

Pittsburg State University

Pittsburg State University Digital Commons

Electronic Thesis Collection

12-1969

TIME VARIATIONS IN INTERVIEW QUALITY - An Analysis Based Upon Interviews In a Block-Quota Sampled Field Survey

Altis Lee Ellis

Kansas State College of Pittsburg

Follow this and additional works at: <https://digitalcommons.pittstate.edu/etd>



Part of the [Social and Behavioral Sciences Commons](#)

Recommended Citation

Ellis, Altis Lee, "TIME VARIATIONS IN INTERVIEW QUALITY - An Analysis Based Upon Interviews In a Block-Quota Sampled Field Survey" (1969). *Electronic Thesis Collection*. 228.

<https://digitalcommons.pittstate.edu/etd/228>

This Thesis is brought to you for free and open access by Pittsburg State University Digital Commons. It has been accepted for inclusion in Electronic Thesis Collection by an authorized administrator of Pittsburg State University Digital Commons. For more information, please contact mmccune@pittstate.edu, jmauk@pittstate.edu.

TIME VARIATIONS IN INTERVIEW QUALITY:

An Analysis Based Upon Interviews
In a Block-Quota Sampled Field Survey

A Thesis Submitted to the Graduate Division in Partial
Fulfillment of the Requirements for the
Degree of Master of Science

by 2206

Altis Lee Ellis

KANSAS STATE COLLEGE OF PITTSBURG

Pittsburg, Kansas

December, 1969

PORTER LIBRARY

ACKNOWLEDGEMENTS

This study was financially supported in part by United States Public Health Service Grant No. 1-G03-RM-00002-01 for the Kansas Regional Medical Program.

A number of persons substantially contributed to the final design of the study and to the analysis of results. Harold Keairnes and Dale Frihart actively advised and patiently assisted the writer during every major phase of this study. Lee Ellis, Sr. and especially Heather Harvey helped in the tedious task of coding and transcribing raw data. Through several consultations with Khatab and Ruth Hassanein, statistical operations for testing hypotheses were resolved. William Bray and Robert Mosteller also helped in a statistical capacity. Pat Mitchell, Sandy Price, Gordon Bruce and, in particular, Ron Greenhagen are responsible for formulating control and programing operations for computer analysis of the data.

Time was patiently given to the editing of drafts principally by Dale Frihart, Ethel Nurge, Harold Keairnes and Heather Harvey. Edward Deming, through correspondence, brought to this writer's attention pertinent prior research which otherwise would have been overlooked. Helpful in various other capacities were Craig Tippins, Sandy White, Mary Arnold, Joe Williams and Robert Noble.

To the degree that the present report stands as a worthwhile research document, deeply felt gratitude is extended to all of these persons for their help in making it possible.

TABLE OF CONTENTS

	PAGE
Approval Sheet	1
Acknowledgements	ii
Table of Contents	iii
Abstract	v
List of Tables	vii
List of Figures	viii

CHAPTERS

I. INTRODUCTION	1
Statement of the Problem	1
Need for the Study	1
Delimitations	2
Limitations	2
Hypotheses	3
The Basic Study Design	3
Definition of Terms	4
II. REVIEW OF RELATED LITERATURE	6
Indexes Used in Other Studies to Measure	
Interview Quality	8
Relationships of Time to Survey Research	
Interviews	10
III. METHODOLOGY	14
The Consumer Survey of the Kansas Regional	
Medical Program	14
The Questionnaires Sampled for the Present	
Study	18
Procedures for Deriving the Quality Indexes	19
The Analytical Design of the Study	22
IV. RESULTS AND DISCUSSION	26
The Accuracy of the Recorded Time of	
Interviewing	26
The Average Values for Each Quality Index	28
The First Hypothesis	31
The Second Hypothesis	39

CHAPTERS (CONTINUED)	PAGE
V. CONCLUSIONS AND RECOMMENDATIONS	55
 APPENDICES	
I. A SAMPLE DWELLING UNIT LISTING SHEET AND ITS ACCOMPANYING SEGMENT MAP	64
II. A LIST OF SAMPLE RESPONSES TO INTERVIEW SOLICITATIONS	67
III. A COPY OF THE KANSAS REGIONAL MEDICAL PROGRAM CONSUMER SURVEY QUESTIONNAIRE	69
IV. STATISTICAL PROCEDURES USED TO DERIVE CONTROL LIMITS	90
V. FIGURES 2 THROUGH 45	91
 BIBLIOGRAPHY	 136

FIGURE	PAGE
9. Variations in the Mean Number of Minutes Taken to Complete Interviews by the Interviewers According to the Extent of their Interviewing Experience	99
10. Variations In the Mean Number of Probes Made During Open-Ended questions by the Interviewers According to the Extent of Their Interviewing Experience	100
11. Variations in the Mean Number of Godable Answers Obtained From Open-Ended Question Responses According to the Extent of the Interviewers' Experience at Interviewing	101
12. Variations in the Mean Words-Recorded/Codable-Answers Ratio Regarding Open-Ended Question Responses According to How Experienced Interviewers Were at the Time Responses were Recorded	102
13. Variations In the Mean Number of Refusals Encountered According to the Period In the Day the Interviews Were Conducted . . .	103
14. Variations In the Mean Number of Refusals According to the Day of the Week the Interviews Were Conducted	104
15. Variations in the Mean Number of Refusals According to the Period of the Day for Each Day of the Week the interviews Were Conducted	105
16. Variations In the Mean Number of Not-at-Homes According to the Period In the Day the Interviews Were Conducted	106
17. Variations In the Mean Number of Not-at-Homes According to the Day of the Week the Interviews Were Conducted	107

ABSTRACT

From 1278 interviews and over 3200 interview attempts, data were obtained to assess the effect of interviewer experience and the effect of various designated periods in time of interviewing and solicitations for interviewing upon the quality of the interviews obtained. The data used were from a block-quota sampled survey of Midwest United States semi-urban adult residents. The indexes used in measuring interview quality were divided into two basic categories: (1) the solicitation indexes, which served to indicate the degree to which a representative sample of the survey population had been obtained; and (2) the interactional quality indexes, which served to indicate the degree to which accurate and sufficient information had been registered in the interview schedules.

Two hypotheses were tested. The first was that interview quality underwent no significant variation on the basis of the level of interviewer experience. This hypothesis was rejected since, in six of the eleven quality indexes, the proportions of mean values falling above the mean of the means for the first twenty-five interviews conducted as compared to the second twenty-five interviews conducted were found to be different at least beyond the 10% level of significance (two beyond the 2% level). In addition, results were not found to be generally inconsistent with available results from other interview quality studies.

The second hypothesis was that interview quality underwent no significant variation on the basis of the time of day or the day of the week the interviews were conducted. Like the first hypothesis, it was

rejected, though with less certainty of the meaningfulness of doing so. Statistically, many variations in mean index values were found significant beyond the 5% level (four were significant beyond the 0.3% level). Nevertheless, the few results from other studies which were more or less comparable were not in accordance with findings in the present study, and the various quality indexes of this study appeared to fluctuate in mean values rather independently, thus not being in any obvious agreement with one another.

A few minor practical suggestions for future interview surveying projects seemed justified and were proposed in the case of findings relevant to the first hypothesis. Directions for useful future research were outlined regarding the further assessment of the effects of interviewer experience on interview quality. Practical suggestions pertaining to results from testing the second hypothesis were judged to still be premature; but some suggestions for future research into the effects of time of interviewing on interview quality were proposed.

LIST OF TABLES

TABLE		PAGE
I.	The Mean of the Means for Each Quality Index According to the Four Temporal Measures in the Study	29
II.	The Number of Mean Quality Index Values That Fell Above and Below the Mean of the Means for the First and Second Twenty-Five Interviews Conducted	32
III.	Crude Values (Whether High or Low) of Mean Variations in Quality Indexes Exceeding the Control Limits According to the Time of Day of Interviewing	40
IV.	Crude Values (Whether High or Low) of Mean Variations in Quality Indexes Exceeding the Control Limits According to the Day of the Week of Interviewing	41
V.	Crude Values (Whether High or Low) of Mean Variations in Quality Indexes Exceeding the Control Limits According to the Periods of the Day for Each Day of the Week of Interviewing	42

LIST OF FIGURES

FIGURE	PAGE
1. The Frequency Distribution for Recording of Minutes Interviews Began Without Regarding the hour Recorded, Along with the Assumed Real Distribution (ARD)	27
2. Variation in the Mean Number of Refusals Encountered by the Interviewers According to the Extent of Their Interviewing Experience	92
3. Variations In the Mean Number of Not-at-Homes Encountered by the Interviewers According to the Extent of Their Interviewing Experience	93
4. Variations In the Mean Number of Come-Back-Laters Encountered by the Interviewers According to the Extent of Their Interviewing Experience	94
5. Variations in the Mean Number of Unsuccessful Interview Attempts by the Interviewers According to the Extent of Their Interviewing Experience	95
6. Variations In Respondent Cooperativeness as Judged by the Interviewers According to the Extent of Their Interviewing Experience	96
7. Variations In the Mean Amount of Inadequate Information Found In the Questionnaires According to the Extent of Interviewers' Experience	97
8. Variations In the Mean Number of Words Recorded in Open-Ended Questions According to the Extent of the Interviewer' Interviewing Experience	98

FIGURE	PAGE
18. Variations In the Mean Number of Not-at-Homes According to the Period of the Day for Each Day of the Week the Interviews Were Conducted	108
19. Variations In the Mean Number of Come-Back-Laters According to the Period in the Day the Interviews Were Conducted	109
20. Variations in the Mean Number of Come-Back-Laters According to the Day of the Week the Interviews Were Conducted	110
21. Variations in the Mean Number of Come-Back-Laters According to the Period of the Day for Each Day of the Week the Interviews Were Conducted	111
22. Variations in the Mean Number of Unsuccessful Interview Attempts According to the Period in the Day the Interviews Were Conducted	112
23. Variations In the Mean Number of Unsuccessful Interview Attempts According to the Day of the Week the Interviews Were Conducted	113
24. Variations In the Mean Number of Unsuccessful Interview Attempts According to the Period of the Day for Each Day of the Week the Interviews Were Conducted	114
25. Variations in Respondent Cooperativeness as Judged by the Interviewers According to What Period in the Day the Interviews Were Conducted.	115
26. Variations In Respondent Cooperativeness as Judged by the Interviewers According to the Day of the Week the Interviews Were Conducted	116

27. Variations In Respondent Cooperativeness as Judged by the Interviewers According to the Period of the Day for Each Day of the Week the Interviews Were Conducted 117

28. Variations In the Mean Number of Inadequate Information Units According to the Period in the Day the Interviews Were Conducted 118

29. Variations in the Mean Number of Inadequate Information Units According to the Day of the Week the Interviews Were Conducted 119

30. Variations in the Mean Number of Inadequate Information Units According to the Period of the Day for Each Day of the Week the Interviews Were Conducted 120

31. Variations In the Mean Number of Minutes Taken to Complete Interviews According to the Period in the Day the Interviews Were Conducted 121

32. Variations In the Mean Number of Minutes Taken to Complete Interviews According to the Day of the Week the Interviews Were Conducted 122

33. Variations in the Mean Number of Minutes Taken to Complete Interviews According to the Period of the Day for Each Day of the Week the Interviews Were Conducted 123

34. Variations In the Mean Number of Words Recorded In Open-Ended Questions According to the Period In the Day the Interviews Were Conducted 124

35. Variations In the Mean Number of Words Recorded in Open-Ended Questions According to the Day of the Week the Interviews Were Conducted 125

36. Variations In the Mean Number of Words Recorded in Open-Ended Questions According to the Period of the Day for Each Day of the Week the Interviews Were Conducted 126

37. Variations In the Mean Number of Probes During Open-Ended Questions According to the Period in the Day the Interviews Were Conducted 127

38. Variations In the Mean Number of Probes During Open-Ended Questions According to the Day of the Week the Interviews Were Conducted 128

39. Variations In the Mean Number of Probes During Open-Ended Questions According to the Period of the Day for Each Day of the Week the Interviews Were Conducted 129

40. Variations In the Mean Number of Codable Answers In Open-Ended Questions According to the Period In the Day the Interviews Were Conducted 130

41. Variations In the Mean Number of Codable Answers in Open-Ended Questions According to the Day of the Week the Interviews Were Conducted 131

42. Variations in the Mean Number of Codable Answers in Open-Ended Questions According to the Period of the Day for Each Day of the Week the Interviews Were Conducted 132

FIGURE

PAGE

43. Variations In the Mean Words-Recorded/Codable-Answer Ratio
for the Open-Ended Questions According to the Period In
the Day the Interviews Were Conducted 133

44. Variations In the Mean Words-Recorded/Codable-Answer Ratio
for the Open-Ended Questions According to the Day of the
Week the Interviews Were Conducted 134

45. Variations In the Mean Words-Recorded/Codable-Answer Ratio
in the Open-Ended Questions According to the Period of the
Day for Each Day of the Week the Interviews Were Conducted . . 135

46. Comparative Agreement of Four Studies on the Variations in
the Rate of Unsuccessful Interview Attempts According to
the Periods of the Day in Which the Attempts Were Made . . . 48

CHAPTER I
INTRODUCTION

Because of differences in the nature of what various sciences study, each has developed research techniques which are more or less unique to its field. Those in the scientific disciplines who most use a given research technique generally assume the responsibility for its development and improvement. It seems fitting, therefore, that some of those in the discipline of sociology should direct at least a portion of their research work toward the improvement of the survey interview.

Statement of the Problem

The problem of the present study was to determine if significant fluctuations occurred in the quality of interviews selected for study on the basis of the time of day and time of week they were conducted, and on the basis of how experienced the interviewers were when the interviews were conducted.

Need for the Study

In order to improve generalizations drawn from survey interview data, as much of the distorting effects of the techniques used to collect the data as possible need to be identified and extracted. At present, enough is known about the interview and questionnaire methods to strongly suggest that the results being reported are far from completely accurate. Knowledge of this kind has rekindled genuine doubt about the ultimate scientific value of interview and questionnaire data.¹

1. Irwin Deutscher, "Looking Backward: Case Studies on the Progress

Delimitations

All interviews analyzed in the study were based upon a socio-medical, structured (as opposed to "clinical") interview schedule. A stratified, block-quota sampling method was used with the universe confined to the heads-of-households in three semi-urban Kansas communities (populations 13,929, 16,670 and 32,858)² in the summer of 1967.

Limitations

Despite the fact that a time was registered by the interviewers (month, day, hour, minute) for when each interview began and when each was terminated, several considerations suggest that the recorded time only be assumed accurate to within ten to fifteen minutes of the actual time: (1) Time pieces vary. (2) Accuracy of time registrations was not stressed during interviewer training. (3) Non-student interviewers were paid according to the amount of time spent interviewing instead of on a monthly salary basis (as student interviewers were). Possibly, therefore, those paid according to the amount of time they reportedly worked tended to "stretch" some of their time recordings.³

About three-fifths of the quality index scores were obtained through the efforts of researchers other than the present writer. The care with which they were derived surely varied, especially in view of

of Methodology in Sociological Research," The American Sociologist, 1969, Vol. 4, No. 1, pp. 35-41; and Richard T. LaFiere, "Comments on Irwin Deutscher's Looking Backward," The American Sociologist, 1969, Vol. 4, No. 1, pp. 41-42.

2. United States Bureau of Census, U. S. Census of Population: 1960. Number of Inhabitants, Kansas. Final Report PC(1)-18A. Washington, D.C.: U.S. Government Printing Office, 1961, Table 8

3. Actual evidence is presented in Chapter IV of some inaccuracies in the recorded time of interviewing.

the fact that many of the indexes required interpretive judgments.

Hypotheses

The following two hypotheses were tested in the present study:

H_{1_0} : That the quality of interviews underwent no significant variation on the basis of how experienced the interviewers were when they reported conducting the interviews.

H_{2_0} : That the quality of interviews underwent no significant variation on the basis of the time of day and the time of week they were reported to have been conducted.

The Basic Study Design

The mean (\bar{X}) values of eleven quality indexes were plotted according to the level of interviewer experience (to test H_{1_0}), and according to (a) the time of day, (b) the day of the week, and (c) the time of day for each day of the week (to test H_{2_0}). The mean of the means ($\bar{\bar{X}}$) for each quality index was determined, and two standard errors of the mean ($\sigma_{\bar{m}}$) were extended from the $\bar{\bar{X}}$ to constitute quality control limits (CLs) for each individual \bar{X} value. This approximated a 95% confidence limit (actually 95.4%) while adjusting for sample size fluctuations in individual \bar{X} values. Since it was predetermined by the statistic used that about 4.6% of the \bar{X} values would exceed the CLs, the use of this criterion alone to test the hypotheses would have constituted what might be called a "stacked-deck" approach to the testing of scientific hypotheses. Therefore, in the case of H_{1_0} , chi square tests were performed on the \bar{X} values of each quality index to detect any apparent upward or downward trends as a result of experience. For H_{2_0} , the extents of \bar{X} deviations

from the \bar{X} were transcribed from the figures to tabular form. Also the fluctuations in \bar{X} values for time of day and days of the week were cross-checked with data showing fluctuations for time of the day for each day of the week, as well as against available results from other relevant studies.

Definition of Terms

The term "interview quality" was used generically to refer to any aspect of an interview which varied in results because of factors other than those under study. An interview was considered to be high in quality when it reflected no variations in results beyond those which the questionnaire had been designed to study.

For the present study, eleven indexes were used to indicate probable fluctuations in interview quality. The indexes were conceptually divided into two categories. The first category included those indexes which were indicative of an interviewer's likelihood to have success or failure in acquiring respondents. These indexes reflected the level to which the sampling of respondents was biased. They were called the "solicitation quality indexes":

1. Refusal to be interviewed by qualified respondent.
2. Qualified respondent temporarily absent from dwelling unit.
3. Interviewer asked to return later by qualified respondent to obtain an interview.
4. Interview attempted but not obtained. This was simply a composite of Indexes 1, 2 and 3.

The second category of quality indexes indicated the degree to which the desired information was being transmitted to and recorded by

the interviewer as he interacted with the respondents. These indexes were the "interactional quality indexes":

5. The interviewer's assessed cooperativeness of the respondent.
6. The interviewer's failure to record and/or obtain adequate responses for coding.
7. Time taken to complete an interview.
8. The number of words recorded in open-ended questions.
9. The number of probes made in open-ended questions. Probes are utterances such as "Is there anything else?" made by the interviewer to provoke greater verbal responses to open-ended questions on the part of respondents.
10. The number of codable answers interviewers obtained from open-ended questions.
11. The words-recorded/codable- answers ratio for open-ended questions.

The measure used in this study for gauging the level of interviewer experience was simply that of the number of prior interviews each interviewer had conducted.

CHAPTER II

REVIEW OF RELATED LITERATURE

Four decades ago, Lundberg expressed the view that better measurement was essential for sociology to become a natural and exact science.¹ Much more recently, Blalock noted that the limited predictive power in any science is often the result of measurement error and unmeasured pertinent variables.² Also, Coleman recently observed that the lack of adequate measurement recurrently stands in the way of meaningful quantification in social science.³

Although their reasons were somewhat different, these three sociologists have voiced opinions to indicate that greater precision is needed in the measurement of behavioral phenomena. In this regard, Deutscher maintained that the problem of measurement validity can be made to essentially disappear "when we have direct observation of actual phenomenon we are attempting to approximate with our measuring instruments."⁴ His reference, of course, focused attention upon the fact that most sociological data are collected by means other than skilled observation. This fact was dramatized by findings of Tausky and Piedmont that less than two per cent of the articles and research notes they examined in the two most popular sociological journals were based upon

1. G. A. Lundberg, Social Research, New York: Longmans and Green, 1929; cited by, S. C. Dodd, "Dimensions of Lundberg's Society as Foundations for Dodd's Sociology," A paper read at the Pacific Sociological Society Meeting, Long Beach, California, March-April, 1967, p. 16.

2. H. M. Blalock, Jr., Causal Inferences in Nonexperimental Research, Chapel Hill, N. C.; University of North Carolina Press, 1964, pp. 169-70.

3. J. S. Coleman, Introduction to Mathematical Sociology, New York: Free Press, 1964, p. 55.

4. Irwin Deutscher, "Looking Backward: Case Studies on the Progress of Methodology in Sociological Research," American Sociologist, 1969, Vol. 4, No. 1, p. 40.

actually observed behavior.⁵ Instead, sociologists greatly "rely" upon laymen to report their own behavior (usually along with personal demographic items of information). The accuracy of such data can always be questioned.

Self-reported information used to establish or confirm causal statements are even further obscured with cumbersome qualifications (or rightfully should be) when a self-informant must interact with another person to report information. This, of course, is always what is done when self-reporting occurs under interviewing conditions. Despite a sizable amount of research directly focused upon problems in using data obtained through interviews, behavioral scientists have attested to the lack of understanding of this form of information collection.⁶

Ideally, an interview would render exactly the same information that would be obtained from actual direct observations by persons skilled in data collection. There is, of course, overwhelming evidence that interview data fall far short of such an ideal, though the reasons are still largely speculative.

Most of those concerned with the accuracy of interview data seem

5. Curt Tausky and E. B. Piedmont, "The Sampling of Behavior," The American Sociologist, 1968, Vol. 3, No. 1, p. 49. Information was not tabulated on how many research reports based upon self-reported data were obtained separately by interviews, by questionnaires, etc. (Personal correspondence with Piedmont, June 13, 1968). J. S. Brown and Brian G. Gilmartin ("Sociology Today: Lacunae, Emphases, and Surfeits," The American Sociologist, 1969, Vol. 4, No. 4, p. 290), however, asserted that the interview has become widely accepted as the major method of sociology.

6. United States Public Health Service, "The Influence of Interviewer and Respondent Psychological and Behavioral Variables on the Reporting in Household Interviews," Vital and Health Statistics, March, 1968, Series 2, No. 26, p. 2; B. S. Phillips, Social Research, Strategy and Tactics, New York: Macmillan, 1966, pp. 109-10; C. H. Weiss, "Interviewing Low-Income Respondents --A Preliminary View," Welfare in Review, 1966, Vol. 4, No. 8, p. 7.

reasonably optimistic that the difficulties in their effective use are not insurmountable. This optimism, one may add, is not shared by all sociologists, however. Deutscher and LaPiere have raised serious doubts about the scientific usefulness of--in LaPiere's words--"these so-called 'objective' instruments of social measurement."⁷ Weller and Luchterhand concluded that as far as their study of family functioning was concerned, their seemed to be justification for real concern about the utility of interviewing as a data-gathering procedure.⁸

From a realization that significant improvements are needed and the hope that they are possible has developed the notion of "interview quality." Such a notion is used to characterize the degree to which interview data are or are not thought to conform to the ideal. Some of the concrete variables which have been considered as indicative of interview quality will now be reviewed.

Indexes Used in Other Studies to Measure Interview Quality

The United States Bureau of the Census has established a quality control program for its Current Population Survey.⁹ It uses what Sudman described as the "simplest coding process to evaluate interviews"--coding the number of missing answers per interview.¹⁰

Two indicators used in a study by Feldman, Hyman and Hart were

7. Deutscher, op. cit., pp. 35-41; and R. T. LaPiere, "Comment on Irwin Deutscher's Looking Backward," The American Sociologist, 1969, Vol. 4, No. 1, pp. 41-42.

8. L. Weller and E. Luchterhand, "Comparing Interviews and Observations on Family Functioning," Journal of Marriage and the Family, 1969, Vol. 31, No. 1, p. 121.

9. Joseph Waksberg and R. B. Pearl, "The Effects of Repeated Household Interviews in the Current Population Survey," In the Proceedings of The American Marketing Association Meeting, Chicago, June 1964, p. 556.

10. Seymour Sudman, "Quantifying Interviewing Quality," Public Opinion Quarterly, 1966-67, Vol. 30, No. 4, p. 664.

"number of probing errors" and "asking, recording and cheating errors."¹¹ Sheatsley used the ratings given to interviewers by supervisors as an index of the quality of their performance.¹² The unreliability of responses to certain demographic items has been used as an indicator of interview quality in a general sense.¹³ Similarly, discrepancies between responses about hospitalizations and information from official hospital records have been used by the United States Public Health Service in evaluating the adequacy of interview data.¹⁴ Apparent falsification by respondents to sensitive questions is another kind of variable some researchers have used to assess the quality of information they obtain from interviews.¹⁵

Probably the most ambitious attempt to evaluate "interviewer quality" is that developed by the National Opinion Research Center. In describing it, Sudman stated that seven categories of interviewer error are used: answer missing, irrelevant or circular answer, lack of sufficient detail, "Don't know" with no probe, dangling probe, multiple codes in error, and superfluous question asked.¹⁶ The uniqueness of this organization's

11. J. J. Feldman, *et al.*, "A Field Study of Interviewer Effects on the Quality of Survey Data," Public Opinion Quarterly, 1951, Vol. 15, pp. 734-61.

12. P. B. Sheatsley, "An Analysis of Interviewer Characteristics and Their Relationship to Performance--Part III," International Journal of Opinion and Attitude Research, 1951, Vol. 5, pp. 193-97.

13. S. C. Dodd, "On Reliability in Polling," Sociometry, 1944, Vol. 7, No. 3, pp. 265-282; G. E. Lenski and J. C. Leggett, "Caste, Class and Deference in Research Interview," American Journal of Sociology, 1960, Vol. 65, pp. 463-67; E. C. Bryant, *et al.*, "Responses on Racial Attitudes as Affected by Interviewers of Different Ethnic Groups," The Journal of Social Psychology, 1966, Vol. 70, pp. 95-100.

14. United States Public Health Service, "Report of Hospitalization in the Health Interview Survey," 1961, Series D. No. 4.

15. E. E. Maccoby and Nathan Maccoby, "The Interview: A Tool of Social Science," in Lindzey (ed), Handbook of Social Psychology, Vol. 1, pp. 449-87; I. L. Reiss, The Social Context of Premarital Sexual Permissiveness, New York: Holt, Rinehart and Winston, 1967, p. 219.

16. Sudman, *op. cit.*, p. 665.

quality evaluation lies especially with the fact that relative "weights" are assigned to the errors so that an interval scale is made of interview quality.

Thus far, the quality indexes described refer to types of variables whose variances could only be directly affected while respondents were being interviewed. Other quality indexes frequently sought were those concerned with the proficiency with which qualified respondents are obtained.¹⁷ These usually include "refusal" and "not-at-home" rates. Rather than pertaining directly to what the respondent reports during the interviewing session, the importance of these quality indexes related to potential errors of a sampling character.

It can be concluded that the results of an interview survey can stray from what the survey was designed to explore either because of a failure to contact a representative sample, or because of misleading, incomplete, or inaccurate data recorded during the interviewing session. Interview quality control studies are primarily aimed at reducing or at least compensating for as much of the biasing effects of such factors as possible. As this section serves to illustrate, there have been numerous indexes used to discover the extent to which interview data are biased and to help develop correctional procedures where possible.

Relationships of Time to Survey Research Interviews

Not many research studies were found that related time as a variable

17. Sherwood Benson, et al., "A Study of Interview Refusals," Journal of Applied Psychology, 1951, Vol. 35, p. 116; Jean Namias, "Measuring Variations in Interviewer Performance," The Journal of Advertising Research, 1966, Vol. 6, p. 8; J. F. T. Bugental, et al., "An Experiment on 'Refusal Rates' in Relation to Interviewer Approach," Indian Journal of Psychology, 1957, Vol. 32, pp. 119-24; N.S. Caplin and J.M. Paige, "A Study of Ghetto Rioters," Scientific American, 1968, Vol. 219, No. 2, p. 16.

to variations in interview quality. Bugental, et al. experimentally demonstrated that the length of the verbal approach made by the interviewer did not significantly increase or decrease the refusal rate.¹⁸ When interviewers were told to work under two different sampling procedures, Sudman unsurprisingly found those instructed to follow a block-quota sampling format reported using less travel time than those following a much more demanding probability sampling format.¹⁹

In another paper, Sudman offered the opinion that an important question in the study of interview quality is "to see whether interviewers are improving from experience or are slipping."²⁰ Durbin and Stuart found that more experienced interviewers reported significantly fewer refusals than beginners.²¹ It would appear in view of their work that interviewers improve with experience at least as far as the issue of refusal rates is concerned. However, the samples compared were distinctly different with regard to several potentially important other factors. The experienced interviewers were mostly females, and generally older than their counterparts, who were predominantly male college students.²² Durbin and Stuart noted that further study was needed to determine for certain the effects of experience on reducing refusal rates.²³

Clearer evidence that interviewer experience does contribute favorably

18. Bugental, et al., op. cit.

19. Seymour Sudman, "Time Allocation in Survey Interviewing and in Other Field Occupations," Public Opinion Quarterly, 1966, Vol. 29, No. 4, p. 641.

20. Sudman, "Quantifying Interviewer Quality," op. cit., p. 667.

21. J. Durbin and A. Stuart, "Differences in Response Rates of Experienced and Inexperienced Interviewers," Journal of the Royal Statistical Society, 1951, Vol. 144, p. 184.

22. Ibid., p. 168

23. Ibid., p. 184.

to a reduction in refusals was an analysis of data collected for the National Opinion Research Center and reported by Stephan and McCarthy. They stated, "It was found that those who had not performed any previous surveys, and were therefore, for the most part, inexperienced in survey work, had refusal rates about twice as great as the entire group of interviewers; their average seeking and contact times, however, were only slightly higher than the general average."²⁴ Nevertheless, some doubt still remains about the effect of experience on the reduction of refusals because of personnel turnover, an acute problem in the field of interview surveying. The experienced interviewers may have represented a select group who had continued their interviewing work, to a considerable degree, because they "hadn't had too many doors slammed in their faces!"

Of course, refusal rates are pertinent to only one aspect of what is subsumed under the label "interview quality." Tracing the fluctuations in refusal rates on the basis of interviewer experience, even if the findings on this issue were conclusive, would serve only to answer part of the question regarding the effect of experience on interview quality.

Time, also can be viewed differently than in terms of interviewer experience. Three studies have examined the periods in the day to see when desired respondents can most likely be found at home. Such knowledge can not only reduce the cost of surveys, as Waksberg and Pearl suggest,²⁵ but can also improve the reliability of information received by making the samples more representative of the populations under consideration.

24. F. J. Stephan and P. J. McCarthy, Sampling Opinions, New York: Wiley (Science Editions), 1963, p. 314.

25. Waksberg and Pearl, op. cit., p. 556.

A study of interview solicitations in a survey of New York State farmers found the percentage of successful first calls highest after 6:00 p.m.²⁶ Similar results were reported by Durvin and Stuart from a survey of inhabitants of London , England.²⁷

Another study of successful solicitations (irrespective of calls required) of a sample approaching proportional representation of the United States population in the late 1940's generally concluded that the time of day had little effect upon what was called the "attrition rates."²⁸ By this term was meant the loss of prospective interviewees either because (1) no one was home, (2) a refusal, (3) a person solicited did not fit the quota requirements, or (4) the interview was terminated by the interviewer or the respondent after it had begun.²⁹ An increase in the "attrition rate" is essentially equivalent to any proportional decrease in successful solicitations used as indicators in the New York and London Studies cited above. The conclusion drawn from this latter study, therefore, is somewhat inconsistent with the evidence appearing in the two cited previously.

The present study was designed to explore additional data to help resolve issues cited in this section.

-
26. Stephan and McCarthy, op. cit., pp. 251-52
 27. Durbin and Stuart, op. cit., pp. 172-83.
 28. Stephan and McCarthy, op. cit., p. 296.
 29. Ibid., pp. 293-99.

CHAPTER III

METHODOLOGY

The data for the present study were obtained from data collected for a questionnaire survey previously conducted. The present study constitutes what the Committee on Information in the Behavioral Sciences called a "secondary analysis."¹ Although the purposes of the "primary research" project were essentially independent of the purposes of the study at hand, an outline of the original project's methodology should serve to partially describe that of the present study.

The Consumer Survey of the Kansas Regional Medical Program

As one phase in evaluating the adequacy of present health services available in Kansas, the Kansas Regional Medical Program (KRMP) undertook a socio-medical survey known as the "Consumer Survey."² For the more specific purposes of the Consumer Survey, it was deemed unfeasible to survey a sample of the entire Kansas population. Therefore, samples from three counties, judged representative of the extremes and "mean" with regard to certain social and ecological factors, were selected.³

1. Committee on Information in the Behavioral Sciences, Division of Behavioral Sciences of the National Research Council, Communication Systems and Resources in the Behavioral Sciences, Washington, D.C.: National Academy of Sciences, 1967, pp. 22-23.

2. Information for this section was obtained from the present writers' experience while a research assistant for KRMP and from H. W. Keairnes, "Consumer Survey of Medical Care Utilization," The Journal of the Kansas Medical Society, 1968, Vol. 69, No. 3, pp. 93-95. The information provided in this section is intended as a methodological treatment of the Consumer Survey solely for the study at hand; it is not intended to adequately describe all aspects of the Consumer Survey methodology.

3. One hundred interviews were also collected in Crawford County. However, they will not be methodologically considered here because none of them were analysed for the present study.

- (1) Barton County (in West-Central Kansas). Relatively stable population, relatively great economic strength, and a mixture of mostly large and small town residents.
- (2) Douglas County (in North-Eastern Kansas). Rather rapidly growing population, a growing economy, and a mostly urban population in a potentially metropolitan area.
- (3) Labette County (in South-Eastern Kansas). Dwindling population, relatively slow-moving economy, and mostly rural and small town residents.

By using a stratified block-quota sampling procedure, 250 male and 500 female heads-of-household were interviewed in each county. Briefly, this procedure consisted of the use of official maps to locate city blocks and rural square miles (or their nearest geographical equivalents). Then, upon deciding that six would be the number of heads-of-household to be interviewed from each block or square mile sampled, the number of blocks and square miles in each county was computed to be 125. These units were randomly picked in accordance with the proportion of each county's population living in the various cities, towns and rural areas according to United States Census figures for 1960.

Each block and square mile was assigned an alternate to be used when six interviews could not be obtained in the first block or square mile assigned.⁴ The blocks and square miles selected and their respective alternates were subsequently referred to as "segments." Interviewers were given "segment maps"⁵ of where they were to interview. The maps prescribed a random starting corner and the path to follow until completing six interviews, or until exhausting the number of potential

4. A number of adjustments of the originally selected sample were necessary "in the field" because of inaccuracies in official maps and because sometimes more than one alternate was needed to obtain six interviews.

5. See Appendix I for a copy of the segment maps used in the study.

households in which interviews could be obtained.

The questionnaire schedule consisted of 137 listed items; it required a \bar{X} amount of time of 46.95 minutes to administer.⁶ The items consisted of asking the usual demographic questions, questions about the health practices of the respondents and their families, questions concerning the amount of sickness in their families, questions designed to disclose attitudes toward health and health facilities, questions designed to obtain information about various non-health purchasing practices, and questions designed to explore attitudes about the communities in which the respondents lived.

Interviewers for the project were selected from two populations. Twenty student interviewers from the University of Kansas were obtained through various classroom and small poster solicitations near the end of the 1967 Spring semester. Six of the student interviewers were male and fourteen were female. Their ages ranged from nineteen to thirty-one, with twenty-one as the mode, and 21.7 as the \bar{X} . The students' years of education ranged from fourteen to nineteen; the mode was fifteen, and the \bar{X} was 15.8. Five of the student interviewers were married.

The second group of interviewers were largely school teachers and/or housewives. All thirty-two of these interviewers were residents of the county in which they performed the interviewing work. They constituted the group henceforth cited as the "local interviewers." They were obtained by advertising in the classified ads in local newspapers of each county. Seven were males and twenty-five were females. Their ages

6. A replica of the questionnaire schedule is included in Appendix III.

ranged from twenty-one to fifty-four, with a mode of modes unclear because of rather even distribution over a wide range; the \bar{X} age was 34.4. For years of education, the range was from eleven to twenty-one, the mode was sixteen, and the \bar{X} was 15.3. All of the local interviewers were Caucasoid; five were not married. All but one of the student interviewers were Caucasoid except for one Negroid female.

Student interviewers were given interview training lasting about twenty hours extended over a four day period, whereas the local interviewers obtained about five hours of instruction in one day before starting work. The reason for the difference was certain apprehension felt by some members of the KRMP research staff that many of the student interviewers might fail to perform adequately. None of the fifty-two interviewers reported ever conducting survey interviews prior to their work on the Consumer Survey.

The student interviewers were paid on a monthly basis, whereas the local interviewers were paid according to the number of hours they reported working. After beginning work, only one interviewer quit (a female local interviewer, after completing two interviews); none were discharged. The work of both groups was supervised by research consultants located in each of the three counties. Usually, one interview from every segment was partially re-conducted by a different interviewer than had conducted the original as a reliability check.⁷

7. From most segments (probably over 90%) six interviews were obtained. To the best of the writer's knowledge, one interview in each of these were validated. The ones validated were randomly picked. However, in segments where only one or two interviews were completed, sometimes no validations were made.

All interviews were conducted between June 19 and July 10, 1967.

The Questionnaires Sampled for the Present Study

Questionnaires analyzed in the present study include only those conducted for the Consumer Survey in the major town of each county. For Barton County this was Great Bend; for Douglas County, Lawrence; and for Labette County, Parsons. The reason for eliminating all other interviews was that, in spite of Sudman's finding that block-quota sampling requires less travel time than probability sampling,⁸ there is still considerable travel time involved in getting to and from small towns and rural areas. Also, especially in rural areas, there is much more time required in traveling from house to house than in fairly large cities. It was reasoned that, since time was to be a crucial factor in this study, failure to control for the possible effects of such extreme variations in time spent traveling to interview locations (and between them) could seriously obscure the research results.⁹ This reduced the three-county sample of interviews from approximately 2250 to 1315.

Thirty-seven additional interviews were finally eliminated; three were deleted because of certain missing information, and thirty-four more because the times they began fell outside of the time limits

8. Seymour, Sudman, "Time Allocation in Survey Interviewing and in Other Field Occupations," Public Opinion Quarterly, 1966, Vol. 29, No. 4, p. 641.

9. Speculation of the following sort indicated the possibility of such effects: "Actually time spent in travel may contribute to the quality of interviews by providing some relaxation of the tension and fatigue of continuous interviewing and thus serve to some extent the functions of a rest period." (Stephan and McCarthy, op. cit., p. 437) Regardless of the answer to such speculation, travel time would have constituted a highly fluctuating uncontrolled variable had the interviews conducted outside the principle towns been included in this analysis.

established for the study. Only interviews occurring between 09:00 and 19:59 were analysed.¹⁰ This brought the final number of interviews sampled to 1278.

Procedures for Deriving the Quality Indexes

The eleven quality indexes of the present study listed in Chapter I are listed in abbreviated form below, as they constitute the focal point of the ensuing discussion:

1. Refusal
2. Not-at-home
3. Come back later
4. No interview obtained
5. Respondent's cooperativeness
6. Inadequate information
7. Interviewing time
8. Words recorded
9. Probes made
10. Codable answers obtained
11. Words-recorded/codable-answer ration

The first four indexes were based upon information contained on dwelling unit listing sheets.¹¹ After every call at a household, interviewers briefly described the results of the call on the sheets made out for the segment they were working. For example, if no one was home at the first home in a segment, a "not-at-home" or some equivalent notation would be entered on the first line of the dwelling unit listing sheets to the right of the house address. If, at the next house, the interviewer was asked to come back in a half hour, he made a note to this effect beside the address on the following line. If a qualified head-

10. To eliminate the necessity of making "a.m." and "p.m." notations after each reference to time, all such references beyond this point will be on the basis of a 24-hour instead of the common 12-hour clock. One o'clock in the afternoon is thus written "13:00," etc.

11. See Appendix I for a copy of one of the dwelling unit listing sheets used in the study.

of-household at the next dwelling unit could not be convinced to submit to an interview, on the third line the word "refusal" or its equivalent appeared beside the address. When an interview was obtained, a notation to that effect appeared on the line in the dwelling unit listing sheet so that its order in the sequence of attempts was retraceable. It was therefore possible to identify how many unsuccessful attempts were made before every given interview that was completed, and to know whether these successful attempts were because of no one at home, a person was not willing to be interviewed then but would be later, or a person simply refused.¹²

The remaining seven quality indexes came from information contained in the interview schedules. The fifth index was a rating given respondents by the interviewers upon the completion of each questionnaire. "Respondent's attitude" was assigned one of four possible ratings: a 1 if judged "cooperative, friendly, volunteered information;" a 2 if judged "reserved, indifferent, answered only the questions asked;" a 3 if judged "suspicious or guarded, answered only the questions asked;" and a 4 if judged "unfriendly, uncooperative, answers had to be probed." Equal intervals were assumed between each category.

Coders used a uniform code to identify all recorded responses made

12. The procedure is idealized, for there were complications related to determining actual routes followed and in deciding how to categorize the results of some solicitation attempts. The nature of the routing ambiguities found precludes any simple summary. However, the most common problem concerned instances of doubling back to households where a come-back-later or a not-at-home was initially encountered. Interviewers were not always careful to register clearly these second calls on a household.

Appendix II contains a partial list (intended to be representative) of the results recorded for solicitation attempts.

by the interviewers that fit one or more of the following conditions: (1) answers were incomplete or impossible to read, (2) a question was skipped that should have been asked or a question was asked that should have been skipped, or (3) a respondent refused to answer a question. The numbers of such codes were tabulated for every interview, and these values constitute the sixth quality index--to be referred to as the "inadequate information" index.

Simply by subtracting the recorded starting time from the finishing time, the seventh index of interview quality was derived.

Interviewers were instructed to copy verbatim all relevant utterances made by respondents to open-ended questions. Three such questions were singled out for analysis in this study.¹³ To form the eighth quality index, the total number of words recorded for these questions (except those specifying a probe) were counted per interview. In addition, the number of probes the interviewer reported making in connection with these three questions was totaled for each interview for the ninth index.

The three open-ended questions were not designed to elicit just one categorical answer apiece from each respondent. Up to three categorical answers were coded for each question, so that in effect, nine answers were possible for these three questions. Codable answers obtained from the questions per interview constituted the tenth quality index. Finally, the words-recorded/codable-answer ration was computed to make the eleventh index by dividing values of the eighth index by those of the tenth for each interview.

13. Questions 132, 133 and 134. See Appendix IV and then turn to page 19 of the questionnaire schedule.

The Analytical Design of the Study

The study may be liberally viewed as fitting both a time series study design or a quality control study design. Wallis and Roberts defined a time series as "a set of observations made at different times. Each observation represents both a quantity and the time when this quantity occurred."¹⁴ More technically, Hingorani and Marczynski said, "A time series can be any collection of data where each point is associated with a moment in time, i.e., a set of ordered pairs (t_i, x_i) for $i = 0, 1, 2, \dots, n$."¹⁵ Regarding the study at hand, the t s were the various time intervals and sequences defined, and the x s were the interview quality index values found occupying the time intervals and sequence units.

Person's well known argument that no two events or things are or ever will be exactly the same¹⁶ lends philosophical support to those who have helped to develop quality control research.¹⁷ Their basic aim is at achieving statistical control over the variations in the quality of a product. Once the "ideal" is specified in operational terms, quality control research attempts to maintain consistently minimum deviations from the ideal. They do so by sampling past production.

14. W. A. Wallis and H. V. Roberts, Statistics, A New Approach, New York: Free Press, 1956, p. 559.

15. G. G. Hingorani and L. F. Marczynski, "Prediction of Multiple Time Series Generated by Stationary Random Process," in D. F. Merriam (ed), Computer Applications in the Earth Sciences; Colloquium of Time-Series Analysis, Lawrence, Kansas: State Geological Survey (University of Kansas), 1967, p. 30.

16. Karl Pearson, The Grammar of Science, New York: The Meridian Library, 1957, pp. 152-159.

17. See: A. G. Dalton, "The Practice of Quality Control," in Readings from Scientific American Series, Mathematics in the Modern World, San Francisco: W. H. Freeman and Co., 1968, p. 295.

When substantial deviations are spotted, they attempt to standardize future production about an ideal by manipulating suspected causal variables.¹⁸ As the term "quality" implies, the ideal values of any variable in this study is dependent upon specific practical application considerations. For this study, the fluctuations in eleven interview quality indexes were traced in terms of when and to what degree they deviated from their overall central tendency (not their ideal values).

With both time series and quality control studies, extreme variations in accuracy of each reported sample score is not statistically considered. Typically time series studies rely upon highly calibrated scales (such as the Gross National Product in economics), and in most quality control studies, the size of each sample at the various sampling stations is the same.

In the study at hand, however, the sample size varied greatly and only in one instance (words, recorded in open-ended questions) could the scale calibrations used in measurement be called even reasonably extensive. Therefore, a statistical procedure was chosen that could be made to be sensitive to the relatively great variations in sample size at each point in time--standard error of the mean.¹⁹

Instead of speaking in terms of "levels of confidence," quality control research findings are typically expressed on the basis of whole (usually two or three) standard deviations.²⁰ Such levels are called "control limits" (CLs); and this was the practice adopted for the present study.

18. See: Wallis and Roberts, op. cit., Chapter 16.

19. See Appendix IV for a listing of the steps involved in deriving the control limits.

20. Wallis and Roberts, op. cit., pp. 498-501.

Beyond plotting the variability of \bar{X} s in relation to the derived CLs, the statistical analyses appropriate for testing the significance of the results were different for the two hypotheses. Therefore, they are discussed separately below:

Additional Criteria for Testing H_{1_0} . In the case of H_{1_0} , an assumption was made that the effect--if any--of experience upon the quality of interviewing performance would be cumulative in either a positive or negative direction.²¹ Since the \bar{X} of each index would approximately divide the number of plotted \bar{X} s in half, it was decided that some measure of the effect of experience could be obtained by counting the number of \bar{X} s falling above and below the \bar{X} for the first twenty-five interviews conducted and comparing those figures to the number of \bar{X} s falling above and below the \bar{X} for the second twenty-five. A 2 X 2 chi square test of difference was then applied to these data and comprised the major bases upon which H_{1_0} was tested.²²

Additional Criteria for Testing H_{2_0} . Besides plotting the \bar{X} values for each index in relation to the \bar{X} s and CLs for the periods of the day and days of the week, the \bar{X} values exceeding the CLs (thus, $P < 0.05$) were listed in tabular form. Also, if the extent to which the CLs were exceeded was extreme (beyond 3σ), special symbols appeared appropriately in the tables. Two other symbols were used to designate \bar{X} values which

21. This assumption was not made without first viewing Figures 2 through 12. By eye, all noticeable tendencies appeared to be linear except for "time taken to complete the interview" (Figure 9) which gave an appearance of conformity to what has come to be called a "learning curve" (i.e., one showing a relatively swift "improvement" at first but only slight "improvement" beyond the first few trials).

22. Tests of significance more specifically designed for time series data, but that were not used in the present study, were described by Wallis and Roberts, op. cit., Chapter 18.

fell slightly short of exceeding the \bar{X} values.

In the chapter to follow, the results of the study, where possible, are discussed and interpreted in light of available findings from other surveys.

CHAPTER IV
RESULTS AND DISCUSSION

In addition to considering results of this study specifically intended to test the formal hypotheses, two indirectly relevant results are briefly reviewed and discussed: the accuracy of the recorded time of interviewing and the average values of each quality index.

The Accuracy of the Recorded Time of Interviewing

In another socio-medical survey, inaccurate reporting of the length of hospital stays was found when checked against official hospital records.¹ Analysis showed that most of the inaccurately reported lengths could be accounted for by a tendency of the respondents to "heap" numerical information. This is to say that respondents tended to cluster inaccurate responses around certain numbers (notably three and seven, and particularly five and its multiples, usually depending upon which one was closest to the actual number of days).²

A graph of all reported starting times is presented in Figure 1 to help assess the accuracy of the reported time the interviews began and lasted. A phenomenon comparable to that cited above was found, except that in the present instance what was found was the interviewers' tendencies to heap numerical information instead of the respondents'. The frequency of interviews reportedly occurring in each of the sixty-minute intervals was tabulated. Since no regulations were imposed upon the interviewers as to the minutes they were to begin or end any aspects of

1. United States Public Health Service, "Reporting of Hospitalizations in the Health Interview Survey," Vital and Health Statistics, 1965, Series 2, No. 6.

2. Ibid., pp. 52-56.

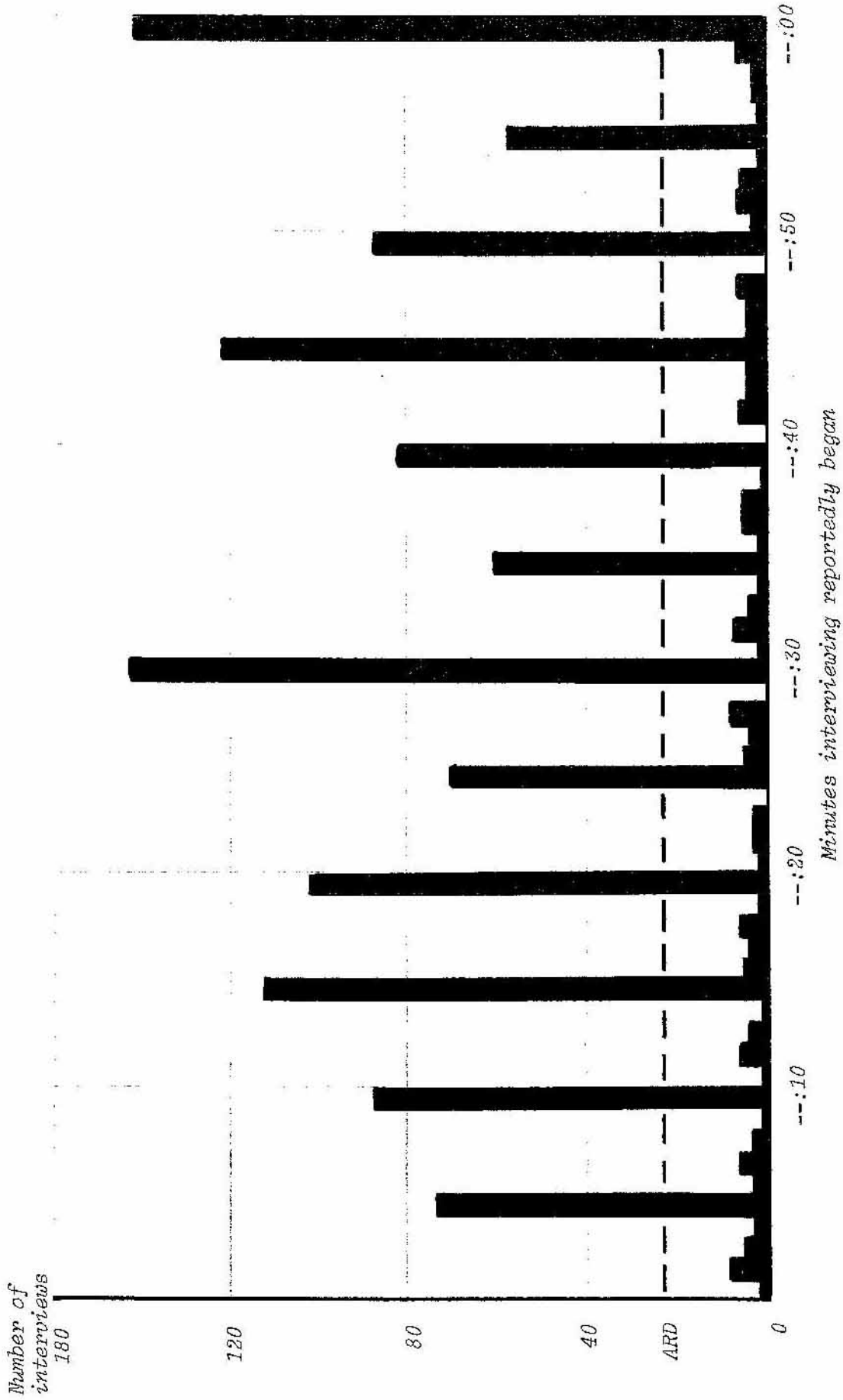


Figure 1. The Frequency Distribution for Recording of Minutes Interviews Began Without Regarding the Hour Recorded, Along with the Assumed Real Distribution (ARD).

their work, it is reasonable to assume that the real distribution of starting times was random throughout the sixty intervals of all the hours in which interviewing occurred. This reasoning is graphically represented in Figure 1 by the assumed real distribution (ARD) broken-line. Deviations from the ARD were apparent. First, there was remarkable heaping around all possible multiples of five (i.e., 5, 10, 15, . . . , 60), though clustering about three or seven did not occur. In the possible multiples of five, which comprise only 20% of the possible minute categories, there appeared 87.9% of all the recorded starting times. Thus, most time registrations were not accurate to the minute.

If the registrations had been accurate to within the nearest five minute interval, no other peaks would have been apparent in the distribution. There were four additional peaks, however, which appeared at each fifteen-minute interval. Beyond this, given any fifteen-minute segment, one finds the number of interviews reportedly begun essentially equal to 25% of the total. The suggested interpretation of this evidence is that the accuracy of reported time of interviewing was adversely affected by the tendency to heap numerical information. It would appear that the biasing effect of this phenomenon did not extend beyond the nearest 7.5 minutes of the actual time that the interviews began.

The Average Values for Each Quality Index

Overall \bar{X} s for the eleven quality indexes per completed interview are presented in Table I. The solicitation quality indexes (Indexes 1 through 4) can be compared to the average attrition rates of other surveys, and probably be more meaningfully understood in the present context, if converted to percentages of all interview attempts. The

TABLE I
 THE OVERALL MEAN FOR EACH
 QUALITY INDEX PER COMPLETED INTERVIEW

Quality Indexes	The Overall Mean
1. Refusal	0.29
2. Not-at-home	1.14
3. Come back later	0.11
4. Unsuccessful attempt	1.54
5. Cooperativeness	1.37
6. Inadequate information	2.27
7. Time taken	46.95
8. Words recorded	47.92
9. Probes made	2.01
10. Codable answers	3.88
11. Words/answers	0.09

conversion rendered the following figures:

Refusals per all interview attempts	12%
Not-at-homes per all interview attempts	44%
Come-back-laters per all interview attempts	4%
Unsuccessful attempts per all interview attempts	60%

The refusal rate for most public opinion surveys, according to Benson, *et. al.*, is between 10 and 20%.³ It can be seen that the refusal rate for the interviewing work of the Consumer Survey sampled in the present study was within this normal range.

3. Sherwood Benson, *et al.*, "A Study of Interview Refusals," *Journal of Applied Psychology*, 1951, Vol. 35, p. 116.

In studies concerned with determining the solicitation quality index values (attrition rates) for surveys, the rate of refusals is the only category for which the determining criteria are reasonable well standardized. For this reason, no attempt was made here to compare individually the not-at-home or come-back-later rates in the Consumer Survey with the rates similarly labeled in other surveys.

However, some general comments about the total number of unsuccessful interview attempts may be useful. It can be seen from Table I that slightly more than one and one-half attempts were made unsuccessfully (at dwelling units where qualified respondents presumably resided) for every successfully completed interview; that is, the unsuccessful attempts comprised about 60% of all the solicitations made. This percentage could only slightly inflated due to the return of interviewers to locations where a come-back-later was initially encountered since this entire category comprised only about 4% of all the interview attempts. Approximately two-thirds of the unsuccessful attempts were because no qualified respondent was home at the time the interviewer called. The not-at-homes recorded were nearly four times greater than were the refusals.

Since the \bar{X} values for the interactional quality indexes compiled in this study would be, in large part, peculiar to the questionnaire used, little would be accomplished by comparing any of the averages of this study with comparable averages of other studies. The one fact that may be worth noting is the apparently high level of respondent cooperativeness as judged by the interviewers once permission to interview was obtained. The possible range of ratings was from one (most cooperative) to four (least cooperative); the over all \bar{X} was 1.37.

The First Hypothesis (H_{10})

The first hypothesis was that interview quality underwent no significant variation on the basis of interviewer experience. Since none of the interviewers had reported any prior survey interviewing work, the extent of interviewing experience was considered to be well reflected by the number of interviews they had conducted. Figures 2 through 12 (contained in Appendix V)⁴ exhibit the \bar{X} values for the eleven quality indexes according to the first fifty-one interviews conducted.⁵

By counting the number of \bar{X} values in each of the eleven figures that fall above and below the $\bar{\bar{X}}$ s for the first and second twenty-five interviews conducted, an indicator of any general upward or downward trend was obtained. Results are presented in Table II and reviewed in the two subsections below.

The Solicitation Quality Indexes. No evidence was found for believing that any significant upward or downward trend occurred in the refusal rate or the come-back-later rate for the first fifty interviews conducted. Otherwise predicting would be to confront a probability of error of over 70% and 80%, respectively.

Concerning the refusal rate, the insignificant difference found in the present study appears to contradict the reported results of two previous studies reviewed in Chapter II.⁶ Both of these previous studies

4. Figures 2 through 45 are presented in Appendix V and not in the body of this chapter because of their large number and because statistical summaries of them are presented in Table II through V of this chapter.

5. Beyond the 51st interview sequence the \bar{X} s were based upon less than nine interviews. Despite the fact that the CLs were made to adjust for sample size fluctuations, \bar{X} s based upon Ns of eight or less were not plotted.

6. J. Durbin and A. Stuart, "Differences in Response Rates of Experienced and Inexperienced Interviewers," Journal of the Royal Statistical Society, 1951, Vol. 114, p. 184; Stephan and McCarthy, op. cit., p. 311.

TABLE II

THE NUMBER OF MEAN QUALITY INDEX VALUES THAT FELL ABOVE
AND BELOW THE MEAN OF THE MEANS FOR THE FIRST AND
SECOND TWENTY-FIVE INTERVIEWS CONDUCTED

Quality Indexes	First 25 Interviews		Second 25 Interviews		Chi Square Probability of Differences being Due to Chance*
	above the \bar{X}	below the \bar{X}	above the \bar{X}	below the \bar{X}	
1. Refusal	17	8	16	9	.80 > P > .70
2. Not-at-home	9	16	15	10	.10 > P > .05
3. Come back later	14	11	12	13	.90 > P > .80
4. No interview	11	14	17	8	.10 > P > .05
5. Cooperativeness	17	8	16	9	.80 > P > .70
6. Inadequate info.	17	8	8	17	.02 > P > .01
7. Time taken	16	9	8	17	.02 > P > .01
8. Words recorded	9	16	15	10	.10 > P > .05
9. Probes made	13	12	15	10	.70 > P > .50
10. Codable answers	19	6	13	12	.10 > P > .05
11. Words/answers	14	11	2	23	.01 > P > .001

* Derived from: R. A. Fisher, Statistical Methods for Research Workers, Edinburgh: Oliver & Boyd, Ltd., 1936, Table III; reproduced in: A. L. Edwards, Statistical Methods for the Behavioral Sciences, New York: Holt, Rinehart and Winston, 1964, p. 500.

reported finding experienced interviewers substantially better at avoiding refusals than inexperienced ones. However, both of these other studies invoked a study design involving the comparison of one group of interviewers (those experienced) with another group (those inexperienced). With such designs, there is always the possibility that any differences observed could have been due to factors distinguishing the samples beyond that which was specifically designated. The design of the present study avoided this methodological problem by comparing the refusal rates of virtually the same interviewers (except for several who did not complete fifty-one interviews) against themselves at each level of their experience.

In view of the results of the present study--which indicated that experience, per se, did not affect the refusal rates--one can try to account for the results of the two studies which concluded otherwise. One explanation would be that significant effects of experience do not appear until sometime after fifty interviews have been conducted. This would not seem very likely.

The one which would seem most likely is that there is a tendency for those who obtain the higher refusal rates to become "discouraged" enough not to continue beyond the first survey project in which they are involved, though not so "discouraged" that they generally quit the project in which they first work. This explanation would not contradict the results of this study which found no effect of experience, per se, on the rate of refusals to novice interviewers. Nor would it be inconsistent with the findings of Durbin and Stuart, and of Stephan and McCarthy who, in comparing the refusal rate of experienced interviewers (i.e., those who had worked on at least one other survey project) and

inexperienced interviewers, found the former to have a lower rate of refusals than the latter. The explanation proposed here could be tested by attempting to rehire a group of first-survey-project interviewers for a second project after they had completed the first, and observing whether or not their rate of obtained refusals during the first project was related to their acceptance of the offer of work on another survey project.

For the rate of those listed as not at home, a difference was found which fell just short of a 0.05 level of significance. The tendency was for the number of persons listed as not at home to increase as interviewers gained in experience. Interestingly, Waksberg and Pearl reported rather similar results in analyzing data from the longitudinal (i.e., repeated interviews with the same set of respondents) Current Population Survey of the U.S. Bureau of the Census. They found "a rather striking increase in the number of housing units classified as vacant by the interviewers" as well as a gradual "loss" of respondents as interviewing progressed.⁷ To explain their findings, they proposed the possibility "that the interviewer becomes less careful in later stages of enumeration in determining whether a unit at which no one is home is occupied or vacant."⁸

The similarity in results found in this study (which did not tabulate "vacancy" registrations) and those of Waksberg and Pearl was that they both indicate that interviewing experience operated to reduce the likelihood of prospective respondents residing in outwardly-appearing unoccupied dwelling units being contacted. Simply attributing this phenomenon to

7. Joseph Waksberg and R. B. Pearl, "The Effects of Repeated Household Interviews in the Current Population Survey," In the Proceedings of The American Marketing Association Meeting, Chicago, June 1964, p. 563.

8. Ibid.

decreased carefulness begs the question of why it appeared true of this solicitation quality index and not true of the other two. At this point, the best answer would seem basically to relate to the extra time required to aggressively seek prospective respondents residing in outwardly-appearing unoccupied dwelling units. Experience probably facilitated the recognition of dwelling units having little likelihood of being occupied. Certain things could have helped cue the interviewer to this effect, such as no children in the yard, no car in the drive, no light through any of the windows, a newspaper on the porch, or possibly some items of mail in the mailbox. This learned recognition (quite likely unconscious) of the most likely unoccupied dwelling units may have then caused the interviewer to respond selectively by trying less persistently at these locations than at others. If the observed difference in the not-at-homes was not due to sampling error, and this explanation offered for it is essentially accurate, the tendency could probably be largely averted through a frank explanation of it with interviewers. They could be told during initial training, and perhaps reminded occasionally, that they may wish to make a conscious effort to avoid the apparent tendency.

The fourth index also rendered a difference significant slightly short of the 0.05 level. Since this was a composite index, however, and since there was virtually no change in Indexes 1 and 3, its significance was almost completely a function of the change in Index 2 (not-at-home).

The Interactional Quality Indexes. The analysis presented in Table II offers evidence that the assessed cooperativeness of respondents, and the number of probes made to elicit more complete responses to open-ended questions underwent no significant upward or downward trends on the basis

of interviewer experience.

The remaining five interactional indexes, however, are shown by Table II to have undergone significant variation at least to a 0.10 level of significance. Of these, the two indexes which fell slightly short of the 0.05 level of significance were the words recorded in open-ended questions, and the number of codable answers obtained in responses to open-ended questions. Values for these two indexes were based upon the same open-ended questions. It was, therefore, anticipated that as the words recorded increased, so, too, would the codable answers, and vice versa. However, this was precisely opposite of what was found. Whereas the \bar{X} number of words recorded in open-ended questions were greater for the last twenty-five interviews than for the first twenty-five, the number of codable answers obtained from responses to the same questions were fewer. Since the statistical significance of both of these results were weak, it initially seemed a possibility that one or the other was due to sampling error. However, viewing the results from Index 11 strongly discourages such an attitude. Index 11 is a ratio of words recorded to codable answers. According to the analysis presented in Table II, there was a considerable difference ($P < 0.01$) between ratios for the first twenty-five interviews than for those for the second twenty-five; significantly more words were written per codable answer as experience increased.

Turning first to the words recorded, two explanations seem plausible. First, experience may have helped improve the capability of interviewers to retain and swiftly record responses verbatim. However, there is a second possibility that seems worth mentioning. Several studies have

demonstrated that the length of a linguistic response is partially a function of the length of the question to which it is addressed. This phenomenon of longer questions tending to evoke longer responses has been found for "medical interviews, psychotherapeutic interviews, civil service and department store job interviews, . . . in 'free' conversation between two parents," in astronaut-ground communications and in United States presidential news conferences.⁹ If the interviewers for the Consumer Survey tended to ad lib by supplementing and/or qualifying their questions the more familiar they became with the questionnaire, these additional words may have served to increase the length of the responses.

Attention will now be focused upon the apparent tendency for fewer codable answers to be registered as experience increased. What seems important is to offer explanations that are consistent with the possible reasons for the words tending to increase with greater experience. Since interviewers were instructed to record responses verbatim, the increased words recorded that experience apparently facilitated may have been largely "stalling phrases" (e.g., "Well, now, let me see . . .," and "Oh, I don't know; that's kind of hard to answer . . .") that were totally irrelevant when it came to coding the responses. If all that had been observed was that the rate of codable answers did not change, this is all of an explanation that would be necessary. However, in order to explain an apparent decrease in codable answers, some additional factor would need to be considered in the present line of reasoning.

9. M. L. Ray and E. J. Webb, "Speech Duration Effects in the Kennedy News Conferences," Science, 1966, Vol. 153, No. 3738, p. 899.

Possibly, this factor involved the coders rather than the interviewers. Coders may have read less carefully the longer interview transcriptions of responses than the shorter ones (especially those containing several "stalling phrases"). Thus, the number of codable answers finally abstracted was not a result of there being inherently fewer codable answers in the longer transcriptions, but was due to a decreased likelihood of such answers being spotted by coders in the longer transcriptions than in the shorter ones.

There was apparently a tendency for the amount of inadequate information to decrease since the difference in the number of \bar{X} s falling above the $\bar{\bar{X}}$ for the first twenty-five interviews conducted as opposed to those for the second twenty-five interviews was significant beyond a 0.02 level. Most survey researchers probably consider this index to be the single most important one for measuring interactional interview quality. To regard it alone, one could conclude that interviewers improve in their work as a result of experience. In as much as experience appeared to help decrease the amount of inadequate information, hiring veteran interviewers and/or providing more extensive pre-interview training probably would help reduce the amount of such information in the earlier stages of a survey.

The number of \bar{X} s falling above the $\bar{\bar{X}}$ for the first twenty-five interviews conducted was sixteen, while for the last twenty-five, the number was eight ($P = 0.02$). Thus, time expended in completing the interviews tended to decrease with increased interviewer experience.

On the basis of the evidence reviewed in the above two subsections, H_{10} was rejected. Over half of the indexes showed variability in \bar{X}

values such that when they were compared on the basis of the number falling above and below the \bar{X} s for the first twenty-five and the second twenty-five interviews conducted a chi square test of difference attained at least a 0.10 level of significance; two surpassed the 0.02 level and one surpassed the 0.01 level.

A single answer to the question of whether experience contributed or detracted from the quality of the interviews would not appear justified by the findings. Regarding the \bar{X} values of quality indexes that did apparently change with experience, on the positive side, the amount of inadequate information contained in the completed questionnaires and the time required to complete the interviews significantly decreased with experience. However, from a negative point of view, fewer codable answers and more not-at-homes tended to be registered as experience increased.

The Second Hypothesis (H_{20})

The second hypothesis was that interviewing quality underwent no significant variation on the basis of the time of day or week it occurred. Tables III, IV and V serve to summarize the findings. The symbols "H" and "L" are used to indicate where the upper and lower CLs were exceeded by the \bar{X} quality index values for the designated time periods. One may wish to keep in mind that these CLs were set at two standard errors ($2\sigma_m$) which is closely equivalent to a 0.05 level of significance. Lower case letters were included in the tables where the \bar{X} s came extremely close to exceeding the CLs. To further aid in assessing the level of statistical significance, italicised Hs and Ls were used where the \bar{X} s surpassed three standard errors of the mean (equivalent to a 0.003 level

TABLE IV

CRUDE VALUES (WHETHER HIGH OR LOW) OF MEAN VARIATIONS IN QUALITY INDEXES EXCEEDING THE CONTROL LIMITS ACCORDING TO THE DAY OF THE WEEK OF INTERVIEWING

Quality Indexes	Day of the Week					
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1. Refusal						
2. Not-at-home	l		h	h	H	
3. Come back later						
4. No interview	L				H	
5. Cooperativeness	H			H		
6. Inadequate info.						
7. Time taken				L		
8. Words recorded						
9. Probes made					L	
10. Codable answers						
11. Words/answers		l		h		h

TABLE V

CRUDE VALUES (WHETHER HIGH OR LOW) OF MEAN VARIATIONS IN QUALITY INDEXES EXCEEDING THE CONTROL LIMITS ACCORDING TO THE PERIODS OF THE DAY FOR EACH DAY OF THE WEEK OF INTERVIEWING

Quality Indexes	Periods of the Day for Each Day of the Week						
	Monday * * c d e f	Tuesday * * c d e f	Wednesday * * c d e f	Thursday a * c d e f	Friday * * c d e f	Saturday a b c d * *	
1. Refusal			l h	H H		H	
2. Not-at-home	l		H	H h	H	H	
3. Come back later				h	H		
4. No interview	l		H	H	h	H	
5. Cooperativeness						h	
6. Inadequate info.				l l l			
7. Time taken				l l l H L		L	
8. Words recorded		H	L		L		
9. Probes made	a - 09:00 to 10:59		H		L	H H	
	b - 11:00 to 12:59						
	c - 13:00 to 14:59						
	d - 15:00 to 16:59						
	e - 17:00 to 18:59						
	f - 19:00 to 20:59						
10. Codable answers				h h			
11. Words/answers						H h	

* Means computed from N's of less than 9 (Interviews) were not plotted.

of significance). Tables III, IV and V, in the ways just described, serve to condense the significant findings shown in Figures 13 through 45 (see Appendix V) into three pages.

In attempting to organize a written report of the results pertinent to H_2O , the writer was somewhat consoled to read the following statement by Blau and Duncan about a study similarly consisting of a number of statistically significant results which defied interpretation: "Indeed, the data show all kinds of 'significant differences' (not due to sampling error) that can be given no clear interpretation and that may be so slight as to be of no practical importance."¹⁰ The reader who is interested in doing future research into the effects of time of day or week on interview quality is urged to independently consult not only Tables III, IV and V but also Figures 13 through 45. The text to follow does not contain a complete treatment for all the statistically significant results. The policy adopted was to try to offer an explanation for the four results found significant beyond the 0.003 level. Also, attempts were made to suggest more general interpretations for a number of the results found significant between the 0.05 and the 0.003 level; while mention of findings significant slightly short of the 0.05 level was made only when they seemed directly relevant to a topic brought under discussion by the statistically significant results.

The Solicitation Quality Indexes. Upon beginning this subsection, a methodological note seems worth reiteration. Interviewers did not register a time for when refusals, not-at-homes or come-back-laters were

10. P. M. Blau and O. D. Duncan, The American Occupational Structure, New York: Wiley, 1967, p. 17; cited by Zick Rubin, "Do American Women Marry Up?," American Sociological Review, 1968, Vol. 33, No. 5, p. 758.

encountered. They registered, instead, a time for starting each interview; and, for this study, the various solicitation indexes were counted that occurred prior to each interview as was evidenced on the various dwelling unit listing sheets (logs). It was the belief of this writer that the great majority (probably over 90%) of the refusals, not-at-homes and come-back-laters that did occur did so within fifteen minutes before a successful interview was begun. So that such an assumption could reasonably be made was one of the reasons for not including data from the rural and small-town areas where more travel time between domiciles was typically involved. Nevertheless, this methodological procedure is inferior to those in which a time is registered for every interview attempt (see Chapter V).

Prior to interviews begun between 17:30 and 18:29 there were approximately five refusals encountered for every ten completed interviews (Table III). The \bar{X} values for this temporal category of refusals extended over three σ_m (thus, $P < 0.003$) from the \bar{X} , the value for which was only about three refusals per ten completed interviews. Oddly, refusals prior to interviews during the preceding hour segment (16:30-17:29) were significantly below the \bar{X} ($P < 0.05$). No significant variation in refusal rates appeared by day of the week (Table IV). However, for periods of the day for each day of the week, three high rates of refusals appeared with less than a 5% chance of error due to sampling. As is further indicated by Table V, the days apparently contributing most to the high rate of refusals occurring prior to interviews beginning between 17:30 and 18:29 in Table III were Wednesday and Thursday.

Not-at-homes were highest prior to interviews beginning between

15:30 and 16:29, with a less than 5% chance of error (Table III). For days of the week (Table IV), the \bar{X} value of not-at-homes for Friday was high ($P < 0.05$).

Come-back-laters were comparatively stable (consistent with what would probably be expected). The only \bar{X} value significant beyond the 0.05 level in all of the three tables was that for Friday between 17:00 and 18:59, at which time it was high (Table V).

Worth noting was the finding that none of the solicitation index values were high (or low) on Saturday (without regard for any particular period of the day; Table IV). However, Table V presented evidence ($P < 0.05$) that refusals and not-at-homes were significantly higher prior to interviews which began after 15:00 on Saturday. Durbin and Stuart reported that the effects of time of day on the rate of successful interview attempts were different on weekends (Saturday and Sunday) than on weekdays.¹¹ For the Consumer Survey, no interviews were conducted on Sunday. However, results of the present study do not seem to offer evidence that Saturday was particularly more distinctive than the other days of the week tested as far as success in interview soliciting was concerned. If one were called to pick the day which appeared most abnormal, it probably would be either Thursday or Friday (See Tables IV and V).

When one views the significant results in Table V of unsuccessful interview attempts, the impression that seems to emerge is that there were complex interactions which occurred between the various periods of the day and the days of the week. For example, for particular periods of the

11. Durbin and Stuart, *op. cit.*, p. 182. Evidence for their assertion was not presented in their report, so what differences were found in their study is not known.

day, three days (Wednesday, Thursday and Saturday) had rates of unsuccessful interview attempts higher than any two-hour period on Friday (Table V). Yet, it was Friday alone which had a significantly ($P < 0.05$) high rate of unsuccessful interview attempts when all periods of the day were disregarded (Table IV).

The effects of statistically significant variations in Indexes 1 and 3 generally disappeared in the composite index (Index 4) because not-at-homes (Index 2) accounted for an average of about two-thirds of all unsuccessful interview attempts. It was not surprising to observe that in all three of the tables now being considered, wherever a high rate of not-at-homes appeared significant beyond 0.05, at least a high in Index 4 emerged significant also beyond that level (in four of the six cases) or just slightly short of it (in the remaining two cases; indicated by the lower case "hs").

Another general finding worthy of mention was that comparatively few lows were significant beyond the 0.05 level for the solicitation indexes. There were only two, while there were sixteen highs. What this would seem to indicate was that the distribution of unsuccessful interview attempts was skewed toward the higher values. If true, this could be an important and encouraging factor in surveying efforts to establish acceptable levels of tolerance for population sampling biases.

These findings lead to curiosity about how closely results of this study of attrition rates by time of day compared to those of the three other studies of attrition rates by time of day mentioned in Chapter II. As stated in discussing results pertinent to H_{10} , inter-survey comparison is hampered by variations in criteria used to determine the indexes.

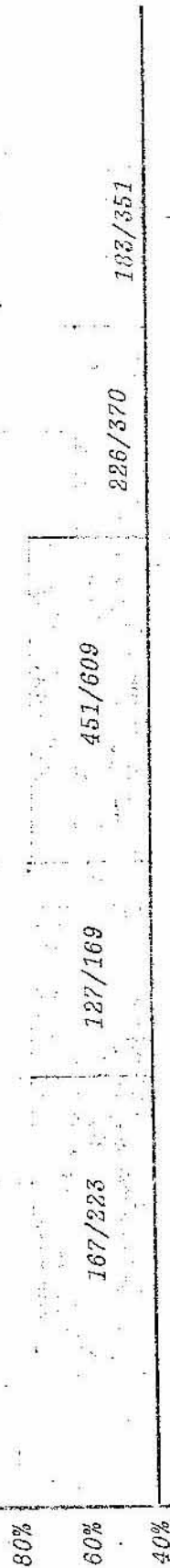
Nevertheless, except for the quota requirements of surveys almost never being the same, criteria used to determine the overall total of unsuccessful interview attempts do not greatly vary; the differences are mainly in how they are subdivided.

In the present context, the difficulty of inter-survey comparison is further complicated because none of the three previous studies worked within the same time intervals. It was possible to partially overcome this problem by reanalyzing the Consumer Survey data of this study by each hour instead of by hourly units divided at the midpoint of each hour (as the analyses were performed for time of the day up to this time). Another adjustment made in the Consumer Survey data presented up to this point was to convert the ratio of unsuccessful attempts per completed interview to percentages of unsuccessful attempts per all attempts. Both of these compensating features involved merely mathematical operations, and therefore detracted nothing from the accuracy of the data.

Results are presented in Figure 46. This figure shows the reported findings regarding the variation in unsuccessful interview attempts according to the time of day the attempts were made (or, in the case of the Consumer Survey data, the unsuccessful attempts prior to the time of day of completed interviews). These results are for the Consumer Survey data of the present study analyzed both by each whole-hour unit and by hourly units divided at the midpoint of each hour, and for three other studies. Very briefly, descriptions of the three other surveys from which the data for the results are displayed in Figure 46 are as follows:

- a. Four surveys conducted in England of persons over sixteen years of age (apparently at no particular time of the year), in the

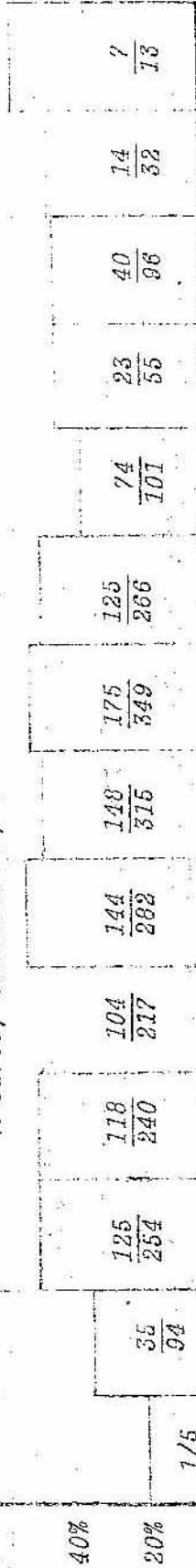
The Average of Four Surveys Conducted in England



A Survey of Farmers in New York State



A Survey Conducted by the National Opinion Research Center



1951 by the
York State
al Education

21 years of
ion Research

ts) for each
319. For the
rview attempts
ed by hourly
ifference was
g included in

the New York
sful interview
ad in Figure

re gross
However, a
e hourly units
cordance with

46 was derived
165-169 and
Agriculture,"
0, pp. 38-56;
New York
nd Ibid.,

Attempts

late 1940s by Britian's National Register.¹²

- b. A survey of New York farmers conducted in August of 1951 by the Extension Service and Experiment Station of the New York State College of Agriculture and the Bureau of Agricultural Education of the New York State Education Department.¹²
- c. A nation-wide United States survey of persons over 21 years of age conducted in December 1947 by the National Opinion Research Center (NORC).¹²

The sample size (i.e., total number of interview attempts) for each of these three studies were, respectively: 1722, 1474, and 2319. For the Consumer Survey data of this study, the total number of interview attempts were analyzed by whole-hour units, was 3289; and when analyzed by hourly units divided at the midpoint of each hour, was 3227. The difference was due to interviews conducted between 20:30 and 20:59 not being included in the latter analysis.

Except for results of the English surveys and those of the New York farmer survey, times of high and low percentages of unsuccessful interview attempts are very incongruent for the various surveys analyzed in Figure 46. The categories for these two surveys were, of course, more gross than were those of the NORC survey and the Consumer Survey. However, a brief study of Figure 26 will convince one that collapsing the hourly units of results from the NORC survey and the Consumer Survey in accordance with

12. This data and that graphically summarized in Figure 46 was derived from the following sources: Durbin and Stuart, *op. cit.*, pp. 165-169 and Table 20; A. J. King and R. J. Jessen, "The Master Sample of Agriculture," Journal of the American Statistical Association, 1945, Vol. 40, pp. 38-56; cited by F. J. Stephan and P. J. McCarthy, Sampling Opinions, New York Wiley (Science Editions), 1963, pp. 200-204 and Table 11.9; and Ibid., pp. 273-278 and Table 12.8.

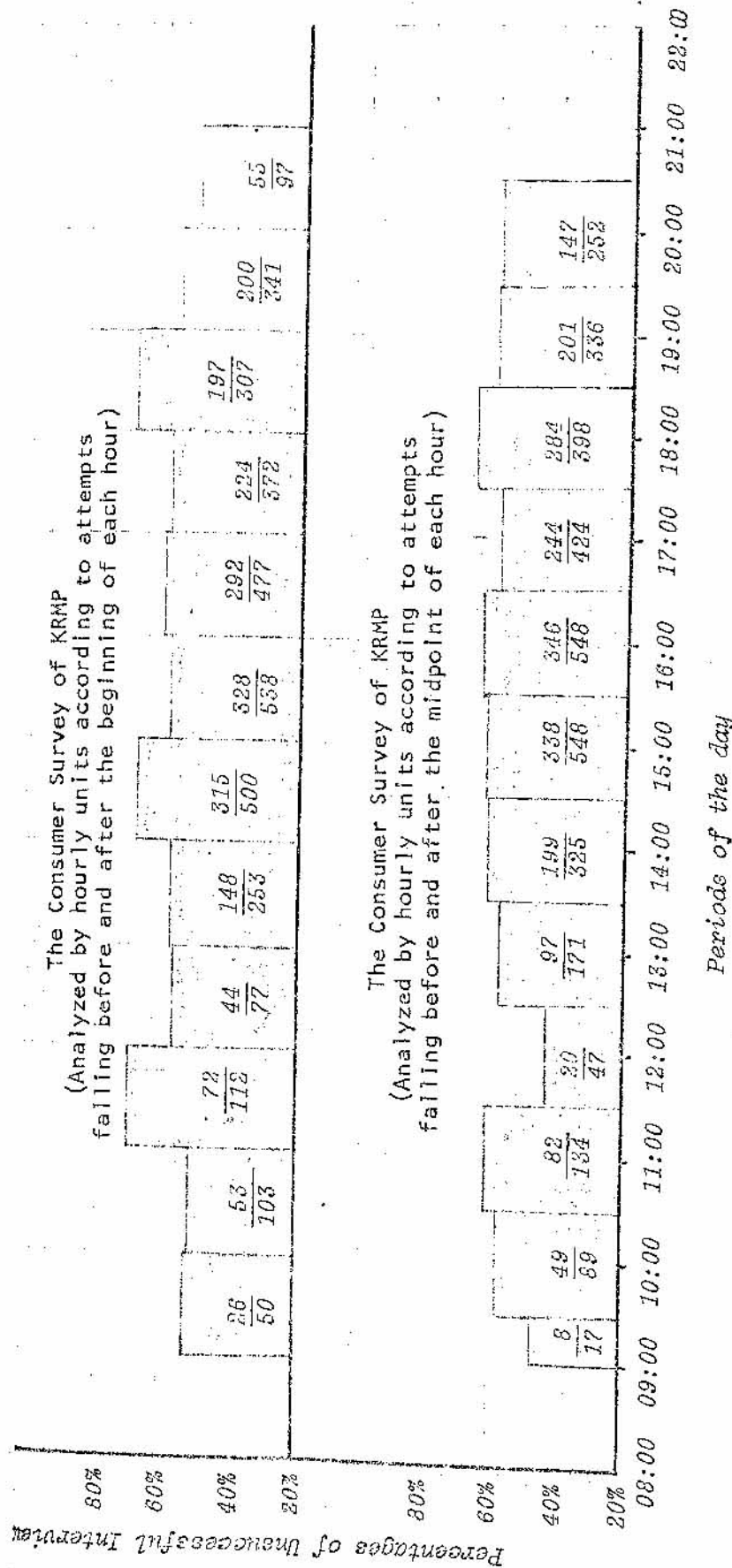


Figure 46. Comparative agreement of four studies on the variations in the rate of unsuccessful interview attempts according to the periods of the day in which the attempts were made.

the other two would add little to the general agreement concerning the times when successful interview attempts were highest and lowest. Most striking was the substantial drops in unsuccessful attempts for both of the more grossly analyzed sets of survey data beyond the latter part of the afternoon which did not appear in either the NORC survey or the Consumer Survey. If one directs attention to the NORC survey data and the Consumer Survey data analyzed by the same hourly units, it can be seen that the highest percentages were, in no case, during the same hours for the two surveys; nor were the lowest percentages.

It was shown earlier in this subsection that, for the Consumer Survey analyzed by hourly units divided at the midpoint of each hour, two significant differences appeared. Also, the differences between the success of attempts before and after 18:00 for the New York farmer survey was significant at the 0.01 level.¹³ Other analyses for significance of differences in percentages within each survey were not performed, but, rather certainly, there were some. For this and other less scientifically founded reasons, this writer expected that, through direct comparison of results from these various surveys, some generalizations would have emerged about the time of day attrition rates were highest and/or lowest. This expectation failed to materialize. The significant intra-survey differences, therefore, must have been due to things peculiar to each of the surveys. The underlying factor which would seem to the present writer to be most suspect was that of the quota requirements of each survey.

Regardless of the reasons, suggestions about the time of day when interview attempts can be expected to be most and least fruitful for future

13. Stephan and McCarthy, op. cit., p. 251.

surveys still can not be made. In as much as there were significant differences in the individual and composite solicitation indexes for the Consumer Survey, and in comparable indexes for other surveys reviewed in this subsection, however, it would seem most reasonable to predict that there are significantly high and low rates of attrition on the basis of the time of day, and less certainly, day of the week attempts are made in most other surveys.

The interactional Quality Indexes. The statistical evidence for the ensuing discussion can be found summarized in Tables III, IV and V beside the quality indexes labeled Indexes 5 through 11. The unsummarized data for these indexes were represented in Figures 25 through 45 (Appendix V).

Cooperativeness ratings given respondents were relatively stable throughout the various time categories designated in this study. Only twice did the \bar{X} values exceed either of the CLs; both time in Table IV when cooperativeness ratings were high for Monday and Thursday ($P < 0.05$, for both values).

Index 6, the one for inadequate information rates, had the fewest number (one) of \bar{X} values to exceed the CLs of all the eleven quality indexes of this study. This single significant value was in Table V, and indicated that for interviews begun on Thursday, between 17:00 and 18:59, inadequate information was low ($P < 0.05$). One could have more easily assumed the difference was due to chance had not two other \bar{X} s during different two-hour periods of the same day come very close to exceeding the lower CL as well. This index is, certainly, the most frequent type of index used to measure interactional interview quality, and probably the single most important one in connection with this study. Therefore, the relative lack

of significant results in its connection might be considered important. The results significant beyond the 0.05 level (and that just short of this level) were low rather than high values. Since no significant (or near significant) highs were found, this analysis offered no basis upon which one could confidently say that there was any time when interviews would have been best not conducted to avoid an unusually high rate of inadequate information. It might also be interjected at this point that, in connection with the cooperativeness of respondents, there were no significant (or near significant) lows. Since there were none, this index also gives one no basis for suggesting any time when interviewing might have been best avoided.

The reader may be struck, as was the writer at this point, by the persistent independence of nearly all of these various quality indexes from one another. Time taken to complete interviews conducted on Wednesday, for example, was very low ($P < 0.003$). Yet, this had no apparent relationship to any of the other quality indexes for interviews conducted on that day.

Another instance concerned probes during open-ended questions, which were unusually low ($P < 0.003$) on Friday (Table IV) without this having the effect of lowering significantly the number of words recorded or the codable answers obtained for these questions. Likewise, probes were very high ($P < 0.003$) for interviews begun between 09:00 and 09:29. In fact, in this case the \bar{X} number of probes for interviews begun then were 3.9 per completed interview, compared to an overall average of less than 2.2 per interview (Figure 37 in Appendix V). Nevertheless, neither words recorded or codable answers were affected significantly. Probing for additional responses to open-ended questions was the most unstable index in this study. There were ten instances in Tables III, IV and V in which it exceeded the CLs. In two of these ten instances, the \bar{X} s deviated from the $\bar{\bar{X}}$ by over

three σ 's, accounting for half of such extreme deviations found in the entire study. In view of the relative high stability in \bar{X} s for words recorded in open-ended questions and substantive answers obtained, there could have been a tendency on the part of interviewers to use probes to compensate for periods when, otherwise, fewer than average words and substantive answers would have resulted.

The conclusion was reached regarding data pertinent to this subsection that, although statistically significant results were apparent, the indexes varied in significant \bar{X} values in ways so generally independent of one another that solid generalizations were not possible.

Only two mildly supported generalizations seem worth mentioning concerning data reviewed in this subsection: (1) The interactional quality indexes, like the solicitation indexes, were most likely to exceed the CLs on Thursday (and, to a less extent, on Wednesday, Friday and Saturday). For Monday and Tuesday, on the other hand, almost no significant deviations from the \bar{X} appeared (Tables IV and V). (2) From viewing Table III, one can see that there was quite a bit of clustering of extreme \bar{X} values for interviews begun in the latter half of the afternoon (and, to a somewhat less degree, around mid-morning). Nevertheless, from neither of these mildly supported generalizations were any general patterns apparent upon which practical suggestions could be proposed.

H_{20} was rejected; but, unlike the first hypothesis, it was rejected almost entirely on statistical grounds. Results pertaining to H_{20} reviewed in both subsections were neither generally consistent with germane results of prior research, nor apparently internally consistent. Otherwise stated, considerable sense was made of results related to H_{10} , whereas findings

for H_2O served only to raise more questions instead of providing even plausible answers. No generalization concerning H_2O seemed justified by this study beyond saying that deviations from the \bar{X} for each quality index did not appear to be all-together randomly distributed either in terms of time of day and days of the week.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

Before results directly related to testing the formal hypotheses were reviewed and discussed, two sets of peripheral findings were presented. It was found that interviewers tended to cluster their registrations of the time of beginning their interviews. Thus, the accuracy of such registrations was markedly biased toward multiples of each five minute unit, and, to a less degree, toward each fifteen minute unit. The conclusion was that the clustering of such numerical information by interviewers in the Consumer Survey adversely affected the accuracy of these registrations as much as 7.5 minutes, though no more.

The second set of peripheral findings had to do with presenting the \bar{X} values for each of the eleven quality indexes in the study. The refusal rate of 12% was not unusually high or low in relation to other surveys. The unsuccessful interview attempts composed 60% of all interview attempts; in other words, the ratio of unsuccessful attempts to successful ones was about 1.5 to one. Not-at-homes comprised the majority of unsuccessful attempts; its relatively high contribution was due partially to the sampling and quota requirements for the Consumer Survey. Once consent to interview was obtained, the cooperativeness of respondents was judged, on an average, quite favorably by the interviewers.

Two hypotheses were tested: (1) that interview quality underwent no significant variation on the basis of the level of interviewer experience, and (2) that interview quality underwent no significant variation on the basis of the time of day and day of the week the interviews were conducted. Both hypotheses were rejected.

Concerning the first hypothesis, evidence was found that, as interviewer experience increased, not-at-homes increased ($P < 0.10$), words recorded in open-ended questions increased ($P < 0.10$), and codable answers from open-ended questions decreased ($P < 0.10$). Also, as experience increased, inadequate information units decreased ($P < 0.02$), time used in interviewing decreased ($P < 0.02$), and the ratio of words recorded to codable answers obtained in open-ended questions decreased ($P < 0.01$). Although this evidence was considered sufficient to reject the first hypothesis, it was concluded that these differences did not support a one-sided answer to the question of whether experience facilitated or detracted from interview quality. The two indexes judged to be most indicative of improvement with increased experience were the drop in inadequate information and, to a less extent, the shortening of time used in interviewing. On the other hand, decline in overall quality seemed the most reasonable interpretation of the increased tendency to register more persons not at home, and the fewer transcriptions of codable answers to open-ended questions as experience increased. Pertinent to the latter index, however, the possibility was discussed that coders, rather than the interviewers, may have, quite unwittingly, had a part to play in the apparent decrease in codable answers.

For the second hypothesis, a great number of \bar{X} values for the eleven quality indexes were found (fifty in all) to have deviated beyond two σ from the \bar{X} s according to the time of the day, the day of the week, and the time of the day for each day of the week the interviews were conducted. The strictly exploratory nature of the analysis, and the failure of any clearly consistent findings to emerge necessitated an arbitrary rejection

of the null hypothesis without the desirable supporting explanations given for what was found in most cases. The variability was so complex and failed so much to abide by any discernible patterns that no attempt was made to generalize about the time of day or week when interview quality was highest or lowest. It was noted instead that, for the time of the day, most of the \bar{X} quality index values deviated beyond two $\sigma_{\bar{X}}$ did so during the middle to latter part of the afternoon; and, for the days of the week, Thursday and Friday seemed to have the greatest number, while Monday and Tuesday contained the fewest number of extreme \bar{X} values. For the two most important interactional quality indexes--cooperativeness of respondents and inadequate information--few \bar{X} s deviated beyond two $\sigma_{\bar{X}}$, indicating that time of interviewing did not affect them beyond that which could be reasonably assumed due to chance.

Recommendations for Future Research

There were several shortcomings in this exploratory study that should not be overlooked as one considers the results. Drawing the major shortcomings together in this section and recommending alternatives should be of help to those who may wish to extrapolate further findings in this area. Suggestions for improvement of future studies can be divided into three closely related categories: improvement in the sampling, improvement in the measurement of the variables, and improvement in the statistical tests of results.

Two problems can be related to the sampling used in the present study. First, in spite of the fact that the sample for the present study was large, it would have been desirable to have had the results of considerably more interviews with which to work. It is recommended that a

future study of this type (particularly one concerned with the effects of the time of day on interview quality) not work with fewer than the results of 7000 interviews. Second, in view of the lack of any really provocative results pertinent to the second hypothesis, the writer recommends that the interviewers be given more latitude as to when they may conduct interviews. By so doing, the variability in the quality indexes should be widened, thus increasing the chances of clearly significant differences.¹

Concerning the variables, there were two broad classes focused upon in the present study: time variables (experience, time of day, and day of the week), and interview quality variables (the solicitation and the interactional quality indexes). Since accuracy was conceptualized as a major component of interview quality, it is somewhat paradoxical that one must call into question the accuracy of the quality indexes themselves. Nevertheless, numerous reasons were cited throughout the preceding chapters of this paper to justify doing so. Generally, it may be said that, if the quality indexes (and the time variables) had been more accurately measured, results would probably have been clearer, and possibly even different.

One reasonable and highly desirable development that would have improved measurement of most of the time variables and all of the solicitation variables of the present study would have been a better "log for registering interview attempts" than the dwelling unit listing sheet used in the Consumer Survey. A "model log," formulated by the present writer upon completion of the processing and analysis of this study's findings, is contained on the following page. It can be compared to the dwelling

1. See: Harold Gulliksen, "Louis Leon Thurston, Experimental and Mathematical Psychologist," American Psychologist, 1968, Vol. 23, No. 11, p. 786.

LOG FOR RECORDING ALL INTERVIEW ATTEMPTS

Address (or Description of Dwelling Unit)	Indicate No. of Calls Made at Each Dwelling Unit	Precise Time of Each Call (be Accurate to Nearest Minute)	Result Of Each Call*

* (1) not a dwelling unit (e.g., business establishment); (2) vacated dwelling unit; (3) nonvacated dwelling unit at which no one was home; (4) person at dwelling unit did not fit sampling specification; (5) person at dwelling unit fit sampling specifications but the quota of this characteristic has already been filled; (6) interviewer asked to return at a later time by a person fitting sampling specifications and for whom the quota had not been filled; (7) refusal by (a) one fitting sampling and quota specification, (b) one not, or possibly not, fitting sampling and quota specifications; (8) interview begun but terminated before completion; (9) interview completed. (If you are not quite certain about what category would really be applicable in a particular case, make a short written description of the attempt and consult your supervisor about it when you get your next assignment.)

unit listing sheet of Consumer Survey by referring to Appendix I.

Calls subsequent to the first one at a specific dwelling unit were sometimes not indicated clearly enough for the specific dwelling unit were sometimes not indicated clearly enough for the sequence of calls made to be coded with certainty. Providing a column (Column 2) on the log sheet, in which interviewers could register the number of calls made at each dwelling unit, should eliminate this problem.

No specific provision for recording the time of each interview attempt was made in this study. What had to be done to approximate values for this variable was to collate the time of each successful interview attempt (for which a time was registered on the interview forms) with the sequence of these successful attempts in relation to the unsuccessful attempts (registered on the dwelling unit listing sheets). A number of the generalizations in this study, thus, had to be clumsily qualified by saying "the unsuccessful interview attempts occurring prior to successful attempts begun between . . ." instead of saying "the unsuccessful attempts begun between . . ." The third column of the proposed "model log" would eliminate the necessity of the former qualification, and would, of course, justify greater confidence in the results of solicitations for a designated time interval. In addition, by stressing the need for accurate time registrations during training, and with the instruction to "be accurate to the nearest minute" as part of the column heading in the log, it is believed that considerable improvement in these registrations would be accomplished. Also, watches could be synchronized each day as interviewers came to the supervisor's office to obtain their assignments.

One of the basic problems in all studies of interview quality has been the lack of inter-survey agreement regarding how the unsuccessful inter-

view attempts (overall attrition rates) are to be subdivided. For data of the present study, interviewers were told to give a short written account of every interview attempt; from this, the coders assigned the results of each attempt to a category. Even without considering the amount of time required for this coding chore, this method was unsatisfactory, and is not recommended for future surveys. Ideally, what is needed is a set of clear and logically exclusive categories applicable to any survey that interviewers can pick after each attempt was made. Exact inter-survey agreement about the categories is not possible because of unique features about each survey. Nevertheless, it is believed that this ideal can be much more closely approximated than has been true in the past by using the conceptual scheme appearing as a footnote to the fourth column of the proposed "model log." With a few hours training, interviewers should be able to master the concepts necessary to distinguish between the categories and to properly assign subsequent attempts into them.

From a statistical standpoint, the first hypothesis would have been better tested by correlating level of experience with each of the quality indexes. The arbitrary dicotomization of experience into the first and second twenty-five interviews conducted, and the division of \bar{X} quality index values into those falling above and below the $\bar{\bar{X}}$ was a crude non-parametric test of basically parametric variables. Correlation techniques would not have been appropriate for testing the second hypothesis because linearity, or even curvilinearity, would be an inappropriate assumption about the effects of time of day or day of the week on interview quality. However, there are additional tests of time series data available that would have been useful in the case of the second hypothesis that were

not used.²

The recommendation that future research should be undertaken, despite its tiring redundancy in sociology, is especially relevant here. If future researchers follow the recommendations outlined in the section now being concluded, more definite and useful answers should emerge about the effects of time on interview quality.

2. W. A. Wallis and H. V. Roberts, Statistics, A New Approach, New York: Free Press, 1956, Chapter 18.

APPENDICES

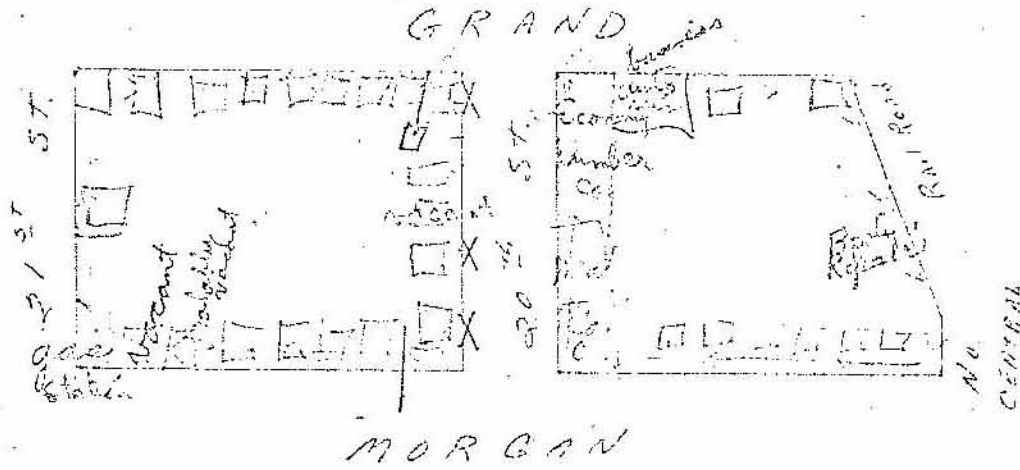
A Sample "DWELLING UNIT LISTING SHEET" and Its Accompanying
"Segment Map"

Starting at point "A" shown on the attached sketch, proceed in the direction indicated by the arrows until you reach point "B", or have completed your assigned interviews with 2 men and 4 women.

List the addresses (or descriptions) of every dwelling unit you contact, together with the result of each contact. This listing will help you, or another interviewer, if it is necessary to make callbacks.

Dwelling Unit #	Address	Description	Result of Contact
1	1414 Grand		Incomplete
2	1903 Grand	Gray shingles - 2 story on corner	having a party - could go back at 5
3	1905 Morgan		no answer
4	1909 Morgan	Did not interview Both on porch	would not answer alone.
5	1913 Morgan		not home both men
6	1915 Morgan	Cannot speak English	or understand
7	1919 Morgan		no answer
8	1925 Morgan	Asbestos in the house questions about program	then asked about each part of work and any possible
9	501 S. 20th		I, C.
10	507 S. 20th	Woman	not home till 5
11	513 S. 20th		I, C.
12	2003 Morgan		I, C.
13	2111 Morgan	not home be back 4	15
14	1613 Morgan	white three part small concrete porch - front porch	no answer
15	2015 Morgan		Incomplete
16	2019 Morgan 64		no answer
17	1213 Morgan	It seems vacant a pocket of clothes in. (over)	no answer

Dwelling Unit #	Address	65	Description	Result of Contact
18	510 21st St.		black dog	black and white dog
19	2028 Grand			T.C.
20	2026 Grand			no man of house
21	2024 Grand		lt. green house	no answer
22	2020 Grand		many, many dogs barker in front of house	no answer
23	2018 Grand			no man of house
24	9014 Grand			no man of house
25	9010 Grand			out of town
26	9008 Grand		Mr. Daniels	at work, ends shift at 1:30, about 1:30 P.M.
27	503 S. 20th St.		after 1:30	1:30 P.M.
28	# 27		very belligerent, refuse to let me in, would not mean dog and lady w/	as it was a bad dog and was very belligerent and would not let me in at that time
29	1905 Morgan		# 3	at home, didn't know
30	1913 Morgan		# 5 maybe 7:30	Man not at home didn't know who he was
31	1803 Grand		# 2 would be a good one.	man not home & didn't know who he was
32	1919 Morgan		# 7	no answer
33	2011 Morgan		# 13	man not home
34	2013 Morgan		# 14	man not home
35	2010 Morgan		# 11	no answer
36	2011 Morgan		# 13	T.C.
37	1903 Grand		# 2	T.C.
38				
39				
40				
41				
42				



APPENDIX II

The following lists are alphabetical arrangements of responses encountered when interviews were attempted but not obtained. They were taken from the "Dwelling Unit Listing Sheets" interviewers completed while on assignment (see Appendix I). In effect, the solicitation quality indexes are operationally defined by the responses listed below each of the categories.

Refusals:

busy--on way to bridge club
doesn't have time
eating
had company
interview not completed
just leaving
lady asleep
lady ill
leaving for work
leaving soon
man drunk--didn't want to talk
not interested
refused
too busy
would not be interviewed
would't come to door
wouldn't talk
would rather not

Absence from Dwelling Unit (Not at Home):

absent
babysitter
father not home
man not home
mother not home
N. A. H.
N. H.
no answer
no one home
no qualified respondent
on vacation
parents not home
woman not home

Interviewer Asked to Return Later for an Interview:

come back at . . .
come back later
come back tomorrow
drop back by
had company--come back
later
prefer to come back

"Responses" That Were Not Tabulated for This Study:

antique shop
business
can't speak English or understand it
couldn't get to house--dogs
deceased
drunk
empty
looks like no one lives here
nursing home
old man--no woman
received death message in the middle (of interview)
sick
single student
vacant
vacant house
widowed

A Copy of the

KANSAS REGIONAL MEDICAL PROGRAMCONSUMER SURVEYSTUDY K
1

Segment No. _____

2 3 4 5

Interview No. _____

6

INTRODUCTION: Good _____, I am _____ from Kansas Regional Medical Program, an organization working with the University of Kansas Medical Center. We are doing a health study in this area. Your house was chosen in our sample and we would like to talk with you. We are trying to get a picture of the medical services in this area and how people use them. The information you give us will be confidential and your participation is voluntary.

Respondent's Name: _____ Phone: _____

Address: _____

City: _____ County: _____

Interviewer's Name _____

Date: _____

Time interview began: _____ A.M. _____ P.M.

Time interview ended: _____ A.M. _____ P.M.

1. First, would you help me list everyone who lives in this household. Please tell me the first names of everyone who lives here. Let's start with yourself and then give me the names of all family members. (RECORD) Be sure to give me names of any babies if there are any. (RECORD) May I have the names of any roomers or boarders who live here if there are any? (RECORD) (FOR EACH PERSON, ASK AGE: SEX: MARITAL STATUS FOR THOSE OVER AGE 12.) (USING THE CODE AT THE BOTTOM OF THE PAGE, RECORD THE CODE NUMBER THAT INDICATES EACH PERSON'S RELATIONSHIP TO THE RESPONDENT.) (RECORD BELOW IN THE PROPER COLUMNS.)

# OF HOUSEHOLD PATIENTS [] 9	AGE IN YEARS (IF LESS THAN ONE YEAR RECORD "0")	SEX		MARITAL STATUS				RELATIONSHIP TO RESPONDENT
		MALE	FEMALE	MARRIED	WIDOWED	SEPARATED/ DIVORCED	NEVER MARRIED	
RESPONDENT:								
01 10-11	12 - 13	1	2 14	1	2	3	4 15	1 16
02 17-18	19 - 20	1	2 21	1	2	3	4 22	23
03 24-25	26 - 27	1	2 28	1	2	3	4 29	30
04 31-32	33 - 34	1	2 35	1	2	3	4 36	37
05 38-39	40 - 41	1	2 42	1	2	3	4 43	44
06 45-46	47 - 48	1	2 49	1	2	3	4 50	51
07 52-53	54 - 55	1	2 56	1	2	3	4 57	58
08 59-60	61 - 62	1	2 63	1	2	3	4 64	65
09 66-67	68 - 69	1	2 70	1	2	3	4 71	72
10 73-74	75 - 76	1	2 77	1	2	3	4 78	79

2. Race of Respondent (By Observation)

W	1
N	2
O	3

80

RELATIONSHIP		CODE
Head of household	1	Servant 5
Spouse of head	2	Roomer/boarder 6
Child/child-in-law stepchild	3	Grandchild 7
Parent/parent-in-law	4	Other related person 8

CARD 02
7-8

3. About how many years have you lived in this community? (RECORD ANSWER IN YEARS. IF LESS THAN ONE YEAR, RECORD "00") (IF ALWAYS LIVED HERE, CHECK BOX AND SKIP TO Q. 6)

YEARS 9-10

4. Where did you live just before coming to live here?

City	County	State
		[]

11

5. What is the population of (TOWN) ? (SHOW CARD A) Just give me the letter which indicates your best estimate?

12

a. City of over 100,000	1
b. City of 25,000 - 100,000	2
c. Town under 25,000	3
d. Farm	4
e. Don't know	5

6. Do you own or rent this place, do you get it rent free, or do you work for rent?

13

Own	1
Rent	2
Rent free	3
Work for rent	4

7. (BY OBSERVATION) Place is:

SKIP TO Q. 10	Obviously not a farm	1
	Possibly a farm	*

8. (IF POSSIBLY A FARM) Is this place a farm?

	YES	*
SKIP TO Q. 10	NO	1

9. (IF YES): How many acres do you have?

Acres [] 14

10. What was the highest grade of school you completed?

Elementary School	1	2	3	4	5	6	7	8
High School	1	2	3	4	5+			
College	1	2	3	4	5+			
No Schooling	0	0	0					

15-17

QUESTIONS 11 THROUGH 15 ARE TO BE ASKED ABOUT THE CHIEF WAGE EARNER IN THE FAMILY. IF YOU ARE INTERVIEWING AN UNMARRIED FEMALE, WIDOW OR DIVORCEE, OR IF YOU ARE INTERVIEWING THE MAN OF THE HOUSE, ASK THESE QUESTIONS ABOUT THE RESPONDENT. IF THE RESPONDENT IS A MARRIED FEMALE, ASK THE QUESTIONS ABOUT HER HUSBAND.

11. (Are you) (Is your husband) working regularly now?

	YES	*
SKIP TO Q. 13.	NO	1

12. (IF YES) How many hours a week (do you) (does he) usually work?

Hours [] 18

13. (IF WORKS MORE THAN 20 HOURS A WEEK, SKIP TO QUESTION 14. IF 35 OR MORE HOURS, SKIP TO Q. 15)

(IF WORKS LESS THAN 20 HOURS A WEEK, OR "NO" ON QUESTION 11, ASK) Are you or your family getting any welfare assistance now?

	YES	1
	NO	2

19

(CHECK Q. 11 and 12. IF NOT WORKING OR IF WORKING LESS THAN 35 HOURS/WEEK, ASK)

14. Why is it that (you are not) (your husband isn't) working full time now? Is it because (you are) (he is):

	20
Retired	1
Sick	2
Disabled	3
Laid off	4
(ASK FEMALE) Homemaker	5

...or is it because (you have to) (he has to):

Take care of sick person	6
Take care of disabled person	7
Other (specify)	8

15. What kind of work (do you/did you) (does your husband/did your husband) do? []
21 22

Kind of job []
23 24

Type of Company

16. First I would like you to read with me a list of things many people consider important. (HAND R. CARDS AND READ THEM.) Please tell me which one you consider most important to you, which next most important to you, and so on to the last. ("1" MEANS MOST IMPORTANT, "2" NEXT MOST IMPORTANT, etc.)

	25
	RECORD RANK HERE
a. Having a good family life	
b. Being able to do what you want to do	
c. Being healthy	
d. Having good friends	
e. Doing work you care about	
f. Not having to worry about money	
g. Enjoying life	

17. Now I would like to ask you some questions about your health in general. How would you rate your health? Would you say it is: (READ) (RECORD IN COL. A)

18. How would you rate your health over the past two weeks? Would you say it is: (READ) (RECORD IN COL. B)

	26	27
	COL. A	COL. B
	Q. 17	Q. 18
	NOW	2 WEEKS
Very good	1	1
Good	2	2
Fair	3	3
Poor	4	4
Very Poor	5	5
* DK, NA, REF.	9	9

19. How does your health compare now with what it has been over the past two years? Would you say it is:

	28
A lot better	1
A little better	2
About the same	3
A little worse	4
A lot worse	5
DO NOT READ	DK, NA, REF. 9

20. Compared to other people your age, would you say your health is:

	29
Much better	1
A little better	2
About the same	3
A little worse	4
A lot worse	5
DO NOT READ	DK, NA, REF. 9

CARD 02

21. In general, does your health keep you from doing any of those things you would like to do?

30	
YES	1
NO	2
DK, NA, REF	9

22. In the past two weeks have you been unable to do any of those things you would like to do?

31	
YES	1
NO	2
DK, NA, REF	9

23. In general, does your health restrict your activities in any way?

32	
YES	1
NO	2
DK, NA, REF	9

24. In the past two weeks has your health restricted your activities in any way?

33	
YES	1
NO	2
DK, NA, REF	9

(IF NO TO ALL Q. 21-24, SKIP TO Q. 26)

25. (IF ANY YES TO Q. 21-24) In what way does your health limit you?

[]
34 35

26. Does your doctor, family or friends consider that your health limits you in any way?

36	
YES	1
NO	2
DK, NA, REF	9

SKIP TO Q. 28

27. (IF YES) Who does and how do they feel it limits you? (PROBE RELATIONSHIP) WHO

_____ []
HOW _____ 37

28. Here is a list of things people with health problems have trouble doing. Which of these things do/did you have trouble doing? (SHOW R. CARD C) Do you have trouble: (READ)

	YES	NO
Getting about the house 40	1	2
Washing and bathing 41	1	2
Dressing & putting on shoes 42	1	2
Walking up & down stairs 43	1	2
Going out of doors 44	1	2
Driving a car 45	1	2
Washing and ironing 46	1	2
Taking care of yard 47	1	2
Going grocery shopping 48	1	2
Heavy lifting 49	1	2
Other 50	1	2
None of these (GO TO Q. 30) 51	1	

29. (IF ANY MENTIONS ON Q.28,ASK:)Why can't you do (that)(these things)?

CARD 02

30. (BY OBSERVATION) Respondent is:

52

Bedridden	1
In wheel chair	2
Mobile but physically handicapped	3
No visible handicap	4

SKIP TO Q. 32

31. How does it happen that you are:
(answer checked in Q. 30)?

[]
53-54

32. Do you have one doctor you usually call first when there is sickness in your family?

55

YES	*
NO	1

SKIP TO Q. 35

33. (IF YES) What kind of doctor is he?
Is he a: (READ)

Medical Doctor	2
Osteopath	3
Chiropractor	4
Some other kind (SPECIFY)	5

34. How long have you gone to this doctor? (RECORD IN YEARS. IF LESS THAN "1" RECORD "00")

YEARS 56-57

35. During the two weeks since _____, did you or any other member of your family see or consult any of the following: (READ) about a specific illness, injury or health problem?

	Yes	No
Public health nurse 58	1	2
Nurse in doctor's office without seeing the doctor 59	1	2
Laboratory technician 60	1	2
An eye doctor 61	1	2
A dentist 62	1	2
A chiropractor 63	1	2
A foot doctor 64	1	2
The druggist 65	1	2
Someone who treats illness with herbs or vitamins 66	1	2
Someone who treats illness with colonic irrigations or electronics 67	1	2
Someone who treats illness with faith, readings or prayer 68	1	2

PCE 02

CARD 03

(REFER TO HOUSEHOLD LISTING, AND ASK THE APPROPRIATE QUESTIONS FOR ALL HOUSEHOLD MEMBERS)

36. Since January 1st of this year, have you (or your husband/wife) been a patient in a hospital overnight or longer?

YES () NO () --- (GO TO Q. 38 OR 40 IF APPROPRIATE,
OTHERWISE GO TO Q. 42)

37. (IF YES) Who was it? (RECORD NAME(S) IN COL. A)

38. (IF ANY CHILDREN) How about the children?

YES () NO () --- (GO TO Q. 40 IF APPROPRIATE,
OTHERWISE GO TO Q. 42)

39. (IF YES) Who was it? (RECORD NAME(S) IN COL. A)

40. (IF OTHER HOUSEHOLD MEMBERS) Has anyone else in this household been a patient in a hospital overnight or longer?

YES () NO () --- (GO TO Q. 42)

41. (IF YES) Who was it? (RECORD NAME(S) IN COL. A)

42. Have you forgotten any hospitalizations for some minor problem?

YES () NO () --- (GO TO Q. 44 OR Q. 46 IF
NO ONE IS LISTED)

43. (IF YES) Who was it? (RECORD NAME(S) IN COL. A)

44. (ASK FOR EACH PERSON NAMED) How many different times has _____ been a patient in a hospital since January 1st of this year? (RECORD IN COL. B)

45. (FOR EACH HOSPITALIZATION FOR EACH PERSON LISTED ASK:) What was the name and location of the hospital where _____ was a patient. (The first time), (the second time), etc. (RECORD IN COL. C)

COLUMN A	COLUMN B	COLUMN C	
NAMES	NO. OF HOSPITALIZATIONS	NAME OF HOSPITAL	LOCATION OF HOSPITAL (CITY OR TOWN)
(FIRST PERSON)	1		
	2		
	3		
	4		
HH NO.			
(SECOND PERSON)	1		
	2		
	3		
	4		
HH NO.			
(THIRD PERSON)	1		
	2		
	3		
	4		
HH NO.			

(REFER TO HOUSEHOLD LISTING, AND ASK THE APPROPRIATE QUESTIONS FOR ALL HOUSEHOLD MEMBERS)

46. In the two weeks ending yesterday...let's see, that would be since _____, did you or your husband see or consult a doctor or talk to him on the phone about health or any other problem? YES () NO () IF YES, RECORD NAMES----->
47. (IF ANY CHILDREN) How about the children? YES () NO () IF YES, RECORD NAMES----->
48. (IF OTHER HOUSEHOLD MEMBERS) Has anyone else in this household seen or consulted a doctor or talked to him on the telephone? YES () NO () IF YES, RECORD NAMES----->
49. Have you forgotten any visits or telephone consultations for minor problems?
YES () NO () (IF YES) Who was it? RECORD NAMES----->

(FOR EACH PERSON LISTED, ASK QUESTION 50,51)

(IF NO ONE HAS BEEN LISTED, GO TO Q. 53)

50. During the last two weeks, how many times was the doctor consulted by telephone for _____?
? RECORD UNDER NAME----->
51. During the last two weeks, how many visits did _____ have with the doctor?
RECORD UNDER NAME----->

(ASK Q. 52-A AND B FOR EVERY VISIT FOR EVERY PATIENT) (IF NO VISITS, GO TO Q. 53)

52-A. Where did (you/ _____) see the doctor the (first/second/third/fourth) times?

(RECORD UNDER NAME AND VISIT NO. SECTION A)

- | |
|-------------------------------------|
| 1. In the doctor's office |
| 2. At your home |
| 3. In the hospital as an outpatient |
| 4. Somewhere else? (COMMENT) |
| 5. In the hospital as a bed patient |

DO NOT ASK Q. 52B

52-B. (SHOW CARD D) At the first visit did (he/anyone): (READ) (RECORD UNDER NAME AND VISIT NUMBER "1")

(SECOND, THIRD, ETC, VISITS SAY) Just look at this card and tell me which of these things were done at this (second, third, etc.) visit. (RECORD - SECTION B)

- | |
|--|
| A. Do a complete physical examination |
| B. Suggest going to a laboratory or clinic for further tests |
| C. Give an injection |
| D. Take Blood for a test |
| E. Take an X-Ray |
| F. Suggest seeing another doctor |
| G. Arrange for admission to the hospital |
| H. Give a prescription or medicine |
| I. Use any other treatment (COMMENT) |
| J. None of these |

CARD 11 ₇₋₈					CARD 12 ₇₋₈					CARD 13 ₇₋₈					CARD 14 ₇₋₈																
NAME OF PATIENT					NAME OF PATIENT					NAME OF PATIENT					NAME OF PATIENT																
HH. NO. 9-10					HH. NO. 9-10					HH. NO. 9-10					HH. NO. 9-10																
0	1	2	3	4	5	6+	11	0	1	2	3	4	5	6+	11	0	1	2	3	4	5	6+	11	0	1	2	3	4	5	6+	11
0	1	2	3	4	12	0	1	2	3	4	12	0	1	2	3	4	12	0	1	2	3	4	12								
SEC A	13	24	35	46	13	24	35	46	13	24	35	46	13	24	35	46															
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1																
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2																
3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3																
4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4																
5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5																
.....																															
SEC B	14-	25-	36-	47-	14-	25-	36-	47-	14-	25-	36-	47-	14-	25-	36-	47-															
	23	34	45	56	23	34	45	56	23	34	45	56	23	34	45	56															
a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a																
b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b																
c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c																
d	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d																
e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e																
f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f																
g	g	g	g	g	g	g	g	g	g	g	g	g	g	g	g																
h	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h																
i	i	i	i	i	i	i	i	i	i	i	i	i	i	i	i																
j	j	j	j	j	j	j	j	j	j	j	j	j	j	j	j																

PCE 11

PCE 12

PCE 13

PCE 14

CARD 03

(IF ANY VISITS RECORDED ON THE PRECEDING PAGE, SKIP TO Q. 55 AND ASK QUESTIONS 55 - 62 FOR FIRST PERSON LISTED, OTHERWISE START WITH QUESTION 53)

53. Who in this family has seen the doctor most recently?

NAME _____ H.H. NO. _____

54. When did _____ see the doctor? What month and/or year was it?

_____ []
MONTH/YEAR

55. How come _____ went to see the doctor? (PROBE: What was wrong that (you/he/she) had to see him?) (PROBE: Physical checkups or shots)

_____ []

(IF ROUTINE CHECKUP OF WELL PERSON, SKIP TO Q. 63)

56. Was this the first time saw the doctor because of this (illness/injury/problem/ pregnancy)?

SKIP TO Q. 58	Yes	1
CONTINUE	NO	2
SKIP TO Q. 58	DK, NA, REF	9

57. (IF NO) When was the first time _____ saw the doctor about this (illness/ injury/ problem? What month and/or year was it?

_____ and/or _____ []
MONTH YEAR

58. In the last year, that is (JUNE/ JULY) 1966 about how many times altogether has _____ seen the doctor because of this (illness/injury/ problem/ pregnancy)?

NUMBER OF TIMES _____

(IF FIRST TIME MORE THAN ONE YEAR AGO, SKIP TO Q. 63)

59. Now think back to the time when _____ first became (ill/ injured/pregnant). How long was it from the time (you/she/he) thought something was wrong until _____ saw the doctor?

Hours _____ or Days _____
or M _____ []

60. Before going to the doctor, what kinds of things were done for _____? (IF ADULT) or what kind of things did _____ do for (himself/herself/ yourself)?

_____ []

61. Before _____ saw the doctor, did (you/he/she) (or anyone else in the family) talk to anybody about what should be done for _____?

42

	YES	1
SKIP TO Q. 63	NO	2
	DK, NA, REF	9

62. (IF YES) Who was it? (PROBE: FOR RELATIONSHIP TO RESPONDENT)

[]
43-44

63. (NOW JUST A FEW QUESTIONS ABOUT YOU) Today or yesterday, have you taken or used any medicines, pills or ointments that were suggested or prescribed by a doctor?

45

	YES	1
	NO	2

64. Today or yesterday have you taken or used any medicines, pills or ointments or anything like that NOT suggested or prescribed by a doctor?

46

	YES	1
SKIP TO Q. 66	NO	2

65. (IF YES) Who suggested that you take or use them? (DO NOT READ)

47

Self/No one	1
Husband/wife	2
Other relative or friend	3
T.V. or radio	4
Druggist	5
Nurse	6
Other health practitioner	7
Other (specify)	8

66. If you thought you were having a heart attack, where would you go first for medical care? (RECORD IN COLUMN 1A)
67. (IF APPLICABLE) In what town is the (answer above) located? (RECORD COLUMN 2A)
68. If you thought you needed gall bladder surgery, where would you go first for medical care? (RECORD IN COLUMN 1B)
69. (IF APPLICABLE) In what town is the (answer above) located? (RECORD COLUMN 2B)
70. If you had a bad cold and a sore throat, where would you go first for medical care? (RECORD IN COLUMN 1C)
71. (IF APPLICABLE) In what town is the (answer above) located? (RECORD COLUMN 2C)
72. Where would you go for medical care if you thought you had cancer? (RECORD IN COLUMN 1D)
73. (IF APPLICABLE) In what town is the (answer above) located? (RECORD COLUMN 2D)

	COLUMN 1	COLUMN 2
	Where Go	Location
A. HEART ATTACK (CIRCLE ONLY ONE)	Hospital	1 ⁴⁸ 49
	Doctor	2
	Other (specify)	3
	Go nowhere	4
B. GALL BLADDER SURGERY (CIRCLE ONLY ONE)	Hospital	1 ⁵⁰ 51
	Doctor	2
	Other (specify)	3
	Go nowhere	4
C. COLD & SORE THROAT (CIRCLE ONLY ONE)	Hospital	1 ⁵² 53
	Doctor	2
	Other (specify)	3
	Go nowhere	4
D. CANCER (CIRCLE ONLY ONE)	Hospital	1 ⁵⁴ 55
	Doctor	2
	Other (specify)	3
	Go nowhere	4

CARD 03

74. Sometimes people go to the larger cities to get medical care. To get medical care, have you or has anyone in your family ever gone to: (READ LIST, RECORD IN COL. A)
75. (FOR EACH "YES" ASK Qs. 75 & 76.) When did you/he/she go to (_____)
Was that in the last six months or was it sometime before that?
76. For what reason did you go to(_____)? (RECORD IN COLUMN C)

		COLUMN A		COLUMN B		COLUMN C
		Yes	No	Last Six Mos.	Before That	Reason
Wichita	56	*	9	1	2	
Kansas City	57	*	9	1	2	
Oklahoma City	58	*	9	1	2	
Mayo Clinic	59	*	9	1	2	
Other Large City	60	*	9	1	2	
						[] 61

77. In some families one member of the family looks after the health of the other members of the family. Who, if anyone, looks after the health of others in your family?

[]
Name and relationship to respondent 62

78. Has anyone in your family or any of your friends died of cancer in the last two years? (IF YES, PROBE: Has more than one person you know died?)

63	
Yes, only one	1
Yes, more than one	2
No one, DK	3

79. Has anyone in your family or any of your friends suffered a stroke or paralysis in the last two years? (IF YES, PROBE: Has that been more than one person?)

64	
Yes, only one	1
Yes, more than one	2
No one, DK	3

80. Has anyone in your family or any of your friends had a heart attack in the last two years? (IF YES, PROBE: Has more than one person you know had a heart attack?)

65	
Yes, only one	1
Yes, more than one	2
SKIP TO Q. 82 No one, DK	3

81. (IF ANY) How many have died?

66	
None, DK	1
Only one	2
More than one	3

CARD 03

82. In the last year, have you ever wanted to see a doctor but couldn't for some reason?

67

Yes	1
No	2

SKIP TO Q. 84

83. (IF YES) When this happened, why didn't you see him?

Cost, too expensive	68	1
Inconvenience of appointment	69	1
Transportation problems	70	1
Family advised against it	71	1
Doctor not available	72	1
Doctor couldn't help me	73	1
Problem went away	74	1
Physically unable to go	75	1
Fear of examination or treatment process	76	1
Couldn't get appointment, couldn't reach doctor	77	1
Someone at home sick, couldn't leave	78	1
Other (specify)	79	1

CARD 04

7-8

84. Can you recall any experience with a doctor or hospital that you or your family had that was not entirely to your satisfaction?

Yes	1
No	2
DK, NA, REF	9

SKIP TO Q. 86

85. (IF YES) Would you tell me about it?

[]
10-11

86. Suppose you felt very sick, do you think you could find a doctor that would see you within twelve hours?

12

SKIP TO Q. 88	YES	1
CONTINUE	NO	2
SKIP TO Q. 88	DK, NA, REF	9

87. (IF "NO") Why not?

[]
13 14

88. What would you do in order to arrange to see a doctor within a few hours?

[]
15 16

89. Suppose he were out of town, what would you do next?

[]
17 18

90. Because of medical expenses in the past two years, did you put off buying anything you needed?

19

	YES	*
SKIP TO Q. 92	NO	2
	DK, NA, REF	9

91. (IF YES) What did you put off buying?

[]
(19)

92. Because of medical expenses in the past two years, did you put off buying anything you wanted?

20

	YES	*
SKIP TO Q. 94	NO	2

93. (IF YES) What did you put off buying?

[]
(20)

94. Because of medical expenses in the past two years, have you put off a vacation or trip?

21

	YES	1
	NO	2

95. In the past two years have you put off any medical treatment because of the expense?

22

	YES	1
	NO	2

96. Which of the following statements best describes your financial position: (READ)

23

Can't make ends meet	1
Just enough to get along on	2
Comfortable	3

97. Where do you usually shop for food? Just give me the name of the town or city

[]
Town or City
24

98. If you have one, where did you buy your last car? Just give me the town or city

Has None []

[]
Town or City
25

CARD 04

99. In what town or city did you buy your last (dress/suit)?

_____ []
26

100. Have you made any trips to a place that was more than fifty miles from your home during the past two years?

27

YES	1
-----	---

SKIP TO Q. 105

NO	2
----	---

101. (IF YES) Did any of your trips take you out of the state?

28

YES	1
-----	---

SKIP TO Q. 105

NO	2
----	---

102. (IF YES) How many trips out of the state did you make altogether in the last two years?

NUMBER OF TRIPS

29 30

103. (Was/were) the trip(s) made mainly for: (READ)

31

Business	1
Pleasure/vacation	2
Visiting friends/relatives	3
Some other reason (WHAT)	4

104. Have you made any trips out of the country during the past two years?

32

YES	1
-----	---

NO	2
----	---

105. Thinking of your half dozen or so closest relatives, do: (READ LIST IN BOX)

106. Thinking of your half dozen or so closest friends, do: (READ LIST)

REL. 33 FDS. 34

all live in this community	1	1
most live here	2	2
only a few live here	3	3
none live here	4	4
SKIP TO or do you have no (Relatives/friends)	5	5

107. Thinking about your close friends or relatives, how many times during the last week did you visit them either at your house, their house, or someplace else?

35

SKIP	3 or more visits	1
TO	2 visits	2
Q.110	1 visit	3
	No visits	*

108. (IF NO VISITS) When was the last time you visited with friends or relatives?

36

SKIP	2 weeks up to one month ago	4
TO	1 to 2 months ago	5
Q.110	More than 2 months ago	6
	Never, or so long ago I don't remember	7

109. (IF NEVER, ETC.) How does it happen that you don't visit with friends?

[]

37 38

Now I am going to read some statements to you and I would like you to tell me if you agree or disagree with each statement. There are no right or wrong answers, I simply want your opinion about each statement.

	Agree	Disagree	D.K.
110. A person's health depends mainly on how lucky he is. 39	1	2	X
111. For some kinds of sickness, a doctor is not always the best person to go to for help. 40	1	2	X
112. A person who can no longer care for himself is better off in a nursing home than in the home of a relative. 41	2	1	X
113. A person's health depends <u>mainly</u> on how well he takes care of himself. 42	2	1	X
114. Most people die in hospitals. 43	2	1	X
115. Doctors give you as much time and attention as you need. 44	2	1	X
116. When a person needs a lot of medical care, he or she is better off in a hospital than at home. 45	2	1	X
117. Most doctors are interested in <u>only</u> the patient's illness and not in the patient's other problems. 46	1	2	X
118. A person usually knows his or her own health condition better than most doctors do. 47	1	2	X
119. People can get good care in nursing homes. 48	2	1	X
120. When a person needs a complete physical examination he or she is better off in a doctor's office than in a hospital. 49	2	1	X
121. When a patient can't pay, a doctor will still give good treatment. 50	2	1	X
122. Patients should follow the doctor's orders even if they are not sure he is right. 51	2	1	X
123. When a doctor knows he can't help you, he will tell you right away. 52	2	1	X
124. People should try out different doctors to find which ones they will like the best. 53	1	2	X
125. People should have regular health examinations even though they are not sick. 54	2	1	X

CARD 04

(HAND R. CARD E)

126. As we all know there are many organizations, groups or people doing things these days to improve the health of people in Kansas. As you look back over the last few years, which two or three of the organizations, groups or people listed on the card would you say has done the most to improve the health of the people in Kansas. Just your impression.

55-56, 57-58, 59-60

Blue Cross and Blue Shield and other insurance groups	01
Medical Societies	02
Drug and medicine manufacturers	03
Medical school	04
State Legislature	05
State health departments	06
The Federal Government	07
Physicians	08
Local community	10
Institutions (hospitals, nursing homes and the like)	20
No opinion	09

127. As you look ahead to the next few years, which two or three of these organizations or groups do you think will take the lead in advancing the health program of Kansas.

61-62, 63-64, 65-66

Blue Cross and Blue Shield and other insurance groups	01
Medical Societies	02
Drug and medicine manufacturers	03
Medical school	04
State Legislature	05
State health departments	06
The Federal Government	07
Physicians	08
Local community	10
Institutions (hospitals, nursing homes and the like)	20
No opinion	09

128. Which two or three organizations or groups do you think should take the lead in advancing the health program of Kansas?

67-68, 69-70, 71-72

Blue Cross and Blue Shield and other insurance groups	01
Medical Societies	02
Drug and medicine manufacturers	03
Medical school	04
State Legislature	05
State health departments	06
The Federal Government	07
Physicians	08
Local community	10
Institutions (hospitals, nursing homes and the like)	20
No opinion	09

129. Why do you choose them?

[]
73-74

CE 02

CARD 05

7-8

130. Have you heard about the Kansas Regional Medical program?

9

YES	1
NO	2

SKIP TO Q. 132

131. (IF YES) In what ways have you learned about the Kansas Regional Medical program? (PROBE: Any other ways?)

Newspapers	10	1
Magazines	11	1
Television	12	1
Radio	13	1
From doctors	14	1
From friends	15	1
Other (specify)	16	1
No opinion	17	1

132. Aside from patients, what would attract a doctor to your community? (PROBE: Anything else?)

[] [] []
18 19 20 21 22 23

133. Why wouldn't a doctor be attracted to your community? (PROBE: Anything else?)

[] [] []
24 25 26 27 28 29

134. What would you do if there were no doctors in this community? What if all the doctors moved away, retired, or died?

[] [] []
30 31 32 33 34 35

CARD 05

135. Here is a card showing amount of yearly income. (SHOW R. CARD F. Next to each amount is a letter. Would you tell me what letter represents the income your family will make before taxes in 1967, considering all sources such as wages, profits, interest, and so on?

136. What is your religious preference? (IF PROTESTANT, PROBE: What denomination?)

36

A	Under \$1,500	1
B	\$1,500 - \$2,999	2
C	\$3,000 - \$4,999	3
D	\$5,000 - \$6,999	4
E	\$7,000 - \$9,999	5
F	\$10,000 - \$14,999	6
G	\$15,000 or over	7
H	No Response (Estimate)	

[]
37

137. Now I would like to ask you these last few questions about your community. Compared with other places, would you say your community is very good, average or rather poor on...

	Very Good	Average	Rather Poor	No Opinion
a. People being friendly & sociable 38	1	2	3	4
b. Churches and church life 39	1	2	3	4
c. Having adequate hospital facilities 40	1	2	3	4
d. Recreational facilities 41	1	2	3	4
e. Having good local government 42	1	2	3	4
f. Store and shopping facilities 43	1	2	3	4
g. Having enough public school teachers 44	1	2	3	4
h. Having enough doctors 45	1	2	3	4
i. Having enough lawyers 46	1	2	3	4
j. Having adequate school facilities 47	1	2	3	4

INTERVIEWER: PLEASE COMPLETE THE FOLLOWING INFORMATION AFTER CONCLUDING THE INTERVIEW

A. RESPONDENT'S INTEREST IN INTERVIEW

AT START 48		AT CLOSE 49	
Lacked interest	1	Lacked interest	1
Mild interest	2	Mild interest	2
High interest	3	High interest	3

B. DISTRACTIONS DURING INTERVIEW

50

Very much	1
Some or occasional	2
Very little	3

C. RESPONDENT'S ATTITUDE TOWARD YOU.

51

Cooperative, friendly, volunteered information	1
Reserved, indifferent, answered only the questions asked	2
Suspicious or guarded, answered only the questions asked	3
Unfriendly, uncooperative, answers had to be probed	4

It is clearly understood by the undersigned that this interview is being paid for by the United States Government. I swear that I have conducted the entire interview with the respondent whose name appears on this questionnaire at the address shown according to the instructions of the Kansas Regional Program. I have signed my name hereto knowing that in the event this statement is false, my payment will be withheld and I will be responsible to reimburse Kansas Regional Medical Program for all costs involved, as well as being subjected to any legal action deemed necessary by the organization.

Interviewer's Signature

[]
52-53

APPENDIX IV

STATISTICAL PROCEDURES USED TO DERIVE CONTROL LIMITS

1. Derived the mean quality value for each time interval designated.

$$\bar{X}_i = \frac{\sum X_i}{n_i}$$

2. Calculated the mean of the mean quality values obtained in Step 1.

$$\bar{\bar{X}} = \frac{\sum \bar{X}_i}{N \bar{x}_i}$$

3. Derived the variance of scores within each time interval.

$$\sigma_i^2 = \left(\frac{\sum x^2}{n} \right) - \bar{x}_i^2$$

4. Derived the mean variance.

$$\bar{\sigma}^2 = \frac{\sum \sigma_i^2}{n - N \bar{x}_i}$$

5. Calculated the mean standard deviation.

$$\bar{\sigma} = \sqrt{\bar{\sigma}^2}$$

6. Calculated the standard error of the mean of each set of scores for each time period designated.

$$\sigma_{mi} = \frac{\bar{\sigma}}{\sqrt{N \bar{x}_i}}$$

7. Doubled the standard error of the mean values to determine the control limits.

$$CL_i = 2(\sigma_{mi})$$

APPENDIX V

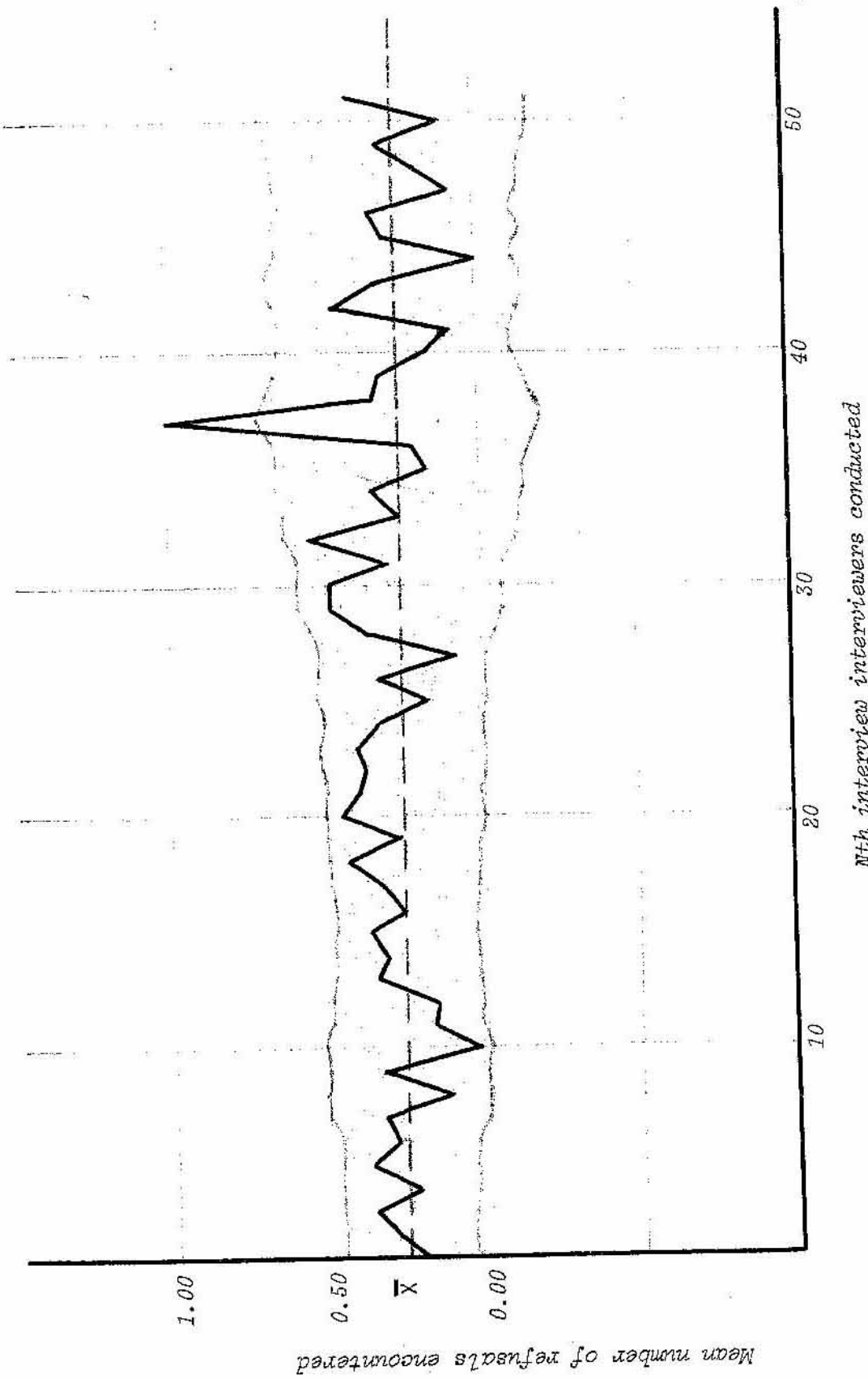
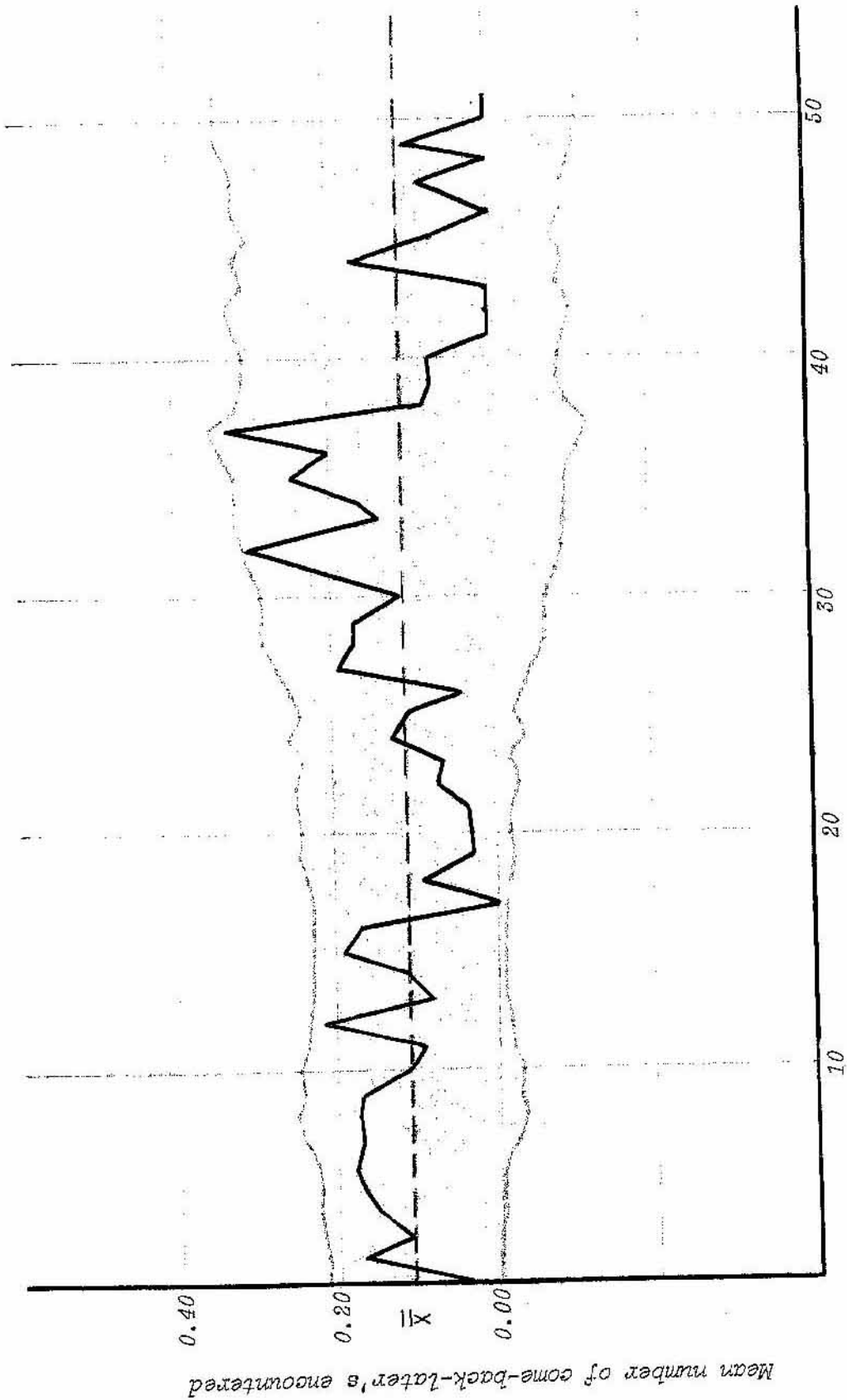


Figure 2. Variation in the mean number of refusals encountered by the interviewers according to the extent of their interviewing experience.



Nth interview interviewers conducted

Figure 4. Variations in the mean number of come-back-later's encountered by the interviewers according to the extent of their interviewing experience.

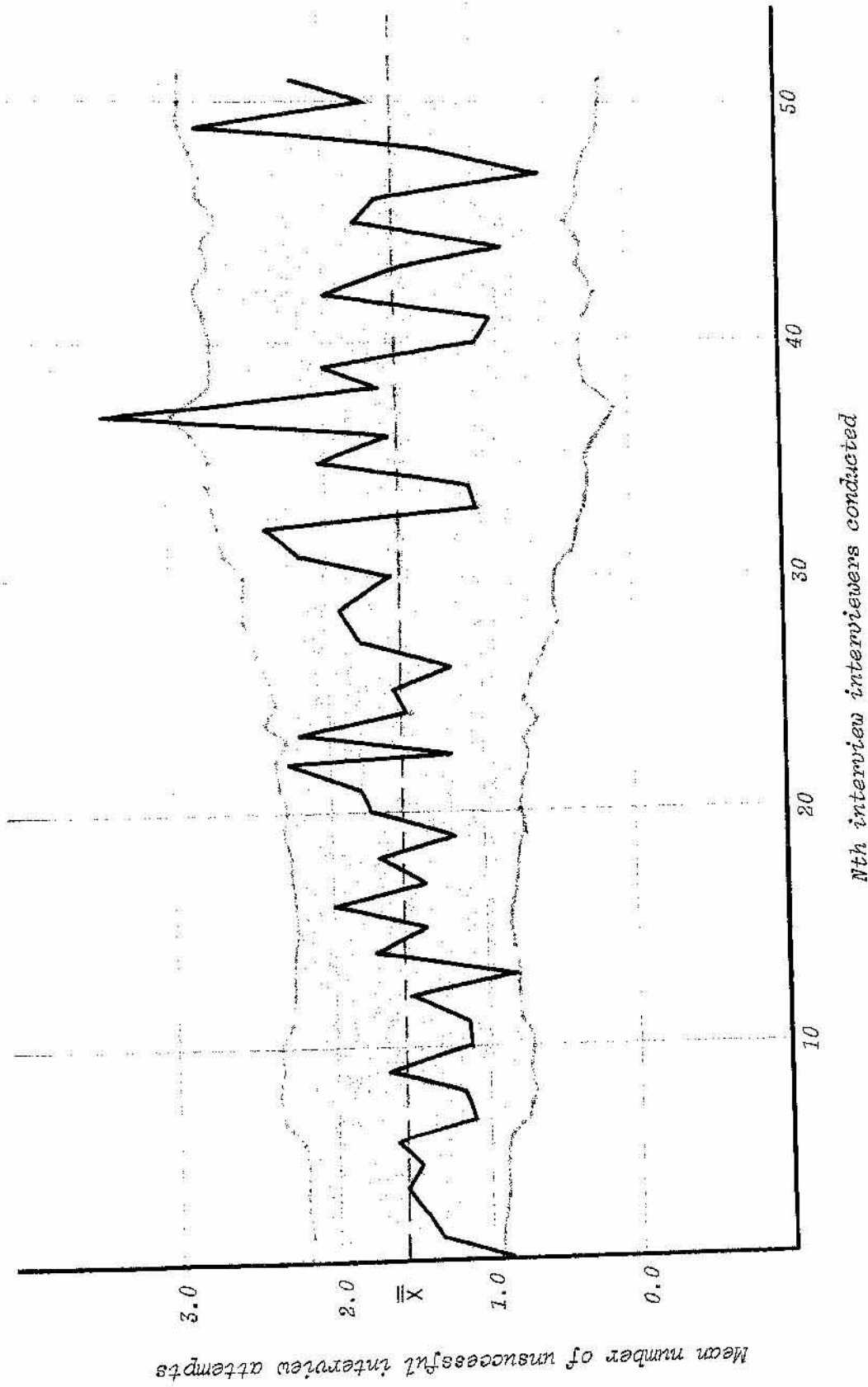


Figure 5. Variations in the mean number of unsuccessful interview attempts by the interviewers according to the extent of their interviewing experience.

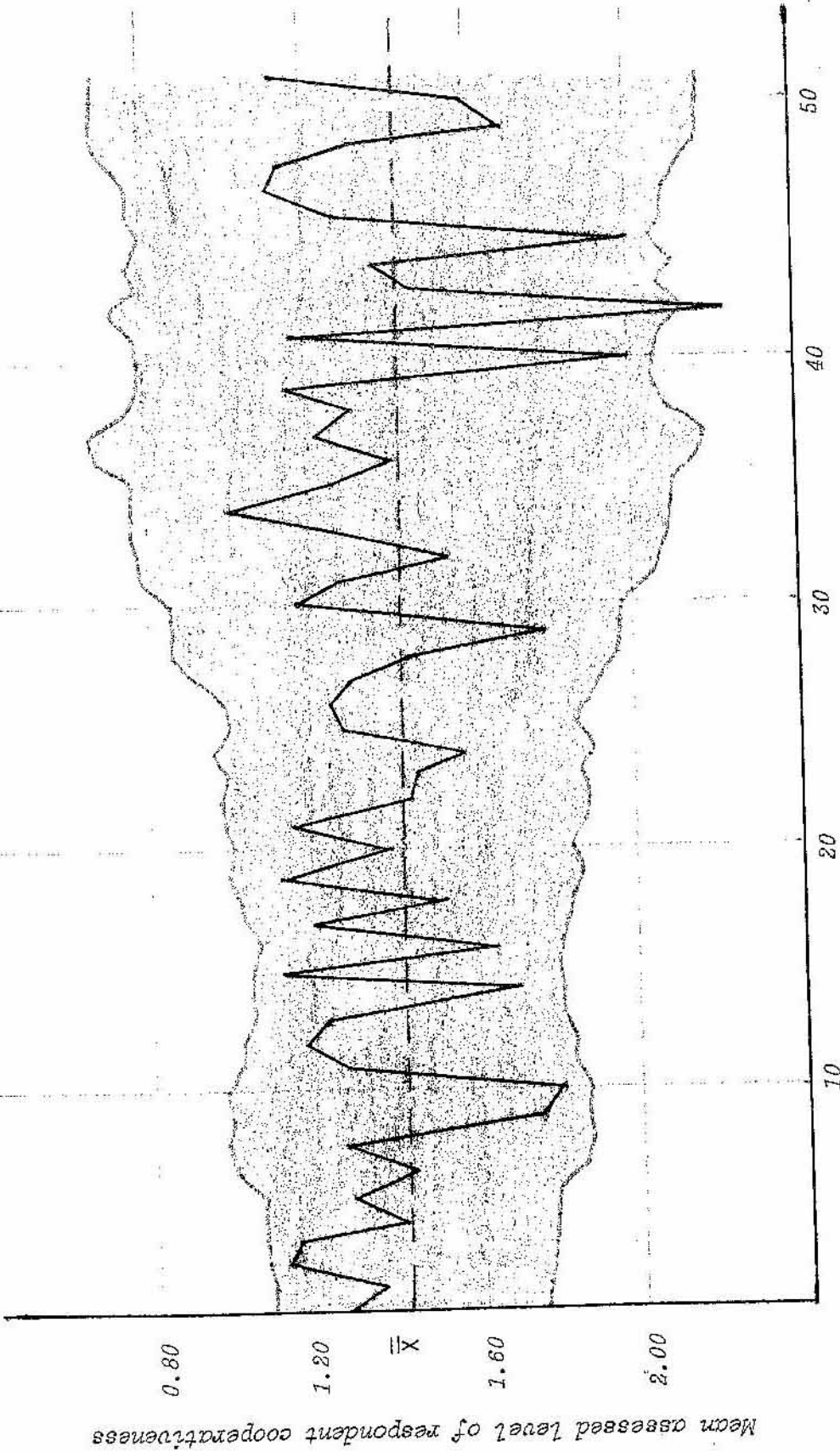
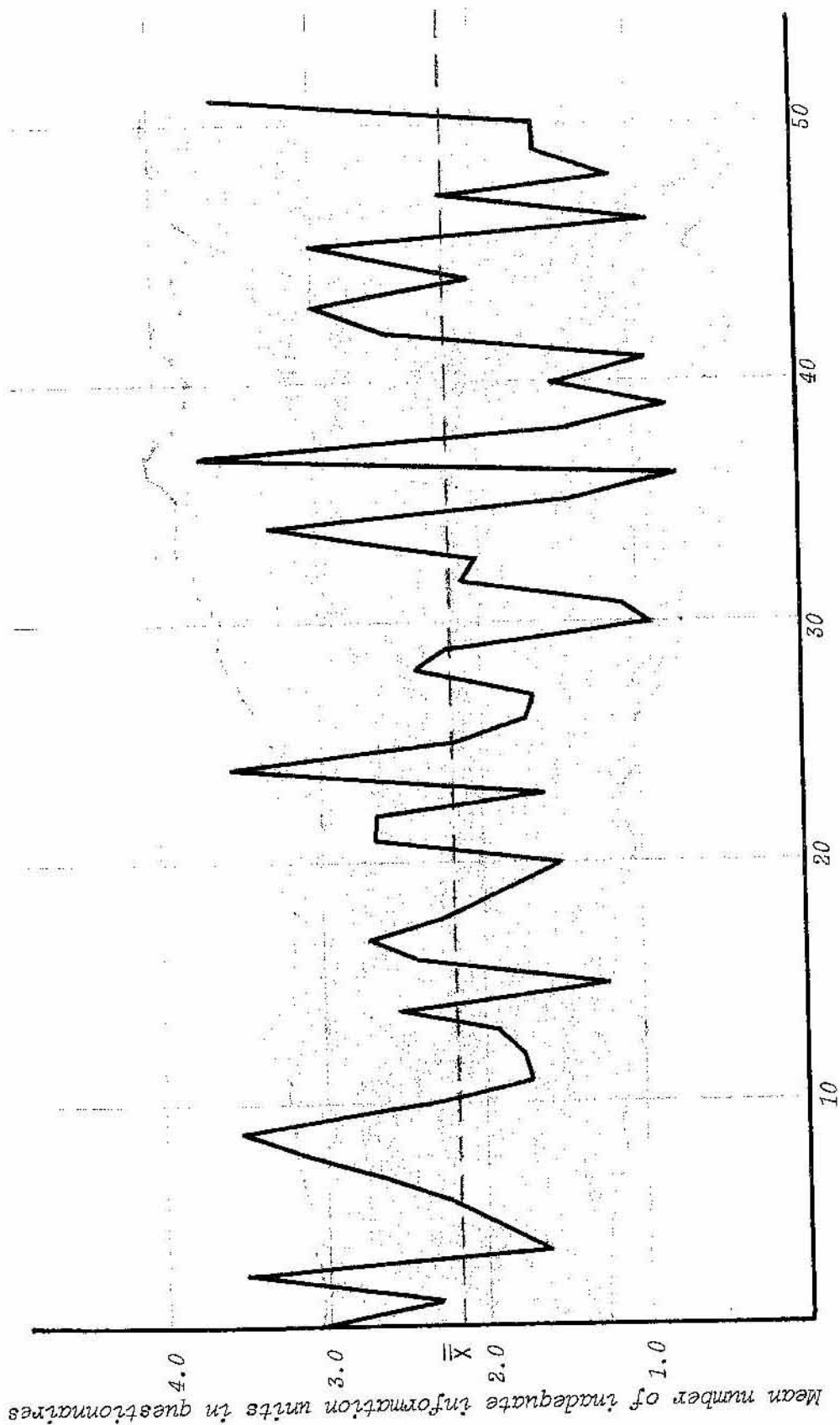


Figure 6. Variations in respondent cooperativeness as judged by the interviewers according to the extent of their interviewing experience. (Lowest values represent the greatest level of cooperativeness.)



Nth interview interviewers conducted

Figure 7. Variations in the mean amount of inadequate information found in the questionnaires according to the extent of interviewers' experience at the time the interviews were conducted.

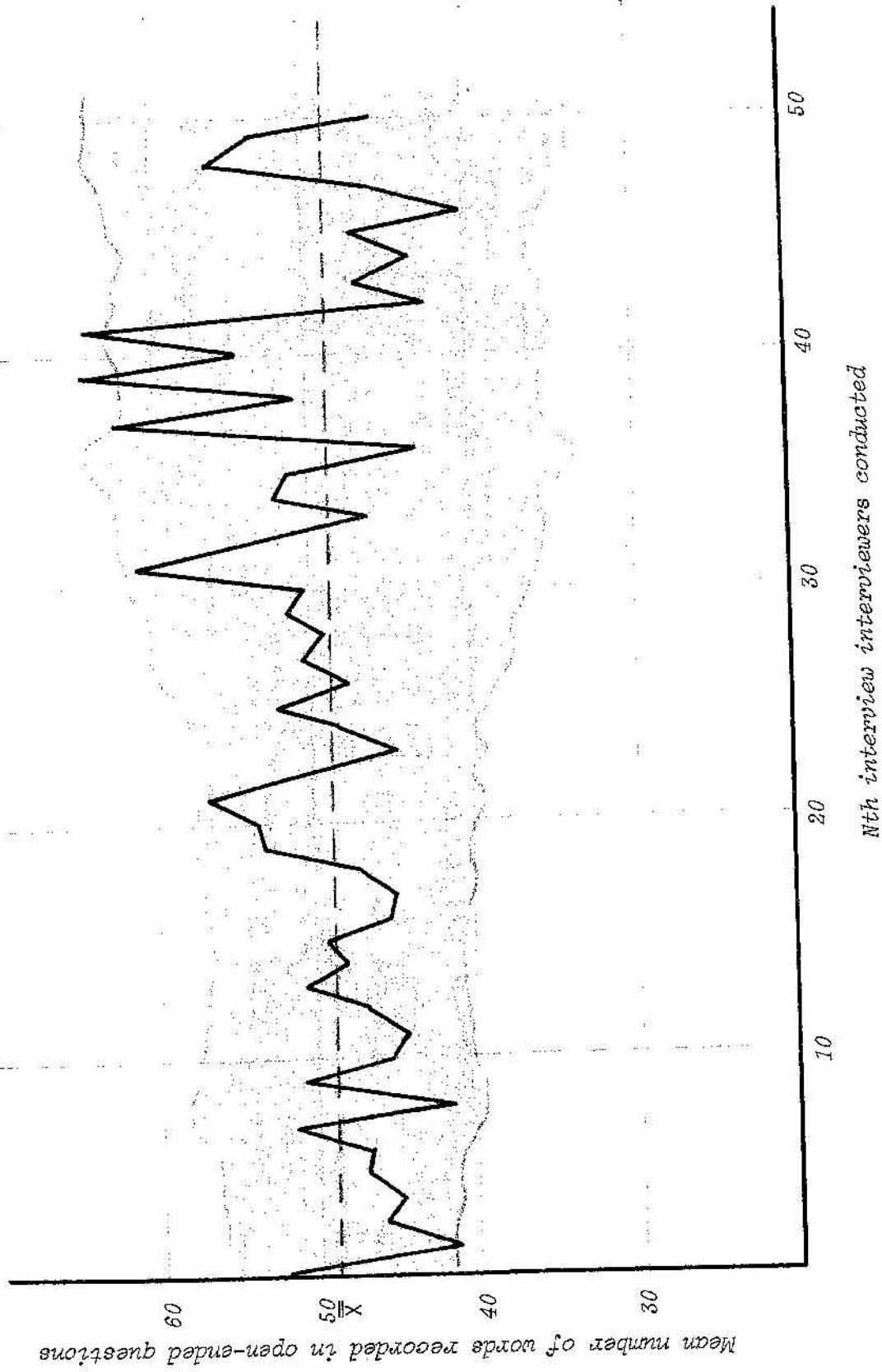


Figure 8. Variations in the mean number of words recorded in open-ended questions according to the extent of the interviewers' interviewing experience.

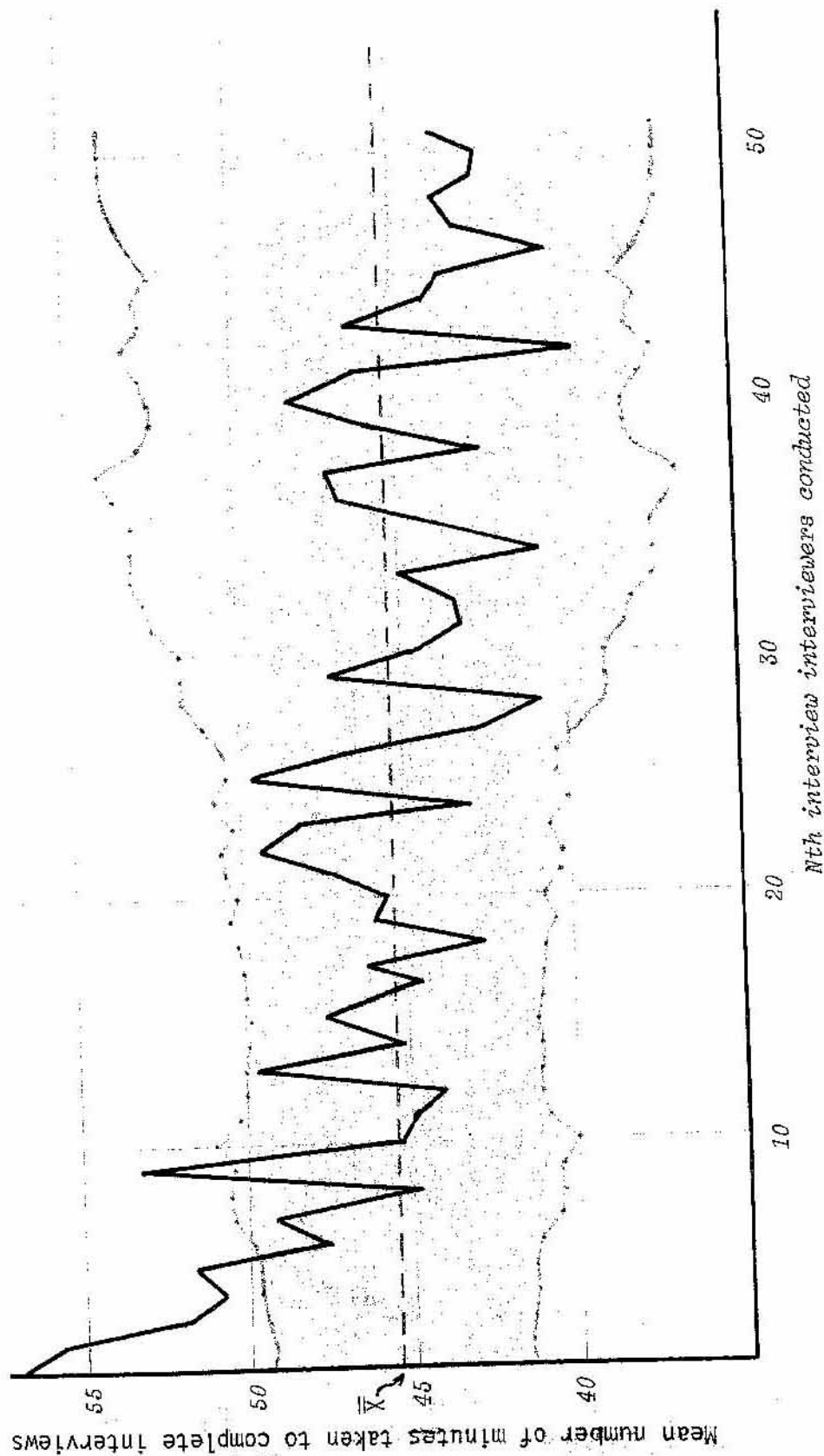


Figure 9. Variations in the mean number of minutes taken to complete interviews by the interviewers according to the extent of their interviewing experience.

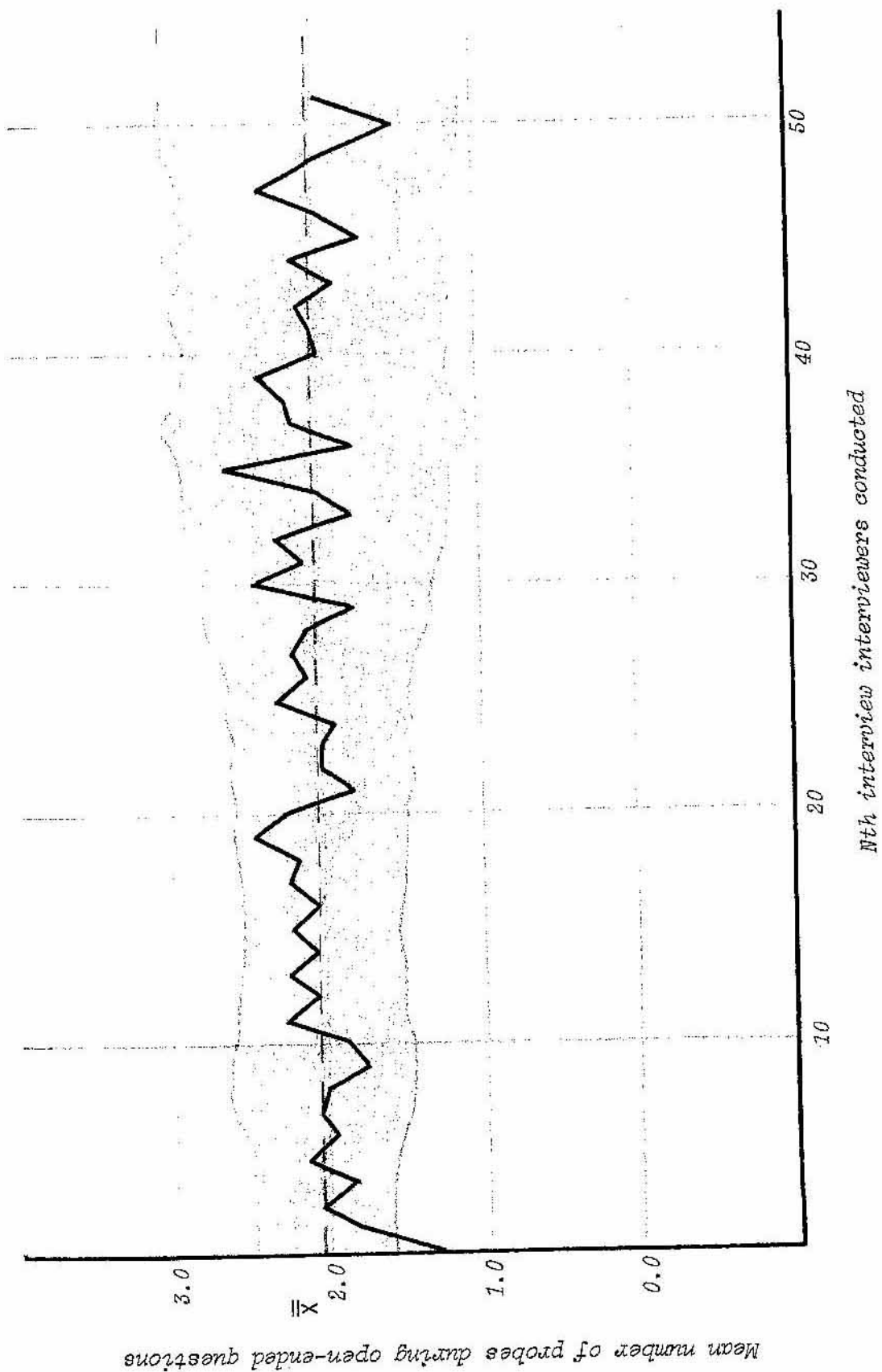


Figure 10. Variations in the mean number of probes made during open-ended questions by the interviewers according to the extent of their interviewing experience.

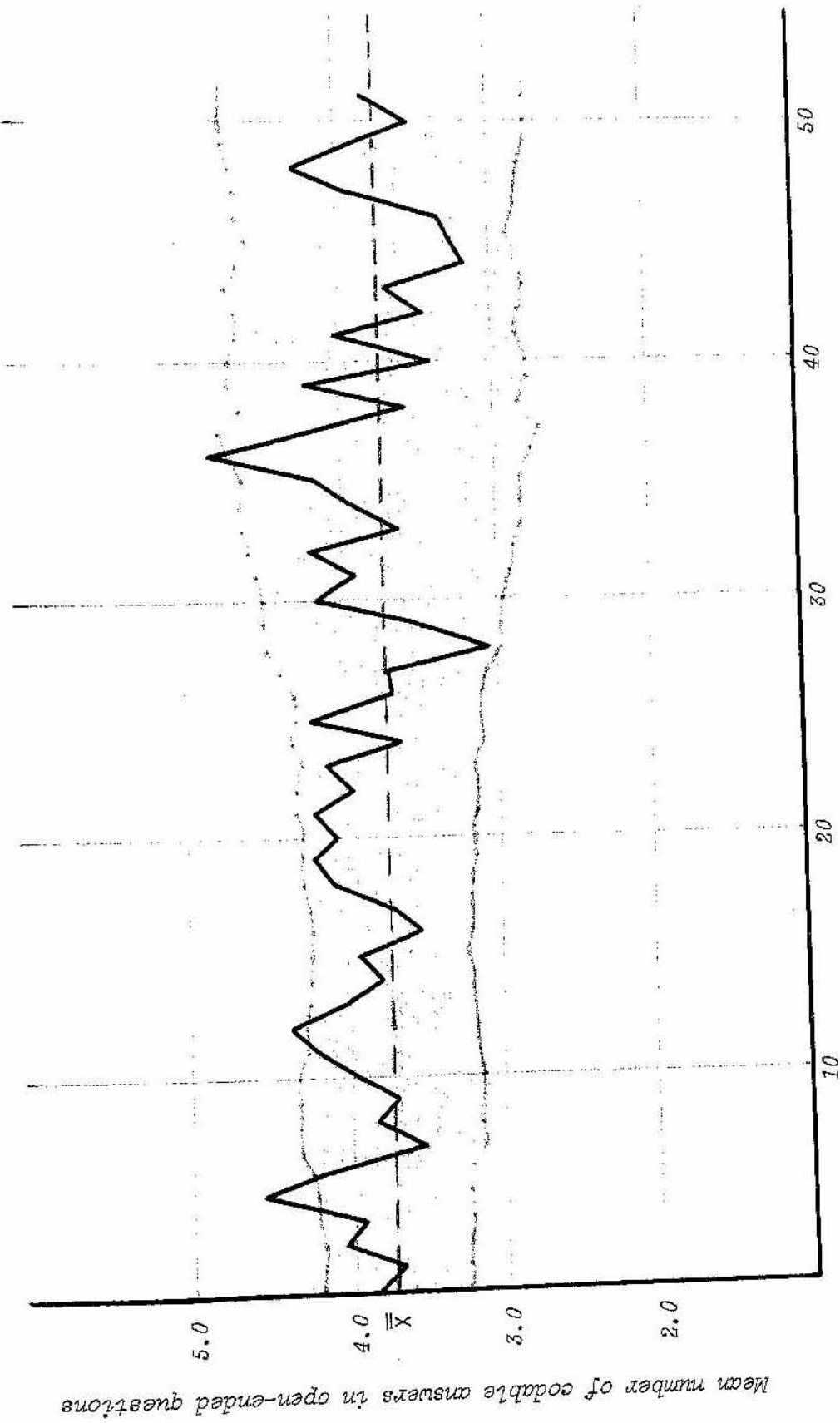


Figure 11. Variations in the mean number of codable answers obtained from open-ended question responses according to the extent of interviewers' experience at interviewing when the responses were recorded.

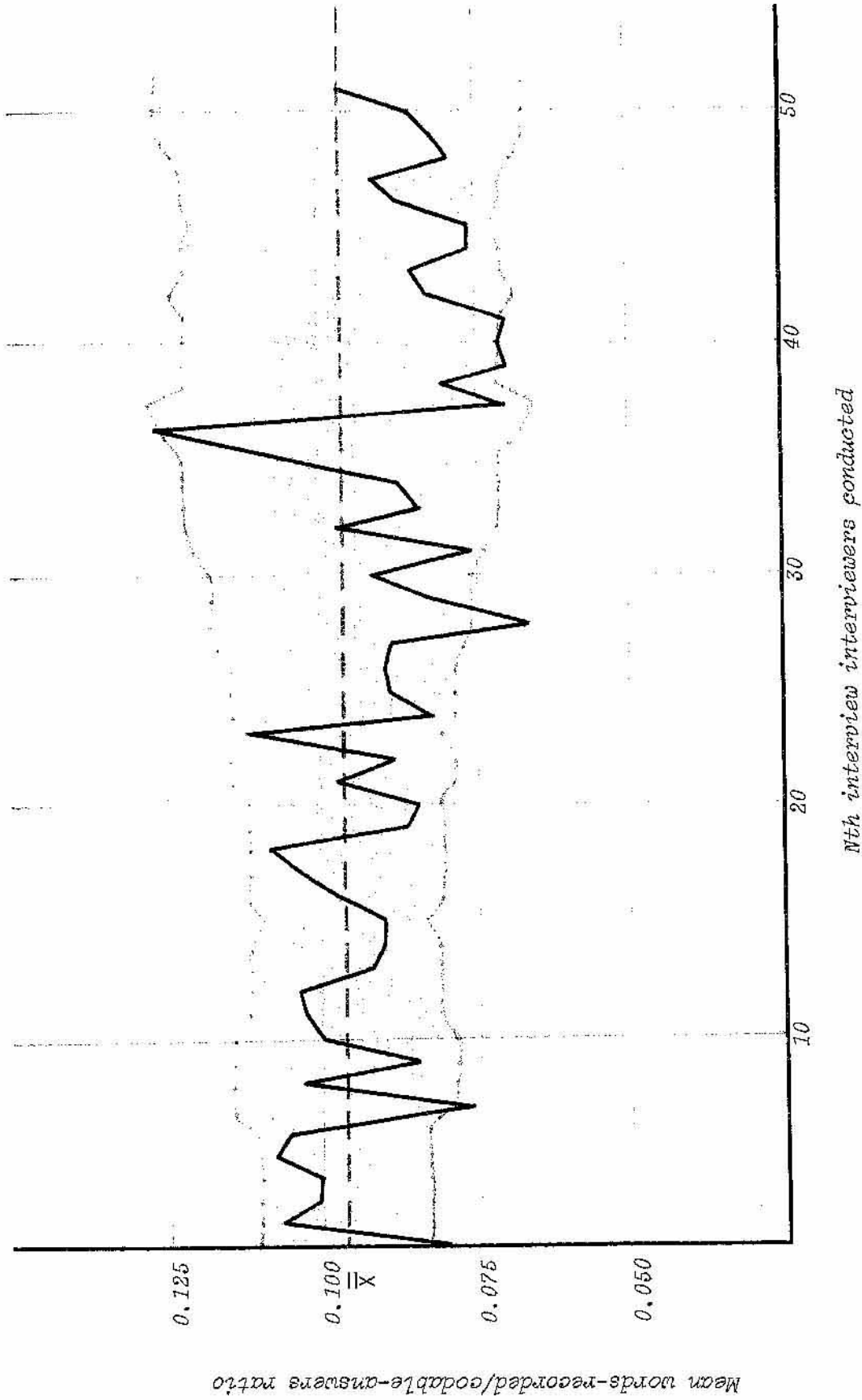


Figure 12. Variations in the mean words-recorded/codable-answers ratio regarding open-ended question responses according to how experienced interviewers were at the time responses were recorded.

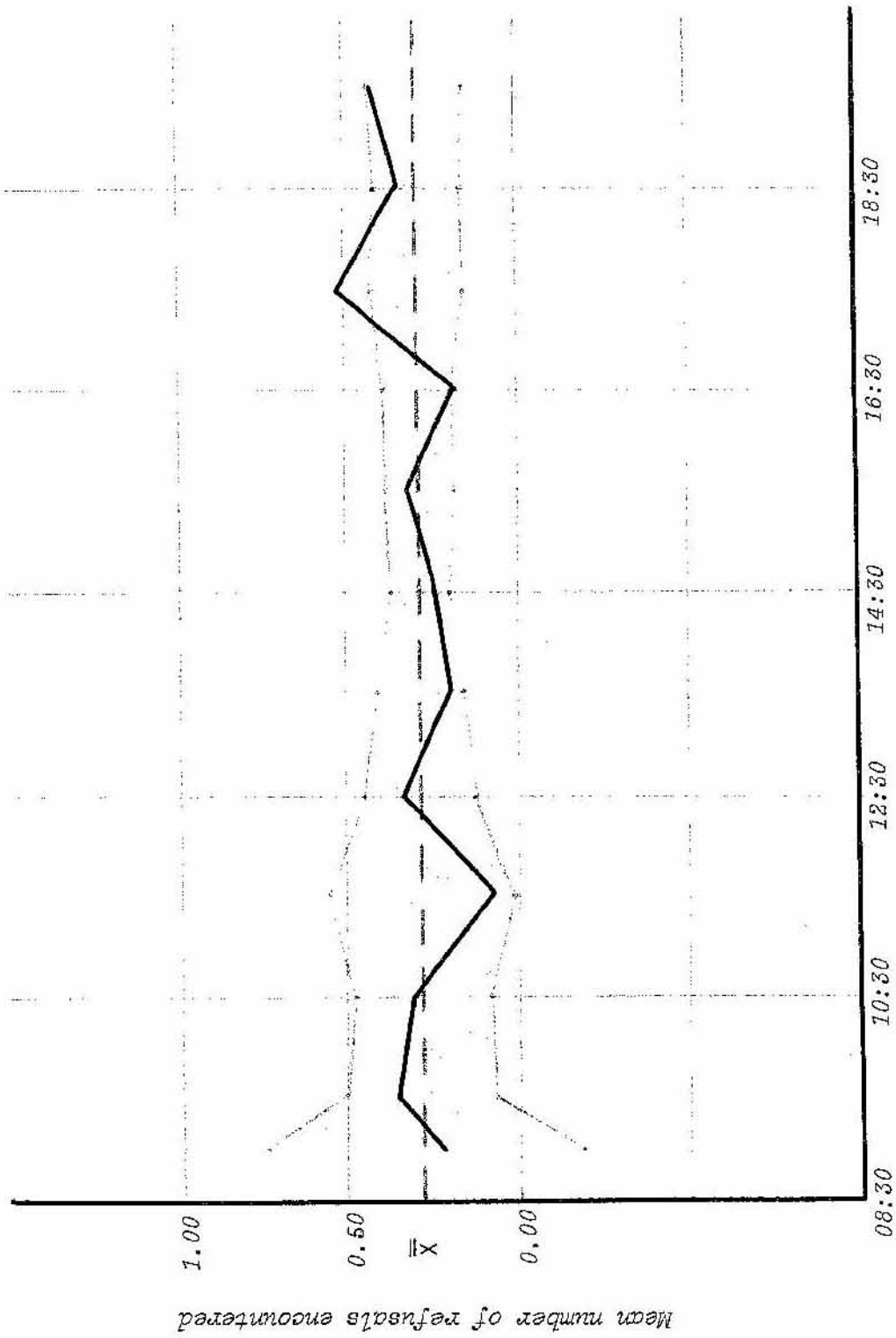


Figure 13. Variations in the mean number of refusals encountered according to what period in the day the interviews were conducted.

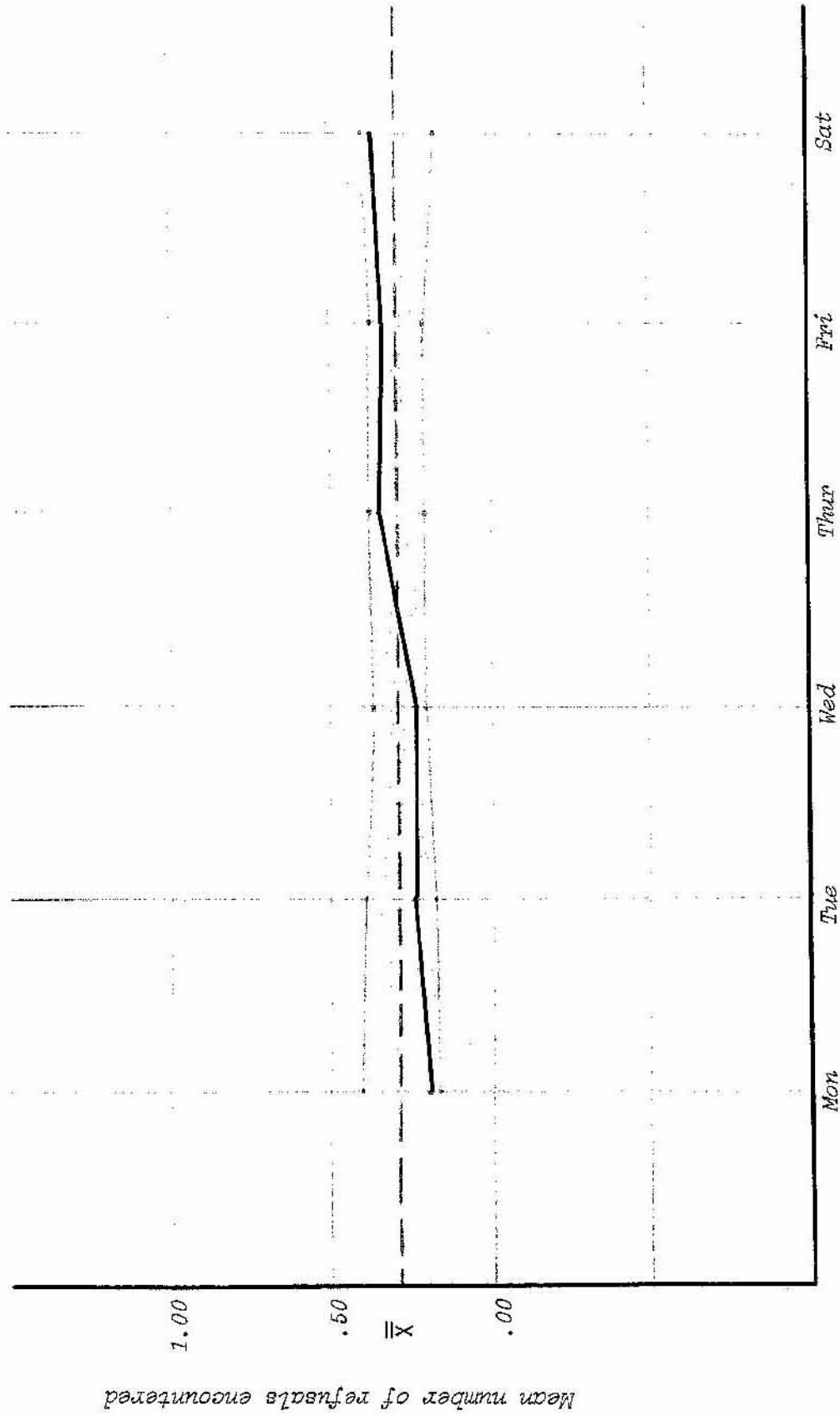
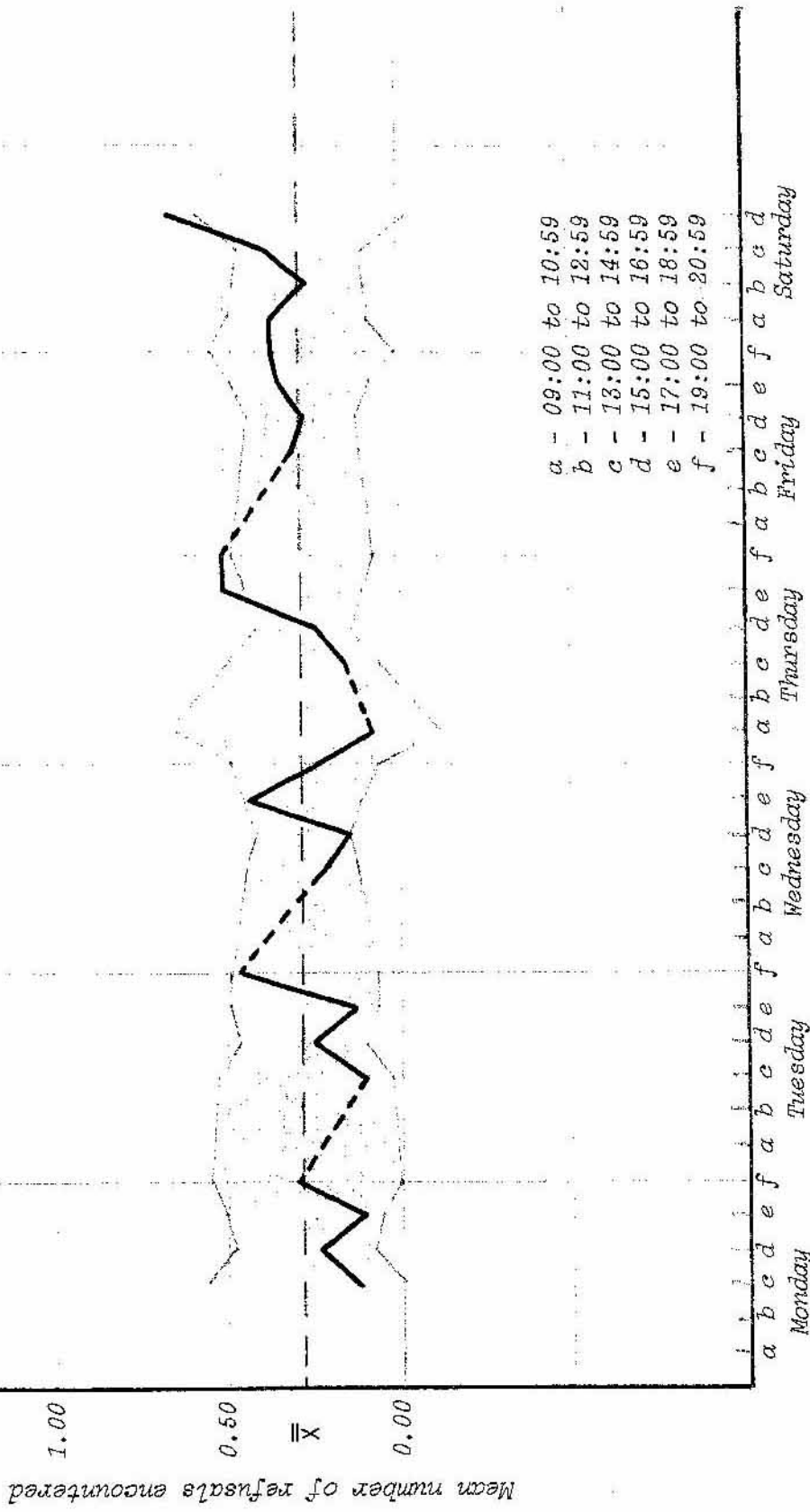


Figure 14. Variations in the mean number of refusals according to what day of the week the interviews were conducted.



Periods of the day for each day of the week

Figure 15. Variations in the mean number of refusals according to what period of the day for each day of the week the interviews were conducted.

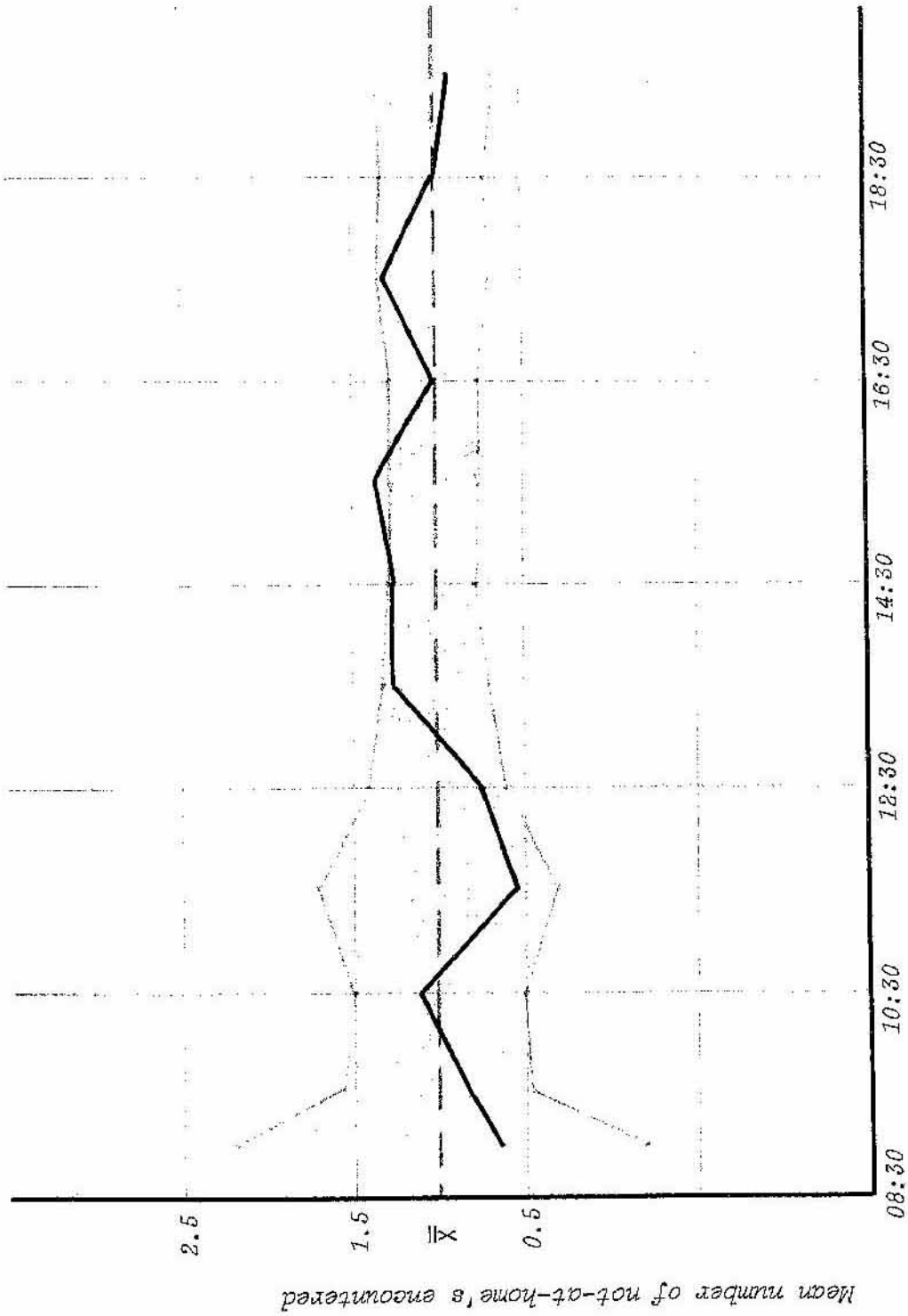
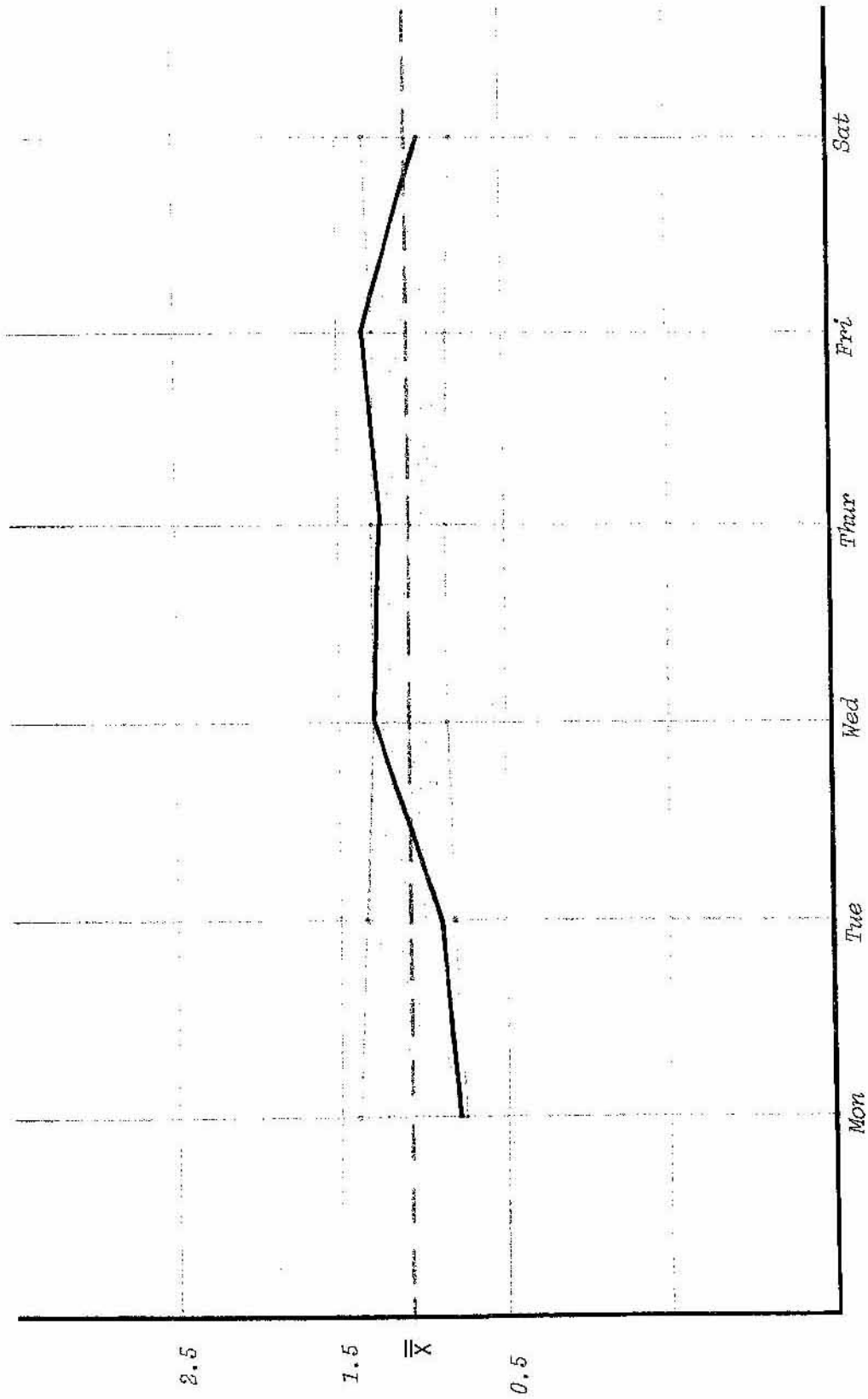
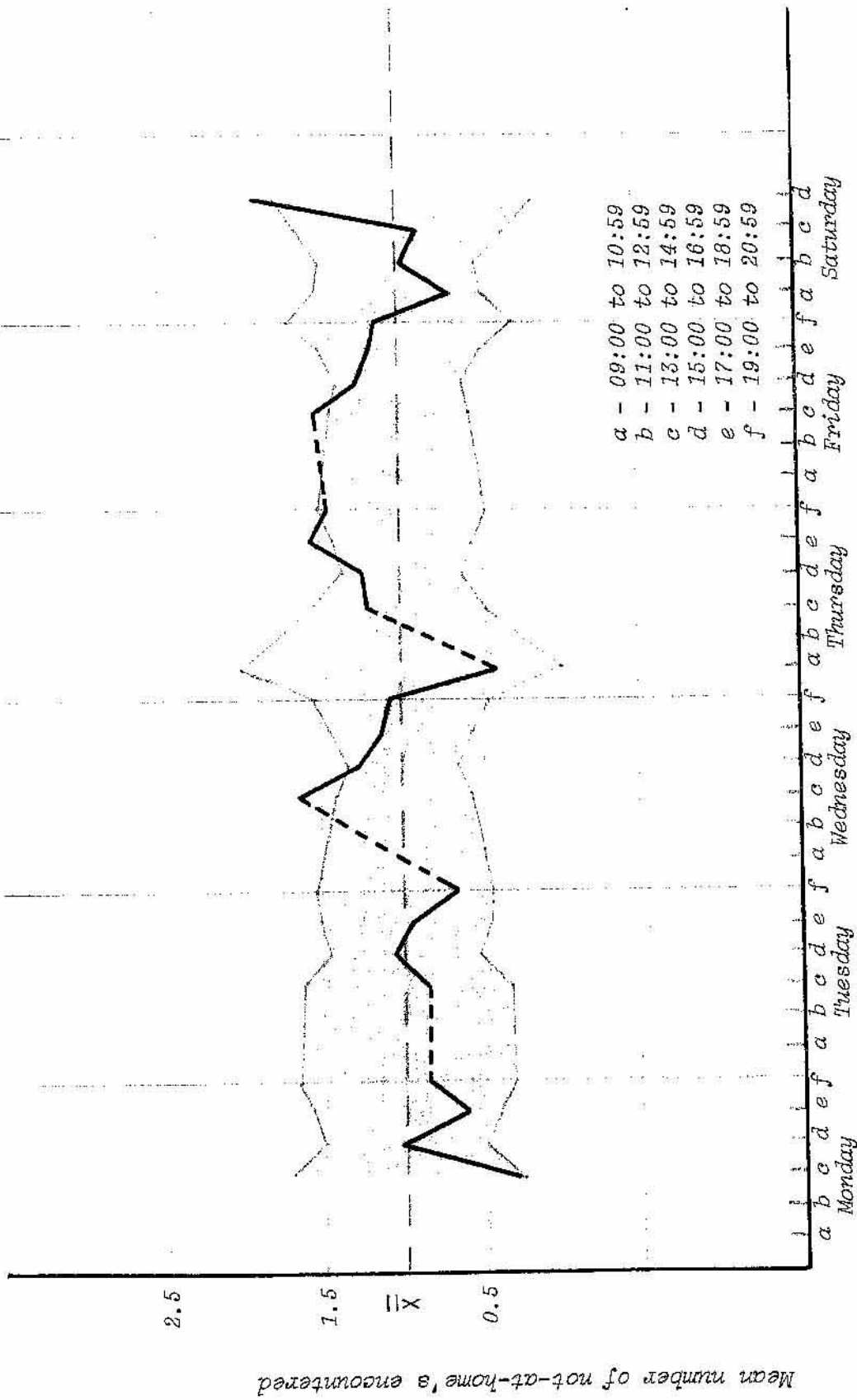


Figure 16. Variations in the mean number of not-at-homes according to what period in the day the interviews were conducted.



Days of the week

Figure 17. Variations in the mean number of not-at-home's according to what day of the week the interviews were conducted.



Periods of the day for each day of the week

Figure 18. Variations in the mean number of not-at-home's according to what period of the day for each day of the week the interviews were conducted.

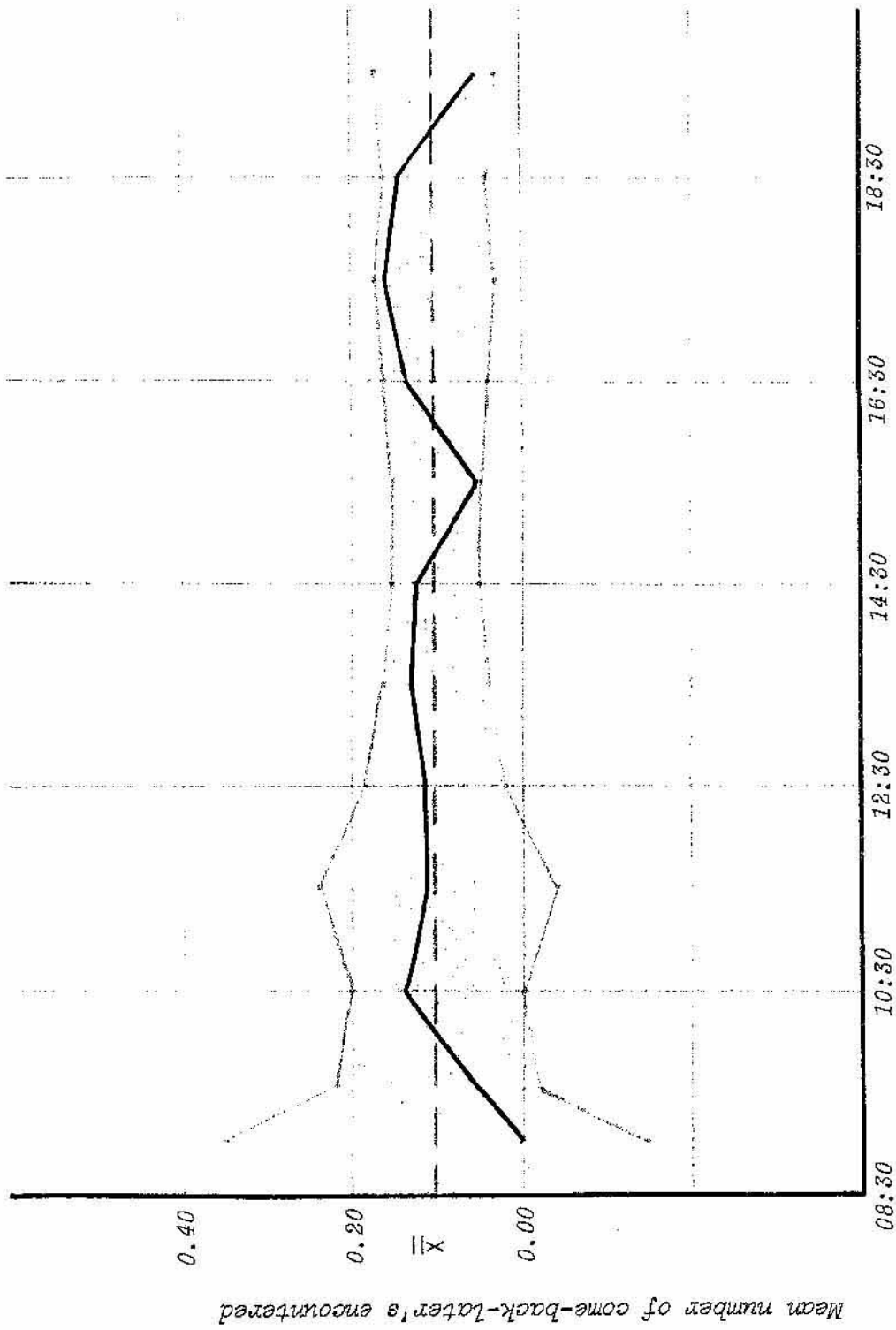


Figure 19. Variations in the mean number of come-back-later's according to the period in the day the interviews were conducted.

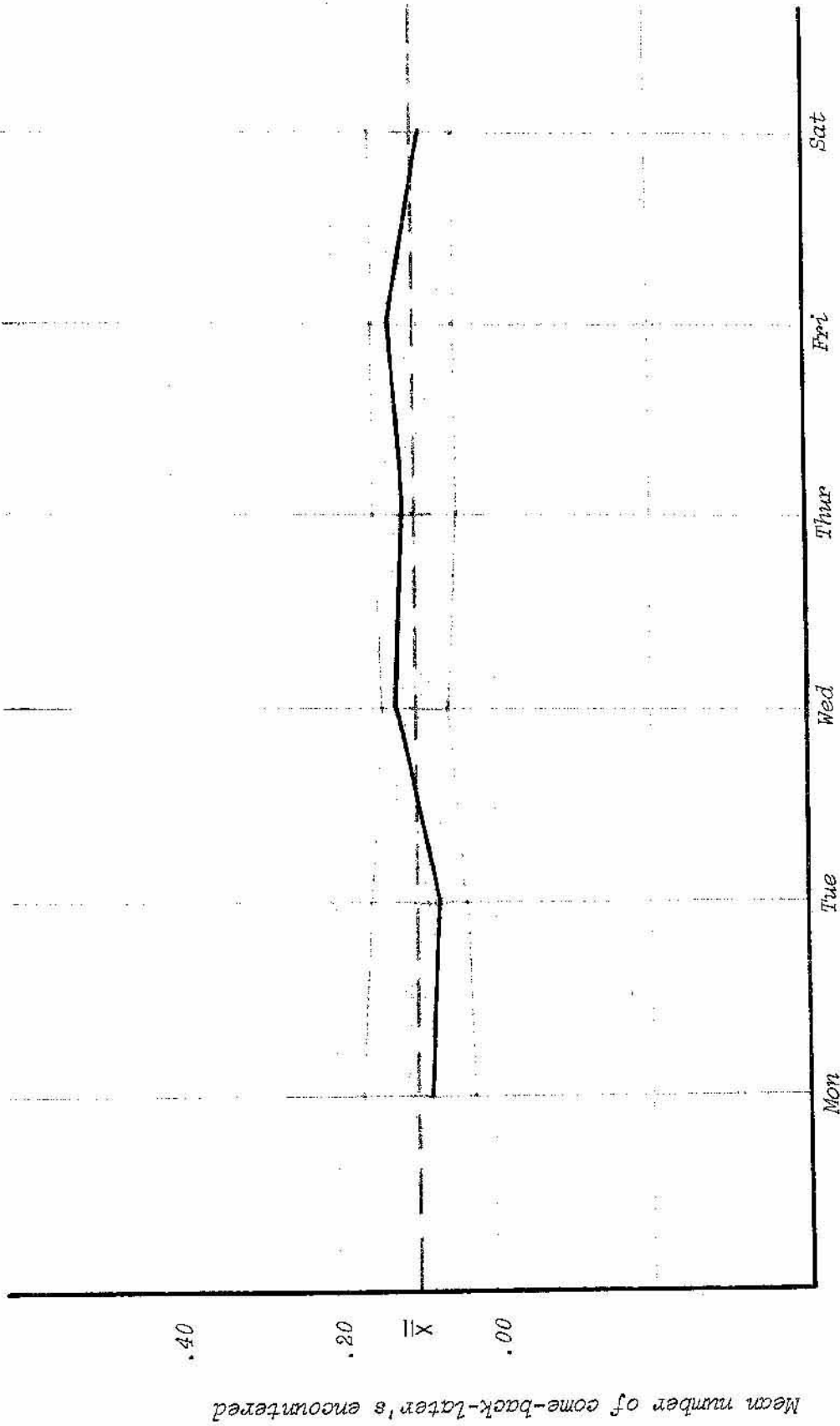


Figure 20. Variations in the mean number of come-back-later's according to what day of the week the interviews were conducted.

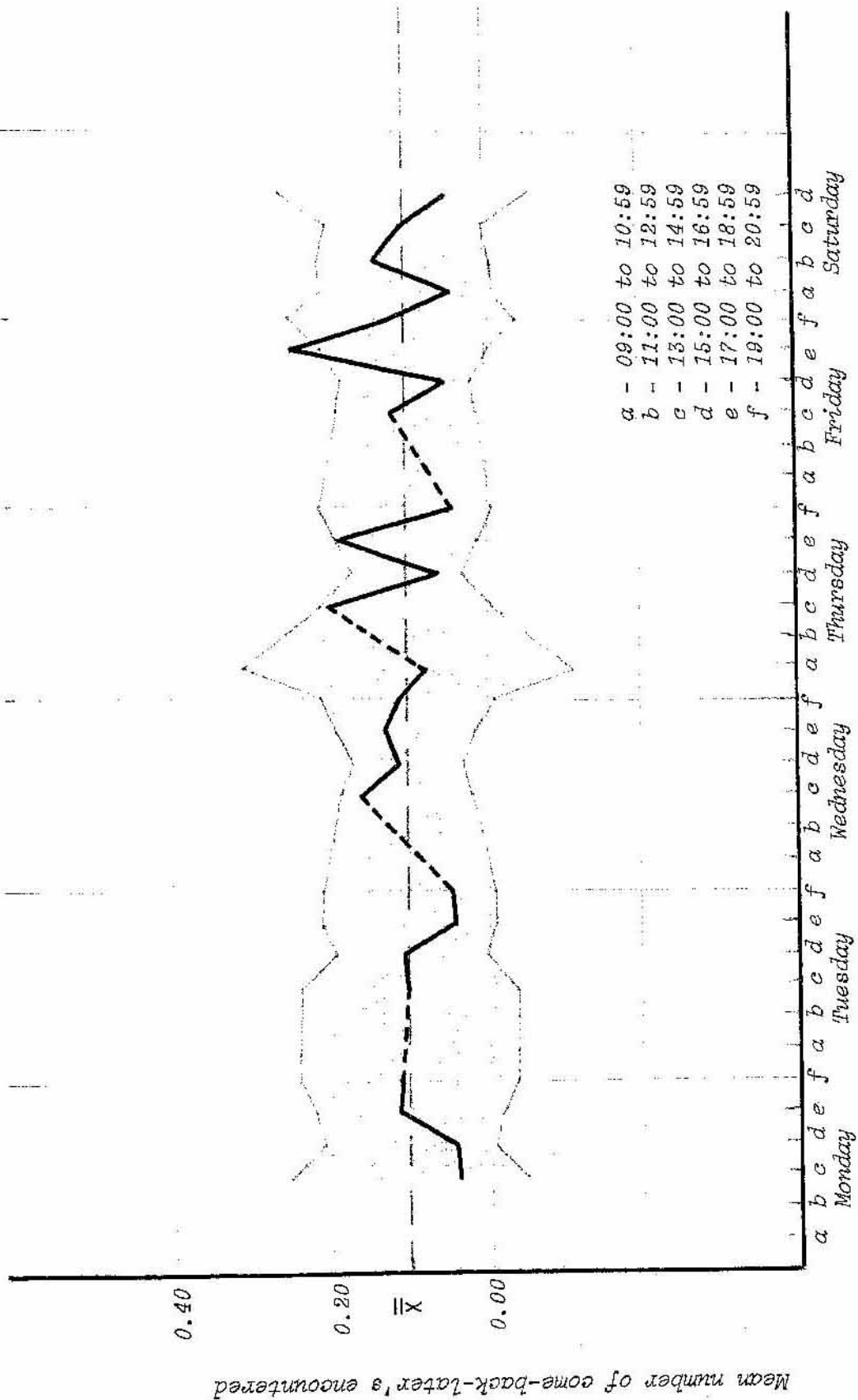


Figure 21. Variations in the mean number of come-back-later's according to the period of the day for each day of the week the interviews were conducted.

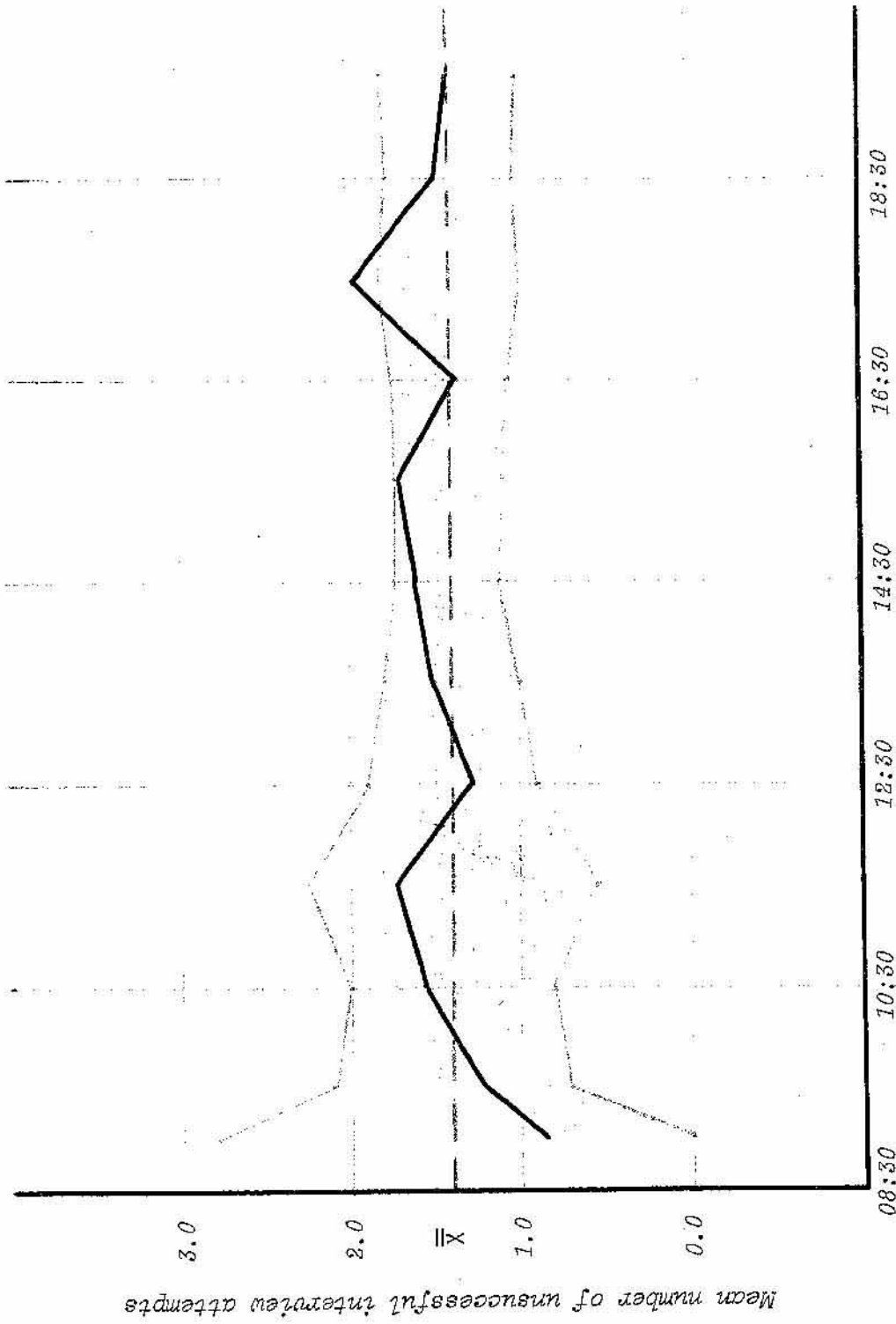
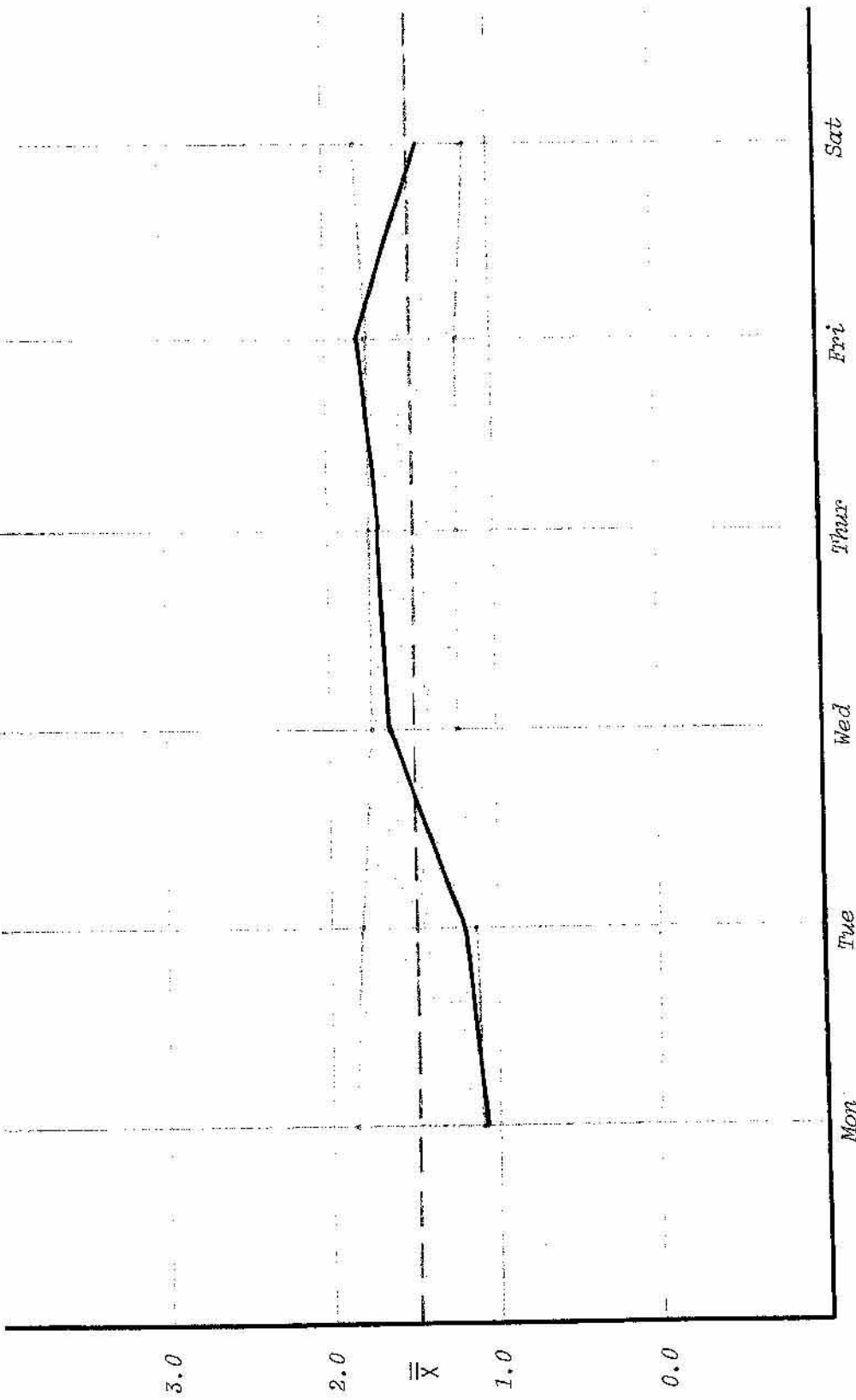
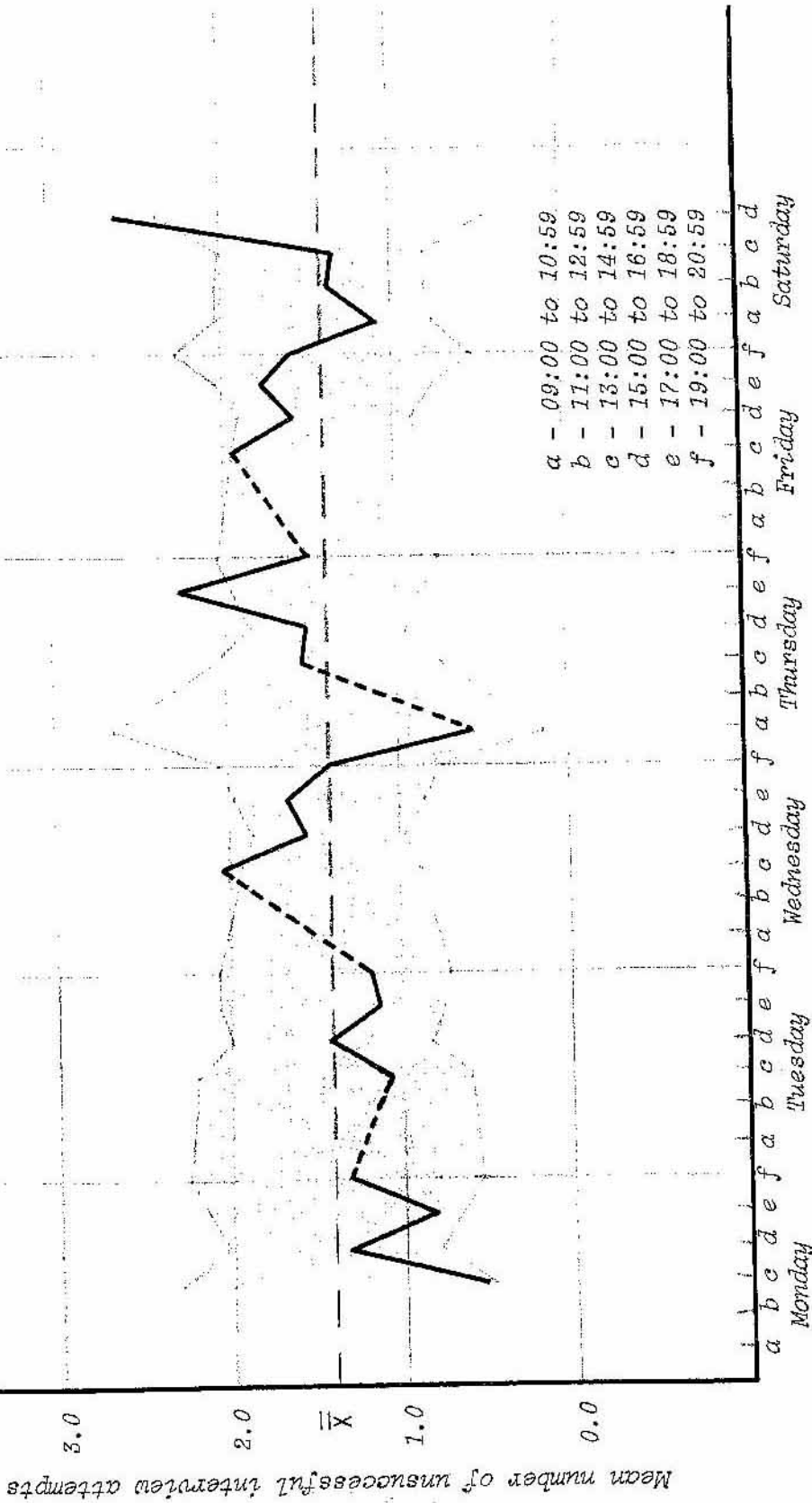


Figure 22. Variations in the mean number of unsuccessful interview attempts according to what period in the day the interviews were conducted.



Mean number of unsuccessful interview attempts

Days of the week
 Figure 23. Variations in the mean number of unsuccessful interview attempts according to what day of the week the interviews were conducted.



Periods of the day for each day of the week

Figure 24. Variations in the mean number of unsuccessful interview attempts according to what period of the day for each day of the week the interviews were conducted.

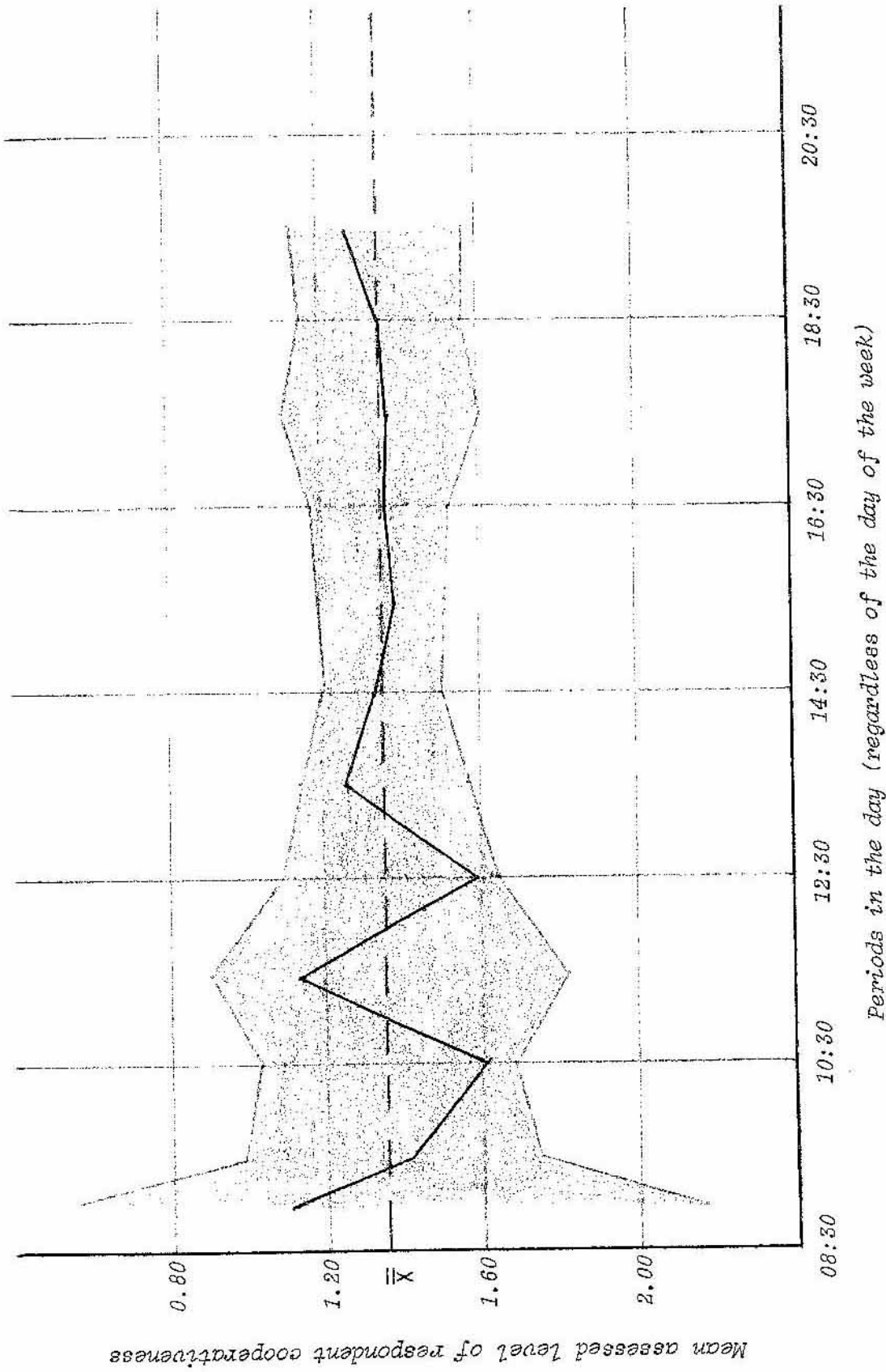
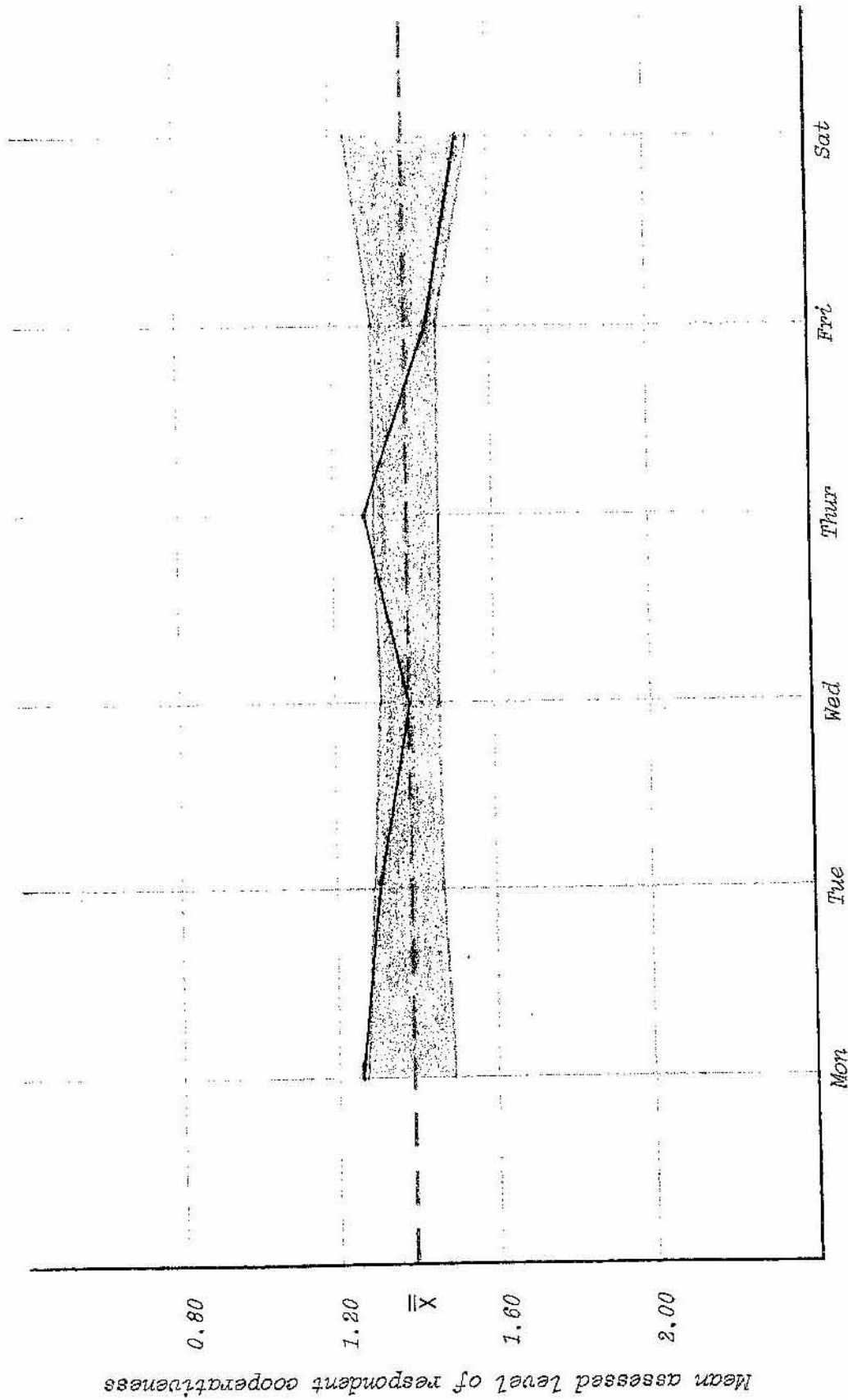


Figure 25. Variations in respondent cooperativeness as judged by the interviewers according to what period in the day the interviews were conducted. (Lowest values represent the greatest level of cooperativeness.)



Days of the week

Figure 26. Variations in respondent cooperativeness as judged by the interviewers according to what day of the week the interviews were conducted. (Lowest values represent the greatest levels of cooperativeness.)

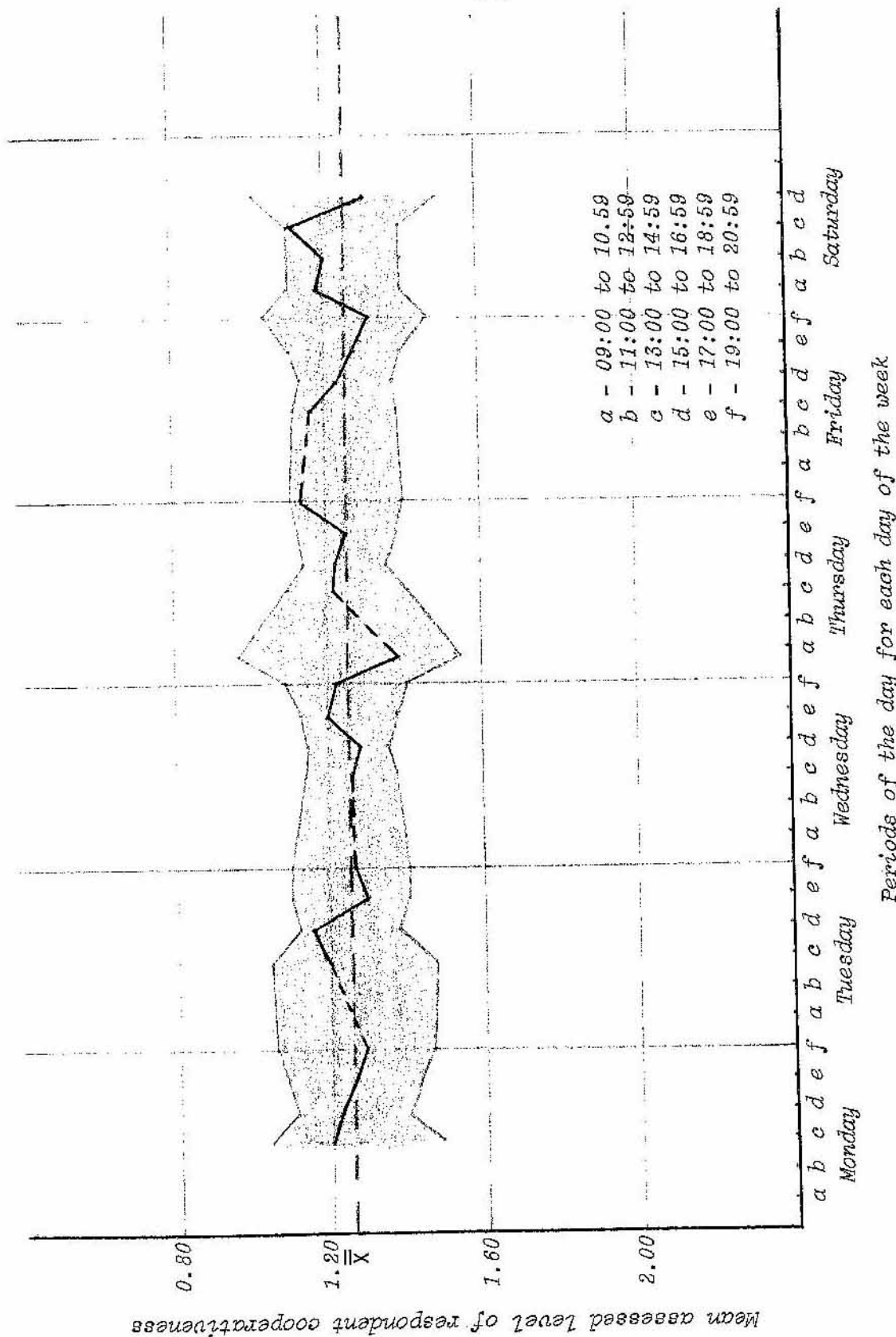


Figure 27. Variations in respondent cooperativeness as judged by the interviewers according to what period of the day for each day of the week the interviews were conducted. (Highest values represent the least cooperative, and the lowest values represent the most cooperative.)

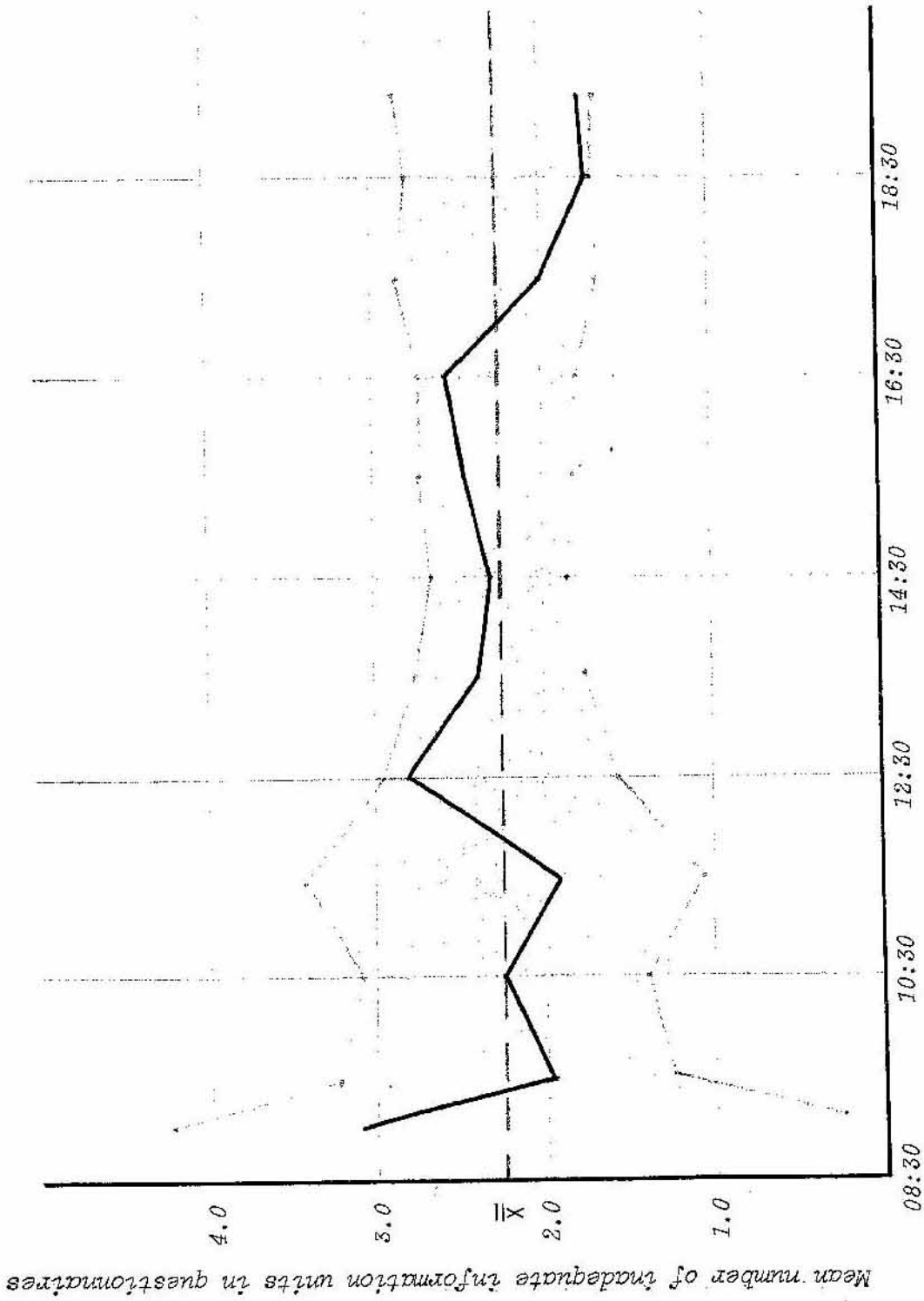


Figure 28. Variations in the mean number of inadequate information units according to what period in the day the interviews were conducted.

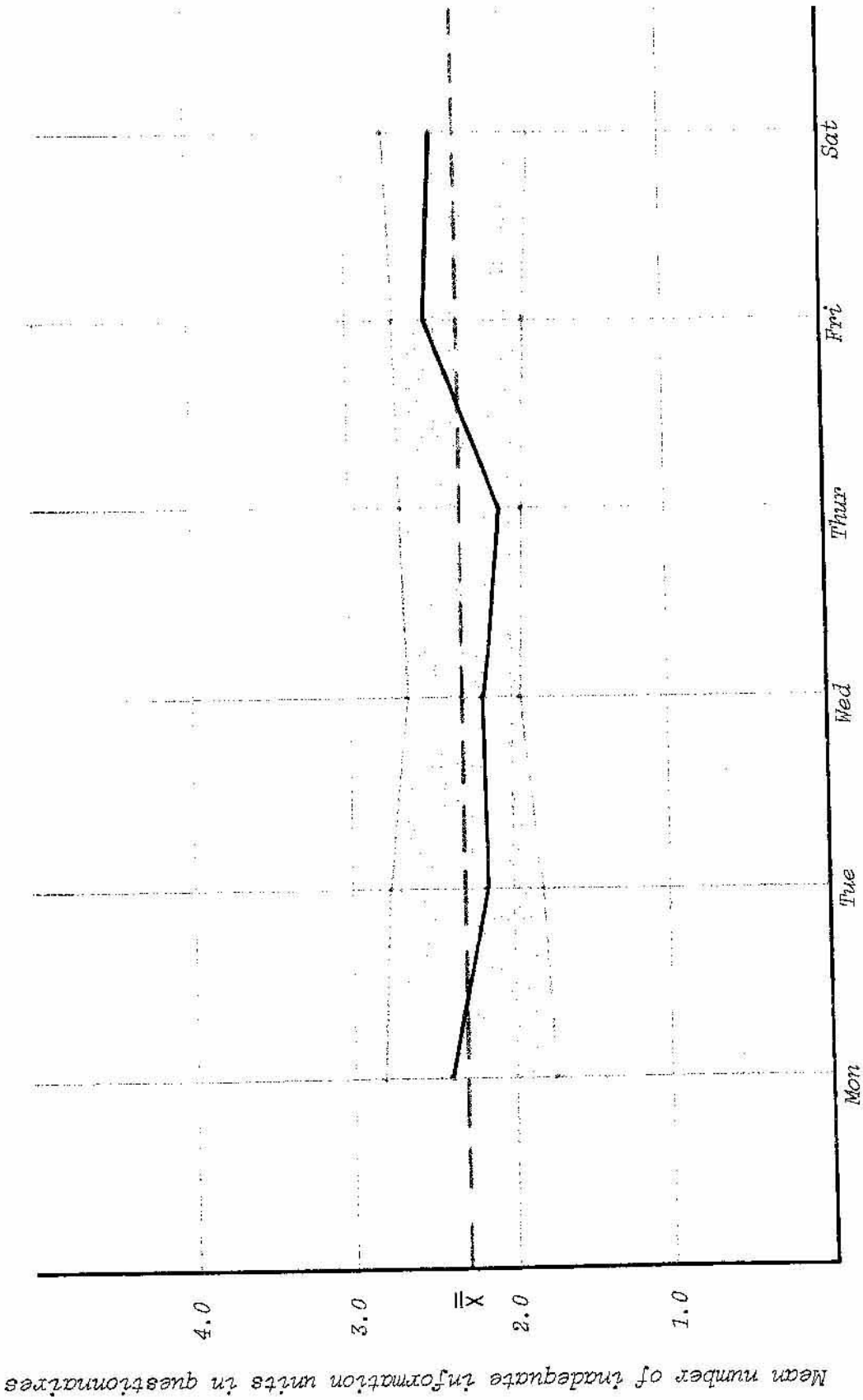
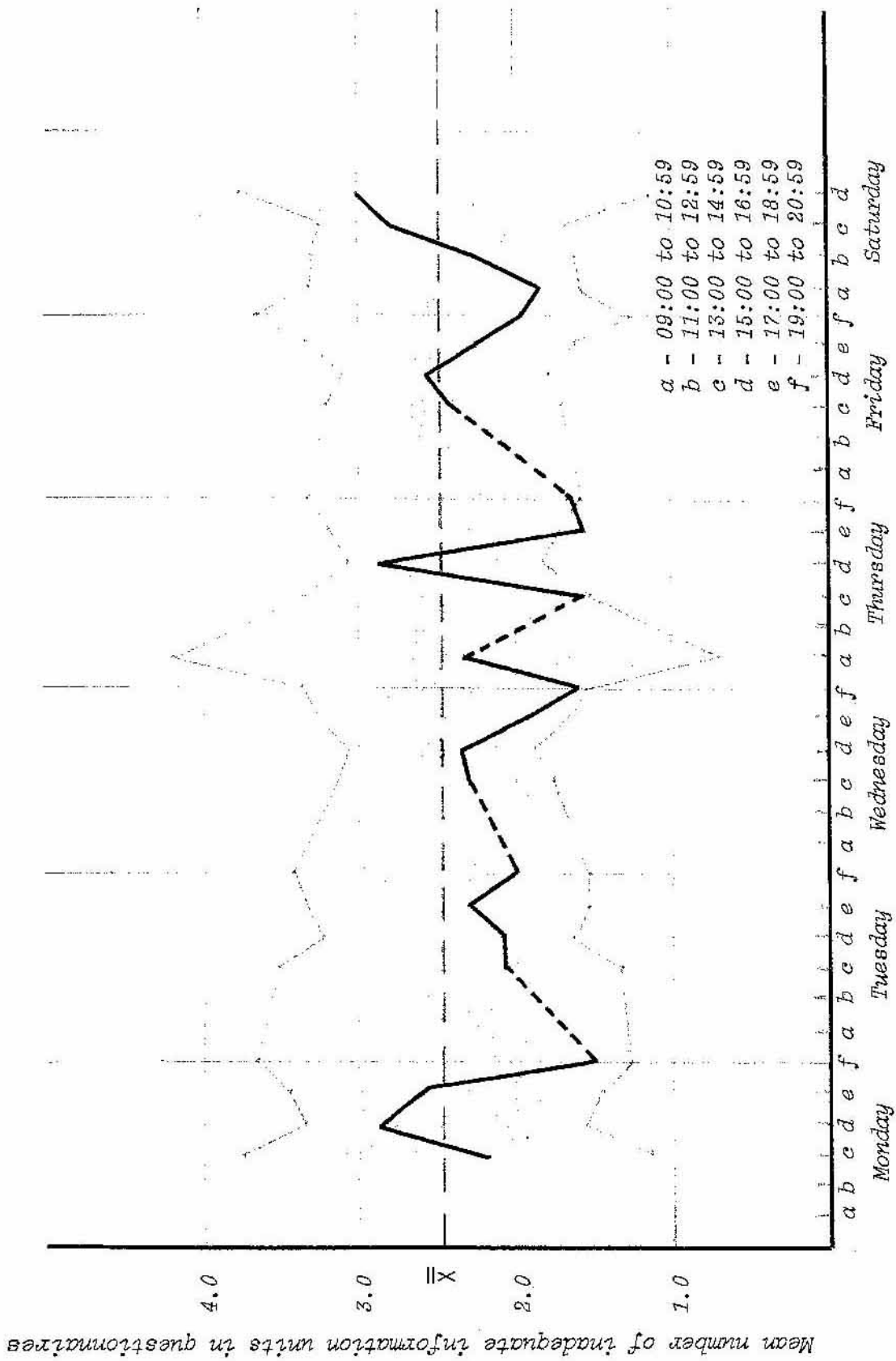
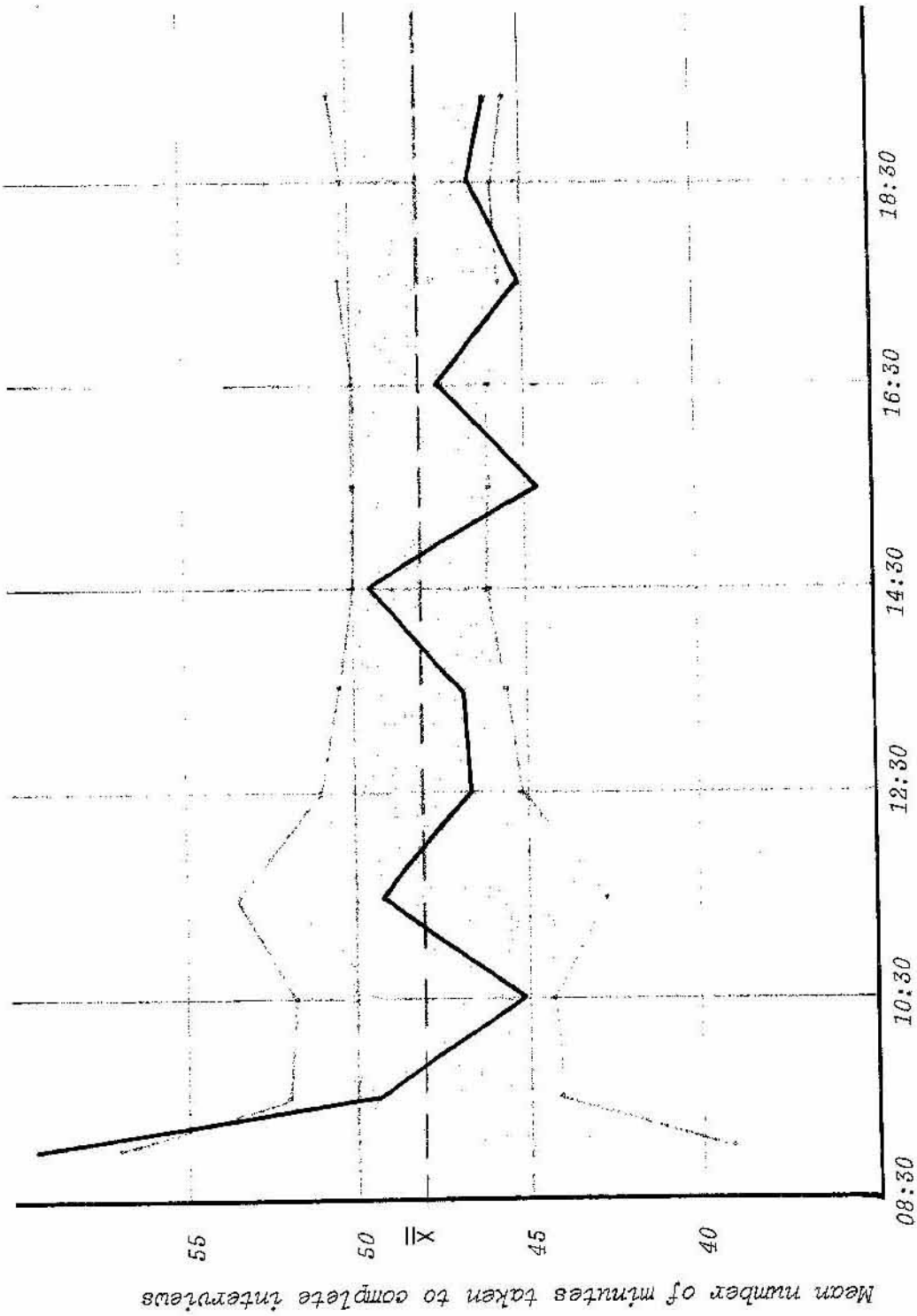


Figure 29. Variations in the mean number of inadequate information units according to what day of the week the interviews were conducted.



Periods of the day for each day of the week

Figure 30. Variations in the mean number of inadequate information units according to what period of the day for each day of the week the interviews were conducted.



Periods in the day (regardless of the day of the week)

Figure 31. Variations in the mean number of minutes taken to complete interviews according to what period in the day the interviews were conducted.

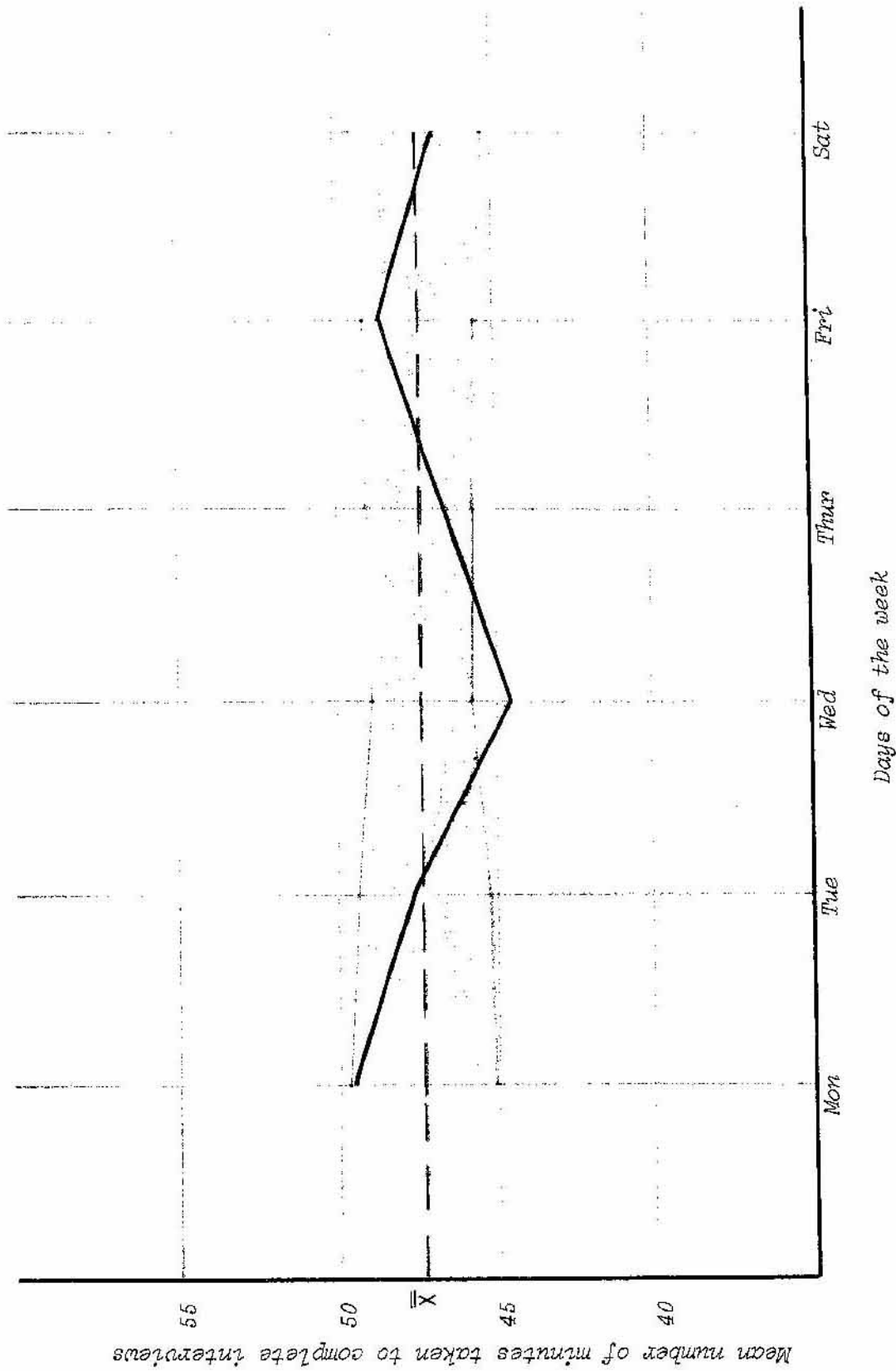


Figure 32. Variations in the mean number of minutes taken to complete interviews according to what day of the week the interviews were conducted.

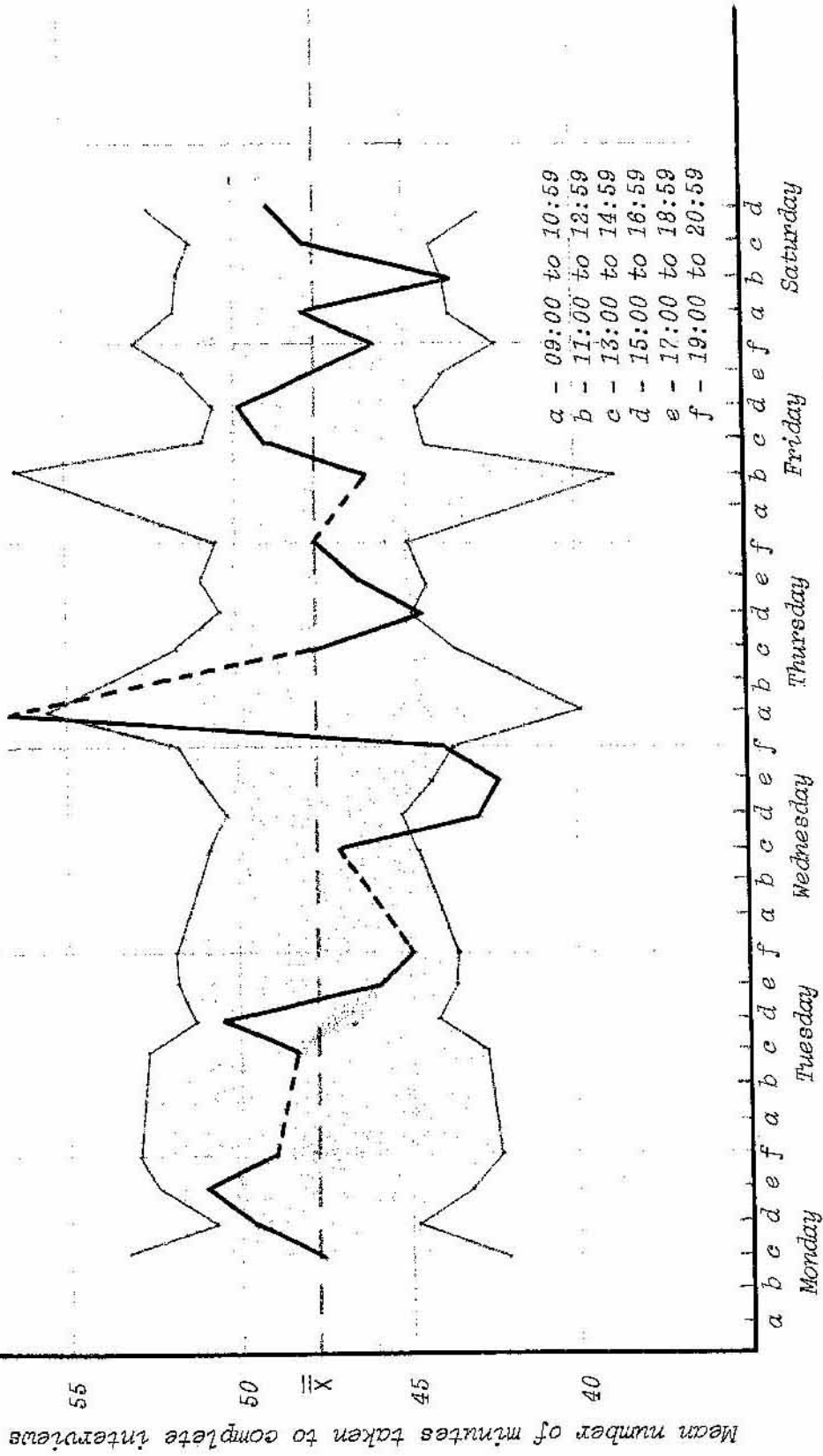


Figure 33. Variations in the mean number of minutes taken to complete interviews according to what period of the day for each day of the week the interviews were conducted.

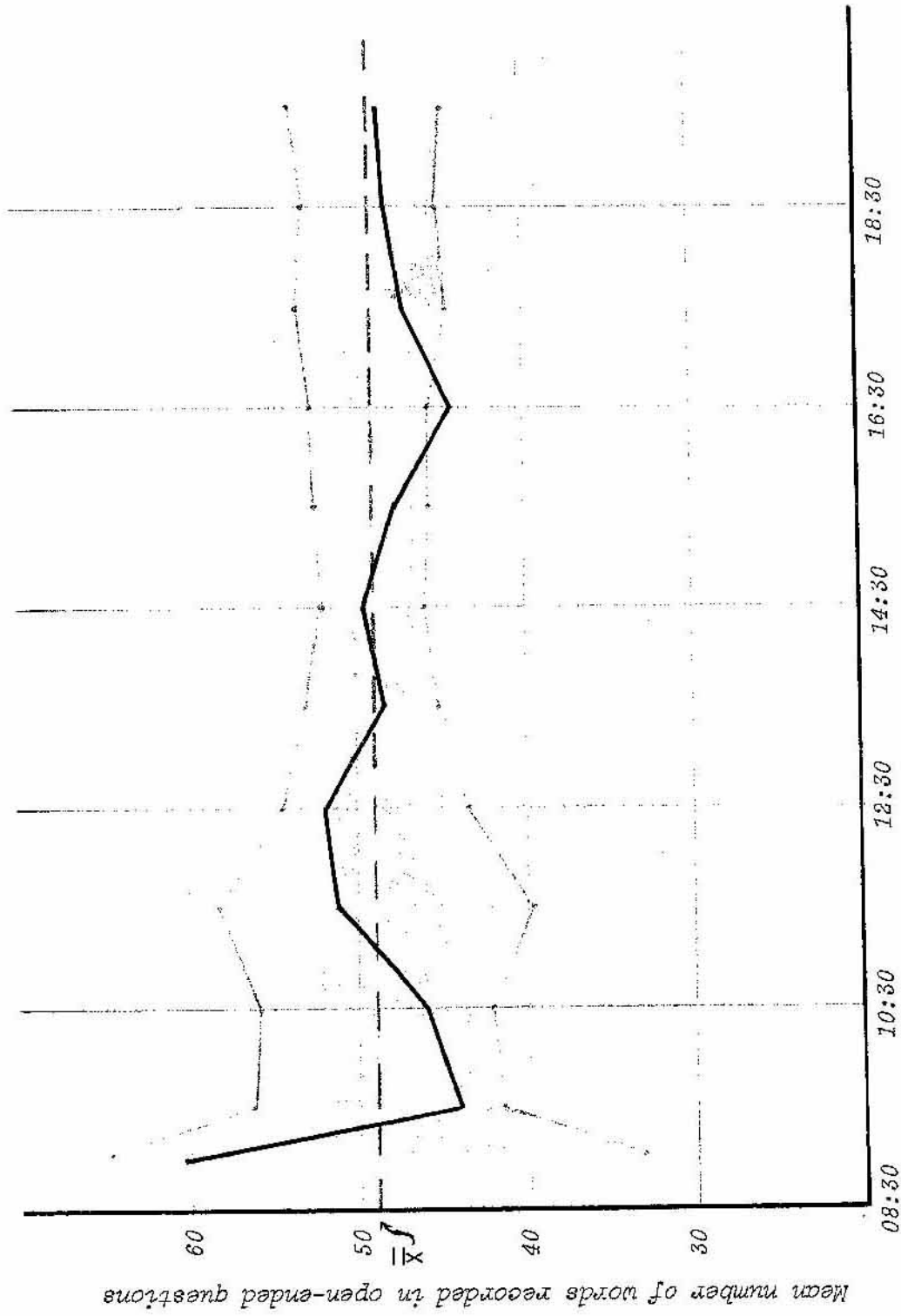


Figure 34. Variations in the mean number of words recorded in open-ended questions according to what period in the day the interviews were conducted.

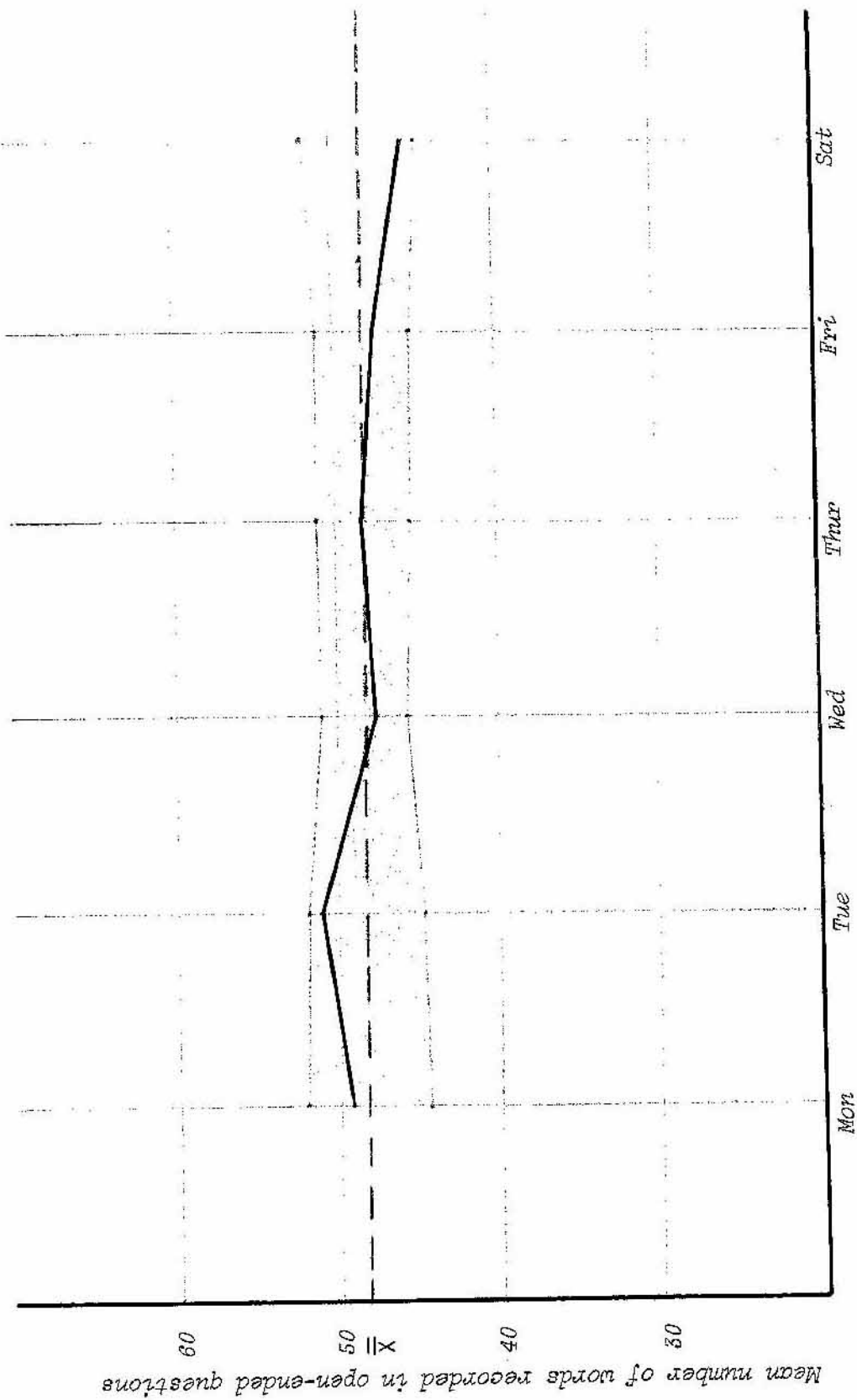


Figure 35. Variations in the mean number of words recorded in open-ended questions according to what day of the week the interviews were conducted.

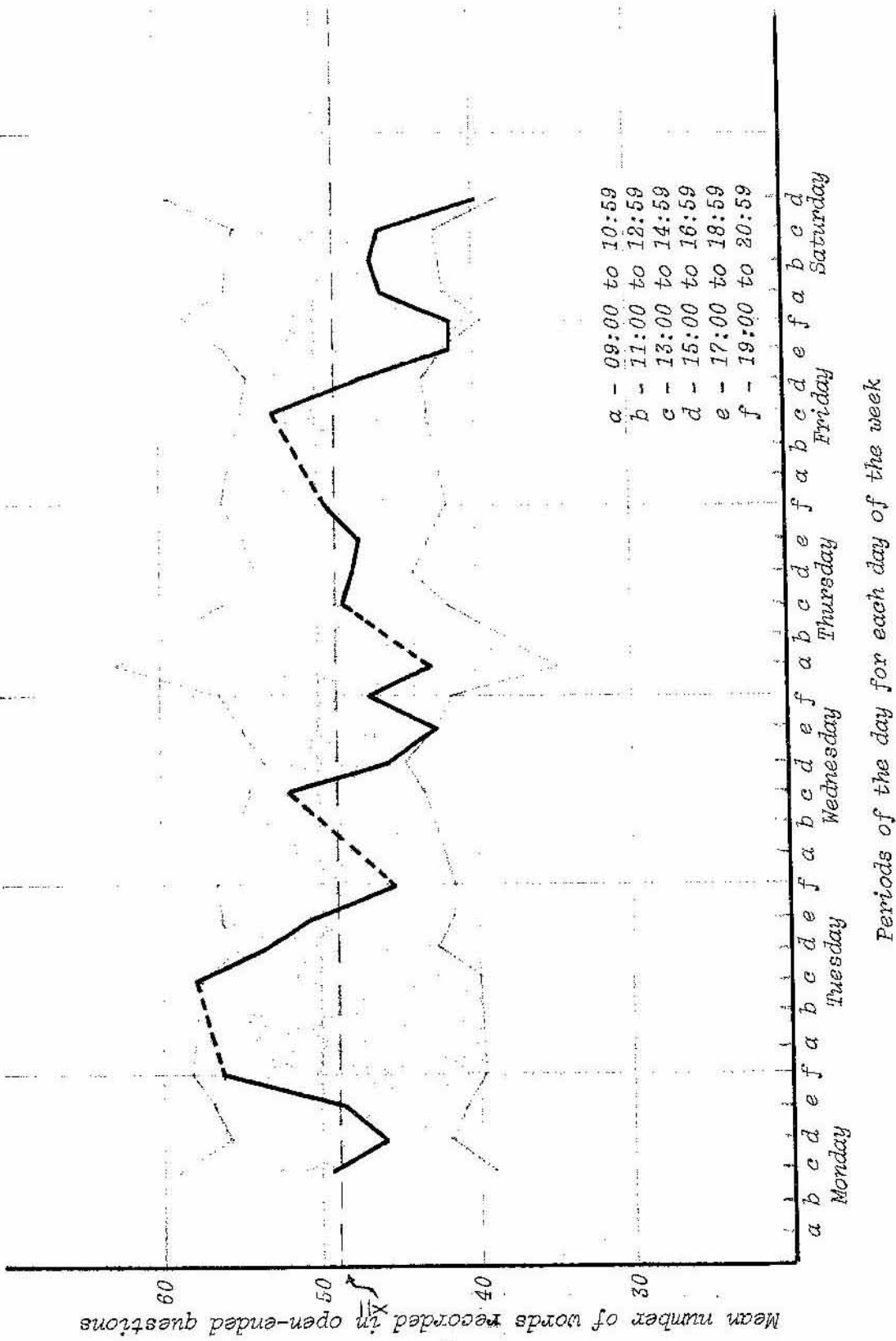
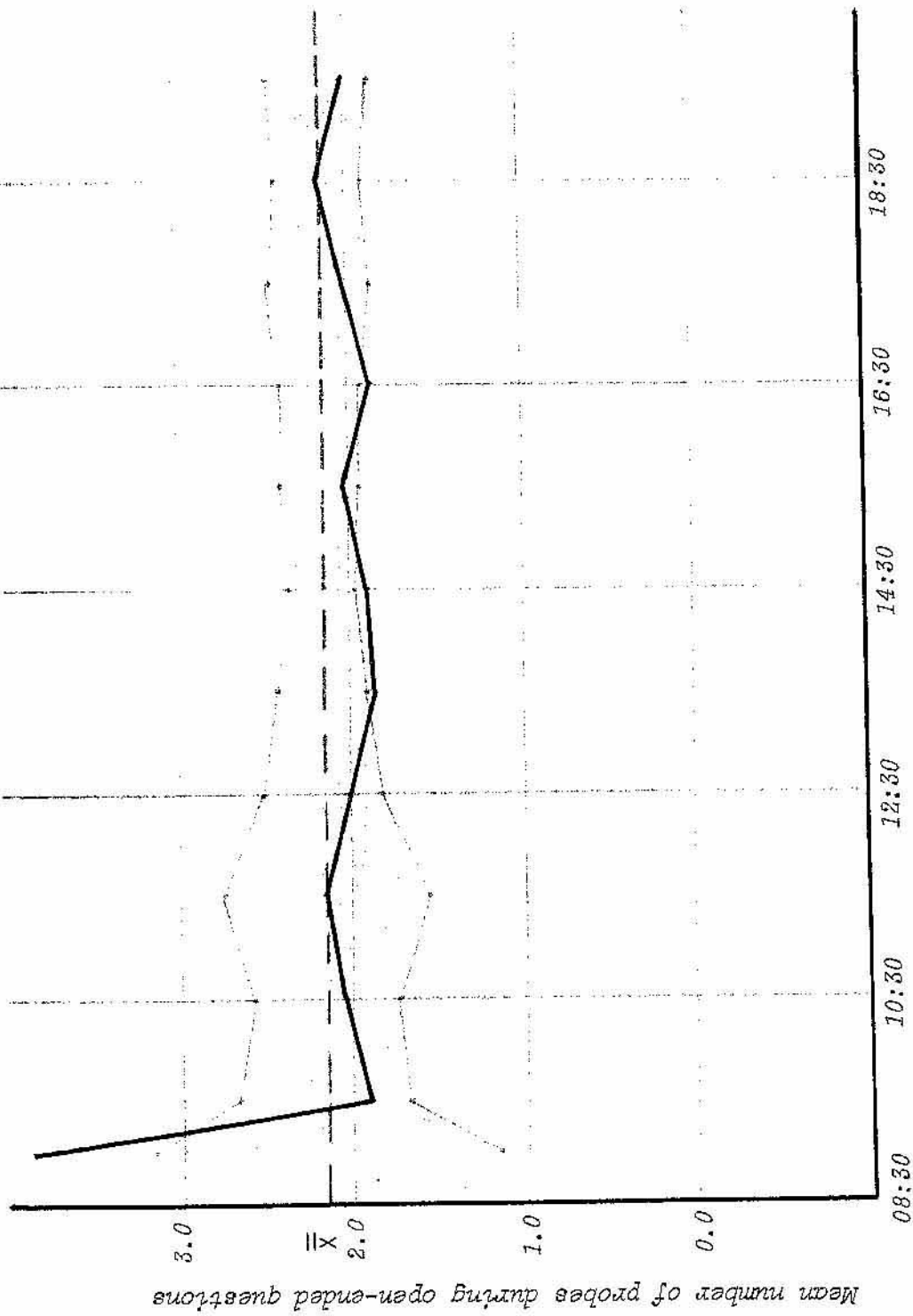


Figure 36. Variations in the mean number of words recorded in open-ended questions according to what period of the day for each day of the week the interviews were conducted.



Periods in the day (regardless of the day of the week)

Figure 37. Variations in the mean number of probes during open-ended questions according to what period in the day the interviews were conducted.

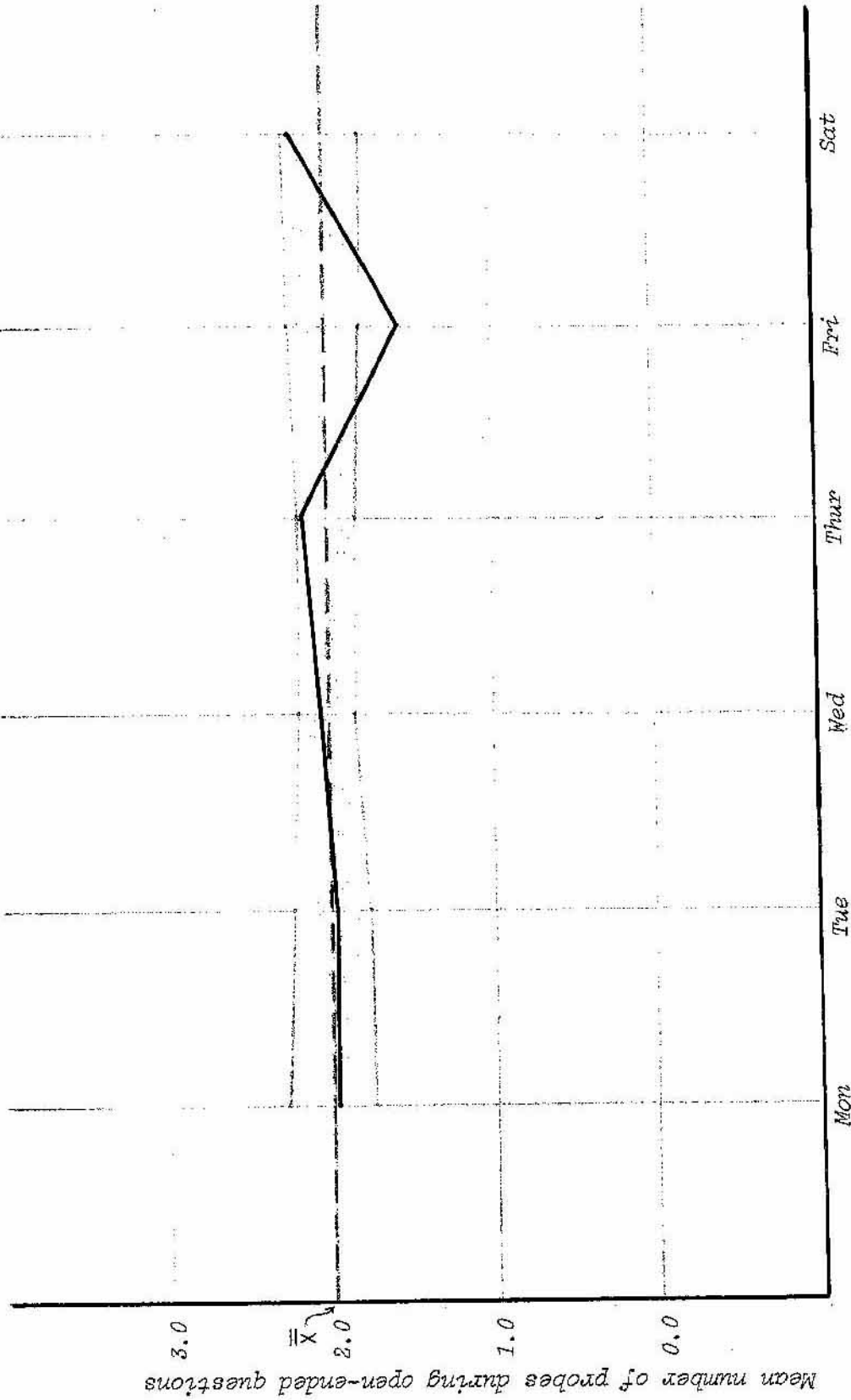


Figure 38. Variations in the mean number of probes during open-ended questions according to what day of the week the interviews were conducted.

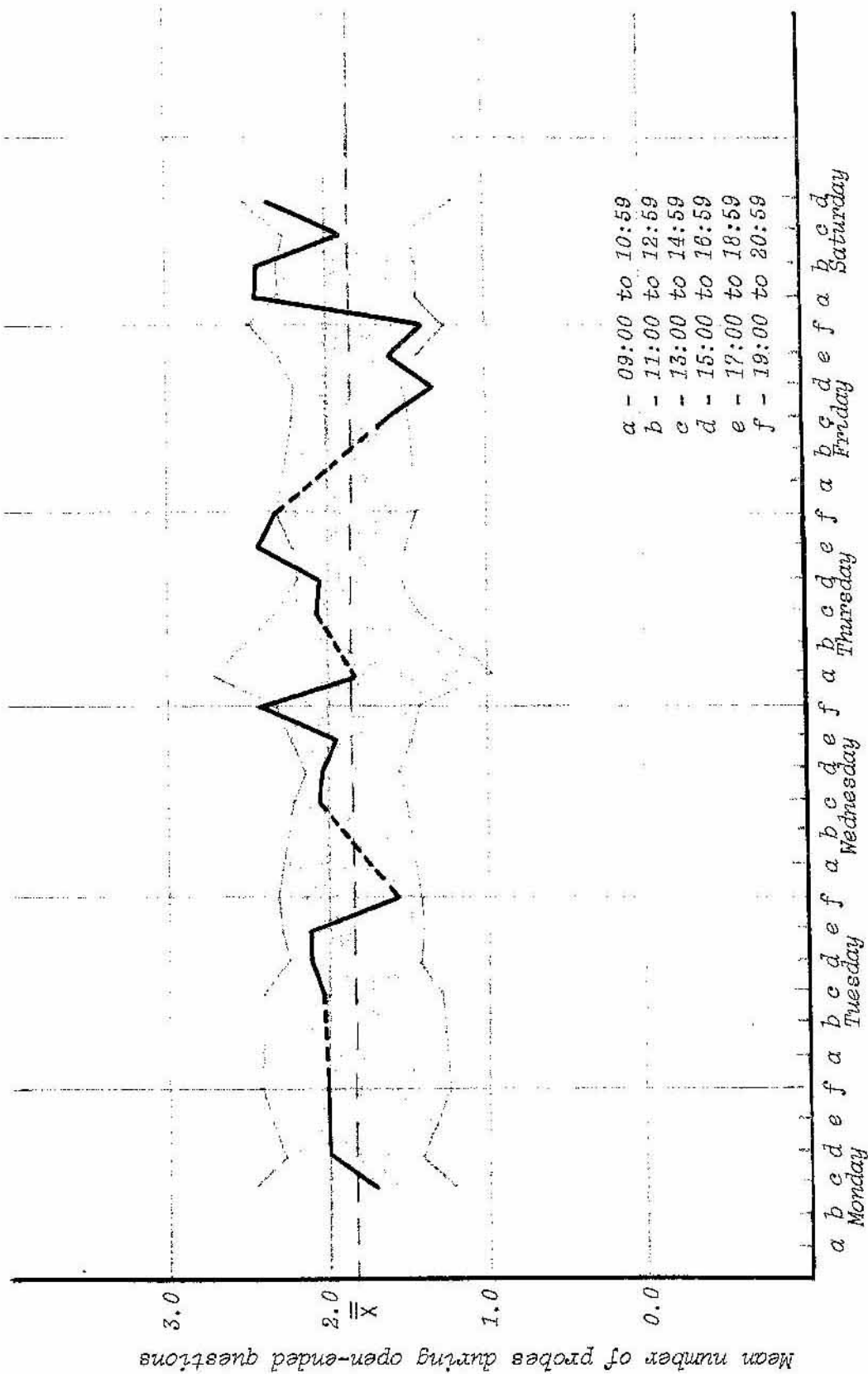


Figure 39. Variations in the mean number of probes during open-ended questions according to what period of the day for each day of the week the interviews were conducted.

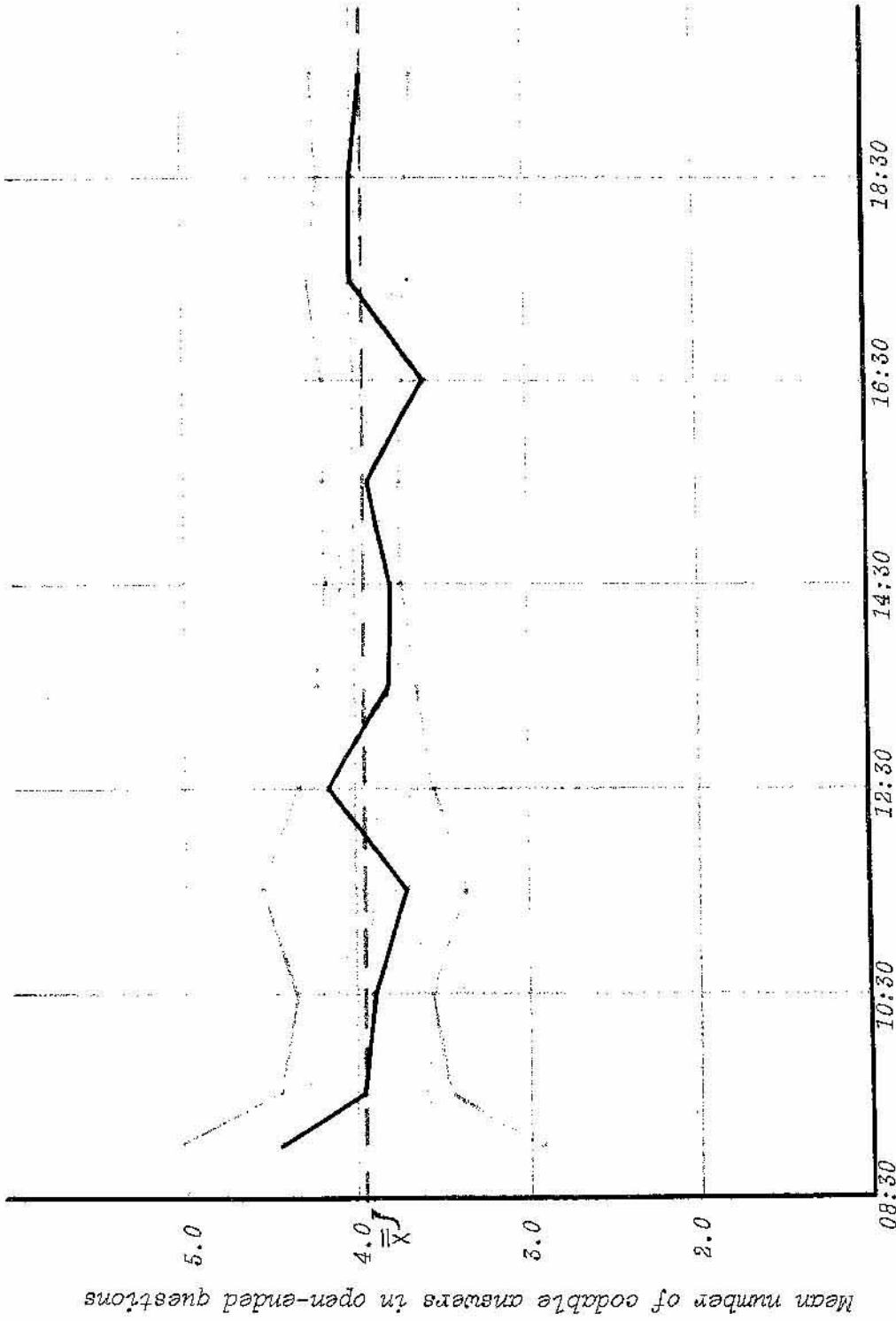


Figure 40. Variations in the mean number of codable answers in open-ended questions according to what period in the day the interviews were conducted.

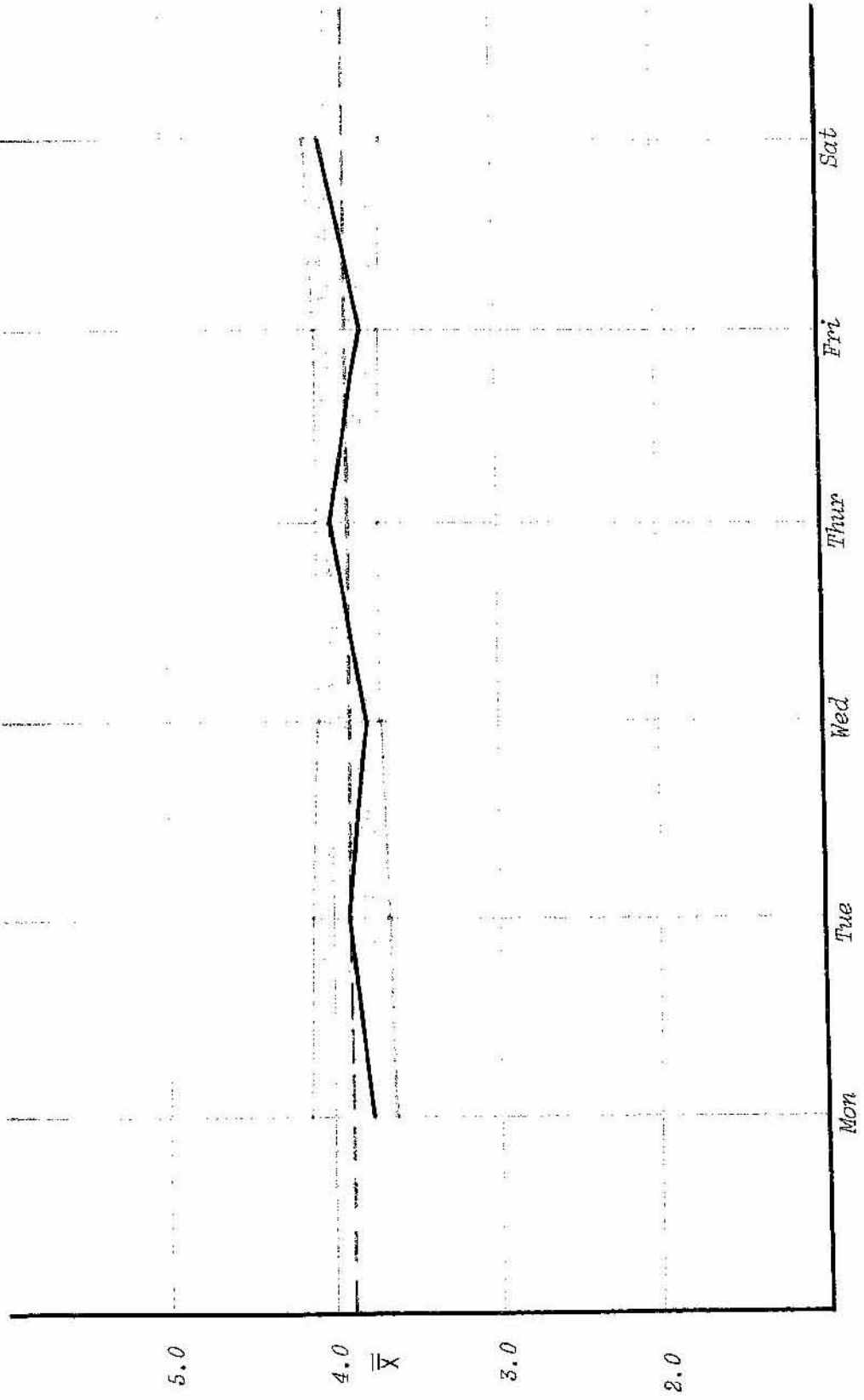
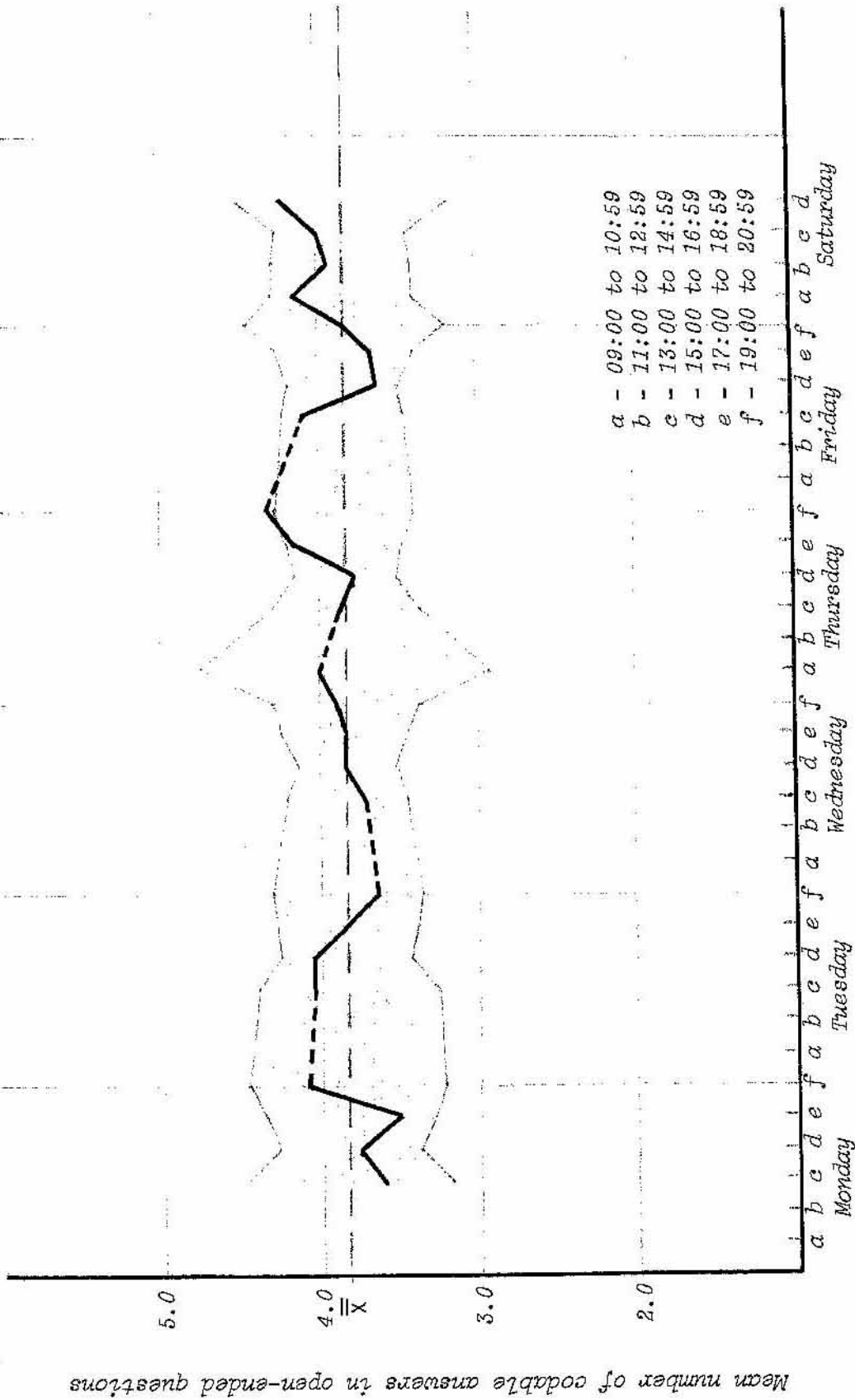


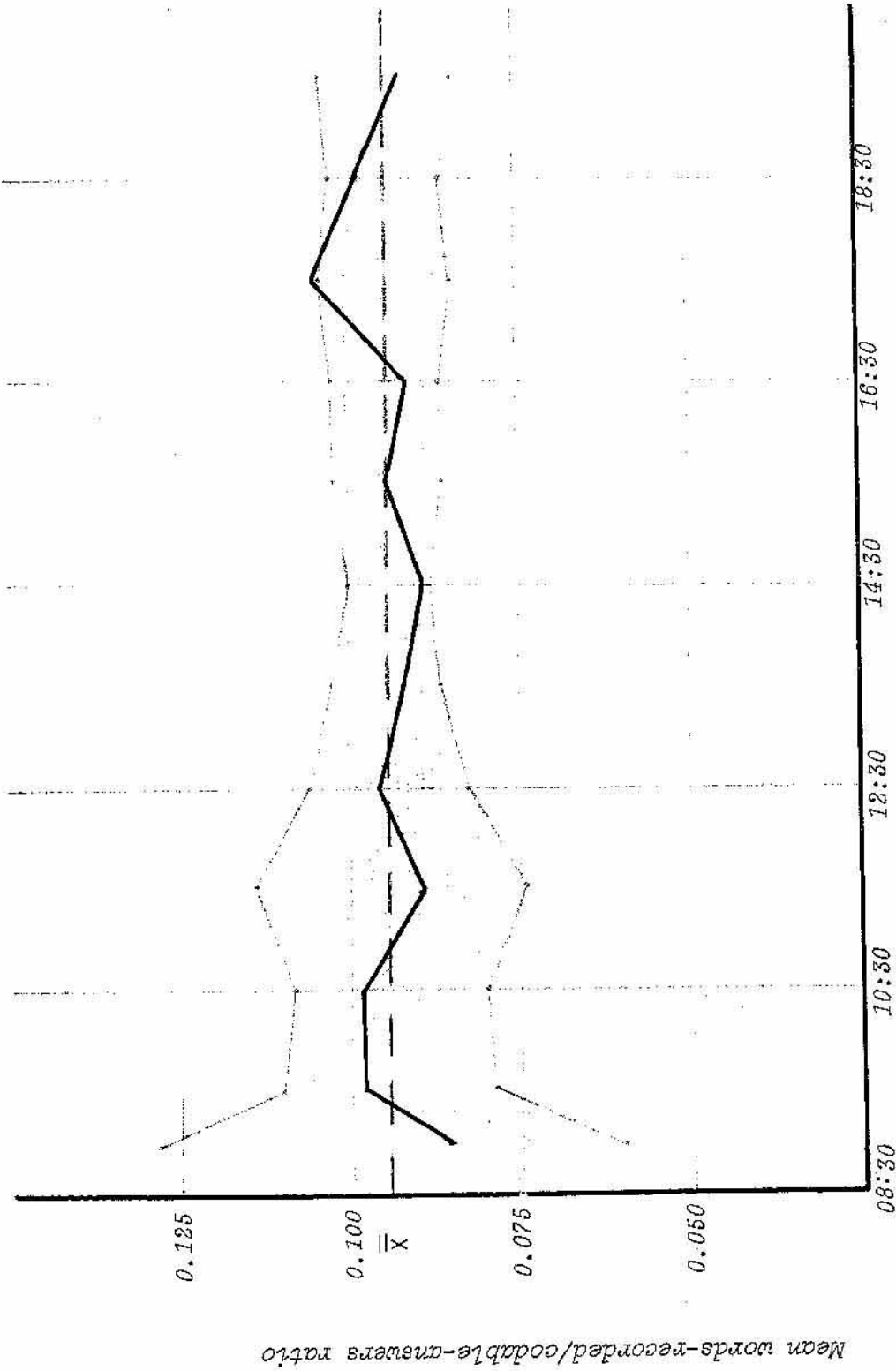
Figure 41. Variations in the mean number of codable answers in open-ended questions according to what day of the week the interviews were conducted.

Mean number of codable answers in open-ended questions



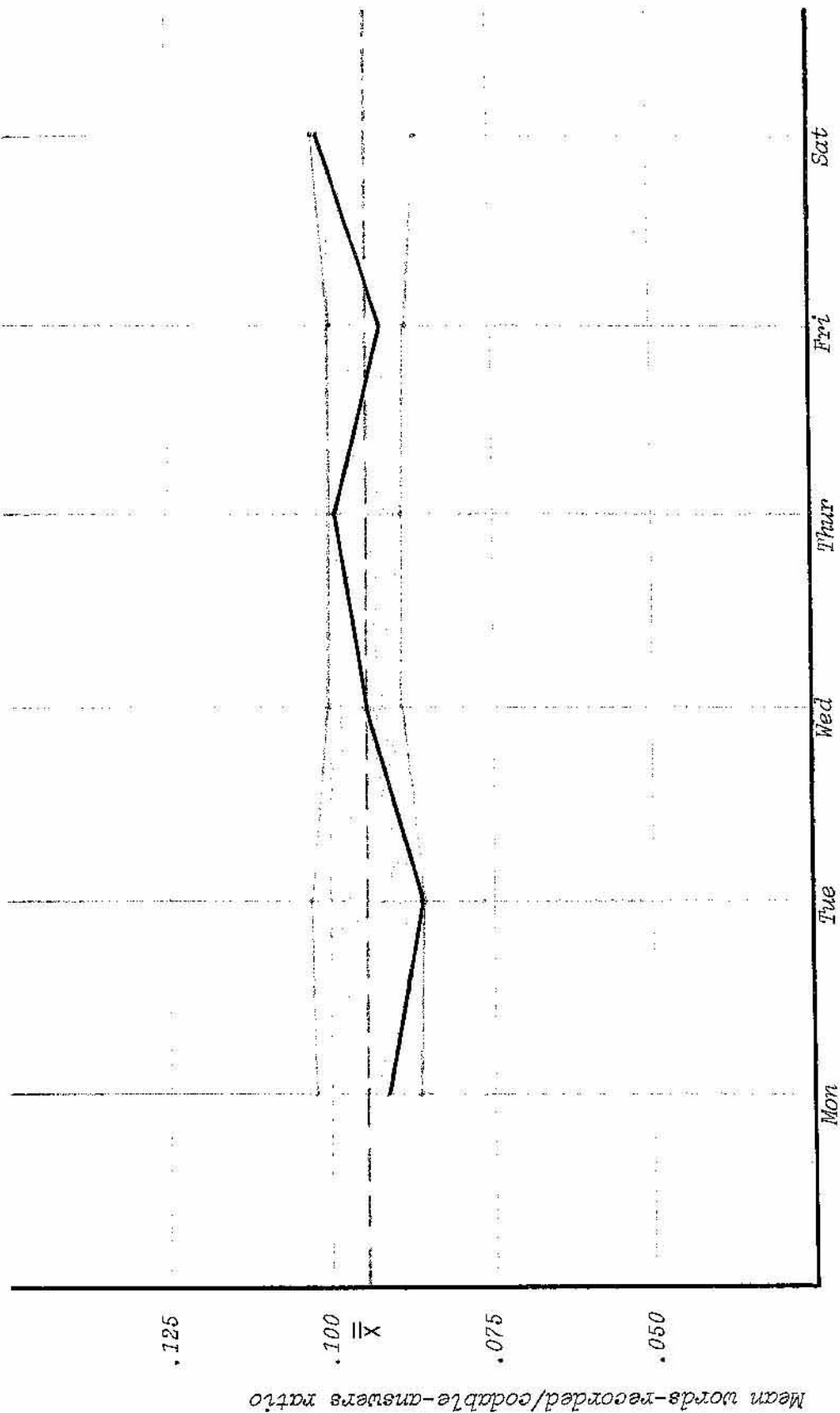
Periods of the day for each day of the week

Figure 42. Variations in the mean number of codable answers in open-ended questions according to what period of the day for each day of the week the interviews were conducted.



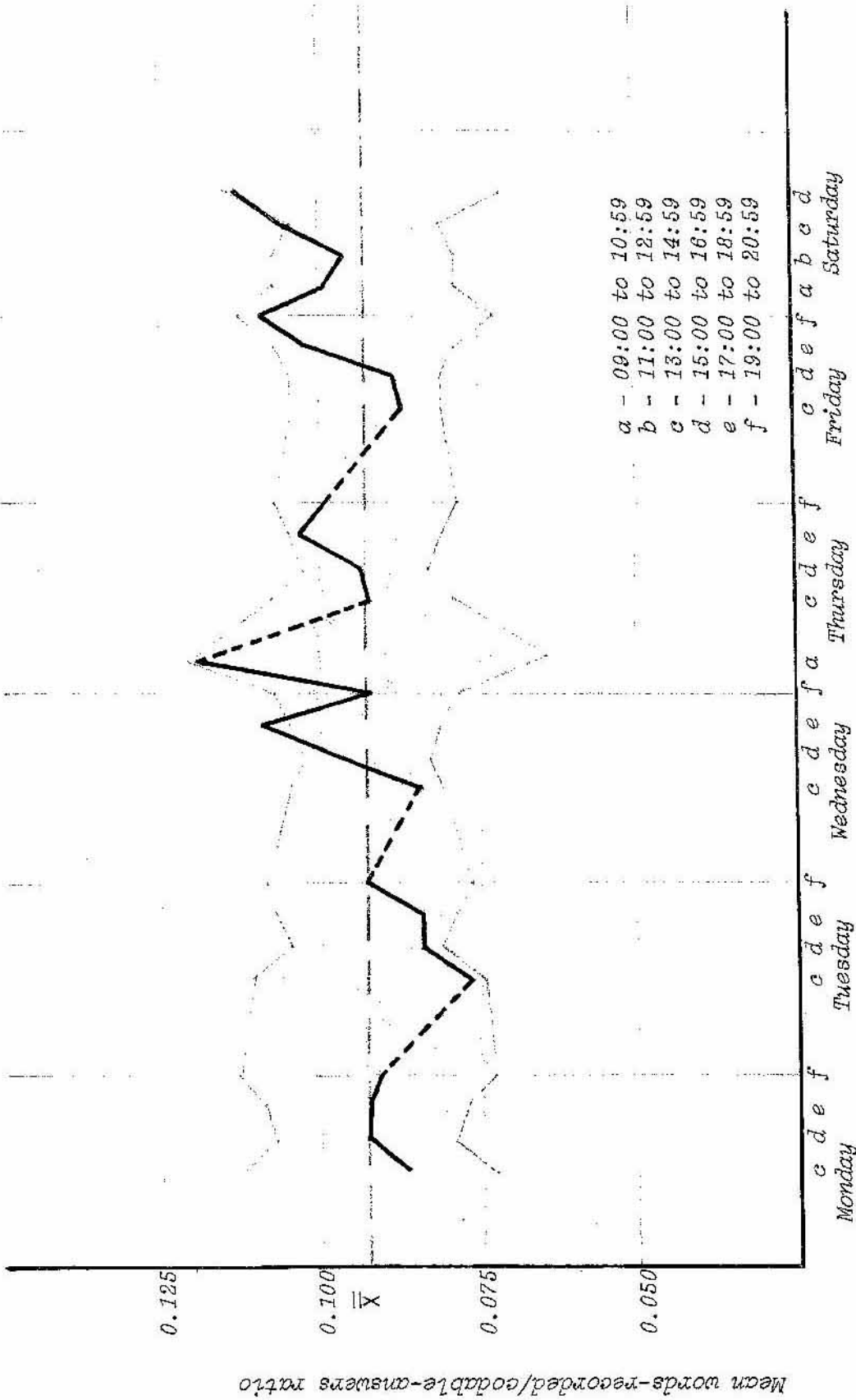
Periods in the day (regardless of the day of the week)

Figure 43. Variations in the mean words-recorded/codable-answers ratio for the open-ended questions according to what period in the day the interviews were conducted.



Days of the week

Figure 44. Variations in the mean words-recorded/codable-answers ratio in the open-ended questions according to what day of the week the interviews were conducted.



Periods of the day for each day of the week

Figure 45. Variations in the mean words-recorded/codable-answers ratio in the open-ended questions according to what period of the day for each day of the week the interviews were conducted.

BIBLIOGRAPHY

BIBLIOGRAPHY

- Benson, Sherwood; Bocman, W. P. and Clark, K. E. "A Study of Interview Refusals." Journal of Applied Psychology, 1951, Vol. 35, p. 116-119.
- Blalock, H. M., Jr. Causal Inferences in Nonexperimental Research. Chapel Hill, N.C.: University of North Carolina Press, 1964.
- Blau, P. M. and Duncan, O. D. The American Occupational Structure. New York: Wiley, 1967.
- Bryant, E. C.; Gardner, Isaac, Jr. and Goldman, Morton. "Responses on Racial Attitudes as Affected by Interviewers of Different Ethnic Groups." The Journal of Social Psychology, 1966, Vol. 70, pp. 95-100.
- Bugental, J.F. T.; Stark, Ed and Salmon, Charles. "An Experiment on 'Refusal Rates' in Relation to Interviewer Approach." Indian Journal of Psychology, 1957, Vol. 32, pp. 119-124.
- Caplin, N. S. and Paige, J. M. "A Study of Ghetto Rioters." Scientific American, 1968, Vol. 219, No. 2, pp. 14-19.
- Coleman, J. S. Introduction to Mathematical Sociology. New York: Free Press, 1964.
- Committee on Information in the Behavioral Sciences, Division of Behavioral Sciences of the National Research Council. Communication Systems and Resources in the Behavioral Sciences. Washington, D. C.: National Academy of Sciences, 1967.
- Dalton, A. G. "The Practice of Quality Control." In Readings from Scientific American Series. Mathematics in the Modern World. San Francisco: W. H. Freeman and Co., 1968.
- Deutscher, Irwin. "Looking Backward: Case Studies on the Progress of Methodology in Sociological Research." The American Sociologist, 1969 Vol. 4, No. 1, pp. 35-41.
- Dodd, S. C. "Dimensions of Lundberg's Society as Foundations for Dodd's Sociology." A paper read at the Pacific Sociological Society Meeting, Long Beach, California, March-April, 1967.
- Dodd, S.C. "On Reliability in Polling." Sociometry, 1944, Vol. 7, No. 3, pp. 265-282.
- Durbin, J. and Stuart, A. "Differences in Response Rates of Experienced and Inexperienced Interviewers." Journal of the Royal Statistical Society, 1951. Vol. 144, pp. 163-206.

- Feldman, J. J.; Hyman, H. H. and Hart, G. W. "A Field Study of Interviewer Effects on the Quality of Survey Data." Public Opinion Quarterly, 1951, Vol. 15, pp. 734-461.
- Gulliksen, Harold, "Louis Leon Thurston, Experimental and Mathematical Psychologist." American Psychologist, 1968, Vol. 23, No. 11, pp. 786-802.
- Hingorani, G.G. and Marczynski, L.F. "Prediction of Multiple Time Series Generated by Stationary Random Process." In D. F. Merriam (Ed), Computer Applications in the Earth Sciences: Colloquium on Time-Series Analysis, Lawrence, Kansas: State Geological Survey, 1967.
- Keairnes, H. W. "Consumer Survey of Medical Care Utilization." The Journal of the Kansas Medical Society, 1968, Vol. 69, No. 3, pp. 93-95
- King, A. J. and Jessen, R. J. "The Master Sample of Agriculture." Journal of the American Statistical Association, 1945, Vol. 40, pp. 38-56.
- LaFiere, R. T. "Comments on Irwin Deutscher's Looking Backward." The American Sociologist, 1969, Vol. 4, No. 1, pp. 41-42.
- Lenski, G. E. and Legget, J. C. "Caste, Class and Difference in the Research Interview." American Journal of Sociology, 1960, Vol. 65, pp. 463-467.
- Lundberg, G.A. Social Research, New York: Longmans and Green, 1929.
- Maccoby, E.E. and Maccoby, Nathan. "The Interview: A Tool of Social Science." In Lindzey (Ed.), Handbook of Social Psychology, Vol. 1, pp. 449-487.
- Namias, Jean. "Measuring Variations in Interviewer Performance." The Journal of Advertising Research, 1966, Vol. 6, pp. 8-12.
- Pearson, Karl. The Grammar of Science. New York: The Meridian Library, 1957.
- Phillips, B. S. Social Research, Strategy and Tactics. New York: Macmillan, 1966.
- Ray, M. L. and Webb, E. J. "Speech Duration Effects in the Kennedy News Conferences." Science, 1966, Vol. 153, No. 3738, pp. 899-891
- Reiss, I. L. The Social Context of Premarital Sexual Permissiveness. New York: Holt, Rinehart and Winston, 1967.
- Sheatsley, P. B. "An Analysis of Interviewer Characteristics and Their Relationship to Performance--Part III," International Journal of Opinion and Attitude Research, 1951, Vol. 5, pp. 193-197.

- Stephan, F. J. and McCarthy, P. J. Sampling Opinions, New York: Wiley (Science Editions), 1963.
- Sudman, Seymour. "Time Allocation in Survey Interviewing and in Other Field Occupations." Public Opinion Quarterly, 1966, Vol. 29, No. 4, pp. 638-648.
- Sudman, Seymour. "Quantifying Interviewer Quality." Public Opinion Quarterly, 1967, Vol. 30, No. 4, pp. 664-667.
- Tausky, Curt and Piedmont, E. B. "The Sampling of Behavior." The American Sociologist, 1968, Vol. 3, No. 1, pp. 49-51.
- United States Bureau of Census. U.S. Census of Population: 1960. Number of Inhabitants, Kansas. Final Report PC (1)-18A. Washington, D.C.: U. S. Government Printing Office, 1961.
- United States Public Health Service. "The Influence of Interviewer and Respondent Psychological and Behavioral Variables on the Reporting in Household Interviews." Vital and Health Statistics, 1968, Series 2, No. 26.
- United States Public Health Service. "Report of Hospitalization in the Health Interview Survey." Vital and Health Statistics, 1965, Series 2, No. 6.
- Waskberg, Joseph and Pearl, R.B. "The Effects of Repeated Household Interviews in the Current Population Survey." In the Proceedings of The American Marketing Association Meeting, Chicago, June 1964,
- Wallis, W. A. and Roberts, H. V. Statistics, A New Approach, New York: Free Press, 1956.
- Weiss, C. H. "Interviewing Low-Income Respondents--A Preliminary View." Welfare in Review, 1966, Vol. 4, No. 8, pp. 1-9.
- Weller, Leonard and Luchterhand, Elmer. "Comparing Interviews and Observations on Family Functioning." Journal of Marriage and the Family, 1969, Vol. 31, No. 1, pp. 115-122.

