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STUDY OF THE DEMAND
FOR COMMUNICATION SERVICES
IN RURAL CANADA:

ANALYSIS OF THE PILOT SURVEY RESULTS

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(May 5, 1981)

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COMMUNICATION SYSTEMS RESEARCH AND DEVELOPMENT

TITLE: STUDY OF THE DEMAND FOR COMMUNICATIONS SERVICES IN
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- A-1 Rural Telephone Service Upgrading Programs
- A-2 Glossary of Technical Terms
- A-3 Pilot Survey Questionnaire

1. INTRODUCTION

1.1 Background

The Rural Communications Program was established by the Department of Communications "as a result of growing concern about the apparently increasing disparity in the level of communications services available in urban and rural Canada"¹. Within the scope of the Rural Communications Program a Study of the Demand for Communications Services in Rural Canada was initiated in 1978^{2,3}. This study includes a field survey of the residential rural population in Canada. Two stages have been planned in the execution of the field survey: Phase I involves questionnaire development, questionnaire testing, sample and statistical design; Phase II consists of a full-scale survey through a large representative sample of rural households from all ten provinces, and a detailed analysis of the results.

1.2 Objective of Report

This report is one of two reporting on the activities carried out during Phase I. It reports on an analysis of the results of a pilot survey undertaken to test the survey design⁴. The objective of the analysis is to verify that the measurement strategy (questionnaire, administration procedures, coding instructions, etc.) yields data compatible with the input requirements of the various need and demand forecasting models and, eventually, to recommend changes in model specifications and measurement strategy.

-
- 1 "Study of the Demand for Communication Services in Rural Canada - Field Survey". Planning Report, Department of Communications.
 - 2 "Demand for Rural Communication Services in Canada: Literature Review", Camprieu, Bourgeois, November 1979.
 - 3 "Demand for Rural Communication Services in Canada: Focus Groups and Research Instrument", September 1979.
 - 4 Pilot Survey involved 108 interviews in 34 locations across Canada.

Issues relating to sampling design, questionnaire formating, field instructions, administration and codification are dealt with in a companion report¹.

As far as the present report is concerned, the analysis reported hereafter was focused on the appropriateness of the measuring instruments, and not on the results of the pilot survey as such. Essentially two types of analysis were conducted:

- assessment of measurement strategy for each questionnaire item; specific analyses include²:
 - analyses of frequency distribution and "cross-tabulations";
 - analyses of central tendencies and dispersion;
 - reliability assessment via analyses of measures of association (correlation and regression analyses), and checks for consistency across similar questions;
- trial run of the forecasting models. The final analysis will involve short term as well as long term demand forecasting. Therefore, the proposed models are verified for their appropriateness in this report.

The survey questionnaire (see Appendix 3) contains over 40 questions. In this report we are only concerned with analysing the response obtained during the pilot to the most important of these as mentioned in the text.

¹ Study of the Demand for Communication Services in Rural Canada: Pilot Survey Field Report, Canadian Facts, March 1981

² A description of the technical terms employed is presented in Appendix 2 (Glossary of Technical Terms).

2. DEMAND FOR IMPROVEMENT IN RURAL SERVICES

2.1 Communication Services Relative to Rural Services (Q.1)¹

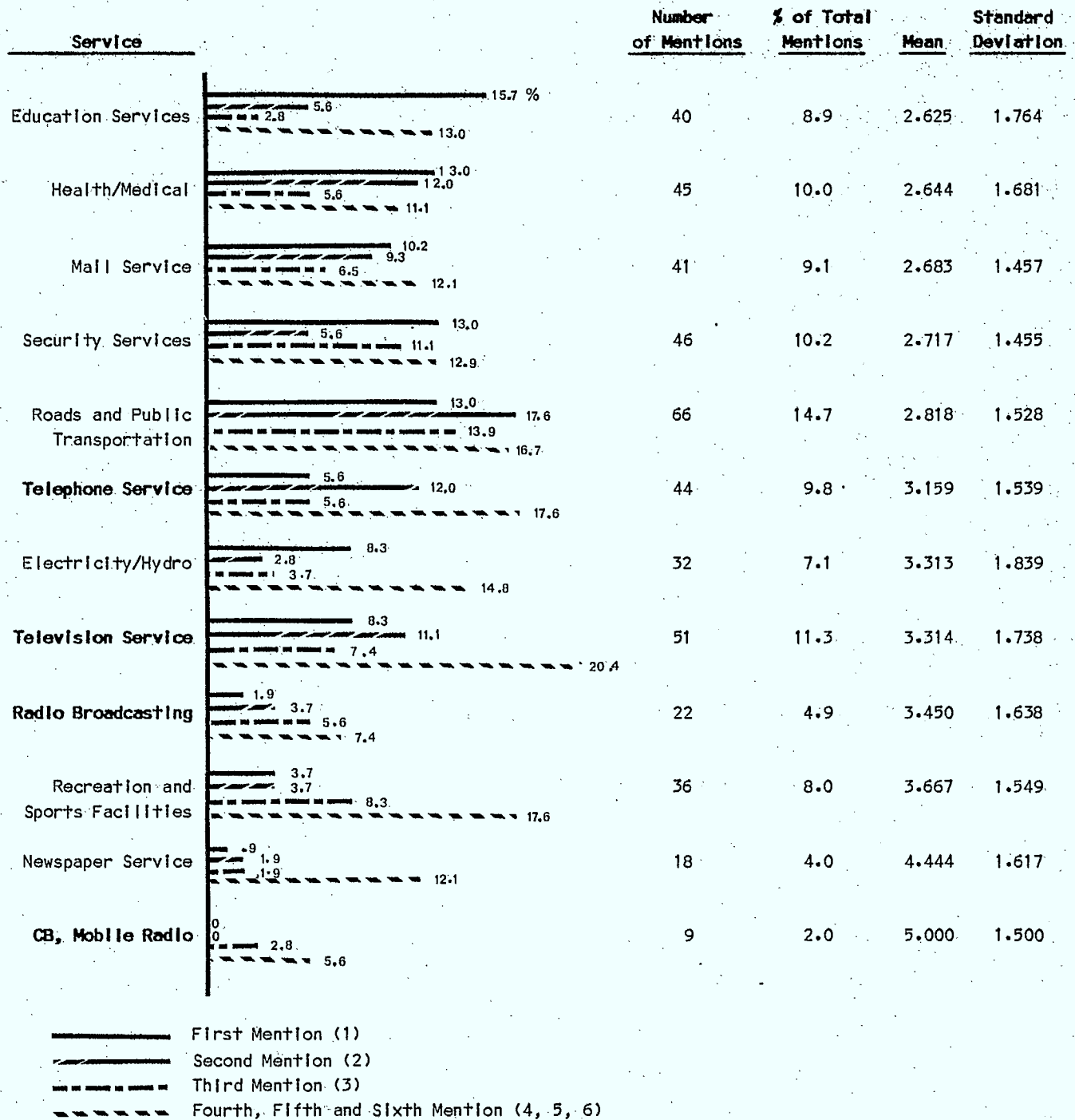
- respondents were asked to select up to six of twelve services which they strongly felt needed improvement.
- the format of this question appears to have been successful as is illustrated by the degree of variation between the number of mentions for each service for each choice (see Figure 1).
- each of the twelve services was mentioned frequently enough to justify their inclusion, with the possible exception of CB, Mobile Radio Service which, of course, must be included.
- according to the average rating for each service, telephone service ranks sixth in terms of the importance of improvements for this service. Television is ranked eighth, followed by Radio Broadcasting which is ninth and CB, Mobile Radio which is twelfth.
- however, in terms of the number of mentions for each service, television ranks second, telephone fifth, radio broadcasting tenth and CB - Mobile Radio remains in the twelfth position.
- a comparison of these two findings suggests that while television improvements are mentioned by more people, telephone service improvements are more important (to those people who mentioned this). It is therefore interesting to combine the number of mentions and the rank into a single index of perceived need for improvement. This index is computed as follows:

$$\text{Index Service X} = 6(\# \text{ people giving rank one}) + 5(\# \text{ of people giving rank two}) + \dots + 1(\# \text{ of people giving rank six})$$

¹ In the remainder of this report specific questionnaire items will be made reference to as, for instance: "Q.1" for "question number 1".

FIGURE 1

DEMAND FOR IMPROVEMENT IN RURAL SERVICES
PERCENT OF ALL RESPONDENTS



Computing an index for each of the four telecommunication services gives the following results:

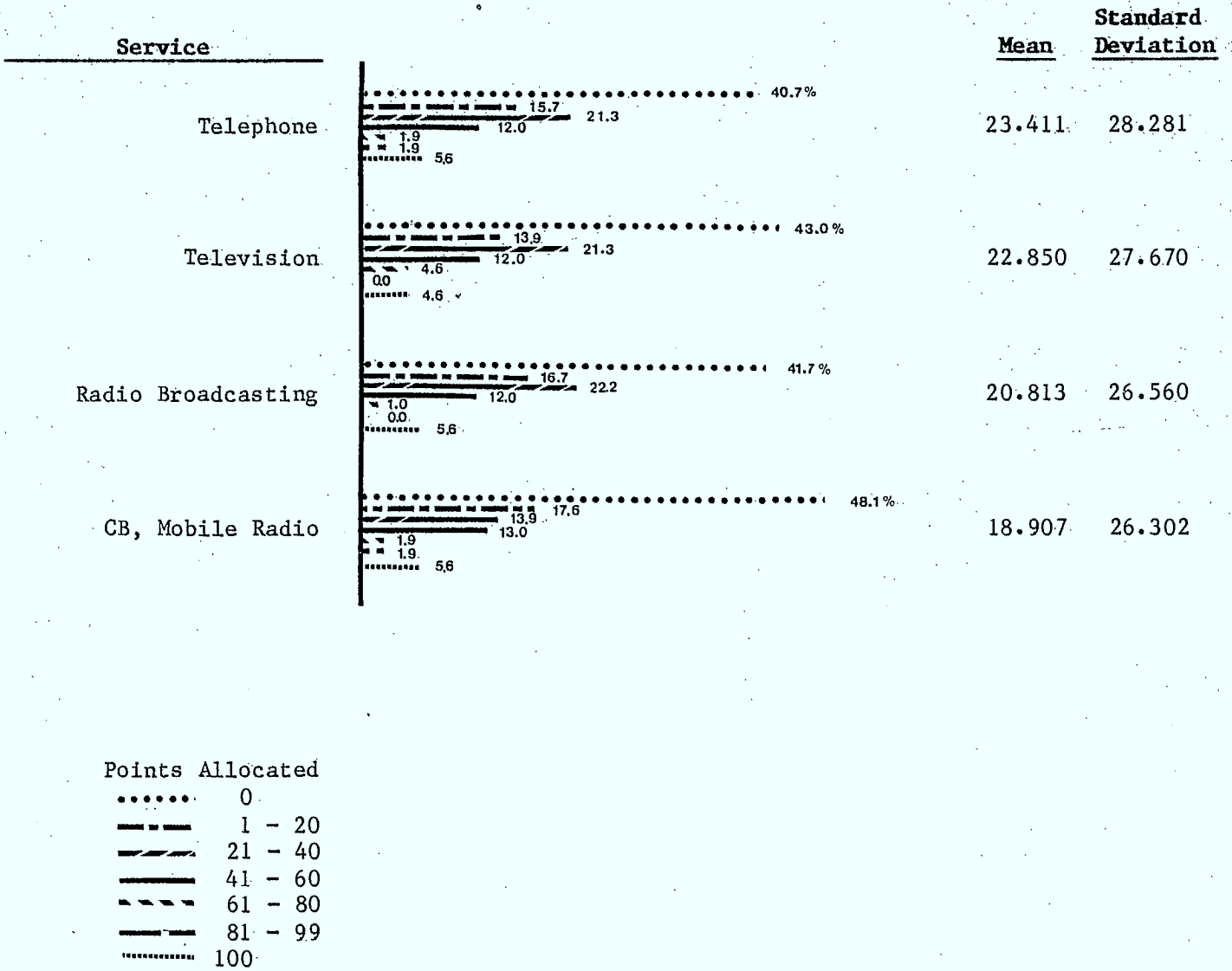
TV Index	= 189
Telephone Index	= 169
Radio Index	= 71
CB Index	= 18

2.2 Relative Importance of Each Communication Service (Q.2)

- respondents were asked to allocate 100 points to the four communication services according to the necessity of improvements for each service.
- most respondents replied with numbers in multiples of ten. Thus it is suggested that a 10 point allocation, rather than 100, would be less demanding on the respondents and would be unlikely to alter the results.
- the average scores for each service should add to 100. However, in this case they do not. By comparing the total number of points allocated to each service with the potential number, it appears that sixteen people did not answer this question. As there is only one missing value code, it is evident that fifteen people indicated that none of the services required improvement.
- when examining the average score for each service, telephone service scored the highest (23.4 average), followed by television (22.9), radio broadcasting (20.8) and CB - Mobile Radio (18.9) (see Figure 2).
- these results are comparable to the results of the average ratings described in Section 2.1 (which more accurately represent the ranking according to the importance perceived by the respondent).
- the variation between the average scores is relatively small and does not correspond to the variation observed in the indices computed earlier (i.e. the index of service computed in section 2.1). A review of the possible sources of variation lead us to question the coding of the different versions of this question. The order of the four services was intended to be rotated but whether or not this was allowed for

FIGURE 2

RANK ORDERING OF COMMUNICATION SERVICES (Q.2)
PERCENT OF ALL RESPONDENTS



in the coding is not at all clear. In the final survey, we should assure ourselves that the coding has accounted for the rotation.

- a consistency check was carried out on the responses to questions one and two. A statistical measure was computed to measure the degree of association between the importance ratings given to each of the communication services in these two questions. Only one of the correlations (i.e. radio broadcasting) proved to be significant at the ten percent level (see Table 1).
- 15.4% (see Table 1) of the variance in the improvement rating of radio broadcasting relative to all other rural services is accounted for by the improvement rating relative to the three other communication services.
- the correlation coefficient for the relationship is positive which indicates that as respondents perceived a lower need for improvement in radio broadcasting with respect to all other services, they also perceived a higher need for improvement in radio broadcasting with respect to communication services only. This could be interpreted as an inconsistent finding, although one should be reminded that the reference points (i.e. all other services vs only communication services) are different. In addition, as mentioned earlier, the coding of Question 2 might not have accounted for the rotation.
- these generally weak relationships in addition to the earlier stated lack of variation between the average scores of the four services raises the possibility of coding and/or encoding problems.

2.3 Validity Check

2.3.1 Telephone Service Rank vs Present Satisfaction

- in order to check the validity of the responses given by the respondents, present overall satisfaction with telephone service (Q.6n) was compared to the need for improvements in telephone service relative to the other communication services (Q.2).

TABLE I

NEED FOR IMPROVEMENT:
CORRELATION BETWEEN Q.1 AND Q.2

	Level of Significance (α)	Pearson Correlation Coefficient (r)	r^2	Number of Cases
Telephone	15.8%	+0.1546	.0239	44
Television	23.7%	-0.1023	.0105	51
Radio Broadcasting	4.3%	+0.3927	.1542	20
CB, Mobile Radio	25.3%	-0.2556	.0653	9

- one would expect that the less satisfied a respondent is with the present service, the more important improvements would be.
- a Pearson correlation coefficient measuring the degree of association between these variables proved to be insignificant at the ten percent level ($\alpha \leq 48.6\%$), suggesting either that, the respondents were not consistent in their replies, or that again, the rotation was not accounted for in the coding.
- when the improvement question is correlated with the degree of satisfaction with respect to each of the 13 aspects of the telephone service, none of the correlation coefficients were significant at the .09 level. Since there is evidence that the measures of satisfaction are reliable (see later), we tend to believe that the rotation performed with respect to the improvement question was not accounted for at the compilation stage.

2.3.2 Television Service Rank vs Present Satisfaction

- present satisfaction with television service (Q.17j) was compared to the need for improvement in this service (Q.2).
- in this case, the Pearson correlation coefficient measuring the degree of association between these variables was significant at the ten percent level ($\alpha \leq 8.1\%$).
- 1.9% of the variation in the television service rank is explained by the variation in overall satisfaction with television service.
- the correlation coefficient for the relationship is positive ($r = .1378$) which indicates that as respondents perceived a higher need for improvement in television service, they also tended to be less satisfied with the overall service.
- although these results suggest that the respondents were somewhat consistent in their replies concerning television service, the low magnitude of the coefficient might also reflect a coding error.

2.3.3 CB or Mobile Radio: Need for Improvement vs Buying Intentions

- Need for improvement in CB or Mobile radio (relative to other communication services) (Q.2) was correlated with the buying intentions with respect to a combined telephone-mobile radio service (Q.28). For each of the three scenarios, the coefficient was not significant at the .1 level.
- A coding error with respect to question 2 (need for improvement) is probably the cause for this absence of relationship.

3. TELEPHONE SERVICE

3.1 Current Status

- the majority (96.3%) of the respondents have one telephone number (see Table 2).
- less than two percent (1.9%) of the respondents have two phone numbers.
- less than two percent (1.9%) have a business phone number.
- none of the respondents had three or more phone numbers and less than two percent (1.9%) did not have a phone number.
- less than half (41.7%) of the respondents have a private line while the majority (55.6%) are on a party line (see Figure 3).
- the results of question 7(a) ("What type of telephone service do you have? Is it a private line, two party line, or a multi-party line") are rather confusing as those respondents who have a multi-party line appear to have been coded as missing values.
- the results would be easier to interpret if the question was further broken down to specify a four-party line and more than a four-party line.
- in addition, it is suggested that the question should ask for the type of service "paid for" rather than the type of service they have. This would clear up some ambiguity arising from the results of the question concerning the actual number of parties per line, as it is evident that some multi-party line subscribers have four or less parties on the line and the present wording of the question could generate some misleading responses.
- approximately 47% of the respondents who answered question eight have had their present type of service for five years or less (see Figure 4).

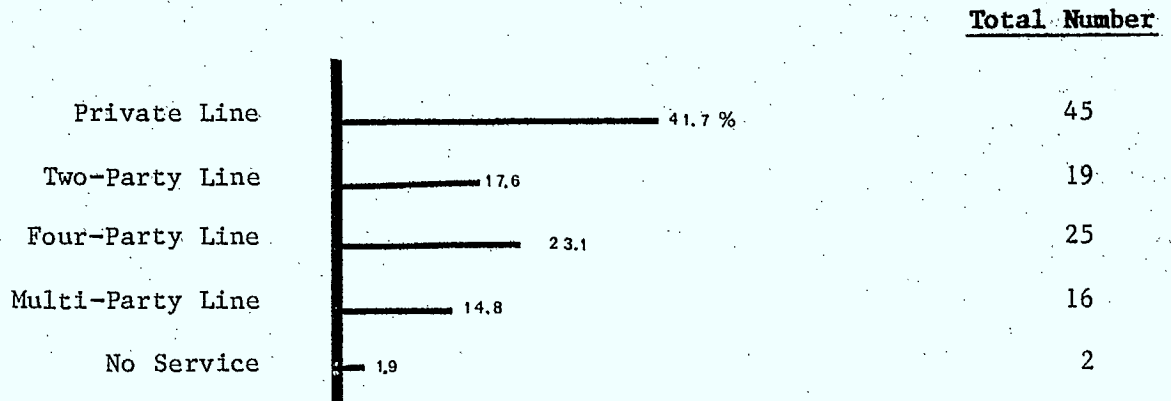
TABLE 2

TELEPHONE NUMBERS PER HOUSEHOLD (Q.3)

	<u>N</u>	<u>%</u>
One Phone Number	104	96.3%
Two Phone Numbers	2	1.9%
Three or More Phone Numbers	0	0.0%
No Phone Numbers	<u>2</u>	<u>1.9%</u>
	108	100.0%
Business Phone Numbers	2	1.9%

FIGURE 3

TYPE OF TELEPHONE SERVICE (Q.7)
PERCENT OF RESPONDENTS



Actual Number of Parties on Multi-Party Lines
Percent of Multi-Party Subscribers

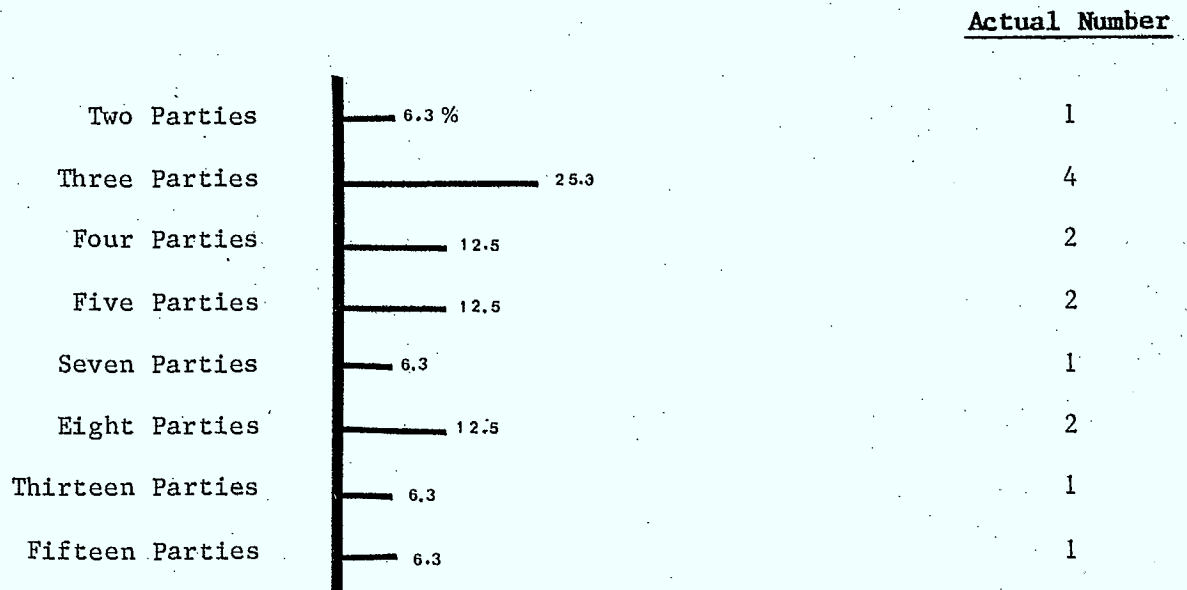
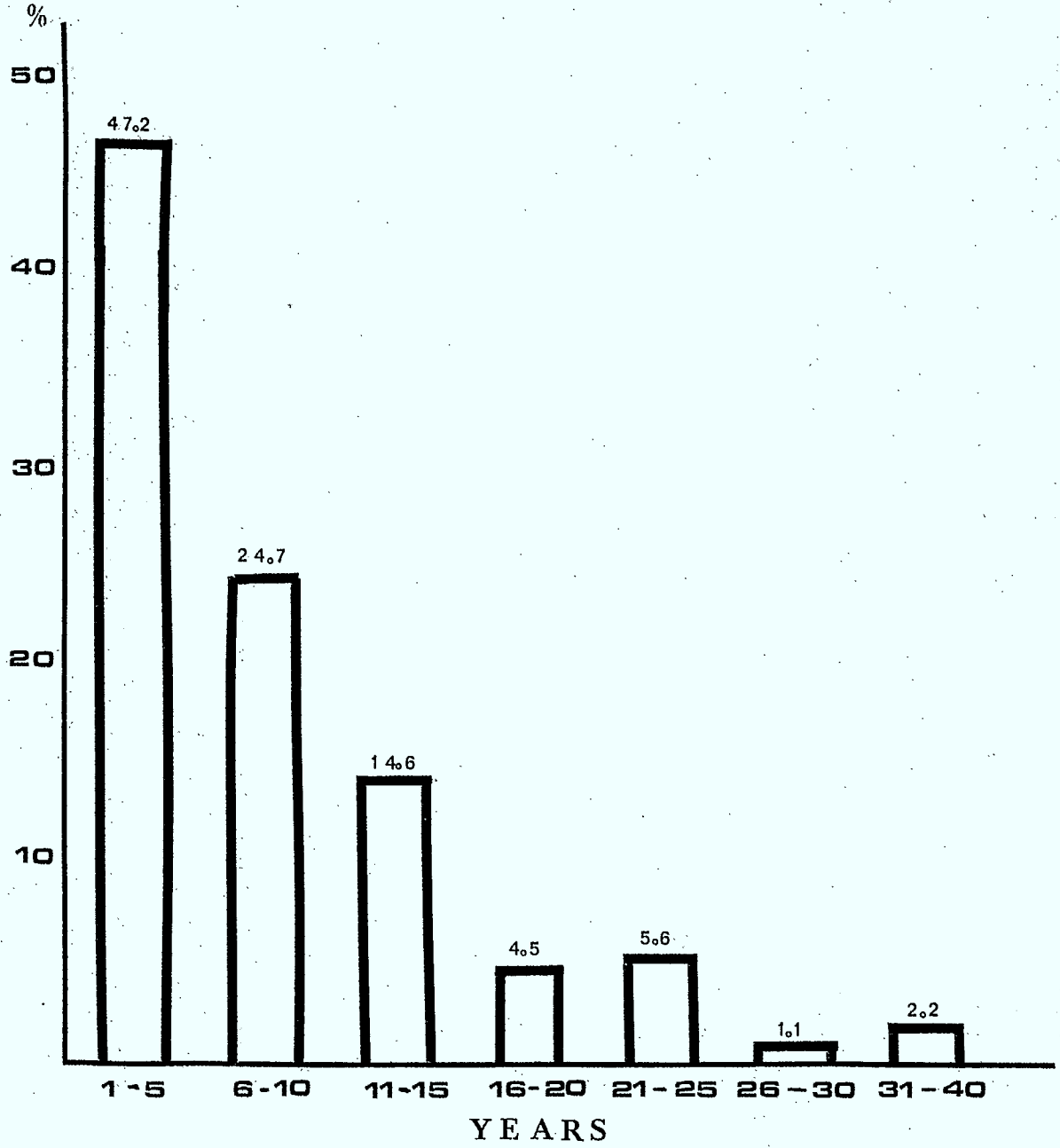


FIGURE 4

LENGTH OF TELEPHONE SERVICE (Q.8)

PERCENT OF ALL MENTIONS



- 19 respondents did not answer question eight and it is not clear if this figure includes those people who have had their present service for less than one year as this category does not appear separately. This should also be accounted for in future coding.
- the majority (61.0%) of the respondents who replied to question eight, pay between \$6 and \$10 as their basic monthly charge (see Figure 5). This is corroborated by the results of the interviewer requesting the phone bill (56.4% of the respondents whose phone bill was checked, pay between \$6 and \$10 monthly)
- of those respondents who have a private line, the majority (70.5%) pay between \$5 and \$10 per month for the basic service (70.3% of those checked by the interviewer pay between \$5 and \$10) (see Table 3).
- the majority (84.2%) of the respondents with two-party service pay between \$3 and \$8 monthly (88.2% of those checked).
- four-party line subscribers generally (76.0%) pay between \$3 and \$8 monthly (75.0% of those checked).
- most (81.3%) multi-party line subscribers pay between \$4 and \$7 monthly (80.0% of those checked).
- in terms of the differences between the respondent's view of his basic monthly charge and what was on the bill, in the majority (63.9%) of the cases where this check was performed, there was no difference (see Figure 6).
- in only 16.8% of the cases was there a difference of more than one dollar.
- these results indicate that, in general, respondents were aware of their actual basic monthly rate.
- the majority (55.2%) of the respondents have a total monthly phone bill of between \$6 and \$20 (see Figure 7).
- for those respondents whose phone bills were checked, slightly more than half (56.4%) pay between \$6 and \$20 in total for a month.

FIGURE 5
COST OF TELEPHONE SERVICE
BASIC MONTHLY CHARGE
PERCENT OF ALL MENTIONS

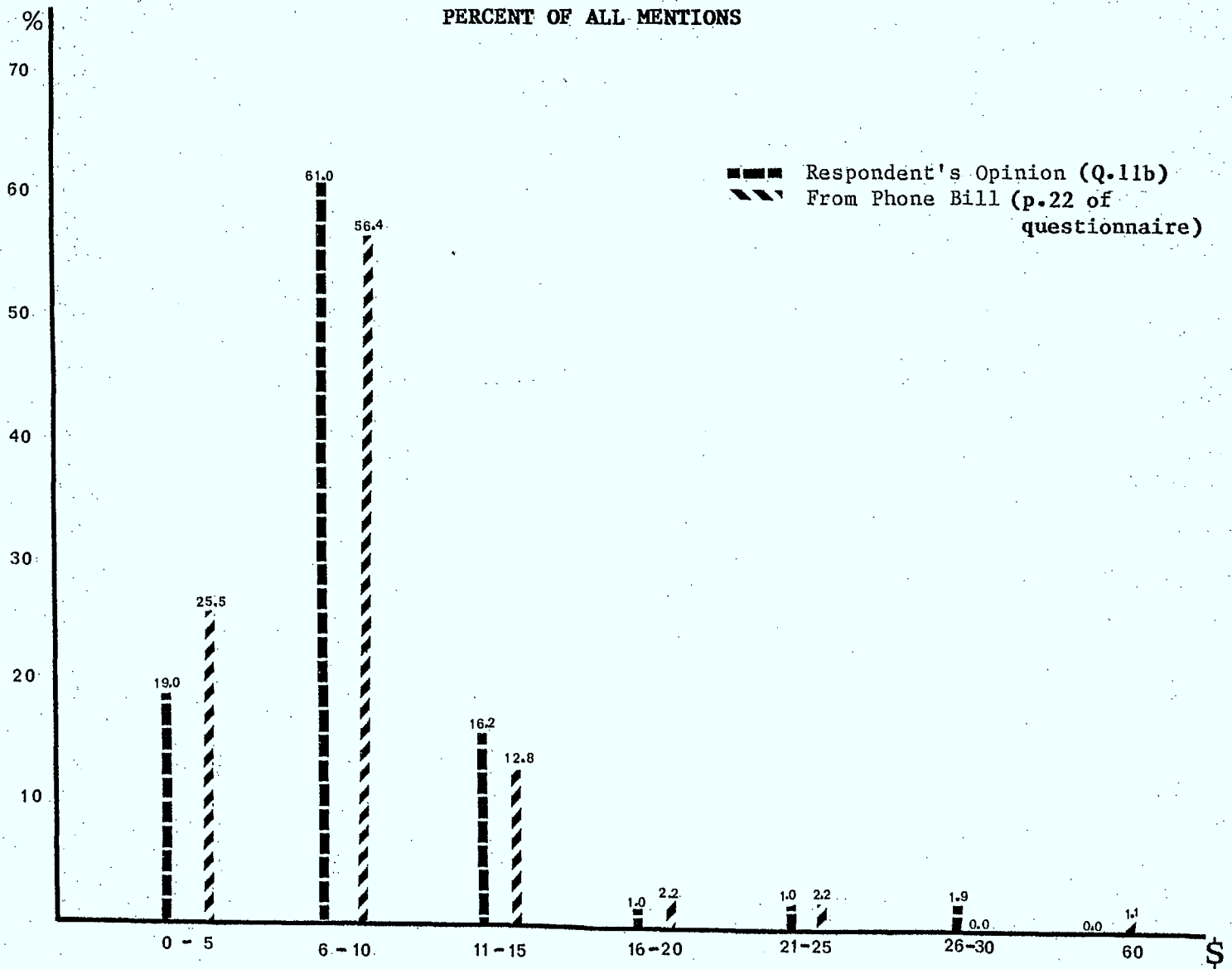


TABLE 3

BASIC MONTHLY CHARGE VS. TYPE OF SERVICE

Monthly Basic Charge	Private Line				Two-Party Line				Four-Party Line				Multi-Party Line			
	Resp ¹		Int ²		Resp ¹		Int ²		Resp ¹		Int ²		Resp ¹		Int ²	
	N	% ³	N	% ³	N	% ³	N	% ³	N	% ³	N	% ³	N	% ³	N	% ³
\$3	--	--	--	--	2	10.5	1	5.9	1	4.0	2	8.3	--	--	--	--
\$4	--	--	1	2.7	1	5.3	1	5.9	2	8.0	1	4.2	3	18.8	4	26.7
\$5	3	6.8	2	5.4	2	10.5	3	17.6	2	8.0	5	20.8	3	18.8	3	20.0
\$6	2	4.5	2	5.4	2	10.5	2	11.8	8	32.0	5	20.8	1	6.3	1	6.7
\$7	8	18.2	6	16.2	5	26.3	5	29.4	3	12.0	2	8.3	6	37.5	4	26.7
\$8	6	13.6	6	16.2	4	21.1	3	17.6	3	12.0	3	12.5	1	6.3	1	6.7
\$9	6	13.6	5	13.5	--	--	--	--	1	4.0	1	4.2	1	6.3	1	6.7
\$10	6	13.6	5	13.5	1	5.3	1	5.9	--	--	--	--	--	--	--	--
\$11	--	--	1	2.7	1	5.3	1	5.9	2	8.0	1	4.2	--	--	--	--
\$12	5	11.9	2	5.4	--	--	--	--	1	4.0	1	4.2	--	--	--	--
\$13	1	2.3	--	--	1	5.3	--	--	1	4.0	1	4.2	--	--	--	--
\$14	1	2.3	2	5.4	--	--	--	--	--	--	--	--	--	--	--	--
\$15	3	6.8	2	5.4	--	--	--	--	1	4.0	1	4.2	--	--	--	--
\$16 and over	3	6.8	3	8.1	--	--	--	--	--	--	1	4.2	1	6.3	1	6.7
TOTAL	44	100.0	37	100.0	19	100.0	17	100.0	25	100.0	24	100.0	16	100.0	15	100.0

¹ Respondent's perception of monthly rate.

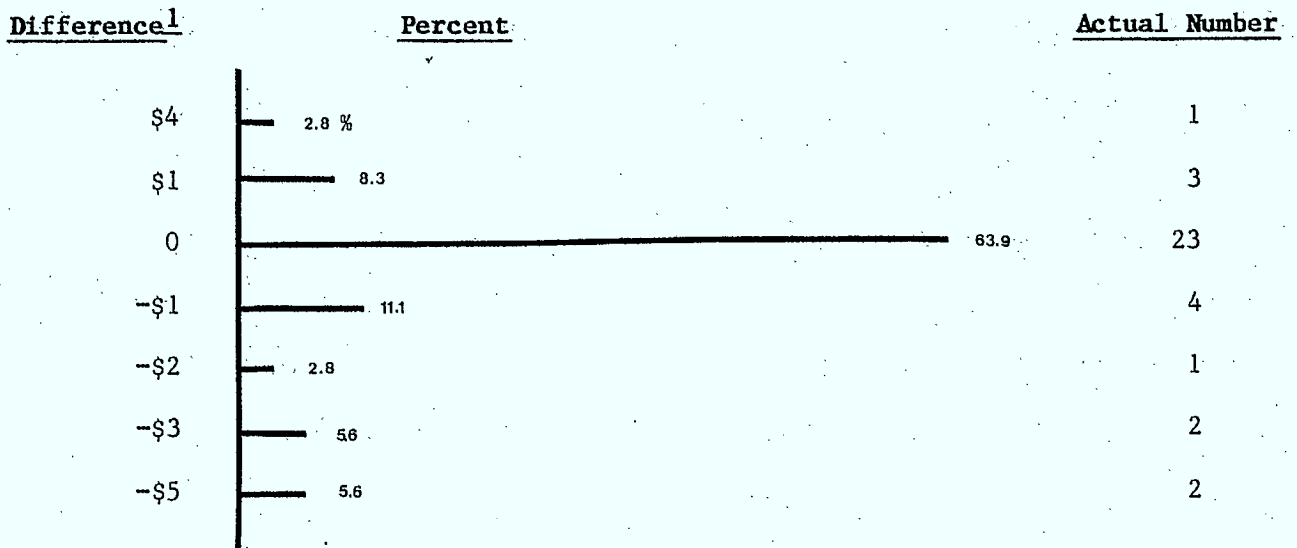
² Monthly rate according to the bill.

³ Percent of respondents paying a given rate for each type of service.

FIGURE 6

DIFFERENCE BETWEEN ACTUAL TELEPHONE BILL
(Monthly Charge)
AND RESPONDENT'S PERCEPTION

(Percent of 36 Cases Checked)



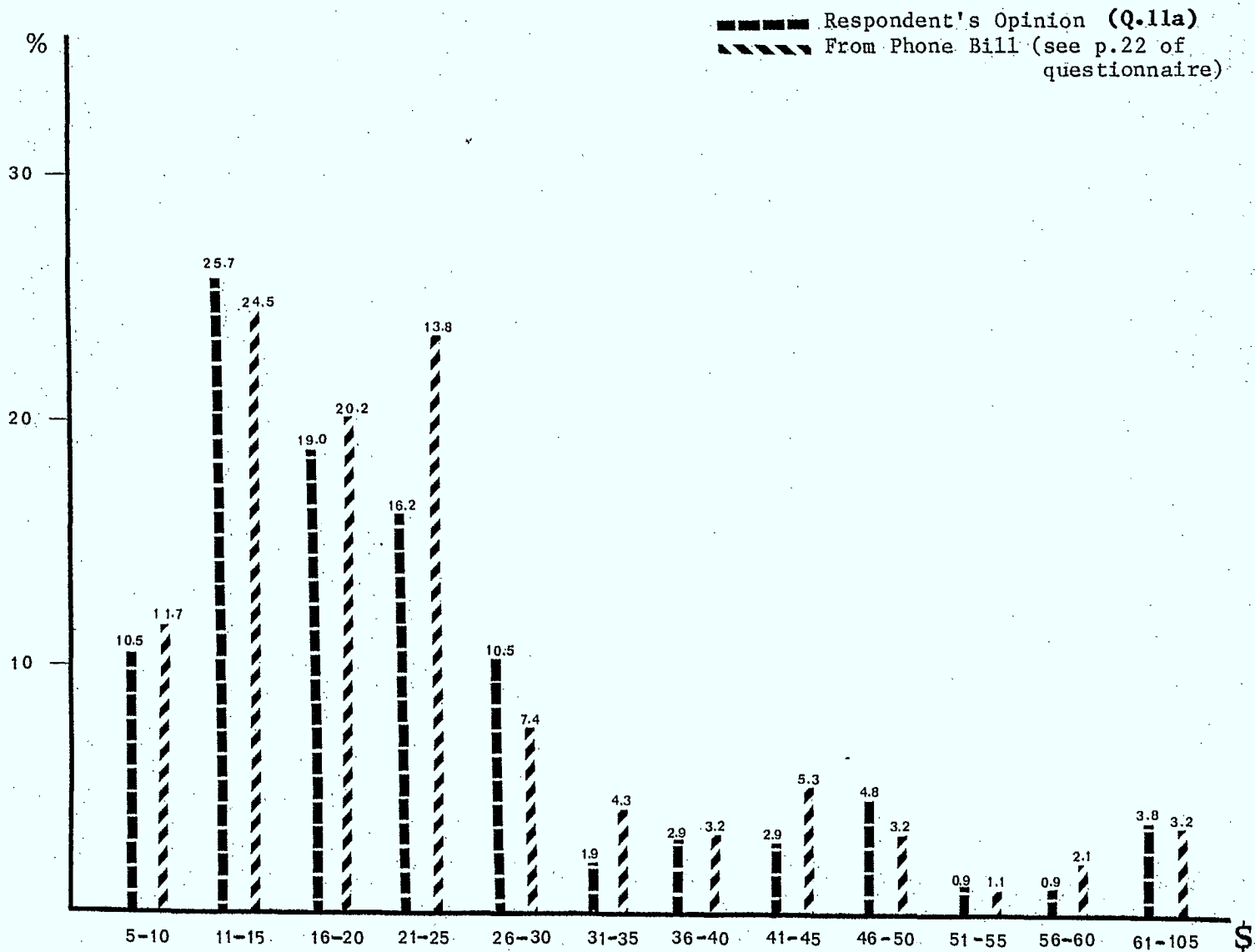
¹ A positive value indicates that the respondent underestimated the monthly charge.

FIGURE 7

COST OF TELEPHONE SERVICE

TOTAL MONTHLY PHONE BILL

PERCENT OF ALL MENTIONS



- while only approximately a third (31.5%) of the respondents checked their total monthly bill, over half (54.6%) checked their bill for the basic charge.
- the majority (92.3%) of the respondents paid less than \$50 for installation (Q.8b).
- those services (Q.9) most often requiring long distance calls (in order) are as follows (see Figure 8):

Police	(28.3%)
Dentist	(27.4%)
Municipal Offices	(24.5%)
Hospital	(19.8%)
- the majority (61.3%) of the respondents with phones have had no major service improvements (Q.10) since installation (see Figure 9).
- of those who have had improvements (38.7%), most (65.9%) did not request them.
- half (50.0%) of the improvements were made during the last two and a half years.

3.2 Motivation

3.2.1 Telephone Usage (Q.4)

- business received the lowest average score as a reason for using the telephone (see Figure 10).
- this indicates that those respondents who mentioned business reasons, did so more often in their first or second mention.
- this, in turn, suggests that business is the most important reason for owning a phone. These results are most interesting given that there were only 2 business phone numbers (see Table 2).
- however, "Social Reasons" received the most mentions (24.9%) in total, suggesting that the telephone fulfills this need for a larger number of respondents.
- all of the seven possible reasons for using a phone were mentioned and no "other" reasons were provided (one must keep in mind that the question was open).

FIGURE 8

LONG DISTANCE CALLS REQUIRED (Q-9)

PERCENT OF ALL MENTIONS

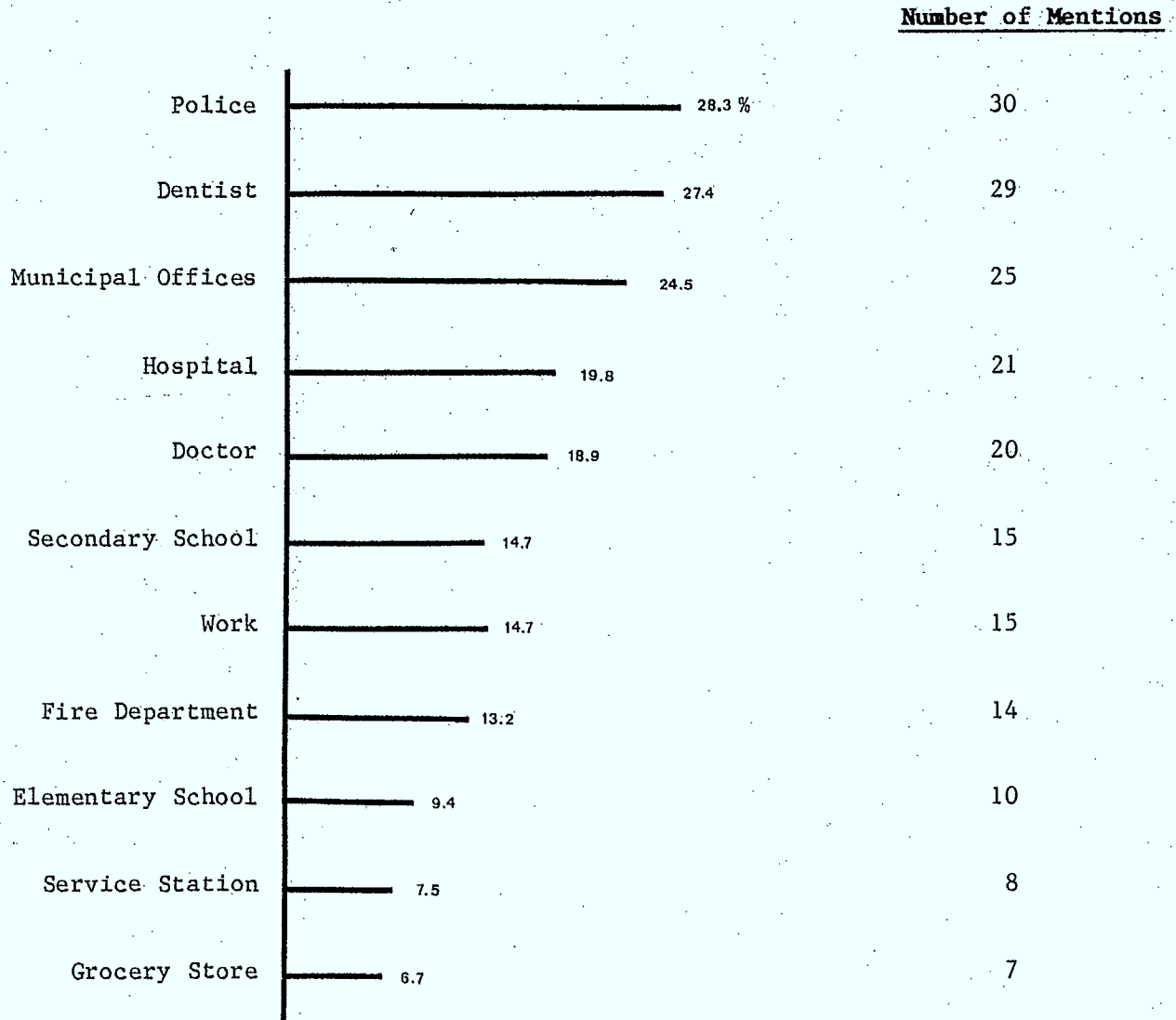


FIGURE 9

PAST TELEPHONE SERVICE UPGRADES (Q.10)

		<u>Actual Number</u>
Received Major Improvements (Percent of "all" Subscribers)	38.7%	41
Improvements Requested by Subscriber (Percent of Subscribers with Improvements)	34.1%	14
Length of Time Since Improvement (Percent of Subscribers with Improvements)		

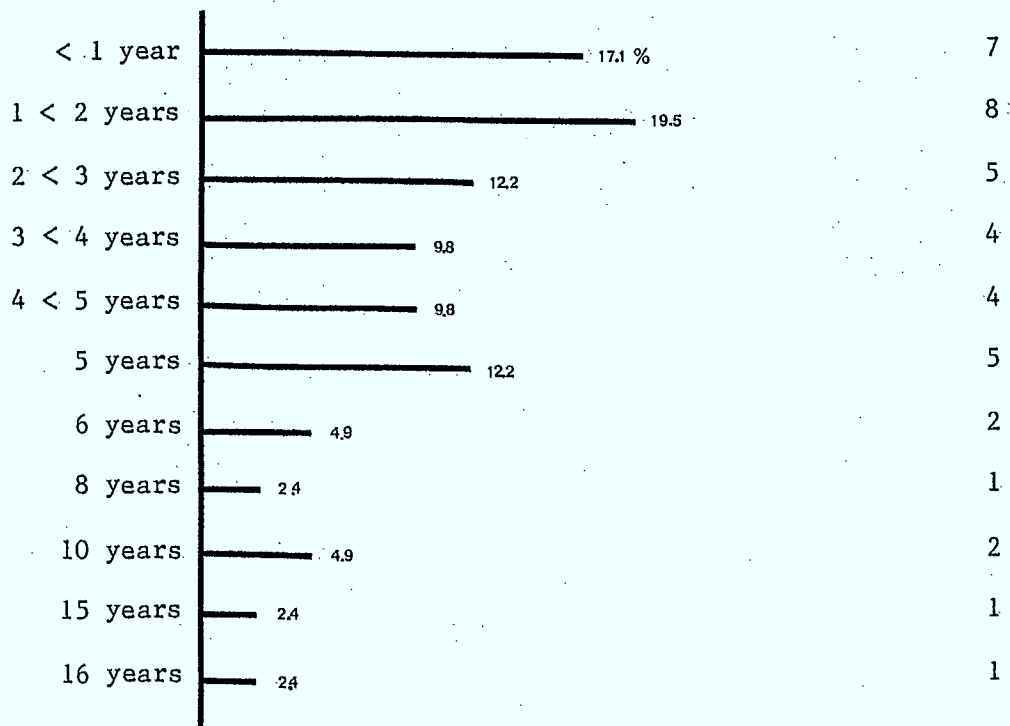
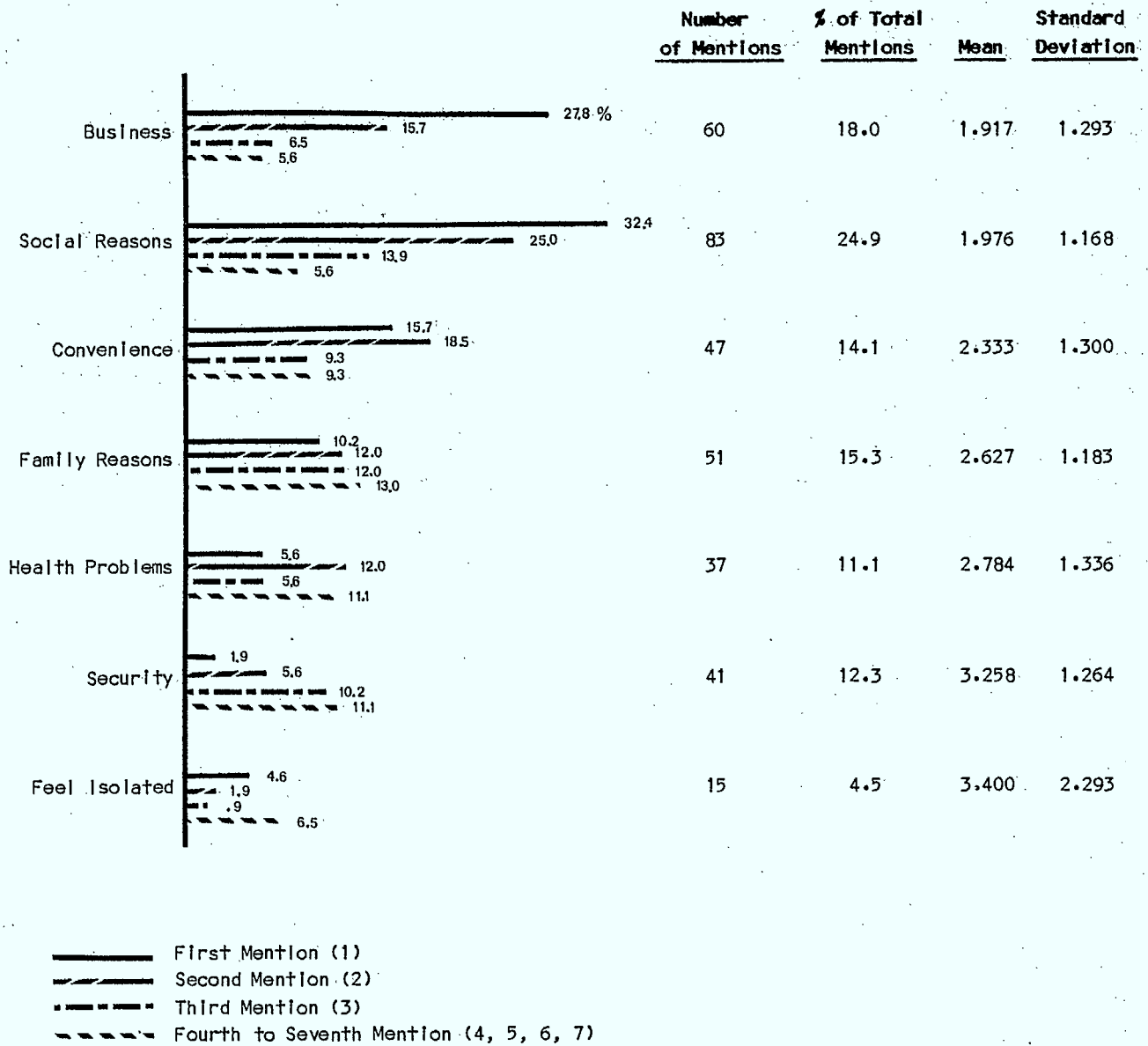


FIGURE 10

TELEPHONE SUBSCRIBER MOTIVATION (Q.4)
PERCENT OF ALL RESPONDENTS



- from the results, it does appear that almost every respondent mentioned a number of different reasons.

3.2.2 Non-Subscribers (Q.5)

- for the two non-subscribers, one replied that there was "no need" to have a phone (first mention) and that a phone was "too expensive" (second mention); and the other stated that there was a phone "on order" (first mention) and that they had "moved in recently" (third mention).
- as there was apparently no second mention for one of these respondents, this suggests that something may have been coded incorrectly.

3.3 Service Satisfaction

3.3.1 Service Attributes (Q.6)

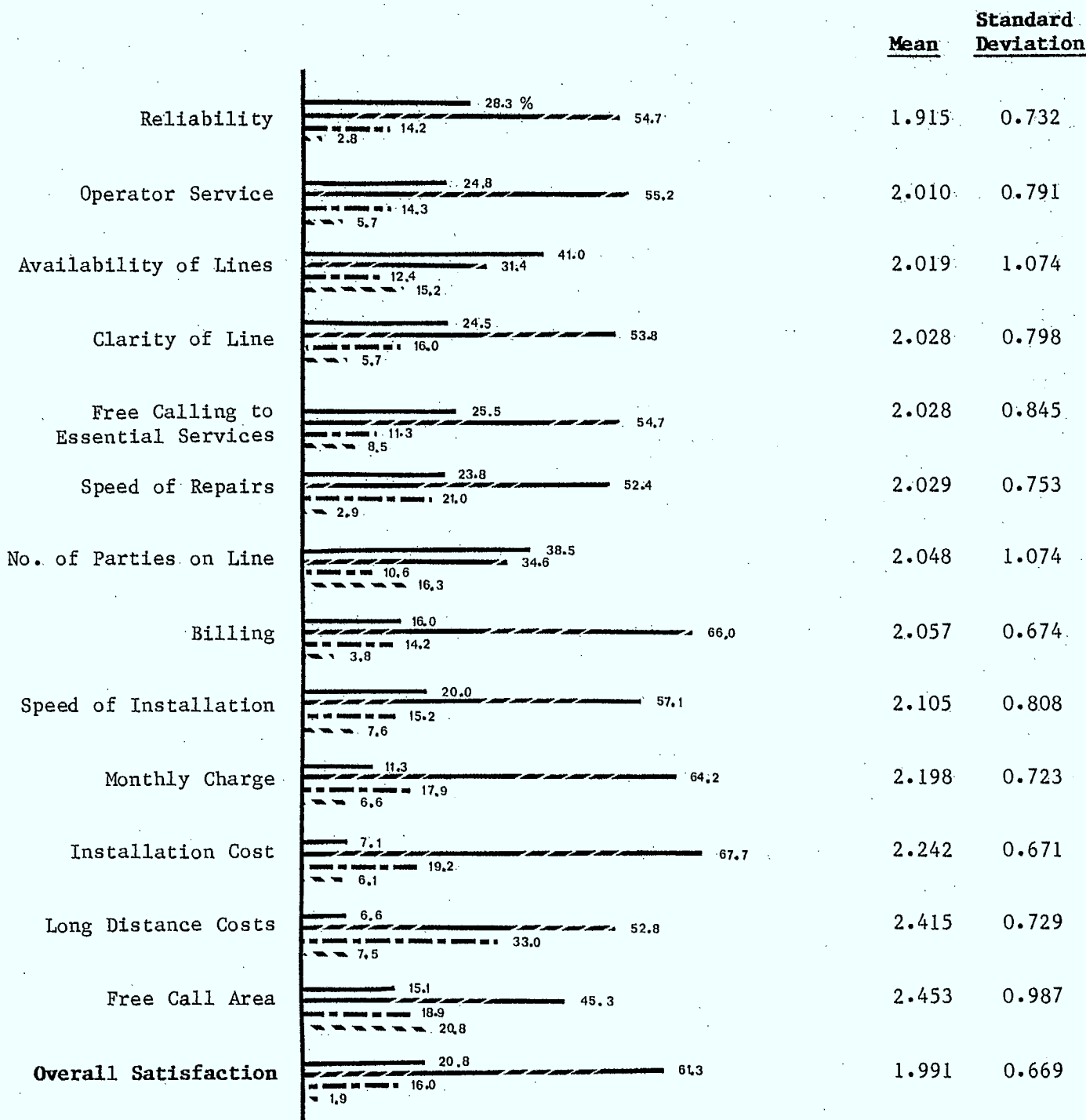
- in general, the majority of the respondents seemed to be satisfied with all aspects of their phone service (see Figure 11).
- in terms of overall satisfaction, 82.1% of the respondents were either satisfied or very satisfied.
- the two aspects of service with which most respondents were dissatisfied (i.e. answered either dissatisfied or very dissatisfied) were "Long Distance Costs" (40.5%), and "Size of the Free Calling Area" (39.7%).
- respondents apparently used all parts of the four-point scale and there would seem to be adequate variation in the ratings.

3.3.2 General Satisfaction as Explained by Service Attributes

- according to conventional attitude theory there is a relationship between the overall attitude toward a service and the evaluation of the various attributes of that service. This conceptual background can be used to check the validity of the answers to the satisfaction section.

FIGURE 11

TELEPHONE SERVICE SATISFACTION (Q-6)
PERCENT OF ALL MENTIONS



_____ Very Satisfied (1)
 _____ Satisfied (2)
 _____ Dissatisfied (3)
 _____ Very Dissatisfied (4)

- a stepwise multiple regression was run with overall satisfaction as the dependent variable, and the satisfaction with each of 13 aspects of the service as independent variables.
- altogether these 13 variables explain 55% of the variation in overall satisfaction (adjusted $R^2 = .55$)¹. This is an indication that the satisfaction questions are valid.
- because of a multicollinearity problem¹ it could be misleading to report the regression coefficients for each of the 13 variables. It appears essential that the multicollinearity be taken care of at the analysis stage of the final survey (e.g. through a factor analysis of the service attributes)¹.

3.4 Need Analysis

3.4.1 Reliability of the Conjoint Task (Q.12)

- in order to test the data which will be used in the conjoint analysis, a reliability check was performed for the following pairs of packages:
 - P1 = private line for \$6 with same free calling area
 - P7 = four party line for \$6 with same free calling area

 - P5 = two party line for \$12 with same free calling area
 - P6 = two party line for \$20 with same free calling area

 - P7 = four party line for \$6 with same free calling area
 - P8 = four party line for \$12 with same free calling area

 - P1 = private line for \$6 with same free calling area
 - P3 = private line for \$20 with same free calling area
- for each of these pairs, one package is clearly superior to the other. The two packages in each pair were compared to a third package (the reference package) so that the superior package should have been selected more often than the inferior package.

¹ See Appendix 2 for a discussion of these terms.

- seven comparisons were taken from the sample (see Figure 12) and in each case the superior package was chosen by a larger percentage of the respondents.
- a statistical test of significance was performed on each of these pairs, and in six of the seven cases, the differences were significantly different at the five percent level. In the remaining case (P7 from T7 versus P8 from T3), although the results were not significant ($\alpha \leq .14$), respondents did choose P7 more often.
- overall, these results indicate that the respondents were consistent in their choices.

3.4.2 Isolation

- physical isolation was measured in several ways: First the respondent was asked whether or not he perceived himself (herself) as living in an "isolated" home (Q.32). Then actual distances to nearest neighbour, nearest grocery store, etc. were reported (Q.34). Correlations between these two sets of measures are reported below.

Perceived Distance to nearest:	Perception of Isolation	
neighbour	.39(1)	(.001)(2)
grocery store	.39	(.001)
elementary school	.44	(.001)
police detachment	.07	(.222)
fire department	.36	(.001)
hospital	.07	(.222)
city	.13	(.089)

(1) correlation coefficient

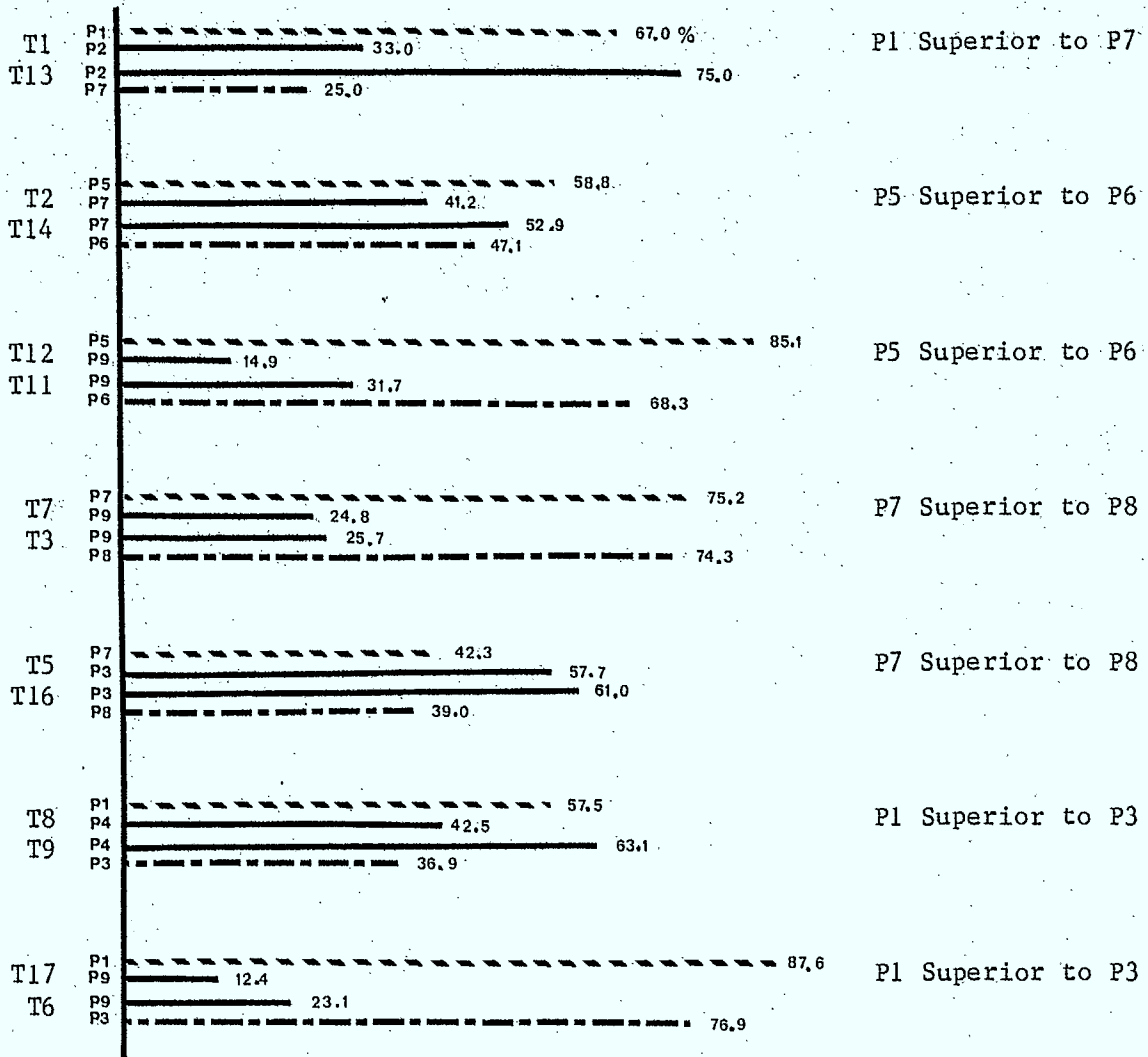
(2) significance level

Since perception was scaled on a 2 point scale, a correlation coefficient of .30 or more indicates a strong statistical association.

FIGURE 12

RELIABILITY OF THE CONJOINT TASK FOR TELEPHONE (Q.12)

PERCENT OF MENTIONS



Superior Package - - - - -
 Inferior Package
 Reference Package _____

- an index of "telecommunication isolation" was computed on the basis of whether respondent had to make a long distance to call essential services¹. This index was compared to the rank given to those packages which involved a "larger free call area". The data suggests that the more the telecommunication isolation, the greater the preference for a service offering a larger free calling area².
- from the above it appears that the various measures are linked, although they attempt to measure different facets of "isolation".

3.4.3 Need for Upgrading

- need for upgrading, as measured by question 2, was correlated with preferences for the various packages in the conjoint task. Reliability should be indicated by a positive relationship between preference for upgraded services and need for upgrading. However none of the correlations were significant (probably because of the problem encountered with question 2).

1 Question 9 was used to derive the index. The index was computed as the number of times the respondent answered "yes" to the 11 items of question 9. Therefore the index could range from 0 to 11; 0 indicates that long distance is not required to call essential services while 11 indicates that the respondent must use long distance each time he (she) wants to call any essential service.

2 Because the statistics to test the significance of the relationships were not provided to us, this conclusion was reached on a judgement basis after examination of cross-classification tables.

3.4.4 Satisfaction

- another approach to verifying the reliability of the conjoint task is to check whether the results are consistent with those obtained with a different measure. For instance, those people highly dissatisfied with the number of parties on their line should rank those packages including "private line" higher than people highly satisfied with the number of parties on their line.
- unfortunately the proper statistic (χ^2) to test for such an hypothesis was not provided to us. However, it is possible to inspect the data directly. The analysis displayed on Table 4 shows a remarkable consistency of the answers to the satisfaction question and the conjoint task.

3.4.5 Upgrades

- there appears to be no relationship between preference for the various packages and whether the telephone service has been upgraded or not (only one of the nine correlation coefficients is significant at the .05 level).

3.4.6 Price

- since the basic monthly charge was varied in the conjoint task, the preferences for the various packages were correlated with the actual monthly charge (read from bill). Surprisingly none of the nine correlations were significant. However, when correlations between preferences for the various packages and the actual total monthly charge were computed, six out of nine were found significant. Furthermore the relationship tends to be positive for higher priced packages (\$18) and negative for lower priced packages (\$6). These results suggest interesting hypotheses for investigation: e.g. total monthly charge, rather than basic monthly charge, makes people price sensitive; price is not the only salient factor and several factors might have a curvilinear joint effect on preference. One should remember that the \$6 price level was lower than the average basic monthly charge actually paid.

TABLE 4

RELATION BETWEEN SATISFACTION WITH
PRESENT TELEPHONE SERVICE (Q.6) AND
CHOICE OF DIFFERENT TELEPHONE PACKAGES (Q.12)

Package Description	% of Those Respondents "Very Satisfied" with Attribute Who Ranked the Package Highest	% of Those Respondents "Very Dissatisfied" with Attribute Who Ranked the Package Highest
ATTRIBUTE: # of parties on the line		
Private, \$6, same area	42.5	58.8
Private, \$10, larger area	20.0	23.5
Private, \$18, same area	57.5	64.7
ATTRIBUTE: size of free call area		
Private, \$10, larger area	0.0	45.5
2 party, \$6, larger area	18.8	31.8
4 party, \$18, larger area	0.0	4.5
ATTRIBUTE: free call to essential services		
Private, \$10, larger area	3.7	22.2
2 party, \$6, larger area	22.2	44.4
4 party, \$18, larger area	0.0	0.0
ATTRIBUTE: basic monthly charges		
Private, \$6, same area	41.7	28.6
2 party, \$6, larger area	33.3	57.1
4 party, \$6, same area	25.0	28.6

3.5 Short Term Demand Analysis

3.5.1 Short Term Forecasting Model (Q.13)

- respondents were offered an improved telephone service (i.e. comparable to that available in large cities) and were asked if they would subscribe to this new service within the next twelve months.
- each respondent was offered the service at one of three different monthly charges (i.e. \$6, \$12, and \$20) and, as would be expected, the percentage of people who would definitely subscribe decreased as the cost increased (see Figure 13).
- at \$6 per month, the majority (61.0%) of respondents would certainly subscribe to the new service.
- this percentage drops to less than half (42.3%) of the respondents at \$12 a month, and to less than a quarter (24.4%) of the respondents at \$20 a month.
- because the low price scenario for an improved service is lower than the price currently paid by more than 90% of private line subscribers, it is suggested that price levels be increased for all three scenarios.
- these results were used to develop two types of estimates of the demand curve for this improved service: a maximum likelihood estimate and a conservative estimate (see Graph 1).
- the difference between the two estimates was obtained by assigning different probability figures to each category in the intention scale, in the computation of the proportion of respondents. The figures utilized were 0, 0.2, 0.5, 0.8 and 1 for the maximum likelihood and 0, 0.1, 0.4, 0.7 and 1 for the conservative estimate.
- in addition, the confidence interval of one standard error on either side of the maximum likelihood estimate is presented in Graph 2. This interval reflects sampling error.

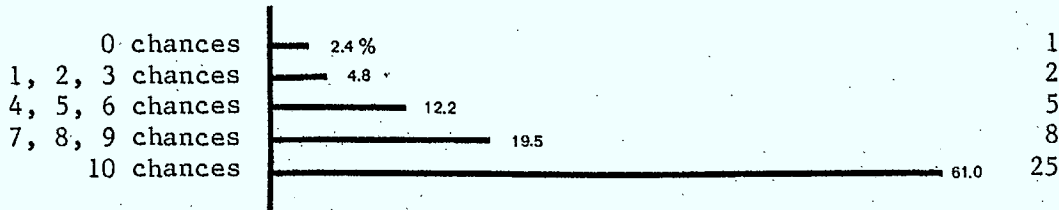
FIGURE 13

SHORT TERM DEMAND FOR TELEPHONE SERVICE IMPROVEMENT (Q.13)

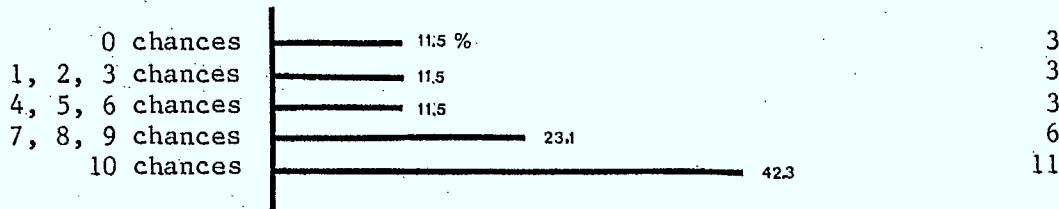
PERCENT OF ALL MENTIONS

Number of Mentions

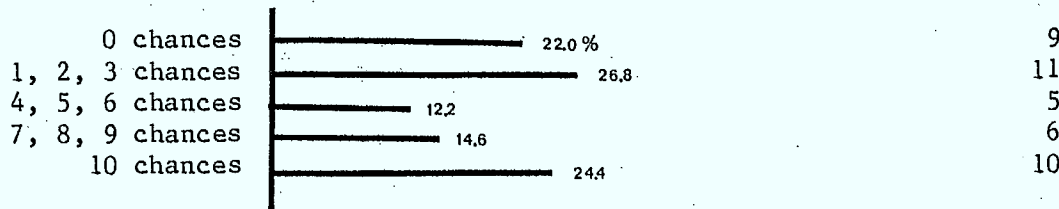
\$6 Scenario (41 mentions)



\$12 Scenario (26 mentions)



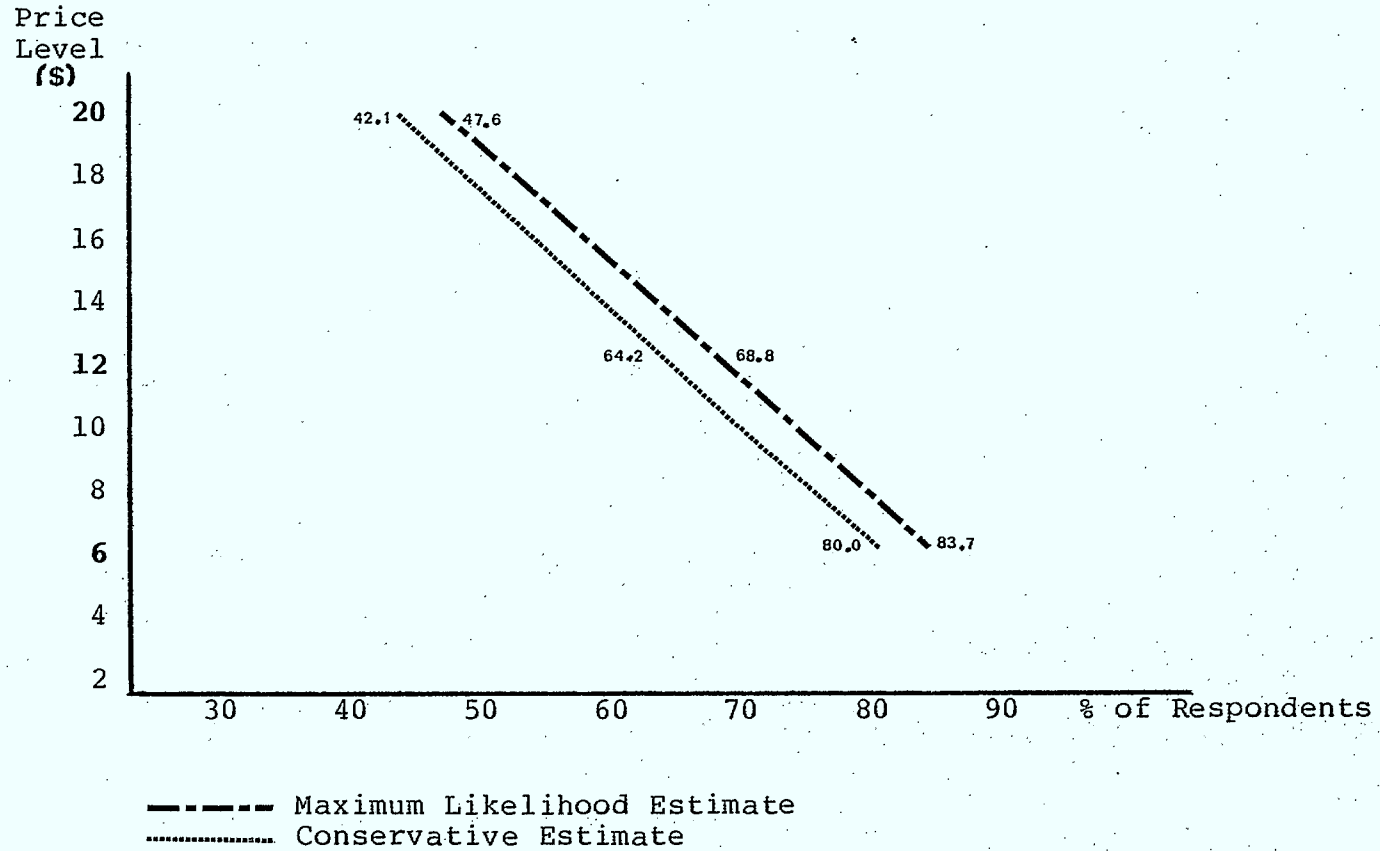
\$20 Scenario (41 mentions)



TELEPHONE SCENARIOS

GRAPH 1

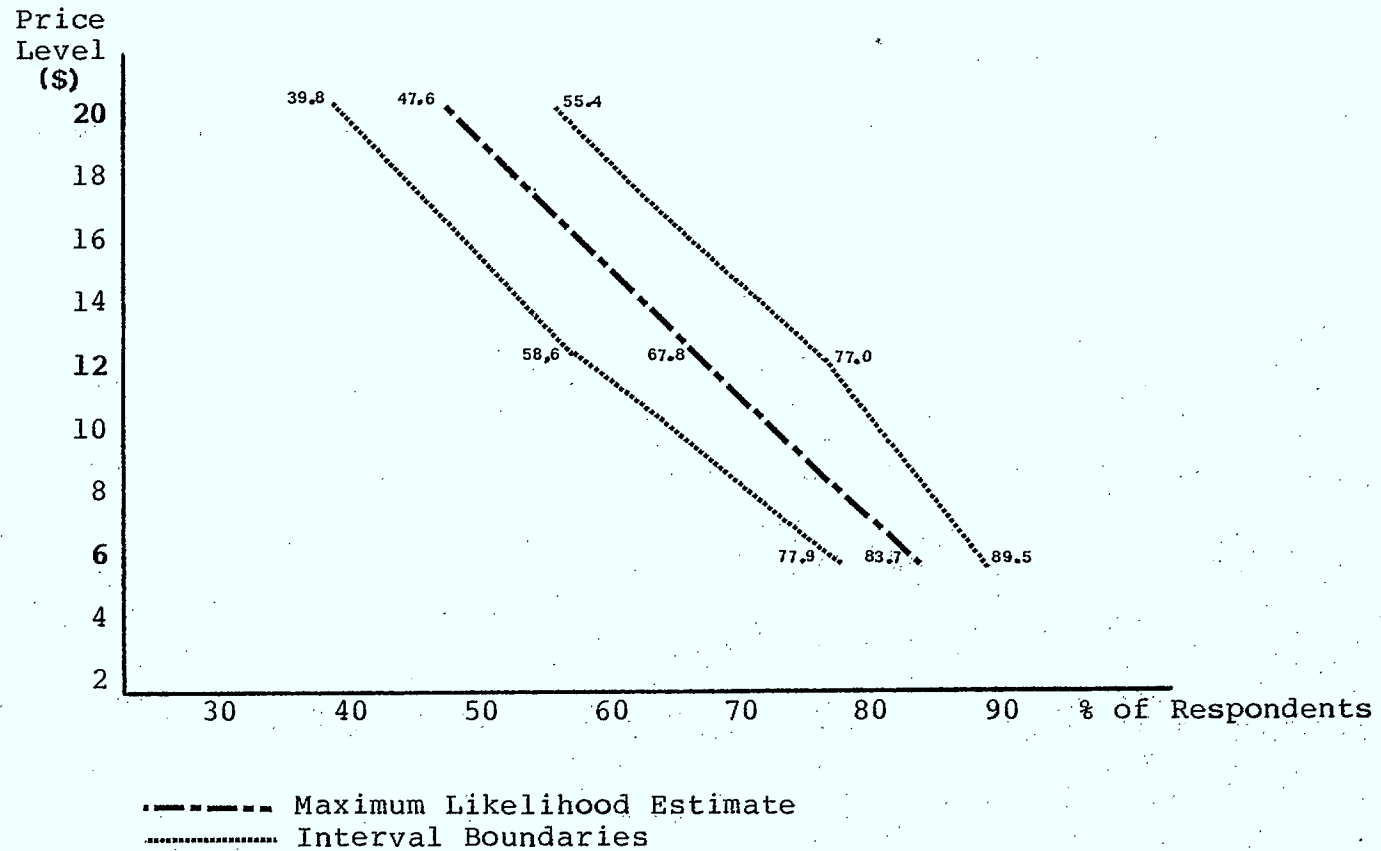
Purchase Intentions/Price Level Relationship



TELEPHONE SCENARIOS

GRAPH 2

Confidence Interval
(one standard error)



- a statistical measure was computed to measure the degree of association between the perceived need for improvement in telephone service (in relation to other communication services - Q.2) and the likelihood of subscribing to each of the three scenarios.
- the hypothesis is that the stronger the perceived need for improvement in telephone service, the more likely one would be to subscribe to an improved service - hence a positive relationship.
- in the case of the first scenario (where the improved service is offered at \$6 per month), the correlation is significant ($\alpha \leq 0.044$). However, the coefficient ($r = -0.2697$) is negative (see Table 5). This result is not necessarily surprising, recalling that the average basic monthly phone bill is presently \$8.53. Respondents who felt that telephone service needs a great deal of improvement, probably do not believe that it is possible to receive improved service at a lower cost. This finding suggests that the prices for the three scenarios should be raised (e.g. \$10, \$18, and \$25).
- the correlation for the second scenario (\$12 per month) is also significant ($\alpha \leq 0.018$) and, in this case, the coefficient is positive ($r = 0.4137$), confirming the hypothesis and suggesting that the respondents were consistent.
- the third correlation (\$20 per month) proved to be of the proper direction ($r = 0.0819$) although insignificant ($\alpha \leq 0.308$)
- once again it should be recalled that the results concerning the need for improvement in the communication services may have been coded incorrectly.

3.5.2 Overall Satisfaction

- a check was carried out (by means of a statistical measure of the degree of association) on the consistency of the respondents replies concerning their satisfaction with present telephone service and their likelihood of subscribing to one of the three scenarios.

TABLE 5

Degree of Association Between Need For
Improvement and Short Term Demand
For Improved Telephone Service

	<u>\$6 Scenario</u>	<u>\$12 Scenario</u>	<u>\$20 Scenario</u>
Significance (α)	0.044	0.018	0.308
Pearson Correlation Coefficient (r)	-0.2697	0.4137	0.0819
Number of Cases	41	26	40

- one would assume that the more dissatisfied a respondent was with service, the more likely he would be to subscribe to the improved service (i.e., according to the scaling format used, the Pearson Correlation Coefficient should be positive).
- Table 6 presents the results for four aspects of service and overall satisfaction.
- these results indicate that all the correlations for the low price (i.e. \$6 per month) scenario are significant at the ten percent level, with the exception of "Satisfaction with free calling area to essential services" ($\alpha \leq 0.227$), and all the correlations are in the proper direction (i.e. each coefficient is positive). In general, it appears that respondents were consistent in their replies.
- in terms of the medium price scenario (\$12 per month), the only correlation which was significant was that dealing with "Satisfaction with free calling area to essential services". However, in this case, the coefficient is negative suggesting that either respondents were inconsistent, or that they are frustrated with that particular aspect of their telephone service. It is interesting to note that the same pattern of answer is observed with the combined telephone/television service medium price scenario (see Section 4.5.1.) because the price levels of the various scenarios were not properly rotated, respondents were administered only one price level for each scenario.
- this result strongly invites an analysis of the components of "overall satisfaction"; it could be that some respondents make a distinction between two types of telephone service attributes: those they feel they should pay for, those for which they expect a minimum level of service to be provided at no cost (e.g. free calling to essential services).
- it should finally be noted that this second scenario, as all "medium price" scenarios, was administered to only 26 respondents (as compared to 40 respondents for the other scenarios).

TABLE 6

**Degree of Association Between Satisfaction
and Short Term Demand for
Improved Telephone Service**

		<u>Low Price</u> <u>\$6 Scenario</u>	<u>Medium Price</u> <u>\$12 Scenario</u>	<u>High Price</u> <u>\$20 Scenario</u>
Satisfaction with Number of Parties	α^1	0.008	0.258	0.017
	r^2	0.3795	0.1360	0.3416
	N^3	40	25	39
Satisfaction with Calling Area	α	0.005	0.234	0.421
	r	0.4060	-0.1487	0.0324
	N	40	26	40
Satisfaction with Calling Area to Essential Services	α	0.227	0.012	0.061
	r	0.1221	-0.4411	0.2487
	N	40	26	40
Satisfaction with Basic Monthly Charge	α	0.084	0.464	0.468
	r	0.2225	-0.0188	0.0133
	N	40	26	40
Overall Satisfaction	α	0.026	0.123	0.094
	r	0.3085	0.2356	0.2121
	N	40	26	40

1 α = Level of significance (0.100 cut-off)

2 r = Pearson Correlation Coefficient

3 N = Number of cases

- in the case of the high price scenario (i.e. \$20 per month), two correlations were insignificant (Satisfaction with calling area and the basic monthly charge). All the correlations were of the proper direction indicating that, in general, the respondents were consistent.

3.5.3 Upgrades

- for each of the three scenarios, the relationship between past upgrading of telephone service and buying intentions was investigated. They appear to be unrelated; this confirms the absence of relationship found in section 3.4.5.

4. TELEVISION SERVICE

4.1 Current Status

- essentially three quarters (74.1%) of the respondents own one colour television and over one third (38.0%) own a black and white television (Q.14) (see Figure 14).
- the majority (70.4%) of the respondents have an external antenna, but do not have a tower (76.9%), a rotor (82.4%) or a booster (85.2%) (Q.19c) (see Figure 15).
- almost half (45.0%) of the respondents spent \$50 or less on their reception equipment (excluding the television set) (Q.19d) (see Figure 16).
- the majority (75.5%) of the respondents do not receive any American Stations or any Canadian (French) Stations (53.8%) (Q.18) (see Figure 17).
- in terms of Canadian (English) Stations, most (61.2%) respondents receive either two or three stations (Q.18).
- the majority (75.9%) of the respondents have not had any major improvements in television service (Q.19a) (see Figure 18).
- over half (61.5%) of the improvements occurred during the last two years (Q.19b) (see Figure 18).

4.2 Motivation

4.2.1 Use of Television (Q.16)

- there were no missing values for this question and it appears that any missing values were coded as a tenth mention. This should be corrected in the final survey.
- the main reasons for watching TV (as indicated by the percent of mentions for either the first, second or third choice and by the average rating) are as follows (see Figure 19):

FIGURE 14

TELEVISION SETS PER HOUSEHOLD (Q.14)

PERCENT OF ALL RESPONDENTS

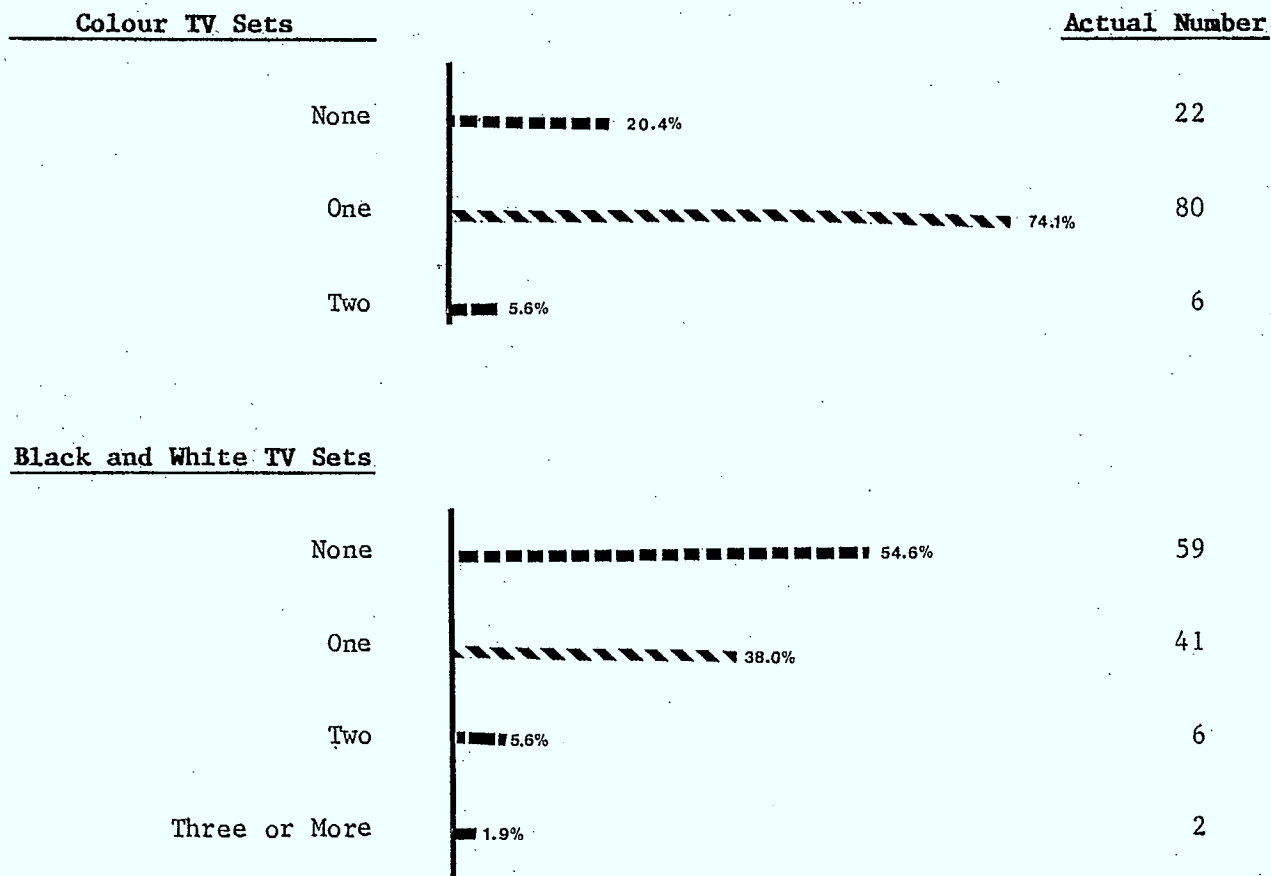


FIGURE 15

TELEVISION EQUIPMENT (Q-19c)
PERCENT OF ALL MENTIONS

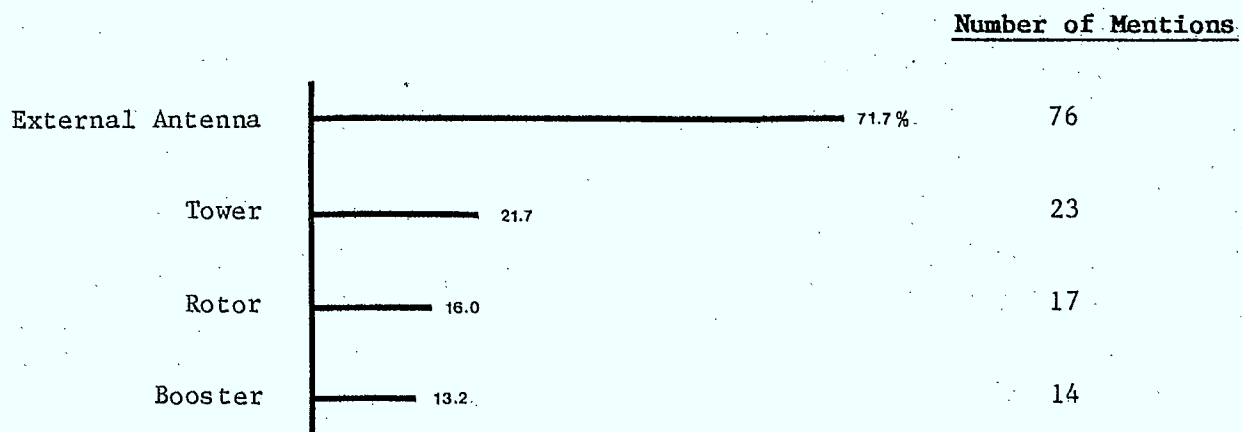


FIGURE 16

**COST OF TELEVISION RECEPTION EQUIPMENT
(Excluding Set) (Q-19d)
PERCENT OF ALL MENTIONS**

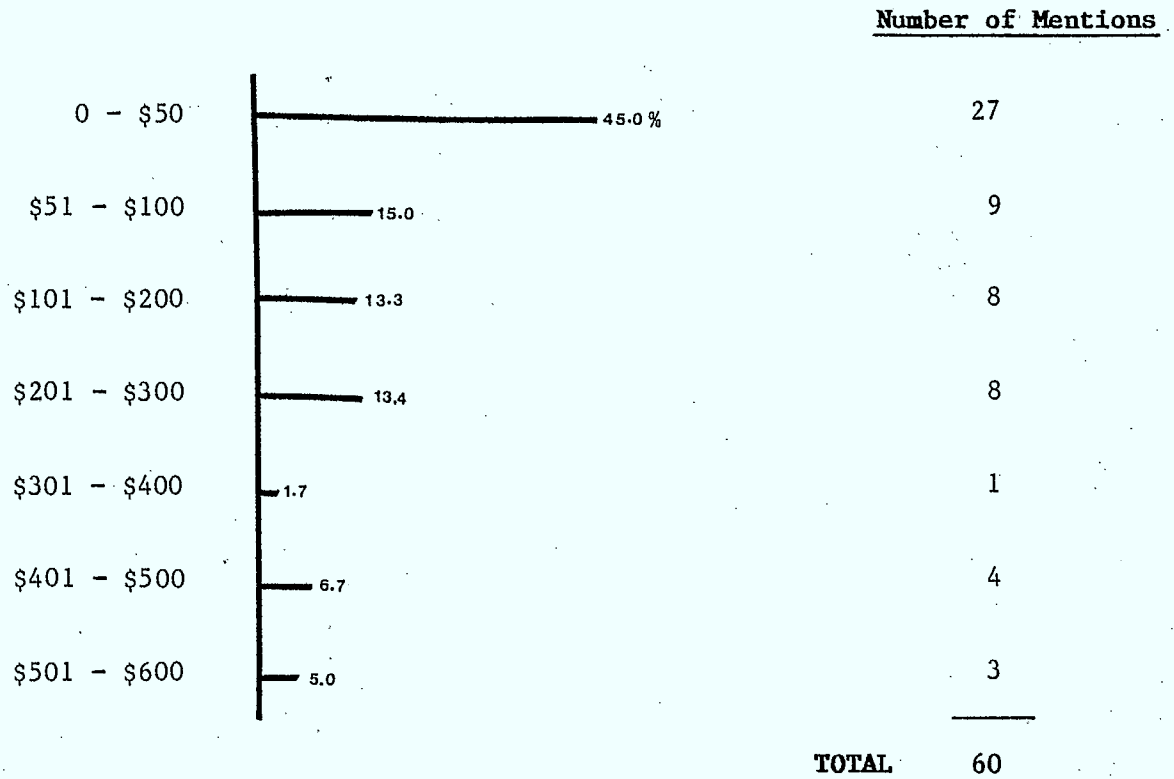
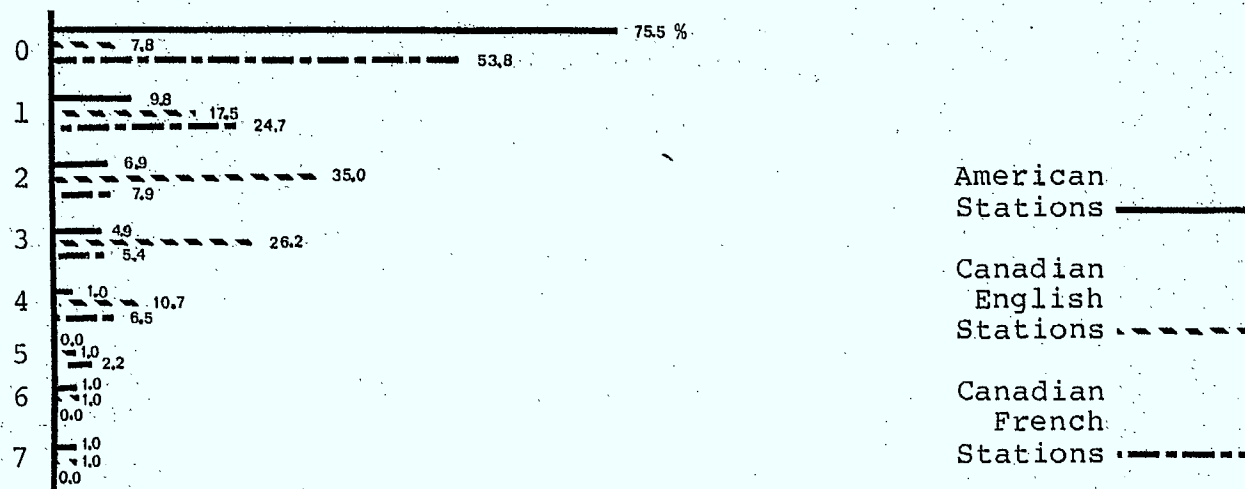


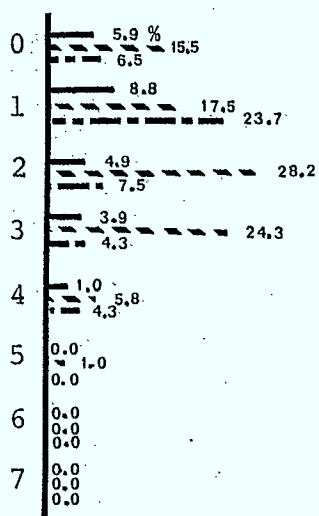
FIGURE 17

TELEVISION SERVICE CAPABILITY (Q.18)
PERCENT OF ALL MENTIONS

Number of Stations Received



Number of Stations with Good Reception



Number of Stations with Poor Reception

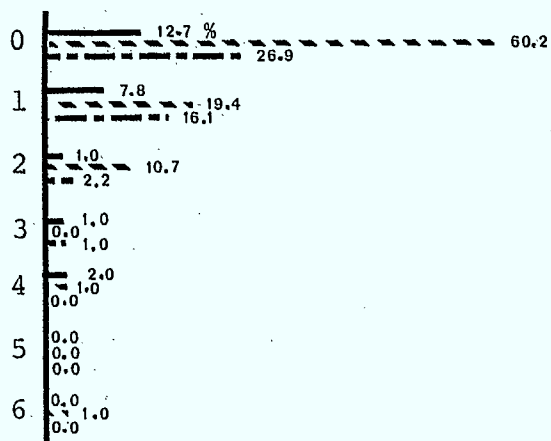


FIGURE 18.

PAST TELEVISION SERVICE IMPROVEMENTS (Q.19a and b)

Past Improvements: 24.1%
(Percent of "all" respondents)

Years Since Last Improvement:
(Percent of subscribers with improvements)

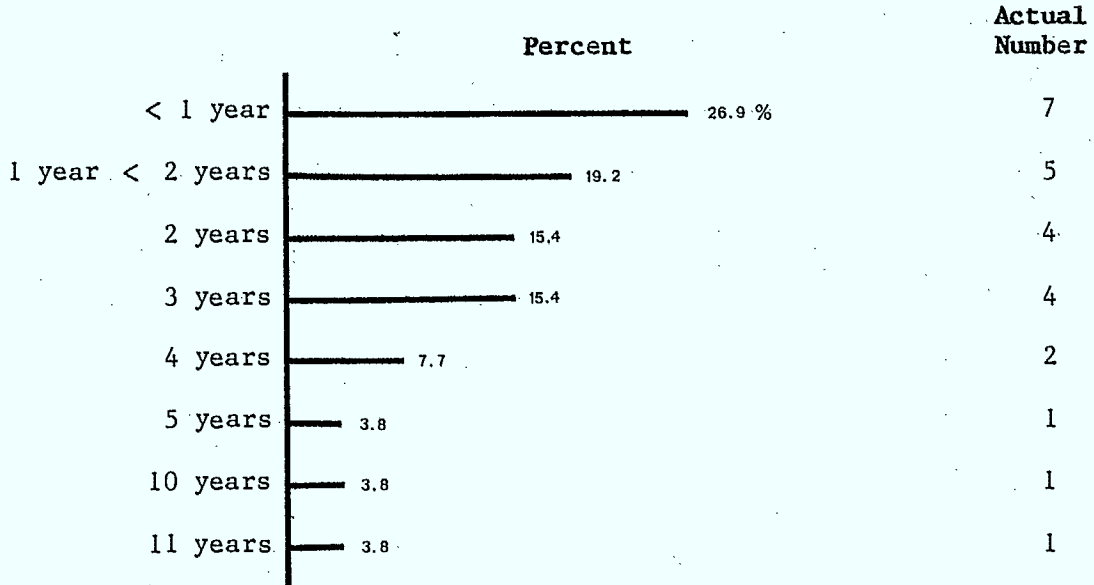
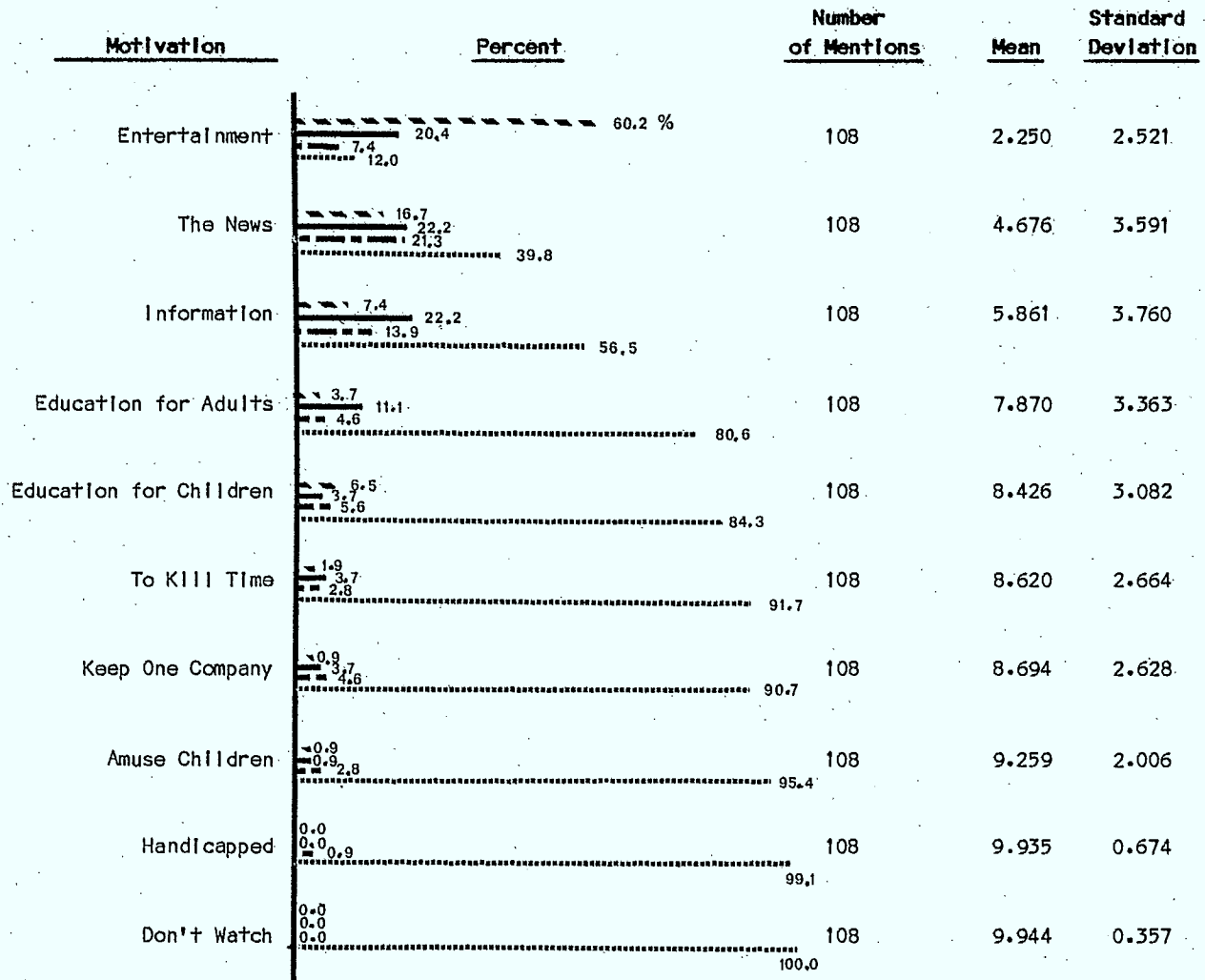


FIGURE 19

MOTIVATION FOR TELEVISION OWNERS (Q.16)
PERCENT OF ALL RESPONDENTS



- - - - - First Mention (1)
 _____ Second Mention (2)
 - - - - - Third Mention (3)
 Fourth to Tenth Mention (4, 5, 6, 7, 8, 9, 10)

Entertainment	(88.0%)
The News	(60.2%)
Information	(43.5%)
Education for Adults	(19.4%)

4.2.2 Non-Use of Television (Q.15)

- the only reason specified for not owning a television was "Do not watch/not interested" (mentioned by 1.9% of the respondents).

4.3 Service Satisfaction

4.3.1 Service Attributes

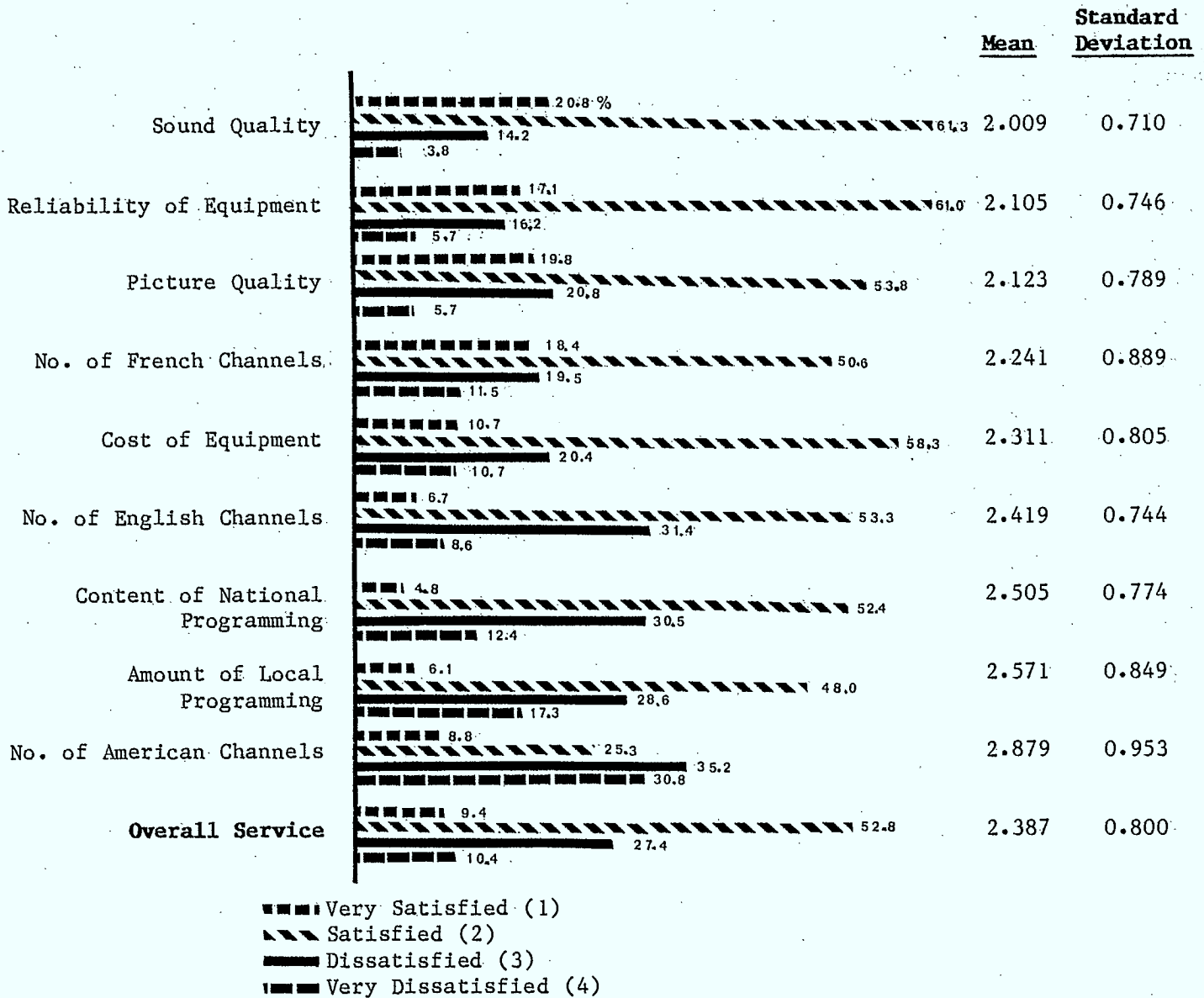
- in general, the majority of the respondents were satisfied with each aspect of their television service (see Figure 20).
- the only exception was regarding the Number of American Channels received as only just over one third (34.1%) of the respondents were either satisfied or very satisfied with this aspect of service.
- Sound Quality, Reliability of Equipment and Picture Quality were the three aspects with which most respondents were satisfied or very satisfied (82.1%, 78.1%, and 73.6% respectively).
- in terms of overall satisfaction with service, 62.2% of the respondents were satisfied (52.8%, satisfied; 9.4%, very satisfied).
- this scale appears to have been fully utilized.

4.3.2 General Satisfaction as Explained by Service Attributes

- to test the validity of the answers to the satisfaction section an analysis similar to that presented for telephone (section 3.3.2) was carried: a stepwise multiple regression analysis was run with overall satisfaction as the dependent variable and the 9 attributes of television service as independent variables.

FIGURE 20

TELEVISION SERVICE SATISFACTION (Q.17)
PERCENT OF MENTIONS



■■■ Very Satisfied (1)
 ▨ Satisfied (2)
 ■ Dissatisfied (3)
 ■ Very Dissatisfied (4)

- altogether these 9 variables explain 42% of the variation in overall satisfaction (adjusted $R^2 = .42$). This attests to the fact that the measurement of satisfaction is valid.
- because of an apparent multicollinearity problem, it could be misleading to report the regression coefficients of the independent variables. It appears essential that the multicollinearity problem be dealt with at the analysis stage of the final survey.

4.4 Need Analysis

4.4.1 Reliability of Conjoint Task (Q.20)

- a reliability check was performed on the data which will be used in the conjoint analysis. The following pairs of packages were tested:
 - P1 = one channel/acceptable reception/same programming/\$6
 - P4 = three channels/very good reception/better programming/\$6
 - P1 = one channel/acceptable reception/same programming/\$6
 - P7 = six channels/acceptable reception/same programming/\$6
 - P3 = one channel/acceptable reception/better programming/\$18
 - P8 = six channels/acceptable reception/better programming/\$12
 - P5 = three channels/acceptable reception/same programming/\$12
 - P7 = six channels/acceptable reception/same programming/\$6
 - P6 = three channels/acceptable reception/same programming/\$18
 - P7 = six channels/acceptable reception/same programming/\$6
 - P5 = three channels/acceptable reception/same programming/\$12
 - P6 = three channels/acceptable reception/same programming/\$18
 - P4 = three channels/very good reception/better programming/\$6
 - P5 = three channels/acceptable reception/same programming/\$12
- for each of these pairs, one package is clearly superior to the other. The two packages in each pair were compared to a third package (the reference package) so that the superior package of each of these pairs should have been selected more often than the inferior package.

- eighteen comparisons were taken from the sample (see Figure 21) and in all but one case (P8 from TV12 vs P3 from TV8), the superior package was chosen by a larger percentage of the respondents.
- a statistical test of significance indicated that the differences for each test case were significant at the five percent level.
- these results indicate that respondents were generally consistent in their choices.

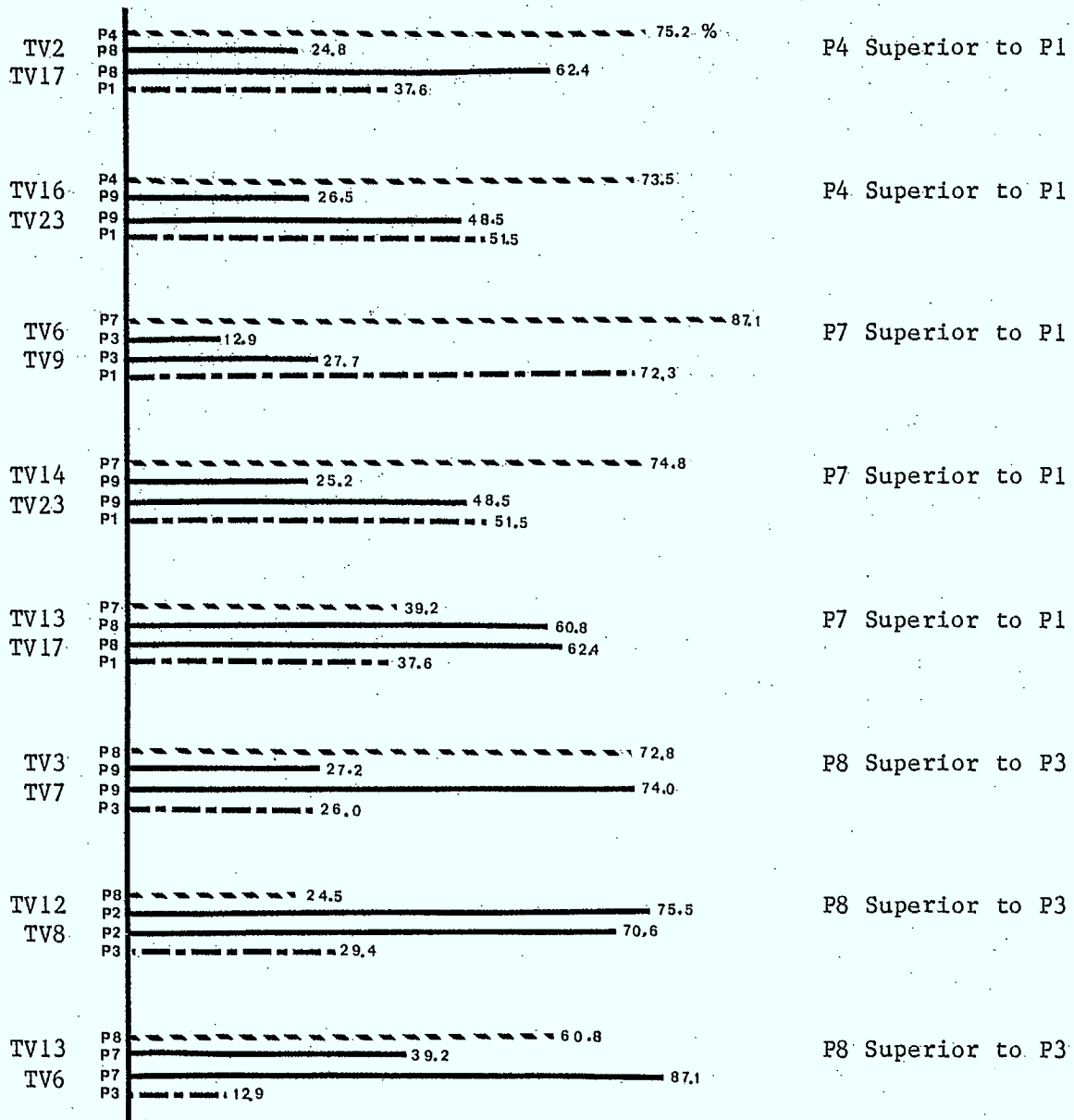
4.4.2 Need For Improvements

- the relationship between the preference for each of the nine packages (conjoint) and perceived need for improvement in TV services (from question 2) was investigated through correlation analysis. None of the coefficients were found significant, probably because of the problem associated with question 2.

4.4.3 Satisfaction

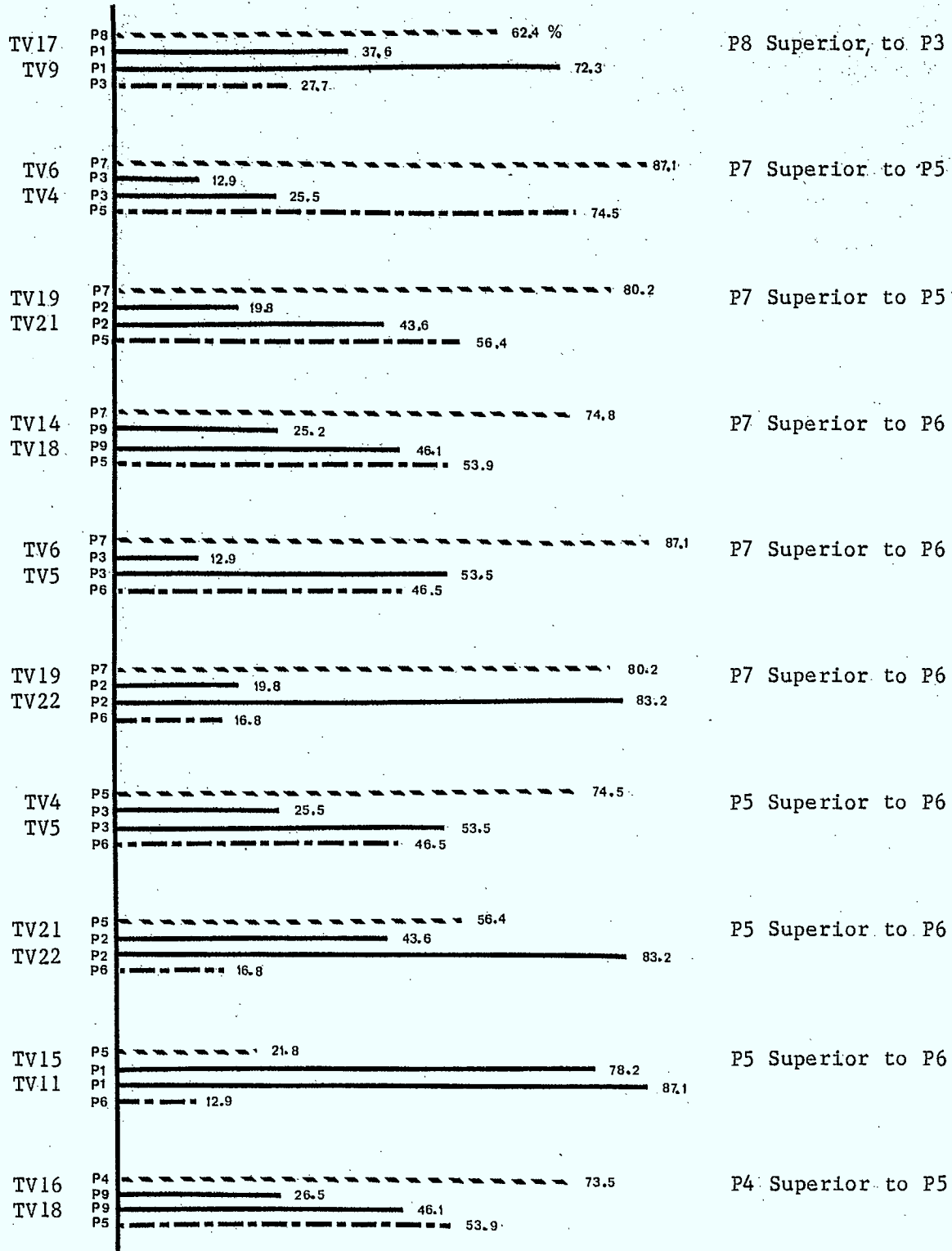
- another approach to verifying the reliability of the conjoint task would be to check whether the results are consistent with those obtained with the satisfaction measure. An analysis similar to that presented in the telephone section (3.4.4) was conducted. The results are displayed on Table 7. Only two attributes have been retained: number of French channels received, and number of American channels received. The "reception" attribute has been omitted because too few respondents were "very dissatisfied" with this aspect of the service. The "programming" attribute has been omitted because the distinction between "local" and "national" was not explicit in the conjoint task.
- altogether the responses to the satisfaction and preference (conjoint) questions appear consistent.

FIGURE 21
CONJOINT RELIABILITY TEST FOR TELEVISION
PERCENT OF ALL MENTIONS



Cont'd Next Page

FIGURE 21 (cont'd)



Superior Package - - - - -
 Inferior Package - . - . -
 Reference Package - - - - -

TABLE 7

RELATION BETWEEN SATISFACTION WITH
PRESENT TV SERVICE (Q.17) AND
CHOICE OF DIFFERENT TV PACKAGES (Q.20)

Package Description	% of Those Respondents "Very Satisfied" with Attribute who Ranked the Package Highest	% of Those Respondents "Very Dissatisfied" with Attribute who Ranked the Package Highest
ATTRIBUTE: Number of French Channels		
6 channels, fair reception, same programming, \$6	6.3	40.0
6 channels, fair reception, better programming, \$12	6.3	20.0
6 channels, excellent reception, same programming, \$20	0.0	0.0
ATTRIBUTE: Number of American Channels		
6 channels, fair reception, same programming, \$6	12.5	21.4
6 channels, fair reception, better programming, \$12	12.5	14.3
6 channels, excellent reception, same programming, \$20	0.0	3.6

4.5 Short Term Demand Analysis

4.5.1 Short Term Forecasting Model

4.5.1.1 CATV Scenario - Improved Service Through Monthly Rental (Q.21)

- respondents were asked how likely they would be to pay \$6 a month for improved television service which would be comparable to that available in large cities.
- 41.5% of the respondents said they would definitely pay \$6 a month for this service (10 chances out of 10) (see Figure 22).
- this percentage dropped to 15.5% when the new service would cost \$12 a month, and further declined to 12.2% when the cost increased to \$18 a month.
- in order to increase the difference between the medium and high price scenarios, it is suggested that the price level for the high price scenario be increased.
- these results were used to develop two types of estimates of the demand curve for this improved service: a maximum likelihood estimate and a conservative estimate (see Graph 3).
- the difference between the two estimates was obtained by assigning different probability figures to each category in the intention scale, in the computation of the proportion of respondents. The figures utilized were 0, 0.2, 0.5, 0.8 and 1 for the maximum likelihood and 0, 0.1, 0.4, 0.7 and 1 for the conservative estimate.
- in addition, the confidence interval of one standard error on either side of the maximum likelihood estimate is presented in Graph 4. This interval reflects sampling error.

4.5.1.2 Improved Service Through Purchase of Equipment (Q.22)

- respondents were also offered improved television service through the purchase of new reception equipment.

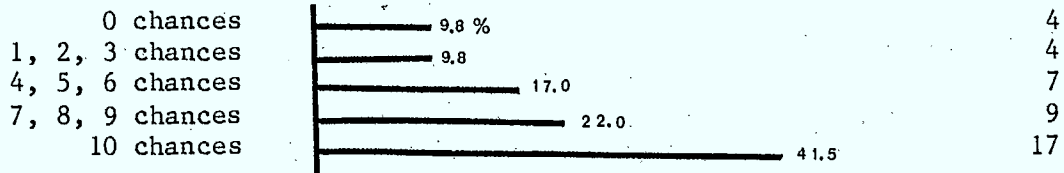
FIGURE 22

SHORT TERM DEMAND ANALYSIS
IMPROVED TV SERVICE SCENARIOS THROUGH
MONTHLY RENTAL OF SERVICE (Q-21)

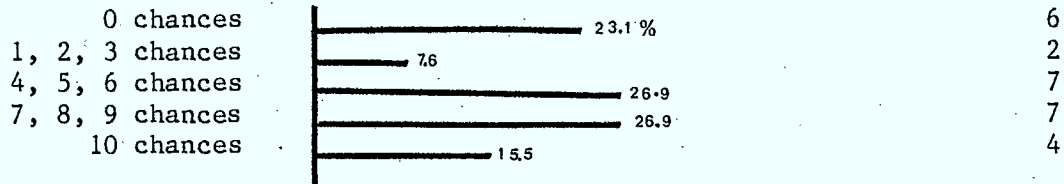
PERCENT OF ALL MENTIONS

Number of Mentions

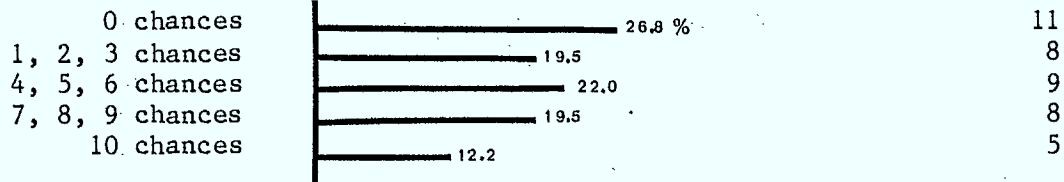
\$6/Month (41 mentions)



\$12/Month (26 mentions)



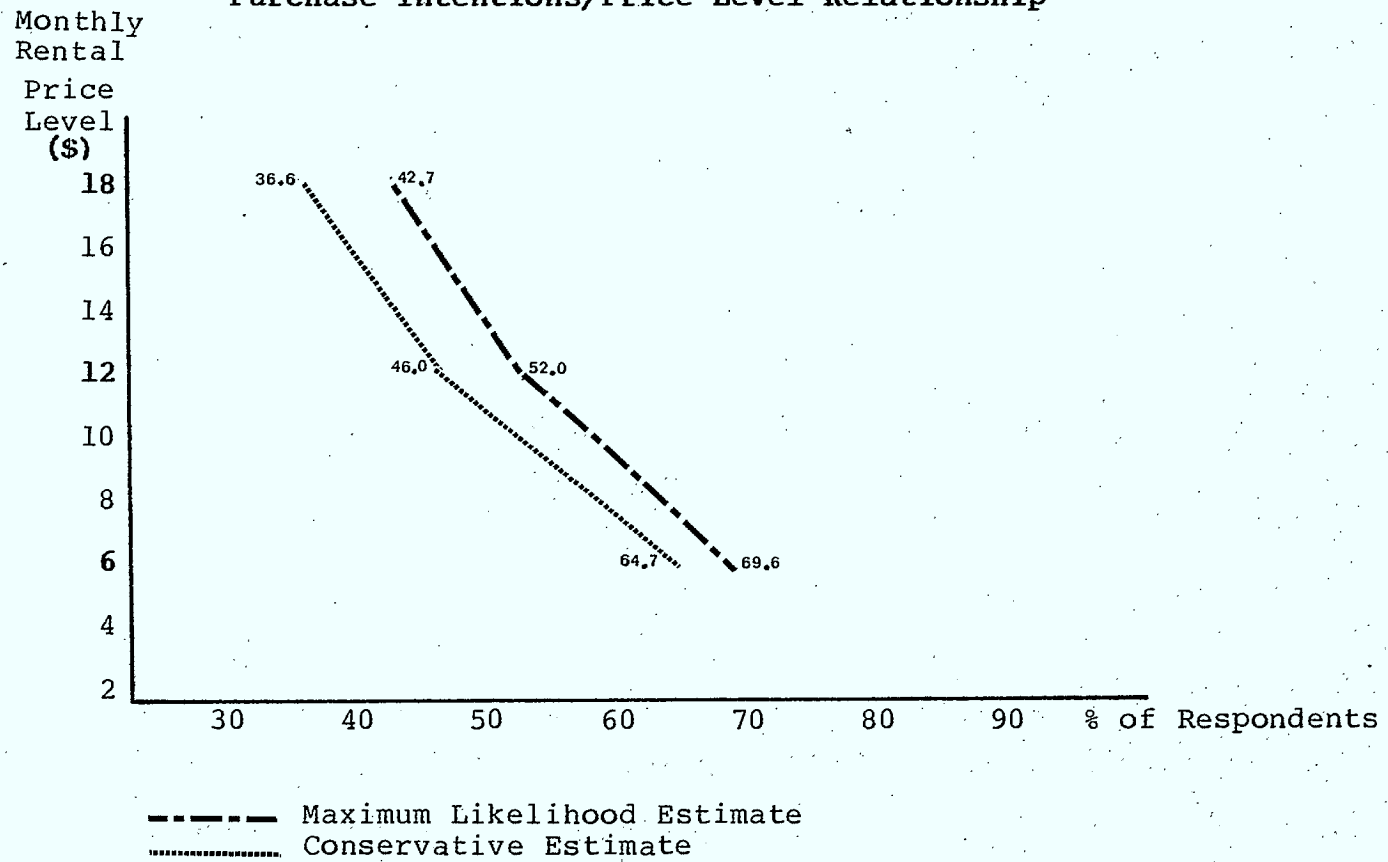
\$18/Month (41 mentions)



IMPROVED TELEVISION SERVICE SCENARIOS

GRAPH 3

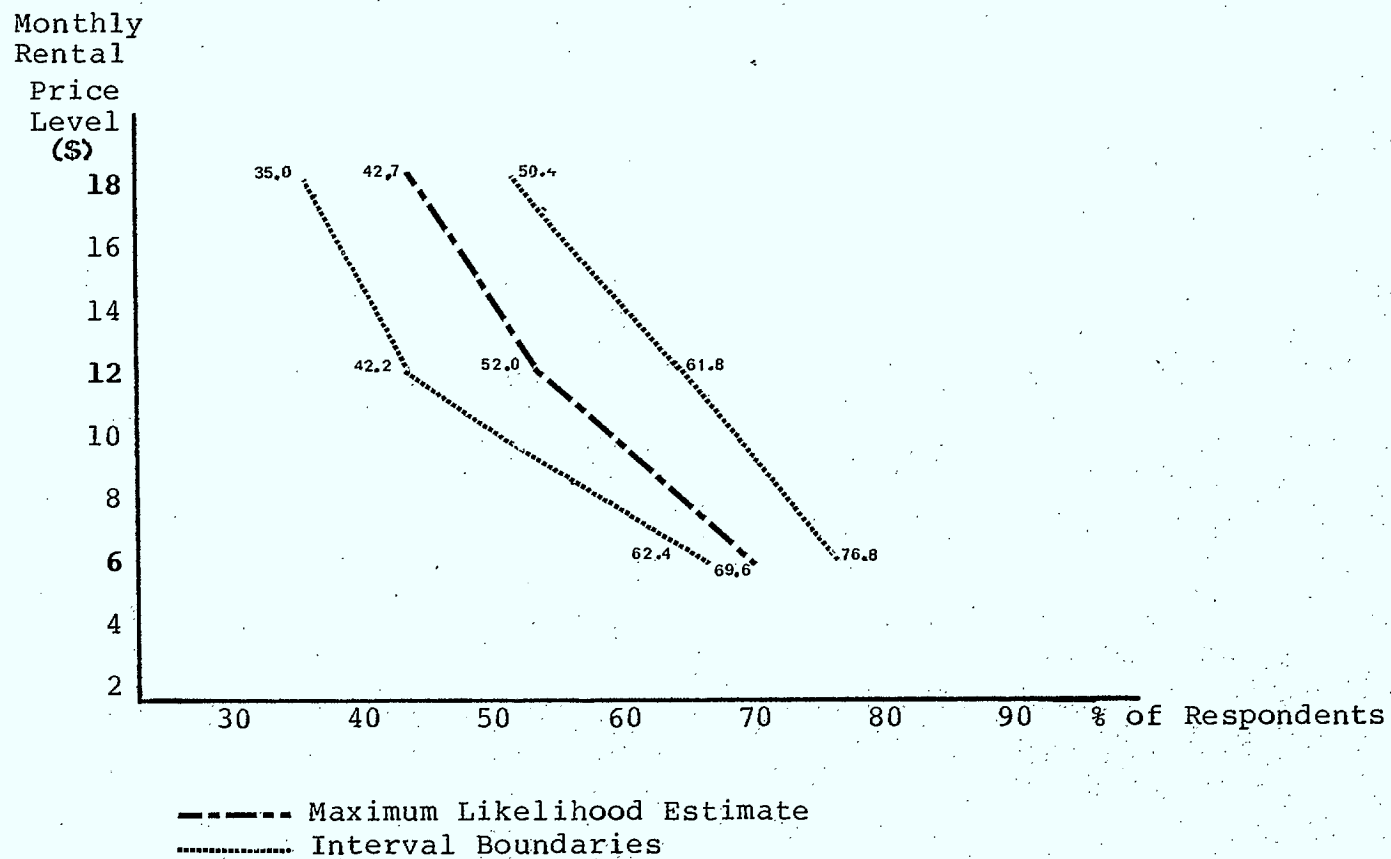
Purchase Intentions/Price Level Relationship



IMPROVED TELEVISION SERVICE SCENARIOS

GRAPH 4

Confidence Interval
(one standard error)



- when this equipment was offered at a cost of \$400, the answer most often given was that the respondent would be unlikely to purchase this equipment (i.e. 31.7% replied 1, 2 or 3 chances in 10) (see Figure 23).
- when the equipment cost was stated as being \$600, the most frequent reply was that they would definitely not buy the equipment (38.5% replied 0 out of 10 chances).
- a definite refusal was given by almost half of the respondents when the cost was \$800 (41.5%).
- these results were then used to develop two types of estimates of the demand curve for this service: a maximum likelihood estimate and a conservative estimate (see Graph 5).
- the difference between the two estimates was obtained by assigning different probability figures to each category in the intention scale, in the computation of the proportion of respondents. The figures utilized were 0, 0.2, 0.5, 0.8 and 1 for the maximum likelihood and 0, 0.1, 0.4, 0.7 and 1 for the conservative estimate.
- in addition, the confidence interval of one standard error on either side of the maximum likelihood estimate is presented in Graph 6. This interval reflects sampling error. For results represented on graph 6, although the curve does not look exactly like a demand curve, the area defined by the confidence interval is acceptable.

4.5.1.3 Improved Service Through Monthly Rental of Telephone and Television (Q.23)

- finally, respondents were offered a combined, improved television and telephone service (see Figure 24).
- one group of respondents was offered this service at \$10 a month and almost half (43.9%) said they would be certain (10 out of 10 chances) to subscribe to this.

FIGURE 23

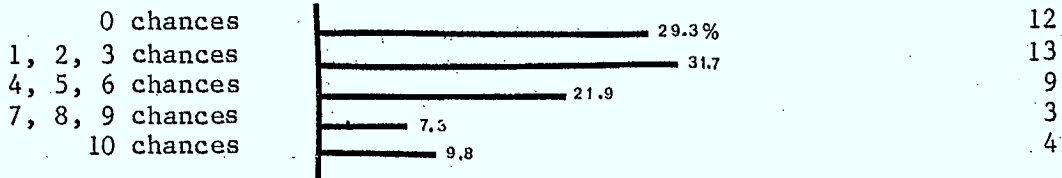
SHORT TERM DEMAND ANALYSIS

IMPROVED SERVICE THROUGH PURCHASE OF EQUIPMENT (Q-22)

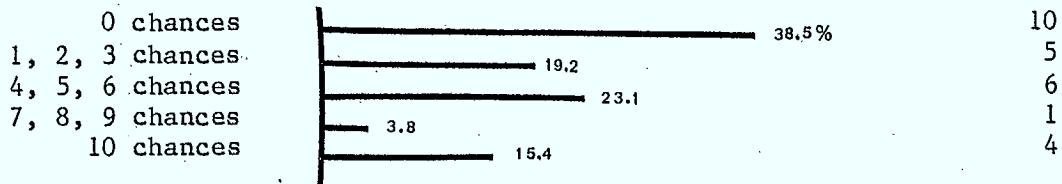
PERCENT OF ALL MENTIONS

Number of Mentions

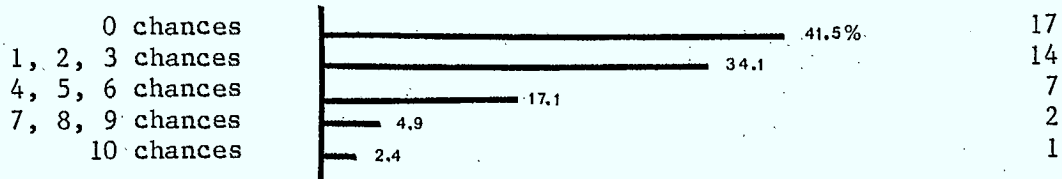
\$400 Cost (41 mentions)



\$600 Cost (26 mentions)



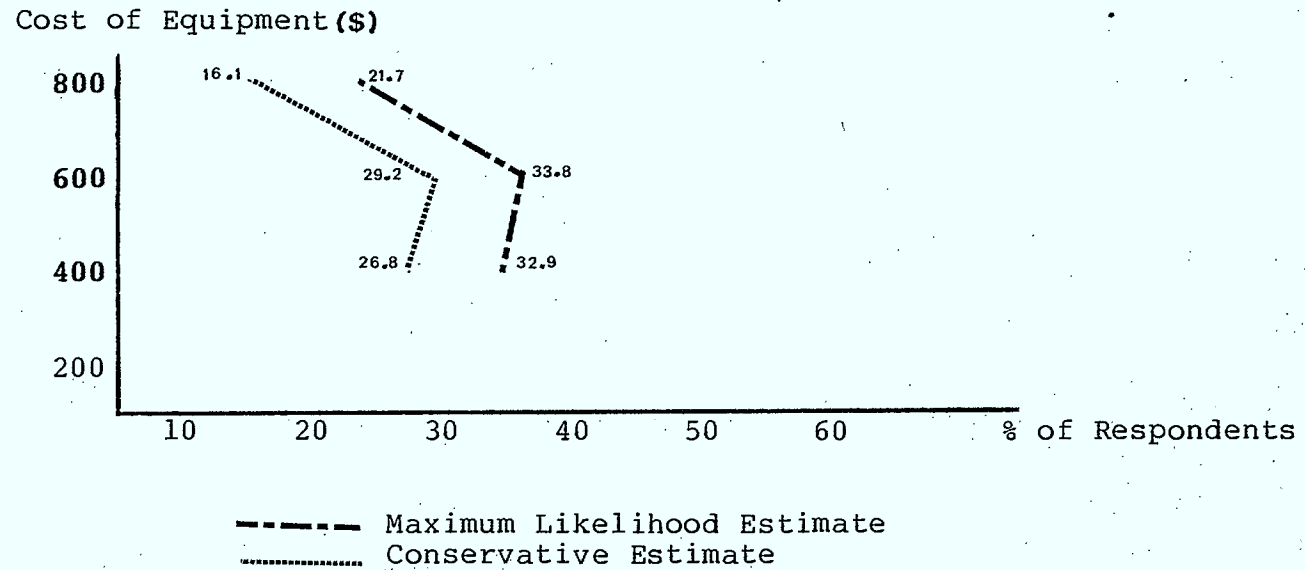
\$800 Cost (41 mentions)



NEW EQUIPMENT FOR IMPROVED TELEVISION SERVICE SCENARIOS

GRAPH 5

Purchase Intentions/Price Level Relationship



NEW EQUIPMENT FOR IMPROVED TELEVISION SERVICE SCENARIOS

GRAPH 6

Confidence Interval
(one standard error)

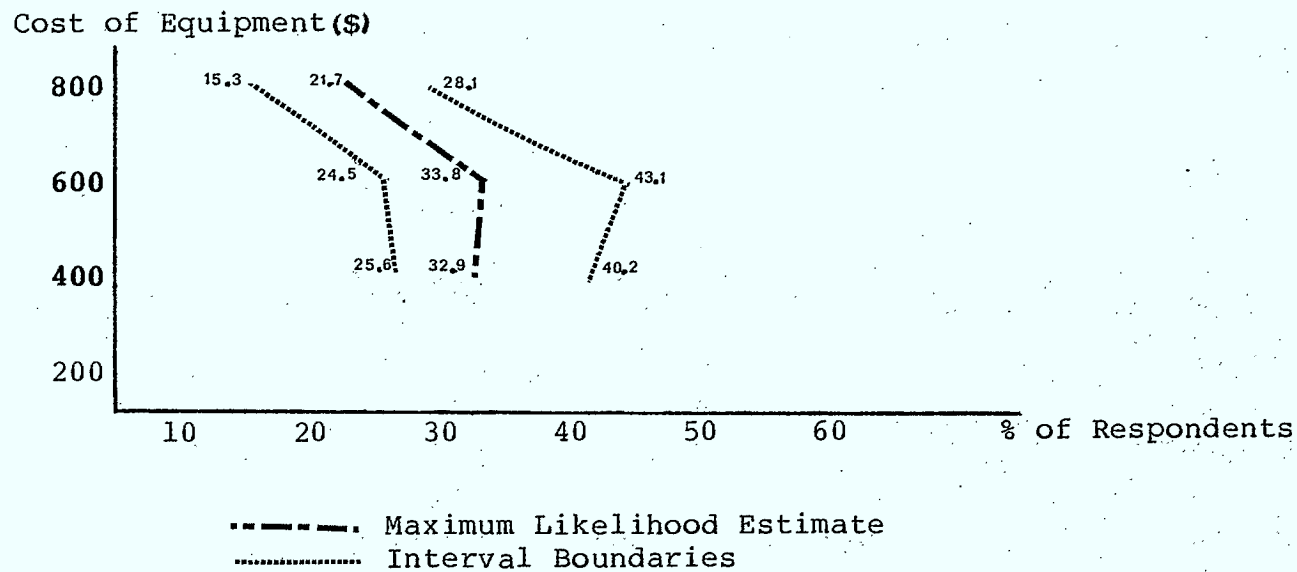


FIGURE 24

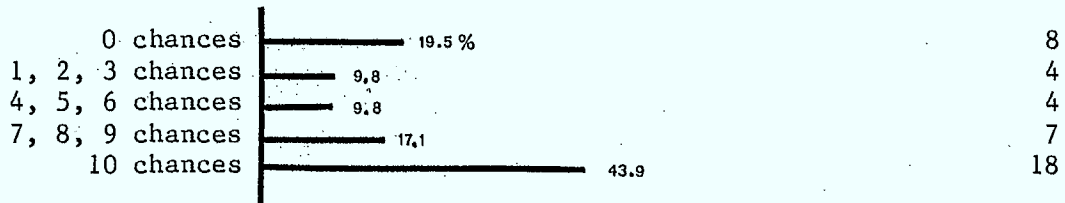
SHORT TERM DEMAND ANALYSIS

IMPROVED SERVICE THROUGH COMBINED TELEVISION
AND TELEPHONE SERVICE SCENARIOS (Q.23)

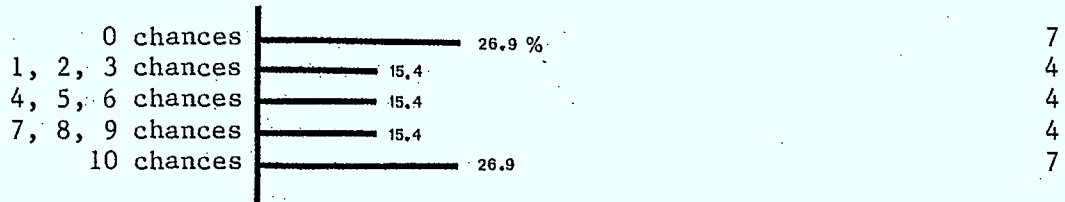
PERCENT OF ALL MENTIONS

Number of Mentions

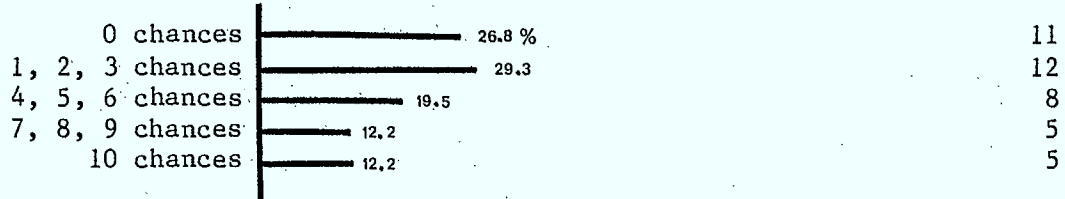
\$10/Month (41 mentions)



\$20/Month (26 mentions)



\$30/Month (41 mentions)



- when the price increased to \$20 a month, 26.9% of the respondents still said they would certainly subscribe to this service, but a further 26.9% stated that they would definitely not (i.e. 0 out of 10 chances).
- at \$30 a month, only 24.4% said they would be likely to subscribe to the new service (i.e. 7, 8, 9 or 10 chances in 10).
- because of the changes in price levels suggested earlier for the telephone and TV scenarios, it is necessary to change the price levels for the combined scenario accordingly.
- these results were used to develop two types of estimates of the demand curve for this improved service: a maximum likelihood estimate and a conservative estimate (see Graph 7).
- the difference between the two estimates was obtained by assigning different probability figures to each category in the intention scale, in the computation of the proportion of respondents. The figures utilized were 0, 0.2, 0.5, 0.8 and 1 for the maximum likelihood and 0, 0.1, 0.4, 0.7 and 1 for the conservative estimate.
- in addition, the confidence interval of one standard error on either side of the maximum likelihood estimate is presented in Graph 8. This interval reflects sampling error.

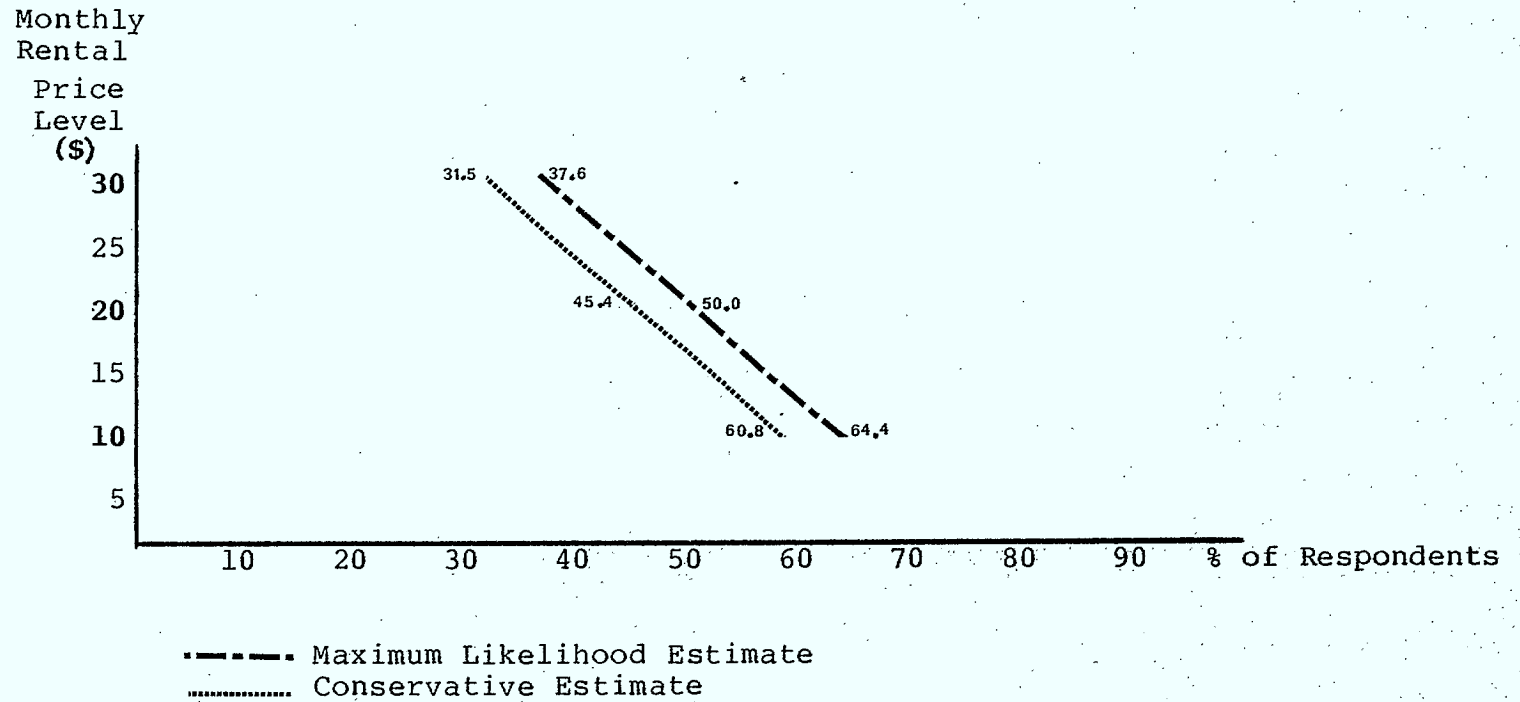
4.5.2 Need for Improvement

- for two sets of scenarios, the results agree with what one would expect and support the use of these results for developing short term demand curves.
- a statistical measure was computed to measure the degree of association between the perceived need for improvement in television service (in relation to the other communication services), and the likelihood of subscribing to any of the three sets of scenarios.
- one would expect that the stronger the perceived need for improvement in television service, the more likely the respondent would be to subscribe to an improved service offering (i.e. a positive relationship).

COMBINED TELEVISION - TELEPHONE SERVICE SCENARIOS

GRAPH 7

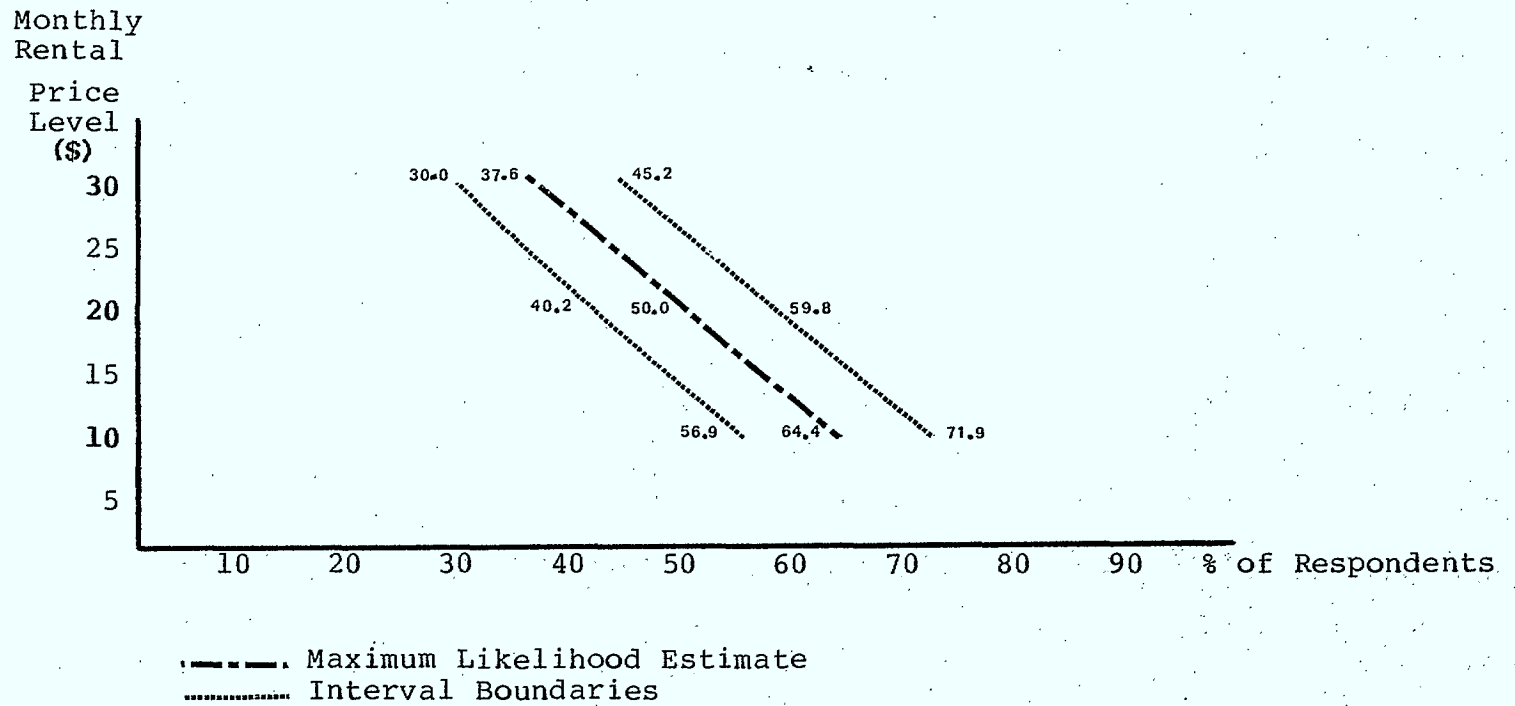
Purchase Intentions/Price Level Relationship



COMBINED TELEVISION - TELEPHONE SERVICE SCENARIOS

GRAPH 8

Confidence Interval
(one standard error)



- the results (see Table 8) indicate that the correlations between the need for improvement in television service and the scenarios offering improved service (for either \$6, \$12, or \$18) are all insignificant at the ten percent level. However, the coefficients are each in the proper direction.
- when improved service is offered through the purchase of new equipment, the correlation is significant ($\alpha \leq .024$) when the equipment is priced at \$800. The coefficient is of the proper direction ($r = 0.3146$) which supports our hypothesis.
- the final set of scenarios involves a combined television and telephone service (at either \$10, \$20 or \$30 per month); therefore the degree of association between these scenarios and the need for improvement in both television and telephone services was measured. The correlations between the \$10 scenario and the need for television improvement, and the \$20 scenario and need for improvement in telephone service were both significant at the ten percent level. In both of these cases, the coefficients were positive, supporting the hypothesis.
- in general, it appears that respondents were consistent in their replies to these questions. However, it should be noted that the results regarding the need for improvement in communication services may have been coded incorrectly.

4.5.3 Satisfaction

- in order to verify the consistency of the respondents' replies concerning their satisfaction with their present television (Q.17) service and their likelihood of subscribing to any of the scenarios, a statistical measure of the degree of association between these questions was carried out.
- the hypothesis is that the more dissatisfied a respondent is with the present service, the more likely he would be to subscribe to an offer of improved service (i.e. the Pearson Correlation Coefficient should be positive).

TABLE 8

Short Term Demand Versus the
Need for Improvement in Television
or Telephone Service

Scenario		Price		
		Low	Medium	High
Improved service for \$6, \$12 or \$18 per month (vs Television)	α ¹	.124	.196	.186
	r ²	.1843	.1753	.1452
	N ³	41	26	40
New equipment for \$400, \$600 or \$800 (vs Television)	α	.477	.305	.024
	r	.0092	-.1049	.3146
	N	41	26	40
Combined TV/ Telephone Service for \$10, \$20 or \$30 per month (vs Television)	α	.017	.404	.225
	r	.3306	-.0501	.1227
	N	41	26	40
Combined TV/ Telephone Service for \$10, \$20 or \$30 per month (vs Telephone)	α	.213	.068	.302
	r	-.1278	.3009	-.0844
	N	41	26	40

1 α = Level of significance (.10 cutoff)
 2 r = Pearson correlation coefficient
 3 N = Number of cases

- Table 9 presents the results when respondents are offered improved television service for either \$6, \$12, or \$18 per month (Q.21).
- from these results, we see that eight of the twenty-four correlations are significant (i.e. $\alpha \leq 0.100$) and in the proper direction (i.e. "r" is positive). These results support the hypothesis.
- the remaining correlations are insignificant (though generally they are in the proper direction) which neither supports nor disproves the hypothesis. This indicates that the association between the variables is not significantly different from zero.
- Table 10 presents the results of the correlation analysis when respondents are offered improved service through the purchase of new equipment priced at either \$400, \$600 or \$800 (Q.22).
- in this situation, six of the twenty-four correlations are significant ($\alpha \leq .100$) and in the proper direction ("r" is positive), supporting the hypothesis.
- the remaining correlations are insignificant.
- Table 11 presents the results of the situation where respondents were offered combined television and telephone service for either \$10, \$20 or \$30 per month (Q.23).
- these results indicate that seven of the twenty-four correlations are significant ($\alpha \leq .100$) and support our hypothesis (i.e. "r" is positive).
- once again, most of the correlations are insignificant, indicating that no relationship exists.
- Table 12 again deals with a combined television and telephone service offering, but in this case these scenarios are compared to the respondents' present satisfaction with their telephone service.
- in this situation, four of the fifteen correlations are significant (i.e. $\alpha \leq .100$) and in the proper direction (i.e. "r" is positive), supporting the hypothesis.

TABLE 9

Degree of Association Between Satisfaction (Q.17)
and Short Term Demand
(Improved Television Service Scenarios Q.21)

		<u>\$6/Month</u>	<u>\$12/Month</u>	<u>\$18/Month</u>
Picture Quality	α ¹	.004	.352	.014
	r ²	.4056	.0858	.3469
	N ³	41	25	40
Canadian Programming	α	.004	.350	.133
	r	.4092	-.0808	.1803
	N	40	25	40
Local Programming	α	.173	.457	.447
	r	.1572	.0238	.0228
	N	38	23	37
Number of French Channels	α	.016	.286	.262
	r	.3518	.1427	.1171
	N	37	18	32
Number of English Channels	α	.119	.136	.069
	r	.1886	.2289	.2420
	N	41	25	39
Number of American Channels	α	.196	.020	.389
	r	.1493	.4513	-.0496
	N	35	21	35
Cost of Equipment	α	.477	.373	.039
	r	.0094	.0699	.2895
	N	41	24	38
Overall Satisfaction	α	.001	.391	.131
	r	.4958	.0580	.1815
	N	41	25	40

¹ α = Level of significance (.10 cutoff)
² r = Pearson correlation coefficient
³ N = Number of cases

TABLE 10

Degree of Association Between Satisfaction
and Short Term Demand
(New Equipment Scenarios Q.22)

		<u>\$400</u>	<u>\$600</u>	<u>\$800</u>
Picture Quality	α^1	.001	.119	.414
	r ²	.4566	.2451	.0356
	N ³	41	25	40
Canadian Programming	α	.079	.207	.281
	r	.2275	-.1711	-.0946
	N	40	25	40
Local Programming	α	.153	.395	.454
	r	.1708	-.0590	-.0199
	N	38	23	37
Number of French Channels	α	.033	.465	.222
	r	.3046	.0225	-.1403
	N	37	18	32
Number of English Channels	α	.467	.311	.366
	r	-.0134	-.1037	-.0567
	N	41	25	39
Number of American Channels	α	.235	.257	.131
	r	-.1261	-.1510	.1952
	N	35	21	35
Cost of Equipment		.071	.317	.052
	r	.2332	.1022	.2678
	N	41	24	38
Overall Satisfaction		.057	.303	.133
	r	.2507	.1086	-.1804
	N	41	25	40

1 α = Level of significance (.10 cutoff)
 2 r = Pearson correlation coefficient
 3 N = Number of cases

TABLE 11

Degree of Association Between Satisfaction
with Television Service and Short Term Demand
(Combined Television/Telephone Service Scenarios Q.23)

		<u>\$10/Month</u>	<u>\$20/Month</u>	<u>\$30/Month</u>
Picture Quality	α^1	.001	.406	.007
	r ²	.4671	.0501	.3820
	N ³	41	25	40
Canadian Programming	α	.148	.398	.095
	r	.1696	-.0544	.2111
	N	40	25	40
Local Programming	α	.163	.351	.376
	r	.1636	-.0841	.0537
	N	38	23	37
Number of French Channels	α	.010	.202	.286
	r	.3785	.2094	.1036
	N	37	18	32
Number of English Channels	α	.208	.464	.105
	r	.1307	.0188	.2053
	N	41	25	39
Number of American Channels	α	.362	.110	.204
	r	.0618	.2789	-.1443
	N	35	21	35
Cost of Equipment	α	.102	.371	.136
	r	.2026	-.0708	.1826
	N	41	24	38
Overall Satisfaction	α	.001	.227	.192
	r	.4540	.1567	.1417
	N	41	25	40

1. α = Level of significance (.10 cutoff)
 2. r = Pearson correlation coefficient
 3. N = Number of cases

TABLE 12

Degree of Association Between Satisfaction
with Telephone Service and Short Term Demand
(Combined Television/Telephone Service Scenarios Q.23)

		<u>\$10/Month</u>	<u>\$20/Month</u>	<u>\$30/Month</u>
Satisfaction with Number of Parties	α^1	.006	.298	.039
	r ²	.3898	-.1114	.2862
	N ³	40	25	39
Satisfaction with Calling Area	α	.028	.417	.143
	r	.3055	-.0433	.1730
	N	40	26	40
Satisfaction with Calling Area to Essential Services	α	.221	.067	.149
	r	-.1250	-.3025	.1685
	N	40	26	40
Satisfaction with Basic Monthly Charge	α	.185	.335	.197
	r	.1457	.0876	-.1386
	N	40	26	40
Overall Satisfaction	α	.066	.219	.163
	r	.2418	.1587	.1593
	N	40	26	40

1 α = Level of significance (0.100 cutoff)
 2 r = Pearson correlation coefficient
 3 N = Number of cases

- however, the correlation between "satisfaction with present free calling area to essential services" and the likelihood of subscribing to the combined service for \$20 per month is significant ($\alpha \leq .100$) but the coefficient is negative which indicates either that respondents were inconsistent in their replies to these questions, or that they feel frustrated with that aspect of telephone service.
- in general, the results presented in these four tables suggest that respondents were consistent in their replies as, in all but one case, the significant correlations indicated a positive relationship which supports the hypothesis.

4.5.4 Isolation

- an index of "telecommunication isolation" was computed (see section 3.4.2) to investigate the relationship between isolation and purchase intentions. Upon examination of cross classification tables (no X^2 were provided), no relationship was apparent. However, the effect of price was not controlled for (although it had been requested).

5. GRS (CB) AND GLMRS

5.1 Current Status

- the majority (83.3%) of the respondents do not own any CB and/or General Radio Service (GRS) equipment (Q.24), nor do they own any mobile radio or mobile telephone equipment (92.6%) (see Figure 25).
- of those respondents who do own any of this equipment, and were asked the next question (Q.26), most (68.4%) feel that the CB equipment is the most valuable to them (see Figure 25).

5.2 Motivation

- in terms of the main uses (Q.27) for this type of equipment, 30 mentions of 5 uses were made (see Figure 26).
- "Fun/Hobby/Like to talk to people" was the most frequently mentioned reason (29.0% of all mentions).
- "Business" and "Security" were mentioned first, most often (5.6% of respondents mentioned each of these reasons first).
- it is important to assess whether the motivational pattern is different for CB and for mobile radio. Unfortunately, because of the small number of answers, it is not possible to make any statistical test; however the data presented in Table 13 suggests that the question is amenable to capture differences in motivational pattern.

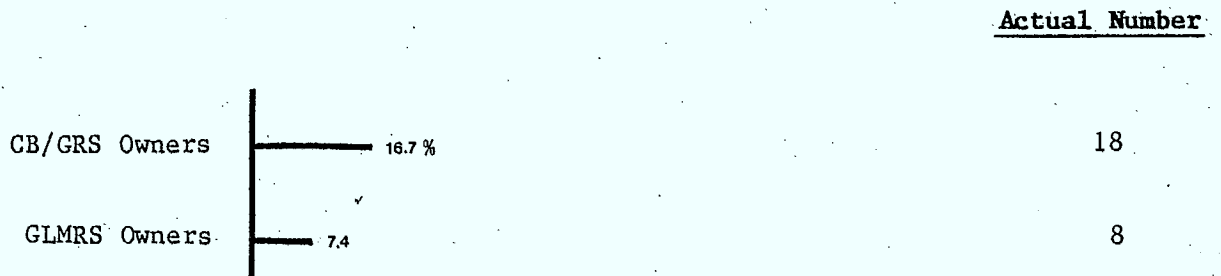
5.3 Short Term Demand Analysis

- respondents were asked how likely they would be to buy new equipment which would provide them with a combined telephone/mobile radio service (Q.28).

FIGURE 25

GRS (CB) AND GLMRS EQUIPMENT (Q.24)

PERCENT OF RESPONDENTS



PERCENT OF MENTIONS

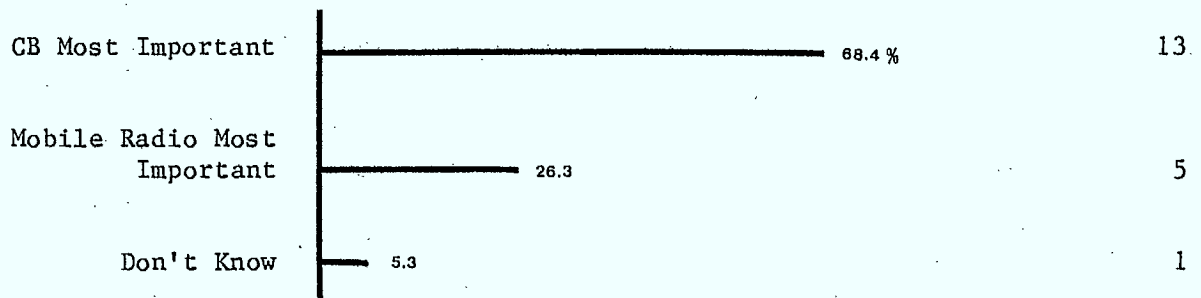
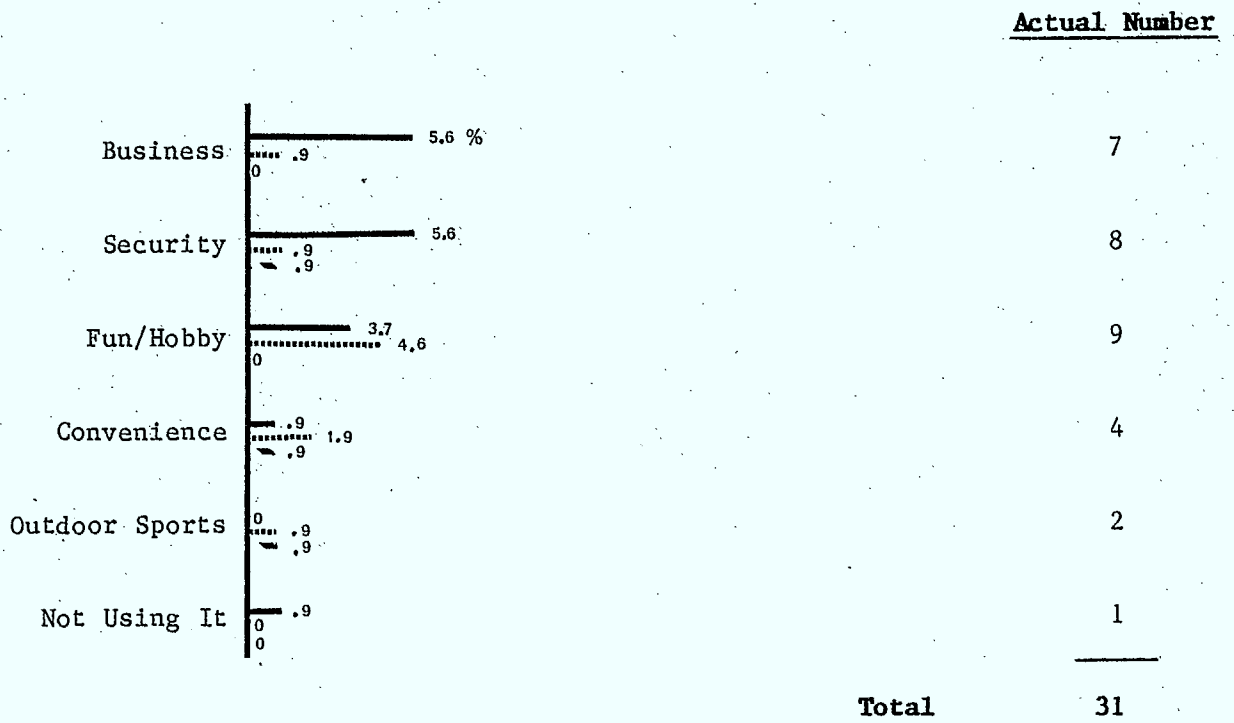


FIGURE 26

MOTIVATION FOR OWNING CB OR GLMRS EQUIPMENT (Q-27)

PERCENT OF ALL RESPONDENTS



_____ First Mention (1)
 Second Mention (2)
 - - - - - Third Mention (3)

TABLE 13

VARIOUS REASONS FOR USING
CB OR MOBILE RADIO EQUIPMENT

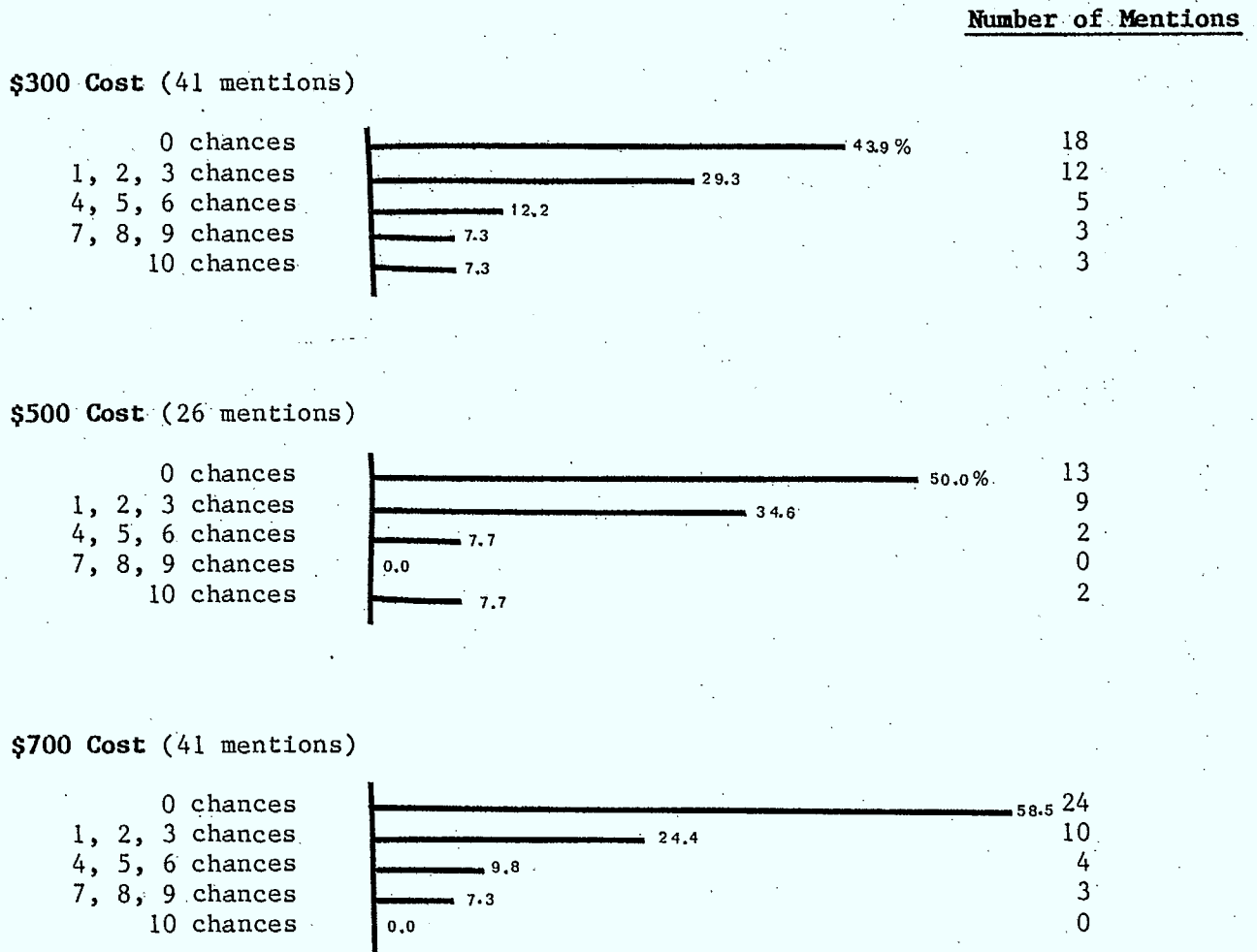
(Number of Mentions)

Reasons for Using the Equipment	Type of Equipment	
	CB	Mobile Radio
Business	3	3
Security	6	2
Fun/Hobby	7	2
Convenience	3	1
Outdoor	1	1

- only 3 respondents said they would definitely buy this equipment for \$300, and only 2 said they would for \$500 (see Figure 27).
- as the cost of the equipment increased, the number of respondents who would definitely not buy the equipment also increased, as would be expected (43.9% at \$300, 50.0% at \$500, and 58.5% at \$700).
- these results were used to develop two types of estimates of the demand curve for this service: a maximum likelihood estimate and a conservative estimate (see Graph 9).
- the difference between these two estimates was obtained by assigning different probability figures to each category on the intention scale, in the computation of the proportion of respondents. The figures utilized were 0, 0.2, 0.5, 0.8 and 1 for the maximum likelihood estimate and 0, 0.1, 0.4, 0.7 and 1 for the conservative estimate.
- in addition, the confidence interval of one standard error (i.e. 68% of the time, the average level of demand will lie within this interval) on either side of the maximum likelihood estimate is presented in Graph 10. This interval reflects sampling error.
- a consistency check was carried out on the respondents' replies regarding the importance they placed on improvements to telephone service (in relation to the other communication services) and their interest in purchasing equipment which would provide them with a combined telephone and mobile radio service superior to what they already have.
- this check was performed using a statistical measure (i.e. Pearson correlation) of the degree of association between these variables.
- one would expect that the higher the importance placed on improvements in telephone service, the more likely the respondent would be to purchase new equipment which would provide improvement.

FIGURE 27

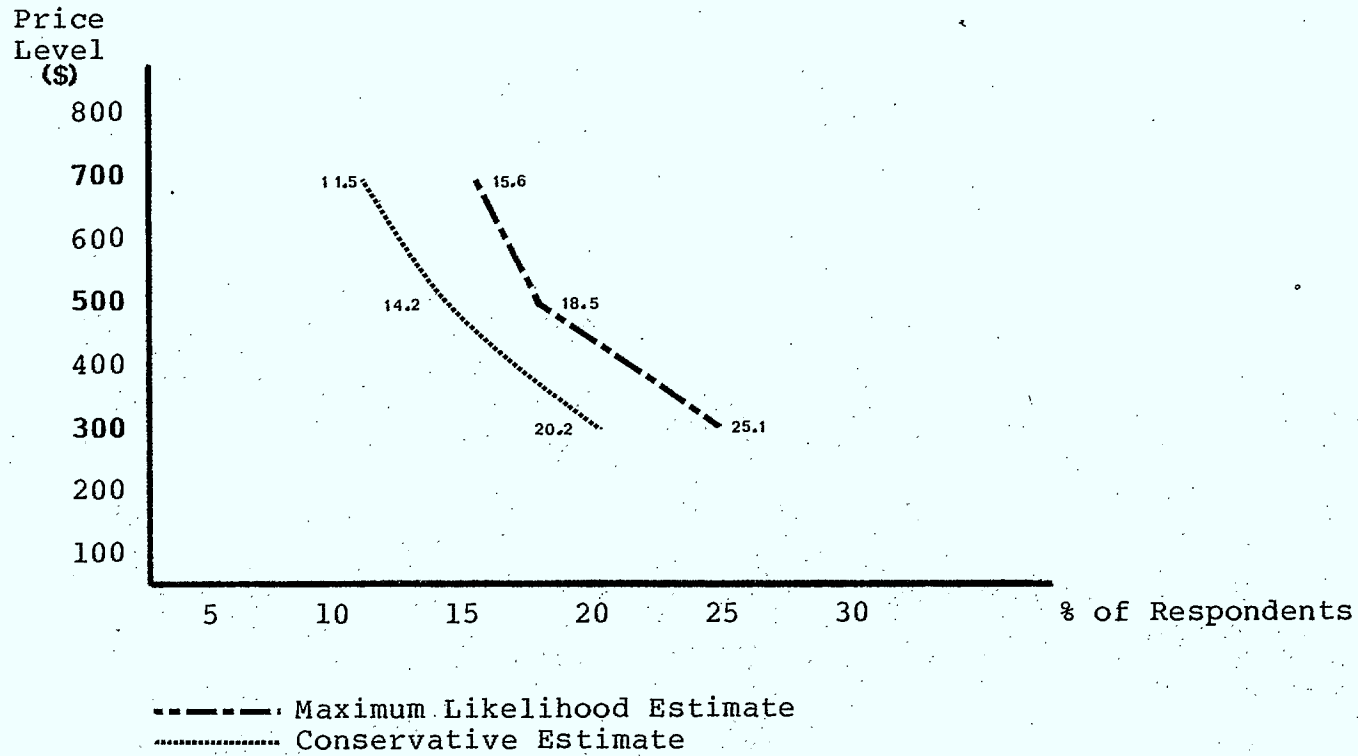
SHORT TERM DEMAND ANALYSIS
TELEPHONE/MOBILE RADIO SCENARIOS (Q.28)
PERCENT OF ALL MENTIONS



COMBINED TELEPHONE - MOBILE RADIO
SERVICE SCENARIOS

GRAPH 9

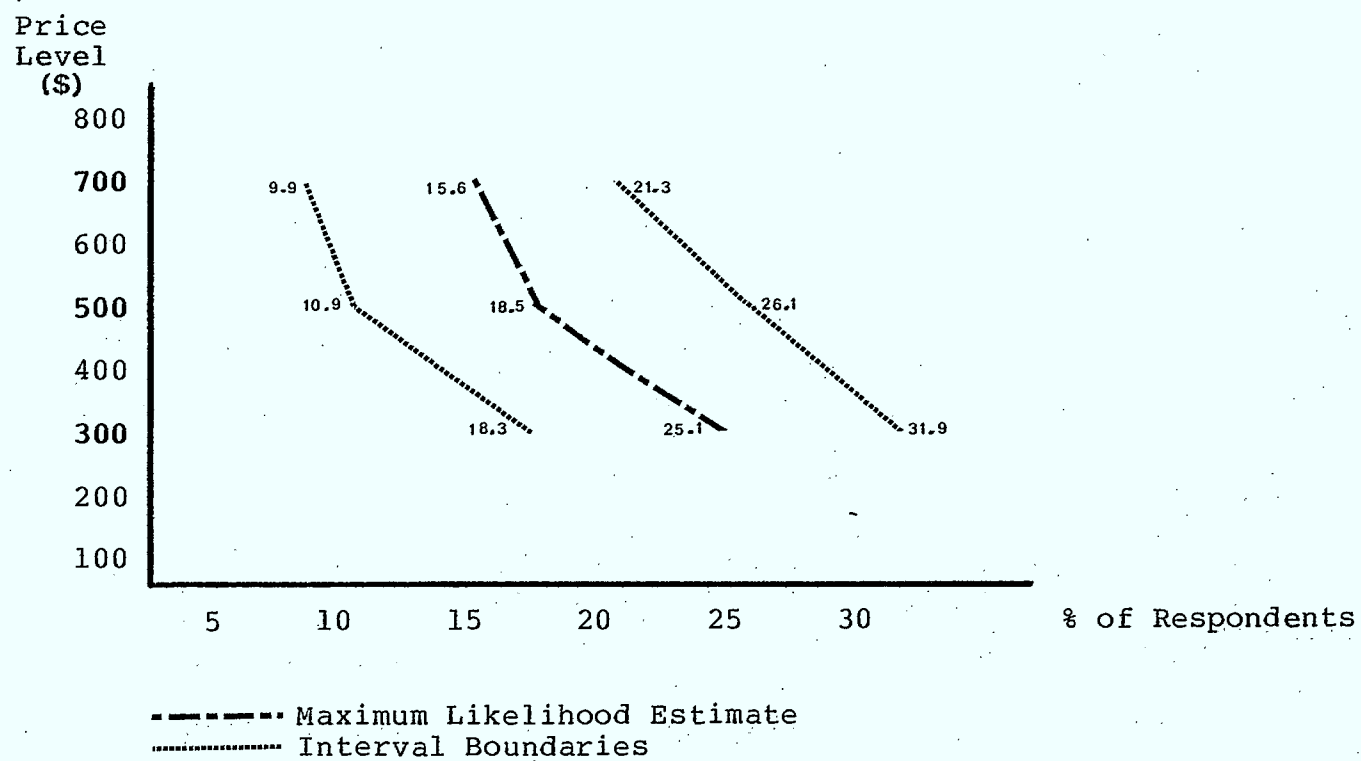
Purchase Intentions/Price Level Relationship



COMBINED TELEPHONE - MOBILE RADIO
SERVICE SCENARIOS

GRAPH 10

Confidence Interval
(one standard error)



- the results (see Table 14) did not support this hypothesis for any price scenario. These results do not necessarily indicate an inconsistent finding, but suggest that there is no correlation between these variables. The reader should again be reminded of possible coding errors, previously discussed, in the improvement question (Q.2).
- an additional consistency check was performed (by means of the same statistical measure) on the degree of association between the respondents' satisfaction with their present telephone service and their likelihood of purchasing equipment in order to access the combined telephone and mobile radio service.
- again, the hypothesis would be that the more dissatisfied they are with their present service, the more likely they would be to want the new service.
- the results (see Table 15) illustrate that in four of the fifteen cases, the correlations are significant (i.e. $\alpha \leq 0.100$) and the coefficients are positive as was expected.
- the situation concerning the respondents' satisfaction with the number of parties presently on their line and the price scenario of \$500 is significant, but the coefficient is negative which is inconsistent with our hypothesis. However, this is consistent with the results reported, for that particular group (which was administered the medium price scenarios), in the telephone and TV sections.
- finally, the motivations which appears more strongly associated with purchase intention of the combined mobile radio - mobile telephone service appear to be business and security (because of the small number of answers, this can only be taken as indicative).

TABLE 14

Degree of Association Between the Need for
Improvement in Telephone Service and Short Term Demand
for a Combined Telephone and Mobile Radio Service

\$300 Equipment	α ¹	.375
	r ²	-.0513
	N ³	41
\$500 Equipment	α	.365
	r	-.0711
	N	26
\$700 Equipment	α	.185
	r	.1454
	N	40

-
- 1 α = Level of significance (0.100 cutoff)
 2 r = Pearson correlation coefficient
 3 N = Number of cases

TABLE 15

Degree of Association Between Satisfaction
with Telephone Service and Short Term Demand
(Combined Telephone/Mobile Radio Scenarios)

		<u>\$300</u> <u>Equipment</u>	<u>\$500</u> <u>Equipment</u>	<u>\$700</u> <u>Equipment</u>
Satisfaction with Number of Parties	α^1 r^2 N^3	.044 .2735 40	.070 -.3040 25	.297 -.0880 39
Satisfaction with Calling Area	α r N	.042 .2769 40	.255 -.1350 26	.132 .1812 40
Satisfaction with Calling Area to Essential Services	α r N	.239 -.1155 40	.185 -.1831 26	.028 .3044 40
Satisfaction with Basic Monthly Charge	α r N	.470 -.0123 40	.022 .3997 26	.175 -.1519 40
Overall Satisfaction	α r N	.261 .1043 40	.411 -.0464 26	.348 .0638 40

-
- 1 α = Level of significance (0.100 cutoff)
 2 r = Pearson correlation coefficient
 3 N = Number of cases

6. GENERAL INFORMATION

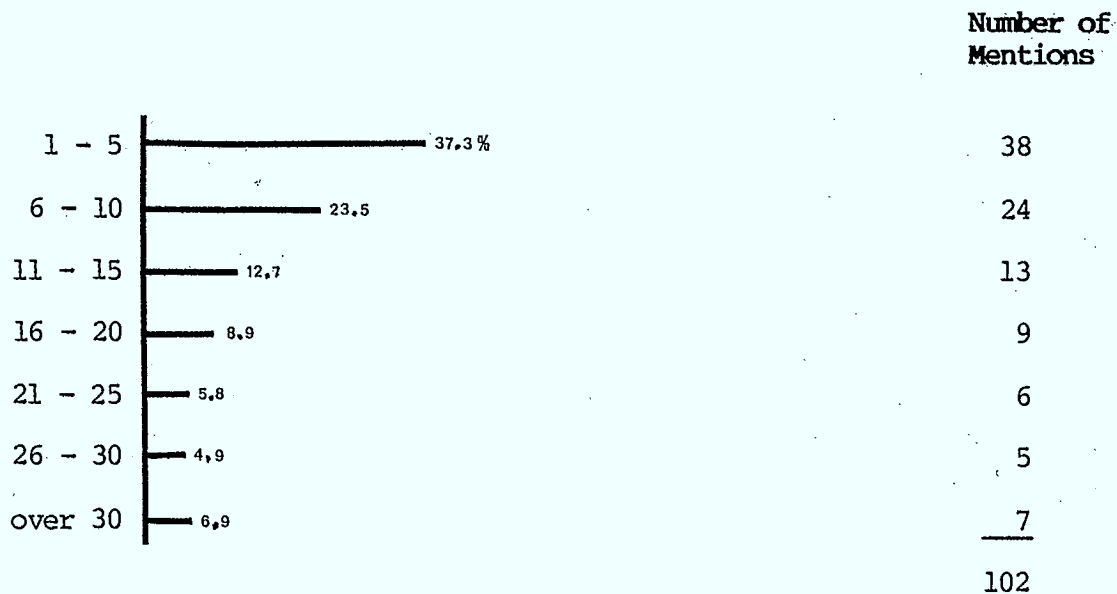
6.1 Household Characteristics

- the majority (60.8%) of the respondents have lived in their present homes between 1 and 10 years (See Figure 28) (Q.29).
- the majority (89.8%) own rather than rent their homes (see Figure 28) (Q.30).
- most (79.6%) respondents are married (Q.38) and 63.9% have from 2 to 4 people in their household (Q.36) (see Figure 29).
- 27.4% of the people in all of the households surveyed were between the ages of 25 and 44 (Q.35) (this was the largest group), and in almost half (47.1%) of the households, the household head is between 25 and 44 (Q.40) years of age (see Figure 30).
- the highest level of education (Q.39) attained by most (57.4%) of the respondents was Secondary School (either some secondary school or completed secondary school) (see Figure 31).
- almost half (48.2%) of the respondents earned between \$12,500 and \$29,999 in total household income (Q.41) (before taxes) during 1979 (see Figure 32).
- not including those unemployed, 49.1% of the respondents are not employed full-time (Q.37) (i.e. 38.0% are homemakers and 11.1% are retired) (see Figure 33).
- the most often mentioned (19.4%) occupation of the respondents is skilled labourer.
- 40.7% of the spouses of the respondents are not employed (Q.38) (see Figure 34).
- for the spouses of the respondents, the most often mentioned (26.7%) occupation is also skilled labour.
- 72.0% of the respondents speak English most often (Q.42) (see Figure 35).

FIGURE 28

YEARS IN PRESENT HOME (Q.29)

PERCENT OF MENTIONS



OWN OR RENT (Q.30)

PERCENT OF RESPONDENTS

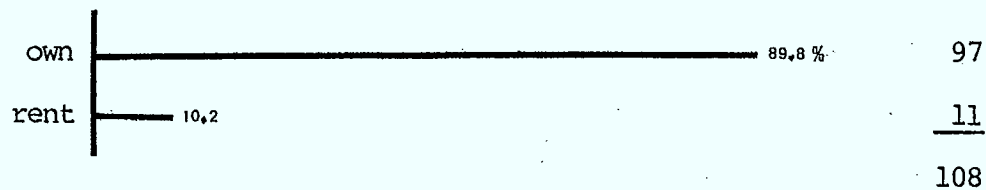
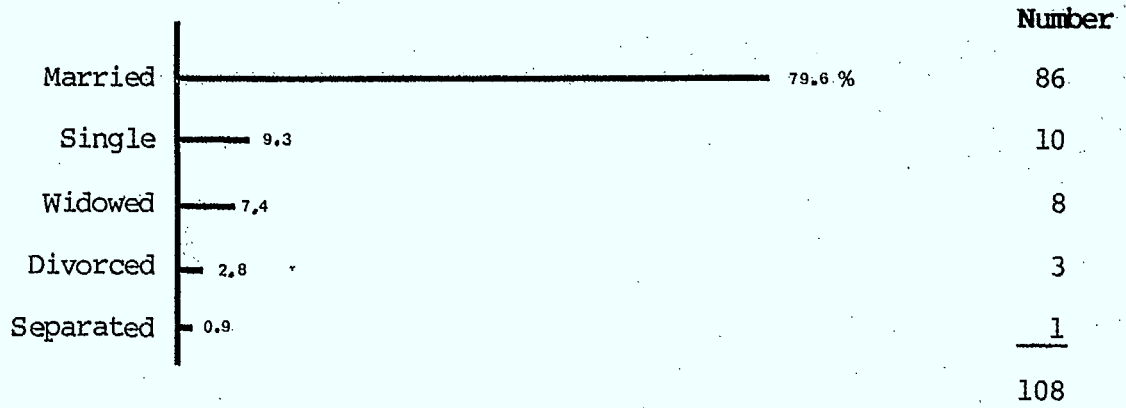


FIGURE 29

MARITAL STATUS (Q.38)

PERCENT OF RESPONDENTS



NUMBER OF PEOPLE IN HOUSEHOLD (Q.36)

PERCENT OF RESPONDENTS

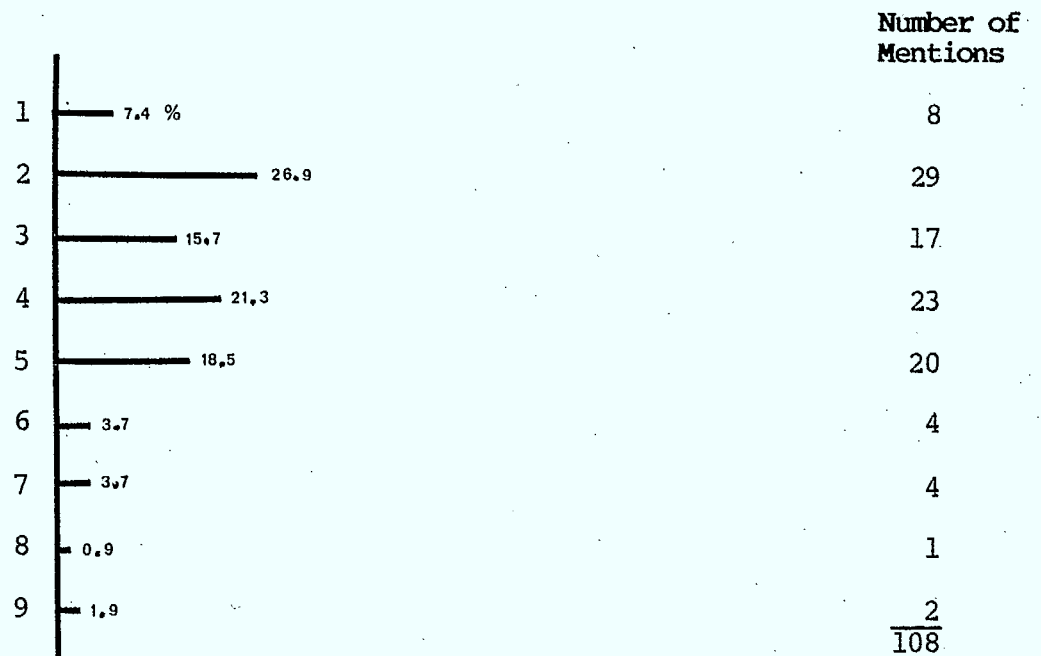
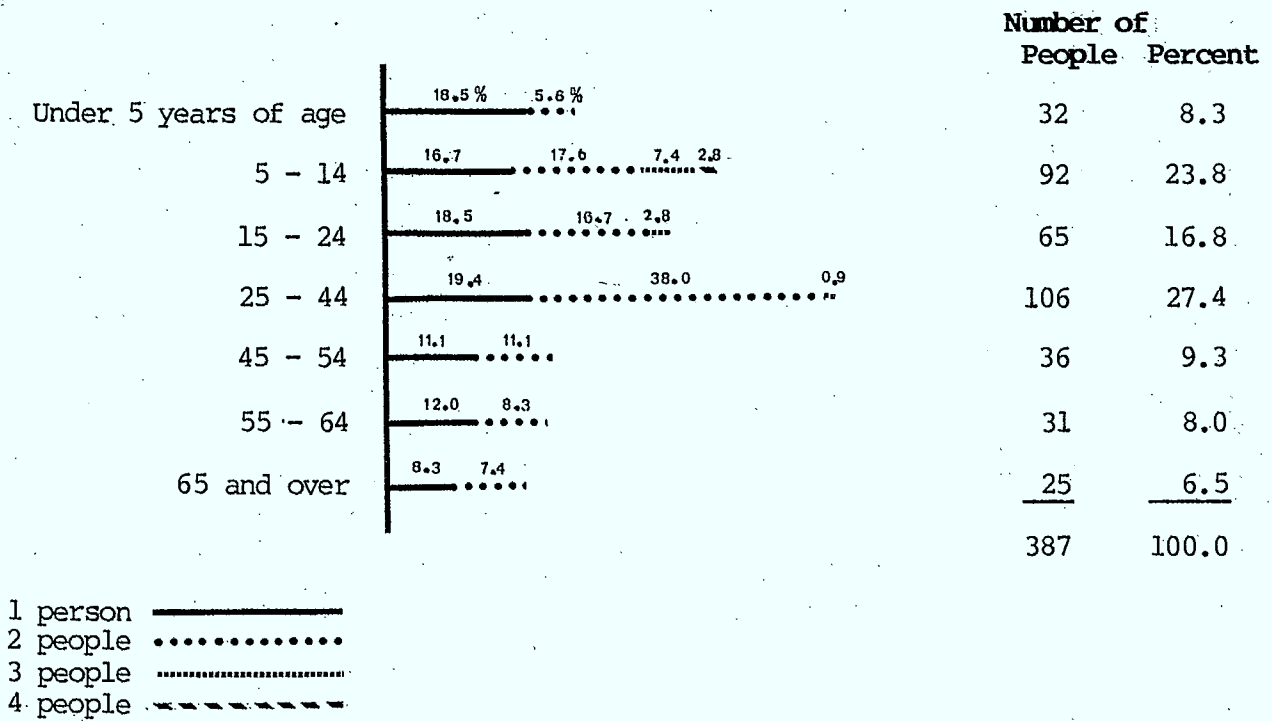


FIGURE 30

HOUSEHOLD AGE GROUPS (Q.35)

PERCENT OF MENTIONS



AGE OF HOUSEHOLD HEAD (Q.40)

PERCENT OF RESPONDENTS

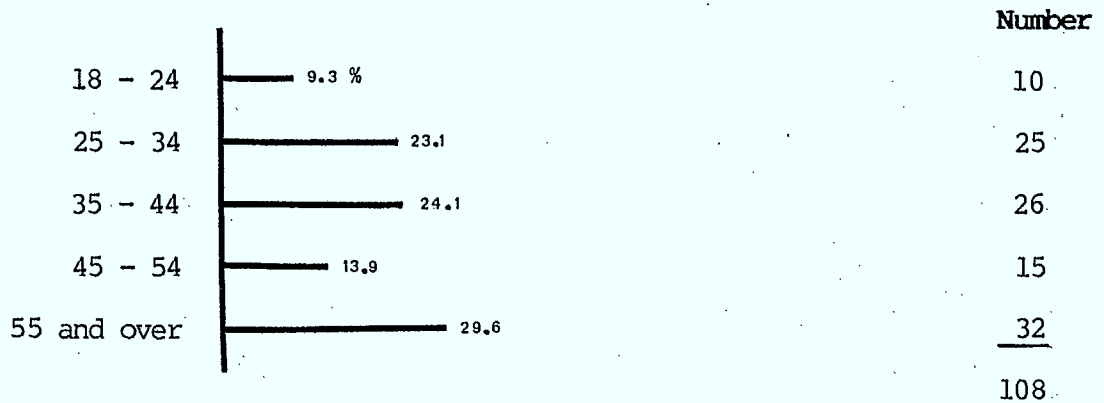


FIGURE 31

SCHOOLING (Q.39)

PERCENT OF RESPONDENTS

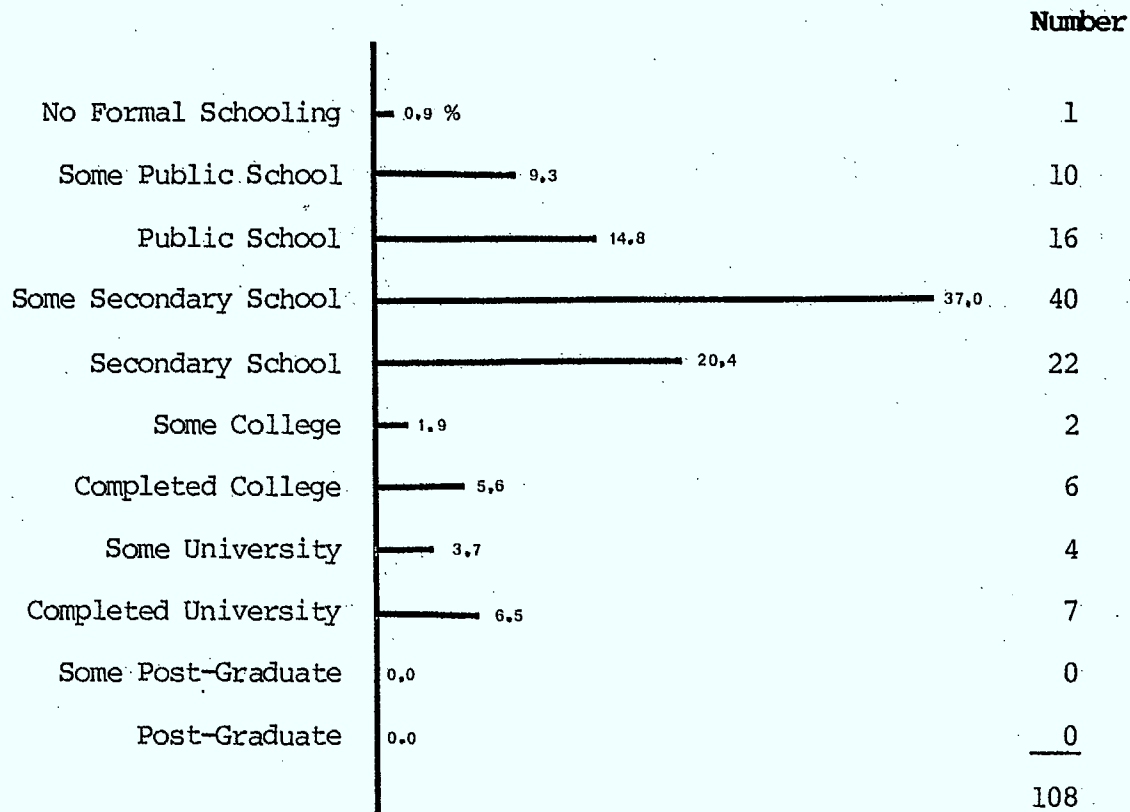


FIGURE 32

HOUSEHOLD INCOME (Q.41)

PERCENT OF RESPONDENTS

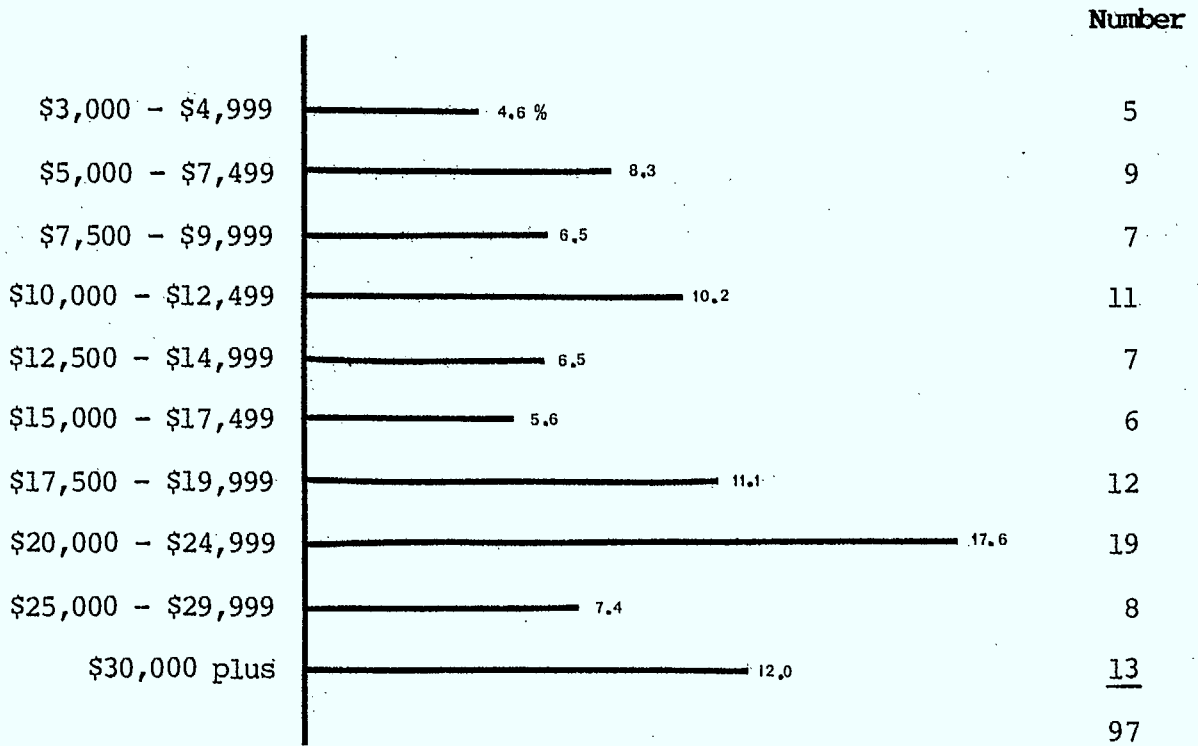


FIGURE 33

OCCUPATION (Q.37)

PERCENT OF RESPONDENTS

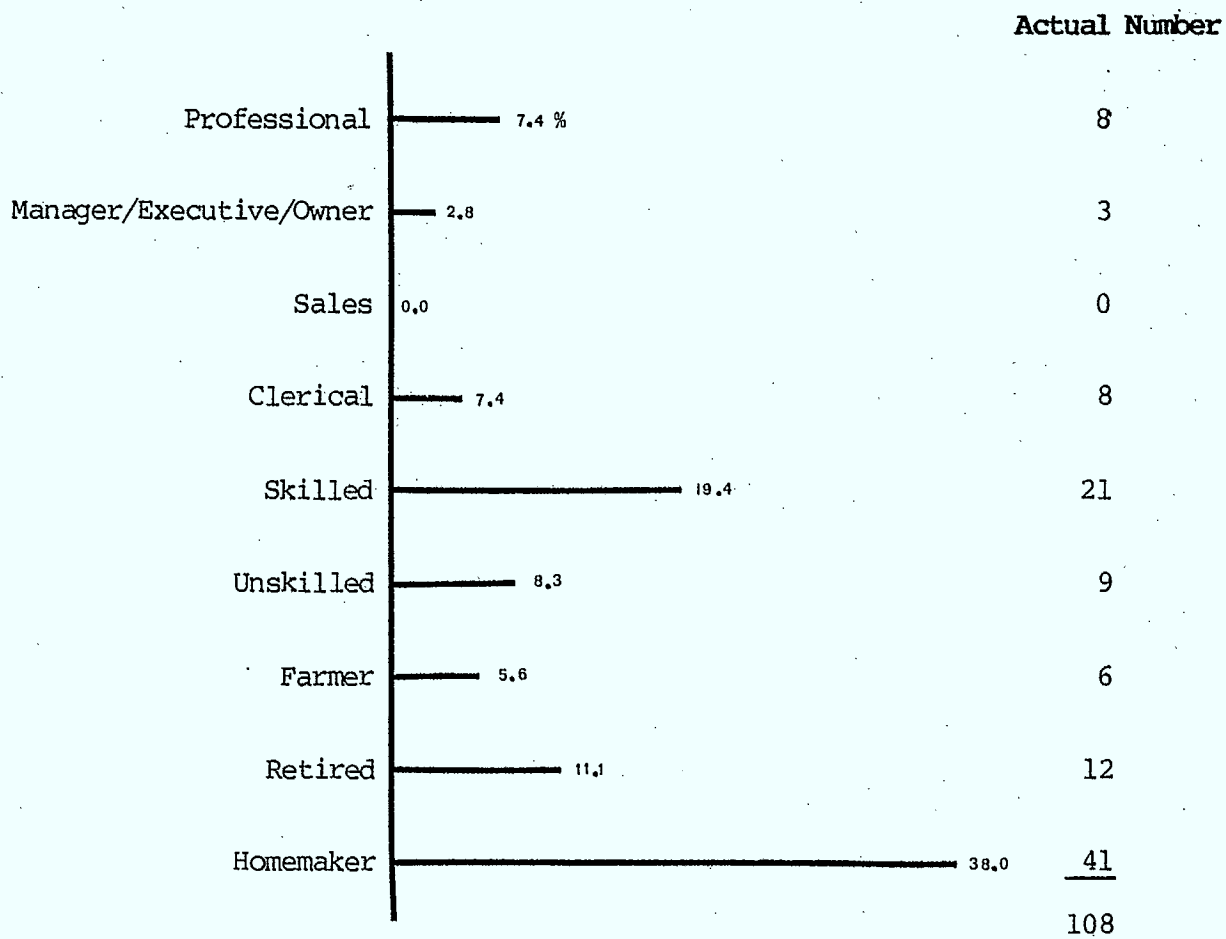


FIGURE 34

OCCUPATION OF SPOUSE (Q.38)

PERCENT OF MENTIONS

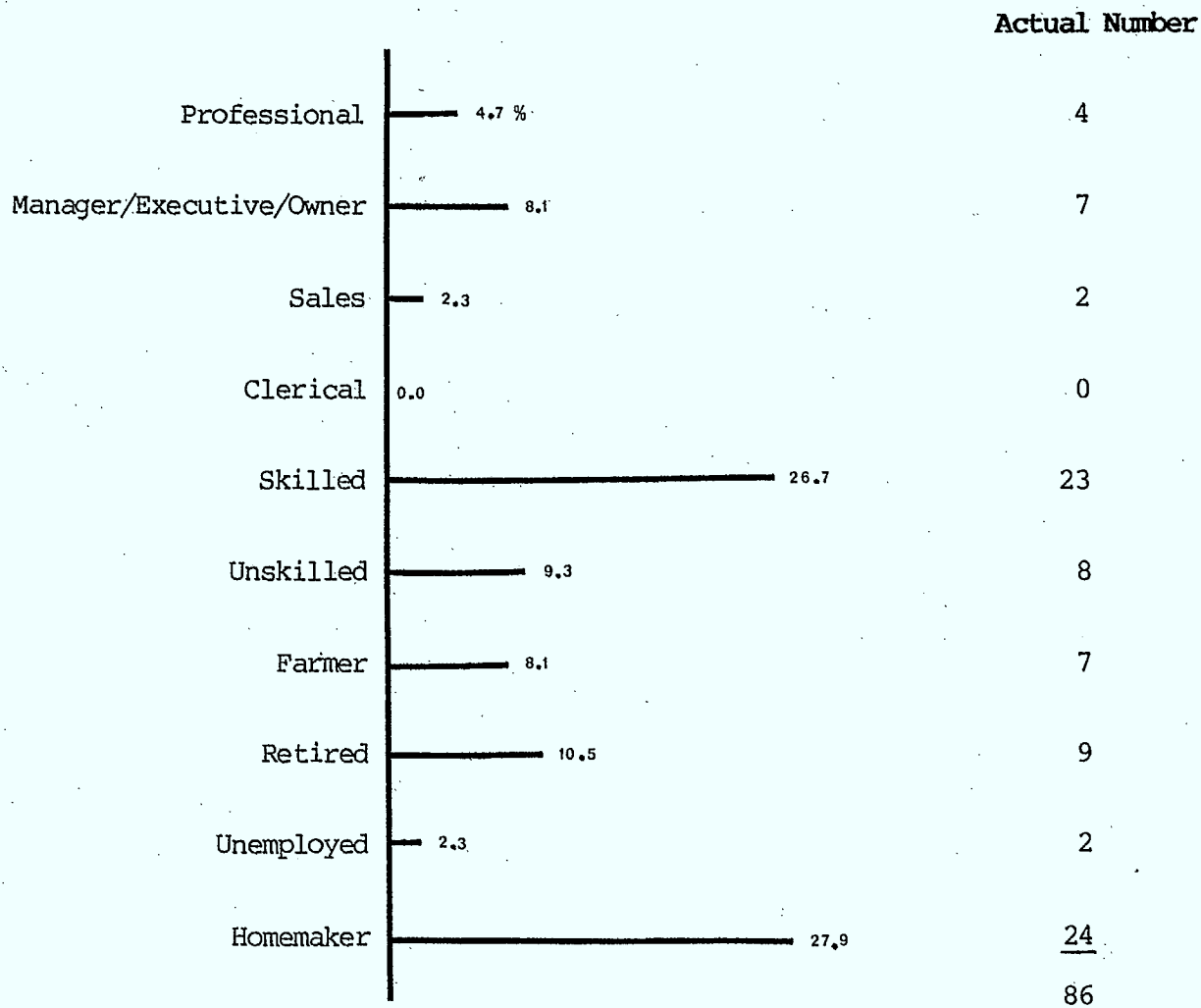
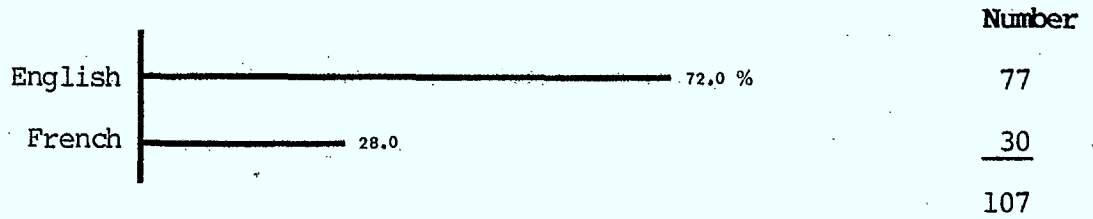


FIGURE 35

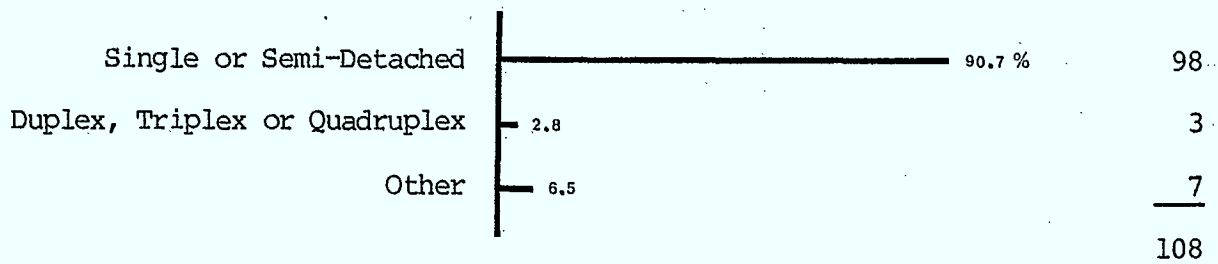
LANGUAGE OF HOUSEHOLD (Q.42)

PERCENT OF MENTIONS



TYPE OF DWELLING

PERCENT OF RESPONDENTS



- 90.7% of the respondents live in a single or semi-detached home (see Figure 35).

6.2 Perceived Lifestyles

- the majority (93.5%) of the respondents consider their home to be located in a rural area (Q.31a) (see Figure 36).
- 86.1% of the respondents classify their "way of life" as rural (Q.31b) (see Figure 36).
- 72.2% of the respondents do consider themselves to be part of a community while 27.8% feel geographically isolated (Q.32) (see Figure 36).
- over half (56.0%) of the respondents say they live in communities of 500 people or less (Q.33) (see Figure 37).
- an additional 28.0% say they live in communities with more than 500 people but less than 2501.
- a final 16.0% say they live in communities with more than 2500 people.
- it should be noted that a community of more than 2500 people is not considered rural according to the definition in this study. It is important to keep in mind that the data reported here refers to the respondent's perception of the size of the community in which the household lives.
- there is enough variation on each of these life style questions to use them as classification variables.

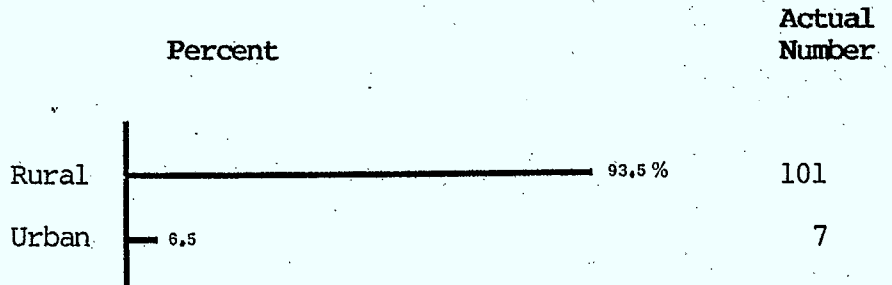
6.3 Extent of Isolation (Q.34)

- most (55.6%) respondents are within 100 yards of their nearest neighbour (see Figure 38).
- half (50.0%) of the respondents must travel 1 - 10 miles to the nearest grocery store.
- the majority (61.1%) of the respondents must travel 1 - 10 miles to the nearest elementary school.

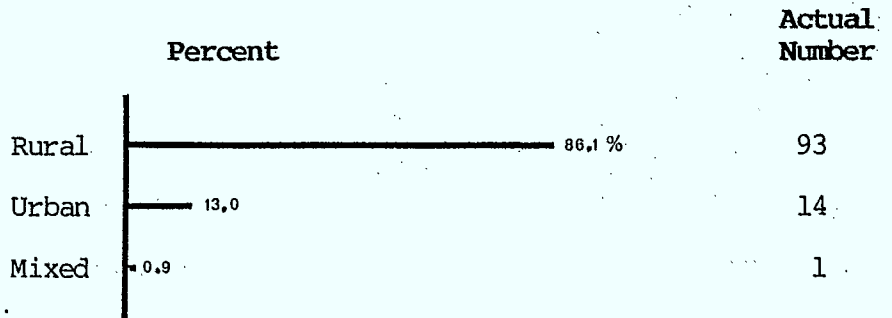
FIGURE 36

PERCEIVED LIFESTYLE
PERCENT OF RESPONDENTS

In terms of location: (Q.31a)



In terms of way of life: (Q.31b)



Extent of isolation: (Q.32)

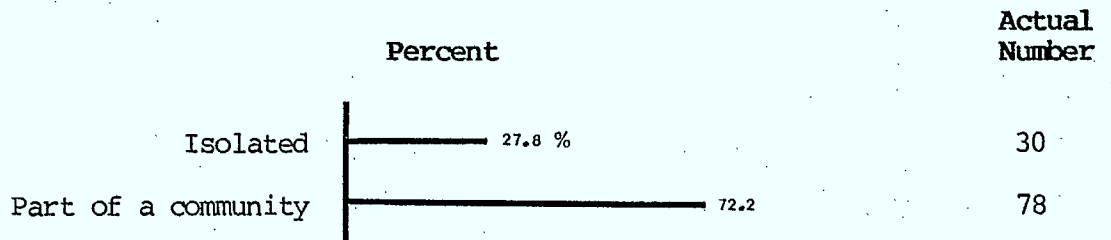


FIGURE 37

NUMBER OF PEOPLE IN THE COMMUNITY (Q.33)
 PERCENT OF ALL MENTIONS

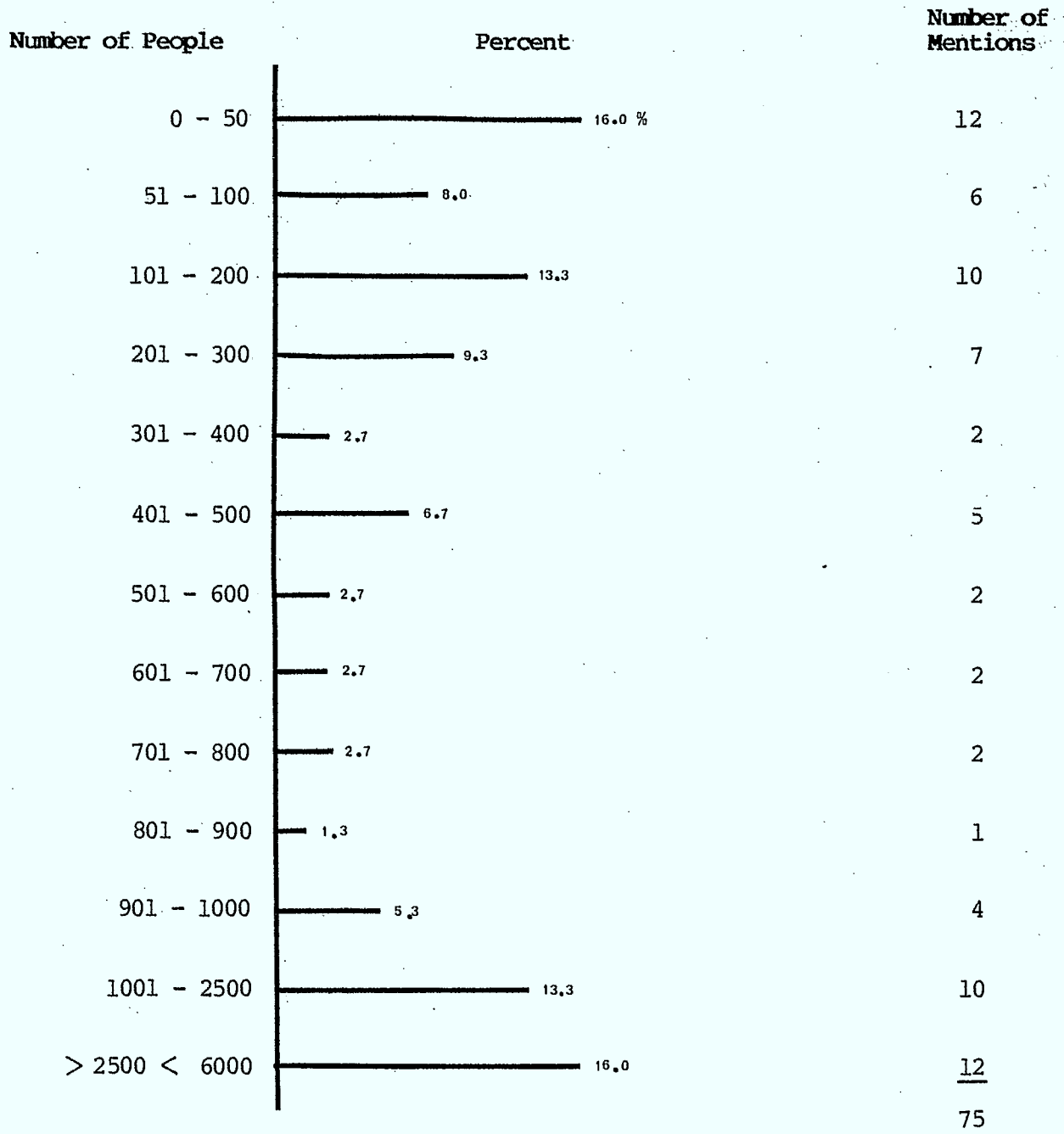
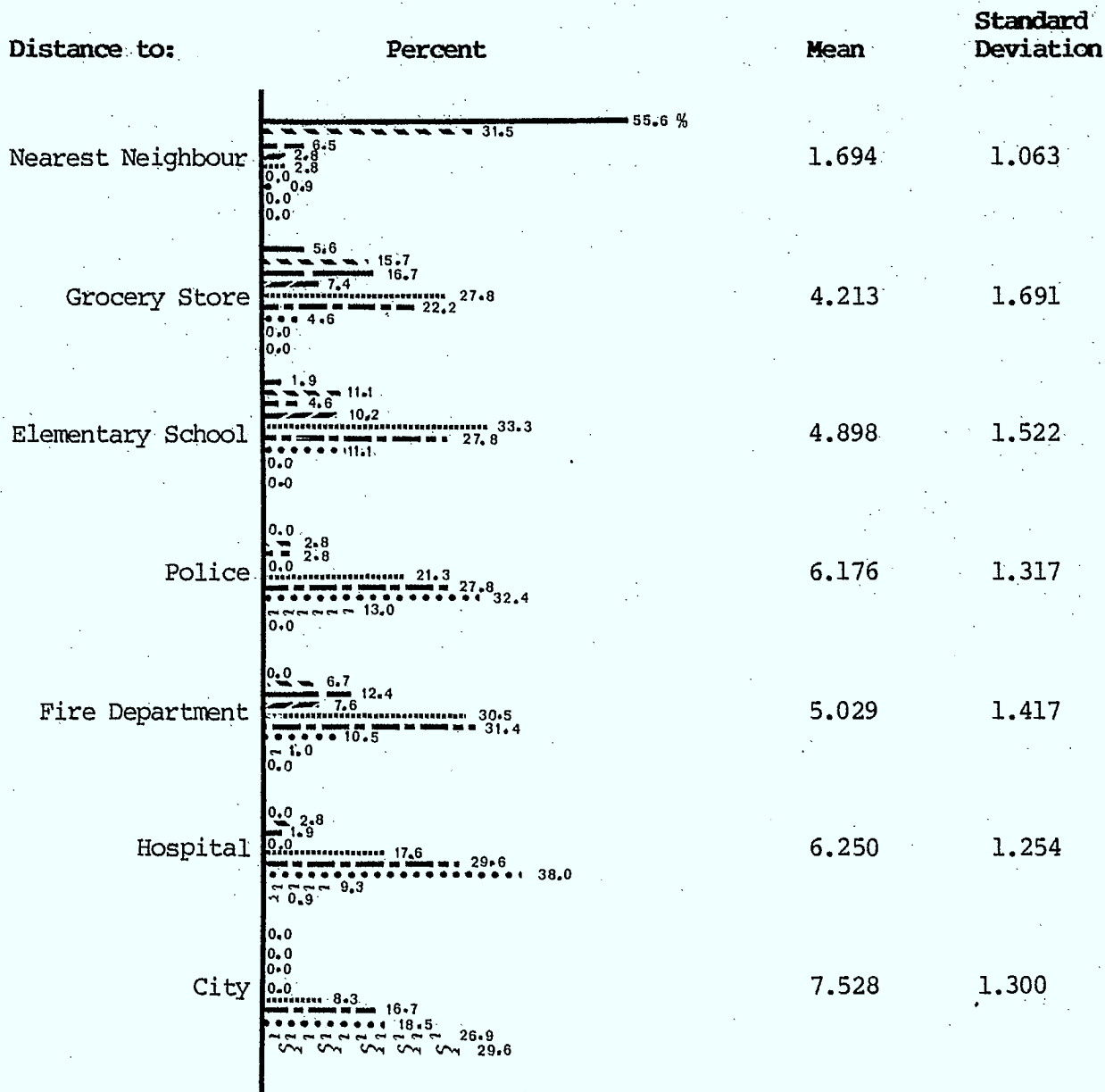


FIGURE 38

EXTENT OF ISOLATION (Q.34)
PERCENT OF RESPONDENTS



— Under 100 yards — 1/2 mile, < 1 mile 10 miles, < 30 miles
 - - - > 100 yards, < 1/4 mile 1 mile, < 5 miles - - - 30 miles, < 60 miles
 - - - 1/4 mile, < 1/2 mile - - - 5 miles, < 10 miles ~ ~ ~ 60 miles or more

- 60.2% of the respondents live 5 - 30 miles from the nearest police station.
- the nearest fire department is 1 - 10 miles from most (61.9%) respondents.
- 67.6% of the respondents are 5 - 30 miles away from the closest hospital.
- over half (56.5%) of the respondents must travel 30 miles or more to reach the nearest city.
- the overall dispersion of the data appears satisfactory to derive an index of isolation. Correlations between "perceived isolation" and "perceived distances to essential services" were reported in section 3.4.2. This suggests that the services could be weighted differentially in the computation of an index of "geographic isolation" in order to account for services which may have a higher priority or urgency.

7. LONG TERM DEMAND FORECASTS

7.1 Forecast Model Building

In order to produce forecasts, there are a number of steps which are typically followed (see Figure 39):

Step 1: Choose a well-tested forecasting model which suits the subject of interest.

Step 2: Input available historical data and parameter estimates to the model.

Step 3: Derive the necessary parameter estimates from the model.

Step 4: Test the resultant model for accuracy of fit (i.e. through statistical and subjective analyses). If not satisfied, return to Step 2, and alter one or more of the parameter estimates.

Step 5: Generate forecasts.

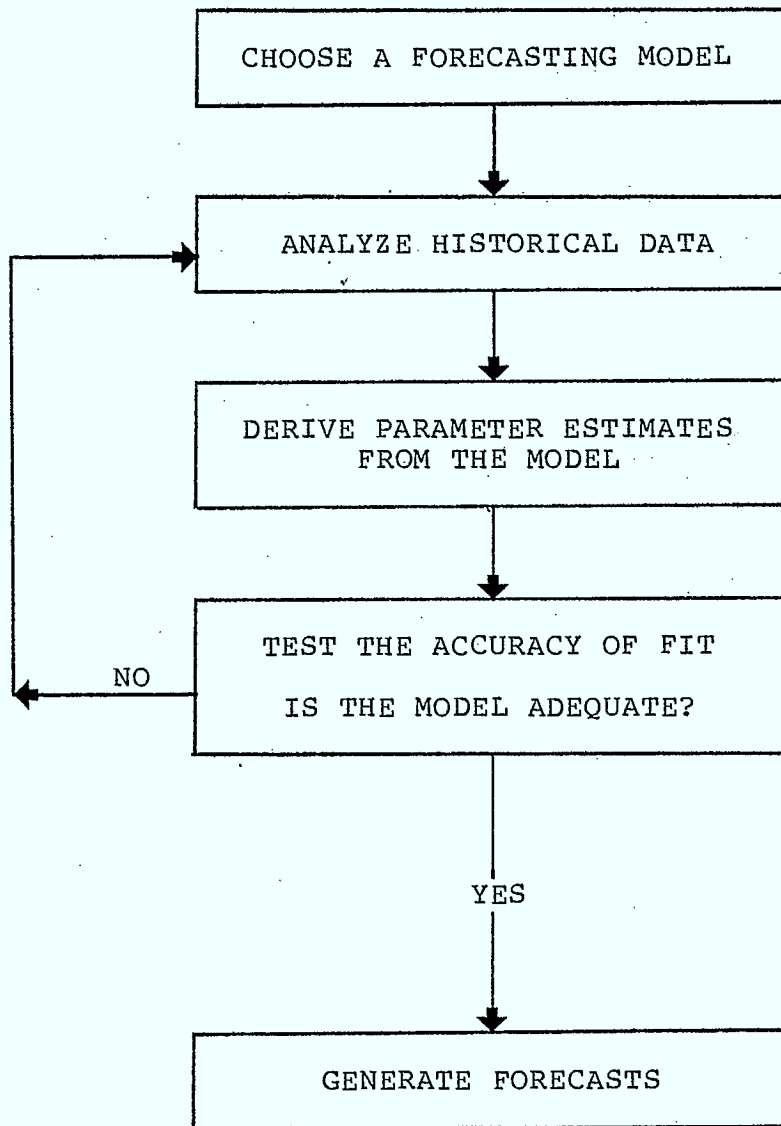
These steps will be undertaken in this study in order to produce long-term demand forecasts for improved communication services in rural Canada.

7.1.1 The Steps

Step 1: Choosing a Model

The model chosen for the long term demand forecast for this study is that typically adopted when modelling the adoption and diffusion of

FIGURE 39
FORECAST MODEL BUILDING



innovations. Lawton and Lawton's model¹ describes the entire life cycle of an innovation in communication services, including the number of individuals adopting the innovation in a given year, the number of years required for the adoption to peak, and the number of years required for all potential adopters to make their decision to adopt.

In order to use this model, it is necessary to only define three parameters:

- 1) a measure of contagion (P),
- 2) the number of potential adopters (N), and
- 3) the number of adoptions in the first time interval (S₁)

The model may then be used in two different fashions. First, it may be used to analyze historical data and generate a "best fit" curve by means of a non-linear regression algorithm. The estimated curve may then be extrapolated beyond the range of the data to provide forecasts of future sales. Secondly, if no

1. This model was earlier presented in greater detail, see: Demand for Rural Communication Services in Canada - Focus Groups and Research Instruments." Final Report, Phase I, DOC, (May 1979).

historical data is available, the model may be used to generate forecasts according to the specified years and initial parameters which must be estimated in some fashion (e.g. using similar historical data, expert evaluations or opinion surveys).

Step 2: Analyzing Historical Data

In this study we are attempting to forecast demand for new or improved communication services in rural Canada (i.e. with respect to the five scenarios included in the survey instrument). As there is no historical data available for these services, we must turn to secondary data sources in order to work towards estimates of the model's three parameters. It was decided to proceed in the manner described below.

First, in order to derive an estimate of the contagion factor (P), we chose to examine historical data for rural cable companies, under the assumption that the demand for this service would be similar to the demand for other communication services.

Secondly, an estimate of the number of **first year adopters (S1)** will be an output of the short term demand forecast obtained from our field survey. Each of the five scenarios will generate short term demand curves which will be a function of the three different price levels.

Finally, the estimate of the number of **potential adopters (N)** will be a percentage of the total number of rural households in Canada¹. A "penetration" percentage will be used as not every household given the opportunity of subscribing to these services will do so. The percentage used will be derived from two different estimates:

1. the percentage of the number of actual subscribers to the potential number for those rural cable companies which appear to be at maturity.
2. the percentage of rural residents in the survey who presently have a television, a phone or both.

1 The total number of rural households in Canada (according to the definition used in this study) is 1,476,154. This information was provided by Steve Brown of DOC and was derived from Statistics Canada 1976 Census data.

Step 3: Parameter Estimates

As described in Step 2: Analyzing Historical Data, it is not necessary to derive estimates of the number of first year adopters and potential adopters from the model. These estimates may be taken from other sources.

However, it is necessary to derive the contagion factor from the model. In order to model the historical data for cable companies, the contagion factor (P) will initially be input as 0.5, which is the value suggested by Lawton and Lawton to be most often correct, and actually has little impact on the forecast when it is allowed to vary somewhat. The number of first year adopters (S1) and the number of potential adopters (N) will be taken from the survey data.

When using this particular forecasting model, the initial parameter estimates are entered along with the historical data. If the parameters are not fixed at the input values, the model then generates a new set of parameters and historical data. These results may then be analyzed for accuracy and a decision made as to whether or not to use the new estimates. This step may be reiterated as many times as

necessary.

Step 4: Accuracy Tests

In order to judge the accuracy of the model's results, we will examine the standard errors for each parameter and the overall model, the percent deviation from the actual sales (in units), and a graphical comparison of the actual and estimated curves. Steps 2, 3 and 4 will be reiterated until a satisfactory estimate of the contagion factor (P) is derived.

Step 5: Forecasting

When estimates of the three parameters are derived from the various sources, the model will then be used to forecast long term demand for the five potential rural communication services. At that time, no historical data will be used; the forecasts will be generated according to the parameters and the specified years.

7.1.2 Model Testing

At this point in time, the model has been tested with two different types of data to ensure that it is working and to obtain an initial understanding of how it reacts to different data.

First, the model was tested with historical data on the number of systems sold in the Retail Information Systems (RIS) market. As RIS is a relatively new technology for retailers it was felt that this would be an appropriate test for the model. In addition, the data for this particular market represents a relatively smooth adoption curve which appears to be just reaching maturity. As a result, one would expect the model to perform well with this type of data. This proved to be the case when the model was tested.

Various runs were performed where the three input parameters (P, N, S1) were either fixed at a given value or allowed to be estimated by the model in different combinations¹. The most accurate results (i.e. the lowest standard errors for each parameter and the overall model as well as the lowest percent deviation between the cumulative actual and estimated sales) were found when none of the parameters were fixed at a given value (see Table 16)

¹ P: was initially input as 0.5, which is the value suggested by Lawton and Lawton to be most often correct.
N: derived from an earlier study conducted by DRC
S1: actual first year sales
NO: initially zero, as we cannot estimate this from the data we have.

TABLE 16

TEST RESULTS OF THE MODEL

	RIS Market	Cable Company 1	Companies Company 2
Standard Errors			
P (contagion factor)	0.10	fixed ¹	fixed ¹
S1 (first year sales)	0.43	23.43	12.41
N (potential sales)	40.97	23.90	21.03
Overall	2.88	32.02	17.89
Cumulative Sales			
Actual	71.00 ²	550.00 ³	252.00 ³
Estimated	71.59	547.36	234.60
% Deviation	0.8%	-0.5%	-7.4%
Seed (No)			
Actual	0.0	0.0	0.0
Estimated	2.88	258.31	1006.0
Contagion Factor (P)			
Actual	0.5	1.0	0.5
Estimated	0.41	fixed ¹	fixed ¹
First Year Sales (S1)			
Actual	6.00	165.00	92.00
Estimated	1.43	196.86	88.81
Potential Sales (N)			
Actual	150.00	1,050.00	745.00
Estimated	121.86	559.11	260.99

¹ Where indicated, the contagion factor (P) was fixed at the input value. That is, the program did not estimate the contagion factor but accepted and used the input value.

² Number of systems sold up to and including the last year of data.

³ Cumulative number of subscribers up to and including the last year of data.

In this particular test, the estimated cumulative sales were 0.8% above the actual cumulative sales, and the standard errors for the parameters and the overall model were relatively small.

Secondly, the model was tested with historical data (on the actual and potential number of subscribers) for two rural cable companies in order to observe how the model would perform with the type of data we may expect to be using. The Statistical Information Services Division of DOC provided us with data for twelve small companies. However, for six of these companies, the data did not go back to the first year of service, and for three other companies the actual number of subscribers was the same as the potential number, rendering the data inappropriate for the model. The three remaining companies were then used to test the model. The data for one of these companies resulted in a negative value for the "seed"¹ in the model and the program terminated.

¹ This may have occurred because the number of subscribers in the first year was very high while in succeeding years, the number was very low, leading to a possible interpretation that the initial adopters discouraged potential adopters from subscribing. However, in view of the size of the potential market the data actually suggests that the market reached maturity in the first year.

For the remaining two companies which were used, the best results were found when P (the measure of contagion) was fixed at a given value¹. In one case the cumulative estimated sales were 0.5% below the actual cumulative sales, but the standard errors were relatively high (see Table 16). In the second case the cumulative estimated sales were 7.4% below the actual cumulative sales and the standard errors were also relatively high (see Table 16).

These results indicate that the model is working as the results are interpretable and appear to fit the actual data, although the extent of fit does vary with different sets of data. It is apparent from these results that the data input to the model does affect the accuracy of the output. The data for the three cable companies used as examples fluctuates from year to year and although the data may be accurate, it is difficult to model data of this nature. The quality of the available data is discussed further in subsection 4 of this section.

-
- 1 P: initially input as 0.5 as suggested by Lawton and Lawton. However, if one of the test runs indicated another value for P would be more accurate, then this would be used.
- N: potential subscribers taken from the information provided by DOC.
- S1: first year sales taken from the information provided by DOC.
- N0: initially zero as this cannot be estimated from the data we have.

7.1.3 Data Availability

In order to thoroughly test Lawton and Lawton's model and to obtain accurate estimates of the parameters to be used in the long term forecast, it will be necessary to obtain data for as many rural cable companies as is possible. To this end, various potential sources were investigated and the results of this research are outlined below:

a) Canadian Cable Television Association (CCTA)

All data maintained by the CCTA is confidential to its members.

b) Matthews' CATV (Publication of Matthews and Partners Ltd)

This publication, prepared three times a year, contains all the necessary information, but has only been prepared in its present format since 1978.

c) Statistics Canada

Since 1966, Statistics Canada has surveyed all Canadian cable companies once a year and all the data required for our study is contained in this survey. This information is made available to the CRTC and DOC, but has only been computerized since 1972. Although there are problems

associated with providing this information to a private organization, Statistics Canada has agreed to provide the data with no company names specified.

d) CRTC

The CRTC could not provide us with any information unless a formal request was received from the Assistant Deputy Minister of DOC. However, Vince Lee-Chong, the Director of Cable, Radio and TV Operations, did provide us with his experienced opinion of the average rate of adoption¹ each year for any new cable company. This information may be useful as an additional check on the quality of data for cable companies and when examining the results of the forecasting model.

¹ In Mr. Lee-Chong's opinion the average rate of adoption is as follows:

35% of those households with access to cable, will adopt in the first year
50% will have adopted after the second year
60% will have adopted after the third year
65% will have adopted after the fourth year
70% will have adopted after the fifth year

e) Rural Cable Companies

Through the information contained in Matthews' CATV, various small cable company names and telephone numbers were acquired. These companies were then contacted directly in an attempt to obtain data. It would appear from the results of this survey that either these companies do not maintain historical data, or they are very reluctant to release it. The ten companies contacted and their respective responses are as follows:

- i) Central Interior Cablevision (British Columbia)
- no information available.
- ii) Kaslo TV (British Columbia)
- no records of the number of subscribers each year.
- iii) North Hatley Transvision Inc. (Quebec)
- could not provide any accurate data
- iv) Hastings Cablevision Ltd. (Ontario)
- refused to check records
- v) Ex-Cen Cablevision (Ontario)
- part of one large company which does not serve only a rural area
- vi) Cardiff Cable Ltd. (Ontario)
- no historical information on the

- number of subscribers each year
- vii) Cottagers' Security & Services Ltd (Ontario)
 - no historical information on the number of subscribers each year
 - viii) Television Hornepayne Ltd (Ontario)
 - maintains historical information but only after 1973 as the company had a previous owner
 - ix) Ferdinand Boulet (Ontario)
 - also owns Television Hornepayne Ltd.
 - maintains historical information but only back to 1977 when he purchased the company.
 - x) Ray McLeod Sisson (Ontario)
 - no historical data on the number of subscribers each year

From the results of the secondary data search, it is evident that the only feasible source for the data required is the survey conducted by Statistics Canada. Once this data is received, the model will be thoroughly developed, and estimates of the model's parameters may be derived for use in the long term forecasts.

7.1.4 Potential Difficulties

During the search for data on rural cable companies, four potential problems were identified which suggest that the data available may not be accurate or, if it is accurate, it may not be suitable for the model chosen.

i) Suspect Company Data

The data provided to Statistics Canada by the cable companies may not be accurate considering the fact that many of these companies do not maintain complete records. This thought is supported by the observation that three of the twelve companies (for which we have received data) indicated that the actual number of subscribers was the same as the potential number in some years. Although this is possible depending on the number of households in the area each year, it does leave room for some concern. This potential problem could not be investigated further as we do not have the names of the companies concerned.

ii) Supply-led Industry

The number of new subscriptions to cable in any year may be a function of the supply rather than the demand. That is, the number of adopters may

reflect the amount of cable which the company can afford to install rather than the number of people who wish to subscribe. As the model chosen is based on demand for an innovation, the results may be somewhat distorted if this is, in fact, the case.

iii) Early Market Maturity

In four of the six sets of sample data provided to us, the actual number of subscribers in the first year was in the same order of magnitude as the market potential. Although this is possible if one assumes that potential customers are awaiting an opportunity to subscribe to cable, it results in the model generating an adoption curve which is one of exponential decay. This indicates that the market reaches maturity in the first year.

iv) Multiple Life Cycles

The model assumes that there is only one product life cycle or that the user should indicate if there is more than one. In the case of cablevision, the addition of new stations alters the adoption trend and, in effect, initiates a new life cycle. However, it will be impossible to identify the cases where this has occurred,

so the results of the model may be distorted for some companies.

In view of these four potential problems, it may be necessary to be selective of the data to pretest the model. It may also be advisable to amalgamate the data for a number of companies which started in the same year and are located in the same region, in order to smooth out fluctuations in the data.

7.1.5 Conclusions

- the parameter estimates for the forecasting model will be derived in the following manner:

- a) the contagion factor (P) will be derived from analyses of historical data on cable companies.
- b) the number of first year adopters (S1) will be generated from the short term demand curves for each of the five scenarios.
- c) the number of potential adopters (N) will be a percentage of the total number of rural households in Canada.

- at the present time, the model has been tested with two types of data. The results are interpretable and fit the actual data.

- historical data on additional cable companies is necessary and is only available through Statistics Canada.
- during the search for data on rural cable companies, four potential problems were identified. These problems violate, to some degree, some of the assumptions behind the forecasting model. Therefore, the data must be used with care and these shortcomings should be considered when analyzing the results of the model.

8. CONCLUSIONS AND RECOMMENDATIONS

The objective of the present analysis was to assess the appropriateness of the measurement strategy developed for the study of the residential demand for communication services in rural Canada. The results of a pilot survey were analyzed to verify that the questionnaire, the administration procedures, the codification instructions and analytical constraints yield data compatible with the input requirements of the various need and demand forecasting models.

As a result of the series of analyses reported above it appears that the measurement strategy is, overall, appropriate; however, several adaptations or modifications are required. More precisely, problems have been identified with respect to the following aspects of the measurement strategy:

- some price levels of the scenarios
- some attribute levels in the conjoint task
- the scaling of several questions, including the constant sum scale and the scenarios scales
- the rotational pattern for several questions
- the composition of different versions for each of the English and French questionnaires
- either the substance or the formulation of several questions
- coding instructions.

It is recommended:

- that a meeting be held between a DRC representative and the person in charge of codification at Canadian Facts, to iron out codification problems,
- that the framework presented in table 17 for the composition of nine versions of the questionnaire be implemented. The rotational pattern for each relevant question is indicated in table 18,
- that the questionnaire items listed below be changed as indicated:

TABLE 17

FRAMEWORK FOR THE COMPOSITION OF
QUESTIONNAIRE VERSIONS
RESIDENTIAL SURVEY

Questionnaire Version #	Q 2	Q 6	Q 13	Q 17	Q 21	Q 22	Q 23	Q 28
1	A	A	A	A	A	A	A	A
2	A	A	A	A	B	B	C	B
3	A	A	A	A	C	C	B	C
4	B	B	B	B	A	B	B	A
5	B	B	B	B	B	C	A	B
6	B	B	B	B	C	A	C	C
7	C	C	C	C	A	C	C	A
8	C	C	C	C	B	A	B	B
9	C	C	C	C	C	B	A	C

NOTE: The definition of the various versions for each question are given in table 18.

TABLE 18

DEFINITION OF THE VERSION
FOR EACH QUESTION
RESIDENTIAL SURVEY

Constant Sum Scale Q 2	Telephone Satisfaction Scale Q 6	Telephone Scenario Q 13	TV Satisfaction Scale Q 17	TV Scenario (cable) Q 21	TV Scenario (satellite) Q 22	Telephone/TV Scenario Q 23	Mobile/Telephone Scenario Q 28
A Telephone CB Radio TV	a b c d e f g h i j k l m n	Low Price (\$10)	a b c d e f g h i j	Low Price (\$6)	Low Price (\$400)	Low Price (\$15)	Low Price (\$300)
B TV Radio CB Telephone	g h i j k l m a b c d e f n	Medium Price (\$18)	e f g h i a b c d j	Medium Price (\$12)	Medium Price (\$600)	Medium Price (\$25)	Medium Price (\$500)
C Radio TV Telephone CB	m l k j i h g f e d c b a n	High Price (\$25)	i h g f e d c b a j	High Price (\$20)	High Price (\$800)	High Price (\$35)	High Price (\$700)

Question 1 (page 1)

The only change involves a reordering of the services as follows:

Electricity, Hydro Services
Health/Medical Services
CB, Mobile radio Services
Recreation and Sports Facilities
Mail Services
Telephone Services
Roads and Public Transportation
Education Services
Television Services
Security Services (police, fire)
Newspaper Services
Radio Broadcasting Services

Question 2 (page 2)

- The scale has been changed to a 10 points constant sum scale
- The instructions must be modified accordingly
- Three versions (rotation of order of presentation of services) are required, as indicated in the first column of table 18

Question 3 (page 3)

- Add the following instruction after 3.b:
IF "ONE" to 3.a) and "YES" to 3.b) GO TO Q.14.a)

Question 5.b) (page 3)

- Remove "ETC." in the instructions

Question 6 (page 4)

- Replace item h (quality of reception?) by 'Overall clarity of communication'
- Three versions (rotating the order of presentation) of that question are required, as indicated in the second column of table 18
- Make sure that 'Don't know' and 'Not applicable' are coded separately

Question 7.a) (page 5)

- combine 7.a) and 7.b) as follows:

"What type of residential service do you pay for? Is it
a ... (READ LIST)

Private line _____ GO TO Q. 8.a
Two party line
Four party line
more than four party line

Question 7.b) (page 5)

- remove

Question 7.c)

- becomes 7.b)

Question 12

- change the price levels on questionnaire and on cards as follows:
 - \$6 remains \$6
 - \$12 changed to \$10
 - \$20 changed to \$18

Question 13 (page 8)

- change the price levels in each of the three versions as follows:
 - \$6 changed to \$10
 - \$12 changed to \$18
 - \$20 changed to \$25
- change the scale as follows:

English	Certain or almost certain (10 or 9 chances in 10) Good Possibility (8 or 7 chances in 10) Fairly good possibility (6,5, or 4 chances in 10) Fair possibility (3 or 2 chances in 10) No chance or almost no chance (0 or 1 chance in 10)
French	Certain ou presque certain (10 ou 9 chances sur 10) Bonne possibilité (8 ou 7 chances sur 10) Assez bonne possibilité (6, 5, ou 4 chances sur 10) Petite possibilité (3 ou 2 chances sur 10) Aucune chance ou presqu'aucune chance (0 ou 1 chance sur 10)

Question 15.b)

- change instructions and scale so that only the first three mentions are coded.

Question 16.b)

- change instructions and scale so that only the first three mentions are coded.
- reorder items so that "education (for children)" appears first in the list and "the news" third.

Question 17

- c) replace 'National Canadian programming' by 'Content of National programming'
- d) replace 'Local programming' by 'amount of local programming'
- three versions (rotating the order of presentation) of that question are required, as indicated in the fourth column of table 18.

Question 18

- Use a special code to account for the "DO NOT WATCH" situation

Question 19

- Add 19.d): 'When did you buy this equipment' _____ years
- change 19.d) to 19.e) and remove 'replacement or'

Question 20

- change the channel levels, on both cards and questionnaire, as follows:
 - "2" remains "2"
 - "3" becomes "4"
 - "6" remains "6"
- change reception levels, on both cards and questionnaire as follows:
 - "Acceptable" becomes "Fair"
 - "Very good" becomes "Excellent"

- change price levels, on both cards and questionnaire, as follows:

"6" remains "6"
"12" remains "12"
"18" becomes "20"

Questions 21, 22, 23 (change on both cards and questionnaire)

- add 'in your own language (English or French)' after 'reception of at least six different channels'
- replace 'very good reception' by 'excellent reception'
- change scale, as in question 13

Question 21

- change the \$18 price level to \$20

Question 22

- change the price levels as follows:

"\$10" becomes "\$15"
"\$20" becomes "\$25"
"\$30" becomes "\$35"

Question 27.b)

- change instructions and scale to record only first three mentions
- add 'EMERGENCY' in the list (just before 'SECURITY')

Question 28

- change scenario as indicated on questionnaire
- change scale, as in question 13.

A-1 Rural Telephone Service Upgrading Programs

Each of the nine major telephone companies in Canada (i.e. members of the TransCanada Telephone System) were contacted and questioned about their activities in the area of upgrading telephone service in rural areas. It was found that every company either has a program underway to essentially reduce multi-party lines to a maximum of four parties, or has already completed such a program. The one exception is Newfoundland Telephone where the maximum number of parties per line is two. Chart 1 summarizes the status of these programs for each company.

Further information on some of these programs may be found in two earlier reports: "Demand for Rural Communication Services in Canada - A Literature Review." prepared by Prof. R. de Camprieu and Prof. J.C. Bourgeois (January, 1979), and in "Telephone Service in Rural Areas" Part III: Service Upgrading Programs, by Keith Richardson, DOC.

CHART 1

RURAL TELEPHONE SERVICE IMPROVEMENT PROGRAM

STATUS

Company	Start Year	Anticipated Date of Completion		Maximum No. of Parties Per Line at Completion
		1	2	
Newfoundland Telephone	1970	Completed	Completed	2
New Brunswick Telephone	1972	1984	1983	4
Maritime Telegraph and Telephone	1978	1982	1982	4
Island Telephone	1978	1982	1983	4
Bell (Ontario and Quebec)	1977	1981	1981	4
Manitoba Telephone	1975	1981	1982	4
Saskatchewan Telecommunications	1977	1983	1983	4
Alberta Government Telephone	1965	Completed	Completed	4
British Columbia Telephone	1974	1981	1981	4

1. The dates of completion indicated here were obtained through phone calls to the various TCTS companies during the week of December 1, 1980.
2. The dates indicated in this column were taken from an article entitled "Telephone Service in Rural Areas, Part III: Service Upgrading Programs" by Keith Richardson of DOC.

A-2 GLOSSARY OF TECHNICAL TERMS

The definitions or discussions presented below are not comprehensive; only the aspects relevant to the analysis reported here have been retained.

- **Frequency distribution:** The frequency distribution of a given questionnaire item merely describes how the sample answered the question. For instance, the age of the head of the household was reported to be:

between 18 and 24	by 9.3% of respondents
between 25 and 34	by 23.1% of respondents
between 35 and 44	by 24.1% of respondents
between 45 and 54	by 13.9% of respondents
between 55 and over	by 29.6% of respondents

This is the frequency distribution for the question purporting to measure the age of the head of the household. Most frequency distributions in this report have been presented in a visual form called "histogram" or bar chart (see for example Figures 3 and 4 in section 3.1).

The "shape" of a frequency distribution is of particular interest to the researcher; besides indicating how the measurement went, this shape has important analytical implications. For instance, certain statistical analyses (e.g. correlation, regression) usually assume that the shape of the distribution exhibits certain characteristics (e.g. unimodality, normality, etc.). Several statistics are commonly used to characterise the shape of a frequency distribution:

- measures of central tendency (mean, mode, median)
 - measures of dispersion or spread about the mean (variance, standard deviation)
 - measure of symmetry (skewness)
 - measure of relative flatness (kurtosis)
- **Measures of association:** Hypothesis testing usually involves an investigation of whether the answers to one question (e.g. purchase intentions) are related to the answers of one or several other questions (e.g. degree of satisfaction, intensity of need). Several measures of statistical association are available because some of them (e.g. regression, correlation) can only be used

when the variables involved exhibit certain distributional and scaling characteristics. When these characteristics are not satisfied, "non-parametric" measures of association are used (e.g. Cramer's V, Contingency Coefficient, Lambda).

- **Correlation coefficients:** They measure the degree (or strength) of statistical association between two variables. They range from -1 to +1; the sign of the coefficient indicates the direction of the relationship (inverse or positive); the absolute value indicates the degree of association: a "0" indicates an absence of statistical association, which means that the two variables vary independently of each other; a "1" indicates a perfect statistical association, which means that the variation in one variable parallels exactly the variation in the other variable. The Pearson coefficient is used for interval-scaled variables while the Spearman coefficient is used for ordinal-scaled (rank ordered) variables.
- **Regression analysis:** It allows for the investigation of the statistical relationship between one particular variable (called the dependent variable) and a "set" of other variables (called the independent variables). The strength of the relationship is measured by the coefficient of determination (R^2). R^2 ranges from 0 to 1; a "1" indicates that 100% of the variation in the dependent variable is accounted for by the variation in the independent variables; a "0" indicates an absence of statistical relationship. Since R^2 tends to be higher when the number of independent variables increases it is customary to rely on the "adjusted R^2 ", which accounts for the upward bias.

Regression analysis requires that both dependent and independent variables be interval-scaled. If the dependent variable is nominal-scaled, "discriminant analysis" could be used. If the dependent variable is interval-scaled and the independent variables are nominal-scaled, "analysis of variance" could be used.

- **Level of significance:** This concept arises when random samples are used to infer the existence of relationships in the population. A test of significance is used to learn the probability that the relationship observed in the sample could have happened by chance. The probability of the observed relationship occurring by chance is equal to the proportion of every possible sample in which the relationship between two variables

is as strong or stronger than in the observed sample. It has become convention in social science to accept as statistically significant relationships which have a probability of occurring by chance 5 percent of the time or less (i.e. $\alpha \leq 5\%$), that is, in no more than 5 out of 100 samples. The significance tests used in this report include the χ^2 , the significance test for the correlation coefficient, and the Fisher test (for the coefficient of determination R^2).

- **Standard error:** The standard error statistic indicates the potential degree of discrepancy between the sample mean and the unknown population mean. If we were to draw an infinite number of equal-sized samples from a given population, the means of these samples would be normally distributed around the true population mean. The standard deviation of this distribution is called the standard error. About 66% of the sample means would be contained in the interval defined by the population mean \pm one standard error.
- **Multicollinearity:** This refers to the situation in which some of the independent variables in a regression are very highly intercorrelated. When this is the case, estimates of the regression coefficients fluctuate (and therefore are not reliable) markedly from sample to sample. Multicollinearity can be dealt with in several ways, including factor analysis.
- **Factor analysis:** This is a technique that can be used to reduce a set of intercorrelated variables into a smaller set of new variables (called factors) which are truly independent (uncorrelated).

APPENDIX A-3

PILOT SURVEY QUESTIONNAIRE

SECTION A

START TIME _____

1-a) (HAND CARD A, HOLD DECK A)

Please read this card and tell me all of the services you strongly feel must be improved in your area.

(FOR EACH SERVICE MENTIONED (UP TO 6), REMOVE THE CORRESPONDING CARD FROM DECK A. WHEN RESPONDENT HAS SELECTED UP TO 6 SERVICES, TAKE BACK CARD A. AND HAND RESPONDENT THE DECK OF CARDS HE/SHE HAS SELECTED.)

-b) Now looking at the services you have selected, which one do you feel most needs to be improved in your area? (REMOVE CARD, CIRCLE CODE 1 BELOW BESIDE SERVICE MENTIONED.)

-c) And which is your second choice for improvement in your area? (REMOVE CARD, CIRCLE CODE 2 BELOW BESIDE SERVICE MENTIONED.)

What is your next choice? (RECORD BELOW UNDER THIRD)

(REPEAT UNTIL ALL CARDS HAVE BEEN RECORDED IN ORDER SELECTED BY RESPONDENT)

	<u>1-b)</u>	<u>1-c)</u>	<u>NEED TO BE IMPROVED:</u>							
	<u>MOST</u>	<u>SECOND</u>	<u>THIRD</u>	<u>FOURTH</u>	<u>FIFTH</u>	<u>SIXTH</u>				
Education Services	7-1....	2	...	3	....	4	....	5	....	6
CB, Mobile radio Services	8-1....	2	...	3	....	4	....	5	....	6
Electricity, Hydro Services	9-1....	2	...	3	....	4	....	5	....	6
Health/Medical Services	10-1....	2	...	3	....	4	....	5	....	6
Recreation and Sports facilities	11-1....	2	...	3	....	4	....	5	....	6
Mail Services	12-1....	2	...	3	....	4	....	5	....	6
Security Services, (police, fire)	13-1....	2	...	3	....	4	....	5	....	6
Roads and public transportation	14-1....	2	...	3	....	4	....	5	....	6
Telephone Services	15-1....	2	...	3	....	4	....	5	....	6
Television Services	16-1....	2	...	3	....	4	....	5	....	6
Newspaper Services	17-1....	2	...	3	....	4	....	5	....	6
Radio Broadcasting Services	18-1....	2	...	3	....	4	....	5	....	6
NO IMPROVEMENT NEEDED IN ANY OF THESE SERVICES										0

SECTION A (Continued)

2. I am going to give you a list of four telecommunication services. Suppose that you had 100 points to allocate for improvement to these services in your area. The more points you give to a service the more you feel it must be improved, the less points you give the less you feel it must be improved. You can allocate the 100 points to one or all the services, but remember that the total must add up to 100. (HAND TO RESPONDENT, RESPONDENT RECORDS)

	<u>NO. OF POINTS</u>	
CB or mobile radio services	_____	
Radio broadcasting services	_____	
Television services	_____	
Telephone services	_____	
TOTAL MUST ADD UP TO 100	TOTAL = 100	19/21
NO IMPROVEMENT NEEDED IN ANY OF THESE SERVICES	0	22/24
		25/27
		28/30

SECTION A (Continued)

2. I am going to give you a list of four telecommunication services. Suppose that you had 100 points to allocate for improvement to these services in your area. The more points you give to a service the more you feel it must be improved, the less points you give the less you feel it must be improved. You can allocate the 100 points to one or all the services, but remember that the total must add up to 100. (HAND TO RESPONDENT, RESPONDENT RECORDS)

	<u>NO. OF POINTS</u>	
Radio broadcasting services	_____	
Television services	_____	
Telephone services	_____	
CB or mobile radio services	_____	
TOTAL MUST ADD UP TO 100	TOTAL -	100
		19/21
NO IMPROVEMENT NEEDED		22/24
IN ANY OF THESE SERVICES	0	25/27
		28/30

SECTION A (Continued)

2. I am going to give you a list of four telecommunication services. Suppose that you had 100 points to allocate for improvement to these services in your area. The more points you give to a service the more you feel it must be improved, the less points you give the less you feel it must be improved. You can allocate the 100 points to one or all the services, but remember that the total must add up to 100. (HAND TO RESPONDENT; RESPONDENT RECORDS)

	<u>NO. OF POINTS</u>	
Television services	_____	
Telephone services	_____	
CB or mobile radio services	_____	
Radio broadcasting services	_____	
TOTAL MUST ADD UP TO 100	TOTAL =	100
		19/21
NO IMPROVEMENT NEEDED		22/24
IN ANY OF THESE SERVICES	0	25/27
		28/30

SECTION A (Continued)

2. I am going to give you a list of four telecommunication services. Suppose that you had 100 points to allocate for improvement to these services in your area. The more points you give to a service the more you feel it must be improved, the less points you give the less you feel it must be improved. You can allocate the 100 points to one or all the services, but remember that the total must add up to 100. (HAND TO RESPONDENT, RESPONDENT RECORDS)

	<u>NO. OF POINTS</u>	
Telephone services	_____	
CB or mobile radio services	_____	
Radio broadcasting services	_____	
Television services	_____	
TOTAL MUST ADD UP TO 100	TOTAL = 100	19/21
NO IMPROVEMENT NEEDED		22/24
IN ANY OF THESE SERVICES	0	25/27
		28/30

SECTION B

3-a) How many different telephone numbers are in use in your home?

- ONE31-1 GO TO Q.4-a)
- TWO 2
- THREE OR MORE 3
- NONE 4 GO TO Q.5

-b) Are any of these telephone numbers business numbers?

- YES32-1
- NO 2

4-a) What is your residential telephone mainly used for in your home? (DO NOT READ LIST) (CIRCLE CODE 1 BESIDE FIRST USE MENTIONED)

-b) Anything else? (CIRCLE CODE 2 BESIDE SECOND MENTION. PROBE, CONTINUE UNTIL RESPONDENT HAS MENTIONED ALL OF HIS/HER USES.)

4-a) 4-b)
 TELEPHONE IS MAINLY USED FOR:
 FIRST SECOND THIRD FOURTH FIFTH SIXTH SEVENTH
 MENTION MENTION MENTION MENTION MENTION MENTION MENTION

BUSINESS	33-1...	2	...	3	...	4	...	5	...	6	...	7
HEALTH PROBLEMS	34-1...	2	...	3	...	4	...	5	...	6	...	7
CONVENIENCE, TIME SAVING, EFFICIENCY (e.g. enquiries, appointments, etc).	35-1...	2	...	3	...	4	...	5	...	6	...	7
FEEL ISOLATED, MIGHT HAVE TO CALL FOR HELP ..	36-1...	2	...	3	...	4	...	5	...	6	...	7
SOCIAL REASONS (e.g. calling friends, social activities, etc.)	37-1...	2	...	3	...	4	...	5	...	6	...	7
FAMILY REASONS	38-1...	2	...	3	...	4	...	5	...	6	...	7
SECURITY (fire, police, burglars, etc.)	39-1...	2	...	3	...	4	...	5	...	6	...	7
OTHER (SPECIFY)												

GO TO QUESTION 6

5-a) (IF NO TELEPHONE IN HOUSEHOLD, ASK:) Would you tell me why you do not have a phone? (DO NOT READ LIST) (CIRCLE CODE 1 FOR FIRST MENTION.)

-b) And are there any other reasons why you do not have a phone in your home? (CIRCLE CODE 2 FOR SECOND MENTION, CODE 3 FOR THIRD MENTION, ETC.)

5-a) 5-b)
 REASONS FOR LACK OF PHONE:
 FIRST SECOND THIRD FOURTH FIFTH SIXTH SEVENTH
 MENTION MENTION MENTION MENTION MENTION MENTION MENTION

TOO EXPENSIVE	40-1	...	2	...	3	...	4	...	5	...	6	...	7
TELEPHONE ON ORDER/ WAITING FOR INSTALLATION ..	41-1	...	2	...	3	...	4	...	5	...	6	...	7
RECENTLY MOVED TO HOUSE	42-1	...	2	...	3	...	4	...	5	...	6	...	7
CANNOT GET THE TYPE OF SERVICE I WANT	43-1	...	2	...	3	...	4	...	5	...	6	...	7
UNOBTAINABLE, CAN'T GET IT	44-1	...	2	...	3	...	4	...	5	...	6	...	7
SERVICE NOT AVAILABLE	45-1	...	2	...	3	...	4	...	5	...	6	...	7
NO NEED FOR ONE	46-1	...	2	...	3	...	4	...	5	...	6	...	7
OTHER (SPECIFY)													

GO TO QUESTION 13

6. (HAND CARD B)

Please look at this scale and tell me how satisfied your household is with each of the following aspects of your present telephone service. (READ EACH ITEM AND RECORD ANSWER BEFORE READING THE NEXT ONE.)

	<u>VERY</u> <u>SATISFIED</u>	<u>SATISFIED</u>	<u>DISSATISFIED</u>	<u>VERY</u> <u>DISSATISFIED</u>
a) Speed of repair service?	48-1	.....2	.....3	.....4
b) Reliability of service, i.e., few breakdowns?	49-1	.....2	.....3	.....4
c) Speed of installation service? ..	50-1	.....2	.....3	.....4
d) Operator service?..	51-1	.....2	.....3	.....4
e) Number of parties on your line?	52-1	.....2	.....3	.....4
f) Size of area within which you can call free, i.e., without long distance charges?	53-1	.....2	.....3	.....4
g) Ability to call, free of charge, essential services such as police, hospital, etc.? ...	54-1	.....2	.....3	.....4
h) Quality of reception?	55-1	.....2	.....3	.....4
i) Billing service?..	56-1	.....2	.....3	.....4
j) Basic monthly charge (not including long distance calls)?	57-1	.....2	.....3	.....4
k) Cost of long distance calls? ..	58-1	.....2	.....3	.....4
l) Cost of installation service?	59-1	.....2	.....3	.....4
m) Availability of line when you want it?	60-1	.....2	.....3	.....4
n) Your telephone service in general? 61-1	.....2	.....3	.....4	

7-a) What type of telephone service do you have? Is it a... (READ LIST)?

- Private line ... 62-1 GO TO Q.8-a)
- Two party line 2
- Multiparty line .. 3

-b) Is that a four party line; by that I mean a line for which you pay to have no more than four parties, including your own, on the line?

- YES 4 GO TO Q.8-a)
- NO 5

-c) Including yourself, how many parties are actually on your line at the present time?

- NO. OF PARTIES: _____ 63/64
(WRITE IN)
- DON'T KNOW ..

8-a) For how many years have you had a (REPEAT TYPE OF SERVICE MENTIONED IN Q.7-a))?

- LESS THAN 1 YEAR ..
- NO. OF YEARS : _____ 65/66
(SPECIFY)

-b) Did you have to pay more than \$50 to have your telephone installed?

- YES 67-1'
- NO 2 GO TO Q:9

-c) How much did it cost? _____ 68/70 71/74
(SPECIFY)

DUP. 1/4
5-2
DUP. 6

9. Now I am going to read a list of community facilities and services. Please tell me if you have to make a long distance call from your home in order to telephone (READ LIST)?

LONG DISTANCE CALL REQUIRED:

	<u>YES</u>	<u>NO</u>	<u>DON'T KNOW</u>
The nearest hospital	7-1	2	3
The nearest doctor	8-1	2	3
The nearest dentist	9-1	2	3
The nearest elementary school	10-1	2	3
The nearest secondary school	11-1	2	3
The place where you work	12-1	2	3
The nearest fire department	13-1	2	3
The nearest police station	14-1	2	3
The nearest grocery store	15-1	2	3
The nearest service station	16-1	2	3
Municipal offices	17-1	2	3

10-a) Have there been any major improvements in your telephone service since it was first installed?

YES18-1

NO 2 GO TO Q.11

-b) (IF YES IN Q.10-a) Did you yourself ask for this improvement, or did the telephone company carry out the improvement on its own?

Asked for improvement19-1

Company carried out on its own 2

-c) How long ago did this improvement take place?

MONTHS 20/21 (SPECIFY)

YEARS 22/23 (SPECIFY)

11-a) On the average, how much is your total monthly phone bill?

\$ 24/26 (WRITE IN)

RESPONDENT CHECKED PHONE BILL(S): YES ...27-1

NO 2

-b) Excluding charges for long distance calls, and tax, how much is the basic monthly charge for your telephone?

\$ 28/29 (WRITE IN)

RESPONDENT CHECKED PHONE BILL(S): YES ...30-1

NO 2

-c) Does your monthly phone bill include charges for any of the following optional equipment? (READ LIST)

	<u>YES</u>	<u>NO</u>
Extension telephones	31-1 <input type="checkbox"/>
Pushbutton dials	2 <input type="checkbox"/>
Coloured or decorator telephones ...	3 <input type="checkbox"/>
Other items (SPECIFY) _____		

12. Suppose that you have just moved to a different place; you have the choice between two, and only two, types of telephone service. For each of the following situations, could you indicate which type of service you would buy?

(SHUFFLE DECK AND HAND TO RESPONDENT. HAVE RESPONDENT TELL YOU WHICH CARD HE/SHE IS LOOKING AT (T1 TO T17) AND CHECK BOX, THEN RECORD RESPONDENT'S CHOICE (P1 TO P9) FOR EACH CARD.)

CARD:	DESCRIPTION			CHOICE:
	LINE	MONTHLY RATE	CALLING AREA	
T1 ... <input type="checkbox"/> →	Private Private	\$6 \$12	Same Larger	P1 ....32-1 P2 2
T2 <input type="checkbox"/> →	4 Party 2 Party	\$6 \$12	Same Same	P7 ....33-1 P5 2
T3 <input type="checkbox"/> →	4 Party 4 Party	\$12 \$20	Same Larger	P8 ....34-1 P9 2
T4 <input type="checkbox"/> →	2 Party Private	\$12 \$20	Same Same	P5 ....35-1 P3 2
T5 <input type="checkbox"/> →	4 Party Private	\$6 \$20	Same Same	P7 ....36-1 P3 2
T6 <input type="checkbox"/> →	4 Party Private	\$20 \$20	Larger Same	P9 ....37-1 P3 2
T7 <input type="checkbox"/> →	4 Party 4 Party	\$20 \$6	Larger Same	P9 ....38-1 P7 2
T8 <input type="checkbox"/> →	Private 2 Party	\$6 \$6	Same Larger	P1 ....39-1 P4 2
T9 <input type="checkbox"/> →	Private 2 Party	\$20 \$6	Same Larger	P3 ....40-1 P4 2
T10 ... <input type="checkbox"/> →	2 Party Private	\$6 \$12	Larger Larger	P4 ....41-1 P2 2
T11 ... <input type="checkbox"/> →	2 Party 4 Party	\$20 \$20	Same Larger	P6 ....42-1 P9 2
T12 ... <input type="checkbox"/> →	4 Party 2 Party	\$20 \$12	Larger Same	P9 ....43-1 P5 2
T13 ... <input type="checkbox"/> →	Private 4 Party	\$12 \$6	Larger Same	P2 ....44-1 P7 2
T14 ... <input type="checkbox"/> →	2 Party 4 Party	\$20 \$6	Same Same	P6 ....45-1 P7 2
T15 ... <input type="checkbox"/> →	4 Party 2 Party	\$12 \$20	Same Same	P8 ....46-1 P6 2
T16 ... <input type="checkbox"/> →	Private 4 Party	\$20 \$12	Same Same	P3 ....47-1 P8 2
T17 ... <input type="checkbox"/> →	4 Party Private	\$20 \$6	Larger Same	P9 ....48-1 P1 2

13. Recent breakthroughs in telephone technology make it possible to offer you a telephone service comparable to that available in large cities; that is, anyone could get a private line and enjoy a large free calling area (that is, people in surrounding communities and essential services could be called without long distance charges).

(HAND CARD C AND READ:)

Subscribing to this new telephone service would give you:

a private line

a larger free calling area (so that people in surrounding communities and essential services could be called without long distance charges).

Choice situation 1:

(READ STATEMENT)

Suppose that this new improved telephone service is available to you as early as next month, and that the basic monthly charge (that is, not including long distance calls) is \$6 per month, how likely would you be to buy this service within the next 12 months?

(HAND RESPONDENT SCALE CARD AND CIRCLE ANSWER BELOW)

RESPONDENT'S CHOICE:

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

49-
50-

13. Recent breakthroughs in telephone technology make it possible to offer you a telephone service comparable to that available in large cities; that is, anyone could get a private line and enjoy a large free calling area (that is, people in surrounding communities and essential services could be called without long distance charges).

(HAND CARD C AND READ)

Subscribing to this new telephone service would give you:

a private line

a larger free calling area (so that people in surrounding communities and essential services could be called without long distance charges).

Choice situation 2:

(READ STATEMENT)

Suppose that this new improved telephone service is available to you as early as next month, and that the basic monthly charge (that is, not including long distance calls) is \$12 per month, how likely would you be to buy this service within the next 12 months?

(HAND RESPONDENT SCALE CARD AND CIRCLE ANSWER BELOW)

RESPONDENT'S CHOICE:

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

49-
50-

- 13. Recent breakthroughs in telephone technology make it possible to offer you a telephone service comparable to that available in large cities; that is, anyone could get a private line and enjoy a large free calling area (that is, people in surrounding communities and essential services could be called without long distance charges).

(HAND CARD C AND READ:)

Subscribing to this new telephone service would give you:

a private line

a larger free calling area (so that people in surrounding communities and essential services could be called without long distance charges).

Choice situation 3:

(READ STATEMENT)

Suppose that this new improved telephone service is available to you as early as next month, and that the basic monthly charge (that is, not including long distance calls) is \$20 per month, how likely would you be to buy this service within the next 12 months?

(HAND RESPONDENT SCALE CARD AND CIRCLE ANSWER BELOW)

RESPONDENT'S CHOICE:

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

49-
50-

14-a) How many colour television sets are in use in your home? (RECORD BELOW)

-b) And how many black and white television sets are in use in your home? (RECORD BELOW)

	14-a) COLOUR	14-b) BLACK AND WHITE
NONE	51-0	52-0
ONE	1	1
TWO	2	2
THREE OR MORE	3	3
	IF ONE OR MORE, GO TO Q.16	

15-a) (IF NO TV IN HOME, ASK:) Why don't you use a television set in your home? (DO NOT READ LIST. CIRCLE CODE 1 FOR FIRST MENTION.)

-b) Any other reason? (CIRCLE CODE 2 BELOW FOR SECOND MENTION, ETC. PROBE, CODE ALL RESPONSES IN ORDER OF MENTION.)

15-a)	15-b)						
	REASONS FOR NOT WATCHING TV:						
	FIRST MENTION	SECOND MENTION	THIRD MENTION	FOURTH MENTION	FIFTH MENTION	SIXTH MENTION	SEVENTH MENTION

DO NOT WATCH TV/NOT INTERESTED	53-1...	2	...	3	...	4	...	5	...	6	...	7
TOO EXPENSIVE TO BUY TV..	54-1...	2	...	3	...	4	...	5	...	6	...	7
RECEPTION EQUIPMENT (ANTENNA, POWER, ETC.)												
TOO EXPENSIVE	55-1...	2	...	3	...	4	...	5	...	6	...	7
POOR RECEPTION	56-1...	2	...	3	...	4	...	5	...	6	...	7
NO RECEPTION	57-1...	2	...	3	...	4	...	5	...	6	...	7
NO STATION IN OWN LANGUAGE	58-1...	2	...	3	...	4	...	5	...	6	...	7
CANNOT WATCH/HEAR (BLIND, DEAF, ETC.)	59-1...	2	...	3	...	4	...	5	...	6	...	7
OTHER (SPECIFY)	_____											
GO TO QUESTION 21												

16-a) (IF ONE OR MORE TV IN USE IN HOME, ASK:) What is your TV mainly used for in your home? (DO NOT READ LIST. CIRCLE CODE 1 FOR FIRST MENTION.)

-b) Anything else? (CIRCLE CODE 2 FOR SECOND MENTION, ETC. PROBE, CODE ALL RESPONSES IN ORDER MENTIONED.)

16-a)	16-b)									
	MAIN USES FOR TV:									
	1st MENTION	2nd MENTION	3rd MENTION	4th MENTION	5th MENTION	6th MENTION	7th MENTION	8th MENTION	9th MENTION	10th MENTION

EDUCATION (FOR ADULTS)	60-1.	2	3	4	5	6	7	8	9	10
INFORMATION (news, talk shows, documentaries, etc.)	61-1.	2	3	4	5	6	7	8	9	10
ENTERTAINMENT (recreation, sports, movies, variety, game shows, etc.)	62-1.	2	3	4	5	6	7	8	9	10
EDUCATION (FOR CHILDREN)...	63-1.	2	3	4	5	6	7	8	9	10
TO KEEP ME COMPANY WHEN ALONE	64-1.	2	3	4	5	6	7	8	9	10
TO KILL/ PASS TIME	65-1.	2	3	4	5	6	7	8	9	10
HANDICAPPED/CANNOT GET OUT.	66-1.	2	3	4	5	6	7	8	9	10
KEEPS CHILDREN QUIET	67-1.	2	3	4	5	6	7	8	9	10
DO NOT WATCH	68-1.	2	3	4	5	6	7	8	9	10
THE NEWS	69-1.	2	3	4	5	6	7	8	9	10
OTHER (SPECIFY)	_____									

17. (HAND CARD TVB)

Please look at this scale and tell me how satisfied your household is with each of the following aspects of your present TV service. (READ EACH ITEM AND RECORD ANSWER BEFORE READING THE NEXT ONE.)

	VERY SATISFIED	SATISFIED	DISSATISFIED	VERY DISSATISFIED
-a) Overall quality of picture on most channels?	7-1	2	3	4
-b) Overall quality of sound on most channels?	8-1	2	3	4
-c) National Canadian programming?	9-1	2	3	4
-d) Local programming?	10-1	2	3	4
-e) The number of French Canadian channels you receive?	11-1	2	3	4
-f) The number of English Canadian channels you receive?	12-1	2	3	4
-g) The number of American channels you receive?	13-1	2	3	4
-h) The cost of the reception equipment you require?	14-1	2	3	4
-i) The reliability of your reception equipment?	15-1	2	3	4
-j) Your television service in general?	16-1	2	3	4

SECTION C. (Continued)

- 18-a) How many American stations can you get on your TV set(s)? (RECORD BELOW)
- b) On how many of these (NO. OF AMERICAN STATIONS) do you generally get good reception? (RECORD BELOW)
- c) And on how many do you generally get poor reception? (RECORD BELOW)
- d) How many Canadian stations, with English programs, can you get on your TV set(s)? (RECORD BELOW)
- e) And on how many of these (NO. OF ENGLISH STATIONS) would you say that you generally get good reception? (RECORD BELOW)
- f) And on how many do you generally get poor reception? (RECORD BELOW)
- g) Finally, how many Canadian stations, with French programs, can you get on your TV set(s)? (RECORD BELOW)
- h) On how many of these (NO. OF FRENCH STATIONS) do you generally get good reception? (RECORD BELOW)
- i) And on how many do you generally get poor reception? (RECORD BELOW)

	<u>-a), -b), -c)</u>	<u>-d), -e), -f)</u>	<u>-g), -h), -i)</u>
	AMERICAN STATIONS	ENGLISH CANADIAN STATIONS	FRENCH CANADIAN STATIONS
TOTAL NO.	<u>17/18</u>	<u>23/24</u>	<u>29/30</u>
RECEPTION: GOOD	<u>19/20</u>	<u>25/26</u>	<u>31/32</u>
..... POOR	<u>21/22</u>	<u>27/28</u>	<u>33/34</u>

DO NOT WATCH 35-

19-a) Has there been any major improvement, in your area, with respect to overall television service?

YES36-1
 NO [2 GO TO Q.19-c]

-b) (IF YES IN Q.19-a)
 How long ago did that improvement take place?

NO. OF MONTHS: _____ 37/38
 (SPECIFY)
 NO. OF YEARS : _____ 39/40
 (SPECIFY)

-c) Do you have any of the following TV equipment for receiving TV programs? (READ LIST)

	<u>YES</u>	<u>NO</u>
External antenna, not including rabbit ears .....41-1	2
Tower .....42-1	2
Rotor .....43-1	2
Booster .....44-1	2

-d) (IF YES TO ONE OR MORE IN 19-c)

How much has this equipment cost you in total, including any replacements or repairs you may have made?

\$ _____ 45/47
 (SPECIFY)

20. Again, suppose that you have just moved to a different place; you have the choice between two, and only two, types of TV service. For each of the following situations, could you indicate which type of service you would buy? (SHUFFLE DECK AND HAND TO RESPONDENT. HAVE RESPONDENT TELL YOU WHICH CARD HE/SHE IS LOOKING AT (TV-1 TO TV-23) AND CHECK BOX, THEN RECORD RESPONDENT'S CHOICE (P1 TO P9) FOR EACH CARD.)

CARD:	DESCRIPTION					CHOICE:
	CHANNELS	RECEPTION	PROGRAMMING	MONTHLY RATE		
TV-1 ... <input type="checkbox"/> →	2 2	Acceptable Very good	Same Same	\$6 \$12	P1 ....48-1 P2 2	
TV-2 ... <input type="checkbox"/> →	6 3	Acceptable Very good	Better Better	\$12 \$6	P8 ....49-1 P4 2	
TV-3 ... <input type="checkbox"/> →	6 6	Acceptable Very good	Better Same	\$12 \$18	P8 ....50-1 P9 2	
TV-4 ... <input type="checkbox"/> →	3 2	Acceptable Acceptable	Same Better	\$12 \$18	P5 ....51-1 P3 2	
TV-5 ... <input type="checkbox"/> →	2 3	Acceptable Acceptable	Better Same	\$18 \$18	P3 ....52-1 P6 2	
TV-6 ... <input type="checkbox"/> →	6 2	Acceptable Acceptable	Same Better	\$6 \$18	P7 ....53-1 P3 2	
TV-7 ... <input type="checkbox"/> →	6 2	Very good Acceptable	Same Better	\$18 \$18	P9 ....54-1 P3 2	
TV-8 ... <input type="checkbox"/> →	2 2	Very good Acceptable	Same Better	\$12 \$18	P2 ....55-1 P3 2	
TV-9 ... <input type="checkbox"/> →	2 2	Acceptable Acceptable	Better Same	\$18 \$6	P3 ....56-1 P1 2	
TV-10 .. <input type="checkbox"/> →	3 6	Very good Acceptable	Better Same	\$6 \$6	P4 ....57-1 P7 2	
TV-11 .. <input type="checkbox"/> →	2 3	Acceptable Acceptable	Same Same	\$6 \$18	P1 ....58-1 P6 2	
TV-12 .. <input type="checkbox"/> →	6 2	Acceptable Very good	Better Same	\$12 \$12	P8 ....59-1 P2 2	
TV-13 .. <input type="checkbox"/> →	6 6	Acceptable Acceptable	Same Better	\$6 \$12	P7 ....60-1 P8 2	
TV-14 .. <input type="checkbox"/> →	6 6	Very good Acceptable	Same Same	\$18 \$6	P9 ....61-1 P7 2	
TV-15 .. <input type="checkbox"/> →	3 2	Acceptable Acceptable	Same Same	\$12 \$6	P5 ....62-1 P1 2	
TV-16 .. <input type="checkbox"/> →	3 6	Very good Very good	Better Same	\$6 \$18	P4 ....63-1 P9 2	
TV-17 .. <input type="checkbox"/> →	2 6	Acceptable Acceptable	Same Better	\$6 \$12	P1 ....64-1 P8 2	
TV-18 .. <input type="checkbox"/> →	6 3	Very good Acceptable	Same Same	\$18 \$12	P9 ....65-1 P5 2	
TV-19 .. <input type="checkbox"/> →	2 6	Very good Acceptable	Same Same	\$12 \$6	P2 ....66-1 P7 2	
TV-20 .. <input type="checkbox"/> →	2 6	Very good Very good	Same Same	\$12 \$18	P2 ....67-1 P9 2	
TV-21 .. <input type="checkbox"/> →	2 3	Very good Acceptable	Same Same	\$12 \$12	P2 ....68-1 P5 2	
TV-22 .. <input type="checkbox"/> →	3 2	Acceptable Very good	Same Same	\$18 \$12	P6 ....69-1 P2 2	
TV-23 .. <input type="checkbox"/> →	6 2	Very good Acceptable	Same Same	\$18 \$6	P9 ....70-1 P1 2	

21. Recent breakthroughs in television broadcasting technology make it possible to offer you a television service comparable to that available in large cities; that is, anyone could get at least six different channels, and the reception on each channel would be very good.

(HAND CARD TV C AND READ)

Subscribing to this new television service would give you:

- reception of at least six different channels
- very good reception on each channel
- same type of programming as you receive now

Choice situation 1:

(READ STATEMENT)

Suppose that this new improved television service is available to you as early as next month, and costs \$6 per month; how likely would you be to buy this service within the next 12 months?

(HAND RESPONDENT SCALE CARD AND CIRCLE ANSWER BELOW)

RESPONDENT'S CHOICE:

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

7-
8-

21. Recent breakthroughs in television broadcasting technology make it possible to offer you a television service comparable to that available in large cities; that is, anyone could get at least six different channels, and the reception on each channel would be very good.

(HAND CARD TV C AND READ)

Subscribing to this new television service would give you:

- reception of at least six different channels
- very good reception on each channel
- same type of programming as you receive now

Choice situation 2:

(READ STATEMENT)

Suppose that this new improved television service is available to you as early as next month, and costs \$12 per month; how likely would you be to buy this service within the next 12 months?

(HAND RESPONDENT SCALE CARD AND CIRCLE ANSWER BELOW)

RESPONDENT'S CHOICE:

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

7-
8-

21. Recent breakthroughs in television broadcasting technology make it possible to offer you a television service comparable to that available in large cities; that is, anyone could get at least six different channels, and the reception on each channel would be very good.

(HAND CARD TV C AND READ)

Subscribing to this new television service would give you:

- reception of at least six different channels
- very good reception on each channel
- same type of programming as you receive now

Choice situation 3:

(READ STATEMENT)

Suppose that this new improved television service is available to you as early as next month, and costs \$18 per month; how likely would you be to buy this service within the next 12 months?

(HAND RESPONDENT SCALE CARD AND CIRCLE ANSWER BELOW)

RESPONDENT'S CHOICE:

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

7-
8-

22. Recent breakthroughs in television broadcasting technology make it possible to offer you a television service comparable to that available in large cities; that is, anyone could get at least six different channels, and the reception on each channel would be very good.

(HAND CARD TV D AND READ)

Subscribing to this new television service would give you:

- reception of at least six different channels
- very good reception on each channel
- same type of programming as you receive now

SHOW PICTURE 1

Choice situation 1:

(READ STATEMENT)

Now, suppose that this same improved television service is available through a different technology which would require you to buy (cash or credit) a special reception unit costing \$400. This unit would replace all of your existing reception equipment, including antenna, booster, rotor, etc. how likely would you be to buy this service within the next 12 months?

(HAND RESPONDENT SCALE CARD AND CIRCLE ANSWER BELOW)

RESPONDENT'S CHOICE:

0 1 2 3 4 5 6 7 8 9 10

9-
10-

22. Recent breakthroughs in television broadcasting technology make it possible to offer you a television service comparable to that available in large cities; that is, anyone could get at least six different channels, and the reception on each channel would be very good.

(HAND CARD TV D AND READ)

Subscribing to this new television service would give you:

- reception of at least six different channels
- very good reception on each channel
- same type of programming as you receive now

SHOW PICTURE 1

Choice situation 2:

(READ STATEMENT)

Now, suppose that this same improved television service is available through a different technology which would require you to buy (cash or credit) a special reception unit costing \$ 600. This unit would replace all of your existing reception equipment, including antenna, booster, rotor, etc. how likely would you be to buy this service within the next 12 months?

(HAND RESPONDENT SCALE CARD AND CIRCLE ANSWER BELOW)

RESPONDENT'S CHOICE:

0 1 2 3 4 5 6 7 8 9 10

9-

10-

22. Recent breakthroughs in television broadcasting technology make it possible to offer you a television service comparable to that available in large cities; that is, anyone could get at least six different channels, and the reception on each channel would be very good.

(HAND CARD TV D AND READ)

Subscribing to this new television service would give you:

- reception of at least six different channels
- very good reception on each channel
- same type of programming as you receive now

SHOW PICTURE 1

Choice situation 3:

(READ STATEMENT)

Now, suppose that this same improved television service is available through a different technology which would require you to buy (cash or credit) a special reception unit costing \$ 800. This unit would replace all of your existing reception equipment, including antenna, booster, rotor, etc. how likely would you be to buy this service within the next 12 months?

(HAND RESPONDENT SCALE CARD AND CIRCLE ANSWER BELOW)

RESPONDENT'S CHOICE:

0 1 2 3 4 5 6 7 8 9 10

9-
10-

23. Another recent television and telephone technology makes it possible to offer you a combined television and telephone service. That is, you could get at least six different channels with very good reception on each channel, as well as a private line and a large free calling area where you could call without long distance charges, people in surrounding communities and essential services.

(HAND CARD TV E AND READ)

Subscribing to this new combined television and telephone service would give you:

for television:

- reception of at least six different channels
- very good reception on each channel
- same type of programming as you receive now

for telephone:

- private line
- a larger free calling area (people in surrounding area and essential services could be called free)

Choice situation 1:

(READ STATEMENT)

Suppose that this new combined Telephone/Television service is available to you as early as next month and costs \$10 per month; how likely would you be to buy this service within the next 12 months?

(HAND RESPONDENT SCALE CARD AND CIRCLE ANSWER BELOW)

RESPONDENT'S CHOICE:

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

11-
12-

23. Another recent television and telephone technology makes it possible to offer you a combined television and telephone service. That is, you could get at least six different channels with very good reception on each channel, as well as a private line and a large free calling area where you could call without long distance charges, people in surrounding communities and essential services.

(HAND CARD TV E AND READ)

Subscribing to this new combined television and telephone service would give you:

for television:

- reception of at least six different channels
- very good reception on each channel
- same type of programming as you receive now

for telephone:

- private line
- a larger free calling area (people in surrounding area and essential services could be called free)

Choice situation 2:

(READ STATEMENT)

Suppose that this new combined Telephone/Television service is available to you as early as next month and costs \$20 per month; how likely would you be to buy this service within the next 12 months?

(HAND RESPONDENT SCALE CARD AND CIRCLE ANSWER BELOW)

RESPONDENT'S CHOICE:

0 1 2 3 4 5 6 7 8 9 10

11-
12-

23. Another recent television and telephone technology makes it possible to offer you a combined television and telephone service. That is, you could get at least six different channels with very good reception on each channel, as well as a private line and a large free calling area where you could call without long distance charges, people in surrounding communities and essential services.

(HAND CARD TV E AND READ)

Subscribing to this new combined television and telephone service would give you:

for television:

- reception of at least six different channels
- very good reception on each channel
- same type of programming as you receive now

for telephone:

- private line
- a larger free calling area (people in surrounding area and essential services could be called free)

Choice situation 3:

(READ STATEMENT)

Suppose that this new combined Telephone/Television service is available to you as early as next month and costs \$30 per month; how likely would you be to buy this service within the next 12 months?

(HAND RESPONDENT SCALE CARD AND CIRCLE ANSWER BELOW)

RESPONDENT'S CHOICE:

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

11-
12-

SECTION D

24. Does anyone in your household, including yourself, have any CB and/or General Radio Service (GRS) equipment?

YES13-1

NO 2

25. And do you or anyone in this house have any mobile radio or mobile telephone equipment?

YES14-1

NO 2

IF NO TO BOTH Q.24 AND Q. 25, GO TO Q.28.

26. Which type of equipment would you say is most important to you, CB or mobile radio?

✓ CB15-1

MOBILE RADIO 2

DON'T KNOW 3

27-a) What is your (MOST IMPORTANT IN Q.26) mainly used for? (DO NOT READ LIST)

(CODE 1 FOR FIRST MENTION)
(CODE 2 FOR SECOND MENTION, ETC.)

-b) Anything else? (PROBE, CODE ALL OF HIS/HER RESPONSES IN ORDER MENTIONED)

	27-a)	27-b)	MAIN USES:					
	FIRST MENTION	SECOND MENTION	THIRD MENTION	FOURTH MENTION	FIFTH MENTION	SIXTH MENTION		
BUSINESS	16-1....	2	3	4	5	6		
SECURITY	17-1....	2	3	4	5	6		
FUN/HOBBY/LIKE TO TALK WITH PEOPLE	18-1....	2	3	4	5	6		
CONVENIENCE	19-1....	2	3	4	5	6		
OUTDOOR SPORTS	20-1....	2	3	4	5	6		
NOT USING IT (AT PRESENT)	21-1....	2	3	4	5	6		
OTHER (SPECIFY)	_____							

28. A recent technology makes it possible to offer you a service which combines telephone and mobile radio benefits. In other words, the new service can be used either as a mobile 2-way radio or as a portable telephone. To get this new service, it would be necessary to buy new equipment to replace your present telephone set or sets. One set of this new equipment would be needed for each telephone you require.

(HAND CARD R AND READ)

Buying the special equipment to replace your present telephone set would give you:

- a service equivalent to a private line telephone service
- a telephone which can be used in a number of places; for instance, in your home or car
- basic monthly rate of \$4 per month
- long distance rates the same

SHOW PICTURE 2

Choice situation 1:

(READ STATEMENT)

Suppose that this new combined mobile radio-mobile telephone equipment is available to you as early as next month and costs \$300; how likely would you be to buy this service within the next 12 months?

(HAND RESPONDENT SCALE CARD AND CIRCLE ANSWER BELOW)

RESPONDENT'S CHOICE:

0 1 2 3 4 5 6 7 8 9 10

22-
23-

28. A recent technology makes it possible to offer you a service which combines telephone and mobile radio benefits. In other words, the new service can be used either as a mobile 2-way radio or as a portable telephone. To get this new service, it would be necessary to buy new equipment to replace your present telephone set or sets. One set of this new equipment would be needed for each telephone you require.

(HAND CARD R AND READ)

Buying the special equipment to replace your present telephone set would give you:

- a service equivalent to a private line telephone service
- a telephone which can be used in a number of places; for instance, in your home or car
- basic monthly rate of \$4 per month
- long distance rates the same

SHOW PICTURE 2

Choice situation 2:

(READ STATEMENT)

Suppose that this new combined mobile radio-mobile telephone equipment is available to you as early as next month and costs \$500; how likely would you be to buy this service within the next 12 months?

(HAND RESPONDENT SCALE CARD AND CIRCLE ANSWER BELOW)

RESPONDENT'S CHOICE:

0 1 2 3 4 5 6 7 8 9 10

22-
23-

28. A recent technology makes it possible to offer you a service which combines telephone and mobile radio benefits. In other words, the new service can be used either as a mobile 2-way radio or as a portable telephone. To get this new service, it would be necessary to buy new equipment to replace your present telephone set or sets. One set of this new equipment would be needed for each telephone you require.

(HAND CARD R AND READ)

Buying the special equipment to replace your present telephone set would give you:

- a service equivalent to a private line telephone service
- a telephone which can be used in a number of places; for instance, in your home or car
- basic monthly rate of \$4 per month
- long distance rates the same

SHOW PICTURE 2

Choice situation 3:

(READ STATEMENT)

Suppose that this new combined mobile radio-mobile telephone equipment is available to you, as early as next month and costs \$700; how likely would you be to buy this service within the next 12 months?

(HAND RESPONDENT SCALE CARD AND CIRCLE ANSWER BELOW)

RESPONDENT'S CHOICE:

0 1 2 3 4 5 6 7 8 9 10

22-
23-

SECTION E

And now just a few questions to help us in classifying your answers.

29. For how many years have you lived in this home?
NO. OF YEARS: 24/25
(SPECIFY)

30. Do you: (READ LIST)?
Own this home?26-1
Rent this home? 2

31-a) Do you consider this home to be located in a rural area or an urban area?
URBAN ...27-1
RURAL 2
OTHER (SPECIFY) _____

-b) And is your way of life more urban or more rural?
URBAN ...28-1
RURAL 2
OTHER (SPECIFY) _____

32. Would you say that this home is part of a community that is a town, a village, a settlement, etc., or that this home is isolated?
ISOLATED 29 -1 GO TO Q.34
PART OF A COMMUNITY ... 2

33. (IF IN COMMUNITY AT Q.32)
Approximately how many people live in this community?
NO. OF PEOPLE: _____ 30/33
(SPECIFY)

34. (HAND CARD E-1)

Please look at this card and tell me how far this home is from:
(READ LIST AND RECORD)

	Over 100 yards	$\frac{1}{4}$ mile	$\frac{1}{2}$ mile	1 mile	5 miles	10 miles	30 miles	
	-less than	-less than	-less than	-less than	-less than	-less than	-less than	60 or more miles
	100 yards	$\frac{1}{4}$ mile	$\frac{1}{2}$ mile	1 mile	5 miles	10 miles	30 miles	

- a) Your nearest neighbour 34-1.....2.....3.....4.....5.....6.....7.....8.....9
- b) the nearest grocery store .. 35-1.....2.....3.....4.....5.....6.....7.....8.....9
- c) the nearest elementary school 36-1.....2.....3.....4.....5.....6.....7.....8.....9
- d) the local police detachment 37-1.....2.....3.....4.....5.....6.....7.....8.....9
- e) the local fire department 38-1.....2.....3.....4.....5.....6.....7.....8.....9
- f) the nearest hospital 39-1.....2.....3.....4.....5.....6.....7.....8.....9
- g) the nearest city 40-1.....2.....3.....4.....5.....6.....7.....8.....9

(WRITE IN NAME)

35. How many people including yourself, live in this household who are:

	<u>NO. OF PEOPLE</u>
Under 5 years of age	41-
5 to 14	42-
15 to 24	43-
25 to 44	44-
45 to 54	45-
55 to 64	46-
65 and over	47-
TOTAL = 48/49	

36. So there are _____ people living in this household?
(TOTAL NO. IN HOUSEHOLD)

(CORRECT TOTAL IF REQUIRED)

37. What is your occupation?

_____ IN _____ 50-
(TYPE OF JOB) (TYPE OF COMPANY)

- RETIREED 51-1
- UNEMPLOYED 2
- HOMEMAKER 3

(IF EMPLOYED OUTSIDE THE HOME, ASK:) Is that full-time or part-time?

- FULL-TIME 52-1
- PART-TIME 2

38-a) What is your marital status?

- MARRIED 53-1
- SINGLE (NEVER MARRIED) 2
- SEPARATED 3 GO TO
- WIDOWED 4 Q.39
- DIVORCED 5

-b) What is the occupation of your spouse?

_____ IN _____ 54-
(TYPE OF JOB) (TYPE OF COMPANY)

- RETIREED 55-1
- UNEMPLOYED 2
- HOMEMAKER 3

(IF EMPLOYED OUTSIDE THE HOME, ASK:) Is that full-time or part-time?

- FULL-TIME 56-1
- PART-TIME 2

39. And how far did you go in school? (DO NOT READ LIST)

	<u>SOME</u>	<u>COMPLETED</u>
PUBLIC/ELEMENTARY (GRADES 1 TO 8; QUEBEC, GRADES 1 TO 7)	57-1	2
SECONDARY/HIGH SCHOOL (GRADES 9 TO 13; QUEBEC, GRADES 8 TO 12)	3	4
TECHNICAL/SENIOR COLLEGE (ABOVE GRADES 12 OR 13; QUEBEC, CEGEP)	5	6
UNIVERSITY	7	8
POST-GRADUATE	9	0
NO FORMAL SCHOOLING		58-1
REFUSED		2

40. (HAND CARD E-2) And in which age group are you?

A. 18 TO 24	59-1
B. 25 TO 34	2
C. 35 TO 44	3
D. 45 TO 54	4
E. 55 OR OVER	5
REFUSED	6

41. (HAND CARD E-3) And what was the total household income from all sources before taxes during 1979? Just tell me which letter coincides with your income group?

L	60-1
M	2
N	3
O	4
P	5
Q	6
R	7
S	8
T	9
U	0
V	61-1
W	2

42. What language is spoken most often in this household?

ENGLISH	62-1
FRENCH	2
OTHER (SPECIFY) _____	

Type of dwelling: (OBSERVE, DO NOT ASK)

SINGLE OR SEMI-DETACHED HOUSE	63-1
ROW HOUSES	2
DUPLEX, TRIPLEX, QUADRUPLEX	3
SUITE OVER STORE, ETC.	4
APARTMENT (5 TO 7 UNITS)	5
APARTMENT (8 TO 19 UNITS)	6
APARTMENT (20 OR MORE UNITS)	7
ROOM(S), PART OF HOME	8
OTHER (CIRCLE CODE AND SPECIFY)	9

ASK TO SEE THE PHONE BILL IF NOT VOLUNTEERED. RECORD NAME OF PHONE COMPANY.

BASIC MONTHLY CHARGE: _____ 64/66

TOTAL MONTHLY CHARGE: _____ 67/69

RECORD NAME OF PHONE COMPANY _____ 70-
71-

FINISH TIME: _____ :

NAME: _____

ADDRESS: _____

CITY: _____ TELEPHONE NO. _____

DATE: _____ INTERVIEWER: _____

