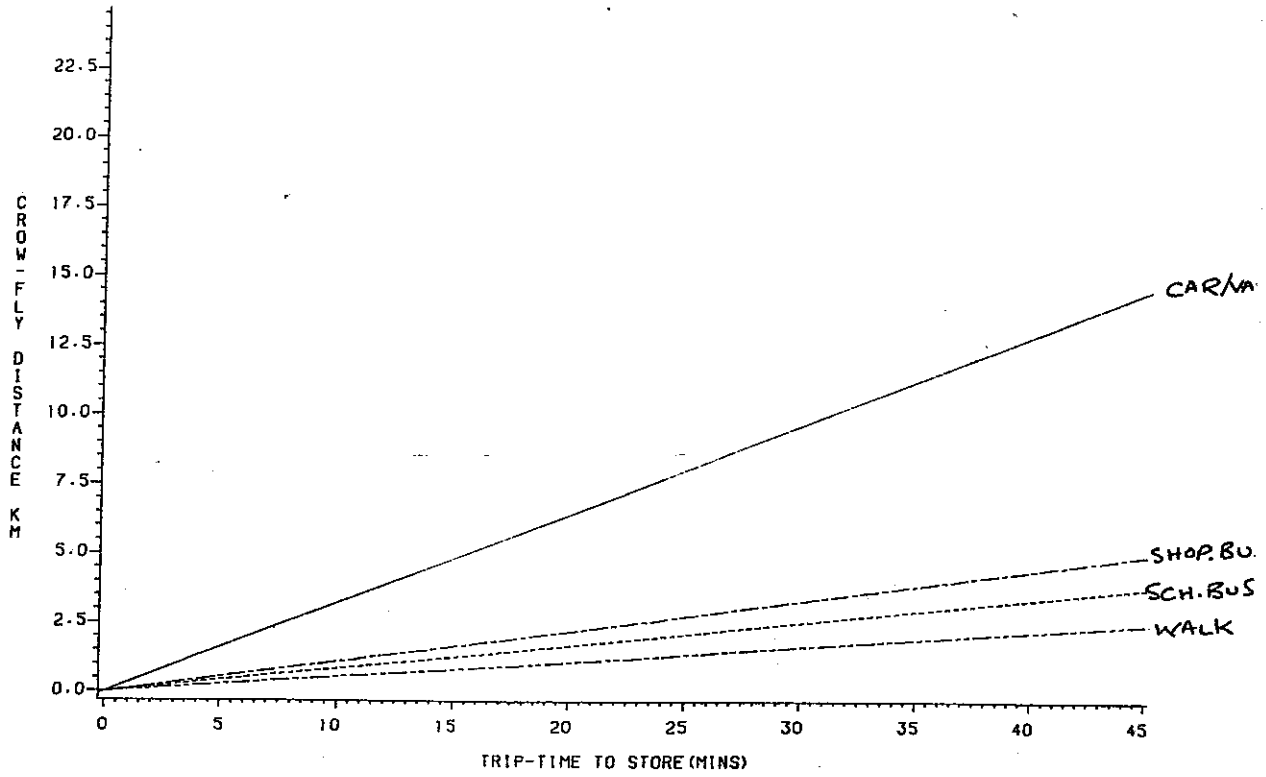
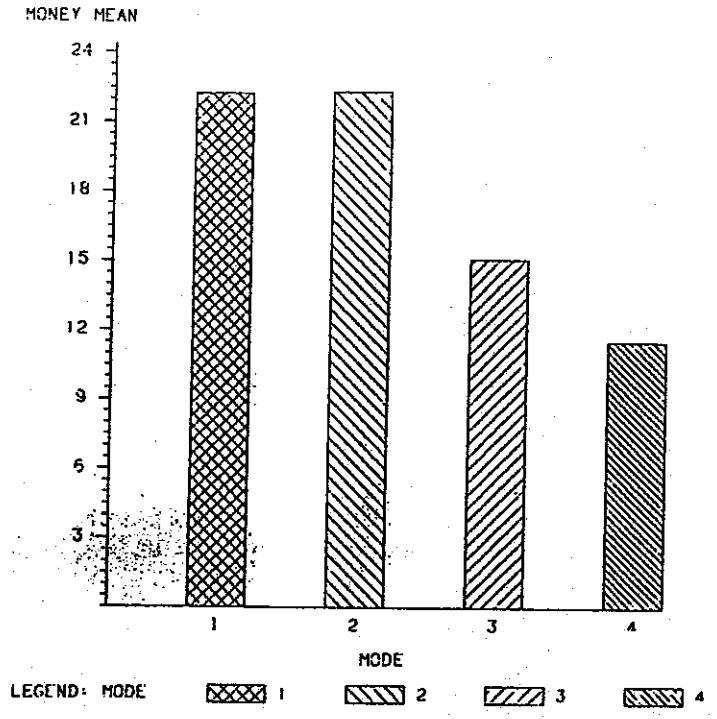


FIG 3.4

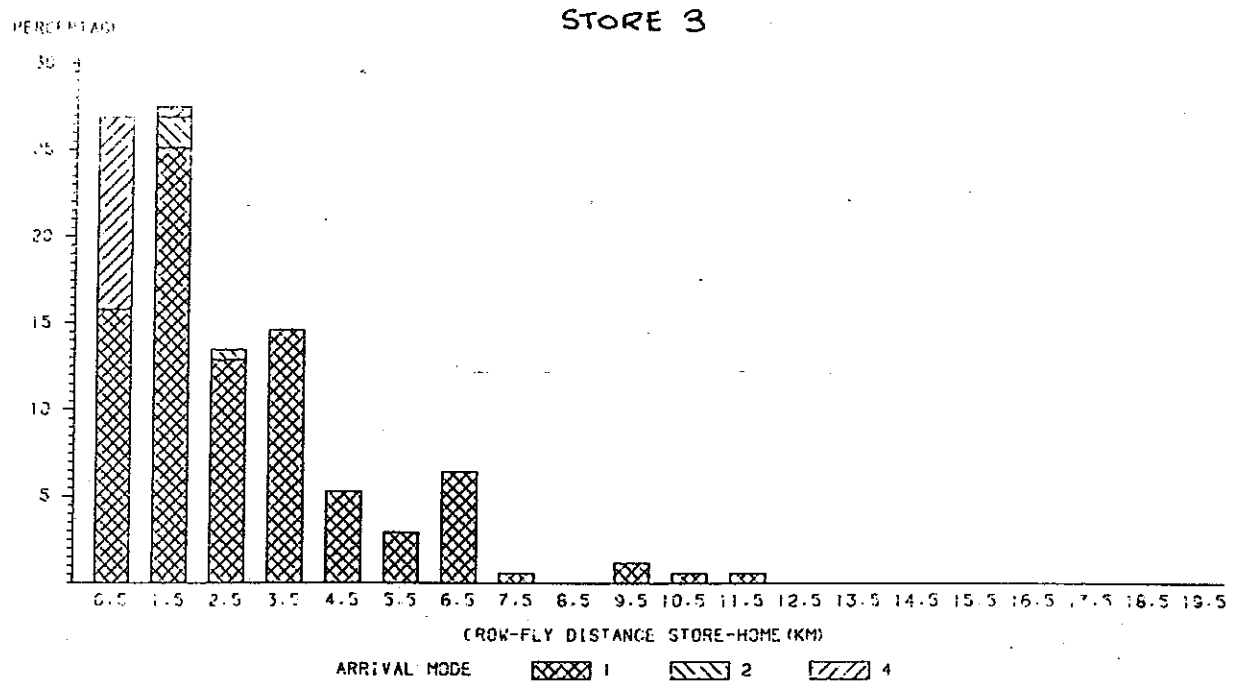
MONEY SPENT AT STORES (MEANS)



ARRIVAL MODE KEY: CAR/VAN=1. SCH. BUS=2. SHOPPER BUS=3. WALK=4

FIG 3.5

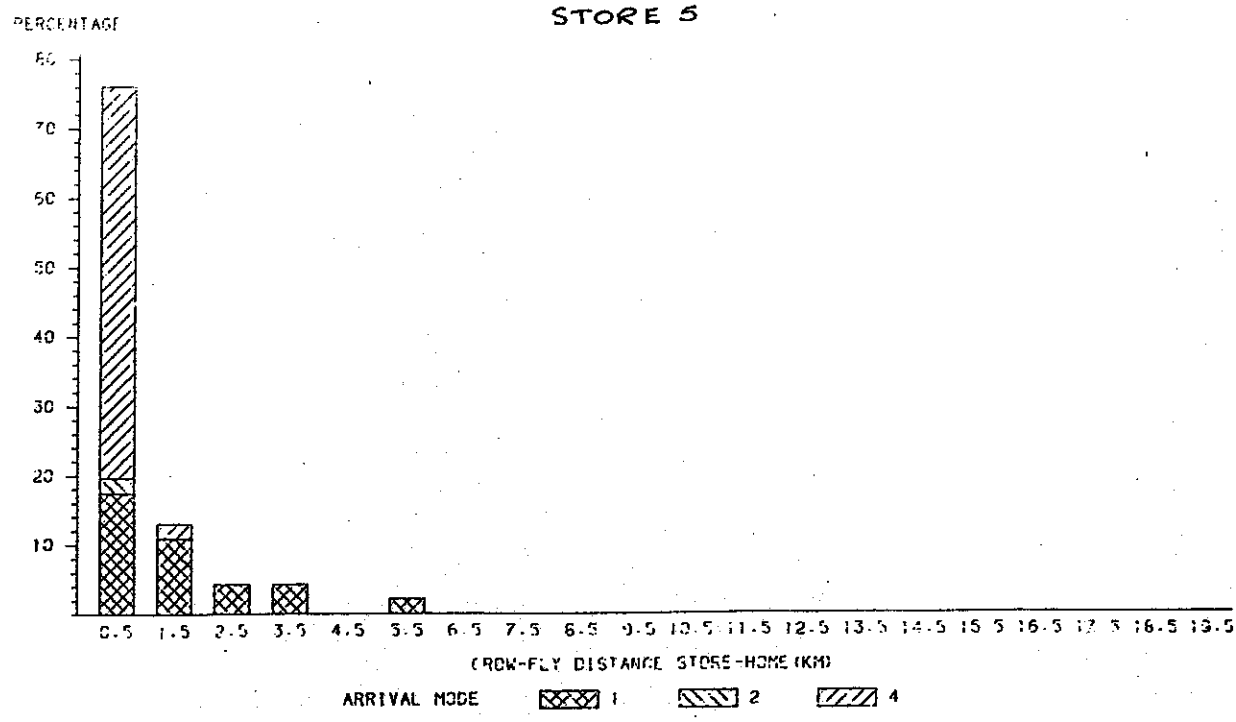
STORE TO HOME DISTANCE
FREQUENCY DISTRIBUTION MAIN STORE SHOPPERS



MAIN MODES SHOWN : 1=CAR/VAN. 2=SCH.BUS. 3=SHOPPER BUS. 4=WALK

FIG 3.6

STORE TO HOME DISTANCE
FREQUENCY DISTRIBUTION MAIN STORE SHOPPERS



MAIN MODES SHOWN : 1=CAR/VAN. 2=SCH.BUS. 3=SHOPPER BUS. 4=WALK

FIG 3.7

STORE TO HOME DISTANCE

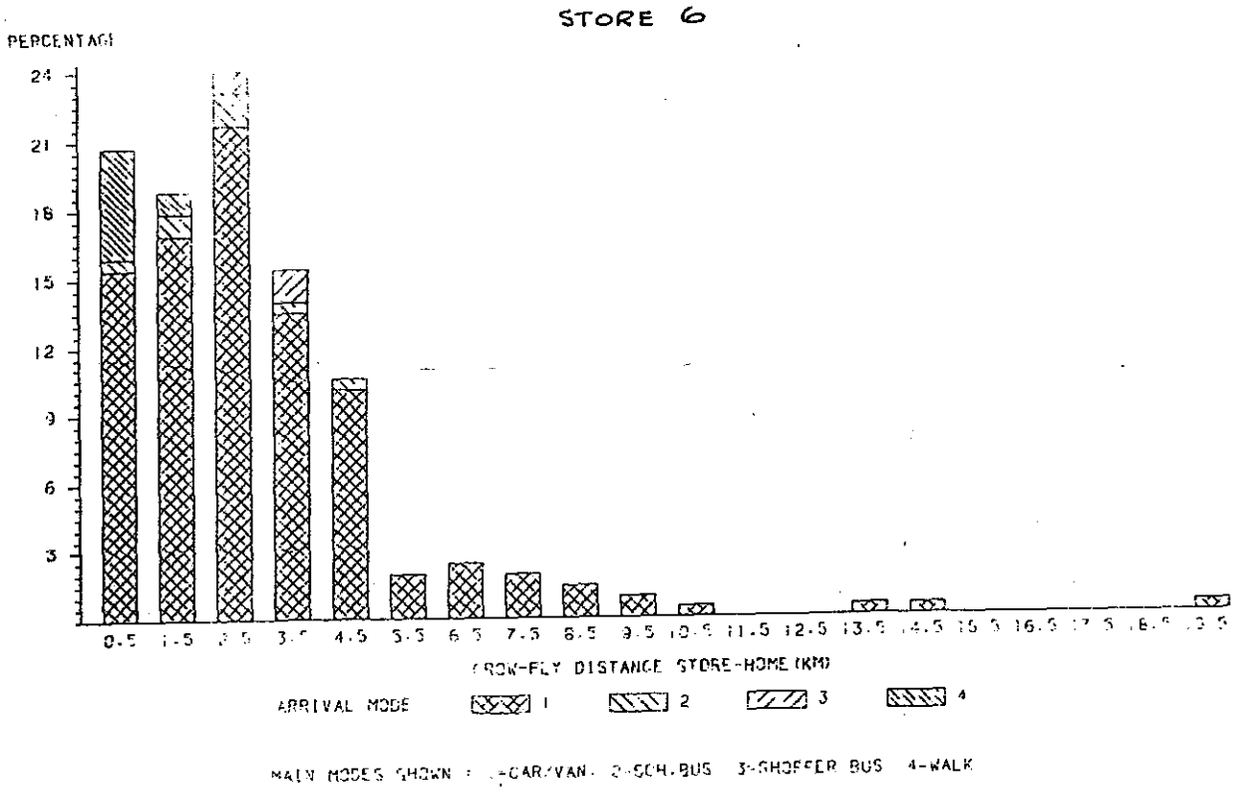


FIG 3.8

STORE TO HOME DISTANCE

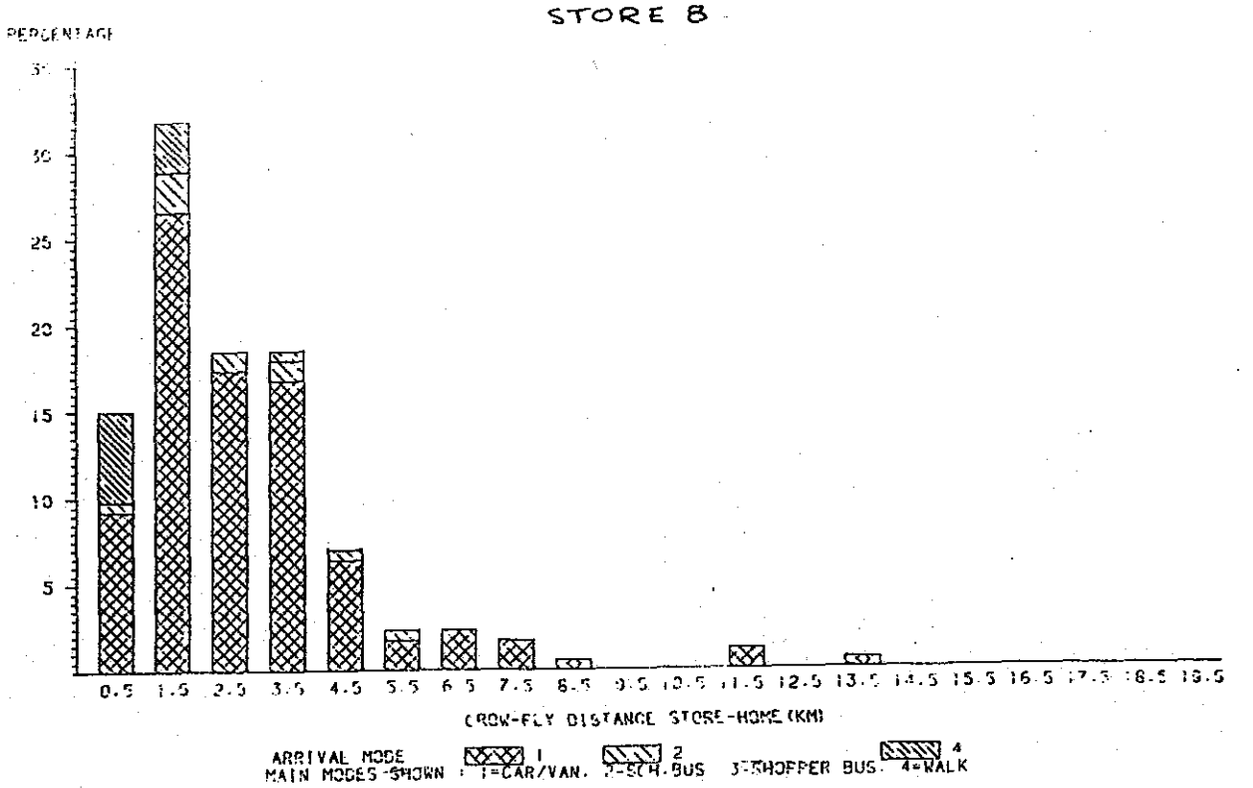


FIG 3.9

STORE TO HOME DISTANCE

FREQUENCY DISTRIBUTION - "MAIN STORE" SHOPPERS

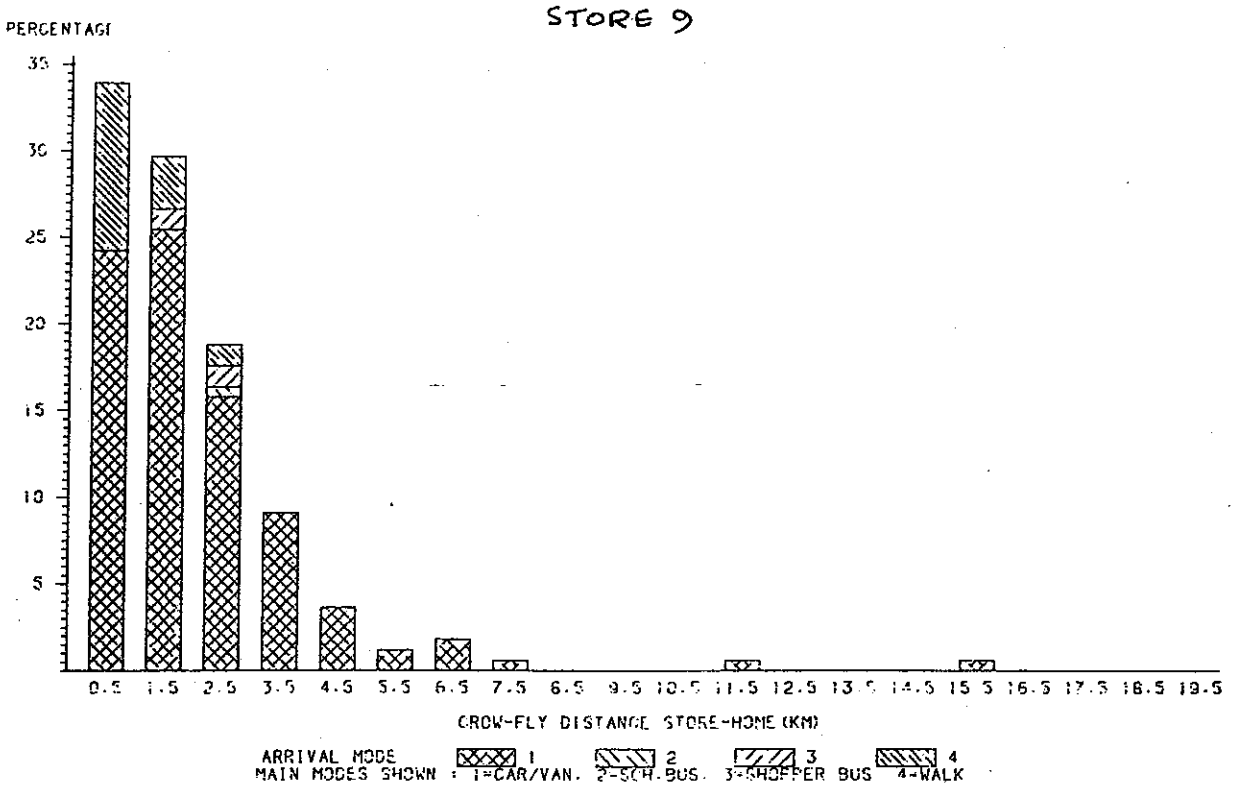
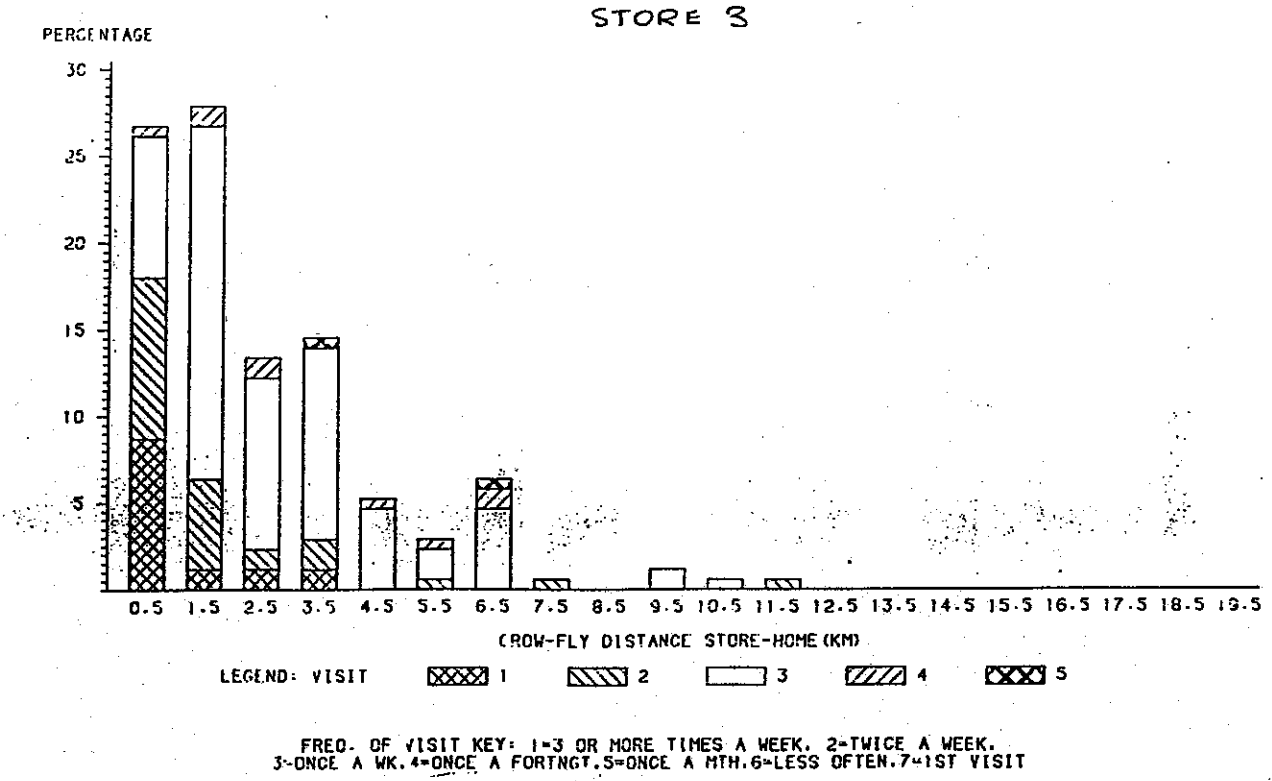


FIG 3.10

STORE TO HOME DISTANCE

FREQUENCY DISTRIBUTION - "MAIN STORE" SHOPPERS
WITH FREQUENCY OF VISIT TO STORE SHOWN



FREQ. OF VISIT KEY: 1=3 OR MORE TIMES A WEEK. 2=TWICE A WEEK.
3=ONCE A WK. 4=ONCE A FORTNGT. 5=ONCE A MTH. 6=LESS OFTEN. 7=1ST VISIT

FIG 3.11

STORE TO HOME DISTANCE

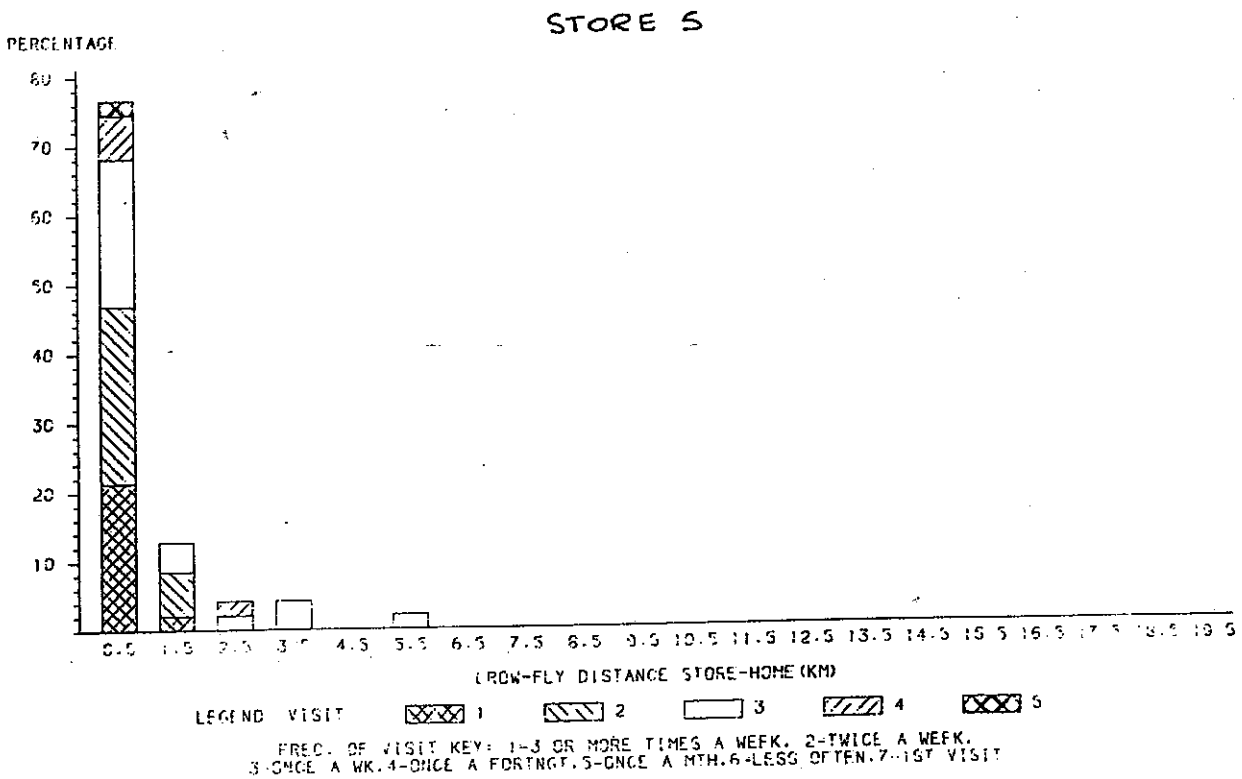


FIG 3.12

STORE TO HOME DISTANCE

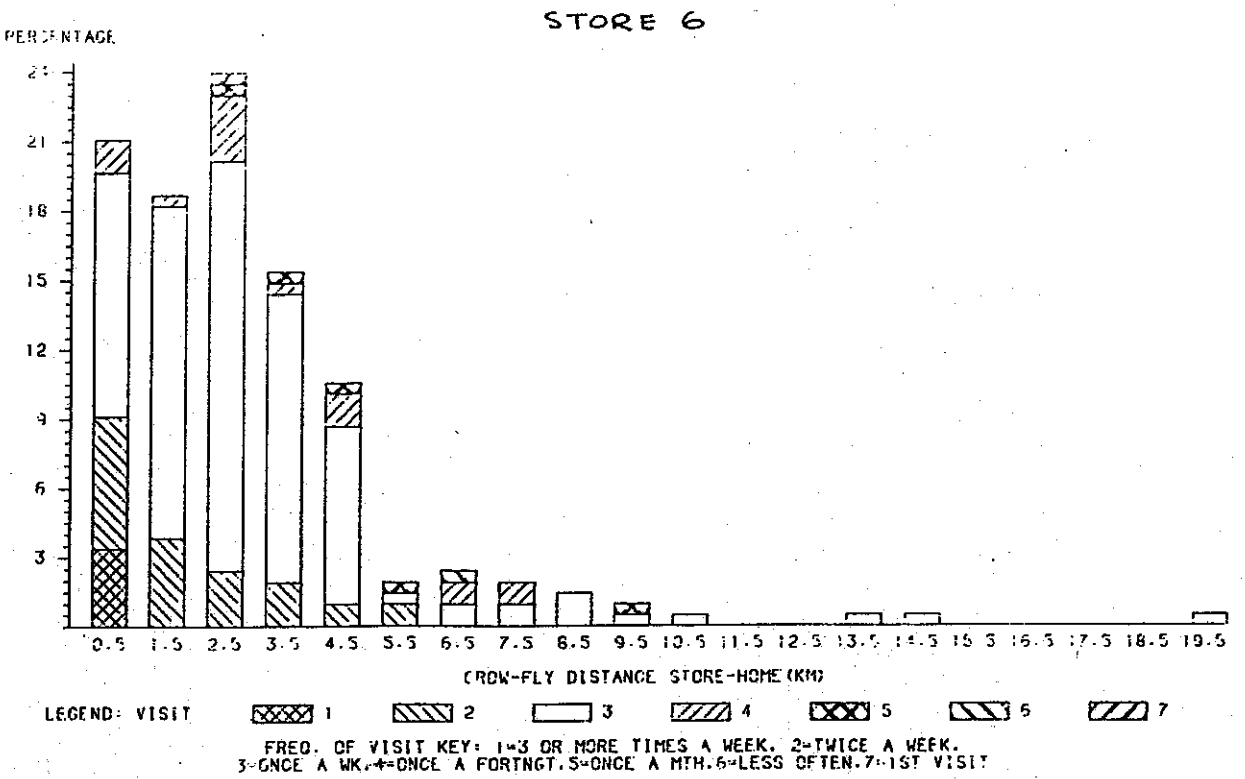
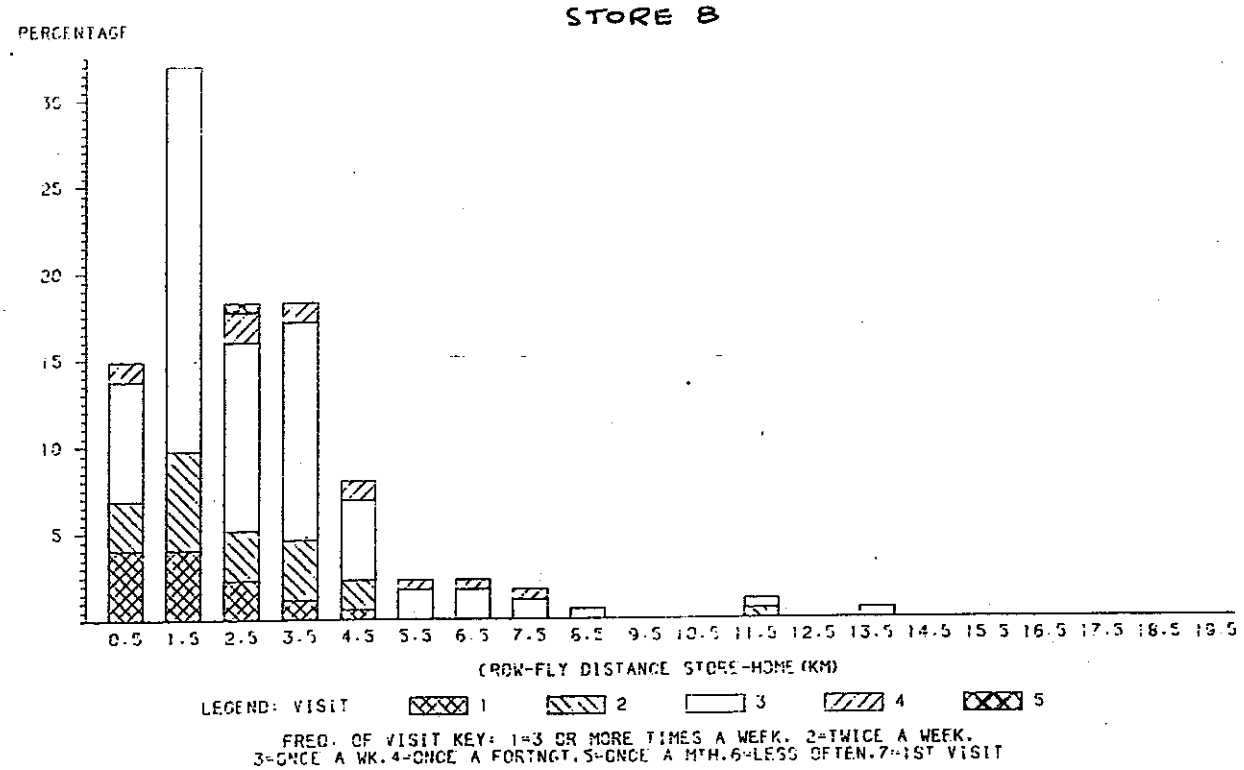


FIG 3.13

STORE TO HOME DISTANCE

FREQUENCY DISTRIBUTION - 'MAIN STORE' SHOPPERS WITH FREQUENCY OF VISIT TO STORE SHOWN

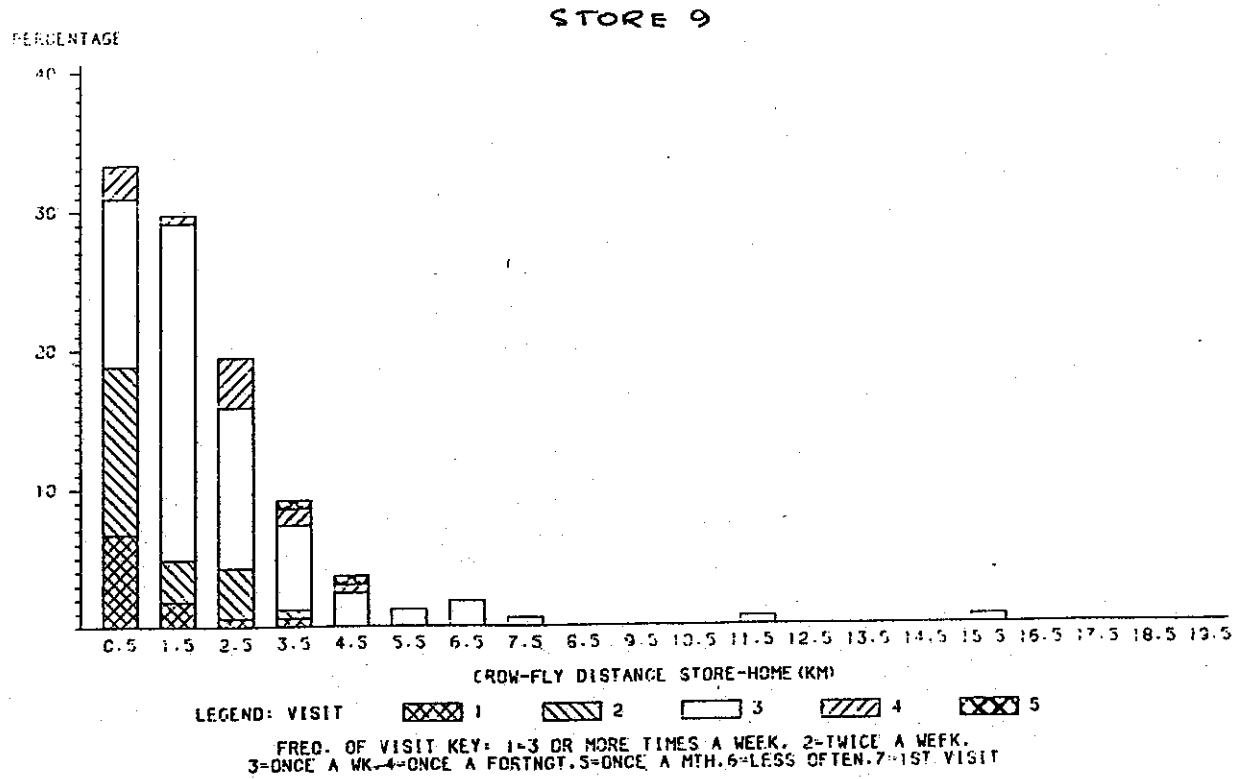


FREQ. OF VISIT KEY: 1=3 OR MORE TIMES A WEEK, 2=TWICE A WEEK, 3=ONCE A WK, 4=ONCE A FORTNGT, 5=ONCE A MTH, 6=LESS OFTEN, 7=1ST VISIT

FIG 3.14

STORE TO HOME DISTANCE

FREQUENCY DISTRIBUTION - 'MAIN STORE' SHOPPERS WITH FREQUENCY OF VISIT TO STORE SHOWN

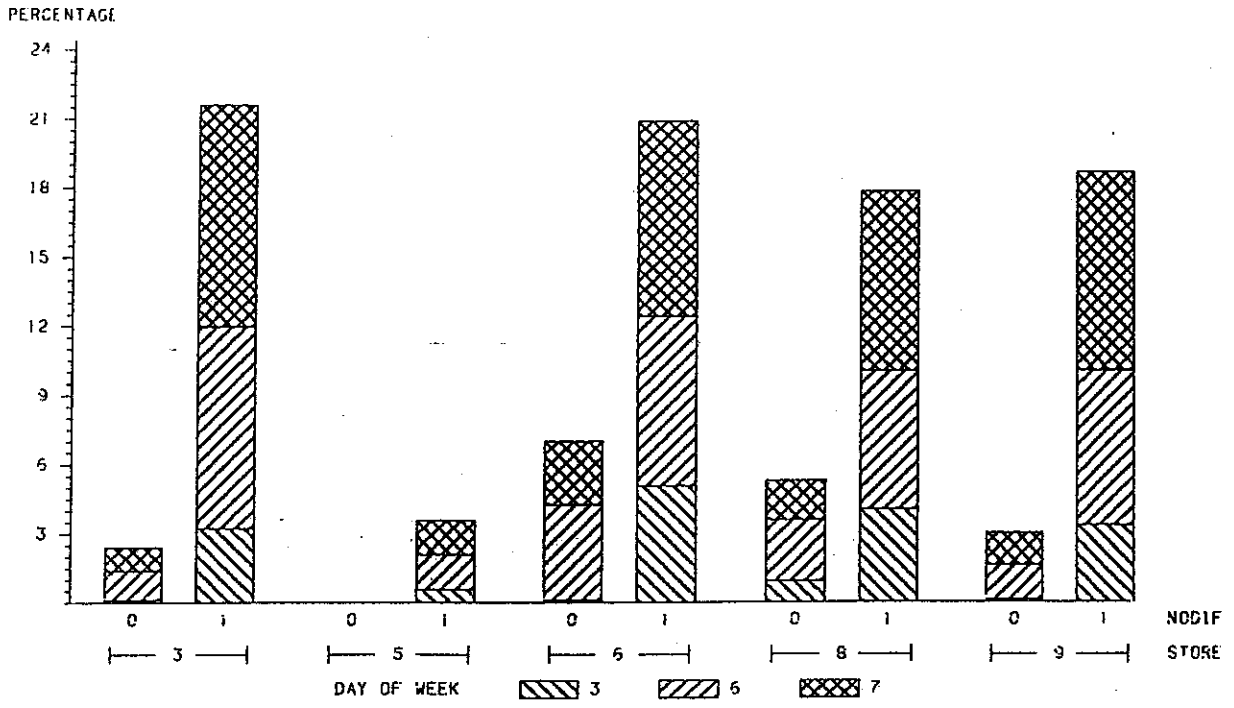


FREQ. OF VISIT KEY: 1=3 OR MORE TIMES A WEEK, 2=TWICE A WEEK, 3=ONCE A WK, 4=ONCE A FORTNGT, 5=ONCE A MTH, 6=LESS OFTEN, 7=1ST VISIT

FIG 3.15

PARKING DIFFICULTIES AT STORES

FREQUENCY "NO DIFFICULTY" REPORTED

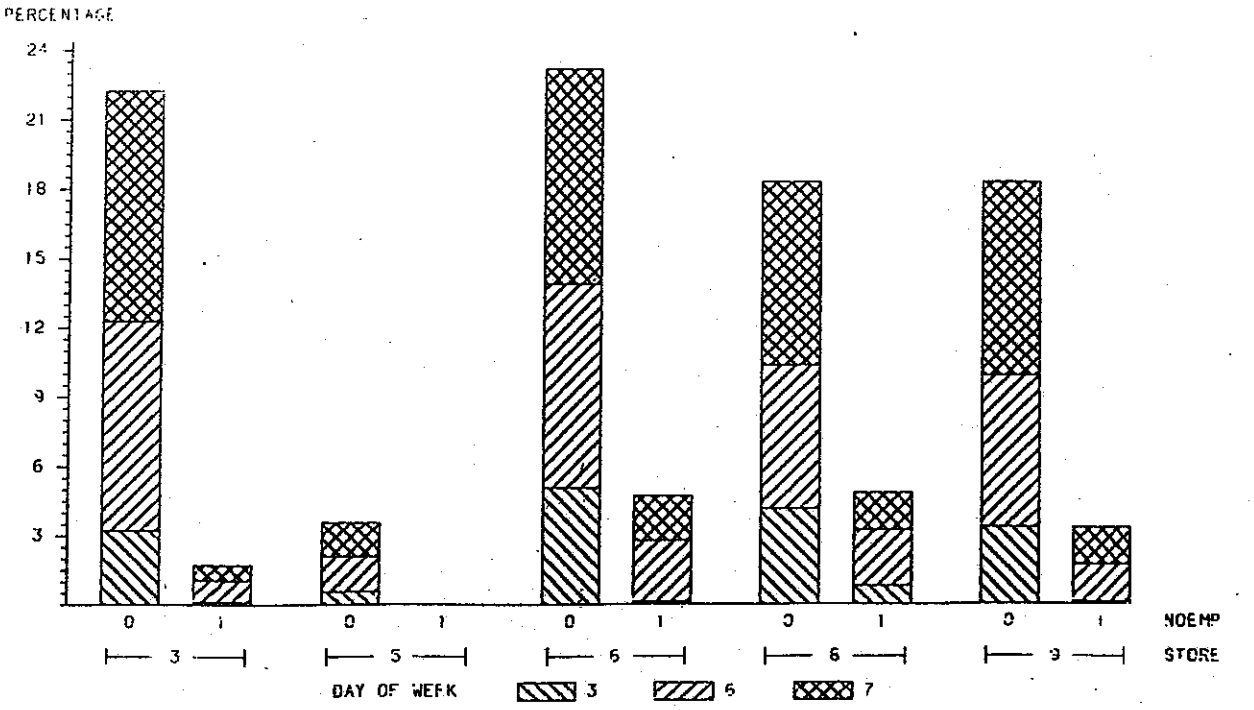


1=BOX TICKED (NO DIFFICULTY). 0=UNTICKED (DIFFICULTY)
DAY OF WEEK KEY : 3=TUESDAY. 6=FRIDAY. 7=SATURDAY

FIG 3.16

PARKING DIFFICULTIES AT STORES

FREQUENCY "NO EMPTY SPACES NEAR STORE ENTRANCE" REPORTED



1=BOX TICKED (NO EMPTY SPACES NEAR ENTRANCE). 0=UNTICKED
DAY OF WEEK KEY : 3=TUESDAY. 6=FRIDAY. 7=SATURDAY

FIG 3.17

PARKING DIFFICULTIES AT STORES

FREQUENCY [illegible] TO FIND ANY SPACES REPORTED

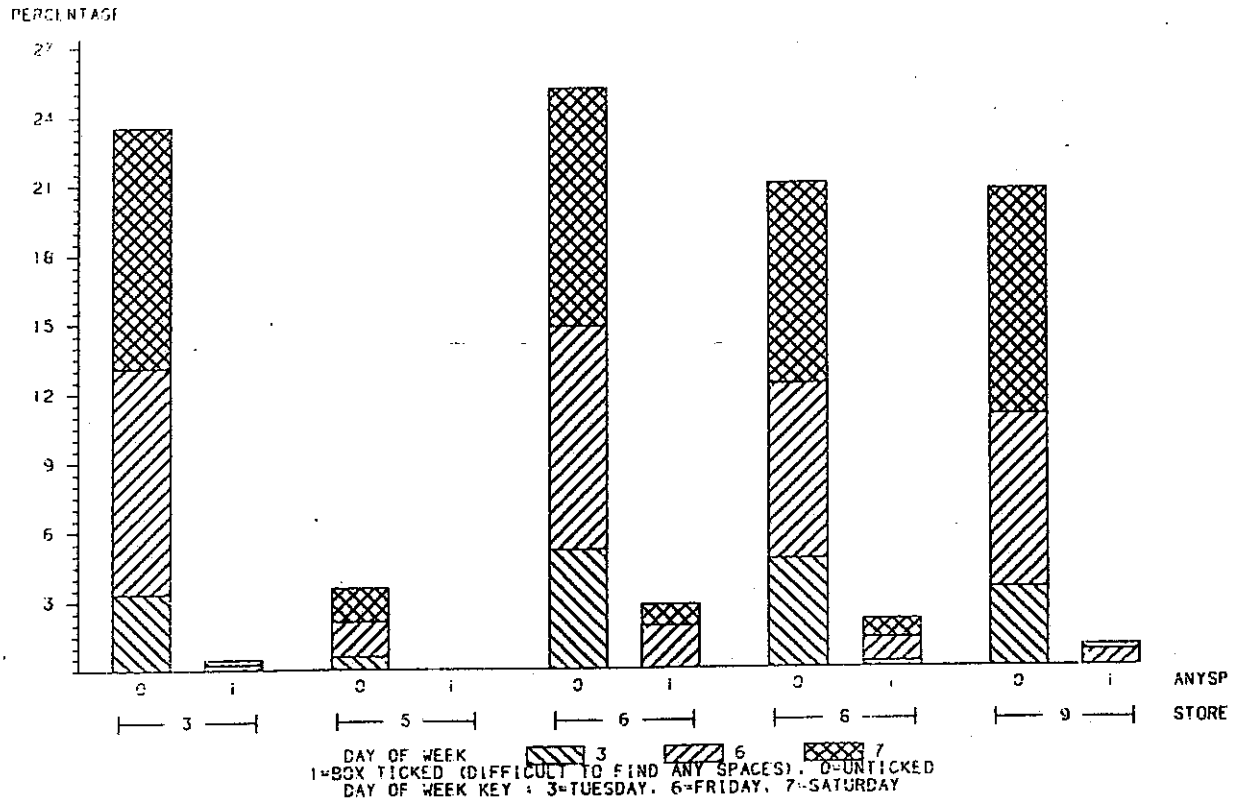
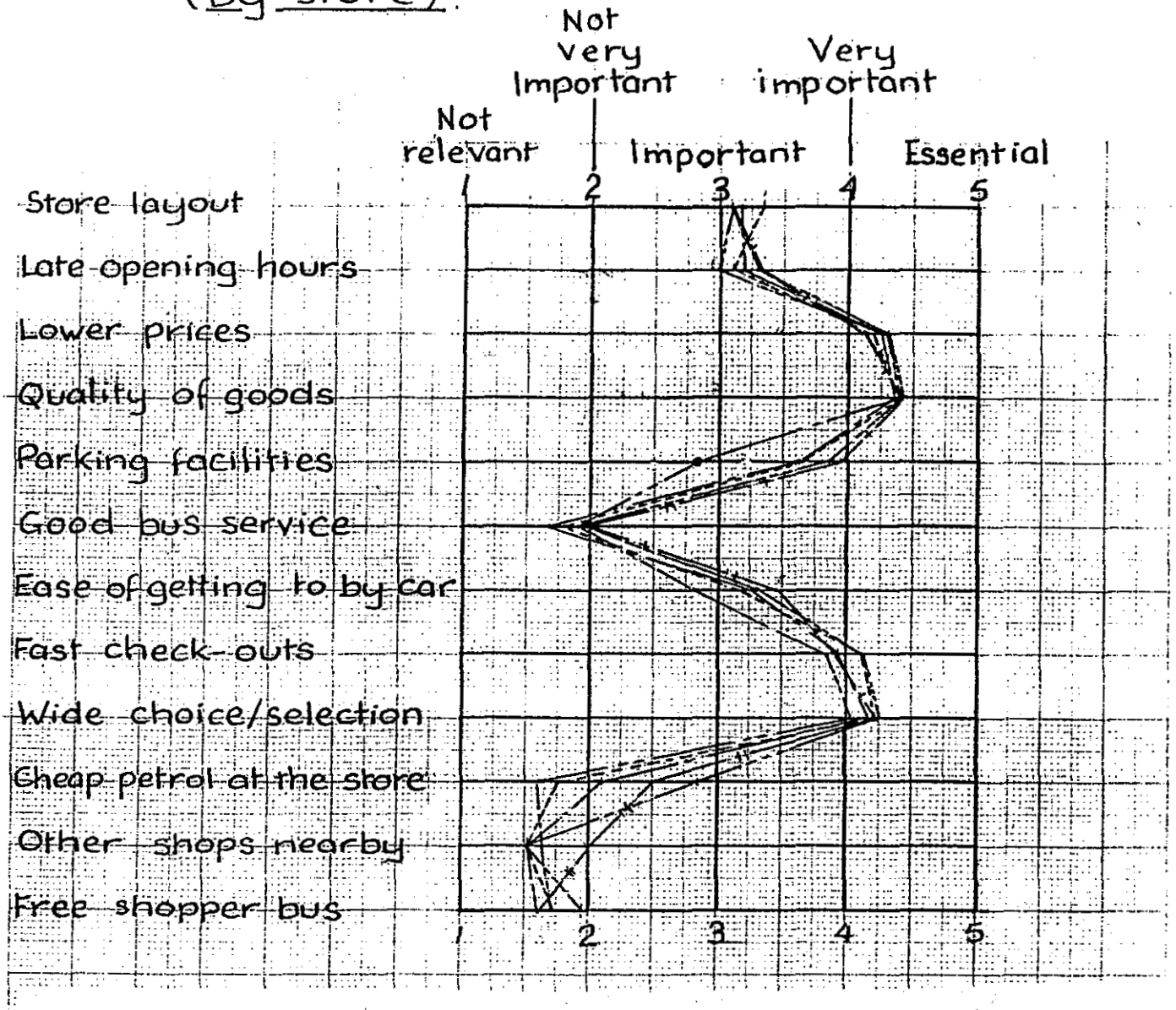


Fig 3.18 Mean Importance Values for Question 14 (By store).

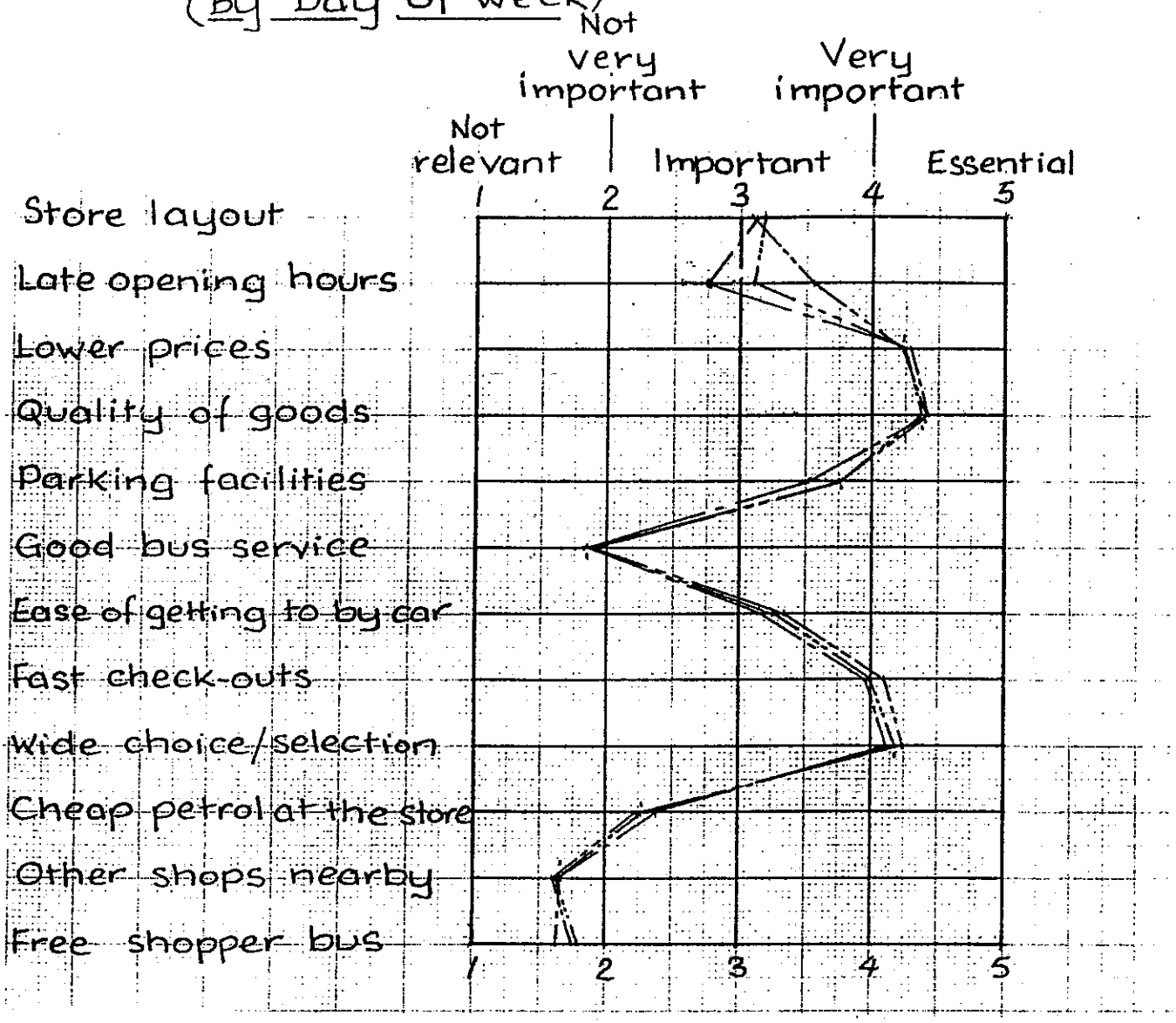


KEY:

	No. observations
Store 3	234 - 240
Store 5	58 - 63
Store 6	261 - 268
Store 8	230 - 235
Store 9	216 - 221
	(min - max)

N.B.: All shoppers & all modes shown.
All questionnaire distribution days of week

Fig 3.19 Mean Importance Values for Question 14
(By Day of week)

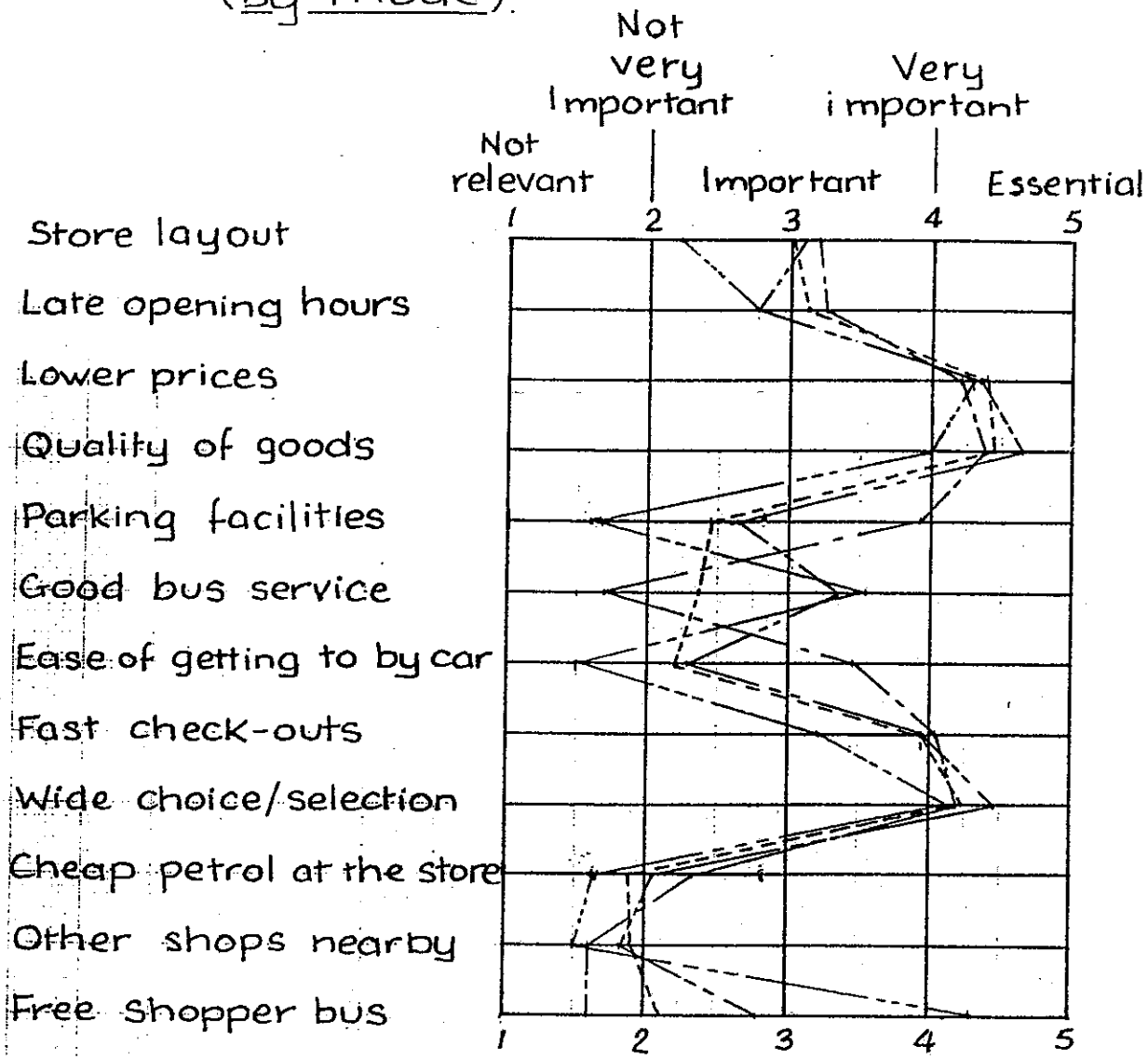


KEY:

	No. observations (min + max)
Tuesday	199-208
Friday	385-393
Saturday	415-426

NB: All shoppers & all modes shown.

Fig 3.20 Mean Importance Values for Question 14 (By mode).



KEY:

		No. observations
Car/van	——— · ———	853 – 868
Scheduled bus	——— - - ———	30 – 32
Shopper bus	——— - - - ———	8 – 10
Walk	· · · · · · · · · ·	101 – 109
		(min – max)

N.B. All shoppers & all stores shown.
All questionnaire distribution days of week

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(2) Bates, J.
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(3) Department of Employment
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Urbana: University of Illinois Press. 1957

APPENDIX 1

UNIVERSITY OF LEEDS AND WEST YORKSHIRE MET.COUNTY COUNCIL SUPERMARKET SHOPPING SURVEY

Dear Shopper,

We are conducting a study in West Yorkshire to provide information for the planning of transport facilities at and to supermarkets.
As part of this work we would like your help in answering this Questionnaire.
YOUR RESPONSE is most important and you can be sure that your answers will be treated in the **strictest confidence.**
When you have completed the Questionnaire simply fold it according to the instructions given on the back and post it to us. **NO STAMP IS REQUIRED** as the Questionnaire is marked **FREEPOST.**
If you have any queries regarding this Questionnaire please contact Mr. Stephen Spinks at the address below or telephone him on Leeds 431751 ext. 386.

Thank you for your co-operation.

Professor K.M.Gwilliam (Director)
Institute for Transport Studies, Leeds University, Leeds LS2 9JT.

To fill in the Questionnaire - Please tick **ONE** ☑ per question unless otherwise instructed or provide written answers where they are asked for - **PLEASE USE BLOCK CAPITALS FOR WRITTEN ANSWERS.**

IN CONFIDENCE

1.To the person answering this Questionnaire: are you the MAIN food and grocery shopper in your household?

☐ YES ☐ NO ☐ Don't have a Main Shopper

2.Did you set out on this shopping journey from-

☐ Home ☐ Work
Somewhere else? (Please specify).....

3.What was the address of the place you set out from? (**The Postcode will be sufficient (if known), otherwise please give the Street & District**)
Business/Firm's name (If applicable).....
Street .....
District.....Postcode.....

4.How long did it take you to travel from the address given in question 3 to the supermarket?.....mins

5.What was your MAIN means of transport to get to the supermarket?

☐ Car/Van
☐ Scheduled bus
☐ Shopper bus
☐ Walk
☐ Bicycle
☐ M.bike/Moped/Scooter
☐ Taxi
If any other means was used (Please specify).....

P.T.O.

If your MAIN means of transport was a CAR/VAN please answer questions 6a & 6b. (Otherwise please continue from question 7)

6a.On your journey to the supermarket did you?:-

- ☐ Drive yourself
- ☐ Travel as a passenger in your own household's car/van
- ☐ Travel as a passenger in a friend's/neighbour's car/van

If none of these (Please specify).....

6b.Did you experience any difficulty in parking at the store? If so what? **(Please tick more than one box if necessary.)**

- ☐ No difficulty
- ☐ Vehicles badly parked
- ☐ Difficult to find any spaces
- ☐ No empty spaces near store entrance

Any other difficulty? (Please specify).....
.....

7.How much **time** did you spend in the supermarket? (ie. the time you took between entering & leaving the store).....mins

8.To the nearest £, how much did you spend in the supermarket?
£.....

9.Which day is your household's **USUAL** MAIN food shopping day?

☐ Mon. ☐ Tues. ☐ Weds. ☐ Thurs. ☐ Fri. ☐ Sat.

10.What reasons most frequently affect or influence your choice of day for your household's MAIN food & grocery shopping?
.....
.....
.....

11.About how often do you (or a member of your household) visit this supermarket?

- ☐ 3 times a week or more
- ☐ Twice a week
- ☐ Once a week
- ☐ Once a fortnight
- ☐ Once a month
- ☐ Less frequently
- ☐ First Visit

12.Do you consider this supermarket (the one at which you obtained this Questionnaire) to be your MAIN store for Food and Grocery shopping?

- ☐ YES **(Please continue from question 14)**
- ☐ NO

If you answered NO to question 12 please ANSWER 13a & 13b

13a.For what reason(s) were you **NOT** shopping at your MAIN store?
.....
.....

13b.Where do you usually do your MAIN Food and Grocery shopping?
Store Name.....
Street.....District.....

Please continue from question 14

14. Please fill in **ALL** the boxes below to indicate how important each item is **when choosing a supermarket** at which to do your household's MAIN food & grocery shopping.
Give EACH item points out of 5 in the following way:-

Not relevant 1	Not very important 2	Important 3	Very important 4	Essential 5

For example, if you consider "Store Layout" to be "Not very important" you should put a [2] in the box next to it.

- ☐ Store layout
- ☐ Late opening hours
- ☐ Lower prices
- ☐ Quality of goods
- ☐ Parking facilities
- ☐ Good bus service
- ☐ Ease of getting to by car
- ☐ Fast check-outs
- ☐ Wide choice/selection
- ☐ Cheap petrol at the store
- ☐ Other shops nearby
- ☐ Free shopper bus

15. How many people were in your shopping party?.....

16. How many of these were children under 5 yrs of age?.....

17. How many people are there in your **household?**

Number of adults (17yrs & over).....
Number of children:(a) 5 to 16 yrs.....:(b) under 5 yrs.....

18. How many cars(including vans) does your household **OWN?**
(Please include vehicles being bought under hire purchase)
.....

19. Are there any other vehicles in your household, such as company cars, which can be used for private use? If so how many?
.....

20. How many current car licence holders are there in your household?(Please exclude learners).....

21. Does your household possess any of the following? **(Please tick more than one box if necessary.)**

- ☐ Fridge/freezer
- ☐ Separate freezer
- ☐ Separate fridge
- ☐ None of these

22. If you did not give your HOME Address in Question 3, could you please give it here:- (The Postcode will be sufficient (if known) otherwise please give the Street and District)

Street .....
District.....Postcode.....

That completes the Questionnaire. Now please turn to the last page and follow the instructions on folding the Questionnaire prior to posting it back to us by FREEPOST

----------Fold----here----and----tuck----into----opposite----flap----------

N O
STAMP
REQUIRED

Mr.S.P.Spinks,
FREEPOST
Institute for Transport Studies,
The University of Leeds,
LEEDS.
LS2 9JT.

----------Fold-----here-----first----------

THANK YOU FOR TAKING THE TIME TO COMPLETE THIS QUESTIONNAIRE - IT IS MUCH APPRECIATED. NOW PLEASE FOLD IT ACCORDING TO THE FOLD LINES SHOWN ON THIS PAGE (REMEMBER TO KEEP THE ADDRESS TO SEND IT TO OUTERMOST) AND THEN SIMPLY POST IT. **NO STAMP IS REQUIRED** AS IT IS ALREADY MARKED **FREEPOST**

APPENDIX 2

SHOPPER QUESTIONNAIRE SURVEY

CODING MANUAL

Var. No.	Col. No.	Description (with VARIABLE NAME)
CARD No. 1		
1	1-4	Serial Number **QNUM** Code xxxx Serial No. from q'aire
2	6	Store Number **STORE** Code 3 Morrisons, Mayo Avenue, Bradford 5 Morrisons, Canterbury Avenue, Bradford 6 Asda, Fartown, Pudsey 8 Morrisons, Victoria Centre, Bradford 9 Hillards, Idlecroft Road, Bradford
3	8-9	Day of Month of q'aire distribution **DAYOFM** Code 01 to 31 for day of month _M Unknown/Indeterminate etc.
4	10-11	Month of q'aire distribution **MONTH** From Survey Record Sheets Code 05 May 06 June _M Unknown/Indeterminate etc.
5	13	Day of Week of q'aire distribution **DAYOFW** From Survey Record Sheets Code 3 Tuesday 6 Friday 7 Saturday M Unknown/Indeterminate etc.
6	15-18	Time of Day of q'aire distribution **TIMEOUT** Code hhmm Time ending from record sheets (24hr) ___M Unknown/Indeterminate etc.
7	20-21	Day of Month of Date Stamp **STAMPD** Code 01 to 31 for day of month _M Indeterminate

8 22-23 Month of Date Stamp **STAMPM**

Code 05 May
06 June
07 July
08 August
09 September and thereafter
_M Indeterminate

9 25 Date Stamp Estimated/Not Estimated **STAMPEST**

Code 1 Estimated
0 Not estimated

10 27 Q1.To the person answering this Questionnaire: are you the MAIN food and grocery shopper in your household? **SHOPPER**

Code 1 Yes
2 No
3 Don't have a Main Shopper
M Missing
N Invalid (ie. More than 1 box ticked)

11 29 Q2. Did you set out on this shopping journey from:- **TRIPO**

Code 1 Home
2 Work

If "Somewhere else" specified:

Code 3 School
4 Friends/Relations
5 Other Social/Recreational
6 Other Shops
7 Other

M Missing
N Invalid (eg. Home ticked but address/post-code given for Var.No.12 does not match that given for Var.No.57)

12 31-37 Q3. What was the address of the place you set out from? **(The Postcode will be sufficient (if known), otherwise please give the Street & District) ADDRESSO**

Code xxxxxxx the postcode given or derived from the address or firms name
_____M Missing
_____U Information given insufficient or address out of study area

13 39 Postcode Given/Not Given (to Var.No. 12)
POSTCODE

Code 0 If Not Given
1 If Given
2 If complete address given but without Postcode; or where ONE Postcode only applies for the street/road etc. given

14 41-42 Q4. How long did it take you to travel from the address given in question 3 to the supermarket?
TRIPTIME

Code mm time in minutes (If >99 put "99")
_M Missing

15 44 Q5. What was your MAIN means of transport to get to the supermarket? **MODE**

Code 1 Car/Van
2 Scheduled bus
3 Shopper bus
4 Walk
5 Bicycle
6 M.bike/Moped/Scooter
7 Taxi
8 Other
9 Hire Car
M Missing
N Invalid (ie. more than 1 box ticked)

16 46 Q6a. On your journey to the supermarket did you?:- **CARBORN**

Code 1 Drive yourself
2 Travel as a passenger in your own household's car/van
3 Travel as a passenger in a friend's/neighbour's car/van
4 None of these
0 If Var.No.15 <> 1
M Missing
N Invalid (ie. If more than 1 box ticked)

Q6b. Did you experience any difficulty in parking at the store? If so what? **(Please tick more than one box if necessary.)**

Code for each: 1 If ticked
0 If unticked or Var.No.15<>1
M Missing (ie.Var.No.15=1 but boxes here left blank)

17	48	No difficulty **NODIF**
18	49	Vehicles badly parked **BADPK**
19	50	Difficult to find any spaces **ANYSP**
20	51	No empty spaces near store entrance **NOEMP**
21	52	Any other difficulty **OTHERD**

22 54-55 Q7. How much **time** did you spend in the supermarket? (ie. the time you took between entering and leaving the store).....mins **INTIME**

Code mm time in minutes (If >99 put "99")
_M If Missing

23 57-58 Q8. To the nearest **£**, how much did you spend in the supermarket? **MONEY**

Code xx £ (pounds)
_M Missing
_N Invalid

Q9. Which day is your household's **USUAL** MAIN food shopping day?

24 60 First Usual Day Given **USDAY1**
25 61 Second Usual Day Given **USDAY2**

Code for Var's 24 & 25 as follows:-

0 If NO main shopping day "none" or "varies", etc.
(See response to Q.10) OR where more than 2 boxes ticked.
NOTE: where ONE day only is ticked put "0" for Var. 25
2 Monday
3 Tuesday
4 Wednesday
5 Thursday
6 Friday
7 Saturday
M Missing (Only if response to Q10 ALSO Missing)

Q10. What reasons most frequently affect or influence your choice of day for your household's MAIN food & grocery shopping?

26 63 First Main Reason Given **REASON1**
27 64 Second Main Reason Given (If any) **REASON2**

Code 1 No usual day/None/Varies/No reason/etc.
2 Need to replenish/Food for weekend/Near weekend/Before weekend/etc.
3 Time availability/Work hours dictate/Regular day (or part day off/Convenient/Suitable finish/Late opening/Early finish (from work)/etc.
4 Other person(s) availability
5 Transport/Car/Vehicle availability
6 Habit/Routine/Traditional/Custom/etc.
7 Quiet time or day at store/Less busy/Easier to park/Less crowded/etc.
8 Pay day/Money related/Pension day/Collect dole money/Unemployment benefit/Social security/etc.
9 Other
0 For Var.No.27 - where one reason given only
M Missing

28 66 Q11. About how often do you (or a member of your household visit this supermarket?) **VISIT**

Code 1 3 times a week or more
2 Twice a week
3 Once a week
4 Once a fortnight
5 Once a month
6 Less frequently
7 First visit
M Missing
N Invalid (Where more than 2 boxes ticked)

29 68 Q12. Do you consider this supermarket (the one at which you obtained this Questionnaire) to be your MAIN store for Food and Grocery shopping? **MAINSTO**

Code 1 Yes
2 No

Q13a For what reason(s) were you **NOT** shopping at your MAIN store?

30 70 First reason **NOTREA1**
31 71 Second Reason (If not given code as "0") **NOTREA2**

CODER : If response to Q12 is "YES" code 0 for Var's 30 & 31

Code 1 Wanted a change/Variety/etc.
2 Good(s) not available at Main

store/Good(s) more expensive at Main store/Particular or certain items sought or bought/Comparing prices/Wider selection than Main store
3 Convenience/Not in Main store vicinity/Too far/Not near home/Nearer to work/Not usual day/etc.
4 Combining trips/Other trip purpose/En route elsewhere/etc.
5 No Main store/Alternate with one other store or complements with fresh meat/veg. from town or market etc.
6 Other person not available
7 Car/Vehicle not available
8 Petrol not available at Main Store/Other attribute (eg tyre bay) not available at main store/Cash point at this store/etc.
9 Other
0 For Var.No.31 -where one reason given only and response to Q.12 is "NO"
M Missing (ie.If response to Q.12 is "NO")
N Invalid (ie.Response not pertaining to Question.)

32 73-79 Q13b. Where do you usually do your MAIN Food and Grocery shopping? **ADDSTO**

Code xxxxxxx Postcode derived from Store name and address
_____M If Missing (Only where response to Q12 is "NO")
_____U If store name/address given does not correspond with an actual store or does not permit identification of a store (ie. unclear or imprecise)
0000000 If response to Q12 is "YES" or more than one store given or a market or town centre given

END OF CARD No. 1

CARD No. 2

Q14. Please fill in **ALL** the boxes below to indicate **how important each item is when choosing a supermarket at which to do your household's MAIN food & grocery shopping.**

Code 1 to 5 as given
M Missing
N Invalid (eg. ticked instead of numbered)

33	1	Store layout **LAYOUT**
34	3	Late opening hours **OHOURS**
35	5	Lower prices **PRICES**
36	7	Quality of goods **QUALITY**
37	9	Parking facilities **PARKING**
38	11	Good bus service **BUSS**
39	13	Ease of getting to by car **EGTBC**
40	15	Fast check-outs **CHECKOS**
41	17	Wide choice/selection **CHOICE**
42	19	Cheap petrol at the store **PETROL**
43	21	Other shops nearby **SHOPS**
44	23	Free shopper bus **FREEBUS**

45 25 Q15. How many people were in your shopping party? **PARTY**

Code 0 to 9 (If >9 put "9")
M Missing
N Invalid

46 27 Q16. How many of these were children under 5 yrs of age? **UNDER5**

Code 0 to 9 (If >9 put "9")
M Missing
N Invalid

Q17. How many people are there in your **household?**

Code 0 to 9 (If >9 put "9")
M Missing CODER : Code Var's 48 & 49 as M (ie.Missing) only if Var.No.47 is Missing Otherwise put "0"
N Invalid

47	29	Number of adults (17yrs & over) **ADULTS**
48	31	Number of children (5 to 16 yrs) **HHOLD516**
49	33	Number of children (under 5 yrs) **HHOLDU5**

50 35 Q18. How many cars(including vans) does your household **OWN?** (Please include vehicles being bought under hire purchase) **OWNCARS**

Code 0 to 9 (If >9 put "9")
M Missing

N Invalid

51 37 Q19. Are there any other vehicles in your household, such as company cars which can be used for private use? If so how many? **COCARS**

Code 0 to 9 (If >9 put "9")
M Missing CODER : Put "M" only if Var 50 is also missing
Otherwise put "0"
N Invalid

52 39 Q20. How many current car licence holders are there in your household? (Please exclude learners) **LHOLD**

Code 0 to 9 (If >9 put "9")
M Missing
N Invalid

Q21. Does your household possess any of the following? **(Please tick more than one box if necessary.)**

Code 1 If ticked
0 If unticked

53 41 Fridge/freezer **FRFREEZ**
54 42 Separate freezer **SEPFREEZ**
55 43 Separate fridge **SEPFRIDG**
56 44 None of these **NONE**

57 46-52 **Q22. If you did not give your HOME Address in Question 3, could you please give it here:- (The Postcode will be sufficient (if known) otherwise please give the Street and District) HOMEADD**

Code xxxxxxx Postcode as given or derived from address (From Var.No.12 if "Home")
_____M Missing
_____N Invalid
_____U Insufficient info. given or out of study area

58 54 Postcode Given/Not Given to Var.No.57 **PCHOME**

Code 0 If not given
1 If given
2 If complete address (less postcode) given OR where ONE postcode applies to street/road/building only

59 56-58 Vehicle accumulation **ACCUM**

Code xxx No. of vehs. at or immediately prior to time of q'aire distribution - as shown on record sheets
__M Indeterminate/Unknown

60 60 Survey Session Weather **WEATHER**

Code 1 Light Rain, short duration
2 " " Intermittent
3 " " Prolonged
4 Heavy " Short duration
5 " " Intermittent
6 " " Prolonged
7 Dry throughout
M Unknown

61 65-68 Questionnaire Code Number **CODENUM**

Code 1st. Q'aire =1, 2nd. =2, etc.