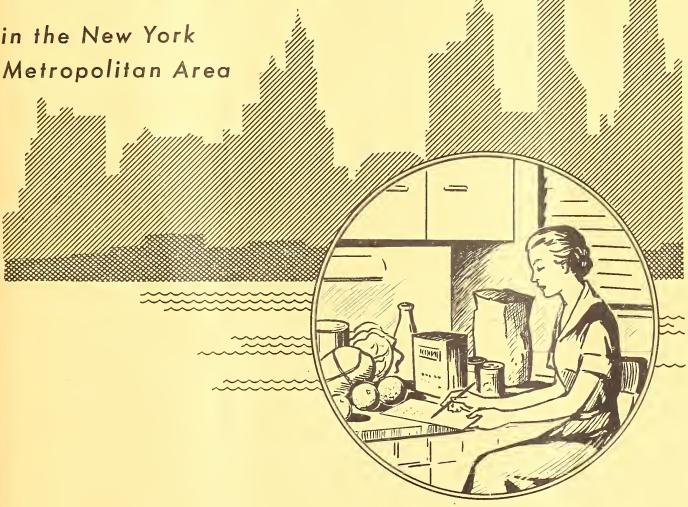
Problems of Establishing a CONSUMER PANEL

in the New York Metropolitan Area



An Agricultural Marketing Act of 1946
(RMA, Title II) Contract Report

Marketing Research Report No. 8

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF AGRICULTURAL ECONOMICS

WASHINGTON, D. C.
May 1952

For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. - Price 25 cents

FOREWORD

In cooperation with various segments of the fruit industry, the Department of Agriculture contracted in 1949 with the Industrial Surveys Company for monthly data that would show consumer purchases of specified fruit and fruit products. The data were to include information showing amounts bought, prices paid, average size of purchase, and percentage of households purchasing. Quarterly tabulations of these data by regions and types of outlet are released in separate reports. Less frequently, reports are issued which present buying practices by various family characteristics.

Since 1942 the Industrial Surveys Company has maintained a national panel of households based upon quota sampling, and during that time has conducted a number of small scale studies on various operational aspects of maintaining a consumer panel, including length and type of the reporting forms and level of compensation needed to keep households reporting. A study of the possibilities of using a more objective sampling procedure was needed. Hence, in cooperation with the Industrial Surveys Company and as a part of the contract with the company, a study was begun of the possibilities of getting a random sample of households to keep records of purchases of selected items and to forward a report to the company at the end of each week.

This bulletin presents the results of an attempt to obtain the cooperation of a probability sample of 546 households in the New York metropolitan area, which is recognized as one of the most difficult areas in the United States with respect to obtaining a high rate of response in surveys. The field work was started in February 1950. Most of the effort to recruit households was made during the following 3 months, although some recruiting work was carried over until fall as summer is a very poor time to recruit for a panel. Of the 546 households selected, 310, or 60 percent, agreed to cooperate and sent in one or more weekly reports. During February 1951, 193 of the 310 (or 35 percent of the 546) were still reporting regularly, 98 had dropped out, and 19 had moved to other dwellings.

Early in 1951, field work was started on recruiting a national sample, outside the New York metropolitan area, of approximately 1,100 households specified by probability sampling. The sample of 1,100 households was a subsample of a larger sample which was expected to be set up eventually. Although the effort to recruit each household in the national sample was less than that for the New York area, the initial rate of cooperation was nearly 70 percent as compared to 60 percent in the New York area. A report on this project is to be published later.

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CONTENTS

PROBLEMS OF ESTABLISHING A CONSUMER PANEL IN THE NEW YORK METROPOLITAN AREA

Prepared by Industrial Surveys Company
under contract as authorized by
the Research and Marketing Act of 1946 (Title II)
Edited for publication by Bureau of Agricultural Economics

INTRODUCTION AND STATEMENT OF OBJECTIVES

Although a probability sample of households may be specified for a survey, the desired information is usually not obtained from all of the households designated by the design. The rate of response, which varies widely from one survey to another, is conditioned by numerous factors, chief of which are the nature of the survey and the effort put forth to obtain the required information from potential respondents. The survey discussed here differs from the usual survey in that cooperation of a sample household or panel is required for an extended period of time.

For purposes of the study upon which this report is based, a "continuous consumer panel" or "panel" refers to a sample of households reporting by mail each week their day-to-day purchases of certain food and personal-care items. Because the bulk of a panel remains constant throughout a given year, and substantially so from year to year, the purchases of a given household at one point in time may be linked to the same household's purchasing behavior at a later point in time. The printed form used by sample households to record daily their purchases of food and personal-care items is referred to in this report as a "diary." For each item bought the household was requested to provide information as to brand,[1] quantity, size, and outlet in which bought. In the main, the information requested was on packaged foods. Thus high-velocity items such as milk, meat, bread, and fresh vegetables were excluded. The average number of entries made per week was about 17. It is estimated that the recording of such items took 10 to 30 minutes a week.

The over-all objective of the project was to study the problems associated with the use of a probability sample design to establish and maintain a continuous consumer panel. By a probability sample design is meant one in which each member of the universe can be assigned a known nonzero chance of being selected for inclusion in the sample. Note that the word "sample" refers to all households selected and not the particular households that cooperate.

1/ Information as to brand was for clients other than the Department of Agriculture.

The specific objectives of the project were: (1) To ascertain the degree to which the cooperation of a probability sample of households in which continuous records of purchases of food and personal-care items would be kept could be obtained; (2) to explore and, so far as possible, to overcome obstacles to cooperation; (3) to examine the influence of noncooperation on the accuracy of results; and (4) to investigate procedures to be followed in selecting substitute households for households that refuse to join the panel.

DESIGN OF THE SAMPLE

In planning the study, consideration was given to the possibility of using an experimental plan such as the factorial design.[2] Under this scheme it would have been possible to test in various combinations such factors as length and form of the diary, the level of compensation for cooperation, the method of soliciting cooperation, and the method of training households. The major deterrents to the use of a factorial design for this project were:

(1) A rigid, standardized recruiting approach would have been necessary for all sample households that received the same treatment combination. Previous experience[3] had indicated that each household presented a unique problem and that a flexible recruiting procedure which could be varied at will from family to family or from time to time for a given family would lead to a higher rate of cooperation.

(2) The expense and administrative difficulties that arise from a factorial design would have been excessive because, as a safeguard against confounding of interviewer differences with other factors, it would have been necessary to include interviewers as a factor under test. That is, randomization of interviewers among households would have been necessary, with a consequent increase in travel expense and a lessening of immediate administrative control over the interviewers.

(3) Inasmuch as considerable "missing data" were anticipated, retaining the orthogonality of the design would have been impossible.

(4) If an elaborate design is used the limitation on size of sample is such that the number of households that could receive any one treatment combination would be too small for purposes of making reliable comparisons among the various treatment combinations.

For these reasons it was decided that more information could probably be obtained per dollar spent if use were made of a less rigorous approach. As the plan was finally evolved, interviewers were instructed to use varying approaches in attempting to get the sample households to cooperate.

2/ For details as to the structure of a factorial design see, for example, Cochran, W. G., and Cox, G. M. Experimental Designs. John Wiley and Sons, Inc., 1950. Ch. 5.

3/ A pretest of the feasibility of using a probability sample for a panel was carried out in Chicago in 1949 by the Industrial Surveys Company.

Thus the recruiting approach was to be modified to fit particular situations. The details of this decision are elaborated later in this report. The structure of the survey design used to identify sample households is discussed in succeeding paragraphs.

The standard metropolitan area[4] of New York was selected as the locale for the study largely because of the number and diversity of problems associated with the area, such as literacy of population, language difficulties, and wide variation in living conditions. Because of this diversity, the experience gained would be helpful if it were decided to attempt the recruiting of a national probability sample of households.

The final reporting sample was to consist of approximately 350 households.[5] The number of households in the area was estimated to be 3,420,000. As a cooperation rate of 65 percent was anticipated, it was estimated that 538 = (350/.65) households should be specified for inclusion in the sample. This specified sample size of 538 corresponded to an over-all sampling rate of 538/3,420,000 or 0.00016. The sampling was carried out in three stages: (1) Selection of places[6], (2) selection of blocks within places, (3) selection of dwelling units within blocks.

In the first stage of the sampling, the five boroughs were automatically included because of the number of dwelling units in them. The remaining places were grouped into 18 strata of approximately equal size on the basis of number of dwelling units, geographic location, and average rent. An additional stratum was comprised of large housing developments since 1940. Within each of the 18 strata one place was selected with a probability proportionate to its 1940 number of dwelling units. The within-place sampling rates were then determined by the relationship r = R/P where r = within-place sampling rate, R = over-all sampling rate, and P = probability of a place being selected.

The number of blocks chosen in each place was set to provide an average of two sample households per block. For 10 of the 18 sample places, block statistics from the 1940 Census were available and were used to stratify blocks by average rent and geographic location. Sample blocks were selected with probabilities proportionate to the number of dwelling units reported in the 1940 Census. In the places without block statistics, all blocks were stratified geographically and sample blocks were selected with equal probabilities. Within the 19th stratum which

4/ Standard metropolitan areas were defined by a Federal interagency committee which was set up late in 1947 under the direction of the Bureau of the Budget.

5/ The census definition of a household was used. As defined for census purposes, a household consists of those persons who live in a dwelling unit which in essence is a room or group of rooms, occupied or intended for occupancy as separate living quarters, having separate cooking equipment. This excludes certain living quarters in dormitories, transient hotels, tourist courts, and institutions.

6/ Place is used as a general term to include any of the five boroughs, an incorporated city or town, or the remainder of a minor civil division after deletion of any towns or cities.

was comprised of housing projects, each floor of an apartment building was regarded as a "block" and a sample of floors was selected with probabilities proportionate to the estimated number of dwelling units on the floors.

A special field staff listed all dwelling units in the sample blocks. Difficulty was encountered in gaining entrance to certain apartment hotels and high-rental apartment houses, but with one exception, these problem apartment houses were eventually enumerated. Two blocks in very low rental districts (so-called "violation areas" where overcrowding was prevalent) could not be enumerated because of lack of cooperation on the part of both landlords and tenants. Substitutes for these two blocks were selected from within the same low-rental districts. The actual selection of sample dwelling units was carried out in the field by the enumerative staff in order to identify the names of the householders to be contacted. Dwelling units within the sample blocks were selected by means of a systematic sampling from a random starting point. The correctness of this field operation was verified in the central office. In this way, 575 dwelling units were identified, 26 of which did not contain eligible households and 3 of which were vacant. Thus, in all, 546 households were designated for the sample.

PLAN OF OPERATION

Introductory Statement

The operational goal of the study was to obtain complete and accurate continuous weekly reports of purchases of certain foods and personal-care items by members of the sample households. This information was to be obtained from each household by means of a self-administering form known as a "diary." Each household agreeing to participate in the panel was to receive at the outset a merchandise premium worth about $5.00. In addition, each was to be remunerated in "points" which could be exchanged for merchandise premiums. The number of points to be received depended upon the number of members in the household, the number of diaries mailed in during a 3-month period, and whether each weekly diary was mailed by a certain dead-line date. The average monthly remuneration was valued at $2.15 in merchandise premiums.7/

A member of the household (usually the housewife) was to be responsible for keeping the diary. This recorder, or monitor, was to be given an intensive training program, following which the household would be placed on mail control - that is, each household was to receive four weekly diaries each month and the monitor was to mail back a completed diary each week. A household on mail control which failed to return a diary, was late in returning it, or did a poor reporting job (as evidenced by editing) was to receive a personal call from the interviewer who had initially contacted it.

7/ In the past the level of compensation necessary to maintain families reporting on a satisfactory basis has undergone close scrutiny by the Industrial Surveys Company. This level of compensation was found to be about the minimum that would retain loyal reporting and prevent households from discontinuing cooperation because the level of compensation was too low.

Selection and Training of Field Force

A list of more than 100 names of prospective interviewers, all of whom were women, was compiled from the records of the Industrial Surveys Company and from contacts with other research organizations. The job requirements for the full-time field staff were:

(1) Age - 30 to 45 years.
(2) Marital status - married.
(3) Family size - no children under 10 years of age unless adequate provision can be made for their care both during the day and evening.
(4) Education - 2 to 4 years of college desirable.
(5) Experience - responsible position working with women. Interviewing experience desirable, especially if on surveys employing a probability sample design. No house-to-house selling and preferably no retail selling. Social work acceptable.
(6) Appearance - neat personal appearance, conservative dresser.
(7) Health - ability to work long hours and in various types of weather.
(8) Personality - pleasing. Must like all kinds of people. Ability to carry on a conversation with all types of people. Not overbearing or too aggressive. Good listener. Persevering yet tolerant.
(9) Availability - available to work nights, Saturdays, and Sundays.

On the basis of the interviewer's past experience, recommendations and personal interviews by the person in charge of field operations, all except 17 prospective interviewers were eliminated. Further interviewing of the candidates resulted in the hiring of 11 for full-time work. No attempt was made initially to select interviewers who could handle special language problems.

Planning of an interviewer training program necessitated an explicit formulation of the tasks required of the successful interviewer. These were determined to be: (1) To approach sample households and present the importance of panel membership; (2) to obtain from every sample household certain classificatory information on such items as income, occupation of employed members, and education of all members; (3) to train the monitor in accurate reporting for the households that agreed to join the panel; (4) to visit at periodic intervals certain households that indicated that they might drop from the panel; (5) to record each experience and association with the household.

To provide each worker with the confidence, enthusiasm, and skill needed to carry out these tasks, a conference-type training program lasting 8 days was instituted. During the early part of the training program, interviewers were familiarized with the over-all objectives and purposes of the panel. Particular stress was placed on the importance of securing the cooperation of as many sample households as possible. The nature of the diary was explained and interviewers were required to keep the diary during the training program in order to understand the problems involved. Probable sources of difficulty in contacting, recruiting, training, and

maintaining the sample households were emphasized, and interviewers were advised on alternative methods of coping with anticipated difficulties. At all times, they were encouraged to participate in the discussion of problems and to ask questions. Two days of the training program were devoted to practice work in the field, and the final day was spent in discussing the problems that arose during the practice work.

Procedures for Controlling and Recording Field Operations

Before initial contact was made by interviewers, an introductory letter describing the nature and activities of the panel was mailed to each sample household. In order to carry out the recruiting task, each interviewer was provided with the following materials: (1) Four diaries in which the household name, number, and address were typed; (2) a merchandise catalog showing prizes available to panel participants; (3) a household-recruiting manual; (4) a reference guide for panel households; (5) a recruiting-call report; (6) an interviewer identification card.

The households successfully recruited were in a training status for about 3 months, although some households required very little training. Diaries of those who mailed them in while in training status, were edited in the central office and returned to the interviewers, who then discussed with the monitors any errors that were made. Certain households retained the diaries for pick-up by the interviewers, who, at the time of pick-up, discussed with the monitor any errors in these diaries.

Once training had been completed, no diaries were returned to the interviewers for consultation with the monitors unless an excessive number of errors had been detected. In the latter event, a special call (termed a maintenance call) was arranged. Maintenance calls were also made if a monitor had stopped reporting or showed evidence of erratic reporting. In these cases, intensive efforts were made to regain the cooperation of the delinquent households.

During recruiting and maintenance operations, individual interviewers sent daily reports to supervisory personnel. In addition, the field supervisor and the person in over-all charge of the project held a weekly conference with each interviewer. At this time, a review of the status of each sample household was conducted and appropriate action was recommended for the following week's activities.

To record contacts with sample households, the following forms were employed: (1) Recruiting Call Report (see Appendix A); (2) Training Call Report (see Appendix B); (3) Special Action Form[8]; (4) Daily Time and Expense Report[9]; (5) Master Control Form[10].

8/ This form was designed to record any extraordinary measures taken by the company to secure or maintain household cooperation. A more explicit definition of the operations encompassed by special action is presented in a later section of this report.

9/ All forms relevant to the day's activities (recruiting, training, and special-action forms) accompanied this daily report.

10/ This form was designed to provide a summary for each household for recording all types of calls by purpose and a record of diaries sent in, as well as the points earned.

These forms were designed to obtain the necessary information for the analysis phase of the project. They did not provide cost data on a household or call basis. Cost was to be evaluated in terms of relative effort expended among the various types of operation - contacting, recruiting, maintenance. The measure of effort was to be expressed in terms of number of calls expended on the various operations, rather than on a cost basis.

PROGRESS OF WORK IN THE FIELD

On February 8, 1950, the work of recruiting the 546 sample households was begun. During February and March about 65 percent of the sample households received one or more recruiting calls. By a recruiting call is meant one in which the interviewer discusses panel membership with the potential household monitor. Thus, although the potential monitor might have been home, the call was classified as a not-at-home recruiting call if there was no opportunity to discuss panel membership. Early in April the field force was reduced from 11 to 7 - one interviewer had resigned and 3 were released. By this time the main function of the field force had changed from recruiting to that of training and maintaining the households that had been recruited.[11/] Some recruiting work continued, although the primary emphasis was on consolidation of the recruiting gains already made.

During the first part of May the status of all sample households was reviewed. This review indicated that 28 percent of the sample households had not yet been contacted, and efforts designed to reach these households were intensified. Three new interviewers, including two bilingual workers, were hired. Early in June it was decided to diminish recruiting effort until September because of indications that recruiting efforts would meet with little success during the summer. A number of households had indicated reluctance to discuss panel membership because of pending summer plans.

In September the status of each sample household was again reviewed. By this time, 294 households had been recruited. A total of 170, comprised of the following groups, were selected to receive further calls: (1) households not yet contacted; (2) households that had requested that the interviewer return at the end of the summer; (3) households that had been recruited but had stopped reporting for a reason that might be altered over a period of time; (4) households that had refused but might be persuaded to reconsider; (5) households for which complete classification data were not available.

Each interviewer was provided with detailed written instructions in regard to the type of action to be taken with these 170 households. Calls were completed on these households on November 25, 1950, with the following results: (1) 20 percent were recruited or re-recruited; (2) 70 percent refused to join or rejoin; (3) 10 percent were not contacted.

In November plans were made to select a subsample of 162 noncooperative households for which substitutes were to be selected. The actual procedures used and a summary of results are presented later in this report.

11/ A household was defined as recruited if it had completed at least one diary after agreeing to join the panel. This definition is followed throughout the report.

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By February 1951, the project had been under way for a year. The status of the sample households at that time is presented in table 1.

Table 1.- Status of sample households, February 28, 1951

Status of household	Households	
	Total	Percentage of total sample
	Number	Percent
Recruited:		
Reporting	193	35
Dropped	98	18
Moved	19	4
Total	310	57
Refused	210	38
Called on but unable to discuss membership	14	3
Never called on	12	2
Total sample	546	100

The 14 households called on but unable to discuss panel membership represent a number of unusual cases. To illustrate, several households had recently suffered deaths so that no monitor existed and in 6 cases the household had moved between visits by the interviewer. The 12 households never called on were in apartment hotels. All of these households were later contacted after permission to enter the hotels was obtained.

During the course of the project, 19 of the sample households moved to other dwelling units. The field force was instructed to try to recruit the "new" households residing in the sample dwelling units, regardless of the status of the households previously residing there. However, this report is confined to a consideration of the original sample households that were contacted.

DESCRIPTION AND EVALUATION OF RECRUITING EFFORTS AND RESULTS

The preceding sections of this report have been concerned primarily with an outline of the general structure of the study. Some account of progress in the field was given, but the detailed description of methods involved and the interpretation of results have been deferred to this and later sections of the report. The present section consists of a report on the nature and extent of efforts made to recruit sample households.

The extent of the recruiting effort in terms of number of recruiting and not-at-home recruiting calls made and number of households recruited is indicated in table 2. For purposes of tabulation the relatively small number of calls made when the potential monitor was home but unwilling to discuss panel membership was included among the not-at-home recruiting calls.

Table 2.- Number of recruiting and not-at-home recruiting calls made and households recruited by number of recruiting calls

Number of recruiting calls	Households receiving recruiting calls		Not-at-home recruiting calls		Households recruited		
	Total 1/	Percentage households receiving stated number of calls	Total 2/	Per recruit call	Total 3/	Per recruit call	Per call
	Number	Percent	Number	Number	Number	Number	Number
1 ...	520	100	794	1.5	212	0.41	0.16
2 ...	212	41	161	.8	64	.30	.17
3 ...	79	15	53		23		
4 ...	21	4	31	4/ .8	10	4/ .31	4/ .17
5 ...	6	1	5		1		
6 ...	2	-	-		-		
Total..	840		1,044	1.2	310	.37	.17

1/ Data in this column are presented in terms of households receiving 1 or more recruiting calls, 2 or more recruiting calls, etc. Thus, 212 of 520 received 2 or more recruiting calls and 308 or (520-212) received only 1 recruiting call. The sum of the first column, 840, is the total number of recruiting calls made.

2/ This column shows the number of not-at-home calls made to effect the first recruiting calls, the second recruiting calls, etc.

3/ This column shows the number of households recruited on the first recruiting call, on the second recruiting call, etc.

4/ Average for households recruited on third, fourth, fifth, and sixth recruiting calls combined.

The most important facts given by table 2 are: (1) Sixty percent or 310 of the 520 households receiving recruiting calls were recruited; (2) the average number of households recruited per recruiting call dropped from 0.41 for the first recruiting call to 0.31 for later calls; (3) 41 percent of the sample households receiving recruiting calls received 2 or more; (4) the average number of not-at-home calls per recruiting call diminished by almost half following the first recruiting call. By appropriate scheduling, interviewers increased the likelihood of completing a recruiting call; (5) if both recruiting and not-at-home calls are considered, the average number of households recruited per call was about the same for the first as for later calls.

After each recruiting call, the number of households that were to receive additional calls was determined by a screening procedure that eliminated those households on which further effort appeared to be useless. Some of the households scheduled to receive additional recruiting calls did not receive them, as it was found on a not-at-home call that further effort would be useless. For example, the monitor's husband might have answered the call and insisted that the interviewer not return.

It might be anticipated that households that required more than one recruiting call before joining the panel would be most likely to discontinue reporting. Although table 3 indicates some confirmation of such a hypothesis, the evidence is not so great as to suggest that recruiting efforts beyond the first call were not worth while, particularly in view of the fact that the number of households recruited per call (table 2) was about the same on later calls as on the first call.

Members of the households which refused to cooperate were much less likely to be found at home. As shown in table 4 approximately three times as many not-at-home calls were required per recruiting call for the refusal households as for the cooperating households. In terms of the total recruiting effort, table 5, 46 percent of the recruiting calls, or 386 of 840, and 70 percent of the not-at-home recruiting calls were made on the refusal households, which constituted 40 percent of the sample. However, the amount of effort spent on refusal households is not a sound criterion for deciding the number of calls to make. That problem should be considered in terms of the gains for marginal increases in the recruiting effort.

Table 3.- Distribution of households by status and number of recruiting calls made

Number of recruiting calls	Households						
	Reporting		Recruited but dropped		Reporting as a percentage of recruited	Refusal	
	Total	Percentage distribution	Total	Percentage distribution		Total	Percentage distribution
	Number	Percent	Number	Percent	Percent	Number	Percent
1 ...	151	71	61	63	71	95	45
2 ...	42	20	22	22	66	70	33
3 ...	12	6	11	11	52	31	15
4 ...	6	3	4	4	60	10	5
5 ...	1	-	-	-	-	2	1
6 ...	-	-	-	-	-	2	1
Total..	212	100	98	100	68	210	100

Table 4.- Number of not-at-home recruiting calls by status of household and recruiting call

Number of recruiting calls	Households					
	Reporting		Dropped		Refusal	
	Total	Number per recruiting call	Total	Number per recruiting call	Total	Number per recruiting call
	Number	Number	Number	Number	Number	Number
1	179	1.2	85	1.4	326	3.4
2	13	.2	20	.5	240	1.7
3,4,5, & 6	9	.1	9	.2	163	1.1
Total	201	.7	114	.7	729	1.9

Table 5.- Summary of calls made by status of household

Status of household	Number of households	Number of recruiting calls	Number of not-at-home recruiting calls	Number of recruiting calls per household	Number of not-at-home calls per recruiting call
	Number	Number	Number	Number	Number
Reporting	212	300	201	1.4	0.7
Dropped	98	154	114	1.6	.7
Refusal	210	386	729	1.9	1.9
Total	520	840	1,044	1.6	1.2

In an earlier section it was stated that the interviewers were encouraged to use various approaches in attempting to recruit the sample households. Nevertheless, these differential recruiting techniques operated within a fairly rigid frame of reference. One of the following four courses of action, which will be referred to as "special action", were taken when it appeared that a household was unlikely to be recruited without such action:

(1) The type and method of compensation offered the household. In some instances, for example, a household was offered twice the standard compensation for participating in the panel when it appeared that resistance to cooperation might be overcome by additional compensation.

(2) The interviewer assigned to recruit the household. In certain cases, when a particular interviewer was unsuccessful, a different interviewer was assigned to the uncooperative household.

(3) The language in which the recruiting process was conducted. In certain non-English speaking households, use was made of Spanish- and Italian-speaking interviewers.

(4) The person assigned the role of monitor. Although ordinarily the female head of the household assumed the diary-keeping function, in some cases this was performed by some other member of the family, a neighbor, a literate relative, or the interviewer herself.

Inasmuch as interviewers were told to use a maximum effort in recruiting sample households other forms of action were used which might be regarded as special action, including special letters to further persuade certain families to join the panel or special calls to talk with the husband to overcome his suspicion.

Table 6 shows the results of special action employed on households receiving such action as part of the recruiting program. Some households received more than one form of special recruiting action, but for purposes of tabulation a household was classified on the basis of the type of special action receiving most emphasis. The table suggests that special action was an important factor in recruiting sample households. Almost half of the total sample (250 households) received one or more forms of special action and, of households receiving such action, 156, or 62 percent, were recruited. This may be contrasted with the record for the 270 households that received no special action. Of these, 154, or 57 percent, were recruited. Without special action it is doubtful whether any of the households receiving such action would have been recruited. With a variable recruiting approach of the type employed here, it is sometimes difficult to distinguish between special and ordinary recruiting action. Without doubt table 6 understates the amount of special recruiting actually undertaken. However, it clearly indicates that special action increased the over-all percentage of households recruited.

Although special action was a major factor in inducing sample households to join the panel, a greater proportion of households receiving such action discontinued reporting (43 percent) than was the case for the "no special action" group (19 percent). Thus, even though these unusual measures are of value in recruiting certain households, their effectiveness is somewhat diminished when long-range cooperation from sample households is desired.

Table 6.- Special recruiting action taken and results obtained

Type of action	Households					
	All		Recruited		Reporting	
	Total	Percentage distribution	Total	As a percentage of all households	Total	As a percentage of households recruited
	Number	Percent	Number	Percent	Number	Percent
No special action	270	52	154	57	125	81
Special action:						
Method of compensation	15	3	14	93	10	71
Change in interviewer	93	18	57	61	24	42
Service of bilingual interviewer	36	7	14	39	6	43
Special monitor	106	20	71	67	47	67
Total	250	48	156	62	87	57
Grand Total	520	100	310	60	212	68

Why did certain households refuse to join the panel? An analysis of the reasons offered is presented in table 7. Together, the two categories "too busy" and "no interest" account for 80 percent of the reasons given for refusal to join the panel. Reasons offered by refusal households, however, may not in all cases reflect the true motivations for their failure to join the panel.

Having examined in some detail the framework within which recruiting operations were carried out, it is appropriate to inquire as to its adequacy. But no objective yardstick exists for evaluating the adequacy of the recruiting efforts put forth on so complex a survey. Undoubtedly more cooperation could have been secured had sufficient compensation been offered to overcome the objections of the uncooperative households. It is also possible that over a period of time, the conditions preventing certain households from joining the panel might be removed and that these households could then be recruited. However, any further efforts would probably have yielded a relatively small return for the resources expended.

Table 7.- Number and percentage distribution of households not joining the panel, by reason for refusal

Reason for refusal	Households	
	Total	Percentage distribution
	Number	Percent
Too busy	89	43
No interest	77	37
Illness	17	8
Broken family	7	3
No reason	5	2
Other	15	7
Total	210	100

TRAINING AND MAINTENANCE OF SAMPLE HOUSEHOLDS

Training of Sample Households

Once a household had been recruited, the primary problem became one of training the monitor to make accurate and complete entries in the diary. For this purpose, a series of training calls was initiated. (A training call is defined as a call made for the purpose of instructing a household to keep the diary, to examine the accuracy of entries, and to answer questions regarding problems arising in this connection.) It was originally intended to provide a minimum of two such calls for every recruited household. This ruling was later modified, as many monitors were able to keep the diary satisfactorily after a single training call. In the event that a monitor was not adequately trained after two training calls, as many further training calls as necessary were provided. Tables 8 and 9 summarize the extent of the training effort.

About 35 percent of the households received one or no training call, whereas 5 or more training calls were made on approximately 10 percent of the households. The average per household was 2.4 which was the same for both reporting and dropped groups (table 9). Although the results are not shown here in tabular form, the number of training calls per family was unrelated to the number of the call on which the family was recruited.

Table 8.- Number and percentage distribution of households reporting and dropped, by number of training calls

Number of training calls	Households					
	Reporting		Dropped		Total	
	Total	Percentage distribution	Total	Percentage distribution	Total	Percentage distribution
	Number	Percent	Number	Percent	Number	Percent
0	13	6	13	13	26	8
1	61	29	19	20	80	26
2	52	24	27	28	79	26
3	38	18	16	16	54	17
4	28	13	10	10	38	12
5	8	4	8	8	16	5
6	6	3	2	2	8	3
7 or more.	6	3	3	3	9	3
Total..	212	100	98	100	310	100

As was done during the recruiting operations, a considerable part of the total training effort was expended on not-at-home training calls. (A not-at-home training call is defined to be one on which the monitor being trained was either not at home or was unwilling to discuss diary-keeping procedures at the time of a scheduled training call.) As shown in table 9, greater effort was required to contact the households that dropped.

Table 9.- Total and average training calls and not-at-home training calls, by households reporting and dropped

Status of household	Training calls		Not-at-home calls	
	Total	Average per household	Total	Average per training call
	Number	Number	Number	Number
Reporting ...	514	2.4	184	0.36
Dropped	237	2.4	114	.48
Total	751	2.4	298	.40

Maintenance of Sample Households

For 199 households, it was necessary to supplement the training program with maintenance calls. (A maintenance call is one made primarily either to keep a household reporting or to induce a dropped household to begin reporting again.) As might be expected, in some instances the distinction between a training call and a maintenance call was not pronounced, although the latter were initiated exclusively with the supervisory staff.

Of the 199 households that received maintenance calls, 39 were singled out for what was termed special maintenance action. The interviewer was obliged to make periodic visits to these 39 households and to give direct assistance, or to make other unusual arrangements to help monitors keep the diaries. Thus, special maintenance action may be defined as that group of unusual efforts required to maintain sample households on a reporting status. Illustrations of special maintenance actions are: Giving direct assistance in keeping the diary, making arrangements for the diary to be kept by a neighbor or relative, or permitting the household to keep a journal-type rather than the standard type of diary. The significance of special maintenance calls in relation to total maintenance calls is pointed up in table 10.

Table 10.- Number and percentage distribution of maintenance calls, by purpose of call

Purpose of call	Calls	
	Total	Percentage distribution
	Number	Percent
To give special maintenance help	423	55
To help person not reporting or reporting poorly	164	21
To deliver special prize	10	1
Other reasons 1/	172	23
Total	2/ 769	100

1/ This figure includes special trips made to obtain information on household characteristics. In most cases, this purpose was combined with other miscellaneous reasons for making the call.

2/ This total includes 55 "maintenance" calls on households that were never by definition recruited. These households had received a series of training calls since they had agreed to join the panel. In later calls the interviewers learned that the diary had not been kept, but were assured that diary keeping would be resumed and that no further training calls were necessary. When no diaries were received, the 55 maintenance calls were made. These 55 calls are not considered in the remainder of this report.

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Of particular interest is the fact shown in this table that more than half of the maintenance calls were expended on the 39 households which received special maintenance. This tabulation of maintenance efforts does not take into account such maintenance activities as telephone calls and letters, of which there were more than 300.

The distribution of maintenance calls among the 199 households receiving such calls is shown in table 11, in which a further subdivision by household status and type of maintenance is made. Also included is the number of households that received no maintenance calls. As the recruiting of families extended over a long period of time, the distributions by number of maintenance calls are difficult to interpret.

Although not indicated in table 11, the number of maintenance calls received by the households ranged from 1 to 53. The maximum number of ordinary maintenance calls made on a household was 7, as contrasted with an upper limit of 53 calls for one household which received special maintenance.

In table 12, a summary of the maintenance-call effort (including not-at-home maintenance calls) is presented by type of maintenance within household status. Thus, of a total of 714 maintenance calls, about 60 percent, or 423 calls, were expended in an effort to maintain 39 households in the panel. The average household on special maintenance received 10.8 maintenance calls as opposed to an average of 1.1 for households not on special maintenance. Clearly, households for which special maintenance action was necessary constituted a serious problem so far as cost was concerned.

As proved to be the case with recruiting and training operations, the problem of not-at-home calls was serious in its relation to the maintenance phase of the project. (A not-at-home maintenance call is one made for maintenance purposes but unsuccessful because the monitor was not at home or was unwilling to discuss diary-keeping techniques.) It was necessary, then, to complete 189 not-at-home maintenance calls in order to achieve 714 maintenance calls. As might be expected, when a comparison with reporting households receiving the same type of maintenance is made, the dropped households were the worst offenders on a per maintenance call basis. If differences between type of maintenance are ignored, it may be noted that reporting households on special maintenance had the smallest number of not-at-home maintenance calls on a per maintenance call basis.

Now that the extent of the efforts to train and maintain sample households has been examined in some detail, it is appropriate to consider the degree of success achieved by these activities. One possible measure is the extent to which recruited households continued to report, although this criterion is rather crude. Of the 98 households that dropped, about 25 percent reported for only 1 or 2 weeks and slightly more than

Table 11.- Number and percentage distribution of recruited households, by number of maintenance calls

Number of maintenance calls	Households											
	Not on special maintenance				On special maintenance 1/				Total			
	Reporting		Dropped		Reporting		Dropped		Reporting		Dropped	
	Total	Percentage distribution	Total	Percentage distribution	Total	Percentage distribution	Total	Percentage distribution	Total	Percentage distribution	Total	Percentage distribution
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
0	71	39	32	36	5	16	3	38	76	36	35	36
1	70	38	25	28	8	26	3	38	78	37	28	29
2	18	10	25	28	6	19	-	-	24	11	25	25
3	17	9	3	3	-	-	-	-	17	8	3	3
4 or more	5	4	5	5	12	39	2	24	17	8	7	7
Total..	181	100	90	100	31	100	8	100	212	100	98	100

1/ Included among households on special maintenance are a number of households which received two or less maintenance calls as the diary was kept by a neighbor or relative.

Table 12.- Number of households and maintenance calls, by status of household

Item	House-holds	Maintenance calls	Calls per household	Number of not-at-home maintenance calls: Total	Number of not-at-home maintenance calls: Per maintenance call
	Number	Number	Number	Number	Number
Reporting:					
Special maintenance	31	403	13.0	46	0.11
Not on special maintenance	181	182	1.0	71	.39
Dropped:					
Special maintenance	8	20	2.5	15	.75
Not on special maintenance	90	109	1.2	57	.52
Total reporting	212	585	2.8	117	.20
Total dropped	98	129	1.3	72	.56
Total on special maintenance	39	423	10.8	61	.15
Total not on special maintenance	271	291	1.1	128	.44
Grand total	310	714	2.3	189	.26

40 percent of these households discontinued within a month after being recruited (table 13). An investigation of the households which dropped after reporting more than 10 weeks revealed that, in general, these households discontinued because of some external circumstances, such as illness or moving away.

In some instances, it is difficult to ascertain why certain households dropped from the panel. The various reasons offered by the households that dropped of their own accord are listed in table 14. In a number of cases, the reason for dropping was not related to adequacy of the training and maintenance programs (illness, broken household).

Because of unsatisfactory diary keeping 24 households were dropped from the panel. Twenty-one of these households had reported erratically over a considerable period of time, and there was no reason to believe that their reporting would improve. The other 3 households could not perform the diary-keeping function satisfactorily, and had repeatedly refused special maintenance assistance.

Table 13.- Number and percentage distribution of households dropped, by number of weeks reporting before dropped

Number of weeks reporting before dropped	Households dropped	
	Total	Percentage distribution
	Number	Percent
1	14	15
2	11	11
3	8	8
4	9	9
5 - 8	14	15
9 - 12	11	11
13 - 24	23	23
25 - 39	8	8
Total	98	100

Table 14.- Number and percentage distribution of households that dropped, by reason for dropping

Reason	Households dropped	
	Total	Percentage distribution
	Number	Percent
Too busy	32	33
Illness	16	16
Not interested	11	11
Too much trouble	9	9
Broken household	2	2
Other reasons	4	4
Total	74	75
Company dropped (poor reporting)	21	22
Could not understand work; refused maintenance	3	3
Total	98	100

COMPARISON OF CHARACTERISTICS OF HOUSEHOLDS BY STATUS AND NUMEER OF RECRUITING CALLS

As certain household characteristics and food-purchasing behavior are known to be related, the personal characteristics of reporting households are contrasted with those of dropped or refusal households. If, for example, recruited households differ significantly from refusal households with regard to such characteristics as age of head of household and size of household, then biases with respect to other items are suspected. Unfortunately, nonsignificant differences between the two groups of households with respect to the selected characteristics do not necessarily mean that the sample is unbiased with respect to purchases of items included in the diary.

The purpose of this part of the report is to contrast the characteristics of certain groups of households that exhibited different levels of cooperation. Although classification data were available for all 310 recruited households, detailed information on characteristics was available for only a subsample of 121 of the 210 refusal households. Approximate tests of statistical significance of differences between recruited and refusal households and of differences between reporting and dropped households have been made (table 15). The tests applied were approximate, as the test was based upon an assumption that the sample was a simple random sample when actually stratification and clustering were involved. The test used for evaluating the significance of group differences was the ordinary chi-square test for a k x 2 table.[12/]

Judging from the data given in table 15, households having the following characteristics were more likely to be recruited: (1) Of nonwhite race; (2) income under $6,000.00 per year; (3) many eaters per household; (4) many meals eaten in home per week; (5) younger household heads; (6) patronize no single store. Some of these factors are correlated with one another. In particular, the number of meals eaten weekly in the home is correlated with the number of eaters in the household; hence, if one of these two factors is significant, the other one is also likely to be significant. Differences between the reporting and dropped households were not so striking; they differed significantly with respect only to home ownership and ratio of meals prepared to total possible meals.

Another phase of the general problem of relating household characteristics to cooperativeness is that of determining whether the number of the call on which a family is recruited is related to household characteristics (table 16). The 100 households recruited on calls after the first tend to differ from the households recruited on first call, in the same direction that the refusal households differ from the recruited households. This would bear out the importance of making recruiting calls beyond the first but needs to be interpreted in the light of data given in table 2, which showed that the number of households recruited per call did not decrease materially with additional calls, and in table 3, which showed the number of households discontinuing cooperation by call on which they were recruited.

12/ For a discussion of the use of this test see for example, Snedecor, G. W., Statistical Methods. Iowa State College Press, 1946. Ch. 9.

Table 15.- Characteristics of households by status[1/]

Characteristics	310 recruited households	121 refusal households	212 reporting households	98 dropped households
	Percent	Percent	Percent	Percent
Sampling area:				
Five boroughs	58	62	56	62
Remainder of area	42	38	44	38
Age of household head:				
20 - 34 years	22	12	22	21
35 - 49 years	42	43	42	42
50 years and over	36	45	36	37
Race:				
White	90	96	91	88
Negro and other	10	4	9	12
Total household income:				
Under $6,000	75	64	74	77
$6,000 and over	25	36	26	23
Employment of wife:				
Not outside home	67	72	67	67
Outside home	33	28	33	33
Number of eaters:				
One	7	10	9	5
Two	24	29	24	23
Three	22	31	23	17
Four	24	22	22	29
Five or more	23	7	23	26
Ratio of meals prepared to total possible meals:				
0.00 - .59	6	10	6	7
.60 - .69	6	10	4	11
.70 - .79	13	15	13	15
.80 - .89	23	26	21	28
.90 - 1.00	52	38	56	39
Ownership of home:				
Own home or are furnished quarters	33	39	38	21
Rent home	67	61	62	79

Table 15.- Characteristics of households by status[1/] - Continued

Characteristics	310 recruited households	121 refusal households	212 reporting households	98 dropped households
	Percent	Percent	Percent	Percent
Rent paid by those who rent:				
0 - $34.99	38	31	40	33
$35.00 - $54.99	40	34	37	46
$55.00 or more	22	34	22	21
Total meals eaten in:				
0 - 21 meals	8	12	9	4
22 - 42 meals	25	32	24	28
43 - 63 meals	25	28	25	26
64 - 84 meals	20	22	20	21
85 meals or more	21	6	22	21
Meals prepared to be taken out:				
No meals	58	68	57	62
1 - 5 meals	28	25	27	30
6 - 10 meals	8	4	9	6
11 - 15 meals	4	4	5	1
16 - 35 meals	2	-	2	1
Weekly food expenditure for home consumption:				
0 - $15.00	18	16	18	17
$16.00 - $30.00	55	63	56	52
$31.00 - $45.00	22	19	19	29
$46.00 -$100.00	5	2	6	2
Store usually patronized:				
No single one	36	19	34	39
An independent	21	36	20	24
A chain	43	45	46	38
Education of head:				
0 - 8 years	37	39	35	41
9 - 12 years	40	39	41	38
13 years or more	23	23	23	21

1/ The entries are underscored for those characteristics having a value of chi-square which is beyond the 5-percent level of significance.

Table 16.- Characteristics of households by recruiting call[1/]

Characteristics	210 households recruited on first recruiting call	100 households recruited on a later recruiting call
	Percent	Percent
Sampling area:		
Five boroughs	53	68
Remainder of area	47	32
Age of household head:		
20 - 34 years	23	19
35 - 49 years	43	42
50 years and over	35	40
Race:		
White	88	94
Negro and other	12	6
Total household income:		
Under $6,000.00	76	75
$6,000.00 and over	25	25
Employment of wife:		
Not outside home	67	65
Outside home	33	34
Number of eaters:		
One	6	10
Two	22	27
Three	22	20
Four	20	31
Five or more	28	12
Ratio of meals prepared to total possible meals:		
0.00 - .59	4	12
.60 - .69	6	4
.70 - .79	12	17
.80 - .89	22	24
.90 - 1.00	56	42
Ownership of home:		
Own home or live in furnished quarters	37	23
Rent home	63	77

Table 16.- Characteristics of households by recruiting call[1/] - Continued

Characteristics	210 households recruited on first recruiting call	100 households recruited on a later recruiting call
	Percent	Percent
Rent paid by those who rent:		
0 - $34.99	38	38
$35.00 - $54.99	41	39
$55.00 or more	21	24
Total meals eaten at home:		
0 - 21 meals	6	11
22 - 42 meals	23	32
43 - 63 meals	26	24
64 - 84 meals	18	24
85 meals or more	27	9
Meals prepared to be taken out:		
No meals	54	66
1 - 5 meals	30	24
6 - 10 meals	9	7
11 - 15 meals	5	1
16 - 35 meals	2	1
Weekly food expenditure:		
0 - $15.00	18	17
$16.00 - $30.00	54	57
$31.00 - $45.00	22	22
$46.00 -$100.00	5	4
Store usually patronized:		
No single one	36	34
An independent	19	24
A chain	44	41
Education of head:		
0 - 8 years	37	38
9 - 12 years	39	44
12 years or more	24	19

1/ The entries are underscored for those characteristics having a value of chi-square beyond the 5-percent level of significance.

DESCRIPTION AND EVALUATION OF SUBSTITUTION PROCEDURES EMPLOYED

With respect to a sample as such there are two common practices for treating the noncooperation or nonresponse problem. One is simply to increase the size of the sample initially to allow for noncooperation, and the second is to select substitutes. In the latter case, attempts are sometimes made to select substitutes that match the noncooperators with respect to certain characteristics. This was the approach followed in the present study. Some worth-while advantages can be claimed for such a substitution procedure, particularly for the type of operation described in this report, but it must be recognized that, technically, substitution is not a satisfactory solution to the noncooperation problem. In fact, the members of the field staff were strongly impressed with the need for trying to gain the cooperation of the households specified for the sample and were not told that eventually substitutions would be allowed. Incidentally, the decision to select substitutes was a blow to the field staff particularly because of the stress that had been placed on the importance of recruiting the originally selected households. Somewhat less stress on this point probably would have prevented a break in staff morale. However, if interviewers had been told in advance that substitutions would be permitted they might have relaxed their efforts to recruit some of the noncooperative households.

In developing the plans for selection of substitutes the general idea was to discover possibilities of finding substitutes in the same block as the noncooperators and with similar food-purchasing patterns. Hence, the effort to find substitutes was greater than would ordinarily be justified for practical purposes. As funds were not available to recruit a substitute for each noncooperative household, it was decided to try to recruit substitutes for a subsample of the noncooperators. It was decided to select 162 substitutes for the 324[13]/ noncooperative families. In order to select the 162 noncooperators for which substitution was to be effected, the 324 noncooperators were paired geographically and one household in each pair was selected at random.

Having identified the 162 households for which substitutions were to be made, the next step was to obtain information as to the food-purchasing behavior of the noncooperative households. These households were queried to see whether they had ever bought certain general types of food products such as canned vegetables, frozen fruits, prepared baking mixes, and frozen concentrated fruit juice. In addition, questions regarding meals prepared in the home were asked in terms of individual household members, so that a summary figure for the entire household could be obtained. Thus, information regarding both qualitative and quantitative aspects of food-purchasing behavior was obtained from the noncooperative households.

13/ The noncooperative group consisted of 210 refusals, 100 dropped (two of these were later re-recruited) and 14 households which had been called on but never contacted.

For each of the 162 noncooperative households designated, 5 possible substitute households were selected. The 2 households residing in the 2 dwelling units on either side of the noncooperator were selected, as well as 3 households chosen at random from among those residing on the same block as the noncooperator. The same information on food purchasing was obtained from the potential substitute households as was elicited from the subsample of noncooperators. In addition, information on family characteristics, similar to that obtained for households in the original sample, was recorded.

Considerable difficulty was experienced in attempting to obtain the desired information on food purchasing. Both the original 162 noncooperators and the 810 potential substitutes displayed considerable resistance when efforts were made to elicit the desired information. In only 11 cases did the interviewer succeed in getting information from all 6 households (original noncooperator and five possible substitutes) resident on a given block. The original noncooperators were particularly resistant; in 48 cases a male interviewer was sent to obtain a minimum of information from neighbors of the noncooperator. The extent to which interviewers were successful in obtaining the desired information on food purchasing is indicated in the following tabulation:

Number of households in a block from which information was obtained	Frequency
1	5
2	11
3	42
4	63
5	30
6	11

Each potential substitute was ranked, as indicated below, according to similarity to the noncooperator, on the basis of the number of meals eaten at home and the number of products commonly purchased:

Difference between number of meals eaten in home of a potential substitute and the noncooperator		Number of products commonly purchased by both noncooperator and potential substitute	
Difference	Rank	Number	Rank
0 - 9	5	25 or more	5
10 - 19	4	20 - 24	4
20 - 29	3	15 - 19	3
30 - 39	2	10 - 14	2
40 or more	1	0 - 9	1

The two ranks for each potential substitute were added together and the sum of these two ranks was used as an over-all rating of similarity for purposes of designating the substitutes as to first choice, second choice, etc. This gave the order in which the potential substitutes were to be contacted. When two households had the same over-all rank the tie was broken by using information on family characteristics. Information on family characteristics was also used for assigning ranks to those households for which adequate information on purchases was not available.

Of the 162 substitutes sought, only 134 had been successfully recruited and were reporting as of July 15, 1951 - 6 months after the recruiting of substitutes was started. Of the 134 substitutes successfully reporting by that date, a total of 93 had been obtained through the use of the substitution plan described above. In the remaining 41 cases, the pool of potential substitutes had been exhausted, and it was necessary to obtain substitutes from households on the block other than those designated by the original substitution scheme. In these latter cases, interviewers were instructed to begin with the household located next to the fifth or last potential substitute and proceed around the block clockwise until a household was recruited. The number of substitutes actually recruited by order of choice was:

Order of choice	Number of households
First	44
Second	35
Third	10
Fourth	3
Fifth	1
Not designated	41
Total	134

Some indication of the magnitude of the task of obtaining cooperating substitutes is provided by the data on number of households contacted for substitution. To obtain the 134 recruited substitutes, it was necessary to contact 503 substitute households. Of the substitute households contacted, 195 refused outright and 174 joined but later dropped out of the panel. Furthermore, although a limit of 2 recruiting calls and 3 not-at-home calls were made on the potential substitutes, a total of 913 not-at-home calls were made on the 503 potential substitutes actually contacted.

As compared to the 520 households contacted in the original sample, about the same percentage of the 503 substitute households agreed to cooperate but the drop-out rate was considerably higher. The contacts with households in the recruiting of substitutes was less deliberate than was the case with the original sample. Previous experience has indicated that strong persuasive efforts to hurry a decision to cooperate will cause as high or perhaps a higher proportion to agree to cooperate than more

deliberate efforts but that the rate of drop out of those hurriedly persuaded will probably be higher, thus resulting in the end in a lower proportion actually reporting. However, this result could be accounted for by the fact that substitutes were selected from blocks in which the cooperation rates are lower than average.

To the degree that substitution was successful, it may be expected that the food-purchasing habits of the substitute households will be similar to those of the noncooperative households. However, since no information is available on the actual purchases of various items by the noncooperative households, no comparisons can be drawn between the two groups in this regard. Nevertheless, certain characteristics of the group of reporting substitutes can be compared with the group of original noncooperators and the first-choice substitutes (table 17).

In the preceding section, use was made of the chi-square test to determine whether significant differences existed in the composition of recruited households as contrasted with refusal households. Unfortunately, this test cannot be used in the present context and reliance must of necessity be placed on inspection of the data. In general, reports of the substitute cooperators appear to be more nearly like those of the original cooperators who are still reporting than the reports of the refusals.

Thus, although considerable effort was expended on the task of getting cooperating substitutes, certain biases apparently remained in the sample of cooperators actually recruited. The magnitudes of any biases in terms of actual food purchases cannot be accurately assessed from available information.

It is clear that because of the problems previously cited, the plan for enlisting substitutes originally designed was too complex. The necessary information on food habits was extremely difficult to obtain. This coupled with the general problem of getting cooperation, tended to diminish the value of the plan as a practical technique for obtaining substitute households. In future operations of this kind, when substitution is necessary, the plan selected should be much simpler, and should result in getting substitutes more nearly like the refusals than the households already cooperating.

Table 17.- Characteristics of original noncooperators, first-choice substitutes and reporting substitutes

Characteristics	162 original noncooperators	134 first choice substitutes	134 reporting substitutes
	Percent	Percent	Percent
Age of household head:			
20 - 34	13	24	29
35 - 49	43	37	41
50 years and over	44	39	29
Race:			
White	94	93	95
Negro and other	6	7	5
Total household income:			
Under $6,000.00	71	77	76
$6,000.00 and over	29	23	24
Employment of wife:			
Not outside home	70	69	73
Outside home	30	31	27
Number of eaters:			
One	9	4	3
Two	29	37	25
Three	28	29	26
Four	20	18	27
Five or more	14	12	18
Ratio of meals prepared to total possible meals:			
0.00 - 0.59	9	9	3
.60 - .69	12	5	6
.70 - .79	15	10	10
.80 - .89	27	25	20
.90 - 1.00	37	51	61
Ownership of home:			
Own home or live in furnished quarters	37	38	35
Rent home	63	62	65

Table 17.- Characteristics of original noncooperators, first-choice substitutes and reporting substitutes - Continued

Characteristics	162 original noncooperators	134 first choice substitutes	134 reporting substitutes
	Percent	Percent	Percent
Rent paid by those who rent:			
0 - $34.99	32	29	32
$35.00 - $54.99	36	43	42
$55.00 or more	33	28	26
Total meals eaten in:			
0 - 21	10	7	2
22 - 42	32	37	26
43 - 63	28	28	29
64 - 84	22	20	27
85 meals or more	9	7	15
Meals prepared to be taken out:			
No meals	70	67	59
1 - 5	24	24	25
6 - 10	6	7	11
11 or more	-	1	4
Weekly food expenditure:			
0 - $15.00	12	17	9
$16.00 - $30.00	64	58	58
$31.00 - $45.00	20	20	27
$46.00 - $100.00	4	5	6
Store usually patronized:			
No single one	22	20	10
An independent	37	23	28
A chain	40	57	62
Education of head:			
0 - 8 years	40	34	33
9 - 12 years	37	42	42
13 years or more	23	24	24

SUMMARY AND CONCLUSIONS

This report has presented the results of an intensive effort to secure and maintain the cooperation of a probability sample of 546 households in the New York metropolitan area for a continuous consumer panel. The primary purpose of the project was to examine the problems associated with the use of a probability design for establishing such a panel. The goal of the project was to obtain insofar as possible complete and accurate information on certain phases of the food-purchasing behavior of the households specified by the sampling design.

A field force of 11 women interviewers was hired to recruit, train, and maintain the sample households as reporting members of the consumer panel. In an attempt to obtain maximum cooperation from the sample households, the general policy was to make as many recruiting, training, and maintenance calls as were necessary to establish rather definitely that further effort would not lead to the cooperation of those contacted or to better reporting by those cooperating. For the most part, the information sought was to be transmitted by mail in the form of weekly diaries prepared by household monitors, although in some cases a more direct form of communication was employed. For successful execution of their role in the project, the sample households were remunerated in points equivalent to about $2.15 a month.

As part of the general effort to obtain maximum cooperation, several forms of special recruiting and maintenance action were undertaken. Among the more important of these were: (1) Use of a variable recruiting approach, modified to fit the particular situation at hand; (2) alternation of interviewers, when this appeared necessary; (3) use of bilingual interviewers, for non-English speaking households; (4) assignment of special monitors, to households where the female head was unable to assume the diary-keeping function; (5) modification of the compensation scheme, when this appeared desirable.

In addition, several types of special action were carried out in an attempt to maintain recruited households on an active reporting basis. In particular, a number of households were visited periodically by interviewers and given direct assistance in keeping the diaries. Also, special provisions were made for reporting by certain households with the assistance of a neighbor or a relative.

The carrying out of these procedures was expensive. As an indication of the total magnitude of the field effort, a summary of all calls made on the original sample of cooperators by type of call and status of households is shown in table 18. This table discloses that not-at-home calls of all types accounted for most of the calls made. Also, if not-at-home calls are segregated by type, it will be seen that recruiting not-at-home calls accounted for the greater part of the not-at-home calls.

Table 18.- Summary of type of calls by status of household[1/]

Type of call	Households							
	Reporting		Dropped		Refused		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Recruiting . .	289	15	165	20	386	28	840	20
Training . . .	514	27	237	29	93	7	844	21
Maintenance:								
Special . .	403	21	20	2	-	-	423	10
Regular . .	182	10	109	13	55	4	346	9
Total . .	585	31	129	15	55	4	769	19
Not-at-home:								
Recruiting .	201	11	114	14	729	54	1,044	26
Training . .	184	10	114	14	58	4	356	9
Maintenance.	117	6	72	8	37	3	226	5
Total . .	502	27	300	36	824	61	1,626	40
Total all calls:	1,390	100	831	100	1,358	100	4,079	100

1/ This summary of calls refers only to those made in connection with the original sample. No calls expended on recruiting of substitutes are included.

As many as 6 recruiting calls were made on some households. However, the making of more than one recruiting call is regarded as worth while in view of (1) the number of households recruited per recruiting call for calls after the first (table 2); (2) the rate of dropping from the panel by call on which recruited (table 3); (3) the number of training calls per household by call on which recruited; and (4) the fact that households offering the greatest resistance to cooperation differ from the more cooperative households.

Although 60 percent of the households agreed to cooperate, only 35 percent were reporting in February 1951, which was about 1 year after the recruiting started. Thus, obtaining and maintaining cooperation proved difficult throughout the project. Although the problem of "missing data" is virtually always important in sampling from human populations, it was found to be particularly acute in this study. The chief cause for this is the fact that sustained cooperation was required of the households. In addition, it is likely that the complexity of the task required of the respondents contributed to the severity of the problem.

Although it is comparatively easy to cite reasons for lack of cooperation, it is quite another matter to assess the importance of this factor or to suggest ways of solving the problem. If cooperation were independent of food-purchasing behavior, the problem would be of little consequence. However, this study indicates that certain household characteristics, known to be related to food purchases, are associated with degree of panel cooperation.

Because of these known biases, it is not possible to regard the sample of reporting households as a random sample from the population of interest. Moreover, as the food purchases of the noncooperative households is not known, no estimate of the magnitude of the resultant bias can be made.

One way of attacking the problem of gaining a higher rate of cooperation is to increase the remuneration offered the sample households. There is no doubt that this would have led to a higher rate of cooperation than was in fact obtained. However, when queried as to the probable influence of such action, the interviewers thought that the compensation would have to be increased 200 to 300 percent to effect an appreciable increase in cooperation. As the present project was carried out within a given framework of economic resources, any increase in compensation of this order was not possible.

Another way of coping with the problem of noncooperation is to recruit a subsample of noncooperators to report either continuously or for selected weeks or months during the year. Experience indicates that the purchasing patterns of cooperators are changed during their first few weeks of reporting but that after that the purchasing pattern evidently returns to about "normal." Hence, getting the cooperation of a family to keep diaries intermittently is of doubtful value. As an alternative, one might contact the noncooperating households (or a subsample of them) periodically and ask for information on purchases of the previous week. This might provide useful information upon which to make adjustments for noncooperation. However, after consultation with the interviewers and inspection of the history of contacts with the noncooperating households, these possibilities were ruled out as impracticable, but might have been worth a trial before repeated recruiting efforts tended to weaken rapport with the households.

A third method of dealing with the noncooperation problem is the one used in this study. It was to select substitutes for noncooperating households, although statistically, substitution is not a desirable solution. An attempt was made to select a substitute that would match the noncooperating households insofar as possible with respect to number of meals eaten in the home and the kinds of foods bought. Five households resident on the same block as the original noncooperator were contacted, and certain information was obtained from them. These households were ranked as first choice, second choice, etc. and contacted in the order rated until one of the households agreed to cooperate. If none of the designated substitutes was successfully recruited, efforts were made to secure the cooperation of other households resident on the same block as the noncooperator.

Taking everything into account, the substitution plan was much too complex for practical use. However, the substitution work done on this project was primarily exploratory and, as such, it was anticipated that difficulties would arise. No precedent existed for the use of such a technique in connection with an operation of this type.

Even though considerable effort was made to find a substitute to match each noncooperator, the characteristics of the substitutes recruited tended to be more like the characteristics of cooperating households than those of the refusals. A complicated substitution scheme is of doubtful value; but, if matching is attempted, a simple device of matching on the basis of, for example, family size within the same block is probably as good as a more complicated procedure. Perhaps the most that can reasonably be expected is to devise a method of maintaining the sample size at a fixed level and of keeping the sample properly allocated geographically by selecting substitutes within the same blocks. The latter will have some tendency to keep proportionate representation by income areas, race, and other factors associated with geographic location. By dividing the sample data into groups on the basis of size of household or one or more of several factors and expanding the sample data for each group by known total numbers of households in the groups, the question of bias due to noncooperation becomes one of difference between cooperative and uncooperative households, for example, within size of household groups and geographic areas.

The two most troublesome problems were high costs and missing data. An important question to be considered was: Is a probability design of value in establishing a continuous consumer panel? A casual inspection of the findings might suggest that the value of the design was nullified because of the failure to attain a high rate of cooperation from sample households but that some advantages might be claimed. It is helpful to think of the population of households as made up of two subpopulations--cooperators and noncooperators. A probability sample of the cooperator subpopulation can be obtained and "statistically" unbiased estimates and sampling errors relating to it can be computed. The problem is then one of trying to get sufficient information on the subpopulation of noncooperators to provide a sounder basis for making estimates for the total population than those provided by information from the cooperators only.

Despite the problem of noncooperation it is believed that a better way to obtain data than quota sampling involving nonrandom selection, is to:

(1) Begin with a probability sample of households and attempt to recruit all households in the sample but limit the number of recruiting calls to three or four.

(2) Obtain from cooperators a limited amount of information on their characteristics and food purchases as an aid to evaluating biases due to noncooperation. One possibility would be to ask at the time of the first recruiting call (perhaps before discussing panel membership) for information on last week's actual purchases of certain foods regardless of the household's attitude toward joining the panel. This would give a method of comparing the eventual cooperators and noncooperators on actual purchases, as only a small percentage of all households would refuse to give such information. This scheme assumes that recall error is about the same for both groups.

(3) Select a substitute for each noncooperator from within the same block by proceeding around the block systematically to keep the selection objective. Further work is needed to determine the practicability of trying to select, for example, a family of approximately the same size.

Compared to quota sampling the above procedure is objective in its approach, and provides a better basis for judging the sample and also a better basis for building in improvements from time to time. Cost comparisons have little or no meaning unless the alternatives being compared are specified in detail as to procedure. Assuming comparable scatter of the sample, comparable effort to recruit a household contacted, and comparable training of monitors, there will probably be little difference in cost between quota and probability sample designs.

Appendix A

RECRUITING CALL REPORT[1/]

Name of family _____ Family No. _____

Address _____ Interviewer _____

City _____ State _____ Date _____

Phone _____

A

1. Full name of person interviewed _____
   Position in household _____

2. Is this the individual who plans the meals? Yes____ No____

3. Is this the individual who makes a majority of the food and drug purchases? Yes____ No____

4. If answer to either question #2 or #3 is 'no', give details, including name and position in family of person who does.

5. Whom do you recommend as the potential family monitor?

   Name _____
   Address (if other than family) _____
   Position _____

6. Was anyone other than respondent present at interview?

   Yes____ No____ If 'yes', who?

   What was the effect on you and the respondent?

7. Grade the respondent's reaction or interest in:

	Favorable	No Reaction	Unfavorable
Letters of introduction	_____	_____	_____
Importance of consumer panel work	_____	_____	_____
Pay (points) for diary keeping	_____	_____	_____
Quality and diversity of premiums	_____	_____	_____
Diary form	_____	_____	_____

RECRUITING CALL REPORT[1/] - Continued

B If family agreed to become a member, fill out the following section:

1. Check type of diary control. Mail ____ Pick up ____

2. If pick up, write date of next appointment _____

3. What frequency of contact do you recommend with family?

4. If family monitor is other than person recommended in section A, fill in name and position, and explain circumstances.

   Name _____
   Address (if other than family) _____
   Position _____

5. Has any family member expressed any doubts about joining panel?

   Yes____ No____ If 'yes', describe in detail _____

6. Who receives the benefit of the points?

C If family does not agree to become a member, fill out the following section:

1. What are the reasons for not joining?

2. What future action do you recommend?

3. Was future appointment made? Yes____ No____

   Date _____

Comments: _____

_____

_____

_____

1/ On the actual reporting form space was allowed for answers to all questions.

Appendix B

TRAINING CALL REPORT[1/]

(Attach this form to Diary or Diaries discussed.)

Name of family _____ Family No. _____

Address _____ Interviewer _____

City _____ State _____ Date _____

1. Dates of diary discussed. From _____ to _____

2. Did you have opportunity to go over all errors in the diary with family monitor? Yes___ No___. If 'no', explain circumstances.

3. What was family's reaction to entry corrections and training with diary?

4. Is monitor using immediate entry system? Yes___ No___

   If 'no', describe system used and any action taken to improve it.

5. Are errors chiefly the result of: 1. Carelessness Yes___ No___

   2. Misunderstanding of instructions ___ ___

   3. Other reason ___ ___

   Give details _____

6. What questions and/or criticism did members of the family have? (If none, so indicate) _____.

   A. About making entries in the diary _____

   B. About obtaining cooperation from other members of the family _____

   C. About the premiums (Any dissatisfaction with rate of compensation) _____

   D. Any other (describe fully) _____

TRAINING CALL REPORT[1/] - Continued

(Attach this form to Diary or Diaries discussed.)

7. What is the general attitude of the family toward continuing as a member of the National Consumer Panel?

   Excellent___ Good___ Fair___ Poor___

   Explain: _____

8. Has the attitude of the family become stronger___, weaker___, remained about the same___, when compared to the last call.

   Explain: _____

9. Did the respondent make any comments about her weekly purchases?

   Yes___ No___

   Explain: (Note any remarks such as "I'm sorry I bought so little last week, but ...", or "I never knew widgies came in two flavors", or statements that diary keeping makes shopping easier, etc.)

10. What action do you recommend the company take to improve relations with the family?

11. Date of next appointment _____.

1/ On the actual reporting form space was allowed for answers to all questions.

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