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Technical Report 785

AD-A197 517



# The Army Communications Objectives Measurement System (ACOMS): Survey Design

Veronica F. Nieva  
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Editors

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April 1988

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Research accomplished under contract  
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## REPORT DOCUMENTATION PAGE

1a. REPORT SECURITY CLASSIFICATION <b>Unclassified</b>			1b. RESTRICTIVE MARKINGS --		
2a. SECURITY CLASSIFICATION AUTHORITY --			3. DISTRIBUTION / AVAILABILITY OF REPORT Approved for public release; distribution unlimited.		
2b. DECLASSIFICATION / DOWNGRADING SCHEDULE --			4. PERFORMING ORGANIZATION REPORT NUMBER(S) 945253		
5. MONITORING ORGANIZATION REPORT NUMBER(S) ARI Technical Report 785			6a. NAME OF PERFORMING ORGANIZATION Westat, Inc.		
6b. OFFICE SYMBOL (If applicable) --			7a. NAME OF MONITORING ORGANIZATION U.S. Army Research Institute for the Behavioral and Social Sciences		
6c. ADDRESS (City, State, and ZIP Code) 1650 Research Blvd. Rockville, MD 20850			7b. ADDRESS (City, State, and ZIP Code) 5001 Eisenhower Avenue Alexandria, VA 22333-5600		
8a. NAME OF FUNDING / SPONSORING ORGANIZATION --			8b. OFFICE SYMBOL (If applicable) --		
9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER MDA903-85-C-0414			10. SOURCE OF FUNDING NUMBERS		
8c. ADDRESS (City, State, and ZIP Code) --			PROGRAM ELEMENT NO. 6.3.7.31.A	PROJECT NO. 20263 731A792	TASK NO. 2.2.1
			WORK UNIT ACCESSION NO. R.2		
11. TITLE (Include Security Classification) The Army Communications Objectives Measurement System (ACOMS): Survey Design					
12. PERSONAL AUTHOR(S) Veronica F. Nieva (Westat) and Timothy W. Elig (ARI), editors					
13a. TYPE OF REPORT Interim		13b. TIME COVERED FROM 09/85 TO 09/86		14. DATE OF REPORT (Year, Month, Day) 1988 April	
15. PAGE COUNT 342					
16. SUPPLEMENTARY NOTATION Timothy W. Elig, Contracting Officer's Representative. Contract work was requested and funded by the Directorate of Program Analysis and Evaluation, U.S. Army Recruiting Command, and the Office of the Deputy Chief of Staff for Personnel.					
17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)		
FIELD	GROUP	SUB-GROUP			
05	09	--	Advertising Recruiting Telephone survey		
05	08	--	CATI Sample design ACOMS		
			Questionnaire Survey		
19. ABSTRACT (Continue on reverse if necessary and identify by block number)					
<p>This report is the first of two design reports that document the plans for the Army Communications Objectives Measurement System (ACOMS). This report discusses the major design elements of the ACOMS survey: sampling and weighting, questionnaires, and data collection and processing. It also presents the results of the formal pretest conducted before the start of actual data collection.</p> <p>The second design report, <u>The Army Communications Objectives Measurement System (ACOMS): Survey Analysis Plan</u> (ARI Technical Report 786), discusses the general plan to analyze youth and parent survey data and specific plans by topic: tracking responses of the youth audience over time; segmentations of the youth market; differentiation among Army, Army component, and civilian career alternatives; parental influence; and modeling the effects of Army advertising.</p> <p style="text-align: right;">(Continued)</p>					
20. DISTRIBUTION / AVAILABILITY OF ABSTRACT <input type="checkbox"/> UNCLASSIFIED/UNLIMITED <input checked="" type="checkbox"/> SAME AS RPT. <input type="checkbox"/> DTIC USERS			21. ABSTRACT SECURITY CLASSIFICATION Unclassified		
22a. NAME OF RESPONSIBLE INDIVIDUAL Timothy W. Elig			22b. TELEPHONE (Include Area Code) 202/274-5610		22c. OFFICE SYMBOL PER1-RG

## ARI Technical Report 785

## 19. Abstract (Continued)

The ACOMS survey is a multiyear telephone survey of a nationally representative sample of 16- to 24-year-old American youth and their parents. The survey tracks changes in perceptions, attitudes, and behaviors relevant to Army advertising. Data will be collected continuously through the year, using computer-assisted telephone interviewing (CATI) technology. Random digit dialing (RDD), involving a modified Waksberg method, will be used to identify eligible respondents. The 30-minute interview will ask youth about responses to Army advertising, media habits, career plans, and various demographic characteristics. Survey data will be analyzed separately, as well as in conjunction with other data being collected by the ACOMS system, and will be released on a quarterly basis.

Other ACOMS-related reports are identified as follows:

Technical Reports 784, 786, and 787

Research Report 1473

Research Products 88-04, 88-05, 88-06, 88-07, and 88-08

Research Notes 88-17 and 88-18

Technical Report 785

**The Army Communications Objectives  
Measurement System (ACOMS):  
Survey Design**

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Department of the Army

**April 1988**

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Army Project Number  
2Q263731A792

Manpower and Personnel

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## FOREWORD

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To effectively recruit manpower, the U.S. Army uses advertisements to affect the knowledge, attitudes, and behavioral intentions of youth and such significant influencers as parents. Army advertising development and execution is guided by a positioning statement and by specific, measurable objectives. This report documents the design of the main survey conducted to measure the achievement of these objectives under the Army Communications Objectives Measurement System (ACOMS), which supports Army assessments of advertising program strategies and effectiveness and also supports both planning for future strategy and increasing the operational efficiency of Army advertising programs.

ACOMS has been developed to meet the needs of Army policy makers and operational managers through a cooperative effort with a Special Advisory Group (SAG) of representatives from the staffs of the Office of the Deputy Chief of Staff for Personnel, the U.S. Army Recruiting Command, the U.S. Army Reserve Officers' Training Corps Cadet Command, the Office of the Chief of the Army Reserve, and the Army National Guard. Funding for the survey development was provided by the U.S. Army Recruiting Command.

The participation of the U.S. Army Research Institute (ARI) in this cooperative effort is part of an ongoing research program designed to enhance the quality of Army personnel. This work is an essential part of the mission of ARI's Manpower and Personnel Policy Research Group (MPPRG) to conduct research to improve the Army's capability to effectively and efficiently recruit its personnel. Specific efforts on ACOMS were undertaken at the direction of the Deputy Chief of Staff for Personnel. The survey design was briefed to the SAG at quarterly in-progress reviews and also briefed in January 1987 to the Deputy Chief of Staff for Personnel, the Commander of the U.S. Army Recruiting Command, the Chief of the Army Reserve, and the Director of the Army National Guard.

The ACOMS survey was conducted between October 1986 and December 1987. Results of the survey effort are forthcoming.



EDGAR M. JOHNSON  
Technical Director

## ACKNOWLEDGMENTS

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Army Special Advisory Group, staff officers, and special advisors:

LTC James Simon, LTC Terry White (ODCSPER) (Chair); COL Donald Borden, COL Henry Brummett, Mr. Tom Evans, LTC Art Mark, LTC Ron Morsch, LTC Jessee Brokenburr, Dr. Gerald Klopp, MAJ Rick Halek, CPT(P) Douglas McLiverty, CPT John Perry, CPT Gary Pickens (USAREC); LTC John Anderson, LTC Al Resnick, MAJ Thomas Loggie (USAROTCCC); LTC Rockwell, LTC Jesse Wall, MAJ Harry Simpson, Mr. Lou Brodsky (OCAR); SGM Gene Wallace (ARNG); Dr. Zahava Doering, Dr. Michael Laurence, Ms. Vonda Kiplinger (DMDC); Dr. Paul Gade, Dr. Curtis Gilroy (ARI).

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## PREFACE

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This paper reports on the design of the main data collection effort for Project Image Watch-Dog, "Army Communications Objectives Measurement System (ACOMS)" and addresses the market for the Army personnel accessioning system responsible each year for obtaining from the non-prior-service youth market over 200,000 volunteers for the enlisted and warrant officer force. In addition, the U.S. Army Reserve Officers' Training Corps (ROTC) Cadet Command is responsible for attracting over 37,000 high-quality youth as college freshmen at 4-year colleges. To effectively recruit in the youth market, various components of the U.S. Army use advertisements to produce changes in the knowledge, attitudes, and behavioral intentions of youth and such significant influencers as peers and parents. ACOMS was designed to provide a measurement and analysis system to support Army assessments of advertising program effectiveness, assessments of advertising strategy efficiencies, management of the advertising program, and planning and development of new marketing strategies and segmentations.

The planning for this research was initiated in 1984. ACOMS developed out of work performed for a series of advertising effectiveness conferences directed by the U.S. Army Recruiting Command (USAREC) at the request of the Deputy Chief of Staff for Personnel (DCSPER), who met with the Commander of USAREC, the Chief of the Army Reserve, the Director of the Army National Guard, and the Deputy Chief of Staff of Training and Doctrine Command for ROTC in November of 1984 to review the results of these conferences. These officers approved the mission requirements for ACOMS prepared by their staffs as well as the basic research plan for ACOMS prepared by the U.S. Army Research Institute (ARI). The DCSPER directed ARI to develop and monitor research plans and necessary contract efforts for ACOMS with guidance from a Special Advisory Group (SAG) from involved Army offices. The Defense Manpower Data Center was added in a special technical advisory capacity before the first meeting of the SAG.

The SAG was intimately involved in refining the mission requirements for ACOMS throughout the procurement process that led to the selection by ARI in 1985 of Westat, Inc., as the ACOMS contractor. Scientists from Westat and the Army community, together with many advisors, developed and refined The Army Communications Objectives Measurement System (ACOMS): Survey Design (ARI Technical Report 785) and The Army Communications Objectives Measurement System (ACOMS): Survey Plan Analysis (ARI Technical Report 786). In addition to guidance from the SAG, plans for ACOMS benefited from advice concerning sampling, weighting, and estimation from a Statistical Advisory Panel. The report describes the efforts of many people on the Westat Project Team and in the Army community.

The ACOMS system involves more than just surveys or other methods of data collection. The analysis and reporting agenda for ACOMS were set by Army users to ensure that, in addition to their own in-house analyses, research products would regularly flow to users and systematically address their needs. Research products include quarterly reports, annual tabulation volumes, and interim reports on interpretive analyses that are summarized in an annual report.

These reports are forthcoming for the period of ACOMS data collection, October 1986 through December 1987.

The text of the current report is substantially unchanged since it was released as Manpower and Personnel Policy Research Group Working Paper 87-2, January 1987.

TIMOTHY W. ELIG  
ARI Senior Scientist and  
Contracting Officer's Representative

## THE ARMY COMMUNICATIONS OBJECTIVES MEASUREMENT SYSTEM (ACOMS): SURVEY DESIGN

### EXECUTIVE SUMMARY

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#### Requirement:

To improve the efficiency and effectiveness of Army advertising communications.

#### Procedure:

Development of the ACOMS project design has been a collaborative enterprise involving the Westat Project Team, the Army Research Institute Contracting Officer's Representative, the ACOMS Special Advisory Group (SAG) composed of representatives from the staffs of the Office of the Deputy Chief of Staff for Personnel, the U.S. Army Recruiting Command, the U.S. Army Reserve Officers' Training Corps Cadet Command and the Office of the Chief of the Army Reserve, and the Statistical Advisory Panel, a group of experts providing the project with advice concerning sampling, weighting, and estimation. The design process began in September 1985 and continued until the start of survey data collection in October 1986.

The ACOMS project design was developed through consideration of a number of factors. Project issues and questions were formulated by a conceptual model of advertising effectiveness, a modified Hierarchy of Effects model. A review of background documents and interviews with Army personnel provided a user orientation in defining the analytic issues being addressed by the system. This preliminary exploration revealed the diversity and complexity of objectives that the project is expected to fulfill. Project objectives were broadened from assessing the effectiveness of Army communications objectives to include analyses pertaining to Army advertising strategy and market segmentation.

The ACOMS development effort has focused on specifying the design and analysis plan for the survey component of ACOMS, by far the largest component of the system. Because of the multiple constituencies interested in ACOMS, the relative priorities among population groups--and hence, the sampling design--were major design issues. Similarly, because of concerns for cost and respondent burden, extensive discussion on the relative priorities among various question domains and the allocation of specific questions to particular subpopulations occurred. In addition, the design efforts for both the sample and the questionnaires were affected by the requirement to maintain comparability (in certain key aspects) to the Youth Attitude Tracking Survey (YATS), which covers many of the same areas related to an enlistment decision-making.

## Findings:

ACOMS was designed and implemented to meet Army objectives through a three-pronged "Fit-Exposure-Change" approach involving a mix of data collection and analytic approaches. In this report, the design of change measures is discussed. The measurement of change, based on an on-going telephone survey of a probability sample of youth and their parents, is central to the ACOMS project. Youth and parental samples were designed to collect information on a variety of topics including the youth's plans for the future, media habits, and reactions to Armed Forces advertising.

## Utilization of Findings:

ACOMS data collection was initiated according to plan in October 1986. The first product reporting results was delivered in February 1987. Data are being used to track changes over time in levels of advertising recall, and subsequent effects on the knowledge, attitudes, intentions, and actions of youth and their parents. In addition, the analysis of ACOMS data permits a better understanding of the lagged and cumulative effects of advertising and of the relationships between advertising and other factors that influence the eventual enlistment decision.

Thus, the ACOMS effort is contributing to current development of behavioral and economic models of enlistment decision-making by the Army Research Institute. As better models of the enlistment decision process are developed, more effective marketing strategies can be applied to help the Army attain its annual recruiting goals.

A second set of goals involves the use of ACOMS data to assess the Army's advertising strategy. ACOMS is examining the extent to which the Army's intended messages are actually being received, and perceived by, their target audiences. Advertising strategy is also being supported by the analysis of ACOMS data to refine the definitions of the Army's major market segments. Reactions to advertising, media habits, and other variables are being analyzed for the major demographic segments of interest to the Army's recruiting categories, broken down by major regions. Data analysis is assisting in identifying and validating new segments defined in both attitudinal and demographic terms. This information is important in determining the nature and extent of the advertising to be directed at each segment.

ACOMS data are also being used to examine "brand differentiation"--i.e., comparison of image elements--at several levels: differentiation among the Active Army, Reserve, National Guard, and ROTC attributes; differentiation between the Army and other services' attributes; and differentiation between the Army's position and distinctive advantages vis-a-vis civilian alternatives (i.e., college and civilian employment). This information is helping the Army make decisions on relative emphasis of various communications about attributes and offers of Army components.

# THE ARMY COMMUNICATIONS OBJECTIVES MEASUREMENT SYSTEM (ACOMS): SURVEY DESIGN

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THE ARMY COMMUNICATIONS OBJECTIVES MEASUREMENT  
SYSTEM (ACOMS): SURVEY DESIGN

Veronica F. Nieva

Objectives

In an era when manpower experts are predicting increased difficulties for recruiting into military service, it becomes even more important that the U.S. Army improve its understanding and management of the factors that enable it to meet its manpower goals. Advertising communications represent one such factor.

The active Army, the U.S. Army Reserve (USAR), the Army Reserve Officers' Training Corps (ROTC), and the Army National Guard (ARNG) extensively use advertising to induce changes in the knowledge, attitudes, and behaviors of youth and their parents. Each year, the Army makes a sizable investment in the development and exposure of advertising communications intended to disseminate favorable Army images and to increase the enlistment propensity of eligible youth.

While in-house assessments have been conducted by the Army's main advertising contractor, and advertising has been mentioned by other youth surveys such as the Youth Attitude Tracking Survey II (YATSII), to date there has been no in-depth, independent examination of the effectiveness of Army communications. The Army Communications Objectives Measurement System (ACOMS) is such an effort, designed to help the Army monitor and evaluate its advertising communications program. The ACOMS is a multiyear effort that will provide ongoing measurement of the extent to which Army communications meet the communications objectives for different target groups.

The objectives of the ACOMS are:

- (1) To support Army assessments of advertising program effectiveness in a timely fashion;
- (2) To support Army assessments of advertising strategy in an integrated framework; and
- (3) To support Army advertising management and planning for future strategy.

The major task of the ACOMS is to monitor and assess the effectiveness of the Army's advertising communications program. Data will be used to track changes over time in levels of advertising recall, and the subsequent effects on the knowledge, attitudes, intentions, and actions of youth and their parents. In addition, the analysis of the ACOMS data will allow better understanding of the lagged and cumulative effects of advertising and of the relationships between advertising and other factors that influence the eventual enlistment decision.

Thus the ACOMS effort will contribute to the development of behavioral and economic models of enlistment decisionmaking currently being developed by the U.S. Army Research Institute (ARI). As better models of the enlistment decision process are developed, more effective marketing strategies can be applied to help the Army attain its annual recruiting goals.

A second set of goals for the ACOMS involves the use of its data to assess the Army's advertising strategy. The ACOMS will examine the extent to which the Army's intended messages are actually being exposed to, and perceived by, their target audiences. Analysis of the ACOMS data will also support advertising strategy to refine the definitions of the Army's major market segments. Reactions to advertising, media habits, and other variables will be analyzed for the major demographic segments of interest to the Army's recruiting categories, broken down by major regions. In addition, analytical effort will be devoted to the identification and validation of new segments defined in both attitudinal and demographic terms. This information will be important in determining the nature and extent of advertising to be directed at each segment.

The ACOMS data will also be used to examine brand differentiation, i.e., comparison of image elements, at several levels: (a) differentiation among the active Army, Reserve, National Guard, and ROTC attributes; (b) differentiation between the Army and other services' attributes; (c) and differentiation between the Army's position and distinctive advantages as compared with civilian alternatives such as college and civilian employment. This information will help the Army decide on relative emphasis of various communications about different attributes and offers of the Army components.

The ACOMS data and analyses will be available to the Army's communications program managers in a real-time, developmental context. The ACOMS reporting schedules will be arranged in order to provide timely information to the Department of the Army's planning cycle. Therefore, information on current topics of interest and on reactions to advertising approaches among specific populations can be incorporated into advertising development and placement.

#### Fit-Exposure-Change Approach to Achieving Objectives

The ACOMS objectives will be achieved through a three-pronged Fit-Exposure-Change approach that combines data collection and analytic measures. Assessment of the Fit between the Army's intended communications messages or objectives and the actual message content received by the audience constitutes the first prong of the ACOMS approach. In brief, measures will be obtained through message content analyses development from mall-intercept interviews. Youth will be shown different advertisements, including active Army advertisements, and asked to indicate what messages they think the advertisements were communicating. Even for the active Army alone, different executions focus on particular aspects of the active Army

image and offer. Thus, the ACOMS will assess the extent to which various Army print and television advertising executions embody the various Army advertising objectives.

Different executions are intended to be aired at different times, corresponding to hypothesized target market motivations. The ACOMS will develop Exposure measures from syndicated data for television and print media (e.g., Arbitron and Mediamark) to assess how much each advertisement is being "exposed" over various forms of media. These data will be combined with the Fit analyses of advertising message content to obtain measures of exposure for each Army communication objective.

Finally, Change measures, derived from telephone surveys of youth and parents, will indicate how audience reactions are changing over time, and the various factors that are related to these changes. The measurement of change, based on an ongoing telephone survey of a probability sample of youth and their parents, forms the core of the ACOMS project. In brief, the youth and parental samples will be questioned on a variety of topics, including the youth's plans for the future, media habits, and reactions to Armed Forces advertising. More detailed descriptions of the sample and the questionnaire are contained in Chapter 2 (Mohadjer & Waksberg, 1988) and Chapter 4 (Gaertner, Nieva, & Allen, 1988) of this report. Data will be collected using a Random Digit Dialing (RDD) telephone survey methodology, in which randomly selected telephone numbers are contacted in order to identify households with eligible youth (i.e., those who fulfill the project's age, education, and nonprior-service requirements). In the future, a subsample of these youth will be reinterviewed annually.

#### The ACOMS Project Design Process

The development of the ACOMS project design has been a collaborative and interactive enterprise involving the Westat Project Team, the ARI Contracting Officer's Representative (COR), the ACOMS Special Advisory Group (SAG) comprised of the various Army components interested in ACOMS, and the Statistical Advisory Panel, a group of experts providing the project with advice concerning sampling, weighting, and estimation. The design process began in September 1985, with the start of the contract, and continued intensively for about a year until the start of survey data collection in October 1986. This document represents the design as of October 1986. Design modifications that occurred after the start of survey data collection are therefore not included in this report.

The ACOMS project design was developed in consideration of a number of factors. The formulation of project issues and questions was informed by a conceptual model of advertising effectiveness, a modified Hierarchy of Effects model adapted from Fishbein and Azjen (1975). Further, an extensive background document review and interviews with relevant Army personnel provided the designers with a user-orientation to use in defining the analytic issues that will be

addressed by the system. This preliminary exploration revealed the diversity and complexity of objectives that the project was expected to fulfill. Notably, the definition of project objectives broadened from its starting point of assessing the effectiveness of Army communications objectives to include additional analyses of Army advertising strategy and market segmentation.

The main thrust of the ACOMS development effort has focused on specifying the design and analysis plan for the survey component of the ACOMS, which is by far the largest component of the system. Because of the multiple constituencies interested in the ACOMS, the relative priorities among population groups--and hence, the sampling design--were a major design issue. Similarly, there was extensive discussion about the relative priorities among various question-domains, and on the allocation of specific questions to particular subpopulations because of concerns about cost and possible burdens on respondents. In addition, both sample and questionnaire design efforts were affected by requirements to maintain comparability in certain key aspects to the Youth Attitude Tracking Survey (YATS), which covers many of the same areas related to enlistment decisionmaking.

The design process is currently continuing on the other two components, the measurement of Fit between intended and actual Army communications messages, and the measurement of the extent of Exposure which each of these messages receives in television and print media. The areas of dominant influence (ADI) special studies, a final component which will be used to examine specific advertising campaigns or advertisements, remains for further development.

It should be emphasized that the ACOMS design process does not end even with the completion of these later design elements. Because the ACOMS project is intended to provide useful management information in a timely fashion, a small percentage (10%) of the main survey instrument is variable, or "floating." The availability of floating questions gives the ACOMS the capacity to respond to events as they occur in real time. Requests for development of these floating questions will come from the ACOMS SAG.

#### Report Overview

This report is the first of a series that documents the ACOMS project design. It focuses on the final design of the telephone survey of youth and parents that form the core of ACOMS. This design has evolved through discussions of priorities and alternative design options, and thus differs to some degree from the initial ACOMS Statement of Work. The report includes a survey overview; sample design; a descriptive account of the survey questionnaires; a description of data collection and processing; and a discussion of the formal survey pretest.

The survey analysis plan will be presented in a second design report which discusses the major analytic issues that will be addressed, using the survey data. It will also describe the basic design for the use of Fit and Exposure data.

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## 2. THE ACOMS SURVEY: AN OVERVIEW OF THE SURVEY DESIGN

Veronica F. Nieva

### The ACOMS Survey Overview

The Army Communications Objectives Measurement System (ACOMS) survey is a continuous data collection effort designed to monitor the Army's advertising program over time. A national probability sample of youth and their parents will be interviewed using computer-assisted telephone interviewing (CATI) technology. The Waksberg Random Digit Dialing (RDD) method will be used to locate households with youth who fulfill ACOMS eligibility criteria.

The respondents will be questioned regarding a variety of issues related to advertising and the enlistment decision process, e.g., their media habits, knowledge about various Army components and offers, perceptions of various Army attributes, and enlistment intentions and behaviors. The survey instruments for the youth and parental respondents are divided into a number of topical modules, the majority of which are parallel in form and content for the two groups. Because of the nature of the survey objectives and pragmatic limitations on respondent burden, the instruments have complex structures involving branching, random allocation of questions to subpopulations, and randomized ordering of list presentations. To a great extent, such a degree of instrument complexity was made possible by the sophistication of CATI technology.

The ACOMS survey will produce a variety of work products. Quarterly reports of ACOMS data will be developed to provide an ongoing system to track changes in the perceptions, attitudes, and enlistment-related intentions and actions of the various market segments at which advertising is targeted. In addition, the survey data will be used to model the effects of Army advertising among youth and among linked pairs of youth and their parents. Data will also be analyzed to examine the utility of existing market segmentation schemes used by the Army, as well as to identify new market segments.

### The Youth and Parental Samples

Telephone interviews will be conducted on a sample of youth and their parents on a continuing basis after the initiation of data collection. This section describes the sample characteristics agreed upon during the design process, which differ somewhat from the original specifications stated in the ACOMS Statement of Work.

The youth sample for the ACOMS survey consists of 16- to 24-year-old males and females who have neither served nor enlisted in the Armed Forces and have not yet graduated from college. The youth sample is divided into the following groups:

- (1) The Primary Male Sample (PMS): (Annual  $n=9,600$ ) Male high school diploma graduates and those currently enrolled in regular high school or college.

- (2) The Secondary Male Sample (SMS): (Annual  $n=850$ ) Male high school noncompleters not currently enrolled in regular high school or college.
- (3) The Primary Female Sample (PFS): (Annual  $n=1,800$ ) Female high school diploma graduates and those currently enrolled in regular high school or college.
- (4) The Secondary Female Sample (SFS): (Annual  $n=150$ ) High school noncompleters not currently enrolled in regular high school or college.
- (5) Supplementary Samples: Hispanics in all of the above categories (Annual  $n=300$ ) and the areas of dominant influence (ADI) supplement (Annual  $n=2,000$ ).

In addition, the PMS and PFS samples are further subdivided. All 16- to 20-year-old PMS/PFS sample members become part of a parental-linked sample from which target youths will be selected for an additional interview of a predesignated parent. Half of the parental-linked target youths are designated for participation in a longitudinal sample to be reinterviewed annually.

Two additional supplements contemplated in the Statement of Work were dropped during the design phase: the supplementary sample of four-year college students, and a sample of Vo-Tech students. It was further decided that given the final sample design, supplementation of black youth would probably not be required.

The Primary Male Sample and Primary Female Sample. In addition to the age and prior service qualifications of the overall sample, eligibility for PMS/PFS has an additional requirement for educational attainment. As previously stated, PMS/PFS youth are high school diploma graduates or are currently enrolled in regular high school or a two- or four-year college.

High school diploma graduates are defined as those completing a regular high school diploma, thus excluding those with a General Educational Development (GED) certification of high school completion, or Adult Basic Education (ABE) certificates. Those certificate-holders are classified as SMS unless they are enrolled in a two- or four-year college. This definition is consistent with definitions for Recruiting Priority Groups. Enrollment status for youths interviewed from July 1 through September 1 is defined by the youth's plans to be enrolled in September.

The PMS and PFS encompass many of the Army's prime recruiting groups, not only for the active Army but also for the Reserve Officers' Training Corps (ROTC), the Army National Guard (ARNG) and the U.S. Army Reserve (USAR), and thus conform to the research objectives for ACOMS. However, this sample definition is slightly at variance with the Youth Attitude Tracking Study II (YATS II) (Research Triangle Institute, 1985). Consequently, for reporting purposes, we

define a subset of the PMS as the Primary Male Analytic Sample (PMAS), consisting of PMS members who have not yet begun their junior year in college and who are not enrolled in a college ROTC program. This sample definition is consistent with YATS II, although the YATS II sample is limited to interviews conducted during a restricted period, currently September and October.

The Secondary Male Sample and Secondary Female Sample. Logically, these samples represent the complements of their respective Primary Samples, that is, youths not currently enrolled in regular high school or college and not having earned a regular high school diploma. Youth enrolled in training and vocational-technical non-degree programs are considered SMS if they have not completed a regular high school diploma.

The Parental-Linked Sample. One parent in each household with each PMS and PFS between the ages of 16 and 20 will be interviewed. Parent does not necessarily imply biological parent, but may include stepparents, foster parents, guardians, or adult relatives. The respondent is allowed to self-define the parent, where appropriate. For a randomly chosen half of the households with a 16-to-20-year-old PMS/PFS, the eligible parent will be female; for the other half, the parent will be male. Eligible parents do not have to live in the same household as the target youth.

The parent will be interviewed regarding his/her own awareness of and attitudes toward Army and other military advertising, Army offers and images, as well as hopes for and attempts to influence the target youth. For households with more than one eligible PMS/PFS, one would be designated randomly as the target youth for the parental interview.

The Longitudinal Sample. A randomly chosen half of the parental-linked target youths will be selected for participation in the longitudinal sample. Longitudinal sample youths will be reinterviewed annually in the years following their original interviews.

The Hispanic Supplementary Sample. The screening for the main samples can be expected to yield an insufficient number of male Hispanic youth for some analytic purposes. An additional 300 Hispanic males will therefore be selected from telephone exchanges containing high densities of Hispanics.

The ADI Supplement. A supplement of 2,000 PMS in selected Areas of Dominant-Influence (ADIs) may be interviewed at a future date. This supplement will be used in special studies of the effects of specific advertising campaigns or advertisements, and thus could be considered as separate from the main ACOMS sample. The content of the questionnaire for the ADI sample may differ from the main ACOMS instrument, depending on the nature of the campaign or advertisement to be assessed.

### Sample Selection

The sample will be selected using the Waksberg Random Digit Dial (RDD) procedure, which provides an unbiased representative sample of eligibles in telephone households. The method, which is described further in Chapter 3, ACOMS Sample Design (Mohadjer and Waksberg, 1988), involves the identification of eligible respondents within households from randomly selected clusters of telephone numbers.

The household screening and sample selection process will be conducted as a single, integrated operation for all population subgroups. As households are screened, those with any eligible persons will be identified, and a subsampling operation carried out to select the desired number of sample persons in each of the various subgroups.

At the time of sampling, half of the households with eligible PMS and female sample (FS) (not including Hispanic supplements) will be randomly selected for the parental interviews. One half of this group (therefore, one fourth of the total PMS and FS) will be randomly selected for the longitudinal followup.

This basic RDD approach is expected to yield the required sample sizes for most population groups of interest, with the exception of Hispanic male youth. In order to obtain the required sample numbers of this relatively rare group, a supplemental sample will be drawn from telephone exchanges known to have high Hispanic density. The supplementation method is also discussed further in Chapter 3.

The youth sample needed for the ADI analysis will be selected separately. Since the ADI sample will be used to analyze the effect of specific spot advertising, the interviewing will be coordinated with the timing of the advertisements. Essentially the same methods will be used to select this sample as for the regular sample, within specified ADIs.

### ACOMS Questionnaires

ACOMS currently includes three survey instruments: (a) the household screener, (b) the youth questionnaire, and (c) the parent questionnaire. These three instruments are presented as Appendix B to this report. In the future, a longitudinal questionnaire will be designed for youth who will be reinterviewed annually. Special questionnaires may also be developed for the ADI special studies of specific campaigns or advertisements.

The household screener. The household screener is a brief, three-minute instrument. The screening interview is conducted with any knowledgeable household member in order to locate youth who are eligible for the full ACOMS interview. Since telephone numbers are contacted at random, the screener interview is used to identify and eliminate nonhousehold telephone numbers (e.g., business and institutional telephone numbers) as well as households that do not have youth that fulfill ACOMS age, education, and prior-service requirements.

The youth and parental questionnaire: the underlying conceptual model. The youth and parental interviews were designed with parallel modules that provide various measures of a modified Hierarchy of Effects model (Fishbein & Azjen, 1975) of Army advertising effectiveness. In brief, the model suggests that advertising affects multiple criteria of advertising effectiveness (i.e., recall of Army advertisements, positive perceptions about the Army, positive attitudes towards Army enlistment, intentions to enlist, and actual enlistment-related behaviors) in a stepwise process. That is, advertising affects recall, which in turn affects attitudes toward the Army, which then influences actual behaviors related to enlistment.

The model also posits the importance of social influence, especially parental influence, on the youth's attraction to the Army. Parental attitudes towards the Army are affected by advertising in a stepwise process that parallels that found in youth. Eventually these attitudes are manifested in actual attempts to influence their sons and daughters to join the Army. The model is described further in Chapter 4, ACOMS Questionnaires (Gaertner, Nieva, & Allen, in preparation).

The youth questionnaire modules. The youth interview provides the major measures of the dynamics and effects of Army advertising available in ACOMS. In accordance with the Hierarchy of Effects model, the youth interview is divided into 14 modules. In order to achieve a 30-minute average interview, a complex questionnaire structure was developed: eight questionnaire modules are core (i.e., asked of all respondents), and six are rotating (i.e., asked of a subset of respondents). Further, as described later in this chapter and in Chapter 4, the Perceptions module is divided into sections that are allocated to subsamples in conformance with the target markets of the various Army components.

The core modules are:

- (1) Education and Employment: elicits employment history and measures of course content and school performance useful for assessing quality;
- (2) Intentions and Propensity: asks for the respondent's plans for the next few years, and is constructed to parallel and supplement measures of Army propensity in YATS II;
- (3) Behaviors: elicits information on the respondent's activities relative to enlistment, employment and/or college enrollment;
- (4) Importance of Attributes: assesses the importance to the respondent of attributes defined by the Army's communications objectives. These items correspond to the evaluation component of the Hierarchy of Effect model;

- (5) Knowledge-Recall: asks for unaided and aided recall of Army (by component) and other service advertising, presented in random order. The respondent is also asked where the advertising was seen or heard, what its main message was, and whether he/she believed and/or liked it;
- (6) Attitude Toward Army Advertising: ascertains how much the youth likes and believes the advertisements he/she has seen or heard;
- (7) Perceptions/Beliefs: asks whether the Army (by component), other services, military service in general, and/or college and civilian employment offer the attributes defined by the Army's communications objectives presented in random order. These items correspond to beliefs in the Hierarchy of Effects model; and
- (8) Demographics: elicits information on respondent's ethnicity, marital status, Social Security number, socioeconomic background, and current residence location.

The rotating modules are:

- (9) Media Habits: elicits information on the amounts of television, radio, and print material to which the respondent is regularly exposed, and his/her favorite programs and print vehicles (asked only of a randomly selected half of all youth respondents);
- (10) Knowledge-Slogan Recognition: asks whether the respondent can identify slogans used in Army, other services, and joint-service advertising presented in random order (asked only of a randomly selected half of all youth respondents);
- (11) Knowledge-Awareness: asks for the respondent's level of knowledge concerning Army offers (asked only of a randomly selected half of all youth respondents);
- (12) Parental-Location Information: elicits information required to contact parents (asked only of parental-linked target youth);
- (13) Social Influences: asks for the respondent's assessments of the attitudes of friends, parents, and others toward enlistment (asked only of parental-linked target youths); and

- (14) Tracking Information: elicits information required to trace youth selected for inclusion in the longitudinal sample, including anticipated changes in telephone number, names and phone numbers of employer and two other people likely to know of respondent's whereabouts (asked only of longitudinal sample).

Thus, the noncore modules will only be asked of particular groups of respondents: (a) Tracking and Social Influence will only be asked of target youths in the parental-linked sample, since these respondents allow the fullest test of the social/normative aspects of the conceptual model; (b) Slogan Recognition, Knowledge-Awareness, and Media Habits modules will be asked of only a randomly selected half of all youth respondents, resulting in substantial time-saving.

The Perceptions/Belief module constitutes the core of the ACOMS questionnaire. The Perceptions/Beliefs module contains questions about a list of attributes corresponding to the main copy points or communications objectives of Army advertising. Respondents are asked whether these attributes are descriptive of 10 referents (active Army, ROTC, ARNG, USAR, Navy, Marines, Air Force, military service generally, college, and work) that the youth may perceive as future options. Since asking any single individual to respond to the attribute list for all 10 referents would be an intolerable burden, sections of the Perceptions/Beliefs module will be asked of different groups of respondents, defined in terms of educational attainment and career plans. The allocation plan reflects the market priorities of each of the Army components and was devised in collaboration with the SAG.

The parental questionnaire. The parental interview, to be conducted with a predesignated parent of target youth 16-to 20-years of age, was constructed in parallel with the youth interview. It contains eight modules in the following order:

- (1) Parental Influence: probes whether the parent has discussed military service with the target youth, his/her expectations for him/her, and beliefs that military service is a good or bad idea for most young men and women;
- (2) Importance of Attributes: repeats the items in the youth interview which assess the importance of attributes, but asking the parent about the importance of these attributes for the target youth;
- (3) Media Habits: items are identical to those asked of the youth, and focus on the amounts of television, radio and print material the parent is regularly exposed to, and his/her favorite programs and print vehicles;
- (4) Knowledge-Recall: questions are also identical to those in the youth questionnaire and ask for unaided and aided recall of Army and other service advertising with questions in random order;

- (5) Attitudes Toward Army Advertising: items address how much the parent likes and believes the advertisements he/she has heard or seen, using the same items as those in the youth interview;
- (6) Perceptions: are probed by using the identical questions asked of the target youth about the extent to which the Army (by component), other services, military service in general, college and civilian employment offer the attributes defined by the Army's communications objectives;
- (7) Knowledge-Awareness: items assess the parent's knowledge, as in the youth interview, of Army benefits and programs; and
- (8) Demographics items: elicit information on the parent's ethnicity, marital status, socioeconomic background and illustrates military experience.

Table 1 illustrates the modular structure of both main interview instruments. In essence, the parental interview adds one module to the youth questionnaire (Parental Influence), and drops Education and Employment, Intentions/Propensity, Behaviors, Social Influences, Slogan Recognition, and the Parental Location and Tracking modules from the youth interview.

Table 1

## Questionnaire Module Structure

Core Modules	Youth	Parent
Education and employment	X	
Intentions and propensity <sup>a</sup>	X	X
Behaviors	X	X
Importance of Army attributes	X	X
Recall of Army advertisements	X	X
Attitude toward Army advertising	X	X
Perceptions of Army attributes	X	X
Demographics	X	X
Rotating Modules	Youth	Parent
Media habits <sup>b</sup>	X	X
Slogan recognition <sup>b</sup>	X	
Knowledge-awareness <sup>b</sup>	X	X
Social influences <sup>c</sup>	X	
Parental location <sup>c</sup>	X	
Social influences <sup>c</sup>	X	
Tracking <sup>c</sup>	X	

<sup>a</sup>Parental questionnaire focuses on parents' opinion on youth enlistment. <sup>b</sup>Half of youth sample module. <sup>c</sup>Only to parental-linked sample.

Data Collection

The ACOMS survey data collection will be conducted using Westat's Computer Assisted Telephone Interview (CATI) technology. The CATI technology is particularly appropriate for surveys using complex instruments like ACOMS, in which the types of information collected varies for different types of respondents. Since the CATI software automates the presentation of different questions based on previous responses, complex questionnaire structures are feasible with much lower error rates than in the traditional hard-copy telephone interview mode. The CATI system also edits the survey data on-line, which not only reduces error further but also allows for a much faster processing period at the end of data collection.

The interviews are conducted by a staff of interviewers in Westat's Telephone Research Center (TRC) who are given extensive training on general interviewing techniques, on the operation of the CATI system, and on specific information regarding the ACOMS project and questionnaires. Further description of the training program and

the CATI system are provided in Chapter 5, Data Collection, and Processing (Rhoads & Nieva, 1988). The interviewer training manual is available in a separate volume (Westat, 1987).

Survey data quality is ensured through a combination of close "on-the-floor" monitoring by TRC supervisors and project managers, and an extensive computerized production and management information system. Monitoring is facilitated by the TRC facilities, which allow the shift supervisors to use extension telephones to monitor interviewers and CRTs linked to the interviewers' stations. In addition, a separate monitoring room with similar equipment is available for project staff and other interested parties.

The CATI management and information system is an important tool for survey management. It is an integrated computerized system which handles a variety of tasks, including sample management and assignment (i.e., initial screening calls, main interviews with youth and their parents, callbacks and refusal conversion efforts, and validation calls), creation of a case-audit trail, and creation of reports on production at the project and interviewer level. Details of the data collection process and control systems are provided in Chapter 5.

#### Data Processing

The CATI system shapes not only the data collection but also the processing of the ACOMS survey data. The system provides on-line range checks and consistency edits, thus minimizing, although not altogether eliminating, the need for after-the-fact data editing. Especially in the early stages of the project, and after each change in questionnaire content or structure, the data will be checked after collection for possible incomplete and erroneous data.

Additional data preparation is involved in the coding of open-ended questions (initially those involving main messages received from Army and other service advertising) and the resolution of inconsistent geographic information. Both operations are performed on the CATI system, with an automated transfer of completed interviews from data collection queues to data preparation queues. the CATI system also allows on-line verification and performs calculation of reliability rates for each coder.

The ACOMS survey data tapes will be released quarterly in raw data and SAS formats. The fifth chapter discusses the characteristics of the data files to be delivered to the Army Research Institute. Documentation that will accompany these files will include information on tape format, file layouts, a CATI codebook, SAS PROC CONTENTS, and an annotated hard-copy questionnaire. In addition, at the end of each project phase, a Users' Manual, intended as a reference source for analysts who will use ACOMS data, will be provided. Training sessions for analysts will also be provided as required.

### Formal Pretest

After receiving official clearance from the Office of Management and Budget to conduct the survey, a formal pretest was conducted to test the ACOMS training for interviewers, CATI programming for sample and questionnaire management, and the questionnaire structure and wording. A total of 98 interviews were conducted over a six-day period in September 1986.

Overall, this test of survey procedures and materials proceeded smoothly, fulfilling its major purposes of confirming the project's design choices and alerting the project staff to areas that could be improved. For the most part, the training materials that had been developed for interviewers required very little improvement. Questionnaire lengths were within the expected range. Minor programming errors were remedied as they were discovered. Wording was refined for the few questions which either the interviewers or respondents found confusing or offensive.

The pretest brought attention to two areas requiring further scrutiny in the main data collection effort. First, the eligibility rates obtained for youth were somewhat lower than estimated, although it is expected that the more extensive followup procedures to be implemented during the main data collection phase will alleviate the shortfall. However, data from the first quarter will be examined to assess the severity of this problem. Second, an apparent tendency toward response-sets in the Perceptions module has caused further testing of alternative question formats that would minimize respondent boredom with the long list of questions regarding Army and other service attributes. Because of the centrality of this module to the ACOMS questionnaire, a major effort will be devoted to improvement of this module.

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### 3. THE ACOMS SAMPLE DESIGN

Leyla Mohadjer and Joseph Waksberg

#### Design Requirements

The Army Communications Objectives Measurement System (ACOMS) project required the design and implementation of a major survey aimed at evaluating the effectiveness of Army advertising communications over time. The survey will provide ongoing assessment of the success of Army advertising communications in meeting its communication objectives within specific population groups at the national level and within Recruiting Brigades (Rctg Bdes). Cross-sectional and panel data will be collected over time using computer-assisted telephone interviewing (CATI) technology. The ACOMS project originally required the following samples to be selected via the Waksberg random digit dialing (RDD) method:

- (1) Primary Male Sample (PMS) of 9,603 nonprior service (NPS) males who are 16- to 24-years-old and are in school or are high school graduates (HSDGs).
- (2) Secondary Male Sample (SMS) of 1,800 NPS males, 16- to 24-years-old, not currently in high school and not HSDGs.
- (3) Female Sample (FS) of 1,953 NPS females, 16- to 24-years-old, in school or HSDGs.
- (4) "Influencer" Sample consisting of parents and teachers/counselors linked to the PMS and the FS.
- (5) Longitudinal Sample consisting of one-half of the parental/influencer linked youth sample who will be reinterviewed in four annual followups.
- (6) Supplementary PMS Sample consisting of additional Black and Hispanic youth.
- (7) Supplementary SMS Sample of Hispanics.

In addition, the scope of work provided for one or more optional samples that employ additional questions focused on the U.S. Army Reserve (USAR), the Reserve Officers' Training Corps (ROTC), prior military service and in-service personnel issues. These additional samples were:

- (1) Reserve Market Sample (RMS) consisting of 2,000 16- to 24-year-old males, in school or HSDGs, in 16 Areas of Dominant Influence (ADIs).
- (2) Posthigh school PMS Supplement consisting of 700 respondents in vocational-technical programs beyond high school, 700 in two-year community colleges, and 2,400 in four-year colleges.

- (3) Prior and In-Service Convenience Sample consisting of 1,200 prior service and in-service individuals, selected in the course of screening for the other samples.

The sample design was developed in conjunction with the SAG and is intended to reflect the Army's relative interest in the various target markets. The sample design, sampling plan, and weighting procedures were also reviewed by an external statistical panel composed of sampling statisticians: J. Sedransk from the University of Iowa, and G. Kalton from the University of Michigan.

Several changes were made to the basic and the optional samples as the result of a series of meetings with the Special Advisory Group (SAG) and the statistical external panel. Most changes involved sample reductions in response to SAG priorities and budgetary concerns. The decisions to make these changes were reached on the basis of a series of studies that investigated the cost and benefit of each of the basic and optional samples.

These changes were made to the sample design (included are references to attachments in Appendix A that provide information on selected studies and investigations conducted during the design process):

- (1) The size of the SMS sample was reduced from 1,800 to the number that falls into sample. It is estimated that the screening sample for PMS should provided about 850 SMS. This sample reduction decision was reached because proposal estimates of the amount of extra screening required to obtain a sample of 1,800 SMS (about 167,500 screened households) were not commensurate with the importance of the SMS sample to the ACOMS project.

- (2) The sampling universe was limited to the 48 contiguous states. Alaska and Hawaii were excluded from the sampling frame since they are not targeted for the Army advertising communications. Puerto Rico was also excluded from the sampling universe. The effects of excluding Puerto Rico on the Hispanic sample are given in Attachment 1, Appendix A.

- (3) There will be no special supplementation for students enrolled in vocational-technical programs. Attachments 2a and 2b in Appendix A explain the issues involved in sampling vo-tech students.

- (4) Requirement (6) of Statement of Work (SOW) p. 8, Amendment 003 was changed to ask for the capability of detecting 5% differences among the three Hispanic-derivation groups (Mexican-Americans, Puerto Ricans, and others), instead of 3%. This change was adopted for cost reasons. Attachment 3 in Appendix A provided some information on the amount of screening required for precision requirement of 3%. It also provides a discussion of how to supplement the Hispanic sample and of alternative universes that can be used for the supplementation.

(5) There will be no supplementation of college students, since the number of screeners required to provide the college student supplement (about 114,000 screened households) was considered too high. Attachment 4b in Appendix A provides an estimate of screening workload if college students were to be supplemented.

(6) Prior-service and in-service youth will not be interviewed, eliminating the convenience sample.

(7) For Phase 2, the influencer sample will consist only of parents linked to respondents. The sample will include parents of 16- to 20-year-old PMS and PFS (Primary Female Sample, defined in the same way as PMS).

(8) Monthly reports will only be prepared in special cases. Attachment 5 in Appendix A provides a discussion of alternative ways of producing monthly reports.

(9) The Female Sample (FS) will include in-high school students or high school diploma graduates, as well as those who are not in high school and who do not have high school diplomas. Thus the female sample now parallels the male sample.

The ACOMS sample design incorporated these revised requirements.

#### Sample Design

##### Sample Design Requirements

The respondent universe for this survey consists of eligible persons who are defined as those individuals in households with telephones in the 48 contiguous states:

- (1) Primary Male Sample (PMS): 16- to 24-year-old males who are in high school or who are high school diploma (HSD) graduates but not graduates of four-year colleges, excluding in-service and prior-service population.
- (2) Secondary male Sample (SMS): 16- to 24-year-old males who are not in high school and who do not have an HSD, excluding in-service and prior-service population.
- (3) Female Sample (FS), comprising Primary (PFS) and Secondary (SFS) samples, with similar definitions as given for the male samples.
- (4) "Influencers," consisting of parents of the sampled PMS and PFS who are 16- to 20-years of age.

In addition, supplementary samples of Hispanic males and PMS males in Areas of Dominant Influence (ADIs) will be interviewed.

Specific sample sizes are required for PMS, FS, Black and Hispanic (by derivation: Mexican-American, Puerto Rican, and others) males, ADI, and influencer samples. The size of the SMS has not been fixed in advance; thus the SMS sample will consist of those who are obtained while screening for the primary groups of interest. PMS, SMS, and FS will be spread proportionally among the five U.S. Army Recruiting Command (USAREC) Recruiting Brigades.

The sample will be selected using the Waksberg RDD procedure, which provides an unbiased, representative sample of eligible persons in households with telephones (telephone households) in a way that minimizes the number of out-of-scope telephone numbers that have to be screened. Screening for all population groups will be carried out simultaneously.

#### Waksberg Method of Random Digit Dialing (RDD)

The sampling method is based on the procedure developed by Joseph Waksberg (1978). The Waksberg random digit dialing procedure provides an unbiased sample of households with telephones, with all telephone numbers having the same probability of selection. Further, the method is shown to require a smaller number of telephone calls than the sampling procedures previously used for random digit dialing.

Waksberg's RDD method of sample selection for telephone interviews will therefore significantly reduce the cost of such surveys, as compared to dialing numbers completely at random. In dialing numbers completely at random, most numbers dialed are nonworking numbers or ineligible because they are numbers in businesses or other nonresidential establishments. About 75% of the potential numbers within existing telephone exchanges are estimated to be nonworking, and about 3% are businesses or institutions of some type. About 20% turn out to be residential.

Thus, when numbers are selected at random (within known telephone exchanges), calls to about five separate numbers are needed to produce a single residential unit. In many cases, the telephone companies do not provide a message that the number dialed is not a working number, and additional checking is necessary to distinguish between households in which no one is at home or in which no one chooses to answer the phone ("not-at-homes") and nonworking numbers, adding further to the cost of producing completed interviews.

The Waksberg sampling method is designed to reduce the number of nonproductive calls. It takes advantage of the fact that a high proportion of nonworking and commercial numbers occur in consecutive sequences. In essence, the procedure involves first identifying and selecting a sample of blocks of numbers which contain working, residential telephone numbers and then dialing random numbers within the selected blocks. More specifically, the procedure involves a two-stage cluster sample; the first stage comprises clusters of 100 telephone numbers, each cluster having the identical first eight digits in the telephone numbers; the second stage is selecting and dialing an individual household.

For a self-weighting sample, a constant number of households per cluster is required. This method, referred to as the Standard Waksberg model, involves choosing an equal number of households within each cluster. When this method is followed, all residential telephone numbers have the same chance of selection, and thus the sample is a self-weighting sample.

The need for a constant number of households per cluster, however, requires a rather cumbersome series of steps. Until all call-backs have been made for a telephone number, there is no way to know if an additional household is needed. So there are built-in delays which make it difficult to use the procedure for the ACOMS study with the tight time schedule for data collection. Therefore, the modified Waksberg method will be used to sample households in selected clusters.

The modified procedure consists of selecting a constant number of telephone numbers per cluster, then weighting the results in each cluster by a factor  $\bar{n}/n_i$  where  $n_i$  is the number of respondents in the cluster and  $\bar{n}$  is the average respondents per cluster. The modified Waksberg method is simpler, can be carried out in less time, and is also unbiased, in the same sense as the original method. The modified method does speed up the data collection, but at the price of an increase in sampling variances. The sample requires weighting for the production of unbiased estimates, and the variation in weights increases the sampling variances. Our experience with this method is that the increase in variance is in the range of 10%.

#### Sampling Universe - The Issue of Telephone Coverage

Random digit dialing, or, for that matter, any sample selected by telephone, does not produce a completely unbiased sample of the total population, since people who do not have telephones in their residences have no chance of selection. Thornberry and Massey (1983) describe the nature of this bias. If one examines the total population of the United States, the size of the bias is fairly trivial; more than 93% of the population can be reached by telephone. However, as might be expected, telephone coverage correlates highly with income. Essentially, more low-income persons tend to be missed in telephone screening. This, in effect, results in higher telephone penetration for White persons than for Blacks (94.3% versus 84.5%) and some geographic variation. Telephone coverage is lower in the South than in the rest of the United States, and it is lower in rural than in urban areas. Tables 2 and 3 contain more information on characteristics of households with and without telephones.

This information will be used in the ACOMS survey to make post-stratification adjustments to reduce the effects of the lack of coverage. For more information on poststratification variables, refer to this chapter's section on poststratification.

Table 2

Household Telephone Ownership by Selected Household Characteristics:  
Health Interview Survey, 1981

Household characteristics	Telephone households
All households	93.1
Region	
Northeast	94.1
North central	94.9
South	90.1
West	94.2
Geographic distribution SMSA	
3,000,000 or more	94.2
1,000,000-2,999,999	95.1
500,000-999,999	93.9
Under 250,000	92.8
Other urban areas	91.7
Rural areas (except in SMSA)	89.7
SMSA/Non-SMSA	
SMSA - central city	91.8
- not central city	96.0
Non-SMSA - nonfarm	90.1
- farm	94.7
Urban/Rural residence	
Urban	93.7
Rural - farm	95.3
Rural - nonfarm	91.2
Number of persons in household	
1	90.0
2	94.6
3	93.4
4	94.7
5	93.8
6	91.4
7	90.1
8 or more	83.6

Note. Information based on Thornberry and Massey (1983).

Table 3

Percentage Distribution of Persons by Telephone Coverage and Selected Characteristics: National Health Interview Survey, 1981

Characteristics	% in telephone households
All persons	93.2
Race	
White	94.3
Black	84.5
Other	93.0
Sex	
Male	92.7
Female	93.7
Age	
Under 5 years	87.4
5-14 years	92.3
15-24 years	90.2
25-34	92.8
35-44	95.0
45-54 years	96.2
55-64 years	96.5
65-74 years	96.8
75 years and over	96.4
Marital status	
Under 17 years	91.2
Married-Spouse present	95.2
Widowed	95.8
Never married	92.1
Divorced	90.1
Separated	83.0
Married-Spouse absent	84.9
Family income	
Less than \$3,000	71.6
\$3,000 - \$4,999	80.4
\$5,000 - \$6,999	84.2
\$7,000 - \$9,999	85.4
\$10,000 - \$14,999	92.3
\$15,000 - \$24,999	96.4
\$25,000 or more	99.2
Unknown	92.3

Note. Information based on Thornberry and Massey (1983).

### Sampling Frame

All existing telephone area codes and existing telephone exchanges are listed on an AT&T computer tape, which is updated monthly. A recent copy of this tape is used as the frame for the initial sample selection. All possible next two-digit numbers are added to the set of three-digit telephone exchanges. Thus, a list is established of all possible first eight digits of the ten digits in telephone numbers. These eight-digit numbers are treated as Primary Sampling Units (PSUs). The sample design works as follows: a random selection is made of an eight-digit number and also of the next two digits. The completed telephone number is then dialed. If the dialed number is at a residential address, the PSU is retained in the sample. Additional last two digits are selected at random and dialed within the same eight-digit group, until a set number of telephone numbers is reached. If the original number called was not residential, the PSU is rejected. Additional PSUs are selected in the same way. This process is repeated until a predesignated number of PSUs is chosen.

### Sample Sizes

Two kinds of sample sizes affect survey operations. The first is the number of interviewed persons in the various target populations. This number determines the reliability of the statistics. The second is the number of households that must be screened to locate the desired sample of eligible persons. First, the number of interview cases (desired sample sizes) for each subgroup of the population will be presented and then the number of households to be screened in order to locate the required number of eligible persons for the subgroups will be derived.

Table 4 provides the desired sample sizes for the subpopulations of interest.

Table 4

## Expected Number of Respondents in the Sample

Subpopulation	Number
Primary Male Sample (PMS)	9,600
Female Sample (FS)	1,950
Black	1,200
Hispanic	960
Secondary Male Sample (SMS)	850
PMS enrolled in:	
Two-year college	700
Four-year college	1,200
Areas of Dominant Influence (ADI)	2,000
Parents	5,770

Note. The Black and Hispanic samples consist of PMS and SMS who are Black or Hispanic.

In order to attain the desired number of interview cases, a sample of households will be selected for screening in each recruiting brigade. The males and females 16- to 24-years of age in the screened households will be identified and subsampled, as appropriate, for interview. The subsampling rates for designating the persons to be interviewed in the screened households is calculated to provide the required sample sizes.

The households screened for PMS will provide the required sample sizes for FS and Black males. This is based on the assumption that response rate in Black households is similar to that in other households, and that there are no unusual coverage problems for Blacks. Therefore, supplementation may be necessary to secure 1,200 Black youth interviews if either of the assumptions is wrong. The SMS and college sample sizes have not been fixed in advance. The sample for these groups will simply consist of those who fall into the sample. The Hispanic sample, however, must be supplemented to provide the required sample size. In the next paragraphs, we discuss the screening workload necessary to achieve the desired sample sizes.

PMS sample. The sample size for this group is 9,600 interviewed cases. In order to determine the screening workload, two kinds of data are needed: (a) the number of households to be screened per eligible person, and (b) the expected response rate. First, the annual sample size at the national level will be discussed and then the approach for geographic areas and for monthly samples will be described.

Data on the number of eligible PMS persons in telephone households and the number of telephone households are illustrated in Tables 5 to 7. Since the number of eligible PMS males does not vary much by age (see Table 5), the total sample is expected to consist of approximately equal sample sizes by age. Therefore, the PMS size is controlled only on the total number of males ages 16 to 24, without additional controls for each age.

Comparisons of the population figures in Table 5 with the number of households in Table 7, show that, on the average, it takes 5.9 households to locate 1 male eligible for the PMS sample. With a 5.9 to 1 screening ratio, it is necessary to screen about 56,700 households to locate 9,600 eligible males. A response rate of approximately 80% is expected. It is thus necessary to start off with a sample of about 70,000 sample households.

FS sample. A sample of 1,953 nonprior service (NPS) females 16- to 24-years of age are needed for the FS sample. The households screened for the PMS will provide more eligible females than necessary; thus no additional screening is needed to obtain the FS.

Black sample. Table 5 indicates that about 13% of the male sample will be Black. Therefore, Black youths will constitute over 1,200 of the 9,600 PMS and SMS sample. Supplementation of Blacks is thus not necessary, assuming that the response rate in Black households is the same as other households and if there are no unusual coverage problems for Blacks. These assumptions will be monitored and corrective measures will be taken if warranted.

SMS sample. The SMS is a convenience sample. Thus, the SMS sample size is equal to the number of SMS who fall into the sample. The last three columns of Table 5 contain the age distribution for the population eligible for the SMS sample. It can be seen that a screening sample of 70,000 households should provide a sample of about 850 SMS.

Hispanic sample: precision requirements and sample sizes required. The precision requirements for the Hispanic sample are specific: the PMS and SMS sample should be supplemented on a monthly basis so that the annual sample includes sufficient Hispanics to detect at the .80 power level:

- (1) Year-to-year changes of 3% in item response of Hispanics.
- (2) Differences of 3% in an annual cross-section of Hispanics from Blacks in the annual sample and from Whites in the annual sample.
- (3) Changes year-to-year of 5% in item responses of Hispanics 16- to 17-years of age and 18- to 19-years of age.
- (4) Changes year-to-year of 6% in item responses of Hispanics 20- to 21-years of age and 22- to 24-years of age.

Table 5

Number of Primary Male Sample (PMS) and Secondary Male Sample (SMS)  
Eligible Males in 1986, by Single Years of Age, Race, and Ethnicity  
(in thousands)

Age	Total Males			Telephone Males		
	Total	Black	Hispanic	Total	Black	Hispanic
16	1,923	270	175	1,731	230	147
17	1,868	269	175	1,681	229	147
18	1,823	264	170	1,641	224	143
19	1,864	270	170	1,678	230	143
20	1,929	286	198	1,736	243	166
21	2,050	299	198	1,845	254	166
22	2,144	305	198	1,930	259	166
23	2,174	305	166	1,957	259	139
24	2,178	298	166	1,960	253	139
Total	17,953	2,566	1,616	16,159	2,181	1,356

Age	PMS Eligible			SMS Eligible		
	Total	Black	Hispanic	Total	Black	Hispanic
16	1,593	212	129	138	18	18
17	1,547	211	129	134	18	18
18	1,477	190	121	164	34	22
19	1,510	195	121	168	35	22
20	1,545	199	105	191	44	61
21	1,460	185	93	180	41	54
22	1,527	188	93	188	42	54
23	1,531	184	74	209	46	50
24	1,534	180	74	209	45	50
Total	13,724	1,744	939	1,581	323	349

Table 5 Notes (Continued).

Note. Source for total and Black, Census Bureau report P25, No. 952. For Hispanic, Westat projections of 1980 population using annual rate of change for Hispanic of 3.3% as reported in Census reports P20, No. 388 and No. 366.

Note. Source estimates based on 1981 data reported by Thornberry and Massey (1983). Total telephone rates used were: 12- to 14-years old 92%; 15- to 24-years old 90%; Black - 85%; Hispanics - 84%.

Note. The source for educational eligibility is Census report P23, No. 130, with some estimation. Basically, we assumed that the 22- to 24-year-olds had same level of high school diploma as reported for 25- to 34-year-olds; 12- to 15-year-olds were enrolled in school at level shown in report and those 16- to 21-years-old also were in-between. The actual rates used were: Total males: 12- to 13-years-old, 99%; 14- to 15-years-old, 98%; 16- to 17-years-old, 92%; 18- to 19-years-old, 90%; 20- to 22-years-old, 89%; 23- to 24-years-old, 88%. For Blacks: 12- to 13-years-old, 99%; 14- to 15-years-old, 98%; 16- to 17-years-old, 92%; 18- to 19-years-old, 85%; 20- to 22-years-old, 82%; 23- to 24-years-old, 80%. For Hispanics: 12- to 13-years-old, 99%; 14- to 15-years-old, 98%; 16- to 17-years-old, 88%; 18- to 19-years-old, 66%; 20- to 22-years-old, 63%; 23- to 24-years-old, 60%. For NPS, Statistical Abstract for 1983 indicates there were 952,000 veterans ages 18- to 24-years-old in 1981. We assumed they were all 21- to 24-years-old, resulting in a rate for these age groups of 11.1%. NPS was thus taken as 100% for ages 12- to 20-years, and 88.9% for 21- to 24-year-olds.

Table 6

Approximate 1980 Population and Households by Recruiting Brigade,  
Race, and Ethnicity (in thousands)

Rctg Bgde	Total Population in 1980			1980 Households		
	Total	Black	Hispanic	Total	Black	Hispanic
1st	54,585	6,356	2,707	19,392	2,272	967
2nd	43,655	8,133	1,198	15,463	2,853	447
4th	51,585	4,702	1,170	18,194	1,654	413
5th	38,210	5,179	4,150	13,437	2,191	1,444
6th	37,144	2,107	5,331	13,480	796	1,937
Total	225,179	26,477	14,556	79,966	9,766	5,208

Note. Approximations result from assuming the recruiting brigade conforms to state boundaries.

Table 7

Approximate 1986 Households, by Recruiting Brigade, Race, and Ethnicity (in thousands)

Rctg Bgde	Estimated 1986			Estimated 1986 telephone households		
	Total	Black	Hispanic	Total	Black	Hispanic
1st	20,749	2,545	1,160	19,608	2,188	928
2nd	16,491	3,195	500	15,672	2,620	409
4th	19,468	1,852	495	18,398	1,593	425
5th	14,281	2,455	1,733	12,867	2,014	1,490
6th	14,424	892	2,324	13,631	767	1,999
Total	85,413	10,939	6,212	80,176	9,182	5,251

Note. Approximations result from assuming the recruiting brigade conform to state boundaries.

Projection based on percentage increase in population from 1980 to 1986 adjusted for small decrease in average household size.

Estimates assume the percentage of telephone households is the same as in 1981, as reported by Thornberry and Massey. Telephone rates used were: Total households: 94.5% in 1st, 4th and 6th Rctg Bdes; 90.1% in 2nd and 5th Rctg Bdes. Black households: 85% in 1st, 4th, and 6th Rctg Bdes; 82% in 2nd and 5th Rctg Bdes. Hispanic households: 80% in 1st Rctg Bde; 84% in 2nd Rctg Bde; 85% in 4th, 5th, and 6th Rctg Bdes.

- (5) Differences of 5% in item responses of between 16- to 17-years of age and 18- to 19 age intervals in the annual cross-section of Hispanics.
- (6) Differences of 5% in item responses on an annual basis between Hispanics of different derivation (Mexican-Americans, Puerto Ricans, and others) in the annual cross-section of Hispanics.

The requirements are listed in terms of power level and must be translated into requisite sample sizes. The requirements are expressed as the annual samples needed to detect certain differences at the 80% power level. Differences in both directions are to be examined, so that a two-tailed test is appropriate. With the fairly large samples to be analyzed, an 80% probability of detecting a difference corresponds to 1.3  $\sigma$ , where  $\sigma$  is the standard error of the difference between the populations compared.

To estimate the standard errors, assume that simple random sampling applies. This assumption leads to a small, but trivial underestimate of the variance. The slight underestimate is due to the fact that clusters of telephone numbers are used in the Waksberg sample selection method and that the modified method is applied, and these factors add to the sample variance. However, empirical studies that have been carried out indicate that the effects are very slight.

The derivations of the sample sizes require one additional assumption. The sample sizes depend partially on the expected percentages. For example, a much larger sample is needed to detect a difference between 47% and 50%, than a difference between 1% and 10%, although both differences are 3%. Detecting a difference of 3% when one of the estimates is 50% requires the maximum sample size. The conservative position is to generate the sample size necessary to detect differences when the percentage for one population is 50%. This is unnecessarily cautious and a 20% item is used instead. The requirements are:

- (1) Year-to-year changes of 3%. If  $\sigma_d$  is the standard error of the difference between two years, for the .80 power level, then

$$\begin{aligned} 1.3\sigma_d &= .03 \\ \sigma_d &= .023 \end{aligned}$$

Since both years are assumed to have the same sample sizes,  $\sigma_d^2 = 2 \sigma_a^2$  where  $\sigma_a$  is the standard error of an annual estimate.  $\sigma_a^2 = pq/n$  where p is the percentage being estimated  $q = 1-p$ , and n is the annual sample size. As stated earlier, a value of  $p = .20$  will be used. Then

$$(0.23)^2 = \sigma_d^2 = 2 \sigma_p^2 = 2pq/n = 2 \times .2 \times .8/n$$

$$n = 605$$

A sample of 605 Hispanics is thus required.

- (2) Difference of 3% between Blacks and Hispanics.

$$\sigma_d^2 = \sigma_B^2/n_B + \sigma_H^2/n_H$$

where  $\sigma_d$  is the standard error of the difference,  $\sigma_B$  and  $\sigma_H$  are the standard errors of annual data for Blacks and Hispanics, and  $n_B$  and  $n_H$  are the sample sizes for the two groups.

Since  $n_B$  will be about 1,200, the sample size of 605 Hispanics will be more than sufficient to satisfy this requirement.

- (3) Difference of 5% in annual percentages for age-intervals 16- to 17-years of age and 18- to 19-years of age. Since  $1.3 \sigma_d = .05$  is needed, by calculating the same as in (1), the sample size is 216. This is the number required for each age-interval. For the two age-intervals, a total of 432 interviews is needed.

- (4) Difference of 6% in annual percentages for age-intervals 20- to 21-years of age and 22- to 24-years of age. Given  $1.3 \sigma_d = .06$ , and calculating as in (1),  $n = 150$ . This is the number required for each age-interval. For the two age-intervals, a total of 300 interviews is required.

- (5) Difference of 5% between age-intervals for 16- to 17-year-olds and 18- to 19-year-olds. This requirement will be exactly satisfied if requirement (3) is maintained. The 216 cases per age-interval will provide the necessary precision.

- (6) Difference of 5% in annual percentage for Hispanics of different derivation. The precision requirement is the same as (3), and the sample size of 216 derived in (3) applies here as well. However, the sample size of 216 now applies separately to each Hispanic derivation.

With three Hispanic groups (Mexican-Americans, Puerto Ricans, and others), the sample size needed is 648 Hispanics.

- (7) Combined effects of criteria 1 to 6. The key criteria are (3), (4), and (6). A sample which satisfies them will be more than adequate for the other requirements. It is necessary to examine some details of the sample sizes for (3), (4), and (6) in order to determine the minimum Hispanic sample that will satisfy all requirements. The sample sizes needed to satisfy requirements (3) and (4) are:

Sample Size per Age Interval

16- to 17-year-olds.	20- to 21-year-olds.	Total
18- to 19-year-olds	22- to 24-year-olds	All Ages
216	150	732

Furthermore, as described in the section on sample sizes, the sample is controlled to produce, at the national level, a PMS total of 9,600 distributed almost equally by age. This distribution implies that if the sample provides 216 Hispanics 16- to 17-years of age, it will also contain about 216 Hispanics 20- to 21-years of age. That is, although requirement (4) requires 150 Hispanics 20- to 21-years of age, about the same size sample as for 16- to 17-year-olds and 18- to 19-year-olds will be obtained. Assuming the size of the sample for 22- to 24-years of age is also 216, the sample sizes for (3) and (4) will be:

Sample Size per Age Interval

<u>16- to 17-year-olds.</u>	<u>20- to 21-year-olds.</u>	<u>Total</u>
<u>18- to 19-year-olds</u>	<u>22- to 24-year-olds</u>	<u>All Ages</u>
216	216	864

The distribution by Hispanic derivation uses the relationships illustrated in Table 8. The sample size that will meet all requirements is 960 total:

<u>Hispanic</u>	<u>16- to 17-year-olds,</u>	<u>20- to 21-year-olds,</u>	<u>Total</u>
<u>Derivation</u>	<u>18- to 19-year-olds</u>	<u>22- to 24-year-olds</u>	<u>All Ages</u>
Mexican-			
American	130	130	520
Puerto Rican	54	54	216
Other	56	56	224
	240	240	960

Of all males 16- to 24-years of age in telephone households in the U.S., about 6.5% are Hispanics. Consequently, of 10,450 sampled male youth (9,600 PMS and 850 SMS), about 670 will be Hispanics. Based on the distribution of Hispanics by ethnic background, as shown in Table 8, the 670 Hispanics should have approximately this distribution:

Mexican-American	400
Puerto Rican	95
Other	175
Total	670

Therefore, the screening sample of 70,000 households will have to be increased to provide the Hispanic supplement. The extra screening workload for supplementing Hispanics is determined by the additional sample size required for the rarest of the three Hispanic groups, the Puerto Ricans. From Table 8, it can be seen that Puerto Ricans

Table 8

Approximate 1980 Hispanic Population Proportions, by Recruiting Brigade and Ethnic Background (in thousands)

Rctg Bde	Total	Mexican-American	Puerto Rican	Other Hispanic
	Population & of population	Population & of population	Population & of population	Population & of population
1st	2,699 18	105 1	1,510 10	1,083 7
2nd	1,223 8	249 2	123 1	838 3
4th	1,207 8	770 5	203 1	242 1
5th	4,038 28	3,322 23	40 0	680 4
6th	5,430 37	4,290 29	127 1	1,009 6
Total	14,597 100	8,740 60	2,003 14	3,854 27

constitute 14% of all Hispanics. The ratio of 95 Puerto Ricans out of 70,000 screened households implies that to locate the additional 121 Puerto Ricans ( $216 - 95 = 121$ ), an additional sample of about 88,400 household screeners randomly selected from the 48 states is required. Sample expansion can thus be quite costly, and it is useful to explore alternative ways of accomplishing the supplementation.

#### Supplementation Methods for Hispanics

There are basically three methods of sample supplementation for a moderately rare population such as Hispanics:

- (1) Increase the screening sample to achieve the desired sample size, using the RDD methodology. In this case it would mean screening 2.3 times as large a sample as is otherwise necessary.
- (2) Stratify the population, identify geographic areas with heavy concentrations of Hispanics, and oversample the designated strata.
- (3) Locate a partial list of Hispanics (not necessarily complete), and use a dual-frame approach to sample both from the list and by RDD. The weighting takes into account the different probabilities of selection for persons on the list and those not on the list. For Hispanics, the list would be the set of households with Spanish surnames in telephone directories.

The number of interviews, amount of screening, and costs for the three different sampling methods for supplementing the Hispanic sample were compared. The comparison was based on an optimization procedure with the objective of achieving the desired precision in the estimate at minimum cost. The study showed that the cost of both stratification and list sampling is well below the cost of straight RDD. Therefore, the first method, straight RDD, was rejected. The cost of the geographic oversampling and the partial list methods was very similar. However, in comparing the available partial list and the available frame for the stratification method, the stratification method was found to be superior.

The optimization and level of screening and interviewing for the Spanish surname procedure was very sensitive to the amount of attrition in the surname list. The study indicated a 15% loss because some households with Spanish surnames are not Hispanic, and a 10% loss for other reasons (e.g., coverage problems). The 15% loss is based on census studies and is reasonably close to what will occur in practice. The 10% loss, however, was a guess. The Spanish surname list available for supplementing Hispanics actually had a much higher loss rate than 10%. Therefore, the Spanish surname procedure was found to be much less efficient than originally estimated.

There were other problems with the surname list procedure as well. For example, assume that the proportion of Hispanic households with eligible males in telephone households was the same as in non-telephone households and that the nonresponse rates in Hispanic households would be about the same as in all households. With a 10% loss, it is unlikely that these assumptions could be so seriously in error to have an important effect on the comparisons. But with the projected 10% loss increasing to between 30% and 40%, the effect could be very serious. Considering these factors, the area stratification approach was chosen to supplement the Hispanic sample. This method involves identifying geographic areas with a high concentration of Hispanics and oversampling the designated areas.

Data from the 1980 Census on the distribution of Hispanics by ethnic background and recruiting brigade are shown in Table 8. Certain deficiencies in the census resulted in some Mexican Americans being reported as "other Hispanics," particularly in the 5th and 6th Rctg Bdes. However, the table does show the general pattern. For Mexican-Americans, the 5th and 6th Rctg Bdes would have to be supplemented, and for Puerto Ricans, the 1st Rctg Bde. The 1st, 5th and 6th Rctg Bdes should also provide the required supplementation for Hispanics of other derivations.

The Hispanic youth supplement will be drawn using a data tape developed by the Donnelley Marketing Information Services. Located in Stamford, Connecticut, Donnelley sells computer tapes of telephone exchanges and their associated demographic characteristics. The tape for the U.S. contains 1980 Census characteristics for telephone exchanges with 1985 updates; it can be used to identify areas with concentrations of rare populations. Telephone exchanges in the 1st, 5th and 6th Rctg Bdes with heavy concentration of Hispanics will be identified and oversampled.

The section on sample sizes provided the distribution of the required number of Hispanics by derivation and the sample sizes we expect to obtain from the main PMS screening sample of 70,000. The difference is the number that has to be supplemented:

	<u>Main</u> <u>PMS Sample</u>	<u>Desired</u> <u>Sample Sizes</u>	<u>Difference</u>
Mexican-American	400	520	120
Puerto Rican	95	216	121
Other	175	224	49
	<hr/> 670	<hr/> 960	<hr/> 290

The above figures imply that additional self-weighting samples of 120 Mexican-Americans, 121 Puerto Ricans, and 49 other Hispanics are required to provide the desired sample sizes.

To supplement the Hispanic sample, areas with heavy concentrations of Hispanics will be identified and oversampled. Such a design will have higher sampling variances than a sample with a uniform sampling rate (self-weighting) in all areas. Therefore, the samples have to be enlarged to compensate for the increase in variance, in order to meet the precision requirements for the Hispanic sample. The relative increase in variance can be expressed as:

$$(kP_1 + P_2) \left( \frac{P_1}{k} + P_2 \right) - 1,$$

where  $P_1$  = proportion of the total Hispanic population in highly concentrated areas,  
 $P_2$  =  $1 - P_1$ , and  
 $k$  = ratio of sampling rate in the area with heavy concentration of Hispanics to sampling rate in the remainder of the areas.

See Attachment 6, Appendix A: Waksberg memorandum, December 11, 1985 for further information.

Table 9 shows the concentration of Hispanics and telephone clusters in the 1st Rctg Bde. Table 8 indicates that the majority of Puerto Ricans reside in the 1st Rctg Bde. Using the above formula for relative increase in variance, and comparing the amount of oversampling required for Puerto Ricans (121) with the size of the sample (95) expected from the main PMS sample, it was concluded that an optimum value for  $P_1$  (proportion of the Puerto Rican population in the concentrated areas) is in the range of .35 to .40. Considering the fact that about 56% of the Hispanics in the 1st Rctg Bde are Puerto Ricans, as shown in Table 8, about 62% of Hispanics in the 1st Rctg Bde should be oversampled. If all telephone clusters for which the concentration of Hispanics is more than 10% in the frame for supplementing Hispanics are included, about 66% of all Hispanics in the 1st Rctg Bde will be covered. This frame will thus provide the supplementation for Puerto Ricans.

Table 9

## Concentration of Hispanics in Telephone Households in 1st Recruiting Brigade

Hispanic concentration	Number of telephone clusters	Hispanic population	Cumulative % of Hispanics
Less than 10%	5,578	1,030,620	100.0
10 - 19%	264	509,700	66.1
20 - 29%	145	401,083	49.3
30 - 39%	126	442,396	36.2
40 - 49%	51	390,962	21.6
50 - 59%	17	140,461	8.7
60 - 69%	11	125,310	4.1

Table 10 provides the concentration of Hispanics and telephone clusters in the 5th and 6th Rctg Bde combined. It can be seen from Table 8 that the majority of Mexican-Americans reside in the 5th and 6th Rctg Bdes. The amount of oversampling required for Mexican-Americans is about 120. When compared to the size of the sample (400) expected from the main PMS sample, an optimum value for  $P_1$  for Mexican-Americans is about 25%. Considering the fact that about 80% of Hispanics in the 5th and 6th Rctg Bdes are Mexican-Americans, as shown in Table 8, about 32% of the Hispanic population in the 5th and 6th Rctg Bdes should be oversampled. If all telephone clusters for which concentration of Hispanics is more than 50% in the frame for supplementing Hispanics are included, then 32% of Hispanics in the 5th and 6th Rctg Bdes will be covered. This frame should provide the additional Mexican-Americans required to meet the desired sample sizes. The 1st, 5th and 6th Rctg Bdes combined, will also provide the additional number of "other Hispanics" required to meet the precision levels for Hispanics.

Table 10

## Concentration of Hispanics in Telephone Households in 5th and 6th Recruiting Brigades Combined

Hispanic concentration	Number of telephone clusters	Hispanic population	Cumulative % of Hispanics
Less than 10%	8,214	1,805,040	100.0
10 - 19%	1,659	2,138,471	84.0
20 - 29%	682	1,251,331	65.1
30 - 39%	437	1,186,566	51.7
40 - 49%	268	1,063,463	41.2
50 - 59%	158	793,525	31.8
60 - 69%	135	726,472	24.8
70 - 79%	106	741,117	18.4
80 - 89%	84	836,429	11.8
90%+	52	500,409	4.4

To compensate for the increase in variance, some increases are necessary to produce supplements so that Hispanic samples have precision levels close to the desired levels:

	Sample sizes expected from 70,000 screened households	Required sample sizes (with uniform sampling)	Required samples sizes (with oversampling concentrated areas)
Mexican-American	400	520	580
Puerto Rican	95	216	345
Other	175	224	250
	<u>670</u>	<u>960</u>	<u>1,175</u>

It should be noted that even with 240 Puerto Ricans in the supplement, the precision of the total Puerto Rican sample will probably be less than the desired level. Puerto Ricans are about 14% of all Hispanics in the U.S. Because Hispanics are about 6.5% of the total population in the U.S., Puerto Ricans are about 0.9% of the total U.S. population. Furthermore, as shown earlier, Puerto Ricans are not heavily concentrated in any area in the U.S.; thus, it is very costly to supplement this group in the sample. To obtain 467 Hispanics of whom 240 are Puerto Ricans, using the concentrated areas in the 1st, 5th, and 6th Rctg Bdes, we need to screen 9,550 households. A supplemental screening sample of 6,600 distributed among the 1st, 5th, and 6th Rctg Bdes in such a way that it provides 180 Mexican-Americans, 145 Puerto Ricans, and 75 other Hispanics will be collected. If the Army requires sample precision close to the desired

precision levels for Puerto Ricans, the screening workload will be increased so that the yearly supplemental screening sample totals 9,550.

#### Longitudinal Sample

All of the sample of 16- to 20-year-old youths will be randomly selected for a longitudinal sample which will be interviewed in four annual followups. When a survey is repeated at regular intervals, the results are usually viewed as a time series with period-to-period changes used as important tools of analysis. Such changes are particularly important for examining the impact of changes in attitudes which may be caused by advertising.

#### Cluster Size and Number of Households to be Screened

Any cluster size will produce an unbiased, equal-probability sample. Larger cluster sizes are somewhat cheaper to execute than small ones, but they risk the possibility of increase in the sampling errors unless there are reasonably accurate estimates of the magnitude of the intraclass correlation within clusters. An average about four interviewed PMS per cluster is expected during the first year of ACOMS. As data accumulate during the year, estimates of the intraclass correlations for a number of key items will be prepared, and, if necessary (i.e., if these correlations are too large), changes in this number will be recommended to come closer to an optimum sample design.

On the average, about six households must be screened to locate one eligible PMS. Thus, at a minimum, in order to obtain 4 PMS per cluster, about 24 households per cluster will be needed. This number will be increased to 30 to take into account the nonresponse rate of 20%. In order to obtain the PMS sample size of 9,600, a total of 70,000 households will need to be screened. The PMS sample sizes can be summarized as follows:

	<u>Total</u>	<u>Per Cluster</u>
Total screening sample	70,000	30
PMS sample	12,000	5
PMS respondents	9,600	4
Number of clusters	2,400	--

As noted, the screening sample includes an allowance for a 20% nonresponse rate, as well as a few assumptions about changes in the population since 1980, 1986 telephone households, educational eligibility, and nonprior service status in 1986. (These assumptions are stated in detail in Tables 5, 6, and 7.) The screening sample is also based on the assumption that response rate is uniform across recruiting brigades, sex, age, race, and ethnicity. Some minor changes in the screening sample may be necessary as experience accumulates during the first few months of data collection. No additional screening will

be necessary for the FS sample or Black supplement, as the PMS screening sample will be large enough to provide the required numbers.

#### Sample Selection Rates

The objectives of the study require careful control of the sample sizes for a wide variety of population subgroups, such as PMS and FS, Blacks, and several subsets of Hispanics. The subsampling rates for designating the persons to be interviewed in the screened households are calculated to provide the required numbers. The following rates will be applied initially to the sample components:

- (1) All PMS and SMS eligibles will be interviewed, including Black and Hispanic males.
- (2) The FS group will be subsampled at the rate of 1/5.
- (3) Parents of PMS and PFS (16- to 20-years old) will all be interviewed. Half of those sampled will be mothers of PMS or PFS, and half will be fathers.

The subsampling rates are based on a number of factors:

(a) latest census information on population distribution and extrapolations of these data to 1986; (b) data on the percentage of youths with prior service, by age; (c) estimates of response rates; and (d) assumptions on how these factors interact, e.g., that the response rate is the same in all recruiting brigades and for all ages. The data and assumptions will, of course, not be exact, and some modification in the subsampling rates may be necessary to bring the annual sample sizes in the various subgroups close to the desired levels. Our control system will keep up-to-date counts of the sample sizes in each subgroup so that changes in the rates can be introduced as soon as it becomes clear that this is necessary for some subgroups.

The revisions in subsampling rates will be made in such a way that unbiased estimates of the population parameters will always be possible and that the probabilities of selection will be known and recorded. Periodic summaries of progress to date will be utilized. After the first few months of data collection, when the operation has been stabilized, the summaries will be reviewed and sampling rates changed where necessary. This review, and fine-tuning of the sampling rates, will be repeated through the course of data collection. As a result, there will probably be a small amount of variation in the sample sizes from month to month. This variation will not introduce any biases in the monthly or annual data and will have only a trivial effect on the variance of the quarterly data.

#### Allocation of the Sample to Brigades

The sample will be spread proportionally among the five recruiting brigades. For the production of national estimates, the best sample allocation is the proportional allocation in which a uniform sampling rate is used in all the brigades. With the proportional

allocation, the PMS sample is expected to have its distribution by recruiting brigade:

<u>Brigade Region</u>	<u>Number of interviewed PMS</u>
1st	2,358
2nd	1,667
4th	2,387
5th	1,546
6th	1,645
<u>Total</u>	<u>9,603</u>

#### Allocation of the Annual Sample to Months

The annual sample will be equally divided across 12 months. Among the properties of having equal sample sizes by month are:

- (1) It is the best method of sample allocation for the analysis of annual data, since in most cases it provides the smallest sampling errors;
- (2) It minimizes the sampling errors of month-to-month;
- (3) It minimizes the sampling errors of data through seasonal changes;
- (4) It assures adequate sample sizes by month in case it is necessary to examine or analyze the data for short periods of time. The PMS monthly samples are large enough to permit short-term data analysis. However, we are not certain whether special subgroups such as Blacks and SMS will have adequate monthly sample sizes for analysis of data for short periods of time; and
- (5) It provides the smoothest data collection operation.

Response is expected to be fairly uniform across age, race, and ethnicity for different geographic regions. So there is some uncertainty in how close the actual monthly samples come to the desired monthly sample sizes, using the initial rates. If the results of the first few months indicate that changes in the screening levels are necessary to generate the required sample sizes, revision in the screening sample will be made in subsequent months.

#### Method of Calculating Response Rate

Nonresponse will occur during three stages of the survey operations. The first stage is at screening. Some of the households selected for screening will not be available during the interviewing period, and others will refuse to provide the requested information.

The second stage will be the detailed interviews. Some of the sample youths will not respond. The third stage is interviews with influencers.

Screening response rates. Several methods can be used to calculate response rates for RDD surveys. Some notations are useful to describe them:

C = number of completed screenings

E = number of households contacted

U = number of sample telephone numbers whose outcome status is unresolved (ring-no-answer at all attempts, busy signal, etc.)

I = number of sample telephone numbers determined to be nonhousehold (unassigned numbers, businesses, institutions, etc.).

Three plausible measures of response are:

$$(1) \quad R_L = \frac{C}{E + U}$$

$$(2) \quad R_U = \frac{C}{E}$$

$$(3) \quad R_C = \frac{C}{E + pU} \quad \text{where } p = \frac{E}{E + I}$$

These three estimates of response rate differ in their treatment of unresolved cases. The first ( $R_L$ ) is a lower bound of the response rates. It is conservative in assuming that all unresolved cases are households.  $R_U$  can be considered an upper bound. It assumes that none of the unresolved cases are households.  $R_C$  assumes that the household rate is the same for resolved and unresolved cases. The use of  $R_C$  has been recommended by a panel appointed by the Council of American Survey Research Organizations (CASRO).

$R_C$  is used in describing the response rates in ACOMS. In practice, there is not a great difference among the methods. As a result of an intensive followup policy, including checks with telephone business offices, a very small number of unresolved cases occur; 1% to 3% is common. As a result, the three response rates are usually in a range of 1% or 2% apart.

Separate response rates for each recruiting brigade, by month will be produced. It is not possible to have any demographic breakdowns (e.g., race or ethnicity), since such information will not be

available for nonrespondents. More detailed geographic subdivisions are possible.

Interview response rates. The calculation of the response rates for the interviews is quite direct. After the screening has been completed, and a sample of youths has been selected for detailed interview, the control system will record those for whom questionnaires were completed. The response rates are then the proportion of cases with complete questionnaires.

Response rates by sex, age, race, and ethnicity will be prepared routinely. The recordkeeping system will permit calculation of more detailed breakdowns of response rates (by brigades, for example).

The influencer response rate will be calculated in the same way as for detailed interviews. The subsample of youths who are asked to supply names of influencers will be recorded, and the response rate is the proportion of influencers who can be contacted and who supply the requested information. Similar to the detailed interview, response rates will be produced by sex and race.

Overall response rate. The overall response rate should reflect both screening and interview response. Given the following notation:

- $R_s$  - Screening response rate
- $R_y$  - Youth interview response rate
- $R_I$  - Influencer response rate

The response rate for the youth interviews will be measured by

$$R_{y,o} = R_s \times R_y$$

The overall response rate for the influencer sample will be

$$R_{I,o} = R_s \times R_y \times R_I.$$

#### Sample Selection Procedures

##### Sample of Telephone Clusters

Main sample. Clusters that average about 4 sample PMS, implying 2,400 clusters to achieve a sample of 9,600 PMS cases will be used. Since only about 20-25% of initial telephone numbers called (referred to as prime numbers) are residential numbers that will be retained in the cluster sample, we will start off with a sample of clusters =  $5 \times 2400$  or 12,000. This number will be increased by 50% to have a reserve cluster sample. The initially selected cluster sample will thus include 18,000 clusters.

Hispanic supplement. Specific sample sizes are required for Mexican-Americans, Puerto Ricans, and other Hispanics. The northeast recruiting brigade (1st Rctg Bde) should provide us with enough Puerto

Ricans, and the southwest and western recruiting brigades (5th and 6th Rctg Bdes) should provide Mexican-Americans. These three recruiting brigades will also provide enough Hispanics with other derivations. Different numbers of clusters will be taken from 1st Rctg Bde and the combination of the 5th and 6th Rctg Bde to provide the required number of Hispanic youth by derivation.

As previously noted, the frame for supplementing Hispanics consists of all telephone clusters in the 1st Rctg Bde for which the Hispanic concentration is more than 10%, and all clusters in the 5th and 6th Rctg Bdes for which concentration of Hispanics is more than 50%.

A sample of 120 clusters will be selected from the 1st Rctg Bde. The clusters will be divided so that 30 clusters are assigned equally to the first three months (first quarter) and the rest distributed equally to the rest of the months in the first year. The clusters for the third quarter will not be selected until a decision is made on the number of clusters to be drawn from the 1st Rctg Bde. (The maximum number of clusters is equal to 200; however, it may be decided to sample 120 clusters from the 1st Rctg Bde due to budget constraints.) A sample of 612 will be collected to account, as much as possible, for rejected clusters. The frame includes 617 clusters. The remainder of the clusters in the frame will be used as reserve.

A sample of 72 clusters will be selected from the 5th and 6th Rctg Bdes. The 72 desired clusters need to be increased by a factor of 5 to take care of rejected nonresidential clusters. This implies a sample of 360 clusters. The remainder of the frame will be used as the reserve group.

#### Procedures for Selection of Primes

The following procedures are used for selection of clusters for the main sample. File sorting and systematic sampling will achieve the maximum geographic stratification possible without extraordinary effort.

- (1) All the usable exchanges in the U.S. are sorted by recruiting brigade, state, and numerical order. Entire states are assigned to recruiting brigades to avoid the complications of split assignments, which would require geographic coding of exchanges. States that cross regions are put into the region in which most of the state's population resides.
- (2) The number of exchanges in the U.S. is counted.
- (3) A skip interval is calculated. The skip interval is based on the number of primes desired without the reserves, i.e., 12,000 clusters. It is referred to as S.

- (4) Two random starts are generated. One is a random number less than  $S$ , referred to as  $R$ . The other will be  $R + .5S$ . The first is used for the basic sample and the second for the reserve.
- (5) A systematic sample is selected. For the basic sample, the random start is  $R$  and skip interval  $S$ . For the reserve, the random start is  $R + .5S$  and the skip interval  $2S$ .
- (6) There are two groups of selected clusters: the main sample and the reserve.
- (7) The reserve sample is set aside and not used unless specific instructions on its use are provided. For the present time, the main sample is of primary concern.
- (8) During the selection process, the sample clusters in the main sample are numbered in order of selection, module 12 (i.e., 1, 2, 3, . . . 12, 1, 2, 3, . . . 12, 1, 2, 3.). Sample exchanges are grouped by order number. Each group is then assigned at random to one month of the year.
- (9) The sample clusters for each month are randomized separately.
- (10) For each month, the usual Westat procedure for identifying residential clusters will be carried out. The first step is to assign a separate, random, two-digit number to each selected cluster. These are the prime numbers. The prime numbers for the first month are called to check which ones are residential, proceeding sequentially in the randomized order. The process is stopped when we have 200 clusters. The unchecked primes are retained in a reserve file. (The 1,000 clusters per month are expected to be large enough to supply the required number of residential clusters. If there is a shortage in the number of clusters, it will be necessary to randomize the reserve set and continue checking for residential primes.)
- (11) Telephoning for residential primes for each month's interview sample will start about a month before the month of interview.

The same procedures for selection of primes will be used for the Donnelley supplement of Hispanics. The Donnelley selected clusters will then be added to each month's clusters.

#### Updates of Primes After Six Months

A new tape of telephone exchanges will be obtained from AT&T after the first six months of data collection. The new tape will be matched against the one used for sample selection. There will be three groups: (a) new exchanges on the current tape, (b) discarded exchanges on the tape originally used for sample selection, and

(c) matched exchanges. Nothing needs to be done with the matched or the discarded group. The new exchanges will be sorted in the same way the original tape was sorted, and a sample of primes will be selected so that the sampling rate for the new exchanges is the same as that used for the main PMS sample.

One sixth of the new sample clusters will randomly be assigned and added to the remaining months. The combined set will be randomized. As for the initial month, the telephone calling to the primes and identifying residential clusters will start about a month before the interview month.

Three special situations may arise:

- (1) There may only be a few new exchanges created in six months. When this happens, there may be no additions to the originally selected sample for some months.
- (2) Occasionally, a new area code will appear. These usually require special treatment since, for a time, some of the exchanges can be dialed in two ways; they can be reached by dialing the new area code or the area in which they were originally. Procedures will have to be established for each such situation.
- (3) The discarded exchanges should be deleted from the initial sample, but the deletions will automatically follow from the procedures, and no special action is necessary. Since the primes will be called to identify residential clusters, discarded exchanges will show up as nonresidential and fall out of the sample. It would be possible to match the files and remove selected sample clusters from the ones to be telephoned, but since elimination of exchanges is a fairly rare event, the effort and cost of matching seem likely to be greater than that of the occasional additional telephone call.

#### Sample of Secondary Numbers Within Residential Clusters

A screening sample of 70,000 households is needed for the main sample. Experience has shown that about 60% of numbers dialed in residential clusters are residential. Consequently, a sample of about 120,000 telephone numbers over the course of the year will suffice. This implies a sample of 50 telephone numbers per cluster.

For the Hispanic supplement, a screening sample of 40 telephone numbers per cluster in the 1st Rctg Bde and 25 per cluster in the 5th and 6th Rctg Bdes is needed. Since about 60% of numbers dialed in residential clusters are residential, a sample of 67 telephone numbers per cluster for the 1st Rctg Bde and 42 numbers per cluster for the 5th and 6th Rctg Bdes will be necessary.

The usual procedures will be followed for selecting random two-digit numbers to be added to the eight numbers identifying the residential clusters. The two-digit numbers are to be independently assigned in all clusters.

#### Monitoring of Sample Yields

The sample yields for the AT&T and Donnelley clusters will be examined through monthly progress reports to see how close they come to the numbers desired. If necessary, the number of secondaries per cluster after two or three months' experience will be revised. Figures 1 through 8 provide the set of table shells for monthly progress reports.

#### Sample Weights

The sample selected from each of the sources, the main sample and Hispanic supplement, will be identified. The two must be separated in weighting. All selected clusters in the main set that are also included in the Donnelley Hispanic frame will need to be identified. These groups are being sampled at different rates, and they will need to be assigned different weights.

#### Special Issues in Sample Selection

##### Multiple-Telephone Households

A telephone sample comprises a sample of telephones, not households. Households with more than one telephone number will have multiple chances of selection and thus be overrepresented in the sample. The number of such households is not large, probably on the order of 3% to 4% of all households. However, a procedure is needed to deal with them. It can be noted that two-telephone-number households are almost certainly different from others. They generally have higher incomes. Another reason for having two numbers may be that a member of the household is operating a business service from the home. These unusual features will be overrepresented in estimates if steps are not taken to compensate for the increased probability. Household members will be asked during the screening interview if they have more than one telephone number. If they have more than one number, they are subsampled at a rate of one half.

##### Strategy for Selecting Eligibles Within Sample Households

Sample households will be screened to determine whether any residents are eligible for the survey. Simultaneous screening will be conducted for all population groups. Several household members may need to be interviewed in households with more than one PMS, SMS, and in households designated for selection of FS. All eligible males and females within the sample households will be given equal probabilities of selection. Therefore, for example, PMS's in large households will have the same chance of selection as those living in smaller households. However, the actual selection of more than one PMS in a household will be rare.

Item	Total	1st		6th		Rctg Bde unknown	
		Rctg	Bde	Rctg	Bde		
		1		6			
Total sample telephone numbers							
Total identified households							
Completed screener							
With eligible males							
Total							
With PMS 16- to 20-years-old							
With selected male parent							
Selected for longitudinal sample							
With selected female parent							
Selected for longitudinal sample							
With PMS 21- to 24-years-old							
With SMS							
With no eligibles							
Refusals							
Other nonrespondents							
Total identified households for selection of females							
Completed screener							
With eligible males							
Total							
With PMS 16- to 20-years-old							
With selected male parent							
Selected for longitudinal sample							
With selected female parent							
Selected for longitudinal sample							
With PMS 21-to 24-years-old							
With SMS							

Figure 1. Data requirements for ACOMS monthly progress reports initial Random Digit Dialing (RDD) sample household analysis (from screener).

Item	Total	1st		6th		Rctg Bde unknown
		Rctg	Bde	Rctg	Bde	
		1	.	.	6	
With eligible females						
With PFS 16- to 20-years-old						
With selected male parent						
Selected for longitudinal sample						
With selected female parent						
Selected for longitudinal sample						
With PFS 21- to 24-years-old						
With SFS						
With no eligibles						
Not a household						
No contact						

Figure 1. Data requirements for ACOMS monthly progress reports  
initial Random Digit Dialing (RDD) sample household analysis (from  
screener) (continued).

Sample breakdown	Total screened	Interview completed	Refusal	No contact	Other non- response
PMS by type					
Total					
Hispanic					
Mexican-American					
Puerto Rican					
Other					
Black					
Non-Hispanic and Non-Black					
Four-year college					
Two-year college					
PMS by single years					
16-years-old					
17-years-old					
--					
--					
PMS by geographic area					
1st Rctg Bde					
2nd Rctg Bde					
--					
--					

Note. Recruiting brigade can be approximate if exact recruiting brigade would cause delays. Similar breakdowns may be useful for other geographic areas, e.g., ROTC regions or specified ADI's.

For Hispanics, information on Hispanic derivation will be obtained from detailed questionnaire. Information on total screened and screener nonresponse will be given for total Hispanics.

Figure 2. Person analysis based on screener and detailed questionnaire: sample composition for youth.

Sample breakdown	Total screened	Interview completed	Refusal	No contact	Other non- response
SMS by race and ethnicity					
Total					
Hispanic					
Mexican-American					
Puerto Rican					
Other					
Black					
Non-Hispanic and Non-Black					
FS, by race and ethnicity					
Total					
Hispanic					
Mexican-American					
Puerto Rican					
Other					
Black					
Non-Hispanic and Non-Black					
FS, by single years					
16-years-old					
17-years-old					
--					
--					
PMS by geographic area					
1st Rctg Bde					
2nd Rctg Bde					
--					
--					

Note. Recruiting brigade can be approximate if exact recruiting brigade would cause delays. Similar breakdowns may be useful for other geographic areas, e.g., ROTC regions or specified ADI's.

For Hispanics, information on Hispanic derivation will be obtained from detailed questionnaire. Information on total screened and screener nonresponse will be given for total Hispanics.

Figure 2. Person analysis based on screener and detailed questionnaire: sample composition for youth (continued).

Sample breakdown	Total screened	Interview completed	No Refusal contact	Other non- response
Parent, by youth				
Total				
PMS				
PFS				
by sex				
male				
female				
by type				
Hispanic				
Mexican-American				
Puerto Rican				
Other				
Black				
Non-Hispanic and				
Non-Black				
by geographic area				
1st Rctg Bde				
2nd Rctg Bde				
--				
--				

Note. For Hispanics, information on Hispanic derivation will be obtained from detailed questionnaire. Information on total screened and screener nonresponse will be given for total Hispanics.

Figure 3. Sample composition for parents.

Number of cases per cluster	Total PMS	Hispanic	Black	Two-year college	Four-year college
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#### Number screened

##### Total

1-2 in cluster  
3-4 in cluster  
5-6 in cluster  
7-9 in cluster  
10-14 in cluster  
15-19 in cluster  
20-24 in cluster  
30+ in cluster

#### Number interviewed

##### Total

1-2 in cluster  
3-4 in cluster  
5-6 in cluster  
7-9 in cluster  
10-14 in cluster  
15-19 in cluster  
20-24 in cluster  
25-29 in cluster  
30+ in cluster

Note. The number per cluster should be interpreted as the number of type described, e.g., number of screened Hispanics in clusters containing 1-2 screened Hispanics, number of screened Blacks in clusters with 1-2 screened Blacks, number of interviewed Hispanics in clusters of 1-2 interviewed Hispanics, etc.

Figure 4. Primary Male Sample (PMS) distribution by number per cluster.

Household	Number
Total sample telephone numbers	
Completed screener	
With eligible males	
Hispanic	
PMS 16-to 20-years-old	
With selected male parent	
Selected for longitudinal sample	
With selected female parent	
Selected for longitudinal sample	
PMS 21- to 24-years-old	
SMS	
Non-Hispanic	
Without eligible males	
Nonresponse households	
Refusals	
Other respondents	
Not a household	
No contact	

Figure 5. Supplemental Random Digit Dialing (RDD) sample for Hispanics household analysis from screener for Donnelley Hispanic supplement.

Number of persons					
Mexican-American					
Item	Total Screened	Interview completed	Refused	No contact	Other nonresponse
Total persons					
16-years-old					
17-years-old					
...					
24-years-old					
Puerto Rican					
Item	Total Screened	Interview completed	Refused	No contact	Other nonresponse
Total persons					
16-years-old					
17-years-old					
...					
24-years-old					
Other Hispanics					
Item	Total Screened	Interview completed	Refused	No contact	Other nonresponse
Total persons					
16-years-old					
17-years-old					
...					
24-years-old					

Figure 6. Person analysis for eligible Hispanic males from the Donnelley Hispanic supplement

Number of persons					
Mexican-American					
Item	Total screened	Interview completed	Refused	No contact	Other nonresponse
Total persons					
Male					
Female					

Puerto Rican					
Item	Total screened	Interview completed	Refused	No contact	Other nonresponse
Total persons					
Male					
Female					

Other Hispanics					
Item	Total screened	Interview completed	Refused	No contact	Other nonresponse
Total persons					
Male					
Female					

Figure 7. Sample composition from the parent for Donnelley  
Hispanic supplement

	Number of persons				
	Total sample	Interview completed	Refused	No contact	Other nonresponse
Total persons					
16-years-old					
17-years-old					
--					
--					
--					
24-years-old					
Geographic area					
1st Rctg Bde					
2nd Rctg Bde					
4th Rctg Bde					
5th Rctg Bde					
6th Rctg Bde					

Figure 8. Person analysis for eligible Black males.

Tables 11 and 12 show the distribution of the number of PMS and PFS per household in the universe of all households with at least one PMS or one PFS, and the estimated distribution in the ACOMS sample. The estimates take into account the fact that PFS will be sampled at a lower rate than PMS. It should be noted that the SMS and SFS samples are not included in the tabulations. Since the sample sizes for SMS and SFS are small, when compared to PMS and PFS, the distribution of multiple interviews per household (for the total sample including SMS and SFS) will be similar to the one provided for PMS and PFS 16- to 24-years of age.

Table 11 presents the distribution for 16- to 20-year-old PMS and PFS. An interview will be conducted with a parent for households with at least one PMS or one PFS 16- to 20-year-old. The information given in Table 11 can be summarized in this table:

Total number of interviews for PMS and PFS, 16- to 20-years old	Estimated % of households in the sample
1	88.03
2	10.97
3	.85
4	.11
5	.00
6	.03

If all parents selected for interviews live in the same household as the youth, then the total number of interviews per household will be equal to the number given in the above table plus one. Note that the probability that all selected parents will be in the same household as the youth is small. However, it is expected that the majority will be in the same household.

Table 12 provides the distribution for 16- to 24-year-old PMS and PFS. A summary of the information in Table 12, based on the number of interviews for PMS and PFS, is given in this tabulation:

Total number of interviews for PMS and PFS, 16- to 24-years old	Estimated % of households in the sample
1	81.58
2	15.62
3	2.28
4	.44
5	.06
6	.03

Table 11

Telephone Households with Primary Male Sample (PMS) and Primary Female Sample (PFS) (ages 16 to 20 years old), March 1985

Type of household				
Number of males	Number of females	Number of households (in thousands)	<sup>a</sup> % of households in the universe	Estimated % of households in the sample
0	1	4,164.92	43.12	13.95
0	2	412.52	4.27	1.38
0	3	33.04	0.34	0.11
0	4	0.00	0.00	0.00
0	5	0.00	0.00	0.00
1	0	3,758.92	38.91	74.08
1	1	775.33	8.03	2.60
1	2	54.10	0.56	0.18
1	3	1.79	0.02	0.01
1	4	0.00	0.00	0.00
1	5	0.00	0.00	0.00
2	0	378.43	3.92	6.99
2	1	45.00	0.47	0.15
2	2	4.10	0.04	0.01
2	3	0.00	0.00	0.00
2	4	0.00	0.00	0.00
2	5	0.00	0.00	0.00
3	0	21.81	0.23	0.41
3	1	3.20	0.03	0.01
4	0	4.67	0.05	0.08
4	1	0.00	0.00	0.00
5	0	0.00	0.00	0.00
5	1	0.00	0.00	0.00
6	0	1.83	0.02	0.03

Note. Special tabulation from Current Population Survey

<sup>a</sup>The universe consists of telephone households with at least one PMS or one PFS.

Table 12

Telephone Households with Primary Male Sample (PMS) and Primary Female Sample (PFS) (ages 16 to 24 years old), March 1985

Type of household				
Number of males	Number of females	Number of households (in thousands)	% of households in the universe	Estimated % of households in the sample
0	1	7,106.53	39.96	12.57
0	2	857.30	4.82	1.52
0	3	121.24	0.68	0.21
0	4	5.95	0.03	0.01
0	5	2.18	0.01	0.00
1	0	5,585.67	31.41	69.01
1	1	2,500.91	14.06	4.42
1	2	238.19	1.34	0.42
1	3	31.57	0.18	0.06
1	4	2.21	0.01	0.00
1	5	0.00	0.00	0.00
2	0	900.19	5.06	9.68
2	1	208.67	1.17	0.37
2	2	26.57	0.15	0.05
2	3	4.31	0.02	0.01
2	4	3.16	0.02	0.01
2	5	0.00	0.00	0.00
3	0	127.54	0.72	1.28
3	1	21.17	0.12	0.04
4	0	24.89	0.14	0.28
4	1	8.10	0.05	0.01
5	0	4.51	0.03	0.05
5	1	1.94	0.01	0.00
6	0	1.83	0.01	0.02

Note. Special tabulation from Current Population Survey

<sup>a</sup>The universe consists of telephone households with at least one PMS or one PFS.

The entries of the tables assume that all eligibles selected for interview will respond. The relationship between the number of interviews per household and the response rate will be studied when sufficient data is available for nonresponse analysis.

#### Relation of Timing of Data Collection to Periods of Time Analyzed

The period of time designated for data collection (interviewing) for one month's sample is six weeks. However, data collected during the calendar month will be used as the unit of analysis. For example, the tabulations for February would include that part of the February sample completed in February, together with the part of the January sample that carried over into the first two weeks of February. Carryovers of the sample to succeeding months do not have similar population distributions in each month. However, this method was selected due to the limited amount of time available for the production of periodic reports.

Using data collected during a calendar month as the unit of analysis has two useful features. First, in case it is necessary to examine or analyze the data for one month, data can be presented to the sponsor within a short period of time after the reference month. If the results will influence such decisions as the desirability of continuing (or stopping) various advertising campaigns, the availability of early analyses is important. Secondly, if some items on the questionnaire are specifically time-dependent (e.g., did the respondent see a particular TV commercial), then the quality of reporting is likely to be improved if the date of interview is close to the event. A similar advantage will apply to the ability to observe whether particular national events affect responses (e.g., a presidential speech, a foreign policy crisis, etc.). A compact interview period may better reflect such events.

The disadvantage of the calendar month is its effect on the purity of the sample. The assumption that the carryovers of the sample to succeeding months have approximately the same population distribution in each month is very doubtful. There will be many reasons why the carryovers in the beginning of a month will be different from those not completed at the end of the month. The number of days in the month, seasonal factors, and the presence of holidays such as Christmas or Thanksgiving are obvious factors. Other causes could be snowstorms that prevent telephone operators from coming to work, or other erratic situations. The use of a month's interviews thus has the potential of introducing a source of error which is, at present, unmeasurable.

#### Weighting the Sample Data

The sample design of the ACOMS study will not produce a self-weighting sample of individuals who are members of the target population. Weighting, with different weights for various subdomains of the population that have been sampled at different rates, is necessary for the production of unbiased estimates. (In addition, a second set of

weights will be calculated for the rotating modules used to measure perceptions of attributes.) The sample weights will be used with ACOMS data to provide estimates of statistics (means, proportions, etc.) that would have been obtained if the entire sampling frame had been surveyed. The weighting system can be implemented by assigning a weight to each person in the sample, inserting the weight in the computer record for that person, and then cumulating weights in the tabulations. Weighting will be done to accomplish the following objectives:

- (1) To bring sample data up to the dimensions of population totals;
- (2) To adjust for differential probabilities of selection among subgroups (Hispanics, females) of the population;
- (3) To minimize biases arising from the fact that nonrespondents may be different from those who cooperate;
- (4) To compensate, to the extent possible, for inadequacies in the sample frame (the sampling frame excludes nontelephone households and possibly persons living in unconventional settings); and
- (5) To reduce variances of estimates by using auxiliary information that is known with a high degree of accuracy in the estimation procedure.

Sample weighting will be accomplished in three steps. The first two steps involve computation of weights to compensate for unequal probabilities of selection at the household and at the person level. The third uses post-stratification (also referred to as ratio-estimation) to compute weights that adjust for sample nonresponse and for the omission of nontelephone households, as well as to reduce sampling errors. The next three sections of this chapter provide descriptions of these steps. The weighting methodology for the rotating perceptions modules is given in the section on sampling weights for the perceptions of attributes and the other rotating modules.

#### Sampling Rate Adjustments at the Household Level

The modified Waksberg method will be used to sample households. In this approach, a constant number of telephone numbers per cluster (rather than of households, as in the standard method) is selected. As a result, households will have different probabilities of selection. The rate at which a household is sampled depends on the proportion of telephone numbers that are in households in the cluster in which the household is located. Households in clusters that are rather sparsely filled are probably somewhat different from those in densely filled clusters. They are more likely to be rural, in suburban areas that are just being developed, in locations where there are many businesses mixed with residential units, etc. These types of

households are undersampled when this sampling technique is used, and weighting is necessary for the statistics to represent them adequately.

To avoid potential biases, a weight will be attached to each cluster which is the average number of sample households per cluster divided by the number found in the particular cluster. That is,

$$W_i = \frac{\bar{n}}{n_i}, \text{ where}$$

$\bar{n}$  is the average number of households per cluster, and  $n_i$  is the actual number of sample households in the  $i$ th cluster.

Furthermore, households with two telephone numbers have twice the chance of selection and will be overrepresented by a factor of two to one. Thus, they will be given a weight of  $\frac{1}{2}$  to adjust for this overrepresentation. It can be noted that two telephone number households are almost certainly different from others. They generally have higher incomes. Another reason for having two telephone numbers may be that a member of the household is operating a business service from the home. These unusual features will be overrepresented in estimates if weighting is not used at this step.

Define variable  $I_i$  in the following way:

$$I_{ij} = \begin{aligned} &1 \text{ if household } j \text{ in the } i\text{th cluster has one telephone} \\ &\text{number} \\ &\frac{1}{2} \text{ if household } j \text{ has more than one telephone number} \end{aligned}$$

Then the household level weight given by

$$W_{lij} = W_i \cdot I_{ij} = I_{ij} \cdot \frac{\bar{n}}{n_i} \quad (1)$$

#### Sampling Rate Adjustments at the Person Level

The ACOMS survey design calls for sampling various population subgroups at different rates. Hispanics will be oversampled, and females will be undersampled. It is necessary to use sample weights to make unbiased population projections that adjust for the various sampling rates used for population subgroups. Sample rate weighting adjustments will be made to each person to reflect his or her actual probability of selection. This adjustment will be made by multiplying each person's first stage weight in the sample by the reciprocal of

the probability of selection for the subdomain. The person level weight is therefore equal to

$$W_{2ijk} = W_{lij} * W_{ijk} \quad (2)$$

where  $W_{ijk}$  is the reciprocal of the probability of selection for the  $k$ th individual in the  $j$ th household in cluster  $i$ .

These adjustments ensure that weighted counts for females and Hispanic males will reflect the composition of the population, rather than the composition of the unequally selected sample. This is very important since unadjusted sample counts and percentages could be very misleading when used as estimates of percentages for all individuals.

#### Poststratification

Poststratification will be used to reduce sampling errors, to minimize biases arising from the fact that nonrespondents may be different from those who respond and to adjust for nontelephone households missing from the sampling frame. Poststratification will be accomplished by superimposing weights on the first two stages of weighting that will create agreement between ACOMS tabulations and census estimates of the total population by age, sex, race, ethnicity, and educational level.

Nonresponse generally can be expected to vary by population groups and thus tends to distort the distribution of the sample. Poststratification compares the distribution of population and sample across selected variables and computes sample weights to make sampling proportions on key demographic characteristics more closely resemble known population proportions. When poststratification is not applied to the data, the distribution of the sample may be very different from the population, and sampling errors may be high.

Furthermore, RDD does not include households without telephones. It is clear that certain types of households are underrepresented in telephone surveys, e.g., Black, low income, etc. Although poststratification may not completely eliminate biases arising from incomplete coverage, it can be effective in sharply reducing the effects of the biases.

The kind of subgroups established for the purpose of poststratification should be specifically tailored to each study and depend upon the sample design requirements and objectives of the study. The sampling plan for ACOMS is intended to provide nationally projectable estimates of Army communications effectiveness. The samples should provide, at a minimum, precise estimates for male, educationally qualified youth, of specific age groups for each recruiting brigade. They should also provide estimates by sex and racial/ethnic groups at the national level.

Five variables will be used for the construction of poststrata:

- (1) Recruiting brigade: 5 categories

- (2) Sex: 2 categories
- (3) Race/ethnicity: 3 categories
- (4) Age: 9 categories, and
- (5) Education: 4 categories

Poststratification by the first four variables is necessary to assure that sampling proportions on these key variables will be similar to population proportions. The fifth variable is added to represent approximately the income level of individuals in the sample. Households without telephones are generally in lower income brackets than telephone households, a fact that has been confirmed in statistical analyses during other research. Since the average income of Blacks is lower than that of the White population, the separate weighting by race will partially adjust for this factor. However, even within race, the missed population will generally have lower incomes. The ideal procedure is to include income as well as age, sex, and race in the estimation procedure. There are problems in implementing this procedure. The income data are usually released by the Census Bureau about a year after the period covered, and income is fairly volatile, changing significantly from year-to-year. In addition, most survey data on income are not quite consistent with census data. It is preferable to use data that are correlated with income, but for which the quality of responses is better and that are relatively stable over time. We will use education as a surrogate for income.

To avoid problems arising from small sample sizes, we will use raking to compute weights for the poststrata. There is a practical problem in calculating poststratification weights when the number of crosstabulation cells is very large. Some of the sample sizes may be zero; others may be very small, even just one or two. Raking is an iterative procedure that creates weights in which the weighted sample estimates equal population controls for the marginal totals of the poststrata without ensuring the quality for each of the crosstabulation cells. That is, weighting will ensure that weighted marginal distributions of recruiting brigade, age, race, sex, and education will conform to those in the population with no attempt to achieve exact agreement between sample and population in the crosstabulation cells (recruiting brigade by age, by race, by sex, and by education).

The poststratification weights  $W_{hlmno}$  will be computed in accordance with procedures suggested by Hansen, Hurwitz, & Madow (1953), such that

$$\sum_{lmno} W_{hlmno} * W_{2ijk} = N_{h....}, \quad h = 1,3,4,5,6 \quad (3)$$

$$\sum_{hmno} W_{hlmno} * W_{2ijk} = N_{.1...}, \quad l = 1,2 \quad (4)$$

$$\sum_{hlno} W_{hlmno} * W_{2ijk} = N_{...m..}, \quad m = 1,2,3 \quad (5)$$

$$\sum_{hlmo} W_{hlmno} * W_{2ijk} = N_{...n.}, \quad n = 1,...,9 \quad (6)$$

$$\sum_{hlmn} W_{hlmno} * W_{2ijk} = N_{....o}, \quad o = 1,...,4 \quad (7)$$

where the sign = means the equations simultaneously satisfy to the closeness desired. The subscripts denote these designations:

h - brigade;

l - sex;

m - race;

n - age;

o - educational attainment of household head; and

$W_{hlmno}$  - the poststratification weight for the  $h^{th}$  Recruiting Brigade,  $l^{th}$  sex,  $m^{th}$  race,  $n^{th}$  age, and  $o^{th}$  educational level of head of household.

To satisfy equations (3) to (7), the raking algorithm proceeds by proportionately weighting the cell values so that each of the equations is satisfied in turn. Each step begins with the results of the previous step. The process terminates when all equations are simultaneously satisfied to the degree desired.

The weight for each individual in the sample will be the product of the poststratification weight and  $W_{2ijk}$ , computed in equation 2.

$$W_{3hijklmno} = W_{hlmno} * W_{2ijk} \quad (8)$$

The data will be structured in a way that will allow Army analysts to make comparisons of ACOMS findings with other survey efforts, such as the Youth Attitude Tracking Survey (YATS II). The YATS survey focuses on enlistment decision-making and is a more general survey, with respect to subpopulations of interest, when compared to ACOMS. Consequently, the YATS weighting methodology does not include poststratification adjustments by race/ethnicity or by

recruiting brigades. Even with a different weighting scheme, ACOMS will be approximately comparable to YATS and other general survey efforts. The differential weighting schemes will be reflected in the sampling errors of the estimates computed from the ACOMS and the YATS data.

#### Sampling Weights for the Perceptions of Attributes and the Other Rotating Modules

The perception module includes questions about perceptions of the active Army, ROTC, National Guard, and USAR, perceptions of other military services (Air Force, Navy, and Marines), and other nonmilitary options open to respondents belonging to the relevant age group (i.e., attending college and in civilian employment). To keep the length of the youth questionnaire to an average of 30 minutes, subsets of respondents will be randomly selected and assigned to Army components and other military services' questions. The size of the subsample will vary, depending on the characteristics of the sample and the Army components and other services. For example, almost all college students will be assigned to ROTC modules, whereas only a small portion of college students will be assigned to Navy or Marines. The other rotating modules include Media Habits, Slogan Recognition, Knowledge, and Social Influences modules. Media Habits, Slogan Recognition, and Knowledge modules will only be asked from one-half of the youth sample, and the Social Influences module will be asked from the parental-linked sample. Therefore, the sample requires weighting for the production of unbiased estimates for perception of attributes variables and other rotating modules.

A second set of weights will be computed that reflects the sampling rates used for subsampling respondents for the rotating modules. The weights will be used in tabulations that include the rotating questions. The weights will be equal to the reciprocal of the probability of selection for the rotating modules and the sampling weight computed in equation (8).

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#### 4. THE ACOMS QUESTIONNAIRES

Gregory H. Gaertner, Veronica F. Nieva, and Bruce F. Allen

##### A Conceptual Model of Advertising Effectiveness

The main Army Communications Objectives Measurement System (ACOMS) survey instruments consist of youth and parental questionnaires that were designed using a modified hierarchy of effects model (Fishbein & Azjen, 1975) model of the advertising process (see Figure 9).

Implicit in the model is the notion that (a) the consumer gains awareness of a product through advertising messages, which result in (b) beliefs about the product, in interaction with the consumer's evaluation of his/her need for the product, which in turn affect (c) the respondent's attitude toward the product, and (d) subsequent intentions and actions toward the product. The model therefore suggests the major types of criteria by which Acoms will assess advertising effectiveness:

- (1) awareness (or recall) of Army advertisements;
- (2) positive beliefs or perceptions about Army attributes;
- (3) positive attitudes toward Army enlistment, intentions to enlist, and
- (4) actual enlistment-related behaviors.

The model also posits additional processes focused on social influence. Perceived social norms are posited as affecting the youth's intentions to enlist. Influential people, particularly parents, are seen as significant factors in the youth's attraction to the Army.

Parental attitudes and behaviors are affected by Army advertising, in a process that parallels that of the youth. The parents, like the youth, become aware of the Army through its advertising, which if effective, changes their beliefs and attitudes towards the Army in a more positive direction. Positive parental attitudes are then expected to be manifested in parental behaviors intended to influence the youth's intention to enlist.

In the current context, the hierarchy of effects model suggests important measures for consideration in measuring the effects of Army advertising. Respondent demographics (e.g., region, race and ethnicity, and sex), life stage (e.g., age, employment and marital status, income or income of household, and education), and media habits and exposure, are postulated to affect respondent awareness of the Army gained through exposure to Army advertising. This level of knowledge is hypothesized to affect respondent beliefs about advertising messages such as attributes of the Army. In Fishbein and Azjen's model as adapted, these beliefs take the form of agreement that a given attribute is offered by the Army (or component, other service, college or civilian job).

Corresponding to these beliefs are evaluations of the importance of these attributes to the respondent who rates them by varying levels of importance reflecting his or her own underlying needs. The youth's attitudes toward enlistment are hypothesized to arise as the products of

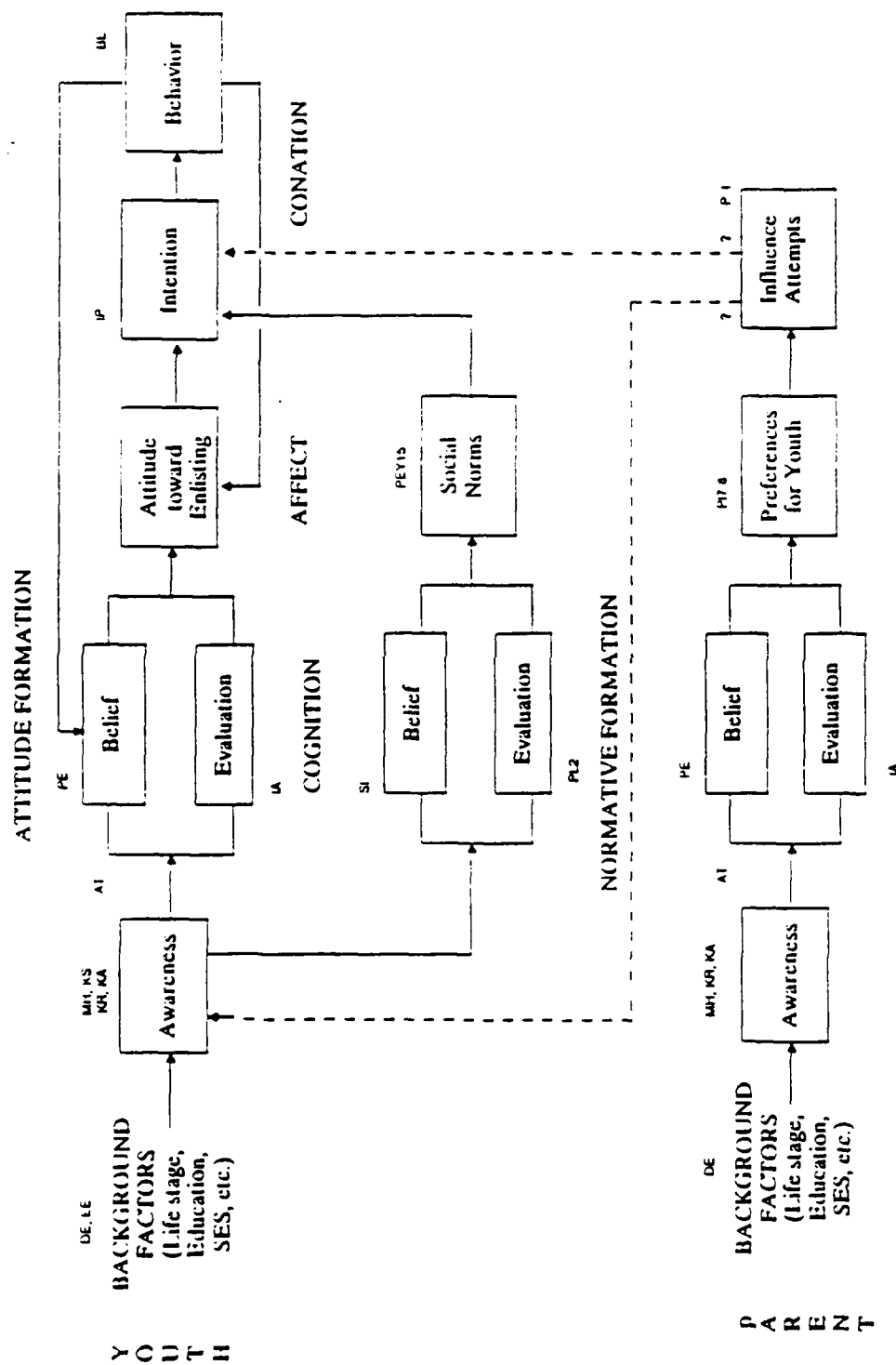


Figure 9. Expanded Fishbein-Azjen model of hierarchy for ACOMS.

beliefs about what the Army offers and the corresponding personal importance of those attributes. Thus, attitudes will be positive when the respondent believes that positively evaluated outcomes relating to military service are likely, indifferent when perceived outcomes are not seen as important or important positive outcomes seen as only moderately likely, and negative when negatively evaluated outcomes are likely.

These attitudes are hypothesized, in turn, to affect behavioral intentions including propensity toward the Army, which then are expected to affect behaviors. It is important to note that these actions may include enlistment, but are also likely to include intermediate actions like seeking information, asking for advice, seeing a recruiter, and so on. As the model suggests, these intermediate actions can feed back on beliefs and evaluations.

The model also includes the effects of social (especially parental) influence on the decision process. Parents of a subset of ACOMS respondents are to be interviewed on their exposure to Army advertising, and beliefs and evaluations of Army attributes parallel to the youth interviews. The parent is also asked his or her preferences for the target youth's future and how he or she has attempted to influence the youth's planning.

#### Model Applications

As an example of the application of the model to actual cases, consider the decision process<sup>4ss</sup> for respondents for whom getting money for college is of primary importance. As the time to make college-related decisions approaches, they will probably explore how they can get this money. One message of U.S. Army Recruiting Command (USAREC) advertising is that "with ACF (Army College Fund) you can go to college 'older, wiser, and richer'." This message, if effective, will raise the level of belief, especially among those interested in college funding, that the Army offers the opportunity to get funding for college. If the basic model is correct, this heightened belief will result in improved attitudes toward enlistment, and an intention to seek more information about service in the Army for those who attach a positive importance to obtaining college funding. This intention may result in subsequent action which may refine or confirm their beliefs, leading to additional actions and so on. This step sequence is depicted in Figure 10, top panel. Although not displayed in the figure, the youth may also be assessing the experience and beliefs of his or her classmates, or seeking (or receiving unsought) the advice of his/her parents, which may affect the search-and-decision process.

The bottom panel depicts a more truncated search process for a respondent for whom patriotism is of primary importance. To the extent that the respondent receives the message that the Army is "the best way to serve your country," his/her belief in the Army as an expression of patriotism is reinforced. This might lead, rather directly, to a recruiter visit and a subsequent enlistment when enlistment becomes a practical possibility. Again, parental and social influences may have effects, to greater or lesser extents.

The model implies that there are features of "readiness" associated with life stage (e.g., need for college funding in the first example, and ability to make significant life choices in the second) which allow or impel the youth to make decisions for which information was already available. Further, the two groups of respondents depicted in Figure 10 are likely to come from different demographic and motivational backgrounds, and advertising is likely to affect them very differently.

However these are only the most obvious effects of advertising, and only the most obvious applications of the model. An additional effect of advertising may be to decouple attributes from the Army for example, by dispelling the belief that one loses out on career opportunities by choosing the Army. If this advertising is effective, it would not be by changing the importance of career concerns, but rather by reducing the presumed association between military service and career disadvantage. In fact, this is one of USAREC's communications objectives. A further effect of advertising might not be on levels of variables in the model but rather on relationships between variables. An example might be to strengthen the link between intention and action by making available better methods for gaining information on the Army, allowing curious respondents to search for information more easily.

#### The ACOMS Questionnaire

ACOMS currently includes three survey instruments: (a) the household screener, (b) the youth questionnaire, and (c) the parent questionnaire. These questionnaires are presented in Appendix B. In the future, a longitudinal questionnaire will be designed for youth who will be reinterviewed annually.

#### The Household Screener

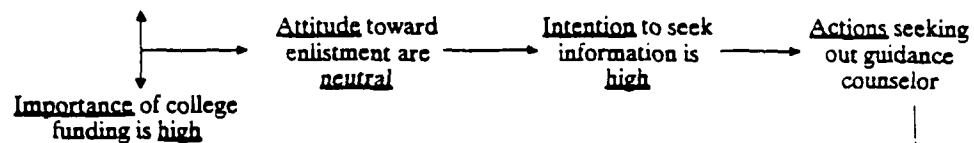
The household screener is a brief, three-minute instrument designed to locate target respondents for the full ACOMS interview. Using the random digit dialing (RDD) method of sample selection, telephone numbers are contacted at random. The screener interview is used to identify and eliminate nonhousehold telephone numbers such as businesses and institutional telephone numbers as well as households that do not have youth who fulfill ACOMS eligibility requirements. The screener interview is conducted with any knowledgeable household member.

#### The Youth Interview

The youth interviews, which average about 30 minutes in length, provide the major measures of the dynamics and effects of Army advertising available in ACOMS. In accordance with the conceptual model which has guided the development of ACOMS, the youth interview is divided into 14 topical modules. In order to achieve a 30-minute average interview while ensuring that all necessary information is obtained, a complex questionnaire structure was developed. The 14 questionnaire modules are divided into 8 "core" modules which are asked of all respondents, and 6 "rotating" modules which are asked of a subset of respondents.

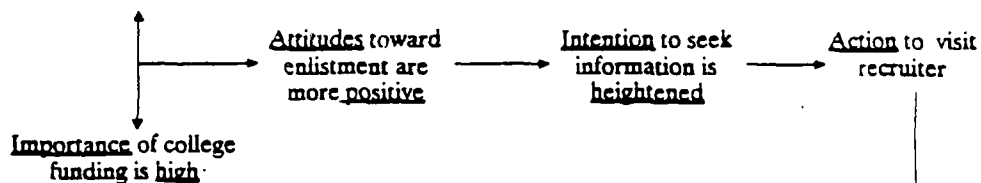
Stage 1:

Belief that service provides college-funding possibilities is low order



Stage 2:

Belief that service provides college-funding possibilities increases

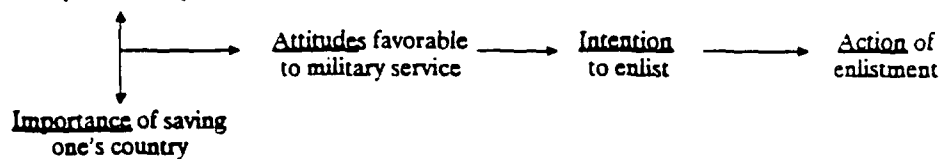


etc.

Decision-Sequence for College-Funding Motivated Respondent

Stage 1:

Belief that military service is an expression of patriotism



Decision-Sequence for Patriotism-Motivated Respondent

Figure 10. Enlistment decision-sequences for differently motivated respondents.

In addition, sections in one of the core modules, Perceptions/Beliefs, are assigned differentially to a subset of respondents, primarily defined in terms of their educational attainment and plans. These module rotation strategies are discussed in further detail later in this discussion.

Core modules. The core modules are:

- (1) Education and Employment: elicits employment history and measures of course-content and school performance useful for assessing quality.
- (2) Intentions and Propensity: asks for the respondent's plans for the next few years, constructed to parallel and supplement measures of Army propensity in the Youth Attitude Tracking Study II (YATS II).
- (3) Behaviors: elicits information on the respondent's activities to enlistment, employment and/or college enrollment.
- (4) Importance of Attributes: assesses the importance to the respondent of attributes defined by the Army's communications objectives. These items correspond to the evaluation component of the Hierarchy of Effects model.
- (5) Knowledge-Recall: asks for unaided and aided recall of Army (by component) and other service advertising, presented in random order. The respondent is also asked where the advertising was seen or heard, what its main message was, and whether he/she believed and/or liked it.
- (6) Attitude Toward Army Advertising: ascertains how much the youth likes and believes the advertisements he/she has seen or heard.
- (7) Perceptions/Beliefs: asks whether the Army (by component), other services, military service in general and/or college and civilian employment offer the attributes defined by the Army's communications objectives presented in random order. These items correspond to beliefs in the Hierarchy of Effects model.
- (8) Demographics: elicits information on respondent's ethnicity, marital status, Social Security number, socioeconomic background, and current address.

Rotating modules. The noncore modules are:

- (9) Media Habits: elicits information on the amounts of television, radio, and print material the respondent is regularly exposed to, and his/her favorite programs and print vehicles (asked only of a randomly selected half of all youth respondents).

- (10) Knowledge-Slogan Recognition: asks whether the respondent can identify slogans utilized in Army, other services and joint-service advertising presented in random order (asked only of a randomly selected half of all youth respondents).
- (11) Knowledge-Awareness: asks for the respondent's level of knowledge concerning Army offers (asked only of a randomly selected half of all youth respondents).
- (12) Parental-Location Information: elicits information required to contact parents (asked only of parental-linked target youth).
- (13) Social Influences: asks for the respondent's assessments of the attitudes of friends, parents and others toward enlistment (asked only of parental-linked target youths).
- (14) Tracking Information: elicits information required to trace youth selected for inclusion in the longitudinal sample, including anticipated changes in telephone number, names and phone numbers of employer and two others likely to know respondent's whereabouts (asked only of longitudinal sample).

Thus, certain modules will only be asked of particular groups of respondents. Tracking and Social Influences will only be asked of target youths in the parental-linked sample, since these respondents allow the fullest test of the social/normative aspects of the conceptual model. In addition, Slogan Recognition, Knowledge-Awareness, and Media Habits modules will be asked of only a randomly selected half of all youth respondents and each possible pair of modules is asked of one-sixth of the sample.

Slogan Recognition, Knowledge-Awareness and Media Habits modules will be distributed among respondents as shown in Table 13. Respondents will be assigned randomly to each of the three modules with a probability of .333. Half will not be assigned a second module from this group of three. The remaining half receive one of the two remaining modules with equal probability. The average respondent will receive 1.5 modules of the three, a substantial saving of time.

Table 13

## Module Rotation Plan

	Second Module				
	Media Habits	Slogan Recognition	Knowledge-Awareness	None	Percentage
Media habits	0.0%	8.3%	8.3%	16.7%	33.3%
Slogan recognition	8.3%	0.0%	8.3%	16.7%	33.3%
Knowledge-Awareness	8.3%	8.3%	0.0%	16.7%	33.3%
Percentage	16.7%	16.7%	16.7%	50%	100%

Allocation of the Perception/Beliefs sections. The Perceptions/Belief module constitutes the core of the ACOMS questionnaire. The module contains questions about those attributes which constitute the major copy points, or communications objectives, or Army advertising. These communications objectives were developed in an iterative process that involved group and individual discussions with Special Advisory Group (SAG) members and other Army representatives.

ACOMS respondents are asked whether these attributes are descriptive of 10 referents (active Army, Reserve Officers' Training Corps (ROTC), Army National Guard (ARNG), U.S. Army Reserve (USAR), Navy, Marines, Air Force, military service generally, college, and work) that may be perceived by the youth as future career options. Table 14 shows the attributes asked about each of the service and career referents.

The attributes list for each referent is considered a "section" in the Perceptions module. Since asking any single individual to respond to all 10 sections would be an intolerable burden, a plan to allocate respondents to perceptions sections was devised in collaboration with the SAG.

The allocation scheme was intended to reflect the market priorities of each of the Army components. Respondents are divided into six groups:

- (1) Those who have completed three or more years of college;
- (2) Respondents currently enrolled in first or second year of college;





Table 14

## Allocation of Q87-2 Perceptions to Service and Career Options

Attributes	ARMY	USAR	Air			Navy	Services	Bound	College Total	
			ARNG	Force	Marines				Work	ROTC Groups
A wide variety of opportunity to find a job you can enjoy	X	X	X	X	X	X	X		X	8
A physically challenging environment	X			X	X	X	X	X		6
An experience you can be proud of	X	X	X	X	X	X	X	X	X	10
An advantage over going right from high school to college	X			X	X	X	X	X		6
An opportunity to develop leadership skills	X	X	X	X	X	X	X	X	X	10
The chance to work with the latest high-tech equipment	X			X	X	X	X	X		6
A great value in your civilian career development	X	X	X	X	X	X	X	X	X	8
An excellent opportunity to develop self confidence	X	X	X	X	X	X	X	X	X	10
The opportunity to develop your potential	X	X	X	X	X	X	X	X	X	9

Table 14 (continued)  
Allocation of Q87-2 Perceptions to Service and Career Options

Attributes	ARMY	USAR	Air				All Services Bound	Work Bound	College ROTC	Total Groups
			ARNG	Force	Marines	Navy				
A mentally challenging experience	X	X	X	X	X	X	X	X		9
An opportunity to become more mature and responsible	X	X	X	X	X	X	X	X		9
Many opportunities for training in useful skill areas	X	X	X	X	X	X	X			8
Many chances to work with highly trained people	X	X	X	X	X	X	X	X		9
An excellent opportunity to obtain money for college or vocational school	X	X	X	X	X	X	X			8
An opportunity to serve America while living in your own hometown		X		X						2
An excellent opportunity for part-time work		X	X							2
Interesting and exciting weekends		X	X							2
Four additional ROTC attributes									X	1
Total Attributes	14	14	14	14	14	14	14	8	8	

- (3) High school students intending to go to college;
- (4) High school students not intending to go to college;
- (5) High school diploma graduates not currently enrolled in college; and
- (6) High school noncompleters.

The characteristics of the allocation scheme are specified below.

- (1) All respondents are asked about two components, usually active Army and one other. However, one group (college-bound high school students) will be asked three modules.
- (2) All Primary Male Analytic Sample/Primary Female Analytic Sample (PMAS/PFAS) eligibles will be asked the active Army perceptions questions (Groups 2 through 5).
- (3) Those attaining three or more years of college (Group 1) will be asked two sets of questions, those pertaining to ROTC and one other component, branch, college, or civilian job.
- (4) College freshmen and sophomores (Group 2) will be asked two modules, either active Army, or ROTC, and one other. One-third of Group 2 will be asked active Army, and ROTC, one-third active Army and one other module, and one-third ROTC, and one other module.
- (5) College-bound high school students (Group 3) will be asked three modules, active Army, ROTC, and one other.
- (6) Noncollege-bound high school students and high school graduates not currently enrolled (Groups 4 and 5, respectively) will be asked active Army and one other set.
- (7) Secondary Male Sample/Secondary Female Sample (SMS/SFS) respondents will be allocated as Group 4 and 5.

Table 15 presents the expected distribution of PMS respondents, making some assumptions about the distribution of respondents to the five groups. If we assume that about 10% of all PMS respondents will have completed the third year of college or more, 24% are freshmen and sophomores, 11% of high school students are college-bound, 13% of high school students are noncollege-bound, and that 42% of high school graduates are not enrolled in college, we would expect, for example, about 970 sets of responses to the ROTC questions annually from those in their third year of college or more, and so on. It should be emphasized that these are expected numbers. Actual distributions will depend on the validity of the assumptions underlying the distribution to groups, and the performance of the random assignment. The assumptions were based on

## (ACOMS SURVEY DESIGN)

Table 15

Assignment of Respondents to Perceptions Modules by Component: Male Sample Only, Including Primary Male Analytic Sample (PMAS), College Juniors, and Beyond

	Active	ROTC	ARNG	USAR	Navy	Marines	USAF	College	Work	Service
<u>Attained 3 yrs. + College</u>										
<u>N-970 (10% of Total)</u>										
Annual	--	970	121	121	121	121	121	121	121	121
Quarterly	--	243	39	30	30	30	30	30	30	30
Monthly	--	81	10	10	10	10	10	10	10	10
<u>Freshmen and Sophomores</u>										
<u>N-2,330 (24% of Total)</u>										
Annual	1,553	1,553	194	194	194	194	194	194	194	194
Quarterly	388	388	49	49	49	49	49	49	49	49
Monthly	129	129	16	16	16	16	16	16	16	16
<u>H.S. Students College-Bound</u>										
<u>N-1,035 (11% of Total)</u>										
<u>45% of High School</u>										
Annual	1,035	1,035	279	279	79	79	79	79	79	79
Quarterly	259	259	70	70	70	20	20	20	29	29
Monthly	86	86	23	23	7	7	7	7	7	7
<u>H.S. Students Work-Bound</u>										
<u>N-1,265 (13% of Total)</u>										
<u>55% of Not-in-College</u>										
Annual	1,265	141	141	141	141	141	141	141	141	141
Quarterly	316	35	35	35	35	35	35	35	35	35
Monthly	105	12	12	12	12	12	12	12	12	12
<u>H.S. Grads Not Enrolled</u>										
<u>N-4,000 (42% of Total)</u>										
Annual	4,000	444	444	444	444	444	444	444	444	444
Quarterly	1,000	111	111	111	111	111	111	111	111	111
Monthly	333	37	37	37	37	37	37	37	37	37
<u>Totals</u>										
<u>N-9,600</u>										
Annual	7,853	4,143	1,180	1,180	980	980	980	980	980	980
Quarterly	1,963	1,036	295	295	245	245	245	245	245	245
Monthly	654	345	98	98	82	82	82	82	82	82

extrapolations from the Current Population Survey and the Fall 1985 Youth Attitude Tracking Survey II (YATS II).

It is useful to explore the effects of these sample sizes on the statistical power of the PMAS. In Table 16, we present the smallest detectable difference (between months, quarters or years, depending on the two) in the estimate of the proportion of .5 for the sample sizes as depicted in Table 15. Table 16 illustrates the smallest difference which will lead to a rejection of the null hypothesis of no difference over time (assuming  $p = p_1 = p_2 = .5$ ).

As should be apparent, almost any substantively meaningful annual difference will be statistically significant in the sample as a whole, whether for active (.017), ROTC (.036), USAR and ARNG (.044 or .046), or even other components (.045 or .048). Confidence intervals for quarterly and even monthly differences are still reasonably tight for active Army and ROTC. Monthly and quarterly differences within segments, however, become precarious, especially for other components. However, since quarterly estimates for these other components are not of critical importance, this design tradeoff seems appropriate.

#### The Parental Interview

The parental interview, to be conducted with a predesignated parent of target youths 16- to 20-years of age, was constructed in parallel with the youth interview. It contains eight modules in the following order:

- (1) Parental Influence: probes whether the parent has discussed military service with the target youth, his/her expectations for him/her, and beliefs that military service is a good or bad idea for most young men and women.
- (2) Importance of Attributes: repeats the items in the youth version which assess the importance of attributes, this time asking the parent about the importance of these attributes to the target youth.
- (3) Media Habits: these items are identical to those asked of the youth and focus on the amounts of television, radio, and print material the parent is regularly exposed to, and his/her favorite programs and print vehicles.
- (4) Knowledge-Recall: these questions are also identical to those in the youth questionnaire and ask for unaided and aided recall of Army and other service advertising with questions in random order.
- (5) Attitudes Toward Army Advertising: addresses how much the parent likes and believes the advertisements he/she has heard or seen, using the same items as those in the youth interview.

Table 16

Smallest Detectable Change Over Time Using ACOMS Sample Allocation, and Proportion Equals 50%

N=	970 Attained 3 years + College						10% of Total			
	Active	ROTC	ARNG	USAR	Navy	Marines	USAF	College	Work	Service
Annual	--	0.05	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Quarterly	--	0.10	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
Monthly	--	0.17	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47

N=	2,330 Freshmen and Sophomores									
	Active	ROTC	ARNG	USAR	Navy	Marines	USAF	College	Work	Service
Annual	0.04	0.04	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Quarterly	0.08	0.08	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
Monthly	0.13	0.13	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37

N=	1,035 H.S. Students College-Bound						11% of Total				45% of High School			
	Active	ROTC	ARNG	USAR	Navy	Marines	USAF	College	Work	Service	College	Work	Service	Service
Annual	0.05	0.05	0.09	0.09	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
Quarterly	0.09	0.09	0.18	0.18	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
Monthly	0.16	0.16	0.31	0.31	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58

Table 16 (continued)

Smallest Detectable Change Over Time Using ACOMS Sample Allocation, and Proportion Equals 50%

D-	1,265 H.S. Students Work-Bound				13% of Total				55% Not in College			
	Active	ROTC	ARNG	USAR	Navy	Marines	USAF	College	Work	Service		
Annual	0.04	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13		
Quarterly	0.08	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25		
Monthly	0.14	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43		
D-	4,000 H.S. Grads not Enrolled				42% of Total							
	Active	ROTC	ARNG	USAR	Navy	Marines	USAF	College	Work	Service		
Annual	0.02	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07		
Quarterly	0.48	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14		
Monthly	0.08	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24		
D-	9,600				Totals							
	Active	ROTC	ARNG	USAR	Navy	Marines	USAF	College	Work	Service		
Annual	0.02	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05		
Quarterly	0.03	0.07	0.09	0.09	0.10	0.10	0.10	0.10	0.10	0.10		
Monthly	0.06	0.12	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.17		

- (6) Perceptions: are probed with the identical questions asked of the target youth about the extent to which the Army (by component), other services, military service in general, college, and civilian employment offer the attributes defined by the Army's communications objectives.
- (7) Knowledge-Awareness: these items assess the parent's knowledge, as in the youth interview, of Army benefits and programs.
- (8) Demographics: these items elicit information on the parent's ethnicity, marital status, socioeconomic background and military experience.

In essence, the parental interview adds one module to the youth questionnaire (Parental Influence), and drops Education and Employment, Intentions/Propensity, Behaviors, Social Influences, Slogan Recognition, and the Parental Location and Tracking modules from the youth interview. Except in the Importance module in which the referent for the items is changed to the youth, nearly all question-wordings are identical to those in the youth questionnaire. Further, where random assignment to or within modules is performed for the youth interview, the parent's interview will be assigned to the same modules and sections at the target youth. Thus, if the target youth was asked questions on perceptions of Army and college attributes, the parent is also asked the Perceptions questions for Army and college attributes. Further, if the youth was asked Media Habits and Knowledge-Awareness, the parent is asked the same modules.

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## 5. DATA COLLECTION AND PROCESSING

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### The Computer-Assisted Telephone Interview (CATI) System: An Overview

The Army Communications Objectives Measurement System (ACOMS) interviews will be conducted using Westat's proprietary computer-assisted telephone interview (CATI) system. The system consists of state of the art software that facilitates the collection and processing of complex data. The CATI system is particularly appropriate for surveys with complicated instruments, like ACOMS, in which the types of information collected from different respondents varies according to key respondent characteristics.

The CATI system automates the presentation/elimination of different sets of questions based on answers obtained earlier in the interview. Question-wording choices and randomized question presentation are also automated. This characteristic makes the interviewing process considerably more efficient than using the traditional hard-copy instrument, and also leads to significantly fewer interviewer errors in questionnaires with complicated skip and branching structures.

The CATI system's internal editing capabilities also reduce error and the amount of time required to process the survey data. CATI operations include internal validity checks for value ranges, as well as on-line consistency checks across related survey items. These capabilities virtually eliminate the need for data retrieval and extensive postinterview data cleaning operations. They also minimize postdata collection editing, thus facilitating rapid preparation of data files for analysis.

Westat's CATI system further minimizes the possibility of erroneous data by maintaining an audit trail file for each interview. Every keystroke that an interviewer enters through the keyboard is recorded in this file. Any questions about how particular responses were recorded during the conduct of the interview can be examined using the audit trail for any case.

Another feature of the CATI system is the automated scheduler program that automatically schedules cases based on study-specific algorithms. The scheduler handles both initial calls and subsequent "callbacks." As each call to every individual number is attempted, a result code (e.g., "ring-no answer," completed, or specific appointments) is entered into the system which triggers action on that particular case if other attempts are necessary. The management system maintains a record of each call attempt made to each assigned number.

Finally, the CATI software creates both tape and hard-copy versions of the questionnaire, code book, and call disposition record. Thus the documentation, variables, and data- and file-editing processes are integrated to make it possible to eliminate many steps that are necessary when using other software, such as SAS. In summary, the program documentation in the CATI system includes: the questionnaire

actually used by interviewers; a code book; a call disposition record; SAS analysis programs; and current, reliable information.

### Sample Selection

The ACOMS survey data will be collected via telephone interviews of a nationally representative sample of youth and their parents. As discussed in Chapter 3, Sample Design (Mohadjer & Waksberg, 1988), the sample will be selected using the Waksberg Random Digit Dialing (RDD) method, whereby randomly selected telephone numbers are screened for the youth who have characteristics of interest to the survey. The RDD method of sample selection uses an AT&T listing of all existing telephone area codes and telephone numbers. Using this method, we expect to locate the required numbers of White and Black youth. However, the method will not yield a sufficient number of Hispanic youth for separate analysis; therefore, supplementation of this relatively rare population will be drawn from telephone exchanges in which very heavy concentrations of Hispanics are located.

For both the main sample and the supplement, the approach to sample identification will be identical. For each telephone number contacted, a brief "screener interview" will be administered in order to identify: (a) whether the number contacted belongs to a household (versus a business or other type of institution) and if so, (b) whether target youth with the desired characteristics of age, education, and prior or current service status can be located at that telephone number. If a target youth is identified by the screener, a complete youth interview is administered. In households with multiple eligible youth, or in households in which a parent has been designated for interview, attempts will be made to complete all the necessary interviews within the household.

In many cases, several telephone calls will be necessary to complete all the interviews within a household. Up to ten callbacks will be made, at different times of the day, in order to complete interviews within the household. When possible, appointments will be made for the best times to call back for the interviews. Callbacks will also be made in cases where an initial refusal is encountered, so that a different household member may be contacted (in the case of a screener call) or to attempt a "refusal-conversion" effort for a target respondent.

The interview work flow will be handled through the automated CATI scheduler. The scheduler will release the monthly sample of telephone numbers for initial contact, as well as trigger appropriate followup action for each case.

In brief, the scheduler uses a series of algorithms that arrange calls by time zone, randomize callbacks across different days of the week and different times of day, and sort cases by status. Cases can be classified as refusals, callbacks, with or without appointments, or "ring-no answers". The algorithms are designed to meet project specifications and priorities, and they can be adjusted when needed.

The interview work flow will be controlled on a monthly basis. A sample of telephone numbers will be drawn once a month from the AT&T and Donnelley lists. For each "sample draw," the active interview period for conducting the household screener interviews and the target youth interviews will be six weeks. That is, at the start of each month, a new sample of telephone numbers will be activated. Household screener interviews will be conducted, and attempts will be made to interview all target youth identified within six weeks after the start of the month. The parental sample will be contacted within a four-week period after the linked target youth interview is completed.

#### ACOMS Interviewers

The ACOMS interviews will be conducted by a staff of about 50 interviewers trained to perform a number of demanding tasks simultaneously. They must establish rapport with a respondent, accurately read the question shown on their CRT screen, correctly code the response, enter messages to the respondent's file indicating that a probe (e.g., rereading the question, prescribed clarification of the item) was required, record verbatim a respondent's comments on a question, and keep the respondent's interest long enough to complete the interview.

The ACOMS interviewers will complete an extensive training program designed to provide them with the multiple skills required by the CATI approach. The training program will require the active participation of all trainees and simulate the actual conditions of the survey. This "hands-on" approach has many advantages over the lecture-style presentation which leads to much lower retention of the training material.

All telephone interviewers will participate in Westat's four-hour "General Interviewing Techniques" training program in which trainees are instructed in basic telephone techniques, including ways to obtain accurate data through listening and probing, and methods for gaining respondent cooperation. Also included in this session will be a brief presentation on diction and voice control.

Before the start of each survey and periodically thereafter, as necessary, project-specific training will be provided to interviewers. This training will consist of an average of 30 hours devoted to acquainting the interviewers with the project goals, terminology, and specific instruments. The program will involve a variety of basic training techniques: home study, interactive lecture to the entire training group, interactive lecture to small groups of trainees, dyad role-playing, and exercises. The training manual to be used for ACOMS interviewers is available separately (Westat, 1987).

The majority of training time will be spent on the three ACOMS instruments: the household screener and the youth and parental questionnaires. Trainers will work from three types of scripts, (a) interactive scripts, (b) community scripts, and (c) role-playing scripts. These scripts are designed to demonstrate the various skip patterns, recording issues, and potential problems in an ACOMS interview.

Interactive scripts are the simplest of the three, designed to show trainees the main questions in the interview without any problematic or unusual responses. These scripts will be used during instruction on question-by-question specifications.

While working from the community scripts, the trainer will take the respondent's role and call on trainees to act as interviewers. These scripts typically will be administered in small groups, hence the reference to community. Community scripts are typically designed to demonstrate specific skip patterns and problem areas, to reinforce CATI conventions and project definitions introduced earlier, and to give trainees practice in answering respondents' questions.

Trainees will also work in pairs with role-playing scripts. One member of the pair will act as the interviewer and the second member will act as the respondent. Role-playing script booklets will be provided in which all responses are predetermined for the "respondent." Each pair of trainees will receive a total of four role-playing scripts: one parental and three youth interviews.

In addition to group instruction, trainees will also have the opportunity to practice administering household screeners on their own. Local telephone numbers will be used for the practice sessions, and each trainee will be required to practice for four hours.

After data collection starts, followup training on refusal-prevention and conversion will be given. Over the past three years, Westat has achieved great success with our refusal conversion program, obtaining refusal conversion rates as high as 60%. For a final refusal, a separate CATI module that asks for information on key demographics of the refusing respondent and the respondent's reason(s) for refusing to participate will be completed whenever possible.

#### Quality Controls for Interviews

The successful conduct of a large survey like ACOMS requires strict control over the activities of all interviewers. A Telephone Research Center (TRC) operations manager will act as the primary liaison between the project staff and the TRC. This manager will coordinate the efforts among daytime, evening, and weekend interviewer shifts and will ensure that adequate staff resources are assigned to keep the survey on schedule. The manager will work closely with shift supervisors who will be responsible for monitoring interviewer production and handling problems. Shift supervisors will be "on the floor" with the interviewers at all times, encouraging interviewers and ensuring that problems are quickly identified and resolved.

All interviewers will be closely monitored by the shift supervisors. Using extension telephones and displays linked to interviewer CRTs, supervisors will silently monitor at least 10% of interviewer work over the course of the study. An interview monitoring report will be completed each time a call is monitored. During the initial weeks of the surveys, the results of the monitoring will be discussed

with each interviewer immediately following the interview. This discussion will provide feedback to the interviewer on incorrect techniques in gaining cooperation, asking questions, answering questions, or recording responses. Thereafter, unless there is a specific problem, monitoring reports will be reviewed with each interviewer at his or her weekly meeting. In addition, supervisors will review the monitoring reports to identify common problems that require additional interviewer training.

Each completed case can be sampled and reviewed for the quality of data collected. This review will be especially important in making sure that an interviewer is entering comments properly and recording any text responses clearly. Initially, all the interviewer's work will be reviewed. Thereafter, a sample of each interviewer's work will be reviewed periodically to ensure that quality remains high.

#### Interview Production Reporting and Management System

Survey control depends to a great extent on the computerized management system that handles interviewer assignments and call-backs, as well as validation and refusal-conversion efforts. This system is programmed to provide study managers with timely information on survey progress, quality, schedule, and cost.

In the CATI RDD system, a certain number of phone numbers are initially released for calling. As each number is attempted, a result code is entered into the system. This code triggers action on that particular case if other attempts are necessary and maintains a record of each call-attempt made to each assigned number. This record is a complete history of all attempts for each phone number. It includes the date, time, interviewer, result, and appropriate comments for each call-attempt.

Supervisors in the TRC will have access to the survey control information stored in the CATI system. The "call" histories of problem cases will be reviewed both by supervisors, to determine corrective action, and by interviewers before they begin to work on such a case. An abbreviated call-record can be displayed before the interviewers make a call-attempt to any phone number. This display enables the interviewers to review any comments from previous calls that might be useful during their call-attempt.

In addition, supervisors will use the CATI management information to produce various reports at regular intervals during the survey. Status reports will be produced to show the status of all selected cases both by final disposition, such as complete or final refusal, as well as by interim disposition. The interim dispositions include callbacks with appointments, callbacks with no appointments, first refusals, numbers that have not yet been contacted, eligible cases which have been contacted but the interview is not yet complete, and others.

A variation of the status report is a display that the telephone supervisor can access at any time to show how many active cases are assigned to the telephone center at that time and, of these cases, how many are appointments, refusals, and cases that have not yet been tried. As the cases are worked, the system updates this information so that the supervisor has access to a current listing of available work. This display is arranged by hour of the day so the supervisor can, for example, make sure that all appointments scheduled for 6:00 p.m. are called. The report also shows all future dated appointments so that the supervisor can adjust staff, if necessary, to cover all appointments.

Reports by interviewer are also produced. These reports reflect disposition of each contact and response rate. The reports also provide the staff with an analysis of the refusal-conversion efforts of each interviewer. The reports enable the staff to monitor refusal-conversion efforts, identify the successful refusal-conversion interviewers, and determine the results of the conversion efforts.

These interviewer-specific reports enable the supervisor to identify those interviewers with a low level of productivity or a high rate of refusals and will be used to identify staff who may need additional training or who should be dismissed from the study.

#### Data Processing and Documentation

##### Data Editing

The Westat CATI system shapes not only the data collection process, but also the data processing and documentation plan. Since Westat's CATI system will provide on-line range checks and consistency edits in addition to enforcing all skip patterns, extensive after-the-fact machine editing will not be required. As an additional check, however, Westat will run unweighted frequencies on all variables collected during the CATI interviews using either SAS or proprietary Westat software (CHESFREQ). These frequencies will check for incomplete data, range errors, input errors, and incorrect branching. During the early stages of the project the frequencies will be run often in order to discover possible problems, and later, they will be run on a monthly basis. Frequencies will also be run to check midquarter changes in questionnaire administration (for instance, if a particular question is asked only during specific months). Any problems discovered at this stage, such as CATI programming errors, will be corrected by Westat in consultation with the Contracting Officer's Representative (COR).

These unweighted frequencies will also be delivered to the COR on a monthly basis for review. The frequencies will provide 8-character variable names, 40-character variable labels, 16-character value labels, counts, and percentages. Frequencies will be provided for most of the nonderived variables on the data base. (The only variables that will be completely excluded will be those items for which frequencies would make no sense, such as verbatim responses to open-ended questions. In addition, frequencies on confidential data items

will be limited to providing information about various different types of nonresponse, such as "Refused" and "Don't Know".) These frequencies will be produced only as a check on data quality; since they will not be weighted, they will not be useful for analytic purposes.

#### Data Review and Preparation

The ACOMS data preparation operation consists of a staff of coders and their supervisor who are responsible for four tasks: (a) reconciliation of inconsistent geographic information obtained during the screener interview, (b) unitizing verbatim responses to the open-ended questions KR-15 and KR-17, (c) assigning a unique numeric code to each unitized phrase, and (d) updating the data base.

A screener interview will be batch-processed after it is completed to assign an Area of Dominant Influence (ADI), Standard Metropolitan Statistical Area (SMSA), and recruiting brigade to the case. If inconsistent information is encountered during the batch process, the case will be assigned to data preparation and resolution. Coders will review the screener information to obtain the source of the inconsistency and then receive it.

When a youth or parental interview is completed, the CATI scheduler will automatically assign the case to a data preparation file. Coders will "unitize" the verbatim responses to the two open-ended questions. "Unitization" is the process of separating distinct ideas prior to coding. Thus a verbatim response containing more than one distinct thought will be unitized into separate phrases for each thought; otherwise, it will be left as a single unitized phrase. Coders will then assign a unique numeric code to each unitized phrase by first determining the general category to which it belongs and then determining if it fits well into a specific subcategory within the general category. These numeric codes are illustrated in Figure 11 with the subcategories indented and located underneath their respective general category.

Another process involves updating the data base to correct infrequent yet nonpreventable interviewer errors. Sources of such updates are update/comment sheets and interviewer comments inserted during the interview. If an interviewer error occurs while conducting the interview, an update/comment sheet documenting the error will be filled out and a comment will be inserted within the interview where the error is detected. The interviewer will give the update/comment sheet to the shift supervisor who, after reviewing the sheet, will submit it to the data preparation operation for correction.

The data preparation staff will also review the file of comments for all ACOMS interviews. This will help detect interviewing errors for which an update/comment sheet was either misplaced or not completed. Coders will create a transaction file that lists the case identification number (ID), the specific variable requiring an update, and the old and new values of the variable. Coders will then submit the transaction file to the CATI utility CASEUPDT which performs the desired update.

100	Service	460	Many chances to work with high-quality people
110	A chance to serve your own community	471	Develop discipline
120	An opportunity to serve America while staying in your own home town	481	Develop pride
130	Unique opportunities to serve part-time in the military while working in a civilian job	500	Money/Benefits
140	A way of participating in a time-honored American tradition		- "Good pay"
150	An experience you can be proud of		- "Cash bonus"
161	Serve your country		- "GI Bill"
	- "Keep your country free"	600	Education/Benefits
	- "Defend the nation"		- "Gets you an education"
200	Challenge		- "Sends you to college"
210	A physically challenging environment	700	Travel
220	A mentally challenging experience		- "A chance to travel to interesting places"
			- "See the world"
			- "Go places"
300	Job/Career Development	800	(Frequent) Impressions
310	Many opportunities for training in useful skill areas (medical technology, mechanics, computers, electronics)	810	Interesting and exciting weekends
320	A wide variety of opportunities to find a job you can enjoy	821	Adventure
330	The chance to work with sophisticated, high-tech equipment	822	Excitement
340	A great value in your civilian career development	823	Fun
351	Vocational training	831	Respect
400	Self-Development	841	Opportunity
	- "Make something of yourself"	851	Learning
	- "Be a better person"	861	Experience
	- "Builds character"	871	Help
410	The best opportunity to develop leadership skills	881	Future
420	An excellent opportunity	900	Other
430	An opportunity to develop into a responsible, mature person	911	Details/description of advertisement(s)
440	The opportunity to develop your potential	921	Recall of advertising slogan
	- "Be all you can be"	931	Disbelief in advertisement
450	An advantage over going right from high school to college	941	Doesn't pay attention to advertisements
		951	Join/enlist
		961	Positive miscellaneous comments
		971	Negative miscellaneous comments
		981	Don't remember/don't know/none/nothing

Figure 11. Open-ended coding guide for interviewers.

### Data Tape Delivery

Data tapes for ACOMS will be delivered in two stages. The first stage, the "questionnaire tape", will consist of all variables collected directly by the CATI interviews, as well as case weights and the results of any open-ended coding. The second stage, the "derived variable tape", will consist of derived variables constructed during the analysis. The development and documentation of these derived variables will be discussed with the U.S. Army Research Institute (ARI). This two-stage process will allow the quickest possible delivery of the raw questionnaire data to ARI for their use, while still providing a complete set of additional analytic variables, once these are created by Westat.

Each set of data will be supplied in both raw data format and as SAS data sets. The raw data files will be on 9-track, unlabeled, 1600-BPI tapes, using EBCDIC character representation. For these raw data tapes, the hierarchical file structure used by CATI will be maintained. Logically distinct types of information, particularly information that may be collected more than once per case (e.g., contact information to document each telephone call), are maintained in separate physical subfiles or "segments". The data from these segments may be joined in any desired manner for analysis by using the SAS "MERGE" command or the SPSS-X "MATCH FILES" command. Note that older versions of SPSS have much less flexible file-manipulation capabilities. A significant amount of additional programming would be required to reformat the complex ACOMS data bases so that they would be easily usable by earlier versions of SPSS. Because of cost considerations, Westat is not currently planning to undertake such a reformatting effort.

Figure 12 lists all the segments contained in the ACOMS CATI data base. This figure indicates which segments are deliverable, which will be contained in the merged analytic SAS files, and which variables on deliverable segments contain confidential information.

The SAS data sets will be on 9-track, 1600-BPI tapes with IBM standard labels. In order to facilitate analysis, these data sets will be organized as "flat" files, rather than following the hierarchical organization of the CATI data base. All information (except for open-ended items) for each interview respondent will be contained in a single file. The only information that will be contained in the SAS files will be for completed interviews. In other words, they will not contain information on business phone numbers, ineligible households, or refusals. One SAS file will contain open-ended text and codes for all completed youth interviews, while a second will contain all other data for the youth. A similar procedure will be followed for parent interview data.

SAS formats (value labels) will be used to document the meaning of all coding schemes used, including missing-value codes. The SAS formats themselves will be provided on tape both as a SAS format library and in source-code form.

Segment Name	Description	Include in CATI Database?	Include in SAS Files?	Confidential Items
BASE	Information for the household as a whole	Yes	Selected variables	EXCH, LOCL, PHONCITY
ENUM	Youth enumeration in screener	Yes	Yes	EFNAM, ELNAM, EDOBDD, EDOBMM, EDOBY
BABY	Tracking information for HH with youth 13-15	No	No	N/A (no data delivered)
BASM	Housekeeping info for each respondent selected for interview	Yes	Only the variable MAINDATE	YPARFNAM, YPARLNAM, YPAREXCH, YPARLOCL, BASMEXCH, BASMLOCL
YUTH	Information from youth interview	Yes	Yes	YDCITY, YDSSN
GLOY	Scratch segment for youth interview	No	No	N/A (no data delivered)
TRAK	Tracking information for longitudinal youth	No	No	N/A (no data delivered)
YVEB	Uncoded responses to open-ended questions	No (see YUNI)	No (see YUNI)	N/A (no data delivered)
YUNI	Utilized/coded responses to open-ended questions	Yes	Yes (separate file)	None
YERR	Scratch segment for coding verification	No	No	N/A (no data delivered)
PARN	Information from parent interview	Yes	Yes	None
GLOP	Scratch segment for parent interview	No	No	N/A (no data delivered)
PVEB	Uncoded responses to open-ended questions	No (see PUNI)	No (see PUNI)	N/A (no data delivered)
PUNI	Utilized/coded responses to open-ended questions	Yes	Yes (separate file)	None
PERR	Scratch segment for coding verification	No	No	N/A (no data delivered)
SURV	CATI "call records"	No	No	N/A (no data delivered)
SKED	CATI scheduler information	No	No	N/A (no data delivered)
NIRF	Nonresponse info for refusals	No	No	N/A (no data delivered)
TRAC	Info for respondents who move during data collection	No	No	N/A (no data delivered)
GEOG	Scratch segment for geographic coding	No	No	N/A (no data delivered)

Figure 12. ACOMS CATI data base segments.

As of October 13, 1986, we have not yet made a final decision regarding the codes that will be used to represent missing values. We will examine the Youth Attitudes Tracking Survey (YATS) (Research Triangle Institute, 1985) coding schemes to see whether or not similar codes can be used for ACOMS. Special missing-value codes will be used to indicate items that are not asked during a particular quarter, due to questionnaire revisions.

Although Westat will maintain all information collected during ACOMS, all confidential information will be blanked out on the delivered ACOMS data bases. Confidential information consists of names, dates of birth, addresses (except for county and ZIP code), Social Security numbers, and telephone numbers, except for area code. Westat will, of course, retain such information as part of its ongoing survey management effort. If requested by ARI, Westat will provide link files containing study IDs and Social Security numbers to other contractors for research purposes.

#### Tape Documentation

Documentation for all ACOMS tapes will be delivered in three-ring binders. Each set of documentation, as well as each revision or addition to this documentation, will be treated as an ARI Working Paper. The tape documentation will include the following items:

- (1) Tape format information;
- (2) File layout (CATI code book and SAS Proc Contents); and
- (3) An annotated hard-copy questionnaire.

Documentation for constructed or derived variables, or variables that are produced by coding open-ended responses, will either be incorporated into the CATI code book, as illustrated in Figure 13, or will be presented as a separate section.

The tape format information will document the physical characteristics of the tape. It will include the tape volume number, tape density, labeling used (IBM standard labels or unlabeled), character representation (standard EBCDIC data or SAS data set), file name, record format, block size, record count, and data description such as Phase 2 ACOMS data, or source code for SAS format library.

Two forms of file layout will be provided: a CATI code book (Figure 13), and a SAS PROC CONTENTS (Figure 14). Each will be supplied in both printed and machine-readable format. The CATI code book will contain the following items for each variable: (a) segment name, (b) variable name, (c) column number(s), (d) 40-character variable label, (e) response codes, (f) missing data codes, and (g) 16-character value labels. The SAS PROC CONTENTS will include the following items for each variable: (a) segment name, (b) variable name, (c) position on dataset, (d) data type (numeric or character), (e) 40-character variable label, and (f) SAS format name, if applicable.

Segment: YOUTH

Variable Name -----	Column Number(s) -----	
YEDKIND	27-28	EE6 KIND OF SCHOOL YOUTH ENROLLED IN
		-----
		-1 INAPPLICABLE
		-7 REFUSED
		-8 DK
		-9 NOT ASCERTAINED
		1 REGULAR HIGH SCHOOL
		10 SOME OTHER SCHOOL
		2 GED OR HIGH SCHOOL EQUIVALENCY
		3 ABE (ADULT BASIC EDUCATION)
		4 SKILL DEVELOPMENT PROGRAM
		5 ON THE JOB TRAINING PROGRAM
		6 APPRENTICESHIP PROGRAM
		7 VOCATIONAL, BUSINESS OR TRADE SCHOOL
		8 2 YEAR JR OR COMMUNITY COLLEGE
		9 4 YEAR COLLEGE OR UNIVERSITY
YEDENYRH	29-30	EE6A IS Y IN GRADE 9, 10, 11, OR 12
		-----
		-1 INAPPLICABLE
		-7 REFUSED
		-8 DK
		-9 NOT ASCERTAINED
		10 10TH GRADE
		11 11TH GRADE
		12 12TH GRADE
		9 9TH GRADE
YEDENYRC	31-32	EE6B IS Y IN 1, 2, 3, 4, 5 YR COLLEGE
		-----
		-1 INAPPLICABLE
		-7 REFUSED
		-8 DK
		-9 NOT ASCERTAINED
		1 1ST YR (FR)
		2 2ND YR (SOPH)
		3 3RD YR (JR)
		4 4TH YR (SR)
		5 5TH YR

Figure 13. CATI code book sample.

MSA2:(MOR945213.871)

'6:14 MONDAY, DECEMBER 21.

CONTENTS PROCEDURE  
CONTENTS OF SAS MEMBER Q1.YUTHMAIN

NUMBER OF OBSERVATIONS: 1787  
MEMTYPE: DATA

NUMBER OF VARIABLES: 730

## -----ALPHABETIC LIST OF VARIABLES AND ATTRIBUTES-----

#	VARIABLE	TYPE	LENGTH	POSITION	FORMAT	INFORMAT	LABEL
61	ADI	CHAR	3	306	%ADIF16.		AREA OF DOMINANT INFLUENCE (1985)
62	ADULTTOT	NUM	2	2379			SC5 HOW MANY OLDER THAN 24
63	AREA	CHAR	3	309	%CHAR3.		HH PHONE NUMBER AREA CODE
64	ATTPLACE	CHAR	10	312	%CHAR10.		HH PLACE NAME, AT&T TAPE
89	BABYFLG	NUM	2	417	BABYFL615.		IS THERE A 13-15 YEAR OLD IN HH
192	BE4CHK	NUM	2	670	CHECK15.		CONST. CHECK: BE2, BE4
56	BRIGADE	NUM	2	296	RCTGBDE15.		USAREC RECRUITING BRIGADE
57	BRIGBATT	CHAR	2	298	%BRGBT15.		HH BRIGADE/BATTALION RSID CODE
1	CASEID	CHAR	8	0	%CHAR8.		HOUSEHOLD ID NUMBER
24	CLUSID	NUM	3	63			3 DIGIT CLUSTER IDENTIFIER
65	ONTYFIPS	CHAR	3	347	%CHAR3.		HH COUNTY FIPS CODE
100	E13T024	NUM	2	486	AGERNG15.		SC10A AGE CATEGORY (IF AGE MISSING)
99	EAGE	NUM	3	483			SC10 AGE OF YOUTH (IF DOB MISSING)
14	ECALCAGE	NUM	3	42			SC9 CALCULATED AGE FROM DATE OF BIRTH
96	EDOBDD	NUM	2	477			SC9 YOUTH DATE OF BIRTH, DAY
97	EDOBMM	NUM	2	479	DOBMM15.		SC9 YOUTH DATE OF BIRTH, MONTH
98	EDOBYY	NUM	2	481			SC9 YOUTH DATE OF BIRTH, YEAR
136	EE19CHK	NUM	2	558	CHECK15.		EE19 CONST. CHECK: CUR EMP VS. NO JOB
124	EE1CHK	NUM	2	534	CHECK15.		EE1 CONST. CHECK: EE1 VS. AGE
126	EE3CHK	NUM	2	538	CHECK15.		EE3 CONST. CHECK: EE1 VS. EE3
590	EESCHK	NUM	2	1545	CHECK15.		CONST CHECK: LAST DATE IN SCHOOL VS. NOW
710	EEDCGRAD	NUM	2	2213	YESNO15.		SC13C IS YOUTH A COLLEGE GRADUATE
107	EEDCOMP	NUM	2	580	EEDCOMP17.		SC13 HIGHEST LEVEL OF EDUC COMPLETED
111	EEDCOVER	NUM	2	588	YESNO15.		SC13B VERIFIES SCHOOLING COMPLETED
106	EEDENCUR	NUM	2	498	YESNO15.		SC14 IS YOUTH CURRENTLY IN SCHOOL
709	EEDENOTH	NUM	2	2211	YESNO15.		SC14B IS/WAS YOUTH ENROLLED APRIL/OCTOBE
708	EEDENSUN	NUM	2	2209	EDSUN15.		SC14A SCHOOL Y ENROLLED IN MAY-SEPT
108	EEDENTYP	NUM	2	502	EDENTYP16.		SC15 TYPE SCHOOL Y CURRENTLY ENROLLED
110	EEDENYRC	NUM	2	504	EDENYRC15.		SC17 YOUTH IN 1, 2, 3, 4, 5 YR COLLEGE
109	EEDENYRN	NUM	2	504	EDENYRN15.		SC16 Y CURRENTLY IN 9, 10, 11, 12 GRADE
694	EEDENYRJ	NUM	2	2181	EEDENYRJ15.		SC17A IS Y IN 1ST OR 2ND YR OF JR COLLEG
94	ERNAM	CHAR	25	427	%CHAR25.		SC8 YOUTH'S FIRST NAME (STATUS)
18	EHISP	NUM	2	51	YESNO15.		SC20 IS YOUTH HISPANIC
105	EHSOPL	NUM	2	496	YHSOPL16.		SC13A TYPE OF HIGH SCHOOL DIPLOMA
10	EL16TYM	NUM	2	34	EL16TYP15.		YOUTH'S SAMPLE CELL, BASED ON MAIN INT
9	EL16TYP	NUM	2	32	EL16TYP15.		YOUTH'S SAMPLE CELL, BASED ON SCREENER
112	ELIVADDR	NUM	2	518	YESNO15.		SC18 DOES YOUTH LIVE AT THIS ADDRESS
113	ELIVDOOR	NUM	2	512	YESNO15.		SC18A DOES Y LIVE IN STUDENT HOUSING
95	ELNAM	CHAR	25	452	%CHAR25.		SC21 YOUTH'S LAST NAME (STATUS)
102	EMILACT	NUM	2	498	YESNO15.		SC11 YOUTH EVER IN ACTIVE MIL/NG/RESERV
104	EMILSERV	NUM	2	494	YESNO15.		SC11A IS YOUTH PRESENTLY IN MILITARY
103	EMILWAIT	NUM	2	492	YESNO15.		SC12 YOUTH WAITING TO GO ON ACTIVE DUTY
80	ENRNTOT	NUM	2	399			TOTAL YOUTH AGED 13-24 FINAL
17	ERACE	NUM	2	49	RACE16.		SC19 YOUTH'S RACE

Figure 14. Contents of SAS data set.

In addition to the CATI code book and PROC COMMENTS, all tapes will be accompanied by an annotated copy of the hard-copy questionnaire (Figure 15). For each ACOMS data item, this document will provide, at a minimum, the question number, variable name, full text of the question and all precoded responses, skip pattern information, and logic and consistency checks. Note that some items that result from the CATI development process, such as data flags, will be present as variables in the data file and file layouts, but will not be included in the hard-copy instrument.

The questionnaire version (e.g., "871" for the October-December 1986 data collection period), as well as information providing the date and time of each interview, will be maintained on the ACOMS data bases. Westat will attempt to maintain the same record position for particular questions across different questionnaire versions. However, this will mean that newly added questions must be placed at the end of the relevant file segment, rather than in logical questionnaire order.

#### Data Imputation and Auditing

The only imputations that Westat will perform on the data base will be those required by weighting poststratification. The variables are age, race, and (for annual weights only) parent's education. The results of these imputations will be contained in separate variables on the analytic SAS data file, so that the originally collected data will be maintained.

Westat's CATI system maintains a complete audit trail of all keystrokes entered by the interviewer during each interview. This facility enables project staff to reconstruct the exact flow of an interview for questionable cases. In addition to this system, Westat will maintain a record of any changes made to the data base after interviews are completed.

While these audit trails will be available to the COR for examination, they will not become a part of the deliverable data tapes. With the exception of the imputed variables, only the final version of each variable will be maintained on the data tapes.

#### Users' Manuals

Westat will develop and provide Users' Manuals at the end of Phase 2 and at the end of each subsequent year. Unlike the tape documentation which will be delivered in three-ring binders, the Users' Manuals will be produced in a more permanent format. Each manual will consist of five sections:

- (1) Introductory text;
- (2) A question bank listing;
- (3) An enhanced CATI code book;
- (4) Annotated hard-copy questionnaires; and
- (5) A topic index.

ACOMS Annotated Questionnaire  
 Quarter 87-4 (Jul, Aug, & Sep 87)  
 Module: Behaviors

BE-1A. Have you ever talked with any military recruiter to get information about the military?

YES ..... 1  
 NO ..... 2  
 REFUSED ..... -7  
 DON'T KNOW ..... -8

BE-1. In the past six months, have you talked with anyone about possibly joining the Army?

YES ..... 1 (BE-2)  
 NO ..... 2 (BE-10)  
 REFUSED ..... -7 (BE-10)  
 DON'T KNOW ..... -8 (BE-10)

BE-2. With whom have you talked?

[RECORD ALL THAT APPLY. USE CTRL/P TO EXIT.]

FRIENDS ..... 01  
 MOTHER ..... 02  
 FATHER ..... 03  
 A BROTHER OR SISTER ..... 04  
 SOME OTHER RELATIVE ..... 05  
 BOY/GIRL FRIEND OR SPOUSE ..... 06  
 A TEACHER ..... 07  
 A COUNSELOR AT SCHOOL ..... 08  
 A RECRUITER ..... 09  
 CO-WORKER ..... 10  
 EMPLOYER ..... 11  
 OTHERS ..... 12  
 REFUSED ..... -7  
 DON'T KNOW ..... -8

```

-----
| CATI CHECK #BE1: WERE FRIENDS MENTIONED? |
| [BE-2 = 01] |
| |
| YES ..... 1 (BE-3) |
| NO ..... 2 (CATI CHECK #BE2) |
| |
|-----
  
```

Figure 15. Annotated hard-copy questionnaire.

ACOMS Annotated Questionnaire  
Quarter 87-4 (Jul, Aug, & Sep 87)  
Module: Behaviors

---

Screen Name:	BE-1A	
Variables:	Ranges:	Order #:
YBAEVREC	1,2,-7,-8	176
Sub-Population:	All youth	

---



---

Screen Name:	BE-1	
Variables:	Ranges:	Order #:
YBATALK	1,2,-7,-8	177
Sub-Population:	All youth	

---



---

Screen Name:	BE-2	
Variables:	Ranges:	Order #:
YBAFREN	1,2,-7,-8	178
YBAMOM	1,2,-7,-8	179
YBADAD	1,2,-7,-8	180
YBASIB	1,2,-7,-8	181
YBAREL	1,2,-7,-8	182
YBASPOU	1,2,-7,-8	183
YBATEAC	1,2,-7,-8	184
YBACOUN	1,2,-7,-8	185
YBAREC	1,2,-7,-8	186
YBACOW	1,2,-7,-8	187
YBABOSS	1,2,-7,-8	188
YBAOTH	1,2,-7,-8	189
Sub-Population:	Youth who have talked with someone about joining the Army [YBATALK (BE-1) EQ 1]	

---

Figure 15. Annotated hard-copy questionnaire (continued).

The first section of the Users' Manual will consist of written text. This section will provide an overview of the ACOMS survey. It will include discussions of the various ACOMS samples, interviewing and data editing procedures, response rates, weighting, and any special restrictions or cautions about using the data.

The second section will be a listing of the ACOMS question bank (Figure 16). The question bank includes all items that have been included in any version of the ACOMS questionnaire, as well as items under consideration for inclusion in future versions. Each question bank entry lists the full text of the question and response categories and provides a cross-reference to the questionnaire version or versions in which the item is used. (During Phase 3, Westat will investigate the feasibility of supplementing the question bank with a more abbreviated cross-reference listing, which would contain variable name, variable label, and questionnaire versions in a one-line-per-item format.) Information is also provided about the subset of respondents to which the question applies (effect of questionnaire branching), the research objectives that relate to the item, and the use of similar items in other surveys such as YATS.

The third section of the Users' Manual will be an "enhanced" CATI code book. This code book will be basically similar to that which will be provided as a part of the regular tape documentation (Figure 13). In addition to the standard information such as segment name, 8-character variable name, column number(s), 40-character value labels, the enhanced code book will include unweighted frequency counts and percentages for the main ACOMS samples and for the total sample. The frequencies will combine responses for all cases interviewed during the period of interest, either Phase 2 or annual. Space considerations will dictate some limits on the number of columns of frequency information that can be included in the code book.

The fourth section of the Users' Manual will contain one or more annotated hard-copy questionnaires. For full-year tapes on which data is related to more than one questionnaire version, a copy of each version will be supplied. As previously described, each annotated questionnaire will include question number, variable name, full text of the question and all precoded responses, skip pattern information, relevant sub-population, and logic and consistency checks.

The final section of the Users' Manual will be a topic index. The topics will be based upon the ACOMS questionnaire modules. Each entry in the index will include the topic name, 8-character variable name, and 40-character variable label. The index will be arranged alphabetically by topic.

Model: Parental Influence & Actions		ACOMS Question Bank 007-2 Bestway when replaced by 007-1				
Variable		Question & Response Categories	Other Group	Research Objectives	Potential Respondent	ACOMS Group and Mission ID
PISQMC	P1-21	Have you talked with your (son/daughter) about seeing a military recruiter?	(New) 'No ACOMS	2, 4, 6, 9	Parents	007-1 to 007-2
Parent request or talk to recruiter		YES ..... 1 NO ..... 2 REFUSED ..... 3 DON'T KNOW ..... 0				
PINCAR	P1-22	Have you done this for the	(New) 'No ACOMS	2, 3, 4, 6, 9	Parents	007-1 to 007-2
PINCAR		Army? ..... 1 2 3 0				
PINCAR		Navy? ..... 1 2 3 0				
Whirl Service		Air Force? ..... 1 2 3 0				
		Business? ..... 1 2 3 0				
PINCAR	P1-23	Have you received military recruiting materials mailed to you at (child's name) at your home address?	(New) 'No ACOMS	2, 4, 6, 9	Parents	007-1 to 007-2
Parent received mail		YES ..... 1 NO ..... 2 REFUSED ..... 3 DON'T KNOW ..... 0				
Parental action	P1-24	(If RECEIVED RECRUITING MATERIALS) Did you pass on the materials to (child's name)? Leave then out for (child's name) to see, toss them out before (he/she) saw them, or had (he/she) already seen them by the time you noticed they had arrived?	(New) 'No ACOMS		Parents	007-1 to 007-2 - NOT USED
		Passed on ..... 1 Told out to be seen ..... 2 Tossed out ..... 3 Tooth had already seen them ..... 4				

Figure 16. Sample page from ACOMS question bank.

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Research Triangle Institute. (1985). Youth Attitude Tracking Study II, Wave 16--Fall 1985 (Contract MDA903-83-C-1072). Arlington, VA: Defense Manpower Data Center.

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## 6. THE FORMAL PRETEST

Linda J. Keil

### Introduction

The design phase for the Army Communications Objectives Measurement System (ACOMS) survey was capped by a formal pretest, in which all the project procedures and questionnaires were tested under operational conditions. During the pretest, actual telephone numbers were contacted and screened to locate households and interview a total of about 100 eligible respondents. The formal pretest was intended to provide an indication of what might be expected during the actual data collection process, and to test and refine all project procedures and instruments.

More specifically, the formal pretest had three major purposes:

(1) Training: The pretest was intended to provide a preliminary test of the materials and procedures developed for training telephone interviewers to conduct the ACOMS study. In particular, the training package was to be evaluated in terms of the ease with which interviewers are able to follow instructions as given, the comprehensiveness of the training package in dealing with the problems likely to be encountered during interviewing, and the usefulness of the training materials both during the initial training period and as reference tools for use while interviewing.

(2) The Computer-Assisted Telephone Interview system (CATI) programming test: The pretest was also intended to test the CATI programming of the questionnaire. Of particular interest were skip patterns, consistency checks (for eliminating errors in entering codes that are out of range, and for reducing in-range coding errors by checking "unlikely" responses), and checks on the programmed selection of eligible respondents.

(3) Questionnaire construction: The pretest was intended to provide the first formal evaluation of the youth and parental questionnaire under actual CATI conditions. Of particular interest were the average length of administration for the household screener, youth interview, and parental interview, and question wording, flow, and formatting.

The pretest was not intended to provide reliable information regarding response rates, since the six-day data collection period was so much shorter than the six-week period planned for the main data collection effort. The guiding philosophy during the pretest was to complete as many interviews as possible within a tightly constrained time frame. Therefore, unlike the main data collection effort, no systematic attempt was made to follow up on all telephone numbers to contact breakoff, eligible respondents who were not immediately accessible, etc. nor was there any refusal-conversion effort. However, preliminary information about first refusal rates, eligibility rates

(households screened to eligible youth identified), and reason for ineligibility among 16- to 24-year-old youths were obtained.

#### Training Interviewers to Conduct the Pretest

Eleven experienced CATI interviewers were trained to conduct the pretest for ACOMS. Trainers from the Telephone Research Center (TRC) and ACOMS project staff conducted the training, which spanned a six-day period: September 15 through September 20, 1986. Each interviewer had a total of 28 hours of training that included 20 hours of instruction, 4 hours of practice, and 4 hours of home study.

Instruction was carried out at Westat's Rockville, MD, facility, where a large conference room was set up to accommodate the training. Trainees sat at individual computer terminals at which they could learn by working with the CATI program while they received instruction and demonstration from the trainers.

Because only experienced interviewers were used for the pretest, there was no need to provide training on general interviewing skills and the use of the CATI equipment. All training consisted of ACOMS-specific material. Specifically, the goals of the pretest training were:

- (1) To introduce the study by describing its objectives, the method for respondent selection, and characteristics of qualified respondents;
- (2) To introduce the questionnaires to the trainees, their contents and skip patterns, question specifications, definitions, and intent;
- (3) To distribute written training materials and provide guidance on how to use the training manual as a reference during interviewing; and
- (4) To provide instruction and practice in procedures specific to the ACOMS project, such as probing unclear responses, answering respondent questions, unusual recording techniques, and refusal-avoidance.

Figure 17 illustrates the ACOMS Interviewer Training Agenda for the pretest. In general, the training sessions consisted of a combination of lectures, demonstrations, role plays, and practice on individual CATI terminals. During the training, screens from a "lead terminal," operated by a trainer, were projected out so that trainees could assess their progress on their individual terminals. Throughout the sessions, trainees were monitored closely by the staff in the Telephone Research Center and by project staff.

Extensive training was provided on each of the three questionnaires, the household screener, the youth interview, and the parental interview. In addition to the group instruction, trainees had four

## ACOMS - INTERVIEWER TRAINING AGENDA

## DAY 1 - MONDAY, SEPTEMBER 15, 1986

TIME	TOPIC	TYPE SESSION	MATERIALS	PREPARED BY	PRESENTED BY
6:00-6:20	Introduction and Study Background	Plenary	- Lecture Script	M. Rhoads	M. Rhoads
6:20-8:00	Interactive Lecture on Screener and Result Code Screens	Plenary	- Interactive Script - Terminal with Projector	D. Bittner P. Skinner	P. Skinner
8:00-8:15	BREAK				
8:15-9:30	Interactive Lecture (continued)				
9:30-10:00	Review and Discussion of Screener	Plenary			

## DAY 2 - TUESDAY, SEPTEMBER 16, 1986

TIME	TOPIC	TYPE SESSION	MATERIALS	PREPARED BY	PRESENTED BY
4 HOURS	Practice on Screener Questionnaire	Individual	- Local Telephone Numbers	C. Thompson	All

## DAY 3 - WEDNESDAY, SEPTEMBER 17, 1986

TIME	TOPIC	TYPE SESSION	MATERIALS	PREPARED BY	PRESENTED BY
6:00 - 7:00	Review of Screener Practice Refusal Avoidance	Plenary	- Answers to Respondent Quest.	D. Morgan	D. Morgan
7:00 - 8:15	Selection of Respondent (HNCCHOSE)	Plenary	- Interactive Script Terminal with Projector	D. Bittner P. Skinner	D. Bittner
8:15 - 8:30	BREAK				
8:30 - 10:00	Interactive Lecture Youth Interview	Plenary	- Interview Script Terminal with Projector	S. Englehart	S. Englehart

Figure 17. ACOMS pretest interviewer training agenda.

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## ACOMS - INTERVIEWER TRAINING AGENDA

DAY 4 - THURSDAY, SEPTEMBER 18, 1986

TIME	TOPIC	TYPE SESSION	MATERIALS	PREPARED BY	PRESENTED BY
6:00 - 8:30	Interactive Lecture Youth/Parent Interviews	Plenary	- Interactive Script Terminal with Projector	S. Englehart	S. Englehart
8:30 - 8:45	BREAK				
8:45 - 10:00	Community/Youth Interview	Community	- Community Script Terminal with Projector	L. Keil	L. Keil

DAY 5 - SEPTEMBER 20, 1986

TIME	TOPIC	TYPE SESSION	MATERIALS	PREPARED BY	PRESENTED BY
9:00 - 10:00	Community #2 Youth	Community	- Community Script (Probing, Unusual Recording)	L. Keil	
10:00-11:00	Community #3 Parent	Community	- Community Script (Answering Reapon-	L. Keil	
11:00-11:45	Review and Discussion	Plenary			All
11:45-12:45	LUNCH				
12:45 - 5:00	Role Plays	Dyad	- Role Plays	L. Keil	All

Figure 17. ACOMS pretest interviewer training agenda (continued).

hours of "hands-on" practice, using the household screener on local area telephone numbers.

#### Training Agenda and Format

Training began with a brief introduction and overview of the study. A relatively long period was then devoted to screener training and practice to familiarize trainees with the questions contained in the screener, to demonstrate the computer process for selecting eligible respondents, and to discuss the methods for handling nonresidential and nonworking numbers. During this time, trainees were instructed in refusal-avoidance methods designed to keep respondents on the line.

Training on the youth and parental interviews focused on the question-by-question specifications for each item in the questionnaire. Trainees were encouraged to ask questions about term definitions, appropriate probing of responses, and potential problems they anticipated.

Trainers worked from a series of scripts that had been developed to demonstrate various skip patterns, recording issues, and potential problems in the ACOMS interviews. Three types of pre-scripted interviews were used during the training: interactive scripts, community scripts, and role play scripts. Interactive scripts were the simplest of the three, designed to show trainees the main questions in the interview without any problematic or unusual responses. These scripts were used during instruction on question-by-question specifications.

In the community scripts, the trainer took the respondent's role and called on trainees to act as interviewers. These scripts were administered in small groups, hence the reference to "community". These scripts were designed to demonstrate specific skip patterns and problem areas, to reinforce CATI conventions and project definitions introduced earlier, and to give trainees practice answering respondents' questions.

On the final day of training, trainees worked in pairs with role-play scripts. One member of the pair acted as the interviewer and the second member acted as the respondent. Role-play script booklets were provided in which all responses were predetermined for the respondent. Trainees were instructed to follow the scripts without deviation in order to provide a standard experience to all trainees and to reinforce probing and problem-handling techniques introduced during the instruction portion of the training. Each pair of trainees received a total of four role-play scripts, one parental and three youth interviews. They took turns acting as interviewer so that each trainee had the opportunity to conduct two complete interviews during this portion of the training.

In addition to group instruction, trainees also practiced administering household screeners on local telephone numbers. Each trainee was required to practice for four hours.

In summary, the pretest interviewer training consisted of extensive instruction and practice on the household screener, youth, and parental interviews. Instruction included demonstration of correct coding techniques, discussion of question-by-question specifications, project definitions, potential problems, and likely respondent questions. Throughout the training sessions, the trainees' performance was heavily monitored by Telephone Research Center and project staff. At the end of the training period, the staff was confident that the trainees had a thorough understanding of the survey to be conducted. The trainees were told that they would attend a debriefing session following the pretest and were asked to keep track of any problems they encountered during the course of their work on the pretest.

### Training Materials

Written materials were provided for the trainees' use during the training itself and as reference tools during the interview process. The written materials included the interviewer training manual, a reference list of the questionnaire modules, a magazine list, and a list of likely respondent questions coupled with desirable answers.

The interviewer training manual. The ACOMS pretest training manual consisted of two main parts: (a) general discussion of the study, and (b) the question-by-question specifications for the survey.

Figure 18 is a copy of the Table of Contents for the ACOMS pretest training manual. It lists the contents of the seven chapters that introduce the study. The main purposes of these chapters were to introduce the study's main objectives, to describe sample selection, to discuss problems that might be encountered by interviewers, and to provide a brief overview of the survey instrument.

An appendix containing illustrations of all of the screens in the CATI program followed the introductory material. Accompanying the screen illustrations were explanations of when the screens would appear (i.e., skip patterns), definitions for project purposes, household, principal wage earner, education levels, etc., and clarifications for questions that could be misunderstood or answered ambiguously. One example of possible ambiguity is the question, "What is the highest grade or level of schooling that you have completed and received credit for?" Respondents often answer this question by giving their current educational status (e.g., "I am a college sophomore.") Text accompanying this question instructed interviewers to attend to the underlined words in the question and to probe the respondent's answer by verifying that he/she has completed and received credit for his/her first year of college. Additionally, interviewers were instructed to probe whether the respondent attended a two- or four-year college. Specification of question-intent is necessary to ensure that interviewers probe and code respondents' answers as intended by the questionnaire designers.

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Figure 18. ACOMS pretest training manual table of contents.

Additional training materials. In addition to the training manual, three other types of reference materials were provided:

- (1) Module list: The 16 unique modules contained in the three questionnaires were listed by name and reference letters such as Social Influence (SI). A brief description of the module's contents was also provided. The list was intended to be used as an easy reference tool by interviewers to help them become familiar with the various sections of the survey instrument and their purposes. The complete list was included in the training manual and was also provided on a separate page for easy reference.
- (2) Respondents' question list: A two-page list of anticipated respondent questions was also provided along with suggested answers for each. It was included in the training manual as well as on separate cards for easy reference while interviewing.
- (3) Magazine list: A magazine list was provided for use in the Media Habits module, in which respondents are asked to name the magazines they read on a regular basis. The magazine list provides an extensive enumeration of popular magazines paired with three-digit code numbers for interviewers' use in recording respondents' answers. The magazines were listed alphabetically.

#### Pretest Administration

The pretest was conducted from September 22 through October 1, 1986, at Westat's Frederick, MD facility. All 11 interviewers trained for the ACOMS pretest participated in its administration. Their hours were scheduled in such a way that the heaviest staffing occurred in the late afternoons and early evenings and on weekends.

While the pretest interviews were being conducted, the interviewers were heavily monitored by representatives of the telephone supervisory staff, questionnaire design staff, CATI programming staff, and the Contracting Officer's Representative (COR). Each of these monitoring groups had a different perspective.

Supervisory staff at the TRC focused on the adequacy of the preparation interviewers had received during training and the usefulness of the training materials. They also noted problems interviewers encountered in following instructions in the questionnaire and in the manual.

The CATI programming staff monitored the pretest administration to test the accuracy and workability of programming developed for the ACOMS interview. Errors were corrected as soon as they were discovered.

Finally, project staff who had developed the questionnaire evaluated the adequacy of the questionnaire in terms of apparent comprehensibility of items to the respondent, unanticipated sensitivity of questions, appropriateness of item placement in terms of interview flow, item format, and the suitability of questionnaire items to meet survey objectives.

After the pretest data collection was completed, a debriefing session was held that included the pretest interviewers and supervisors as well as project and training staff. Interviewers were asked to discuss any problems they encountered during the pretest and to make suggestions for improving the flow of the interview.

#### Pretest Results

The pretest went very smoothly. The goal of the pretest was to obtain 100 completed interviews. The actual number completed was 98.

Pretest results can be divided into quantitative and qualitative information. Quantitative information obtained included eligibility and refusal-rates and administration times for the questionnaires and modules. Qualitative information included insights obtained by pretest monitoring and by interviewer debriefing.

#### Questionnaire Administration

Household identification. Table 17 summarizes the outcome of all household screener calls attempted during the pretest. A total of 3,890 telephone numbers were dialed. The calls resulted in the identification of 1,531 (39%) households, which was in the expected range. More than 1,000 calls remained incomplete at the end of the pretest because little effort was made to follow up on calls that did not result in contact on the initial attempt. The majority of incomplete calls were thought to be unanswered calls made to businesses during evening hours and to homes during the day.

Refusal rates. Refusals can occur during the household screener, or during the main youth and parental interviews. During this pretest, the screener refusal rate was 23.9%, the youth refusal rate was 6.9%, and the parental refusal rate was 15.7%.

These findings are viewed with cautious optimism on the basis of two important factors. First, no refusal-conversion efforts were made during the pretest. Typically, at least one-third of all refusals are converted to completed interviews. Second, following the pretest, changes to the household screener were made, based on concerns regarding the length and wording of the introduction and question order. We anticipate that refusal-conversion efforts and changes in the screener will combine to reduce the refusal-rate so that an overall 80% response rate will be obtained during actual ACOMS interviewing.

Table 17

## ACOMS Pretest: Household Screener Status

	Number	Percentage
Total telephone numbers dialed	3,890	100.0
Households screened	1,129	29.0
Household refusals	367	9.4
Households with language problems	35	.9
Out-of-Scope (e.g., nonresidential)	1,170	30.1
Incomplete calls (e.g., no answers)	1,189	30.6

Eligibility rates. In Westat's ACOMS proposal it was estimated that approximately seven households would be needed to identify each Primary Male Sample (PMS), given a 20% nonresponse rate. For a combined PMS and Secondary Male Sample (SMS), the screening ratio was estimated to be 6.7. It was not anticipated that additional screening would be necessary to identify female eligibles.

During the pretest, 156 eligible males were identified from 1,129 households screened. This represents an eligibility rate of approximately 7.2 households to 1 eligible male youth, somewhat higher than the estimated 6.7:1 ratio. These findings are regarded with concern but not alarm. It is likely that finalizing incomplete calls and refusal-conversion efforts will bring the eligibility rate to the estimated level. Careful attention, however, will be paid to the eligibility rate during the first months of data collection for ACOMS, so that revisions can be made, if necessary, to the estimated number of household screeners needed.

Administration times. Table 18 summarizes the eligibility status of youth and parent identified during the screener pretest. The average completion time for household screeners was 4.3 minutes. The estimate included in the Office of Management and Budget (OMB) package was three minutes. Changes in the screener to be discussed later in this chapter are expected to reduce the average time of screener completion to the OMB estimate.

Average completion time for the youth interview was 33.3 minutes, which is very close to the estimated 30 minutes included in the OMB package. It is anticipated that recommended changes in the instrument, coupled with increasing efficiency of interviewers as they gain experience with the questionnaire, will reduce the administration time for the youth interview to the OMB estimate.

Table 18

## ACOMS Pretest: Eligibility of Individuals Identified

	Youth			Parents			Youth Parent Total
	Male	Female	Total	Father	Mother	Total	
Eligible for interview	156	31	187	23	22	45	232
Completed	71	11	82	9	7	16	98
Refusals	5	1	6	1	2	3	9
Incomplete	80	19	99	13	13	26	125
Ineligible for interview	42	8	50	--	--	--	50
Military service	19	3	22	--	--	--	22
College graduates	8	5	13	--	--	--	13
Own address	8	0	8	--	--	--	8
DK/REF (Military)	4	0	4	--	--	--	4
DK/REF	3	0	3	--	--	--	3
Total identified	198	39	237	23	22	45	232

Average completion time for the parental interview was 23.9 minutes, well below the estimate of 30 minutes made in the OMB submission.

Table 19 lists the mean and median questionnaire administration times for each module in the youth and parental pretest interviews. These administration times will be monitored continually during formal data collection, with a view toward the possible effects of quarterly alterations.

#### Results of Monitoring and Interview Debriefing Sessions

At the end of the pretest, a debriefing session of the pretest interviewers and supervisors was held. They were encouraged to discuss problems that occurred during the pretest, suggestions for improving interview flow, item format, and any other ideas that might be useful in increasing the effectiveness of the ACOMS data collection. The interviewers and supervisors made very perceptive comments which demonstrated a high level of involvement and concern for the study's outcome. It was encouraging to note that many of the problems had already been identified by project staff during their pretest monitoring efforts, and most problems had been resolved. The complete list of issues and suggestions was carefully reviewed, and lessons learned were noted for future training sessions and questionnaire revision. The findings from this review process are presented in the next section of this chapter.

#### Lessons Learned and Changes Recommended

This section summarizes the major lessons that have been learned from the pretest. High-priority changes required prior to commencement of the ACOMS on October 13, 1986, have been instituted in close cooperation with the COR and Special Advisory Group (SAG). These changes, and additional recommended changes that have not yet been made are presented in this discussion.

General lessons learned about interviewer training are discussed first, followed by scrutiny of the questionnaires (i.e., the household screener and the youth and parental interviews). In most cases, issues involving programming, questionnaire content, administration, and in some cases specific training issues are raised in conjunction with the solutions that have been recommended.

#### Interviewer Training

Interviewers, supervisors, and project staff thought the interviewer training sessions were useful and comprehensive, a finding which reflects the TRC's considerable experience in conducting training sessions. The pretest experience has resulted in well-trained interviewers who had very few difficulties with the mechanics of the CATI system or the techniques of conducting the ACOMS interviews.

Table 19

## Module Administration Times

(minutes)		Youth Interview		Parental Interview	
		Mean time (minutes)	Median time (minutes)	Mean time (minutes)	Median time
1.	Education and employment	3.1	3.3	--	--
2.	Intentions/propensity	4.0	4.0	--	--
3.	Behaviors	1.8	2.0	--	--
4.	Social influences	2.1	2.0	--	--
5.	Importance of attributes	2.2	2.0	2.3	2.0
6.	Media habits	4.1	4.0	4.6	4.0
7.	Knowledge-recall	3.4	3.0	3.5	4.0
8.	Attitudes toward Army ads	0.6	1.0	0.9	1.0
9.	Knowledge-slogan recognition	1.5	2.0	--	--
10.	Perceptions/beliefs	5.0	5.0	5.7	5.0
11.	Knowledge-awareness	2.8	3.0	2.9	3.0
12.	Demographic	3.7	3.0	2.4	2.0
13.	Parental location	2.1	2.0	--	--
14.	Longitudinal tracking	3.9	4.0	--	--
15.	Parental influences	--	--	5.3	5.0
		33.3	32.5	23.9	24.0

Note. Total administration time is less than the sum of the times for individual modules because not all respondents receive all modules.

Project personnel, however, identified possibilities for improvement in written training materials, and training on several project-specific issues. All of the recommended changes were made prior to the start of interviewer training for the main study.

### Training Materials

Training manual. In a few instances, information was added to the training manual to clarify definitions. For example, it was made explicit that persons who are not U.S. citizens are eligible for interview. Also, the definition of residency for youth whose parents share joint custody was expanded. It was specified that if the youth spends an unequal amount of time living in the households of his/her father and mother, the household of residence is considered to be the one in which he/she spends the most time. If, on the other hand, the youth divides his/her time equally between the father's and mother's households, the household of residence is considered to be the one in which he/she currently resides.

Magazine list. To facilitate interviewer coding of answers to the magazine readership question, the magazine list was revised in two ways. First, the alphabetical list of titles was modified so that space appeared between groups of titles beginning with the same letter. Second, duplicate listings of the 17 most popular magazine titles were placed at the top of the page. The pretest showed that a few popular magazines accounted for the majority of responses to the questions about regular magazine readership.

Respondents' question list. When respondents asked questions about the study (e.g., "Who is sponsoring this survey?"), interviewers were required to look up the answers on the Respondents' Question List. To facilitate this process, the question list was reorganized so that the most common questions were listed first. The questions were also separated into project-specific questions (e.g., "Who is funding the study?") and general information (e.g., explanations as to how the respondent's telephone number was selected).

Rotation handout. During the pretest training, rotation of wording, response categories, questions, and modules was allowed to occur as it would during actual interviewing. This method proved somewhat confusing to the trainees, because the random order in which many of the questions appeared meant that the questions on trainees' individual terminal screens were often different from those projected on the wall screen by the trainers. This fact also made discussion of specific items somewhat difficult. Consequently, it was decided to handle the topic of rotation in a written handout rather than by demonstration. During interviewer training for the main study, rotation did not occur; instead, the topic of rotation was described in a handout. This practice will be continued for all future ACOMS interviewer training.

### Training Methods

A need for additional emphasis or alteration in training instructions was identified for two general areas: spelling verification and recording of question probes. Interviewers are required to type in some information during the survey, such as first names of youths in each household, county in which the household is located, and names and addresses of tracing references. Interviewers are trained to verify the spelling of all such information, including even the most common names. Monitoring of interviewers during the pretest revealed that regional accents often made it difficult for interviewers to understand respondents making spelling verification difficult. Thus, additional spelling verification techniques were introduced, such as using the convention of alphabet reinforcement ("A as in apple" "B as in boy," etc.). The importance of spelling accuracy was also stressed.

Recording of question-probes also required additional training. During the pretest, interviewers displayed some inconsistency in recording probes. Additional training emphasized the importance of recording all probes and clarified what constitutes a probe and what does not.

### Household Screener

Four problem areas were identified in the household screener. Each of these is discussed, and recommended changes are described.

Confidentiality information. The first and most important problem in the household screener centered around the provision of confidentiality information. During the pretest, the CONF screen provided the confidentiality information shown in Figure 19.

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#### CONF

The survey we are conducting for the Federal Government is concerned with the career plans of young adults. Your answers are voluntary and will be completely confidential.

While you may choose not to answer any question, the information you give us is protected under the Privacy Act of 1974. Your identity will never be known by anyone except the research project staff. The information you give us will be used for research purposes only.

This research is authorized by law in Title 10 USC Sections 503 and 2358 and Executive Order 9397.

[PRESS RETURN TO CONTINUE]

Figure 19. Confidentiality screen for ACOMS household screener.

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It became apparent early in the pretest that this section of the screener was responsible for a great many of the early refusals and interview break-offs that occurred. The introduction was too long and some of the language, Federal Government and Privacy Act citations, was frightening to respondents. Additionally, interviewers complained that they often went to great lengths to convince respondents to continue with the survey, only to find in the very next question that there were no eligible youths living in the household.

Before beginning data collection, the confidentiality section was streamlined and strengthened. Citation of the specific Privacy Act laws was moved to the end of the interview. Thus, if no household members were eligible for interview, the confidentiality information and the Privacy Act would be cited at the end of the screener. If interviews were actually conducted, the confidentiality information would be cited at the end of the main interviews. This change broke up the introductory material so that it was of a more manageable length. In addition, the confidentiality statements were strengthened by adding the explicit promise that the individual's name will not be used on any report of the study. Finally, wording and question-order changes were instituted in the interest of refusal-prevention.

Order of questions about education. The education questions were reordered and new CATI checks were added to verify educational information that previously appeared obvious from the respondents' answers.

Screener respondent. The CATI program was altered to facilitate the interview flow from screener to youth interview, when the screener respondent was an eligible youth.

In addition, redundancy in the question about the youth's educational background was removed. It is anticipated that this streamlining will not only increase the likelihood of obtaining completed interviews from screener respondents but will also shorten the administration time.

Undergraduate student housing. The question on undergraduate student housing, which was intended to identify one type of nonresidential number, caused considerable confusion among respondents.

Given the low probability of contacting such an institution through Random Digit Dialing (RDD), the question was dropped. However, interviewers were provided additional training on probing and coding undergraduate student housing information. This change improved the flow of the interview and shortened the time for screener administration.

#### Youth and Parental Interviews

With the exception of the Perceptions/Beliefs module, both the youth and parental interviews were very smoothly administered during the pretest. The questions were clearly comprehensible to respondents and, in general, were well-received. There was little trouble in

obtaining sensitive information such as Social Security number and tracing information from the youth interviewed. Somewhat greater resistance was encountered in dealing with parents, but in most cases, interviewers were able to overcome parents' objections to providing needed information.

The most important problems that occurred during the pretest were with the Perceptions/Beliefs module. Some of these problems also have implications for the Importance of Attributes module because questions in the two sets are parallel. Problems with the Demographics and Parental Location modules were also encountered. These and a few additional minor difficulties are discussed next, along with the recommended solutions.

Perceptions/Beliefs module. Early in the pretest, problems became apparent in the Perceptions/Beliefs section. As respondents answered questions within this module, they appeared to fall into response sets which resulted in very little variance and little differentiation among items. Preliminary analyses were conducted to explore the seriousness and extent of the response-set problem.

Typically, the Perceptions/Beliefs module begins with a lengthy series of 14 questions about the attributes of the active Army. This series is followed by a rotating second list that varies in length from 8 to 14 questions about the attributes of one of the Army components, another branch of the military service, or a nonmilitary option such as college. For some respondents, there is a third rotating series referring to another of the possible referents listed above. All of the questions in these series require a response on a five-point scale; all are positively worded, and all are presented in a list-format similar to that for the active Army.

A preliminary check on the severity of the response-set problem showed that 34% of the respondents who answered the active Army series ( $n=74$ ) used the same response category for 9 or more of their answers. About 14% answered 12 or more questions with the same response, suggesting a serious response-set problem. Further examination showed that among the 34% who answered 9 or more active Army questions with the same response category, the majority (80%) of the identical responses were either 4 or 5 on the 5-point scale. This positive bias would make it difficult to find any meaningful distinction among respondent segments.

Screen format. The Perceptions/Belief module caused difficulty for interviewers because it contained a long list of items that required a sealed (i.e., "disagree" to "agree") response. (See Figure 20.) Respondents tended to become bored and appeared not to take these questions seriously. A quick analysis of the data supported observations of response-set problems.

Temporary solutions have been implemented in training methods that will allow interviewers to maximize the likelihood of obtaining good data with the present format. In general, additional emphasis was given to these modules in the interviewer training to improve

11.01 PE1

I am going to read you a list of statements describing different things the Army might provide to you. Please tell me how much you disagree or agree that the Army provides you with each item on the list. A "1" means you disagree completely, a "2" means you disagree somewhat, a "3" means you neither agree nor disagree, a "4" means you agree somewhat and a "5" means you agree completely.

The Army offers ...

- an excellent opportunity to obtain money for a college or vocational education? ( )
- an opportunity to develop into a responsible mature person? ( )
- many opportunities for training in useful skill areas? ( )
- many chances to work with high-quality people? ( )
- a wide variety of opportunities to find a job you can enjoy? ( )
- a physically challenging experience? ( )

11.001 PE1B

[Please tell me how much you disagree or agree that the Army provides you with each item on the list. A "1" means you disagree completely, a "2" means you disagree somewhat, a "3" means you neither agree nor disagree, a "4" means you agree somewhat and a "5" means you agree completely.]

[The Army offers ...]

- an experience you can be proud of? ( )
- an advantage over going right from high school to college? ( )
- the best opportunity to develop leadership skills? ( )
- the chance to work with sophisticated high-tech equipment? ( )
- a great value in your civilian career development? ( )
- an excellent opportunity to develop self-confidence? ( )
- the opportunity to develop your potential? ( )
- a mentally challenging experience? ( )

Figure 20. Perceptions/Beliefs module in parental and youth questionnaires.

interviewer involvement with this module. Also, comparisons among the various interviewers' styles and their corresponding response patterns to these questions suggested a number of possible areas for improving the administration of questions in these modules:

- (1) Slow down. The interviewers' natural tendency to counteract the perceived irritation of respondents was to speed up and go through the lists as quickly as possible. The opposite tactic appeared more effective.
- (2) Break up the series. Anything that could be done to break up the perception of a long, tedious list also helped. For example, interviewers who repeated the phrase "The Army offers..." at several points during the list of attributes had fewer response-set problems than those who read the entire list straight through without a break.
- (3) Refocus respondents' attention on proper referent. It was observed that, at times, the respondents appeared to lose track of which branch/component/option was referred to by the questions. It was agreed that interviewers should be trained to emphasize the referent when reading the introduction to a series of questions and to repeat the phrase "The Army (or branch/component/option) offers..." halfway through the list of questions on each screen. This process was aided by mentioning the referent in the introduction to each series.

In addition, the question format will be changed for future data collection. The questions on Importance of Attributes and Perceptions/Beliefs will be paired together, attribute by attribute (e.g., "How important is...?" followed by "Does the Army offer ...?" followed by "Does the Navy offer...?"), instead of presenting each list separately. Small-scale tests have indicated that this format relieves the monotony significantly.

Word problems. It also became apparent that the wording of questions in the Perceptions/Beliefs and Importance of Attributes modules was problematic. Specifically, in some cases respondents did not understand words used in the questions (e.g., innovative) or were offended by the wording (e.g., "...an opportunity to develop into a mature and responsible person"). Additionally, respondents' answers were sometimes ambiguous because of the wording of the questions. For example, disagreement with the statement, "The Army offers the best opportunity to develop leadership skills," could mean that the respondent does not think the Army offers an opportunity to develop leadership skills or it could mean the respondent disagrees with the idea that the Army offers the best such opportunity.

In consultation with the COR and SAG members, four questions were reworded in both the Importance of Attributes and the Perceptions/Beliefs sections prior to the start of data collection for the main ACOMS study.

Demographics module. The demographics questions about parents in the household were difficult to administer in nontraditional households. In nontraditional households, the head of household may be a stepparent rather than a natural parent. In the pretest, questions in this series referred to "father" or "mother." This reference presented a problem if the natural parent lived outside the household because it was sometimes unclear whether the information gathered referred to the natural or stepparent.

The short-term solution to the problem with the Demographics module was additional training to clarify the information desired from the Demographics questions. Since this series is important for establishing the socio-economic level of the household, the education and employment status of the head of the respondent's household is the information needed. If the respondent lives in a traditional household, this information is adequately obtained by asking the series of questions about father's and mother's education and employment status as currently written. However, if the respondent's household is not a traditional one, interviewers were trained to probe for and then remember whether a stepparent lives in the household. If so, the education and employment series should refer to this person, not to the youth's natural parent.

A long-term solution is also recommended for the second quarter of data collection. Specifically, it is recommended that the questionnaire be changed so that the youth is directly asked whether he/she lives with his/her parents or stepparents. Then, subsequent education and employment questions should refer to the appropriate person (i.e., parent or stepparent).

Parental location module. Confusion also occurred in obtaining parental location information for youths who had nontraditionally structured families. If the youth has lived most of his/her life with a stepparent, then it may be this individual rather than his/her natural parent who has the most influence on the youth's career decisions.

Again, training was modified for a short-term solution; eventually, a change in the questionnaire is recommended. Thus, prior to the start of the main study, if a nontraditional situation exists, interviewers were trained to ask whether the parent or stepparent is more influential. The long-term solution to this problem requires a questionnaire change and system reprogramming. If a stepparent lives in the youth's household, the respondent will be asked who is more influential, the natural or stepparent. Thereafter, questions would refer to the appropriate parental influence.

Other modules. A few minor problems with some of the other modules are also noteworthy. The pretest showed that the questions concerning television viewing in the Media Habits module did not clearly differentiate subscription cable channels (e.g., Home Box Office) from nonsubscription cable channels. The reference to cable TV channels will differentiate between subscription and nonsubscription cable channels.

In addition, the response categories for questions regarding high school mathematics courses (EE-9 through EE-12) were expanded to include "currently taking the course."

#### Summary of Pretest

The pretest for ACOMS successfully served the functions of testing the training methods and CATI programming as well as answering questions about the questionnaire content (e.g., item formatting) and questionnaire administration (e.g., administration times). In general, the pretest demonstrated that the intensive design efforts by Westat, The U.S. Army Research Institute and the SAG over the past year have resulted in a very workable, clear, survey instrument. The number of problems identified is small, considering the length and complexity of the instrument.

The pretest was important, however, in pointing out problems that must be rectified with the screener and with particular modules of the youth and parental interviews. Correcting problems in the length and wording of the household screener introduction promises to increase the response rate and interviewers' ease of administration. By modifying specific problem modules and altering screens and/or training before starting data collection, the quality of information gathered in the ACOMS survey will improve. Additionally, areas targeted for improvement by the start of the second quarter of data collection have also been clearly identified by pretest results.

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APPENDIX A

Sample Design Memorandums

WESTAT

An Employee-Owned Research Corporation

MEMORANDUM

To: Ronie Nieva  
From: Leyla Mohadjer *L.M.*  
Subject: ACOMS Sample Design-Estimated Effect of Excluding Puerto Rico from ACOMS Universe on the Total Screening Effort for ACOMS Sample Components

March 4, 1986

In the two recent sample design memos, dated February 21 and 26, we discussed alternative universes of counties for the ACOMS Hispanic sample and the effect of excluding graduate students from the four-year college students sample. In the Hispanic memo we provided four alternative universes with coverages ranging from 75 to 80 percent of all Hispanics in the United States when Puerto Rico is excluded, and 79 to 83 percent when Puerto Rico is included in the ACOMS universe. In the four-year college memo, we estimated that a screening sample of about 134,000 is necessary to produce 2400, PMS, four-year college undergraduate students. The purpose of this memo is to estimate the total screening for ACOMS sample components based on the above findings. The sample components discussed here do not include the Vo-Tech sample. We plan to sample Vo-Tech students from a list of Vo-Tech schools. We will also discuss the effects of excluding Puerto Rico from the ACOMS universe on the Hispanic sample and the total screening effort.

Note that it would require almost doubling the amount of screening, estimated for the PMS sample (about 70,000), to achieve the required sample size for the four-year college students. An alternative way of oversampling four-year college students is to use a two-stage sampling scheme to select a sample of undergraduate students from a list of four-year colleges. This method will constitute a dual-frame approach with part of the sample generated in the RDD sample and part selected by going to a sample of four-year colleges. The list approach, similar to the one proposed for the Vo-Tech sample, involves some problems that have to be worked out (i.e., some schools will probably refuse to cooperate, a fairly large period of time, probably 3 to 4 months, is necessary to negotiate with school officials). The following two sections provide estimates of screening workload for the two approaches available for oversampling four-year college students. The first section provides estimates of screening effort when RDD is used to oversample four-year college students. The estimated total screening effort when a list sample is used to oversample four-year college students is given in Section 2. Section 3 includes a discussion of the effects of excluding Puerto Rico from the universe on the structure of the Hispanic sample.

1. Estimated total screening effort when RDD is used to oversample four-year college students

We expect that a self-weighting screening sample of 134,000 households which includes Puerto Rico will yield a sample of about 1,280, NPS, Hispanic males 16-24 years of age. However, only a portion of the 1,280 Hispanics will come from the specific geographic areas defined as the ACOMS Hispanic universe and, thus, can be included in the Hispanic tabulations. The actual size of this sample will depend on the universe to be selected for Hispanics, and whether Puerto Rico will be part of the universe. Table 1 shows the approximate sample sizes available from 134,000 screened households for the four alternative universes discussed in the memo of February 21.

March 4, 1986

The screening sample of 134,000 must be increased to provide the additional Hispanics needed to achieve the desired precision. For the four options stated in the table, the total screening effort for ACOMS sample components is estimated to be around 150,000 if Puerto Rico is part of the universe. The exclusion of Puerto Rico will increase the screening workload by about 18,000. The total screening effort for ACOMS sample components will then be in the neighborhood of 168,000 when Puerto Rico is excluded from the universe.

2. Estimated total screening effort when a list of colleges is used to oversample four-college students

This approach uses a list of four-year colleges to oversample four-year college students. Therefore, the size of the screening sample (as estimated for the PMS) will be about 70,000. Table 2 provides the approximate Hispanic sample sizes available from 70,000 screened households for the four alternative Hispanic universes.

An additional screening sample of about 44,000 households is required to produce the sample sizes needed for Hispanics when Puerto Rico is not part of the universe. When Puerto Rico is part of the universe, the additional screening for oversampling Hispanics will be about 24,500. That is, the total screening effort for ACOMS sample components is about 114,000 when Puerto Rico is part of the universe, and about 94,500 when Puerto Rico is not part of the universe.

3. Effects of excluding Puerto Rico from the universe on the Hispanic sample

Furthermore, the exclusion of Puerto Rico from the universe will affect the structure of the Hispanic sample with respect to the Hispanic derivation. When Puerto Rico is included in the universe, the proportion of Puerto Ricans in the sample will be much greater than their proportion in the total population. The reason is that any optimization procedure that takes all Hispanics into account will oversample eligible persons in Puerto Rico because of the much lower screening levels there. As we estimated earlier, with Puerto Rico included, both the Puerto Rican and Mexican samples will be large enough to satisfy the precision requirements for the Hispanic sample. The "other" group will have a smaller sample than the sample size necessary to achieve the precision stated in the RFP. (For the complete Hispanic universe with 100 percent coverage, we estimated that for "other" Hispanics the sample will permit an analyst to detect year-to-year changes of 4.0% instead of the 3.0% indicated in the RFP.) On the other hand, when Puerto Rico is not part of the universe, the proportion of Puerto Ricans in the ACOMS population drops considerably. For example, with option 1 of Table 1, 65 percent of the Hispanic universe would be Mexicans, 13 percent Puerto Ricans, and 22 percent "other" Hispanics. It would require a reallocation of the screening effort to achieve the desired precision for Puerto Ricans, that is, when the sample size in the Hispanic areas is increased, a disproportionately large part of the increase would be in the heavily Puerto Rican areas such as New York. The reallocation of the screening workload may slightly reduce the precision of the Hispanic sample.

LM:mip

Table 1. Approximate Hispanic sample sizes available from 134,000 screened houses for the four options discussed in the memo of February 21

Hispanic Universe	Percent of Hispanic Coverage		Sample Available From 134,000 Screened Households		Additional Interviews Needed to Achieve the Desired Precision	
	Puerto Rico Excluded	Puerto Rico Included	Puerto Rico Excluded	Puerto Rico Included	Puerto Rico Excluded	Puerto Rico Included
Option 1	80	83	770	1,080	1,230	920
Option 2	79	82	760	1,070	1,240	930
Option 3	76	80	740	1,050	1,260	950
Option 4	75	79	730	1,040	1,270	960

Table 2. Approximate sample sizes available from 70,000 screened households for the four options discussed in the memo of February 21

Hispanic Universe	Percent of Hispanic Coverage		Sample Available From 70,000 screened households		Additional Interviews Needed to Achieve the Desired Precision	
	Puerto Rico Excluded	Puerto Rico Included	Puerto Rico Excluded	Puerto Rico Included	Puerto Rico Excluded	Puerto Rico Included
Option 1	80	83	410	570	1,590	1430
Option 2	79	82	400	560	1,600	1440
Option 3	76	80	390	550	1,610	1450
Option 4	75	79	380	540	1,620	1460



TO: ACCMS Staff

Attachment 2

FROM: Martha Berlin  
Maura Gost

SUBJECT: Vo Tech Sample Decision Memo

DATE: Nov. 20, 1985

The Vo Tech supplementation for ACCMS presents several key issues that must be investigated. First, a clear definition of vocational technical education and a definition of the unit of Vo Tech from which students will be selected must be determined. Second, a two stage sampling procedure (school/program and students within school/program) must be outlined. The associated sources and methods for sample selection of schools and students must be reviewed. In addition, operational issues such as the timing of interview procedures to coincide with the operational schedules of the sampled institutions must also be resolved. Finally, it is important to look at the cost implications of each proposed procedural alternative.

I. DEFINITIONS

Definition of Vo Tech Respondent - The targeted respondents for this supplementation to the PMS (as outlined in both the RFP and proposal) are 460 males who are currently enrolled in a Vo Tech program at the post-secondary level. Since the supplementation is to the PMS sample, we assume that the respondents are to be high school graduates.

2

Definition of Vocational Education - Vocational (occupational) education is defined by most sources, including the National Center for Education Statistics (NCES) in their Directory of Postsecondary Schools with Occupational Programs, as "educational instruction designed to:

1. prepare individuals for gainful employment in recognized occupations and/or new and emerging occupations;
2. assist individuals in making informed and meaningful occupational choices; and
3. upgrade or update the skills of individuals already in an occupational field."

NCES also defines an occupational education program as being a "planned sequence of courses leading to a specific occupational objective."

While the Directory enumerates schools with programs and the RFP Statement of Work speaks to the need for "Supplementing the PMS sample as needed for Vo Tech programs..." (pg.11, Sect 3.3.c), our proposal and all subsequent discussion with ARI has dealt with the supplementation based on selecting students from institutions. There are however, traditional post secondary institutions with Vo Tech programs. Likewise, there may be more than one program within a Vo Tech institution.

Several facts are germane to this discussion. They do, however, also raise the question of private/public inclusion, as follows:

- o There are approximately 1800 public vocational educational institutions which provide programs in a variety of occupational fields. These schools represent only about 19% of all vocational education institutions.
- o 81% of the vocational education schools are private institutions. These institutions can be broken down into 3 general categories, as follows: proprietary (6200), independent non-profit (1100) and religious group (600). The vast majority (approximately 82%) of these privately controlled institutions provide occupational training in only one or two occupational fields.

This information raises the concern that a simple random sample of institutions could severely limit the variety of occupational programs from which the sample of Vo Tech enrolled students are selected.

The following table provides some information derived from a random sample of 486 schools listed in the NCES Directory of Post Secondary Schools with Occupational Programs.

	<u>Number of Program Categories Offered</u>			
	1	2	3	4+
W/in Private Schools	71%	11%	8%	10%
W/in Public Schools	20%	5%	2%	74%
All Schools	58%	9%	6%	27%

Some thought should be given to the type of occupational training provided at the schools and possibly, adjustments made to the base of schools/programs for those schools/programs whose enrollment is or could be expected to be predominantly female.

4

An issue has also been raised regarding the possibility of being occupationally selective in the types of programs/schools from which the sample of respondents is selected. The question stands, "Is it feasible to sample only within those types of programs/schools which provide training in the careers most useful to the Army?"

Since the sampling procedures will obviously vary depending upon the definition we recommend (schools vs. programs vs. selective schools/programs) a resolution to this issue is important before further specific procedures can be finalized.

## II. SELECTING SCHOOLS/PROGRAMS AND STUDENTS

### 1. SOURCES FOR SAMPLING SCHOOLS/PROGRAMS

There are several sources that can be used to develop a sample frame for the Vo Tech supplementation. The attached table indicates the information available from each source. These sources could be used as stand-alone sample frames or in combination with one another. Updated information is also available for some of the sources and is so noted in the comments section of the table.

### 2. SOURCES/METHODS FOR SAMPLING STUDENTS

Once the sample of approximately 100 schools/programs has been selected, approximately 5-6 students will be selected from each. There are several alternative methods for selecting these students.

TABLE: SAMPLING SOURCES FOR VOCATIONAL EDUCATION SCHOOLS/PROGRAMS

	1	2	3	4	5
SOURCE LISTING:	Directory of Public Vocational-Technical Schools, 1984-1985  (Minnesota Scholarly Press)	Directory of Post-secondary Schools with Occupational Programs, 1975-1976  (NCES)	American Trade Schools Directory  (Croner Publications Corporation)	Sunny Kloss suggested S... listings  (as listed in #3)	Sample frame for Voc Ed facility study  (Westat)
DATE OF LISTING	1984-1985	1975-1976	JUNE 1984		1977-1978
NUMBER OF SCHOOLS	1,109	9,704	APPROX. 2,300		10,000
INFO PROVIDED:					
NAME:	YES	YES	YES		YES
STREET ADDRESS:	YES	YES	YES		YES
CITY, STATE	YES	YES	YES		YES
SCHOOL PHONE:	YES	YES	YES		
DIRECTOR'S NAME:	YES	YES	NO		
LIST OF PROGRAMS	YES	YES	SOMETIMES		YES
CROSS REFERENCE LIST BY PROGRAM	YES	YES	YES		
ACCREDITATION	NO	YES	SOMETIMES		
ENROLLMENT:	NO	YES	NO		
TYPE OF SCHOOL:	NO	YES *	NO		YES **
COMMENTS:	Public Schools Only  Listings obtained from catalogs for each school and directories from state offices of Vocational Educ.	Updated directory available (1982) is "on order"  Seems to be most comprehensive.  Lists only accredited schools.	Contains trade, industrial & vocational schools.  Some business schools listed, some apprenticeships.	Natl. Assoc. of Health Career Schools; Community, Technical & Junior Colleges Directory of Educational Instruction Natl. Assoc. of Trade & Technical Schools	Unclear whether we still have this data base and if the definition used in this study is too broad for NCES

\* Type of School defined as Vocational/Technical, Business/Commercial, Cosmetology/Barber, Flight, Trade, Home Study, Hospital, Jr. College, College, Other

\*\* School was included if it had five or more Voc Tech Programs. Schools included Comprehensive HS, Vocational HS, Area Vocational Center, Community College, Technical Institute, Area Vocational School

Option 1: Schools Select Sample of Students- One alternative is to request each of the sampled schools/programs to prepare a list containing name, address and telephone number for a random sample of male students currently enrolled in Vo Tech programs. This list should also provide the expected duration of the student's enrollment. The procedure poses some specific problems:

1. Convincing the schools of the legitimacy of the survey need and overcoming school concerns about potential confidentiality considerations. In previous similar surveys confidentiality was one of the major concerns and reasons for refusal among the schools. Advance letters and telephone contact will prove critical.
2. Obtaining cooperation in terms of a time commitment from the schools. Many of these schools are small, privately owned businesses without the resources to allocate to this type of task. In addition, the enrollment level in many of these schools is small and therefore, much of the needed information may not be readily available. In previous surveys, this was another of the major reasons for schools refusing to participate. We should be prepared to offer our assistance, as appropriate.
3. Adjusting for potential delays in the acquisition of this information if school concerns take priority (as can be expected) over compilation of these lists. Additional delays can be expected if the schools feel the need to obtain direct permission from their students before releasing their names to us. Again, a letter from Westat fully describing the potential use of this information will be critical.
4. Ensuring that the list(s) obtained from the schools are accurately prepared. Training of the school personnel would be important, especially if the sample is to be divided by program rather than by entire school enrollment. A clear, concise set of instructions must be prepared for the schools so that they can prepare the necessary information in the least amount of time and with the smallest potential for confusion.

7

Option 2: Schools Provide List of All Students - A second approach is to request that schools/programs send Westat a list of all males who are currently enrolled in Vo Tech programs. This list should contain all the elements of information listed in Option 1. This option produces a slightly different perspective on two of the four issues discussed above.

1. The time commitment required of the schools will alter. Depending upon the size of the school/program and the manner in which records are maintained (machine or hardcopy), the time required from the schools may increase or decrease. Again, we should be prepared to lend assistance if necessary.
2. The level of quality control exercised by Westat over the sampling of students becomes significantly greater with this approach. The schools would prepare a list of all males enrolled in Vo Tech programs and Westat staff would do the actual sampling.

Option 3: Westat Samples Students With School Support

A third approach would be for Westat staff to work with each of the schools in preparing the lists. This would require obtaining the permission of each school to allow a trained Westat staff member to work in their facility for some length of time and to have access to their enrollment records. As with the previous approaches, there are specific issues associated with this plan.

1. School concerns regarding confidentiality are not eliminated if this approach is used. In fact, these concerns may very well be exacerbated by the fact that the Westat staff member may have incidental access to additional information that is not specifically being sought.
2. The time commitment required from the schools is minimized but not eliminated with this approach. The schools will still need to allocate some time to instruct our staff members in the organization of the records. Additionally, the schools will need to provide workspace for our staff member(s).

3. Delays in the acquisition of the lists would also be minimized with this approach. Once a Westat staff member has visited the school to collect the information, no further delay, due to changing school priorities, should occur. However, a potential delay still exists in the early stages, if the school feels the need to gain permission from its students before allowing access to enrollment records.
4. This method ensures a higher level of quality control in the development of the sample than Option 1. A thoroughly trained Westat staff member, well instructed in the needs of the survey, will have the primary responsibility for compiling the needed information.

Option 4: Acquire School Directories - Another method for sampling students might be to obtain copies of school directories containing the names, addresses and telephone numbers of current students. As with the other alternatives, there are specific difficulties involved with this approach.

1. Not all schools publish student directories. Different sampling methods would be employed for schools with published directories than for those that do not have these directories. In addition, most student directories are published once a year for the general use of the student body and are not meant to provide an accurate, updated listing of all enrolled students.
2. Most directories that are published do not provide the program/major study area in which the student is enrolled. If we try to sample students in only the selected programs which coincide with USAREC interests, a significant screening effort might be involved to identify males in Vo Tech programs in which we are interested. In addition, if 2 or 4 year institutions offer many programs other than Vo Tech, significant screening might also be involved to locate males in Vo Tech programs.
3. Again, confidentiality could be an issue of concern that would prevent schools from providing directories to us, in those schools where student directories are published.

Option 5: Advertisements in School Newspapers - A final alternative for selecting current vocational education students would be to publish an advertisement in the school newspaper or post notices in highly visible areas of the campus requesting students to volunteer for participation in the survey.

1. The distribution of sample using this method could fluctuate drastically across different schools, depending upon the tendency among students at each school to volunteer. It is also likely that we would see a drastic and undesirable fluctuation in the representation of different programs with this method.
2. We would need to obtain permission from each school to publish an advertisement in the school newspaper or post notices in public areas. Here again the need exists to convince the schools of the validity of this survey. Some expense may be incurred in advertising.
3. It is unlikely that a large number of students at each school will volunteer initially, or follow through at the time of the actual interview unless some type of direct incentive is provided.
4. Not all institutions publish student newspapers or allocate space for routine posting of information. Therefore, the sampling methodology may differ for these schools.

### 3. OPERATIONAL ISSUES

There are several issues that will be of operational concern for ACOMS regardless of the procedures used to sample schools/programs or students. These concerns are outlined below:

Duration of "Current" Status - Many of the Vocational/Technical programs require attendance at a specified series of courses during a specified period of time. The duration of "current" status of students within these types of programs is easy to determine. However many programs, like those in the secretarial area, involve much more flexible time frames. Students can proceed with courses until they reach a level of

skill that they feel is satisfactory to get them into the job market where they will further their skills. The determination of "current" status among these students is much more difficult to determine. Time delay between sampling these students and conducting the interviews should be minimized in order to reduce the impact of these situations.

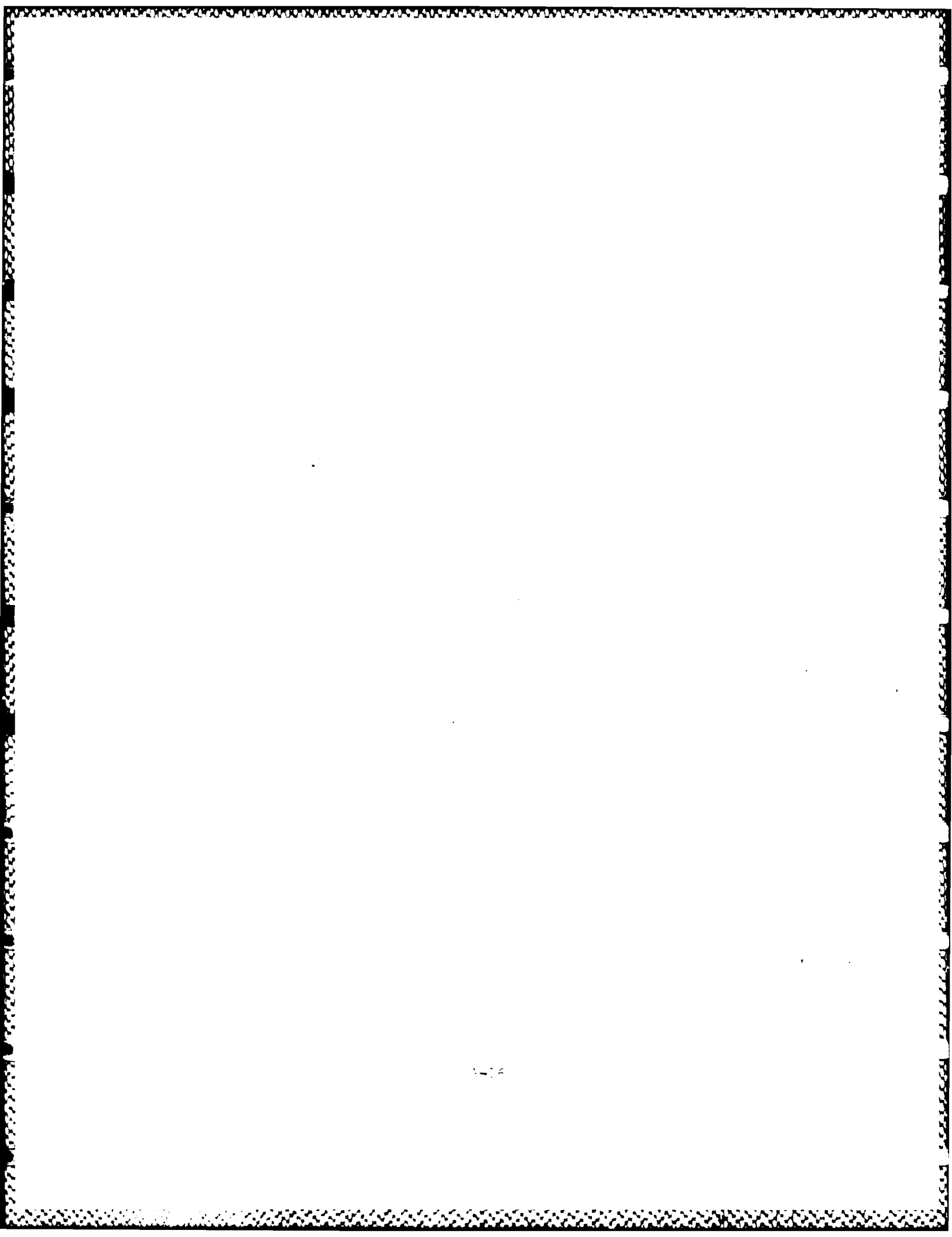
Gaining School Cooperation - One of the most difficult tasks of this Vo Tech supplementation process will be to gain the cooperation of the schools. Some of the reasons for this difficulty involve concerns about the confidential nature of the information we are requesting and school concerns about their legal and ethical responsibilities in this issue; the resources of and costs to the schools to provide us with the requested information; and the natural tendencies of the school Directors or other personnel to participate or refuse. Advance letters and early telephone contact to assure schools of the importance of the survey and Westat's strict confidentiality procedures will be critical.

Operating Schedule of Schools - The operating schedules for Vocational/Technical schools might pose problems in our ability to equally distribute the Vo Tech sample throughout the year. However, information gathered during the Vocational Education Facilities Study (1978) indicates that 96% of Vo Tech postsecondary institutions offer programs year round. This would allow for an equal distribution of the Vo Tech sample throughout the year.

Consent of Students - In many instances, sampled schools may refuse to provide us with any information without first obtaining consent from the students involved. In these instances again, advance letters are critical. Obtaining this consent from the students may create administrative problems for the schools and we should be prepared to lend assistance as appropriate.

III. COST IMPLICATIONS

An evaluation of the cost implications for each of these alternative methods of sample selection is currently being conducted. A memo describing the results of this evaluation will be distributed in the near future.



Memorandum

Attachment 2

TO: Ronie Nieva  
FROM: Joe Waksberg  
SUBJECT: VO Tech Sample for ACCMS

December 17, 1985

Martha and Maura addressed a number of issues regarding the VO Tech sample in their November 20 memo. Some additional topics are discussed below.

1. Definitions

The December 10 ACCMS memo stated that a decision has been made that the VO Tech sample will include high school graduates only. This obviously will exclude youths taking VO Tech training in high schools. Also, some of the VO Tech students in both the RDD and the school sample will be lost because they are not high school graduates. (Although I have not found any specific data that will predict the losses, they do not appear to be large. The last Census Bureau report on the subject -- for 1976 -- showed that about 10 percent of persons enrolled in VO Tech programs, excluding those in high school, had not completed high school. Unfortunately, the Census report, in addition to being almost 10 years old, does not have separate data by sex, or for persons 16-24 years.)

I assume we also want to exclude students taking vocational subjects in regular two-year or four-year colleges. A Census Bureau study in October 1982 indicated that there were more students in college in a vocational education program than in other postsecondary institutions. Our sample size calculations assumed these students will be part of the college sample rather than the VO Tech sample. Do we need a confirmation of this?

Our calculations also assumed that the VO Tech sample will cover full-time and part-time students and persons in correspondence schools. (The 1976 Census Bureau report stated that 7 percent of the males 14-21 years old enrolled in vocational schools were in correspondence schools.) I would like to make sure we have agreement on this. It will affect both the sample size and the questionnaire.

There are also timing problems that should be considered. Should our questions be on "currently enrolled"? If so, what happens during summer months? The Census study asked about both current enrollment and enrollment in the past 12 months.

December 17, 1985

## 2. Response and Sampling Issues

The Westat proposal for this study recommended a dual frame approach with part of the sample generated in the random digit dialing sample and part selected by going to a sample of VO Tech schools. On further consideration, I think we should use only the VO Tech school sample for this component of the study.

Combining the RDD and school samples implicitly assumes the two measure the same concept. There is some uncertainty whether this is the case. A respondent's replies to questions on VO Tech courses will reflect his perception of what is meant by VO Tech enrollment. Census experience indicates there may be considerable difference between the respondent's understanding and what we have in mind. Methodological studies on accuracy and consistency of reporting VO Tech in the 1970 Census and in a 1976 study (copy attached) indicated quite poor quality of reporting. It is uncertain whether the same problems will occur in our study since the Census questions asked about lifetime experience in vocational education. It is likely that current enrollment is not subject to the same problems. However, at least some of the causes of poor reporting look as if they will also affect current enrollment statistics.

Selecting a sample from VO Tech schools will provide statistics for a universe of students that can be clearly defined. Consequently, I suggest that we increase the sample of students selected from VO Tech schools to 700, the full number desired by ARI. The additional cost will be fairly modest once we have obtained cooperation from the schools and received lists of students.

As far as the RDD component is concerned, we will be free to ask the VO Tech questions or abandon them. It might be interesting to ask questions on VO Tech enrollment and the names of the schools in which enrolled. The schools could then be compared to those on the frame. Students in schools not on the frame would provide information on the extent to which vocational education is going on outside the set of institutions that are normally considered as providing this education (assuming there are not too many problems in matching the two lists). The implications of this kind of analysis could be reflected in plans for ACOMS in future years.

If the cost of this investigation is not very great, I suggest carrying it out. I doubt that it is worth putting substantial resources into it.

December 17, 1986

### 3. Timing of Data Collection

If we want to restrict our sample to those who are "currently enrolled", there will be some delicate problems on the timing of the operation. From the information I have looked at, it appears as if there is considerable turnover in the student body in VO Tech schools. Some of this is due to some of the courses having a fairly short duration. Other reasons are relatively high dropout rates and the fact that courses do not necessarily keep to conventional school calendars.

Consequently, selecting a sample of students at one point in time and then interviewing them over the following year is likely to produce erratic results. Many of the students will no longer be enrolled, and we will be missing new cohorts.

The contact with the students should therefore be made soon after the lists are obtained. This implies that the sample of schools will need to be divided into 12 random subsets, with the list for each subset obtained in a different month. Since there is likely to be a fairly long, and variable time period needed to get the schools to agree to cooperate, the initial arrangements should not include the preparation of the lists of students.

An alternative is to interview all the VO Tech respondents in a relatively short period of time. If there are important seasonal or other temporal factors, this would create problems in comparing the VO Tech and other NPS respondents. I doubt that we should recommend this alternative.

If the definition of VO Tech is changed from "currently enrolled" to something like "enrolled during a certain period -- the last 12 or 6 months", the timing problems are considerably reduced. We can then ask the school for students who were enrolled anytime during a fixed period (e.g., January-June 1986) and allocate the sample to various months.

### 4. Decision Requirements

As we have discussed previously, a fairly long lead time is needed to organize the frame of schools, select the sample, and arrange for cooperation. We should try to get decisions rather quickly on the three items above. I would like to shoot for agreement by the end of December so we can get started on the next steps early in January.

JW:mlp

cc: Martha Berlin



**Table K. Regular School or Vocational School Enrollment, by Family Income for Dependent Family Members 18 to 24 Years Old: October 1976**

Numbers in thousands. (Civilian noninstitutional population)

Enrollment status, age, and sex	Total <sup>1</sup>	Family income					
		Under \$5,000	\$5,000 to \$9,999	\$10,000 to \$14,999	\$15,000 to \$19,999	\$20,000 to \$24,999	\$25,000 and over
BOTH SEXES							
Total, 18 to 24 years old.....	14,222	1,353	2,277	2,700	2,198	1,737	2,474
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Enrolled below college.....	6.0	11.4	8.5	6.7	4.5	3.2	2.3
Enrolled in college.....	38.8	20.3	25.1	34.2	42.3	50.1	57.7
Enrolled in vocational school.....	3.6	3.2	4.3	3.9	3.5	4.8	3.1
Not enrolled in school <sup>2</sup> .....	51.6	64.9	61.4	54.9	49.4	41.6	36.5
MALE							
Total, 18 to 24 years old.....	7,941	707	1,273	1,496	1,274	955	1,411
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Enrolled below college.....	7.0	14.1	10.0	8.4	5.3	3.2	2.1
Enrolled in college.....	35.3	17.1	21.4	30.0	38.3	45.1	54.0
Enrolled in vocational school.....	3.4	4.0	3.5	3.5	3.1	5.4	3.0
Not enrolled in school <sup>2</sup> .....	54.4	64.6	63.8	57.7	52.9	45.9	40.0
FEMALE							
Total, 18 to 24 years old.....	6,281	646	1,004	1,205	924	782	1,063
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Enrolled below college.....	4.8	8.4	6.6	4.7	3.4	3.3	2.6
Enrolled in college.....	43.2	23.8	29.9	39.4	47.8	56.1	62.6
Enrolled in vocational school.....	3.9	2.3	5.2	4.2	3.9	4.1	3.1
Not enrolled in school <sup>2</sup> .....	48.0	65.0	58.2	51.5	44.5	36.2	31.0

<sup>1</sup>Includes persons with family income not reported; not shown separately.

<sup>2</sup>Includes persons with enrollment in vocational school not reported.

#### METHODOLOGICAL NOTE

Previous analyses of response errors to questions on vocational training have shown that individuals are not likely to provide highly reliable answers to questions on whether they had completed a vocational training program. Although no such analysis was conducted for the series of questions used in the October 1976 Current Population Survey, two studies on the reliability of reporting have been conducted, one in 1970, based on the 1970 Census of Population, and another in 1976, based on the National Content Test for the 1980 census.

In the 1970 Census of Population 5-percent sample, persons 14 years old and over answered a two-part question on vocational training and their main field of study.<sup>1</sup> Respondents were instructed to count only programs that were finished; to include Job Corps training; to omit courses which were not part of an organized program of study, training received on the job, in a company school, in college after the second year, by correspondence, or in basic training in the Armed Forces. Under these circumstances, a wide range of

training experiences may have been reported as vocational, including those that are without question vocational as well as those that were more marginal in nature.

A reinterview of 5,000 households was conducted in which persons were questioned in detail about any training that *might be* considered vocational; if a potential training program was detected, a series of questions was asked for the purpose of obtaining data on the nature of the program. These data included the field of training, where or how the training was received, whether the training program was completed, the year the training was received, the usefulness of the training in a civilian job, and the number of weeks and hours spent in the training program. The data also provided a basis for identifying those persons having training experiences which were clearly not to be reported as vocational training according to the respondent and enumerator instructions, as well as those having no training experience.

In 1976, further evaluation of the vocational training item was made possible by the National Content Test.<sup>2</sup> Since the 1970 census evaluation study showed that a high percentage of persons who reported "Yes" on vocational training actually did not complete a program, a new question format

<sup>1</sup>See U.S. Bureau of the Census, Census of Population and Housing, 1970, Evaluation and Research Program PHC(E)-9, Accuracy of Data for Selected Population Characteristics as Measured by Reinterviews, pp. 15-23.

<sup>2</sup>Results Memorandum Number 16, from David L. Kaplan, "Evaluation of the 1976 Reinterview Survey for School Enrollment, Educational Attainment, and Vocational Training," prepared by Larry E. Suter, December 16, 1978.

was attempted in the National Content Test to clarify the type of training that should be reported. The questionnaire specified that only persons who had received a certificate in vocational training should report they completed a vocational program, also the length of the program of study was obtained so that persons who had attended for short periods could be separated from those with more extensive training. When these persons were interviewed, more detail about the attended program was requested.

Of the persons identified on the census form as having completed a training program which might qualify as vocational, only about 62 percent reported completing a vocational training program in the reinterview questionnaire. On the other hand, a significant number of the persons who said they had not completed a program, did say so in the reinterview (9 percent). In general, the types of vocational programs most completely reported include those that currently were being used in the job, those that involved 2,000 or more hours of training, and those that were taken in a trade or technical school.

A large number of persons erroneously reported completing a vocational training program in the census. The reinterview data show that about 38 percent of the persons who reported completing a vocational program on the census questionnaire had not done so by the census definition. About 29 percent reported training experiences which were clearly not to be reported as vocational according to the census instructions, and an additional 9 percent indicated in

the reinterview that they had never received any type of training that might be considered as vocational.

A comparison of the responses to the mailout questionnaire and the reinterview indicated that the detailed questions were not more reliable than the responses received in the 1970 census item on vocational training, although the question was more specific. A smaller proportion of the population, about 13 percent of persons in the mailout questionnaire and about 11 percent of persons in the reinterview, were found to have received a certificate. About one-half of those who reported having received a certificate in the mailout survey did not report it in the follow-up reinterview. Also, a large number of persons who reported that they had not completed a program in the mailout questionnaire were reported as attending and completing a vocational program in the reinterview.

Information gained from the National Content Test suggests that the meaning of "vocational training" may not be clear to respondents, which may be partly due to the lack of a national consensus on the meaning of a vocational education program. The amount of variation in the type of training which *might be* considered vocational (such as the addition of adult education programs in colleges in recent years) is so great that summary measures are not highly successful. Vocational training may occur in many different forms, thus making it difficult to distinguish occupational education from courses intended for nonoccupational reasons.

# WESTAT

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Attachment

## MEMORANDUM

TO: Ronie Nieva  
FROM: Joe Waksberg  
SUBJECT: Hispanic Sample for ACOMS

December 4, 1985

Leyla recently completed a report on "Comparison of Alternative Procedures for Oversampling Hispanics" which compared the number of interviews, screenings and costs for three different sampling methods for Hispanics. Her report also derived the approximate sample sizes for the distribution of the sample by Hispanic derivation for the alternates. I would like to make several recommendations for our next steps in regard to the Hispanic sample.

### 1. Alternative Sampling Methods

The efficiency of the various alternatives is summarized in Table 4-1 of Leyla's memo. Basically, Table 4-1 shows that the cost of both alternatives will be about 25 to 35 percent below the cost of straight random digit dialing. Furthermore, Table 4-1 indicates that the Spanish Surname procedure will cost about 6 or 7 percent less than the area stratification method. (The per interview cost will probably be about 5 to 10 times the per screening cost, so that values of  $C_2/C_1$  of 5 and 10 should encompass the cost ratios we are concerned with.)

It is clear that straight RDD should be rejected. The Spanish Surname procedure seems to have an edge over area stratification, but the difference is fairly modest. It is useful to examine other features of the two systems to see whether they should influence our decision.

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\*We have not examined a sample design which combines a Spanish Surname list with area stratification. Even though, on paper, this would be more efficient than either method alone, we are hesitant to introduce the added complexities with the attendant chances of error that occur with complex systems. I think we should explore a combined method but I prefer to delay an analysis of its properties until we have the survey underway, and then try it out on a small scale basis, possibly in one or two states or in a Bde.

I have one major concern about the Spanish Surname procedure. The optimization and level of screening and interviewing is sensitive to the amount of attrition in the Donnelley list. Section 2.1 of Leyla's memo shows a 15 percent loss because some households with Spanish Surnames are not Hispanic, and a 10 percent loss for other reasons. The 15 percent loss is based on Census studies and should be reasonably close to what will occur in practice. The 10 percent loss estimate, however, is a guess on our part. If it is way off the mark, the Spanish Surname procedure could be much less efficient than we estimated.

There may be other problems as well. For example, we assumed the proportion of Hispanic households with eligible youths in telephone households was the same in nontelephone households; and that the nonresponse rates in Hispanic households will be about the same as in all households. However, it is unlikely that these assumptions could be so seriously in error to have an important effect on the comparisons. But if the 10 percent loss turns out to be 20, or 30, or 40 percent, the effect would be very serious.

The area stratification procedure suffers from a related problem. The optimization was based on an estimated distribution of the proportion of Hispanic households in telephone exchanges with heavy concentrations of Hispanics, moderate concentrations, etc. The distribution assumed certain relationships between telephone exchange data and tract data (for which tabulations were available). In addition, the tract data are quite old. How close this distribution is to what will be found in practice is quite uncertain.

My personal feeling is that the area stratification design is probably not as sensitive to errors in the distribution as the Spanish Surname method. A conservative position might then be to choose area stratification in spite of the fact that it appears to be more costly. However, there is an argument for the reverse position also. If the Spanish Surname method turns out to provide fewer Hispanics than required, it will be quite easy and fairly cheap to supplement the sample by adding persons from the Spanish Surname list. (We should purchase more names from Donnelley than we plan on using.) Area stratification does not quite provide the same flexibility since a smaller proportion of Hispanics appear to reside in concentrated Hispanic areas.

As far as costs of purchasing material from Donnelley is concerned, the Spanish Surname list is cheaper but not by very much. Data for the area stratification method will run about \$25,000 whereas the Spanish Surname list will only cost a couple of thousand dollars (including matching for weighting purposes). However, since the area stratification data are based on the 1980 Census, which cannot be updated, it can be used for the next five

years of ACCMS. The Spanish Surname list would have to be renewed each year.

My recommendation is to examine the extent of the problems by carrying out a limited amount of testing as part of our general pretest plans. I suggest we purchase both frames from Donnelley (that is the telephone exchanges coded by 1980 Census characteristics, and a set of names from the Spanish Surname file) for one or two states, examine the lists (e.g., check for existence of telephone numbers on the Spanish Surname list) and do a moderate amount of calling of numbers on both lists. This should give us a reasonable basis for a decision.

I would like to move fairly quickly to make sure we have results in time for the start of data collection operations.

## 2. Hispanic Derivation

The Westat Proposal recommended that there be no attempt to enlarge the sample of "other" Hispanics. The more detailed analysis of the sample sizes in Leyla's memo confirms this position. There does not seem to be any easy way to increase the sample of "other" Hispanics in a way that would reduce the sampling errors appreciably. The Spanish Surname list does not contain a large enough part of the total Hispanic population to make sample supplementation from the list alone an efficient procedure. Similarly, restricting oversampling to particular geographic areas (e.g., Miami) would add sample cases but would not have much effect on variances.

I suggest we stick with our original recommendation. I don't think this means we have to keep from analyzing data for "other" Hispanics. A sample of 400 to 500 cases can provide useful results. However, the levels of cross-classification should be kept fairly simple.

## 3. Total Screening Effort

Tables 2-2 and 3-3 of Leyla's report indicate that the screening level will be somewhere in the 105,000 to 115,000 range. About 3,000 to 4,000 of this will be in Puerto Rico. With area stratification, screening will need to be attempted for about 110,000 households outside of Puerto Rico. With the Spanish Surname procedure, the screening sample should be about 100,000 (not including Puerto Rico or the Spanish Surname list).

These levels of screenings are, of course, greatly in excess of the 70,000 required to produce the 9603 PMS sample. They will come close to providing the 2400 four-year college students, but not quite make it. They will also give us the option of increasing the sample size for two-year college students, SMS, and the convenience sample.

In regard to four-year college students, although the Spanish surname procedure calls for a smaller number of screenings than area stratification, it is probably a little better for purposes of studying students. This is due to the fact that with the Spanish Surname procedure, we will have a self-weighting sample for the 100,000 screenings outside of Puerto Rico and the Spanish Surname list. With area stratification, the sampling rates will vary and the variation will increase the variances. In addition, the highest sampling rates will occur in concentrated Hispanic areas which probably have a lower percentage of college students. The number in the sample will thus probably be somewhat lower with area stratification than with the Spanish Surname procedure, even though more households will be screened.

It should be noted that we previously estimated that without oversampling for Hispanics, a screening sample of 114,000 was necessary to provide 2400 male, NPS, four-year college students. This assumed a self-weighting sample. With the Spanish Surname procedure, the 114,000 sample needed for college students will need to be enlarged in Puerto Rico and a sample selected from the Donnelley list to satisfy the Hispanic requirements. This will increase the screening workload by about 10,000. With area stratification, the screening sample in strata with low concentrations of Hispanics will need to be increased, probably by the same amount - 10,000.

JW/jjs

COMPARISON OF ALTERNATIVE PROCEDURES  
FOR OVERSAMPLING HISPANICS

1. Introduction
2. Characteristics of Spanish Surname Method
  - 2.1 Basic Parameters
  - 2.2 Assumptions
  - 2.3 Optimum Number of Interviews per Sampling Stratum
3. Characteristics of Area Stratification by Hispanic Concentration
  - 3.1 Basic Parameters
  - 3.2 Assumptions
  - 3.3 Optimum Number of Interviews per Sampling Stratum
4. Relative Efficiency of Area Stratification Compared to the Spanish Surname Method
5. Screening for Hispanic Derivation



## 1. INTRODUCTION

The two alternatives available for oversampling Hispanics are to: (1) locate a partial list of Hispanics (not necessarily complete), and then use a dual-frame approach sample both, from the list and random digit dialing (RDD), and (2) stratify the population to identify areas with heavy concentration of Hispanics, and oversample the designated areas. As the third alternative, we can simply increase the screening sample to achieve the desired sample size. As will be seen later, this latter alternative is the most expensive approach.

For the first alternative we can use a partial list that is developed by the Donnelley Marketing Information Services. Donnelley Marketing has informed us that they have a list of 2.1 million telephone subscribers, coded on the basis of the Spanish surname file established and used by the Census Bureau. Donnelley Marketing can also supply a list of all telephone exchanges, with 1980 census data for each exchange, based on an approximate matching of telephone exchanges with Census geography. For the second alternative we will use Census data to obtain information on the concentration of Hispanics in different areas.

In this report we will compare the two alternative methods for oversampling Hispanics each one based on the results of an optimization procedure with the objective of achieving the desired precision in the estimates at minimum cost.

It should be noted that the sample sizes mentioned in the proposal are the ones required to achieve the precision stated in the RFP, if the Hispanic sample is a simple random sample. RDD by itself comes close to being a simple random

sample but neither the dual frame nor the area stratification methods produce self-weighting or simple random samples. These methods increase the sampling variances over those from a self-weighting sample. Therefore, the number of interviewed cases has to be increased to provide the precision required in the RFP. Any gains in efficiency will come from the possible reductions in the screening effort which more than compensate for the increased interviewing workload.

Sections 2 and 3 provide the results of the optimization procedure for the Spanish surname and area stratification alternatives. A comparison of the two methods based on relative cost of employing the two methods is given in Section 4. Section 5 concludes the report by discussing some other aspects of oversampling Hispanics.

## 2. CHARACTERISTICS OF SPANISH SURNAME METHOD

### 2.1 Basic Parameters

This section provides the basic information needed for the optimization procedure for the Spanish surname method. Most of the following data for the 50 states are based on the 1984 Current Population Survey estimates. The proportion of households with telephones are based on earlier data. The data for Puerto Rico are Westat's updates from the 1980 census.

No. of Spanish origin households (excludes Puerto Rico)	4,326,000
% of households with telephones	85
No. of Hispanic households with telephones	3,677,100
Screening rate for Hispanic households	21.1
No. of Spanish surname households on Donnelley's list (excludes Puerto Rico)	2,100,000
% of Spanish surnames that are not Hispanic	15
Assumed % loss for other reasons (telephone number missing, moved, etc.)	10
No. of Spanish surname households on Donnelley's list that are Hispanic and available	1,606,000
Screening rate for Hispanic households	1.31
% of Hispanic households with telephones on Donnelley's list	.44
No. of Hispanic households in Puerto Rico	911,100
% of households with telephone	80
No. of households with telephone	728,866
Screening rate for Hispanic households	1.1
No. of Hispanic households per eligible person (excludes Puerto Rico)	3.70
No. of Hispanic households per eligible person in Puerto Rico	3.21

Table 2-2. Optimum sample sizes and the associated screening efforts for the Spanish surname alternative by  $C_2/C_1$

$C_2/C_1$	Number of interviews ( $n_1$ )				Amount of screening with an allowance of 20% nonresponse			
	Puerto Rico	Spanish Surname	Other	Total	Puerto Rico	Spanish Surname	Other	Total
1	1178	1964	503	3645	5198	10,549	88,358	104,105
5	921	1624	532	3077	4064	8409	93,452	105,925
10	783	1416	560	2759	3455	7072	98,371	108,898
15	707	1295	582	2584	3120	6280	102,236	111,636
20	658	1212	600	2470	2903	5728	105,398	114,329
25	622	1151	615	2388	2745	5318	108,032	116,095
∞	380	720	900	2000	1677	1935	158,097	161,709

## 2.2 Assumptions

The optimization approach is based on the following assumptions.

- (a) Population variances for Hispanics on the Donnelley list is equal to population variances for those not on the list and those in Puerto Rico.
- (b) Age distribution for Hispanics on the Donnelley list is the same as those Hispanics not on the list and those in Puerto Rico.

(Note: The fact that these two assumptions probably are not exactly true does not introduce any bias into the system. They only affect the variances, and to the extent that they are inaccurate, the precision may be slightly affected.)

## 2.3 Optimum Number of Interviews Per Sampling Stratum

For the Spanish surname alternative, we divide the sampling frame into three strata, where stratum 1 consists of Puerto Rico, stratum 2 consists of Donnelley's list, and stratum 3 is the remainder of the Hispanics in the United States.

Let  $N_i$  be equal to the sample size (number of interviews) in stratum  $i$ ,  $i=1,2,3$ . Also, define

$C_1$  = cost of screening one household

$C_2$  = cost of interviewing one person, and

$C$  = total cost

Table 2.1 summarizes the characteristics of the three strata based on population and sampling cost distributions.

Table 2-1. Distribution of the Hispanic population, sample, and cost by stratum

Stratum	Screening Rate <sup>1</sup>	% of Population <sup>2</sup>	Number of Interviews	Cost (C) <sup>3</sup>
1/Puerto Rico	3.33	.19	$n_1$	$3.33n_1C_1 + n_1C_2$
2/Spanish surname	4.85	.36	$n_2$	$4.85n_2C_1 - 2.16n_3C_1 + n_2C_2$
3/Other	78.07	.45	$n_3$	$140.53n_3C_1 + n_3C_2$

<sup>1</sup>Screening rates are computed based on the following formula:

Screening Rate = screening rate for Hispanic households x  
screening rate for one eligible person.

<sup>2</sup>The population consists of Non-Prior-Service (NPS) Hispanic males between 16 to 24 years of age in telephone households.

<sup>3</sup>The RDD sample (excluding Puerto Rico) will include the sample of other Hispanics ( $n_3$ ) plus some of the Spanish surname sample ( $n_2$ ). Therefore, to complete  $n_3$  interviews for the third stratum we need to screen more Hispanics in the general RDD. At the same time, since we have already sampled some of the Spanish surname stratum in the RDD, we do not need to screen as much to get  $n_2$  interviews for the second stratum. Thus, the cost of sampling  $n_2$  eligibles from the Spanish surname stratum is given by

$$4.85(n_2 - \frac{.36}{.36 + .45}n_3)C_1 + n_2C_2$$

and the cost of sampling  $n_3$  eligibles from the third stratum is equal to

$$78.07(\frac{.36 + .45}{.45})n_3C_1 + n_3C_2$$

Let  $\bar{x}$  denote an estimated mean for the Hispanic population.  $\bar{x}$  is given by

$$\bar{x} = .19 \bar{x}_1 + .36 \bar{x}_2 + .45 \bar{x}_3,$$

where  $\bar{x}_i$  is the estimated mean for stratum  $i$ ,  $i=1,2,3$ . Since the sampling variances of the three strata are assumed to be equal, the sampling variance of  $\bar{x}$  is given by

$$\sigma_{\bar{x}}^2 = (.19)^2 \frac{\sigma^2}{n_1} + (.36)^2 \frac{\sigma^2}{n_2} + (.45)^2 \frac{\sigma^2}{n_3}$$

The total cost of interviewing  $n_i$  males within stratum  $i$ ,  $i=1,2,3$ , is given by

$$C = (3.53n_1 + 4.85n_2 + 138.37n_3) C_1 + (n_1 + n_2 + n_3) C_2$$

We want to achieve the desired precision in the estimate  $\bar{x}$  at minimum cost where the precision is what would have resulted from a simple random sample of 2,000 cases. Thus, we minimize the above equation subject to the constraint

$$\sigma_{\bar{x}}^2 = \frac{\sigma^2}{2000}$$

The results of the optimization procedure is given in Table 2-2 for various values of  $C_2/C_1$ .

### 3. CHARACTERISTICS OF AREA STRATIFICATION

#### 3.1 Basic Parameters

The following table shows the available information on the concentration of Hispanics by Census tract in 1970, and Westat's estimates of the likely distribution of Hispanics by telephone exchange.

Table 3-1. U.S. Household Distribution by Census Tracts\*, 1970 and Estimated Distribution by Telephone Exchanges

* Hispanic in area	Census tracts, 1970		Telephone Exchanges			
	No. Hispanic households	Total households	% Hispanic	Estimated % Hispanic	No. Hispanic households	Cumulative no.
Under 100	436,867	59,873,323	1.1	1.1	616,176	616,176
10-29	660,313	9,268,792	12.3	13.0	789,863	1,406,039
30-49	943,391	1,629,647	33.3	30.0	488,894	1,894,933
50 and over	442,100	643,897	69.7	60.0	197,738	2,292,671
Total	2,292,671	63,431,619	XX	XX	2,292,671	XX

\*Includes pseudo tracts in nontraced areas of the U.S.

#### 3.2 Assumptions

The optimization approach is based on the following assumptions:

- a) Population variances for Hispanics living in high concentrated areas are the same as those living in low concentrated areas.
- b) Age distribution for Hispanics living in high concentrated areas are the same as those living in low concentrated areas.

- c) The distribution of Hispanics living in tracted areas in 1984 is about the same as those in 1970.

### 3.3 Optimum Number of Interviews Per Sampling Stratum

For the area stratification we divide the sampling frame into five strata. The first four strata consist of the four groups described in Table 3-1. Stratum 5 consists of Puerto Rico, that is

Stratum 1 = areas in the 50 states with less than 10% Hispanics;

Stratum 2 = areas with 10% to 29% Hispanics;

Stratum 3 = areas with 30% to 59% Hispanics;

Stratum 4 = areas with 60% or more Hispanics; and

Stratum 5 = Puerto Rico.

Let  $n_i$  be equal to the sample size (number of interviews) in stratum  $i$ ,  $i = 1, 2, 3, 4, 5$ . Table 3-2 summarizes the characteristics of the five strata based on population and sampling cost distributions.

If  $\bar{x}$  is an estimated average for the Hispanic population, then

$$\bar{x} = .23 \bar{x}_1 + .28 \bar{x}_2 + .17 \bar{x}_3 + .14 \bar{x}_4 + .19 \bar{x}_5$$

where  $\bar{x}_i$  is the estimated average for stratum  $i$ ,  $i = 1, 2, 3, 4, 5$ .

Table 3-2. Distribution of the Hispanic population, sample, and sampling cost by stratum

Stratum	Estimated % Hispanics in telephone exchanges	Screening rate	% of population	Number of Interviews	Cost (C)
1/ Less than 10% Hispanics	1.1	336.36	.22	$n_1$	$336.36n_1C_1 + n_1C_2$
2/ 10-19% Hispanics	15.0	24.67	.28	$n_2$	$24.67n_2C_1 + n_2C_2$
3/ 20-29% Hispanics	30.0	12.33	.17	$n_3$	$12.33n_3C_1 + n_3C_2$
4/ 40% or more Hispanics	60.0	6.17	.14	$n_4$	$6.17n_4C_1 + n_4C_2$
5/ Puerto Rico	90.0	3.21	.19	$n_5$	$3.21n_5C_1 + n_5C_2$

The sampling variance of  $\bar{x}$  is given by

$$\sigma_{\bar{x}}^2 = (.22)^2 \frac{\sigma^2}{n_1} + (.28)^2 \frac{\sigma^2}{n_2} + (.17)^2 \frac{\sigma^2}{n_3} + (.14)^2 \frac{\sigma^2}{n_4} + (.19)^2 \frac{\sigma^2}{n_5}$$

The total cost of interviewing  $n_i$  males in stratum  $i$ ,  $i = 1, 2, 3, 4, 5$ , is given by

$$C = (336.36n_1 + 24.67n_2 + 12.33n_3 + 6.17n_4 + 3.21n_5)C_1 + (n_1 + n_2 + n_3 + n_4 + n_5)C_2$$

We minimize cost subject to the same constraint as in the preceding section

$$\sigma_{\bar{x}}^2 = \frac{\sigma^2}{2000}$$

The result of the optimization is given in Table 3-3 for different values of  $C_2/C_1$ .

Table 3-3. Optimum sample sizes and the associated screening efforts for the area stratification method by  $C_2/C_1$

$C_2/C_1$	Number of interviews ( $n_1$ )					Total
	Less than 10%	10-29%	30-59%	60 % or more	Puerto Rico	
1	165	758	638	714	1,269	3,544
5	175	753	599	611	970	3,108
10	185	743	562	542	816	2,848
15	194	731	534	501	734	2,694
20	202	722	517	474	681	2,596
25	209	714	502	452	644	2,521
∞	440	560	340	280	380	2,000

Table 3-3. Optimum sample sizes and the associated screening efforts for the area stratification method by  $C_2/C_1$  (continued)

$C_2/C_1$	Amount of screening with an allowance of 20% nonresponse					Total
	Less than 10%	10-29%	30-59%	60 % or more	Puerto Rico	
1	69,374	23,375	9,833	9,507	5,092	113,181
5	73,579	23,221	9,232	4,712	3,892	114,636
10	77,783	22,912	8,662	4,180	3,274	116,811
15	81,567	22,542	8,230	3,864	2,945	119,148
20	84,931	22,365	7,968	3,656	2,733	121,553
25	87,874	22,018	7,737	3,486	2,584	123,699
	184,998	17,269	5,241	2,160	1,525	211,193

#### 4. RELATIVE EFFICIENCY OF AREA STRATIFICATION COMPARED TO THE SPANISH SURNAME METHOD

If we compare the screening numbers for the Spanish surname method as given in Table 2-2 with those for area stratification in Table 3-3 we see that the total screening is much higher for area stratification than for the Spanish surname method. To get a better idea about the relative efficiency of the two methods based on sampling costs we compute the cost ratio which is the ratio of cost for a method divided by cost based on straight RDD (straight RDD is the third alternative as given in the introduction). We have treated Puerto Rico separately since it has different characteristics than the rest of the United States. That is, we have excluded Puerto Rico from the two alternatives and the straight RDD when we computed the cost ratios. Table 4-1 gives the cost ratios to straight RDD for the two alternatives.

Table 4-1 Cost ratio to straight RDD (excluding Puerto Rico)  
for the two alternatives

Cost Ratio to Straight RDD		
$C_2/C_1$	Area Stratification	Spanish Surname
1	.69	.64
5	.74	.69
10	.78	.73
15	.81	.76
20	.84	.79
25	.86	.81
-	1	1

### 3. SCREENING FOR HISPANICS DERIVATION

The sample sizes discussed in Section 1-4 of this memorandum will meet requirements (1) to (5) for Hispanics, as stated in the proposal. They will also meet requirement (6) for Mexican Americans and, for Puerto Ricans, not for "other" Hispanics. We had anticipated this problem and in our Proposal in response to the RFP, we suggested that for the first year the Hispanic-derivation analysis be restricted to Mexican-American and Puerto Ricans.

If either the Spanish Surname or Area Stratification plan is followed, the proportion of Puerto Ricans in the sample will be much greater than their proportion in the total Hispanic population. The reason is that any optimization procedure will oversample eligible persons in Puerto Rico because of the much lower screening levels there. The approximate distribution of the sample by Hispanic derivation is shown below. For a number of reasons, only approximate numbers can be developed at this time. The actual number of sample cases in Puerto Rico will depend on whether the Spanish Surname or Area Stratification method is used, and on the estimated value of  $C_2/C_1$ . However, the value of 800 appears to be a reasonable estimate of the final value in Puerto Rico, and 2,800 as the total sample. In the 50 states, we have assumed the distribution of the sample will be proportionate to the numbers in the population. However, it will be also affected by such factors as the proportions of each group with Spanish Surname or the degree they live in areas with high concentrations of Hispanics. The figures below should therefore be considered as approximations intended to indicate where sample sizes will create problems in analysis.

Approximate Distribution of Hispanic Sample by Derivation

Area and derivation	Sample Size
Puerto Rico	800
50 States	
Puerto Rican	3400
Mexican American	1108
Other	<u>492</u>
	2800

Both the Puerto Rican and Mexican samples are large enough to satisfy the precision requirements (which need a sample of 603 with simple random sampling and about 844 with the design effects arising from the alternate sampling plans). The "other" group will only have slightly over one-half the sample size necessary. It would require doubling the screening effort to attain the desired precision. Alternately limited analysis can be carried out for this group. The sample will permit as an analyst to detect year-to-year changes of 4.0 percent instead of the 3.0 percent indicated in the RFP.

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Attachment 5

## MEMORANDUM

TO: - Ronie Nieva February 21, 1986

FROM: Leyla Mohadjer

SUBJECT: ACCMS Sample Design - Alternative Universes for the Hispanic Sample

One of the possible changes in the statistical objectives of ACCMS proposed at the Statistical Advisory Meeting of February 7 is to restrict the geographic area for Hispanic analysis to areas containing substantial number of Hispanics. This approach will not produce a national probability sample, but a sample of Hispanics living in selected areas of the United States. In this memo, we provide data on the distribution of counties by number and percent Hispanics to assist ARI in reaching a decision on the cutoff on number or percent of Hispanics in a county. We also provide an estimate of the effect of this change on the total number of screened households.

Table 1 presents the 1980 distribution of the total population, the Hispanic population, and number of counties by percent Hispanic and number of Hispanics. This information was put together as part of the design of the Hispanic HANES (Health and Nutrition Examination Survey) for NCHS. The cutoff point for the Hispanic HANES started with the following exclusions. Counties which did not satisfy one or more of the following criteria were excluded from the universe:

1. More than 30,000 Hispanics, or
2. 20,000-30,000 Hispanics and representing 5 percent or more of the total county population, or
3. 10,000-20,000 Hispanics and representing 5 percent or more of the total county population, or
4. 5,000-10,000 Hispanics and representing 10 percent or more of the total county population, or
5. 5,000 or fewer Hispanics but representing 15 or more percent of the total county population.

The counties which do not meet these criteria fall in the cells that are printed in bold in the upper left corner of Table 1. The 251 counties identified at this stage are primarily located in the five Southwest states; the New York area, the Chicago area, Miami and Tampa-St. Petersburg, Florida, areas.

For the Hispanic HANES study, an additional 20 counties consisting of all counties outside the five Southwest states, the New York area, Chicago area, and Miami (Dade county) were also excluded. For this approach, the universe of 231 counties accounts for 11,633,612 Hispanics (in 1980) or about 80 percent of all Hispanics enumerated in the 1980 Census.

Percent of Hispanics in 1980 for the four major areas are given in Table 2. The Chicago area has the lowest percent of Hispanics when compared to the other areas. Thus, an alternative cutoff point would be to exclude the Chicago area. Then the universe will account for 76 percent of all Hispanics in the United States. Another alternative is to exclude counties with less than 5 percent and 50,000 Hispanics. (This is in addition to the counties excluded from the Hispanic HANES frame.) For this option, the universe will include about 79 percent of Hispanics. The percentages stated here assume that Puerto Rico is not part of the universe. If Puerto Rico is part of the frame, the exclusion of the above will have a smaller effect on the percent of coverage.

Table 3 provides four options for ACOMS Hispanic universe. The savings in total screening are approximate numbers based on the total screening necessary for area stratification when the universe consists of all Hispanics in the United States. The screening rate for one Hispanic household in the area stratification was estimated to be around 21. The overall screening rate for the options stated in Table 3 is about 10. That is, with a universe that covers 75 to 80 percent of Hispanics, the screening rate is about one half of the screening rate in a universe that includes all Hispanics.

It should be noted that the approximate coverages and savings in total screening are based on the 1980 Census data which is now six years old. They are also based on several assumptions and estimations including the distribution of the proportion of Hispanic households in telephone exchanges with heavy concentrations of Hispanics, moderate concentrations, etc. We are not certain how close this distribution is to the one we will find in practice. However, we feel that the savings in total screening for Hispanics will be in the same range as those given in Table 3.

The options given in Table 3 include universes with 75 to 80 percent coverage of Hispanics. If it is of interest to ARI, we will further study other alternative universes with higher or lower coverages (universes with more than 80 or less than 75 percent) or other combinations of areas.

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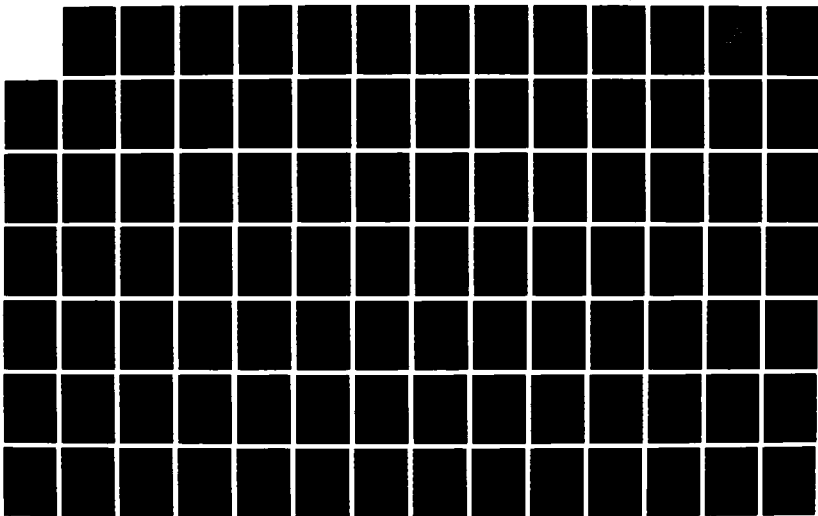
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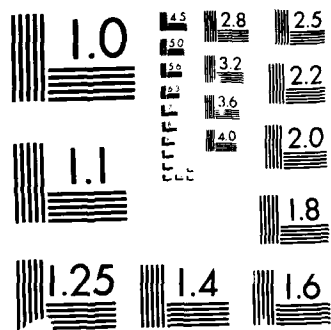


Table 1. Distribution of the total population/Hispanic population/number of counties, by percent Hispanic and number of Hispanic

		Percent Hispanic											
Number of Hispanic	0-4.9%	5-9.9%	10-14.9%	15-19.9%	20-29.9%	30-39.9%	40-49.9%	50-59.9%	70% +	Total			
0-4,995	Total population Hispanic population (Counties)	100,646,322 1,977,301 (1,363)	519,939 91,711 (1,49)	221,619 39,970 (129)	193,662 48,806 (129)	161,042 37,412 (131)	47,591 20,407 (11)	16,116 9,772 (9)	28,085 22,918 (1)	106,879,203 1,976,291 (1,363)			
5-9,999	Total population Hispanic population (Counties)	22,487,440 399,796 (1,56)	1,433,816 116,532 (1,16)	335,540 64,176 (19)	37,046 17,615 (12)	398,296 71,173 (19)	132,972 41,979 (17)	107,356 41,885 (17)	29,586 19,217 (12)	23,353,510 788,279 (1,169)			
10-19,999	Total population Hispanic population (Counties)	16,180,641 428,816 (1,31)	1,600,312 101,310 (17)	490,094 54,471 (19)	113,316 19,322 (11)	331,990 76,407 (13)	177,146 51,998 (19)	99,234 41,569 (19)	107,865 51,798 (19)	19,130,732 899,894 (1,169)			
20-29,999	Total population Hispanic population (Counties)	9,225,580 222,892 (1,11)	1,330,614 104,704 (13)	961,319 126,116 (13)	123,038 21,017 (11)	316,699 122,728 (13)	68,807 20,644 (11)	118,866 31,729 (12)	71,408 47,129 (12)	12,507,597 819,849 (1,169)			
30-39,999	Total population Hispanic population (Counties)	619,066 17,607 (17)	1,017,709 109,116 (12)	0 (1)	518,846 78,161 (12)	134,560 34,815 (11)	0 (1)	0 (1)	0 (1)	2,323,181 212,619 (16)			
40-49,999	Total population Hispanic population (Counties)	4,632,865 178,879 (17)	4,138,709 216,811 (16)	0 (1)	211,651 41,428 (11)	0 (1)	123,972 41,831 (11)	0 (1)	35,306 41,818 (11)	9,344,503 312,569 (123)			
50-59,999	Total population Hispanic population (Counties)	2,937,441 122,239 (12)	4,561,798 297,297 (16)	1,314,723 218,818 (17)	1,516,335 286,120 (19)	929,264 231,620 (13)	0 (1)	108,490 107,588 (12)	99,238 80,942 (11)	12,032,487 1,648,418 (121)			
100-199,999	Total population Hispanic population (Counties)	0 (1)	1,556,549 154,567 (11)	2,613,699 328,061 (12)	1,537,080 285,791 (12)	2,123,167 320,642 (19)	419,700 116,870 (11)	0 (1)	209,680 161,832 (11)	8,317,780 1,261,637 (127)			
200,000+	Total population Hispanic population (Counties)	0 (1)	5,233,190 499,319 (11)	5,684,741 817,879 (17)	5,975,551 987,864 (13)	8,903,190 2,407,350 (12)	2,793,094 977,780 (12)	908,800 440,911 (11)	479,899 297,201 (11)	30,373,694 6,018,466 (149)			
Total	Total population Hispanic population (Counties)	159,804,315 2,451,290 (1,313)	2,143,764 1,821,782 (142)	12,499,234 1,678,270 (163)	10,398,396 1,727,718 (169)	13,494,516 3,117,647 (153)	5,886,331 1,917,264 (131)	1,623,080 717,812 (126)	967,630 572,184 (164)	819,609 672,241 (131)	226,504,875 34,693,883 (1,313)		

Table 2. Number and percent of Hispanics in 1980 for the four areas in the universe

	Area				Total
	Five Southwest States	Chicago area	Dade County	New York area	
Total population	38,570,232	6,055,100	1,625,800	15,114,620	61,365,752
Hispanic population	8,485,031	569,368	580,449	1,998,764	11,633,612
Percent Hispanics	22	9.4	35.7	13.2	19

Table 3. Alternative cutoff points with the associated coverage and savings in total screening

Hispanic Universe*	Percent of Hispanic coverage		Approximate savings in total screening	
	Puerto Rico excluded	Puerto Rico included	Puerto Rico excluded	Puerto Rico included
Option 1: The five Southwest States, New York area, Chicago area, Dade County	80	83	5,000	18,000
Option 2: The five Southwest States, New York area, Chicago area, Dade County, excluding all counties with less than 5% and 50,000 Hispanics	79	82	6,500	19,500
Option 3: The five Southwest States, New York area, Dade County	76	80	10,000	23,000
Option 4: The five Southwest States, New York area, Dade County, excluding all counties with less than 5% or 50,000 Hispanics	75	79	11,500	24,500

\*The universes exclude all counties that do not satisfy the criteria given earlier in this memorandum.



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Attachment 6

## MEMORANDUM

TO: Ronnie Nieva

December 11, 1985

FROM: Joe Waksberg

SUBJECT: Data on College Students for ACOMS

Extracts from two Census Bureau reports that provide data relevant to the college student component of ACOMS are attached. The first contains information on the proportions in "college housing" (essentially dormitories and fraternities). This has some implications for followup activities. We proposed to sample dormitory and fraternity students at their parents residence, obtain telephone numbers where they can be reached, and contact them at school. Students living at home or in other ordinary living quarters will be sampled at their residences.

The Census report on living arrangements is almost 10 years old but, as far as I know, it is the most recent report on the subject. It indicates that in 1976 about 26 percent of all male college students 24 years or younger lived in college housing. In four year colleges, the proportion was 14 percent, and for undergraduates in four-year colleges it was 17 percent. Although the proportions have probably changed since 1976, these numbers give some indication of the number of cases for which special followup activities will be needed.

The second report shows the 1981 breakdown of college students 24 years and younger in: two-year colleges, undergraduates in four-year colleges, and graduate students in four-year colleges. It indicates that about 26 percent are in two-year colleges, 63 percent are undergraduates in four-year colleges and universities, and 11 percent are graduate students.

It is important to note that we based our estimates of the screening levels necessary to achieve the required number of two-year and four-year college students on the definitions of enrollment used by the Census Bureau in its Current Population Survey. For students in four-year colleges, enrollment covers both undergraduate and graduate students, and full and part time enrollment. (About 90 percent of 16-21 year old male college students attend full time; about 75 percent of 22-24 year old male college students attend full time.) If a more restricted definition of college students were to be used, the level of screening would have to be increased considerably.

I've also duplicated selected pages of the texts of the reports containing the definitions and question wording. I have a copy of the full reports, if you want to see them.

JW:alp

cc: Martha Berlin  
Layla Mohadjer



U.S. Department of Commerce  
BUREAU OF THE CENSUS

## Population Characteristics

Series P-20, No. 348  
Issued November 1979

### Living Arrangements of College Students: October 1976

#### INTRODUCTION

This report presents information for 1976 and earlier years on the residence of college students 14 to 34 years old. Changes in the characteristics of college students during the 1970's have resulted in changes in living arrangements while attending college. For example, students in 1976 were older, more likely to be women, and more likely to be enrolled in 2-year colleges than students enrolled a decade earlier.<sup>1</sup> The choice of living arrangements for college students is influenced by a variety of factors including the amount and cost of available housing, family relationships, marital status, and the desire to live independently from one's parents. The increased level of governmental support for college costs during the past 10 years (such as through the Basic Education Opportunity Grant Program) may be responsible for the increased number of students being able to live away from their parents while attending college. This report considers the demographic changes among college students and how these changes have influenced their type of living arrangements while attending college.

The data for this report were collected in the Current Population Surveys (CPS) of October 1958, 1966, 1971, and 1976. According to the CPS rules of household membership, a family member who was living away from home because he or she was attending college but would usually live at home, is included as a member of the parents' household. However, questions asking specifically about the living arrangements of college students while at college were included in the survey for the years shown in the report (see definitions section).

Some of the major shifts between 1958 and 1976 in the choice of living arrangements while in college are shown in table A. In 1958, there were somewhat more college students living with their parents or other relatives than either the number who were maintaining their own households or the number living in college housing. By 1976, however, the

number of students maintaining their own households had risen sharply so that it was about the same as the number living with their parents, (about 3 million) and was much larger than the number living in college housing, (about 2 million). The proportion of students living with their parents or in college housing decreased from 64 percent in 1958 to 54 percent of all students in 1976. Thus, barely a majority of college students lived in "traditional" living arrangements (i.e., with parents or in college dormitories) in 1976.

#### LIVING ARRANGEMENTS OF UNMARRIED COLLEGE STUDENTS

About 9 out of 10 married students maintained their own households in each of the survey years between 1958 and 1976, while the living arrangements of unmarried college students changed considerably during this time. For example, in 1958, about 82 percent of unmarried college students 14 to 34 years old were living in college housing or with relatives, and only 5 percent were maintaining their own households (table B); by 1976, the proportion in traditional arrangements had decreased to 68 percent and the proportion maintaining their own household had risen to 15 percent. Of course, older unmarried students, 22 to 34 years old, were more likely to be maintaining their own households than persons 21 or younger; only 5 percent of the unmarried men and women students 14 to 21 years old had such living arrangements in 1976. The increasing age of unmarried students has contributed to the increase in these students maintaining their own households. A significant increase in the proportion of unmarried college students maintaining their own households occurred for both younger (14 to 21 years) and older (22 to 34 years) students between 1958 and 1976 (table B).

Even though more college students are living on their own, parents have remained a very important source of support for unmarried students by providing housing and other necessities. About 4 out of 10 of the unmarried students (14 to 34 years old) lived with their parents or other relatives while attending college in 1976. The proportion

<sup>1</sup> U.S. Bureau of the Census, Current Population Reports, Series P-20, No. 319, "School Enrollment—Social and Economic Characteristics of Students: October 1976."

Table 1. Living Arrangements of College Students 14 Years Old and Over, by Type of School, Age, Sex, and Race: October 1976

Numbers in thousands. Civilian noninstitutional population. For meaning of symbols, see text.

Age, sex, race, and type of college	Living at home						Living at college										
	Total enrolled	In own household			In household of--			Total	In college housing			Total	In college housing	Total	In college housing	Total	In college housing
		Total	With family	With nonrelative or alone	Parents	Other relatives	Non-relatives		Total	With relatives	With non-relatives						
ALL RACES																	
All Colleges																	
Both sexes, 14 years and over.....	11,140	7,884	3,312	1,024	2,815	246	278	2,351	2,368	121	599	42	1,570	1,587	121	599	42
14 to 14 years.....	9,950	6,709	2,311	896	2,798	227	470	2,438	2,463	96	597	40	1,570	1,587	96	597	40
14 to 21 years.....	5,615	2,930	248	224	2,148	125	180	2,487	1,888	64	449	45	1,093	1,109	64	449	45
22 to 24 years.....	1,846	1,444	507	247	461	50	178	354	141	21	121	10	43	44	21	121	10
25 to 34 years.....	2,488	2,335	1,557	424	189	52	112	97	15	11	27	4	58	59	11	27	4
35 years and over.....	1,190	1,175	1,001	128	17	19	8	13	5	5	2	1	5	6	5	2	1
Male, 14 years and over.....	5,785	4,103	1,734	552	1,432	121	260	1,520	1,028	56	321	113	1,077	1,094	56	321	113
14 to 14 years.....	5,296	3,622	1,311	514	1,427	113	255	1,515	1,027	54	321	113	1,077	1,094	54	321	113
14 to 21 years.....	2,705	1,398	105	115	1,038	62	78	1,216	907	39	222	42	1,022	1,039	39	222	42
22 to 24 years.....	1,073	818	265	141	279	27	107	223	49	19	8	12	43	44	19	8	12
25 to 34 years.....	1,518	1,406	940	258	112	24	76	101	30	6	20	19	58	59	6	20	19
35 years and over.....	489	481	423	38	5	8	3	5	1	2	1	1	1	2	2	1	1
Female, 14 years and over.....	5,356	3,782	1,579	472	1,383	124	219	1,431	1,039	45	278	49	1,077	1,094	45	278	49
14 to 14 years.....	4,654	3,088	1,001	382	1,371	114	216	1,423	1,036	42	278	49	1,077	1,094	42	278	49
14 to 21 years.....	2,910	1,531	142	109	1,111	64	102	1,271	980	25	227	4	1,022	1,039	25	227	4
22 to 24 years.....	773	626	242	106	182	23	71	131	52	11	42	26	1,077	1,094	11	42	26
25 to 34 years.....	970	930	616	166	77	28	42	41	5	5	7	3	20	21	5	7	3
35 years and over.....	702	694	578	10	12	10	3	8	3	3	2	1	1	4	3	2	1
2-Year Colleges																	
Both sexes, 14 years and over.....	2,854	2,699	1,100	260	1,162	92	86	157	79	12	46	20	1,077	1,094	12	46	20
14 to 14 years.....	2,435	2,281	745	212	1,160	82	82	155	79	10	46	20	1,077	1,094	10	46	20
14 to 21 years.....	1,351	1,211	71	59	992	45	44	141	75	10	39	13	1,077	1,094	10	39	13
22 to 24 years.....	367	354	143	48	125	16	22	13	3	1	7	3	1,077	1,094	3	7	3
25 to 34 years.....	717	716	530	105	43	21	16	2	1	1	1	1	1,077	1,094	1	1	1
35 years and over.....	419	418	355	48	2	10	4	2	1	1	1	1	1,077	1,094	1	1	1
Male, 14 years and over.....	1,400	1,317	503	142	578	49	45	83	39	8	22	13	1,077	1,094	8	22	13
14 to 14 years.....	1,272	1,189	388	136	578	44	43	83	39	8	22	13	1,077	1,094	8	22	13
14 to 21 years.....	694	583	31	34	477	25	16	71	38	8	15	12	1,077	1,094	8	15	12
22 to 24 years.....	204	194	64	26	80	8	16	10	1	1	7	3	1,077	1,094	1	7	3
25 to 34 years.....	415	413	293	76	21	11	11	2	1	1	1	1	1,077	1,094	1	1	1
35 years and over.....	128	128	115	6	1	5	2	1	1	1	1	1	1,077	1,094	1	1	1
Female, 14 years and over.....	1,454	1,380	596	117	585	42	41	74	40	4	24	7	1,077	1,094	4	24	7
14 to 14 years.....	1,163	1,091	356	76	583	37	39	72	40	2	24	7	1,077	1,094	2	24	7
14 to 21 years.....	697	628	40	25	515	19	28	69	38	2	24	5	1,077	1,094	2	24	5
22 to 24 years.....	163	160	80	22	45	8	6	3	1	1	7	3	1,077	1,094	1	7	3
25 to 34 years.....	303	303	237	29	22	10	5	2	1	1	1	1	1,077	1,094	1	1	1
35 years and over.....	291	289	240	41	2	5	2	2	1	1	1	1	1,077	1,094	1	1	1
4-Year Colleges (Undergraduate)																	
Both sexes, 14 years and over.....	5,864	3,274	1,075	383	1,434	107	270	2,537	1,900	66	467	103	1,077	1,094	66	467	103
14 to 14 years.....	5,550	2,983	833	346	1,427	103	270	2,534	1,897	66	467	103	1,077	1,094	66	467	103
14 to 21 years.....	4,024	1,692	171	162	1,160	79	135	2,318	1,800	54	398	65	1,077	1,094	54	398	65
22 to 24 years.....	822	618	199	86	224	14	96	191	86	10	64	31	1,077	1,094	10	64	31
25 to 34 years.....	704	673	463	98	63	10	39	24	11	2	5	1	1,077	1,094	11	2	5
35 years and over.....	294	291	242	37	7	4	1	3	3	1	1	1	1,077	1,094	3	1	1
Male, 14 years and over.....	3,017	1,732	598	203	739	48	142	1,265	922	39	241	62	1,077	1,094	39	241	62
14 to 14 years.....	2,882	1,597	480	190	737	46	142	1,265	922	39	241	62	1,077	1,094	39	241	62
14 to 21 years.....	1,940	803	71	80	553	36	62	1,129	863	30	200	35	1,077	1,094	30	200	35
22 to 24 years.....	497	374	115	58	139	6	56	113	49	7	37	21	1,077	1,094	7	37	21
25 to 34 years.....	446	420	294	52	45	3	24	23	10	2	5	7	1,077	1,094	10	2	5
35 years and over.....	135	135	118	13	2	2	1	1	1	1	1	1	1,077	1,094	1	1	1
Female, 14 years and over.....	2,827	1,542	477	181	694	59	128	1,271	978	27	225	41	1,077	1,094	27	225	41
14 to 14 years.....	2,668	1,386	353	156	689	57	128	1,268	975	27	225	41	1,077	1,094	27	225	41
14 to 21 years.....	2,084	809	101	83	587	43	73	1,189	937	24	198	30	1,077	1,094	24	198	30
22 to 24 years.....	325	244	84	28	84	8	40	78	36	3	28	11	1,077	1,094	3	28	11
25 to 34 years.....	238	233	168	46	18	6	15	1	1	1	1	1	1,077	1,094	1	1	1
35 years and over.....	139	136	124	25	5	2	1	3	3	1	1	1	1,077	1,094	1	1	1
Graduate Schools																	
Both sexes, 14 years and over.....	2,132	1,889	1,132	378	208	46	123	253	84	23	86	59	1,077	1,094	23	86	59
14 to 14 years.....	1,680	1,425	729	335	200	41	118	245	83	20	84	57	1,077	1,094	20	84	57
14 to 21 years.....	40	15	4	3	5	2	2	24	7	1	12	5	1,077	1,094	2	7	5
22 to 24 years.....	622	469	165	111	112	19	60	180	53	11	50	16	1,077	1,094	11	50	16
25 to 34 years.....	1,018	941	561	221	83	20	57	71	24	9	22	16	1,077	1,094	9	22	16
35 years and over.....	472	464	403	43	8	5	5	8	1	3	2	1	1,077	1,094	3	2	1
Male, 14 years and over.....	1,216	1,040	628	204	111	25	72	170	66	9	57	38	1,077	1,094	9	57	38
14 to 14 years.....	993	824	439	183	108	23	69	165	65	7	57	36	1,077	1,094	7	57	36
14 to 21 years.....	20	7	2	2	3	1	1	14	5	1	7	2	1,077	1,094	1	7	2
22 to 24 years.....	348	247	87	54	59	13	35	100	39	3	35	23	1,077	1,094	3	35	23
25 to 34 years.....	626	571	331	130	46	10	34	52	21	5	18	11	1,077	1,094	5	18	11
35 years and over.....	221	216	189	19	3	2	3	5	1	1	1	1	1,077	1,094	1	1	1
Female, 14 years and over.....	936	849	504	174	97	22	51	82	19	15	29	21	1,077	1,094	15	29	21
14 to 14 years.....	685	601	290	150	92	19	49	79	19	13	27	21	1,077	1,094	13	27	21
14 to 21 years.....	20	8	2	2	2	2	2	10	2	1	5	3	1,077	1,094	2	5	3
22 to 24 years.....	273	222	78	57	53	7	25	50	14	8	15	13	1,077	1,094	8	15	13
25 to 34 years.....	392	371	210	91	37	10	23	19	3	5	7	5	1,077	1,094	3	7	5
35 years and over.....	251	248	214	24	5	3	2	3	1	2	2	1	1,077	1,094	2	2	1

## Appendix A. Definitions and Explanations

**Population coverage.** The figures shown are for the civilian noninstitutional population.

**Symbols.** A dash (—) represents zero or rounds to zero, and the symbol "B" means that the base for the derived figure is less than 75,000. An "X" means not applicable and "NA" means not available.

**College enrollment.** The college enrollment statistics are based on replies to the enumerator's inquiry as to whether the person was attending or enrolled in college. Enumerators were instructed to count as enrolled anyone who had been enrolled at any time during the current term or school year, except those who have left for the remainder of the term. Thus, regular college enrollment includes those persons attending a 4-year or 2-year college, university or professional school (such as medical or law school), in courses that may advance the student toward a recognized college or university degree (e.g. BA or MA). Attendance may be either full time or part time, during the day or night.

Persons enrolled in classes which do not require physical presence in school, such as correspondence courses or other courses of independent study, and in training courses given directly on the job, are excluded from the count of those enrolled in school, unless such courses are being counted for credit at a college.

Students enrolled in the first through fourth year of college are referred to as undergraduates. Those enrolled in the fifth year of college or higher are graduate students.

**Public or private college.** In this report, a public college is defined as any educational institution operated by publicly elected or appointed school officials and supported by public funds. Private colleges include educational institutions established and operated by religious bodies, as well as those which are under other private control. In cases where enrollment was in a college which was both publicly and privately controlled or supported, enrollment was counted according to whether it was primarily public or private.

**Two-year and four-year college.** Students enrolled in the first 3 years of college were asked to report whether the college in which they were enrolled was a 2-year college (junior or community college) or a 4-year college or university. Students in the fourth academic year of college or higher were assumed to be in a 4-year college or university.

**Age.** The age classification is based on the age of the person at the time of the survey.

**Race.** The population is divided into three groups on the basis of race: White, Black, and "other races." The last category includes Indians, Japanese, Chinese, and any other race except White and Black.

**Marital status.** The marital status category shown in this report, "married, spouse present," includes persons who are currently married and living with their spouse. Persons referred to as unmarried in this report are never married, separated, divorced, or widowed.

**Family.** The term "family," as used here, refers to a group of two persons or more related by blood, marriage, or adoption and residing together; all such persons are considered as members of one family.

**Head of family.** One person in each family residing together was designated as the head. The head of a family is usually the person regarded as the head by members of the family. Women are not classified as heads if their husbands are resident members of the family at the time of the survey.

**Dependent family members.** For the purpose of this report, a dependent family member is a relative of the family head, excluding the head's wife. Such persons are generally sons and daughters of the family head. Family members who are living away from home while attending college are also counted as dependent family members.

**Family income.** Income as defined in this report represents the combined total money income of the family before deductions for personal taxes, Social Security, bonds, etc. It is the algebraic sum of money wages and salaries, net income from self-employment, and income other than earnings received by all family members during the 12 months prior to the surveys. It should be noted that although the family income statistics refer to receipts during the previous 12 months, the characteristics of the person, such as age, marital status, etc., and the composition of families refer to the date of the survey.

The income tables include in the lowest income group those who were classified as having no income in the previous 12 months and those reporting a loss in net income from farm and nonfarm self-employment or in rental income.

The income table in this report include a separate category for families for which no income information was obtained. In most of the other Current Population Survey Reports showing income data, the missing income data have been allocated.

The money income level of families shown in this report may be somewhat understated. Income data from the October control card are based on the respondent's estimate of total family money income for the preceding 12 months coded in broad, fixed income intervals. Income data collected in the March supplement to the Current Population Survey are based on responses to 11 direct questions asked of all persons 14 years old and over identifying 23 different sources of income and cover the preceding calendar year.

Previous research has shown that the use of broad income intervals to record money income tends to reduce the rate of nonreporting while increasing the likelihood that the amounts reported will be significantly understated as compared with results from more detailed questions.

**Residence of college students.** In the Current Population Survey, persons living away from home while attending college who are not married and living with their spouse are counted as members of their parental households. However, the data on living arrangements of college students in this report are based on special questions asked in the October 1976, 1971, 1966, and 1958 CPS and relate to the actual place where the students were staying at the time of the survey.

Information on place of residence of persons enrolled in college was obtained from the following direct questions:

39. While attending college does ... live:	
Here .....	<input type="radio"/> (Fill 40)
In college housing .....	<input type="radio"/> (Skip to 41)
Someplace else .....	<input type="radio"/> (Ask 40) <input checked="" type="radio"/>
40. With whom does ... live while attending school? (Mark one circle only)	
With parents .....	<input type="radio"/> With other relatives <input type="radio"/>
With husband, wife or own children <input type="radio"/>	With persons not related to — <input type="radio"/>
	By himself/herself <input type="radio"/>
(Skip to 47)	
41. What type of living quarters does ... live in while attending school?	
House or apartment owned or operated by the school <input type="radio"/>	Fraternity or Sorority house <input type="radio"/>
Dormitory .....	Other .....
(Skip to 47) <input checked="" type="radio"/>	

Interviewers were instructed to mark "here" in question 39 if the person was residing in the sample unit being enumerated; to mark "in college housing" if the person lived in a dormitory, fraternity, or sorority house affiliated with the college or university; and to mark "someplace else" if the person lived in any other type of quarters. If the person lived "here," the interviewers were instructed to fill question 40 in accordance with the response to the question on relationship to the head of the households. For persons who lived "someplace else," the interviewer asked question 40.

The following types of living arrangements were identified.

1. For persons living at home ("here" in item 39): *Maintaining own household* includes (1) *with own family* consisting of household heads or wives who live with spouse and/or their own children and (2) *with nonrelatives or alone* consisting of persons who were household heads but had no relatives present; they could be living alone or with roommates. *In household of parents or other relatives* includes persons who were not household heads or wives but were classified as "other relative of head" in the household relationship item and lived "with parents" or "with other relatives" in item 40. *With nonrelatives* includes persons who were not household heads or wives and were classified as living "with persons not related to him/her" in item 40.
2. For persons living away at college ("in college housing" or "someplace else" in item 39): *In college housing* comprises students living away from home in college dormitories, or in fraternity or sorority houses, or in other buildings owned and operated by the school. *With relatives, with nonrelatives, or alone* include students who live away from their parental home in off campus housing such as a house, an apartment, a rooming house or any other type of housing unit.

**Rounding of estimates.** Individual figures are rounded to the nearest thousand without being adjusted to group totals, which are independently rounded. With few exceptions, percentages are based on the rounded absolute numbers.



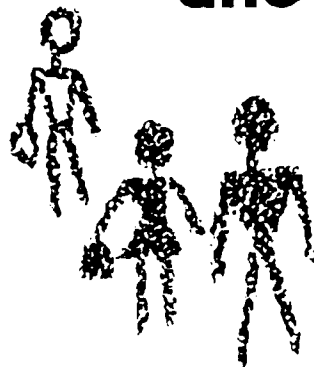
CURRENT POPULATION REPORTS

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**Population Characteristics**

Series P-20, No. 400

**School Enrollment—  
Social and Economic  
Characteristics  
of Students:  
October 1981  
and 1980**



U.S. Department of Commerce  
BUREAU OF THE CENSUS

\*Includes persons in elementary and high school.

Table 21. Enrollment Status in 1980 for College Undergraduates 14 to 24 Years Old by Type of College, Educational Attainment, Age, and Sex: October 1981

1980 census based. In thousands. Civilian noninstitutional population.

Age, years of college completed, and type of college	Both sexes			Male			Female		
	Total	Enrolled Oct. 1980	Not enrolled Oct. 1980	Total	Enrolled Oct. 1980	Not enrolled Oct. 1980	Total	Enrolled Oct. 1980	Not enrolled Oct. 1980
<b>ALL COLLEGES</b>									
Total	7,243	6,000	1,243	3,596	2,984	613	1,864	1,124	740
14 to 17 years old	232	203	29	95	84	11	136	114	22
18 and 19 years old	3,064	2,762	301	1,450	1,301	149	1,594	1,447	147
20 and 21 years old	2,511	2,071	441	1,217	1,008	209	1,294	1,067	227
22 to 24 years old	1,458	985	473	832	590	243	626	446	180
Years of college completed:									
None	2,585	2,004	581	1,258	974	284	1,327	1,124	203
1 year or more	4,662	3,996	666	2,338	2,008	329	2,332	1,987	345
<b>TWO-YEAR COLLEGES</b>									
Total	2,124	1,561	563	1,004	755	249	1,120	806	314
14 to 17 years old	76	61	15	36	27	9	62	50	12
18 and 19 years old	1,068	918	149	507	443	63	561	477	84
20 and 21 years old	566	392	175	279	197	81	287	215	72
22 to 24 years old	414	190	224	183	88	95	272	154	118
Years of college completed:									
None	1,176	788	388	549	378	171	627	417	210
1 year or more	948	773	175	455	377	78	493	389	104
<b>FOUR-YEAR COLLEGES</b>									
Total	4,867	4,248	619	2,483	2,182	301	2,384	2,086	298
14 to 17 years old	97	92	5	40	39	1	57	53	4
18 and 19 years old	1,893	1,752	141	913	837	75	980	914	66
20 and 21 years old	1,875	1,627	248	902	787	115	973	847	126
22 to 24 years old	1,002	778	224	627	499	129	175	279	96
Years of college completed:									
None	1,257	1,101	156	646	558	88	611	543	68
1 year or more	3,611	3,146	465	1,837	1,603	234	1,773	1,543	230
First and second years	2,435	2,140	294	1,204	1,048	156	1,231	1,092	139
14 to 17 years old	97	92	5	40	39	1	57	53	4
18 and 19 years old	1,800	1,669	131	873	803	70	927	866	61
20 and 21 years old	167	274	93	188	140	47	179	133	46
22 to 24 years old	171	106	65	102	66	37	69	40	29
Years of college completed:									
None	1,254	1,099	155	644	556	88	613	543	70
1 year or more	1,180	1,041	140	560	492	68	622	543	79
<b>TYPE OF COLLEGE NOT REPORTED</b>									
Total 14 to 24 years old	254	191	63	109	67	42	145	114	31

**Public or Private School**—In this report, a public school is defined as any educational institution operated by publicly elected or appointed school officials and supported by public funds. Private schools include educational institutions established and operated by religious bodies, as well as those which are under other private control. In cases where enrollment was in a school or college which was both publicly and privately controlled or supported, enrollment was counted according to whether it was primarily public or private.

**Full-Time and Part-Time Attendance**—College students were classified, in this report, according to whether they were attending school on a full-time or part-time basis. A student was regarded as attending college full time if he was taking 12 or more hours of classes during the average school week, and part time if he was taking less than 12 hours of classes during the average school week.

**Modal Grade**—Enrolled persons are classified according to their relative progress in school, that is, whether the grade or year in which they were enrolled was below, at, or above the modal (or typical) grade for persons of their age at the time of the survey. The modal grade is the year of school in

which the largest proportion of students of a given age is enrolled.

**Age**—The age classification is based on the age of the person at his last birthday.

**Race**—The population is divided into three groups on the basis of race—White, Black, and other races. The last category includes Indians, Japanese, Chinese, and any other race except White and Black. In this report, other races is not shown separately.

**Spanish Origin**—Information on origin or descent was obtained by asking, "What is (this person's) origin or descent?" Responses generally refer to a person's perceived national or ethnic lineage and do not necessarily indicate the country of birth of himself or his parents.

Persons of Spanish origin are persons who reported themselves as Mexican American, Chicano, Mexican, Mexicano, Puerto Rican, Cuban, Central or South American, or other Spanish origin. However, all persons who reported themselves as Mexican American, Chicano, Mexican, or Mexicano were combined into the one category—Mexican. Persons of Spanish origin may be of any race.

### Basic School Enrollment Supplement

(Questions included in the October CPS since 1967 with appropriate date changes)

<p>29. Is ... attending or enrolled in school?</p> <p>Yes (Ask 30) <input type="checkbox"/></p> <p>No (Skip to 34) <input type="checkbox"/></p>	<p>34. Is ... taking any business, vocational, technical, or correspondence courses other than on the job training? **</p> <p>Yes <input type="checkbox"/></p> <p>No <input type="checkbox"/></p>
<p>30. Is it a public or private school?</p> <p>Private <input type="checkbox"/> (Ask 31)</p> <p>Public <input type="checkbox"/> <input type="checkbox"/></p>	<p>35. INTERVIEWER CHECK ITEM:</p> <p>Age 14-34 (Ask 36)</p> <p>Age 35+ (End questions)</p>
<p>31. What grade or year is ... attending?</p> <p>E1 E2 E3 E4 E5 E6 E7 E8 (End questions)</p> <p>H1 H2 H3 H4 (End questions)</p> <p>C1 C2 C3 C4 C5 C6+ (Ask 32)</p> <p>Special School</p> <p>Specify type and skip to 34 <input type="checkbox"/></p>	<p>36. Was ... attending or enrolled in a regular school or college in October 1979 that is, October of last year?</p> <p>Yes <input type="checkbox"/> (Fill 37)</p> <p>No <input type="checkbox"/></p>
<p>32. Is ... attending college full-time or part-time?</p> <p>Full-time <input type="checkbox"/> (Ask 33)</p> <p>Part-time <input type="checkbox"/></p>	<p>37. INTERVIEWER CHECK ITEM:</p> <p>High School Graduate (Entries of "H4" and "Yes" in Control Card items 23a and 23b OR entry of "C1-C6+" in Control Card item 23a)</p> <p>Not High School Graduate</p> <p>Age 14-24 (Ask 38)</p> <p>Age 25+ (Go to next person)</p>
<p>33. Is this a two-year college or a four-year college or university? *</p> <p>2 year college (community or junior college) <input type="checkbox"/></p> <p>4 year college <input type="checkbox"/> (Skip to 35)</p>	<p>38. In what CALENDAR year did ... last attend regular school?</p> <p>1980 <input type="checkbox"/></p> <p>1979 <input type="checkbox"/> (Go to next person)</p> <p>1978 <input type="checkbox"/></p> <p>1977 <input type="checkbox"/></p> <p>1976 <input type="checkbox"/></p> <p>1975 or earlier <input type="checkbox"/> (Go to next person)</p> <p>Never attended <input type="checkbox"/></p>
<p>* Added in 1972</p> <p>** Added in 1973. Not included in annual tabulations</p>	<p>39. In what CALENDAR year did ... graduate from high school?</p> <p>1980 <input type="checkbox"/></p> <p>1979 <input type="checkbox"/></p> <p>1978 <input type="checkbox"/></p> <p>1977 <input type="checkbox"/></p> <p>1976 <input type="checkbox"/></p> <p>1975 or earlier <input type="checkbox"/></p>

# WESTAT

An Employee-Owned Research Corporation

Attachment 7

## MEMORANDUM

TO: ACOMS File  
FROM: Leyla Mohadjer *LM*  
SUBJECT: ACOMS Sample Design - Total Screening Effort for  
Enlarged Sample of Four-year College Students,  
Hispanics, and Other Components of the Sample

December 19, 1985  
(Revised January 31, 1986)

As part of an earlier work on sampling four-year college students, we estimated that a screening sample of about 114,000 is necessary to produce a self-weighting sample of 2,400 male, NPS, four-year college students. The initial screening sample of 70,000 households for the PMS sample should produce about 1,477 eligible four-year college students. An additional 44,000 screening will then be necessary to supplement the initial sample of four-year college students. In this memo we study the supplementation of four-year college students when simultaneous screening is carried out for oversampling Hispanics and four-year college students. In addition, we provide estimates of sample sizes, available from the total screening effort, for the subgroups of interest in the target population.

To obtain a representative sample of four-year college students, we divide the 114,000 screening sample to the U.S. (excluding Alaska) and Puerto Rico proportional to the general population in telephone households. We have assumed that the percentage of telephone households are the same as those given in Table 4-3, page 4-15 of the proposal. On average, we assumed that 94 percent of the total population in the 49 states and about 80 percent in Puerto Rico are in telephone households. It follows that the screening sample should be divided to 112,638 in the U.S. and 1,362 in Puerto Rico.

In an earlier report on oversampling Hispanics, we compared two alternatives for oversampling Hispanics: (1) Spanish surname method and (2) area stratification. Sections 1 and 2 of this memo present the total screening necessary to achieve both a self-weighting sample of 2,400 four-year college students and a sample of Hispanics that satisfy the Hispanic requirements for the two alternatives (Spanish surname and area stratification). Section 3 compares the required screening levels for the two alternatives for some sampling cost ratios. Section 4 gives the estimated sample sizes, available from the total screening effort, for the sample components in the study.

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1. Supplementation of Four-year College Students When  
- Spanish Surname Method is Applied

For this alternative we use a dual-frame approach to sample both from the Donnelley list (refer to the Hispanic report for information about Donnelley list) of Spanish surnames and RDD to obtain a sample of Hispanics. Since Puerto Rico does not require the substantial screening effort to locate Hispanics that occurs in the rest of the United States, it is treated as a separate stratum. Thus, this design consists of three strata: Puerto Rico, the Spanish surname list, and other.

The following table gives the amount of screening required to select a sample of Hispanics that satisfies the Hispanic requirements. This table was given as part of Table 2-2 in the report on oversampling Hispanics.

Table 1. Amount of screening for the Spanish surname alternative with an allowance of 20 percent nonresponse

$C_2/C_1$ *	Puerto Rico	Spanish surname	Other	Total
1	5,198	10,549	88,358	104,105
5	4,064	8,409	93,452	105,925
10	3,455	7,072	98,371	108,898
15	3,120	6,280	102,236	111,636
20	2,903	5,728	105,398	114,029
25	2,745	5,318	108,032	116,095

\* $C_2/C_1$  is the cost ratio of interviewing one person to screening one household.

To obtain screening levels given in Table 1 for the Hispanic sample, the 114,000 screening sample for four-year college students needs to be increased in Puerto Rico and Spanish surname strata. It should be noted that the Donnelley list consists of about 2.1 million Spanish surname households. If we assume a 10 percent loss for reasons such as telephone number missing, moved, etc., then about 1.89 million of telephone households in the U.S. are on Donnelley list (Spanish surname stratum). That is, about 2.4 percent of total telephone households in the U.S. are in the Spanish surname stratum. (The total telephone households for the 49 states in 1984 is estimated to be about 79,893.) Thus, it is expected that out of 112,638 screening in

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the U.S. for four-year college students about 2,665 will be in the Spanish surname stratum. Table 2 gives the additional screening in Puerto Rico and Spanish surname strata necessary for the Hispanic sample. The last column of Table 2 shows the total screening required for oversampling four-year college students and Hispanics when Spanish surname method is applied.

Table 2. Total screening required for oversampling four-year college students and Hispanics when the Spanish surname methods is applied

C <sub>2</sub> /C <sub>1</sub>	Additional screening for the Hispanic sample			Total simultaneous screening for 4-yr college students and Hispanics
	Puerto Rico	Spanish surname	Total	
1	3,836	7,884	11,720	125,720
5	2,702	5,744	8,446	122,446
10	2,093	4,307	6,500	120,500
15	1,758	3,615	5,373	119,373
20	1,541	3,063	4,604	118,604
25	1,383	2,653	4,036	118,036

2. Supplementation of Four-year College Students When Area Stratification for the Hispanic Sample is Used

For this alternative, we stratify the population to identify areas with heavy concentration of Hispanics and oversample the designated areas subject to a fixed precision for sample estimates. The five strata are:

- Stratum 1 = areas in the 49 states with less than 10 percent Hispanics;
- Stratum 2 = areas with 10 to 29 percent Hispanics;
- Stratum 3 = areas with 30 to 59 percent Hispanics;
- Stratum 4 = areas with 60 percent or more Hispanics; and
- Stratum 5 = Puerto Rico.

Table 3 gives the amount of required to select a sample of Hispanics that meets the Hispanic requirement. This table was given as part of Table 3-3 in the report on oversampling Hispanics.

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(Revised January 31, 1986)Table 3. Amount of screening for the area stratification method  
- with an allowance of 20 percent nonresponse

$C_2/C_1^*$	<10%	10-29%	30-59%	60%+	Puerto Rico	Total
1	69,374	23,375	9,833	5,507	5,092	113,181
5	73,579	23,221	9,232	4,712	3,892	114,636
10	77,783	22,912	8,662	4,180	3,274	116,811
15	81,567	22,542	8,230	3,864	2,945	119,148
20	84,931	22,265	7,968	3,656	2,733	121,553
25	87,874	22,018	7,737	3,486	2,584	123,699

\* $C_2/C_1$  is the cost ratio of interviewing one person to screening

Using the entries of Table 3-1 of the Hispanic report, we can estimate the total U.S. population in strata 1 to 4. The 112,638 screening for the four-year college students is then distributed over strata 1 to 4 proportional to the population in the strata. Table 4 gives the screening samples for the four strata.

Table 4. Distribution of the screening sample for the four-year college students for area stratification method in the U.S. (excluding Puerto Rico)

Stratum/% Hispanics	Estimated percent of population	Amount of screening
<10	.88	99,122
10 - 29	.08	9,011
30 - 59	.03	3,379
>60	.01	1,126

Comparing the screening levels in Table 4 with those of Table 3, we note that the 114,000 screening sample for four-year college students needs to be increased in strata 2, 3, 4 and Puerto Rico to produce a Hispanic sample that satisfies Hispanic requirements. Table 5 shows the total screening required for oversampling four-year college students and Hispanics when the area stratification method is applied.

December 19, 1985  
(Revised January 31, 1986)Table 5. Total screening required for oversampling four-year  
- college students and Hispanics when the area  
stratification is used

$C_2/C_1^*$	Additional screening for Hispanic sample				Total simultaneous screening for four-year college students and Hispanics	
	Stratum 2	Stratum 3	Stratum 4	Puerto Rico	Total	
1	14,364	6,454	4,381	3,730	28,929	142,929
5	14,210	5,853	3,586	2,530	26,179	140,179
10	13,901	5,283	3,054	1,912	24,150	138,150
15	13,531	4,851	2,738	1,583	22,703	136,703
20	13,254	4,589	2,530	1,317	21,744	135,744
25	13,007	4,358	2,360	1,222	20,947	134,947

3. Total Simultaneous Screening Levels for Oversampling Four-Year College Students and Hispanics

The last columns of Table 2 and 5 give the total simultaneous screening levels for four-year college students and Hispanics when the Spanish surname and area stratification methods are applied, respectively. If we can assume that the cost of interviewing a person to the cost of screening a household is between 5 to 1 and 10 to 1 (that is,  $C_2/C_1$ , is between 5 and 10), then with the Spanish surname we need to screen 121,000 to 123,000 households and for the area stratification the screening sample is between 138,000 and 141,000.

4. Estimated Sample Sizes, Available from the Total Screening Effort, for the Subpopulations of Interest

To estimate the available sample sizes, we assume that the total screening sample is equal to 123,000; 4,064 in Puerto Rico, 5,744 in the Spanish surname list, and the rest in the 49 States. This is equivalent to using the Spanish surname method when  $C_2/C_1$  is equal to 5. We have also assumed that the Spanish surname list will only be used to screen for Hispanics. (We do not plan to use the list to screen for other sample components such as four-year or two-year college students.) Table 6 shows the estimated sample sizes and number of interviews for various subpopulations of interest when a screening sample of 123,000 is used.

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The 123,000 screening effort will provide the sample sizes needed to achieve the required precision for all the target subpopulations in the study except the Vo-Tech group. We plan to use a two-stage sampling scheme to select a sample of Vo-Tech students from a list of Vo-Tech schools. A memo describing the sampling design for the Vo-Tech subpopulation will be developed in the near future.

The total screening effort will increase to 141,000 if the area stratification method is used to sample Hispanics. As shown in Table 5, the additional screening will be carried out in areas with a heavy concentration of Hispanics. The total sample available for some components of the sample such as PMS, FS, SMS, and Blacks will be somewhat higher than those given in Table 6. However, the additional screening will not result in a significant increase of the four-year college students in the screening sample.

The Vo-Tech sample includes high school graduates only. It is assumed that 90 percent of all Vo-Tech students who are male and between 16 and 24 years of age are high school graduates. This assumption is based on the information provided in Joe Waksberg's memo on Vo-Tech Sample for ACOMS, dated December 17, 1985. The Vo-Tech sample excludes students who are enrolled in college and working toward a vocational certificate. It includes those who are enrolled in a noncollegiate environment such as vocational, trade, technical, business or commercial schools, and private business or industry, community organization, and government. The Westat proposal for this study recommended a dual-frame approach with part of the sample generated in the RDD sample and part selected by going to a sample of Vo-Tech schools. In the memo on Vo-Tech Sample for ACOMS, dated December 17, 1985, Joe Waksberg proposes the use of a single frame (the Vo-Tech school sample only) for this component of the study. In that case, the 90 unduplicated interviews for the Vo-Tech sample should be excluded from Table 6.

December 19, 1985  
(Revised January 31, 1986)Table 6. Preliminary estimates of sample sizes available from  
123,000 screening

Sample component	Total sample available from 123,000 screening	Sample available with an allowance of 20% nonresponse		Unduplicated number of interviews <sup>1</sup>
		Number of potential respondents	Number of interviews	
PMS	20,780	16,620	9,603	9,603
FS	20,780	16,620	1,953	1,953
Influencer	41,560	33,240	11,556	11,556
Black Non-Hispanic	2,740	2,190	1,360	--
Hispanic	3,960	3,170	3,170	2,500
SMS	3,190	2,550	850	850
Enrolled in School:				
4-yr college	3,020	2,420	2,400	930
2-yr college	1,430	1,140	700	--
Vo-Tech	300	240	150	--2
Convenience	720	580	520 <sup>3</sup>	520

<sup>1</sup>The sample of 9,603 PMS will include approximately 1,150 Black non-Hispanics, 470 Hispanics, 1,470 four-year college, 700 two-year college, and 150 Vo-Tech students. The SMS sample will include about 200 Hispanics and 200 black non-Hispanics.

<sup>2</sup>We have assumed that a single frame (a list of Vo-Tech schools) will be used to sample Vo-Tech students.

<sup>3</sup>The available 580 potential respondents will provide a self-weighting sample of about 520.



# WESTAT

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Attachment 8

## MEMORANDUM

To: - Ronie Nieva June 25, 1986  
From: Leyla Mohadjer *LM*  
Subject: ACOMS Sample Design - Data Collection and Sample  
Weighting for Monthly Reports

The purpose of this memo is to describe the source of monthly samples and to review several options available for weighting the sample data for the production of monthly reports. The options discussed here involve weighting, partially weighting, or not weighting the sample data. The options differ with respect to statistical quality of the estimates made from the monthly data, and the cost (in terms of time) of the application of each to the monthly samples. Since the discussion involves the weighting methodology we plan to use for quarterly and annual reports for ACOMS, a brief description of the steps involved in weighting is also provided.

### Monthly Data Collection

We will use the interviews conducted during a calendar month for the monthly tabulations, rather than the sample designated for the month. The last couple of weeks of data collection, which is done after the end of the calendar month, will be included in the following month's tabulations. It should be noted that the first month's sample will be a truncated one since it does not include any carryover from the previous month.

The modified Waksberg method will be used to sample households in selected clusters. The standard method involves choosing an equal number of households within each cluster. When this method is followed, all residential telephone numbers have

the same chance of selection and thus, the sample is a self-weighting sample. The need for a constant number of households per cluster requires a rather cumbersome series of steps. Until all call-backs have been made for a telephone number, there is no way to know if an additional household is needed. There are thus built-in delays which make it difficult to use the procedure for the ACCMS study with the tight time schedules for data collection.

The modified Waksberg method is simpler, can be carried out in less time, and is also unbiased (in the same sense as the original method). The modified method does speed up the data collection, but at the price of an increase in sampling variances. The sample requires weighting for the production of unbiased estimates; and the variation in weights increase the sampling variances. Our experience with this method is that the increase in variance is in the range of 10 percent.

#### Sample Weighting

Sample weighting for quarterly and annual data will be accomplished in three steps. The first two steps involve computation of weights to compensate for unequal probabilities of selection at the household and the person level. The third uses post-stratification (also referred to as ratio-estimation) to compute weights that adjust for sample nonresponse, and uncoverage of nontelephone households, as well as to reduce sampling error. The following gives a brief description of each step.

1. Sampling rate adjustments at the household level

Households have different probabilities of selection in the modified Waksberg method. In this approach, a constant number of telephone numbers per cluster (rather than of households as

in the standard method) is selected. As a result, the rate at which a household is sampled depends on the proportion of telephone numbers that are in households in the cluster in which the household is located. To avoid potential biases, a weight will be attached to each cluster which is the average number of sample households per cluster divided by the number found in the particular cluster.

Furthermore, households with two telephones have twice the chance of selection. Thus, they will be given a weight of 1/2 to adjust for this overrepresentation.

2. Sampling rate adjustments at the person level

The ACCMS survey design calls for sampling various population subgroups at different rates. Hispanic males will be oversampled and females will be undersampled. Weighting will be done to adjust for these unequal probabilities of selection.

3. Post-stratification

Post-stratification will be used to reduce sampling error, to minimize biases arising from the fact that nonrespondents may be different from those who respond, and to adjust for nontelephone households missing from the sampling frame. Post-stratification will be accomplished by superimposing weights on the first two stages of weighting that will create agreement between ACCMS tabulations and Census data on the total population by age, sex, race and Spanish heritage.

We have considered the following three options for preparation of monthly sample data. Option 1 is to weight the data based on the above three steps and use the weighted counts for the construction of tables for monthly reports. This option will provide the most accurate data. We estimate it will take about one and a half weeks to prepare tabulations with all three stages of weighting. Our estimate is based on the assumption that about 80 to 90 percent of data cleaning and editing will be done

at the time of interviews and no extensive data checking will be required for monthly samples. Some data checking may be done for quarterly samples if necessary. Option 2 is to partially weight the data: that is, to complete steps 1 and 2 of the weighting process for monthly samples. This will reduce the amount of time required for the preparation of monthly reports by a day or two. At the same time, however, it will reduce the reliability of the statistics computed from the sample since no adjustments will be applied to the data for nonresponse, and uncovrage of nontelephone households; and sampling errors will be higher. Option 3 is to use the unweighted data for the monthly reports. This option is applicable only if time is the most important factor in the preparation of monthly reports. With this option, it probably will take about a week to prepare frequencies. However, statistics using unweighted counts will be very rough estimates and will have very limited uses. The following provides a description of the main feature of each option.

Option 1 will provide the most accurate data. We should note, however, that even this option will be subject to fairly high sampling errors because of the small monthly sample sizes. Also, the average of estimates of a statistic computed from monthly samples will generally not be equal to the estimate made from quarterly or annual samples although the differences will usually be small. (In this memo, whenever we talk about averages, we mean averages that take into account differential sample sizes of monthly data.) The reason is that for monthly data, sample sizes for some subgroups of the population will be too small for post-stratification by the associated characteristic (variable), e.g., 8de regions. Therefore, only a few variables can be used for post-stratification adjustments by month. Quarterly samples are three times larger than monthly samples, and thus can be post-stratified by more variables than those used for monthly samples. As a result, adjustments made to

monthly samples will be different from quarterly samples. The same argument is true for quarterly versus annual data. The unequal weights will result in monthly estimates that do not average to the quarterly estimate (and quarterly estimates that do not quite average to the annual estimate). Since quarterly samples will be adjusted for more variables in the post-stratification step than monthly samples, their averages will be close to the annual estimates. The differences between the monthly estimates' averages and the quarterly ones will be greater. The difference will both depend on the distribution of nonresponse across population subgroups and on sampling errors.

Option 2 does not include adjustments for nontelephone households and does not compensate for nonresponse as well as option 1. Nonresponse generally can be expected to vary by population groups and, thus, tends to distort the distribution of the sample. Post-stratification compares the distribution of population and sample across selected variables and computes sample weights to make sampling proportions on key characteristics reflect known population proportions. When post-stratification is not applied to the data, the distribution of the sample (by age, sex, race, etc) may be very different from the population, increasing the sampling errors and introducing the possibility of increased bias.

Furthermore, RDD does not include nontelephone households. It is clear that certain types of households are underrepresented in telephone surveys, e.g., Black, low income, etc. Although post-stratification may not completely eliminate biases arising from incomplete coverage, it can be effective in sharply reducing their effect.

Option 3 will produce the least accurate estimates when compared to 1 and 2. This option neither adjusts for nonresponse

and nontelephone households, nor for unequal probabilities of selection at the household and the person level. Households with two telephone numbers have twice the chance of selection and will be overrepresented in the monthly samples by a factor of 2 to 1. It can be noted that two telephone households are almost certainly different from others. They generally have higher incomes. Another reason for having two phones is that a member of the household is operating a business service from the home. These unusual features will be overrepresented in estimates if Option 3 is used. Even more important is the fact that this option does not adjust for the fact that the rate at which a household is sampled depends on the proportion of telephone numbers in the cluster in which the household is located. Households in clusters that are rather sparsely filled are likely to be different from those in densely filled clusters. They are more often rural, in suburban areas that are first being developed, in locations where there are many businesses mixed with residential units, etc. These types of households will be undersampled with Option 3. Finally, since no adjustment will be made for oversampled Hispanics and undersampled females, Option 3 will overrepresent Hispanics and underrepresent females.

This option will simply use the unweighted (raw) data to compute frequencies for monthly reports. As noted earlier, estimates of statistics made from unweighted data from complex samples such as the one planned for ACOMS are not reliable and should only be considered as rough guides. They can be useful as approximate indications of the range of the actual value of the statistic, or for detection of extremely high or low values of the estimate.

LM/hb

WESTAT, INC.

## Memorandum

TO: Westat Statistical Staff      DATE: December 15, 1977

FROM: Joe Waksberg                      SUBJECT: Increase in variance with  
differential sampling rates

We frequently propose sample designs with different sampling rates in the various strata. Where there is no reason to expect different population variances among strata, such a design will always have higher sampling variances than a sample of the same size with a uniform sampling rate in all strata.

The increase in the variance can be expressed quite simply by some algebraic manipulation of standard formulas. If  $P_1, P_2, \dots, P_H$  denote the proportions of the total populations in the various strata, and  $k_1, \dots, k_H$  are the ratios of the sampling rates in the strata to the sampling rate in stratum 1 (i.e.,  $k_1 = r_1/r_1$ ; obviously  $k_1 = 1$ ), then under fairly general conditions the relative increase in variance is equal to:

$$(\sum k_i P_i) (\sum P_i / k_i) - 1$$

The expression is simple and a handy one to remember. A derivation of this formula, and another way of expressing the same increase, is attached.

cc: E. Bryant  
A. Chu  
J. Edmonds  
M. Hansen  
R. Hanson  
I. Kundra  
D. Morganstein  
W. Perkins  
B. Tepping

### Variances with Differential Sampling Rates

Let the population be divided into H strata with mean  $\bar{x}_1, \bar{x}_2, \dots, \bar{x}_H$ . Assume a common variance  $\sigma^2$  in all strata. The populations in the various strata are  $N_1, \dots, N_H$ , with the proportion of the population in each stratum

$$P_1, \dots, P_H \text{ (i.e., } P_i = N_i / \sum N_i \text{)}$$

$$\bar{x} = \sum P_i \bar{x}_i$$

Compare two designs:

- (1) a uniform sampling rate in all strata,  $= r$ . The total sample size is  $n = rN$  ( $N = \sum N_i$ );
- (2) differential sampling rates, the rate in stratum  $i$  is  $t_i r$ . The total sample size

$$\sum t_i r N_i = n.$$

That is the total sample size is the same as for Plan 1.

We shall restrict our analyses to situations in which the populations of the strata are fairly large so that the finite correction factors are trivial. The variances of these two sample designs are:

$$\sigma_1^2 = \sum_{i=1}^H (N_i/N)^2 \sigma_i^2 = \sum_{i=1}^H (N_i/N)^2 \frac{\sigma^2}{r N_i} = \frac{\sigma^2}{r N} \quad (1)$$

$$\sigma_2^2 = \sum_{i=1}^H (N_i/N)^2 \frac{\sigma^2}{t_i r N_i} = \frac{\sigma^2}{r N} \sum_{i=1}^H \frac{P_i}{t_i} \quad (2)$$

The ratio of  $\sigma_2^2$  to  $\sigma_1^2$  is therefore  $\sum P_i / t_i$ , and the increase in variance is  $\sum P_i / t_i - 1$ .

This can be expressed more simply by looking at the relationships of the sampling rates among strata rather than the rates themselves. Call the stratum with the lowest sampling rate, stratum 1, and define

$$k_i = t_i / t_1.$$

Obviously,  $k_1 = 1$ , and  $k_i > 1$ .

$$\text{Then } \sum P_i / t_i = (1/t_1) (\sum P_i / k_i) \quad (3)$$

Because of the constraint that  $\sum t_i r N_i = n = rN$ , it can be seen  $\sum t_i P_i = 1$ . Consequently,

$$t_1 \sum k_i P_i = 1, \text{ and}$$

$$t_1 = \frac{1}{\sum k_i P_i}.$$

Using this in equation (3), we have

$$\frac{\sigma_2^2}{\sigma_1^2} = \sum P_i / t_i = (\sum P_i / k_i) (\sum k_i P_i) \quad (4)$$

where the  $k_i$  reflect the variations in sampling rates. (Equation (4) also applies with an arbitrary choice of a stratum as stratum 1. However, in that case the effect of varying the rates is not as easily apparent.)



# APPENDIX B

## Household, Youth, and Parental Questionnaires

### ACONS: RDD HOUSEHOLD SCREENER

SC-1 INTRODUCTION: Hello, this is (YOUR NAME). I am calling from Westat, a research firm near Washington, D.C. We are conducting an important national survey for the Federal Government. First, I'd like to make sure I've dialed correctly. Is this (AREA CODE AND NUMBER)?

(INTERVIEWER: ASK TO SPEAK WITH ADULT HOUSEHOLD MEMBER IF PERSON ANSWERING TELEPHONE SOUNDS LIKE A YOUTH)

. YES ..... 1 (SC-2)  
 NO ..... 2 (TERMINATE. 1 CODE REDIAL,  
 MAX OF 2 CALLS)  
 GO TO RESULT ..... 3

SC-2 We are calling a random sample of telephone numbers in connection with this study, and we need to know what type of number this is.

Is this phone number for

home use, ..... 1 (SC-40)  
 business and home use, or. 2 (SC-3)  
 business use only? ..... 3 (TERMINATE. 1 CODE NON-  
 RESIDENTIAL)  
 REFUSED ..... -7 (TERMINATE. 2 CODE INIT  
 REFUSAL)  
 DON'T KNOW ..... -8 (ASK FOR KNOWLEDGEABLE  
 HOUSEHOLD MEMBER, RESTART AT  
 SC-2RI.  
 IF NONE AVAILABLE,  
 TERMINATE, 4 OR 5 CODE  
 CALLBACK)

SC-1. Is this phone located in a home or in a business?

HOME ..... 1 (SC-40)  
 BOTH ..... 2 (SC-40)  
 BUSINESS ..... 3 (TERMINATE. 1 CODE NON-  
 RESIDENTIAL)  
 REFUSED ..... -7 (TERMINATE. 2 CODE INIT REFUSAL)  
 DON'T KNOW ..... -8 (ASK FOR KNOWLEDGEABLE  
 HOUSEHOLD MEMBER, RESTART AT  
 SC-1KNOW.  
 IF NONE AVAILABLE,  
 TERMINATE, 1 CODE CALLBACK)

SC-4B. Are you a member of this household?

YES .....	1	(SC-5)
NO .....	2	(SC-KNOW IF NONE AVAILABLE, TERMINATE, 1 CODE CALLBACK)
REFUSED.....	-7	(TERMINATE, 1 CODE INIT REFUSAL)
DON'T KNOW .....	-8	(SC-KNOW IF NONE AVAILABLE, TERMINATE, 1 CODE CALLBACK)

SC-5. Since the survey we are conducting for the U.S. government is concerned with the career plans of young adults, we need to know how many young adults live in your household.

How many people between the ages of 13 and 24 live in your household including those on vacation, away on business or living away at school?

NONE .....	00	(SC-4B, 1 CODE INELIGIBLE NO ONE 13-24)
REFUSED .....	-7	(TERMINATE, 1 CODE INIT REFUSAL)
DON'T KNOW .....	-8	(SC-KNOW IF NONE AVAILABLE, TERMINATE 1 CODE CALLBACK)

CATI CHECK #SC1: IS THERE MORE THAN ONE HOUSEHOLD  
MEMBER 13 THROUGH 24?  
[SC-5 > 1]

YES .....	1	(SC-7)
NO .....	2	(SC-6)

SC-6. Is this person male or female?

MALE .....	1	(CODE SC-7 AS 01; CODE SC-7A AS 00, AND THEN GO TO SC-3)
FEMALE .....	2	(CODE SC-7 AS 00; CODE SC-7A AS 01 AND THEN GO TO SC-3 FOR FEMALES)
REFUSED .....	-7	(TERMINATE, 1 CODE INIT REFUSAL)
DON'T KNOW .....	-8	(ASK FOR KNOWLEDGEABLE HOUSEHOLD MEMBER RESTART AT SC-5 IF NONE AVAILABLE, TERMINATE 1 CODE CALLBACK)

MODULE: HOUSEHOLD SCREENER  
OMB : 0702-0077

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expiration 31 August, 1989

SC-7. Of these (NUMBER FROM SC-5), how many are male?

NONE ..... 00  
REFUSED ..... -7 (TERMINATE. 7 CODE  
INIT REFUSAL)  
DON'T KNOW ..... -8 (ASK FOR KNOWLEDGEABLE  
HOUSEHOLD MEMBER RESTART AT  
SC-5A  
IF NONE AVAILABLE, TERMINATE  
2 CODE CALLBACK)

---

CATI CHECK SC1A: IS THE NUMBER OF MALES EQUAL TO  
THE TOTAL 13-24 YEAR OLDS?  
[SC-7 = SC-5]

YES ..... 1 (CODE SC7A=0  
CATI CHECK #SC1A)  
NO ..... 2 (SC-7A)

---

SC-7A. So, of the (NUMBER FROM SC-5) 13 to 24 year olds, your household  
has (SC-7) males, and ((SC-5)-(SC-7)) females?

YES ..... 1 (CATI CHECK #SC1A)  
NO ..... 2 (SC7ACHK)  
REFUSED ..... -7 (TERMINATE. 7 CODE  
INIT REFUSAL)  
DON'T KNOW ..... -8 (SC7KNOW  
IF NONE AVAILABLE, TERMINATE  
2 CODE CALLBACK)

---

CATI CHECK #SC1A: ARE THERE ANY 13-24 YEAR OLD MALES  
IN THE HOUSEHOLD?  
[SC-7 > 0]

YES ..... 1 (CATI CHECK #SC1B)  
NO ..... 2 (CATI CHECK #SC1B)

#SC1B: ARE THERE ANY 13-24 YEAR OLD FEMALES  
IN THE HOUSEHOLD?  
[SC-7A > 0]

YES ..... 1 (CATI CHECK #SC1D)  
NO ..... 2 (CATI CHECK #SC1D)

#SC1D: IS THE HOUSEHOLD IN THE FEMSAMP?

YES ..... 1 (ENUMERATE RESPONDENT,  
MALES, THEN FEMALES)  
(CONF)

NO ..... 2 (ENUMERATE RESPONDENT,  
THEN MALES)  
(CONF)

---

[RESPONDENT NAME AND AGE ENUMERATED, THEN MALES, THEN FEMALES]

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CONF. Your answers to this survey are voluntary and confidential. The information you give us will only be used in connection with information about many other young adults. Neither your name or any other identifying information will appear on any report of this study.

While you may choose not to answer any question, this research is authorized by law, and the information you give is protected by an Act of Congress called the Privacy Act of 1974.

SC-7B. Are you between 13 and 24 years old?

YES ..... 1 (SC-8A)  
NO ..... 2 (CATI CHECK #SC3)  
REFUSED ..... -7 (TERMINATE & CODE INIT REFUSAL)  
DON'T KNOW ..... -8 (SCKNOW  
IF NONE AVAILABLE, TERMINATE  
& CODE CALLBACK)

SC-8A. Please give me your first name.

REFUSED ..... (SC-8)  
(TERMINATE & CODE  
INIT REFUSAL))  
DON'T KNOW ..... (SCKNOW  
IF NONE AVAILABLE, TERMINATE  
& CODE CALLBACK)

SC-8. (Starting with the oldest) Please give me the first name of (each/the/the oldest) (male/female) in your household between 13 and 24. (RECORD ALL NAMES IN GRID BELOW.)

1. \_\_\_\_\_  
2. \_\_\_\_\_  
3. \_\_\_\_\_  
4. \_\_\_\_\_  
5. \_\_\_\_\_

REFUSED ..... -7 (TERMINATE & CODE  
INIT REFUSAL)  
DON'T KNOW ..... -8 (ASK FOR KNOWLEDGEABLE  
HOUSEHOLD MEMBER RESTART AT  
SC-5RI  
IF NONE AVAILABLE, TERMINATE  
& CODE CALLBACK)

CATI CHECK #SC2: ASK SC-9 FOR RESPONDENT, 1ST MALE/FEMALE  
LISTED IN SC-8

SC-9. What is (PERSON'S/your) date of birth?

\_\_\_\_/\_\_\_\_/\_\_\_\_ (CATI CHECK #SC3)  
MM DD YY

REFUSED ..... -7 (SC-10)  
DON'T KNOW ..... -8 (SC-10)

SC-10. How old is (PERSON/are you)?

\_\_\_\_ (CATI CHECK #SC3)

REFUSED ..... -7 (SC-10A)  
DON'T KNOW ..... -8 (SC-10A)

SC-10A. (Is PERSON/Are you) 13 to 15 years old, 16 to 20 years old, 21  
to 24 years old, or some other age?

13 to 15 ..... 1 (CATI CHECK #SC2A)  
16 to 20 ..... 2 (CATI CHECK #SC2A)  
21 to 24 ..... 3 (CATI CHECK #SC2A)  
SOME OTHER AGE ..... 4 (CATI CHECK #SC2A)  
REFUSED ..... -7 (TERMINATE. 3 CODE  
INIT REFUSAL)  
DON'T KNOW ..... -8 (ASK FOR KNOWLEDGEABLE  
HOUSEHOLD MEMBER RESTART AT  
SC-5RI  
IF NONE AVAILABLE, TERMINATE  
3 CODE CALLBACK)

CATI CHECK #SC2A: IS CURRENT ENUMERATION FOR THE  
RESPONDENT?  
YES ..... 1 (SC-10B)  
NO ..... 2 (CATI CHECK #SC3)

SC-10B. [IF NOT OBVIOUS, ASK] What is your sex?

MALE ..... 1 (SC-10C)  
FEMALE ..... 2 (SC-10C)  
REFUSED ..... -7 (TERMINATE. 3 CODE  
INIT REFUSAL)  
DON'T KNOW ..... -8 (ASK FOR KNOWLEDGEABLE  
HOUSEHOLD MEMBER RESTART AT  
SC-5RI  
IF NONE AVAILABLE, TERMINATE  
3 CODE CALLBACK)

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SC-10C. Are there any other youths between 13 and 24 years old in your household?

YES ..... 1 (CATI CHECK #SC3)  
NO ..... 2 (CATI CHECK #SC3)  
REFUSED ..... -7 (CATI CHECK #SC3)  
DON'T KNOW ..... -8 (CATI CHECK #SC3)

CATI CHECK #SC3: IS PERSON BETWEEN 13 AND 24 YEARS?

YES ..... 1 (CATI CHECK #SC5)  
NO ..... 2 (CATI CHECK #SC4)

#SC4: FLAG AS INELIGIBLE AND GO TO  
CATI CHECK #SC6.

#SC5: RECORD SEX

#SC6: IS D.O.B./AGE NEEDED FOR MORE  
MALES/FEMALES?

YES ..... 1 (SC-9 FOR NEXT  
MALE/FEMALE)  
NO ..... 2 (CATI CHECK #SC7)

#SC7: ANY MALES/FEMALES 16-24 YEARS?

YES ..... 1 (CATI CHECK #SC7A  
FOR RESP, 1ST  
MALE/FEMALE  
AGED 16-24)  
NO ..... 2 (CATI CHECK #SC24)

[ENUMERATION OF ELIGIBILITY INFORMATION FOR RESPONDENT,  
MALES, AND FEMALES]

CATI CHECK #SC7A: IS PERSON < 17 YEARS?

YES ..... 1 (SC13)  
NO ..... 2 (SC-11)

SC-11. (Has PERSON/Have you) ever been in active military service, the National Guard or the Reserves?

YES ..... 1 (SC-11A)  
NO ..... 2 (SC-12)  
REFUSED ..... -7 (SC-12)  
DON'T KNOW ..... -8 (SC-12)

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SC-11A. (Is PERSON/Are you) presently serving in the military?

YES ..... 1 (CATI CHECK #SC8)  
NO ..... 2 (SC-12)  
REFUSED ..... -7 (SC-12)  
DON'T KNOW ..... -8 (SC-12)

SC-12. (Has he/Has she/Have you) been accepted for service in a branch of the Armed Forces and (is/are) now waiting to go on active duty?

YES ..... 1 (CATI CHECK #SC8)  
NO ..... 2 (SC-13A)  
REFUSED ..... -7 (SC-13A)  
DON'T KNOW ..... -8 (SC-13A)

SC-13A. Do you have a regular high school diploma, a GED, an ABE, or some other kind of certificate of high school completion?

REGULAR HIGH SCHOOL DIPLOMA ..... 1 (SC-14)  
GED (GENERAL EDUCATIONAL DEVELOPMENT) 2 (SC-14)  
ABE (ADULT BASIC EDUCATION)  
CERTIFICATE (E.G. CORRESPONDENCE,  
NIGHT SCHOOL) ..... 3 (SC-14)  
SOME OTHER KIND OF CERTIFICATE ..... 4 (SC-14)  
NONE OF THE ABOVE ..... 5 (SC-14)  
REFUSED ..... -7 (SC-14)  
DON'T KNOW ..... -8 (SC-14)

SC-14. (Is PERSON/are you) currently enrolled in school?

YES ..... 1 (SC-15)  
NO ..... 2 (SC-13)  
REFUSED ..... -7 (SC-13)  
DON'T KNOW ..... -8 (SC-13)

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SC-15. In what type of school or training program (Is he/Is she/Are you currently enrolled?

TAKING DAY COURSES IN REGULAR, DAY HIGH SCHOOL .....	01 (SC-16)
ADULT BASIC EDUCATION (ABE) HS COURSES IN NIGHT SCHOOL OR BY CORRESPONDENCE) .....	02 (SC-13)
GED OR HIGH SCHOOL EQUIVALENCY PROGRAM .....	03 (SC-13)
SKILL DEVELOPMENT PROGRAM (EG PUBLIC EMPLOYMENT, JOBS, OIC WIN, CETA) .....	04 (SC-13)
ON-THE-JOB TRAINING PROGRAM ...	05 (SC-13)
APPRENTICESHIP PROGRAM .....	06 (SC-13)
VOCATIONAL, BUSINESS OR TRADE SCHOOL .....	07 (SC-13)
A 2 YEAR JUNIOR OR COMMUNITY COLLEGE .....	08 (SC-13)
A 4 (5) YEAR COLLEGE OR UNIVERSITY.....	09 (SC-17)
SOME OTHER SCHOOL .....	10 (SC-13)
REFUSED .....	-7 (SC-13)
DON'T KNOW .....	-9 (SC-13)

SC-16. (Is he/Is she/Are you) currently enrolled in 9th, 10th, 11th or 12th grade?

9TH .....	9 (SC-13B)
10TH .....	10 (SC-13B)
11TH .....	11 (SC-13B)
12TH .....	12 (SC-13B)
REFUSED .....	-7 (SC-13)
DON'T KNOW .....	-8 (SC-13)

SC-17. (Is he/Is she/Are you) currently enrolled in (his/her/your) first, second, third, fourth or fifth year of college?

FIRST YEAR (FRESHMAN).....	1 (SC-13B)
SECOND YEAR (SOPHOMORE).....	2 (SC-13B)
THIRD YEAR (JUNIOR).....	3 (SC-13B)
FOURTH YEAR (SENIOR).....	4 (SC-13B)
FIFTH YEAR (OF A 5 YEAR COLLEGE)	5 (SC-13B)
REFUSED .....	-7 (SC-13)
DON'T KNOW .....	-8 (SC-13)

SC-138. So, the highest level (college/high school) that (you have/he has/she has) completed and received credit for is (the) (college year/high school grade)?

YES .....	1 (SC-18)
NO .....	2 (SC-13)
REFUSED .....	-7 (SC-13)
DON'T KNOW .....	-8 (SC-13)

SC-13. What is the highest grade or level of schooling that (he has, she has/you have) completed and received credit for?

LESS THAN 8TH GRADE .....	07	(SC-18)
8TH GRADE .....	08	(SC-18)
9TH GRADE .....	09	(SC-18)
10TH GRADE .....	10	(SC-18)
11TH GRADE .....	11	(SC-18)
12TH GRADE .....	12	(SC-18)
1ST YEAR OF 4 YEAR COLLEGE (FR) .....	13	(SC-18)
2ND YEAR OF 4 YEAR COLLEGE (SO) .....	14	(SC-18)
3RD YEAR OF 4 YEAR COLLEGE (JR) .....	15	(SC-18)
4TH YEAR OF 4 YEAR COLLEGE (SR) .....	16	(CATI CHECK #SC3)
5TH YEAR COLLEGE, 1ST YEAR GRADUATE OR PROFESSIONAL SCHOOL .....	17	(CATI CHECK #SC3)
2ND YEAR GRADUATE OR PROFESSIONAL SCHOOL .....	18	(CATI CHECK #SC3)
3RD YEAR GRADUATE OR PROFESSIONAL SCHOOL .....	19	(CATI CHECK #SC3)
MORE THAN 3 YEARS GRADUATE OR PROFESSIONAL SCHOOL .....	20	(CATI CHECK #SC3)
1ST YEAR OF JR OR COMMUNITY COLLEGE ..	21	(SC-18)
2ND YEAR OF JR OR COMMUNITY COLLEGE ..	22	(SC-18)
1ST YEAR OF VOCATIONAL BUSINESS OR TRADE SCHOOL .....	23	(SC-18)
2ND YEAR OF VOCATIONAL BUSINESS OR TRADE SCHOOL .....	24	(SC-18)
MORE THAN 2 YEARS OF VOCATIONAL BUSINESS OR TRADE SCHOOL .....	25	(SC-18)
REFUSED .....	-7	(SC-18)
DON'T KNOW .....	-8	(SC-18)

SC-13. (Is he/Is she/Are you) living at this address?

YES .....	1	(SC-19)
NO .....	2	(CATI CHECK #SC-7B)
REFUSED .....	-7	(CATI CHECK #SC-7B)
DON'T KNOW .....	-8	(CATI CHECK #SC-7B)

CATI CHECK #SC7B: IS RESPONDENT CURRENTLY ENROLLED IN  
IN COLLEGE?

(SC-14=1) AND (SC-15=8,9)

YES .....1 (SC-18A)

NO .....2 (SC-19)

SC-18A (Is he/Is she/Are you) living in undergraduate student housing?

PROBE: That is, undergraduate housing that is owned, leased or  
sponsored by the school (he is/she is/you are) attending?

YES .....	1	(SC-19)
NO .....	2	(CATI CHECK #SC8)
REFUSED .....	-7	(SC-19)
DON'T KNOW .....	-8	(SC-19)

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CATI CHECK #SC9: FLAG AS INELIGIBLE FOR MAIN  
INTERVIEW AND GO TO CATI CHECK #SC9

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SC-19. Please tell me whether (PERSON is/you are):

White ..... 1  
Black ..... 2  
Asian or Pacific Islander, or ... 3  
American Indian or Alaskan Native 4  
REFUSED ..... -7  
DON'T KNOW ..... -8

SC-20. (Is he/Is she/Are you) Hispanic?

YES ..... 1  
NO ..... 2  
REFUSED ..... -7  
DON'T KNOW ..... -8

SC-21. What is (your/PERSON's) last name?

REFUSED ..... -7  
DON'T KNOW ..... -8

---

CATI CHECK #SC9: MORE 16-24 YEAR OLD MALES/FEMALES TO  
ENUMERATE?

YES ..... 1 (CATI CHECK #SC7A FOR  
NEXT MALE/FEMALE)  
NO ..... 2 (CATI CHECK #SC24)

---

---

#SC24: IS ANYONE IN THIS HOUSEHOLD ELIGIBLE?

YES ..... 1 (SC-21)  
NO ..... 2 (CATI CHECK #SC25)

#SC25: ARE THERE ANY 13-15 YEAR OLDS IN THIS  
HOUSEHOLD

YES ..... 1 (SC-48)  
NO ..... 2 (TERMINATE.)

---

SC-4B. What count do you live in?

REFUSED.....	-7	(SC-4C) (TERMINATE. 2 CODE INIT REFUSAL)
DON'T KNOW .....	-8	(ASK FOR KNOWLEDGEABLE HOUSEHOLD MEMBER, RESTART AT SC-2. IF NONE AVAILABLE, TERMINATE, 5 CODE CALLBACK)

SC-4C. What is your zip code?

REFUSED.....	-7	(SC-35) (TERMINATE. 2 CODE INIT REFUSAL)
DON'T KNOW .....	-8	(ASK FOR KNOWLEDGEABLE HOUSEHOLD MEMBER, RESTART AT SC-2. IF NONE AVAILABLE, TERMINATE, 5 CODE CALLBACK)

CATI CHECK #SC25A1: IS COUNTY OR ZIP MISSING?

SC-4B OR SC-4C = -7 OR -8

YES .....	1	(SC-4E)
NO .....	2	(SC-35)

SC-4E. What city do you live in?

REFUSED .....	-7	(SC-35)
DON'T KNOW .....	-8	(SC-35)

SC-35. Are there any telephone numbers in addition to (SAMPLE TELEPHONE NUMBER) in your home?

YES .....	1	(SC-36)
NO .....	2	(CATI CHECK #SC25A)
REFUSED .....	7	(CATI CHECK #SC25A)
DON'T KNOW .....	8	(CATI CHECK #SC25A)

SC-36 Is this number for

home use, .....	1	(CATI CHECK #SC25A)
business and home use, or. 2		(SC-36A)
business use only? .....	3	(CATI CHECK #SC25A)
REFUSED .....	-7	(CATI CHECK #SC25A)
DON'T KNOW .....	-8	(CATI CHECK #SC25A)

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SC-16A. Is this phone located in a home or in a business?

HOME ..... 1 (CATI CHECK #SC25A)  
BOTH ..... 2 (CATI CHECK #SC25A)  
BUSINESS ..... 3 (CATI CHECK #SC25A)  
REFUSED ..... -7 (CATI CHECK #SC25A)  
DON'T KNOW ..... -8 (CATI CHECK #SC25A)

---

CATI CHECK #SC25A: ARE THERE ANY 13 TO 15 YEAR OLD  
HOUSEHOLD MEMBERS?

YES ..... 1 (INTRO13)  
NO ..... 2 (CATI CHECK #SC26)

---

---

CATI CHECK #SC26: ARE THERE ANY ELIGIBLE PERSONS?

YES ..... 1 (HHCHOOSE)  
NO ..... 2 (TERMINATE 3)

---

TERMINATION SCREENS

TERM1 Thank you very much, but I seem to have dialed a wrong number.  
It is possible that your number will be dialed again at a later  
time.

REDIAL ..... 1 (RESTART AT INTRO)  
NON-WORKING NUMBER [IF  
NUMBER HAS BEEN DIALED  
TWICE] ..... 2

TERM2 Thank you very much, that's all the question that I have at this  
time.

TERM3 Thank you very much, that's all the questions I have at this  
time.

CODE NON-RESIDENTIAL

TERM5 ENTER THE RESULT CODE USING THE DEFINITIONS BELOW:

CALLBACK - NO APPOINTMENT ..... 4  
CALLBACK - APPOINTMENT ..... 5 (APPT)

TERM6 At this time, we are only interested in interviewing in  
households with 13 to 24 year olds so I have no further questions  
for you at this time. The information you have given us is  
confidential and is protected under the Privacy Act of 1974.  
This survey is for research purposes only, and is authorized by  
law in Title 10 USC Sections 503 and 2359. Thank you very much  
for your time. Good bye.

CODE NO ELIGIBLE HOUSEHOLD MEMBERS

TERM7 The information you have given us is confidential. This survey  
is for research on how young people make career decisions and is  
authorized by law in Title 10 USC Sections 503 and 2358. Thank  
you for your time. Good bye.

TERM8 I have no further questions for you at this time. The  
information you have given us is confidential and is protected by  
an Act of Congress called the Privacy Act of 1974. This survey  
is for research purposes only and is authorized by law in Title  
10 USC Sections 503 and 2358. Thank you very much for your  
cooperation. Good bye.

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TERM9 Let me remind you that the information you have given us is confidential and is protected by an Act of Congress called the Privacy Act of 1974. This survey is for research purposes only and is authorized by law in Title 10 Sections 503 and 2358 and Executive order 9397.

I have no further questions to ask you at this time, but would you please stay on the line for one moment so that I can check to see if I need to speak with anyone else in your household.

Thank you very much for your cooperation. Good bye.

#### RESTART SCREENS

SC-2RI. Hello, this is (YOUR NAME). I am calling from Westat, a research firm near Washington, D.C. We are conducting an important national survey for the Federal Government.

SC-KNOW. Hello, this is (YOUR NAME). I am calling from Westat, a research firm near Washington, D.C. We are conducting an important national survey for the Federal Government. The survey is concerned with the career plans of young adults. Your answers are voluntary and will be completely confidential. Your identity will never be known by anyone except the research project staff.

I would like to begin by asking some questions about household members.

#### 13-15 YEAR OLD TRACKING INFORMATION

CATI CHECK #SC28: WERE ANY 13 TO 15 YR OLDS ENUMERATED? [SC-9, 10, 23 OR 24 >12 AND <16]
---

YES ..... 1 (INTRO13)
-----------------------

NO ..... 2 (CATI CHECK #SC26)
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#### INTRO13

It is possible that we will call again sometime in the future to obtain some updated information from you.

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SC-08. Please give me the name, address and telephone number of a friend or family member not at this address who would know how to get in touch with you in case we need to contact you again and have a hard time getting hold of you.

NAME: \_\_\_\_\_  
STREET: \_\_\_\_\_  
CITY: \_\_\_\_\_  
STATE: \_\_\_\_\_  
ZIP: \_\_\_\_\_  
PHONE: \_\_\_\_\_

[GO TO CATI CHECK #SC26]



EDRS. YOUTH QUESTIONNAIRE (10/13/86) MODULE: EDUCATION & EMPLOYMENT  
OMB : 0702-0077 expiration 31 August, 1989 pg. 1-1

INTRODUCTION: I have some questions about your educational and employment experiences.

- EE-3. Do you have a regular high school diploma, a GED, an ABE, or some other kind of certificate of high school completion?

REGULAR HIGH SCHOOL DIPLOMA .....	1
GED (GENERAL EDUCATIONAL DEVELOPMENT) .....	2
ABE (ADULT BASIC EDUCATION) CERTIFICATE (E.G., CORRESPONDENCE, NIGHT SCHOOL) .....	3
SOME OTHER KIND OF CERTIFICATE .....	4
NONE OF THE ABOVE .....	5
REFUSED .....	-7
DON'T KNOW .....	-8

- EE-4. Are you currently enrolled in school, college, a vocational or technical program, apprenticeship or a job training program?

YES .....	1	(EE-6)
NO .....	2	(EE-5)
REFUSED .....	-7	(EE-5)
DON'T KNOW .....	-8	(EE-5)

- EE-5. In what month and year did you last attend any type of school or training program?

(2-DIGITS)/(2-DIGITS)  
MONTH YEAR

- EE-6. What kind of school or training program (are you/were you last enrolled in:

TAKING H.S. COURSES IN REGULAR DAY HIGH SCHOOL .....	1
GED OR HIGH SCHOOL EQUIVALENCY PROGRAM .....	2
ADULT BASIC EDUCATION (ABE) (H.S. COURSES IN NIGHT SCHOOL OR BY CORRESPONDENCE) .....	3
SKILL DEVELOPMENT PROGRAM (E.G., PUBLIC EMPLOYMENT, JOBS, OIC, WIN, CETA) .....	4
ON THE JOB TRAINING PROGRAM .....	5
APPRENTICESHIP PROGRAM .....	6
VOCATIONAL, BUSINESS OR TRADE SCHOOL .....	7
2 YEAR JR OR COMMUNITY COLLEGE .....	8
4 YEAR COLLEGE OR UNIVERSITY .....	9
REFUSED .....	-7
DON'T KNOW .....	-8

---

CATI CHECK #EE1: IS RESPONDENT CURRENTLY ENROLLED?  
 (EE-4=1)  
 YES ..... 1 (CATI CHECK #EE-1A)  
 NO ..... 2 (EE-1)

CATI CHECK #EE1A IS RESPONDENT IN HS OR 4 YR COLLEGE?  
 (EE-6=1) OR (EE-6=9)  
 HS ..... 1 (EE-6A)  
 COLLEGE ..... 2 (EE-6B)  
 OTHER ..... 3 (EE-1)

---

EE-6A. (Is he/Is she/Are you) currently enrolled in 9th, 10th, 11th or 12th grade?

9TH ..... 9 (EE-1VER)  
 10TH ..... 10 (EE-1VER)  
 11TH ..... 11 (EE-1VER)  
 12TH ..... 12 (EE-1VER)  
 REFUSED ..... -7 (EE-1)  
 DON'T KNOW ..... -8 (EE-1)

EE-6B. (Is he/Is she/Are you) currently enrolled in (his/her/your) first, second, third, fourth or fifth year of college?

FIRST YEAR (FRESHMAN) ..... 1 (EE-1VER)  
 SECOND YEAR (SOPHOMORE) ..... 2 (EE-1VER)  
 THIRD YEAR (JUNIOR) ..... 3 (EE-1VER)  
 FOURTH YEAR (SENIOR) ..... 4 (EE-1VER)  
 FIFTH YEAR (OF A 5 YEAR COLLEGE) ..... 5 (EE-1VER)  
 REFUSED ..... -7 (EE-1)  
 DON'T KNOW ..... -8 (EE-1)

EE-1VER. So, the highest level (college/high school) that (you have he has/she has) completed and received credit for is (the) (college year/high school grade)?

YES ..... 1 (EE-3)  
 NO ..... 2 (EE-1)  
 REFUSED ..... -7 (EE-1)  
 DON'T KNOW ..... -8 (EE-1)

SCMS: YOUTH QUESTIONNAIRE (10/13/86) MODULE: EDUCATION & EMPLOYMENT  
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EE-1. What is the highest grade or year of school or college that you have completed and received credit for?

LESS THAN 8TH GRADE .....	07 (EE-3)
8TH GRADE .....	08 (EE-3)
9TH GRADE .....	09 (EE-3)
10TH GRADE .....	10 (EE-3)
11TH GRADE .....	11 (EE-3)
12TH GRADE .....	12 (EE-3)
1ST YEAR OF 4 YEAR COLLEGE (FR).....	13 (EE-3)
2ND YEAR OF 4 YEAR COLLEGE (SO) .....	14 (EE-3)
3RD YEAR OF 4 YEAR COLLEGE (JR) .....	15 (EE-3)
4TH YEAR OF 4 YEAR COLLEGE (SR) .....	16 (EE-3)
5TH YEAR COLLEGE, 1ST YEAR GRADUATE OR PROFESSIONAL SCHOOL .....	17 (EE-3)
2ND YEAR GRADUATE OR PROFESSIONAL SCHOOL .....	18 (EE-3)
3RD YEAR GRADUATE OR PROFESSIONAL SCHOOL .....	19 (EE-3)
MORE THAN 3 YEARS GRADUATE OR PROFESSIONAL SCHOOL .....	20 (EE-3)
1ST YEAR OF JR OR COMMUNITY COLLEGE .	21 (EE-3)
2ND YEAR OF JR OR COMMUNITY COLLEGE.	22 (EE-3)
1ST YEAR OF VOCATIONAL BUSINESS OR TRADE SCHOOL .....	23 (EE-3)
2ND YEAR OF VOCATIONAL BUSINESS OR TRADE SCHOOL .....	24 (EE-3)
MORE THAN 2 YEARS OF VOCATIONAL BUSINESS OR TRADE SCHOOL .....	25 (EE-3)
REFUSED .....	-7 (EE-3)
DON'T KNOW .....	-8 (EE-3)

INMS: YOUTH QUESTIONNAIRE (10/13/86) MODULE: EDUCATION & EMPLOYMENT  
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EE-1. What is the highest grade or year of school or college you plan to eventually complete?

LESS THAN 8TH GRADE .....	07 (EE-7)
8TH GRADE .....	08 (EE-7)
9TH GRADE .....	09 (EE-7)
10TH GRADE .....	10 (EE-7)
11TH GRADE .....	11 (EE-7)
12TH GRADE .....	12 (EE-7)
1ST YEAR OF 4 YEAR COLLEGE (FR).....	13 (EE-7)
2ND YEAR OF 4 YEAR COLLEGE (SO) .....	14 (EE-7)
3RD YEAR OF 4 YEAR COLLEGE (JR) .....	15 (EE-7)
4TH YEAR OF 4 YEAR COLLEGE (SR) .....	16 (EE-7)
5TH YEAR COLLEGE, 1ST YEAR GRADUATE OR PROFESSIONAL SCHOOL .....	17 (EE-7)
2ND YEAR GRADUATE OR PROFESSIONAL SCHOOL .....	18 (EE-7)
3RD YEAR GRADUATE OR PROFESSIONAL SCHOOL .....	19 (EE-7)
MORE THAN 3 YEARS GRADUATE OR PROFESSIONAL SCHOOL .....	20 (EE-7)
1ST YEAR OF JR OR COMMUNITY COLLEGE .	21 (EE-7)
2ND YEAR OF JR OR COMMUNITY COLLEGE.	22 (EE-7)
1ST YEAR OF VOCATIONAL BUSINESS OR TRADE SCHOOL .....	23 (EE-7)
2ND YEAR OF VOCATIONAL BUSINESS OR TRADE SCHOOL .....	24 (EE-7)
MORE THAN 2 YEARS OF VOCATIONAL BUSINESS OR TRADE SCHOOL .....	25 (EE-7)
REFUSED .....	-7 (EE-7)
DON'T KNOW .....	-8 (EE-7)

---

CATI CHECK #EE2A: IS EE1 > 8?

YES .....	1 (EE-7)
NO .....	2 (EE-16)

---

EE-7. (Did/Does) your school use letter or number grades?

LETTER .....	1
NUMBER .....	2
NEITHER .....	3
REFUSED .....	-7
DON'T KNOW .....	-8

[ IF LETTER ASK LETTER, IF NUMBER ASK NUMBER ]

What grades (do/did) you usually get in school? (Are/Were) they:  
 [PROBE: This includes grades 9 through 12]

mostly A's	(AVERAGE OF 90-100)	1
Mostly A's & B's	(AVERAGE OF 85-89)	2
Mostly B's	(AVERAGE OF 80-84)	3
Mostly B's & C's	(AVERAGE OF 75-79)	4
Mostly C's	(AVERAGE OF 70-74)	5
Mostly C's & D's	(AVERAGE OF 65-69)	6
Mostly D's & F's	(AVERAGE OF 64 AND BELOW)	7
REFUSED .....		-7
DON'T KNOW .....		-8

EE-9\_12. Now I have a list of high school mathematics and technical courses. As I read each one, please tell me whether you have taken or plan to take that course in regular high school.  
 Elementary algebra?

TAKEN .....	1
PLAN TO TAKE .....	2
NOT TAKEN AND NOT PLANNING TO.....	3
REFUSED .....	-7
DON'T KNOW .....	-8

EE-9\_12. Plane geometry?

TAKEN .....	1
PLAN TO TAKE .....	2
NOT TAKEN AND NOT PLANNING TO.....	3
REFUSED .....	-7
DON'T KNOW .....	-8

EE-9\_12. Intermediate algebra?

TAKEN .....	1
PLAN TO TAKE .....	2
NOT TAKEN AND NOT PLANNING TO.....	3
REFUSED .....	-7
DON'T KNOW .....	-8

YOUTH QUESTIONNAIRE (10/13/86) MODULE: EDUCATION & EMPLOYMENT  
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EE-9\_12. Trigonometry?

TAKEN .....	1
PLAN TO TAKE .....	2
NOT TAKEN AND NOT PLANNING TO.....	3
REFUSED .....	-7
DON'T KNOW .....	-8

EE-13. Are you currently employed either full-time or part-time?

YES .....	1	(EE-19)
NO .....	2	(EE-17)
REFUSED .....	-7	(EE-17)
DON'T KNOW .....	-8	(EE-17)

EE-17. Are you looking for work now?

YES .....	1
NO .....	2
REFUSED .....	-7
DON'T KNOW .....	-8

EE-19. How many hours per week (do/did) you usually work at your  
(main/last) job?

NEVER HAD A JOB .....	0	(CATI CHECK #EE3) (EE-24)
REFUSED .....	-7	(CATI CHECK #EE3)
DON'T KNOW .....	-8	(CATI CHECK #EE3)

---

CATI CHECK #EE3: DID/DOES YOUTH WORK FULL TIME?  
[EE-19 > 34 ]

YES .....	1	(EE-24)
NO .....	2	(EE-20)

---

EE-20. Have you ever held a full-time job? [MORE THAN 34 HOURS  
PER WEEK]

YES .....	1
NO .....	2
REFUSED .....	-7
DON'T KNOW .....	-8

ICMS: YOUTH QUESTIONNAIRE (10/13/86) MODULE: EDUCATION & EMPLOYMENT  
ID # 0702-0077 expiration 31 August, 1989 pg. 1-7

EE-24. How easy or difficult is it for someone your age to get a full-time job in your community? Is it....

almost impossible .....	1
very difficult .....	2
somewhat difficult, or .....	3
not difficult at all? .....	4
REFUSED.....	-7
DON'T KNOW.....	-8

[GO TO INTENTIONS & PROPENSITY MODULE]



SCMS: YOUTH QUESTIONNAIRE (October 13, 1986) INTENTIONS & PROPENSITY  
MB = 0702-0077 expiration 31 August, 1989 pg. 2-1

IP-1. Now let's talk about your plans for the next few years. What do you think you might be doing? (PROBE: Anything else?) [RECORD ALL THAT APPLY]

GOING TO SCHOOL .....	1	(IP-7)
WORKING .....	2	(IP-7)
DOING NOTHING .....	3	(IP-7)
JOINING THE MILITARY/SERVICE .....	4	(IP-3)
OTHER .....	5	(IP-7)
REFUSED .....	-7	(IP-7)
DON'T KNOW .....	-8	(IP-7)

IP-3. You said you might be joining the military. Which branch of the service would that be?

AIR FORCE .....	1	(IP-4)
ARMY .....	2	(IP-4)
COAST GUARD .....	3	(IP-4)
MARINE CORPS .....	4	(IP-4)
NAVY .....	5	(IP-4)
REFUSED .....	-7	(IP-7)
DON'T KNOW .....	-8	(IP-7)

IP-4. Which type of service would that be? Would it be:

Active Duty .....	1
The Reserve, or .....	2
The National Guard .....	3
REFUSED .....	-7
DON'T KNOW .....	-8

IP-5. If you found for some reason you couldn't join the (SERVICE FROM IP-3) which branch of the service would be your next choice?

AIR FORCE .....	1	(IP-6)
ARMY .....	2	(IP-6)
COAST GUARD .....	3	(IP-6)
MARINE CORPS .....	4	(IP-6)
NAVY .....	5	(IP-6)
NONE .....	6	(IP-7)
REFUSED .....	-7	(IP-7)
DON'T KNOW .....	-8	(IP-7)

IP-6. Which type of service would that be? Would it be:

Active Duty .....	1
The Reserve, or .....	2
The National Guard .....	3
REFUSED .....	-7
DON'T KNOW .....	-8

IP-7. How likely is it that you will be serving in the military? Would you say...

definitely .....	1
probably .....	2
probably not, or .....	3
definitely not? .....	4
REFUSED .....	-7
DON'T KNOW .....	-8

IP-14. How likely is it that you will be going to college? Would you say...

definitely .....	1 (IP-15)
probably .....	2 (IP-15)
probably not, or .....	3 (IP-16)
definitely not? .....	4 (IP-16)
REFUSED .....	-7 (IP-16)
DON'T KNOW .....	-8 (IP-16)

IP-15. Do you think that you will go to a 2-year or a 4-year college?

2 YEAR COLLEGE .....	1
4 YEAR COLLEGE .....	2
REFUSED .....	-7
DON'T KNOW .....	-8

IP-11. How likely is it that you will participate in at least one college course offered by the Army Reserve Officer's Training Corps, or Army R.O.T.C? Would you say...

definitely .....	1
probably .....	2
probably not, or .....	3
definitely not? .....	4
REFUSED .....	-7
DON'T KNOW .....	-8

IP-16. How likely is it that you will be going to vocational or technical school? Would you say...

definitely .....	1
probably .....	2
probably not, or .....	3
definitely not? .....	4
REFUSED .....	-7
DON'T KNOW .....	-8

ADAMS, YOUTH QUESTIONNAIRE (October 13, 1986) INTENTIONS & PROPENSITY  
 MS # 0702-0077 expiration 31 August, 1989 pg. 2-3

IP-12. How likely is it that you will be working in a civilian job?  
 Would you say...

definitely .....	1 (IP-13)
probably .....	2 (IP-13)
probably not, or .....	3 (CATI CHECK #IP1)
definitely not? .....	4 (CATI CHECK #IP1)
REFUSED .....	-7 (CATI CHECK #IP1)
DON'T KNOW .....	-8 (CATI CHECK #IP1)

IP-13. Will this be full-time or part-time?

FULL-TIME .....	1
PART-TIME .....	2
REFUSED .....	-7
DON'T KNOW .....	-8

---

CATI CHECK #IP1: IS YOUTH PLANNING TO BE WORKING DURING  
 THE NEXT FEW YEARS?  
 [IP-1 = 2]

YES .....	1 (CATI CHECK #IP2)
NO .....	2 (IP-8)

#IP2: IS YOUTH CURRENTLY WORKING?  
 [EE-16 = 1 OR -7 OR -8]

YES .....	1 (IP-2)
NO .....	2 (IP-8)
REFUSED .....	-7 (IP-2)
DON'T KNOW .....	-8 (IP-2)

---

IP-2. Do you think that you will be working in the same job or  
 occupation you now have, or a different job or occupation?

SAME JOB OR OCCUPATION .....	1
DIFFERENT JOB OR OCCUPATION .....	2
REFUSED .....	-7
DON'T KNOW .....	-8

IP-3. How likely is it that you will be serving on active duty in the  
 Army? Would you say...

definitely .....	1
probably .....	2
probably not, or .....	3
definitely not? .....	4
REFUSED .....	-7
DON'T KNOW .....	-8

JOINT YOUTH QUESTIONNAIRE (October 13, 1986) INTENTIONS & PROPENSITY  
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IP-9. How likely is it that you will be serving in the Army National Guard? Would you say...

definitely .....	1
probably .....	2
probably not, or .....	3
definitely not? .....	4
REFUSED .....	-7
DON'T KNOW .....	-8

IP-10. How likely is it that you will be serving in the Army Reserve? Would you say...

definitely .....	1
probably .....	2
probably not, or .....	3
definitely not? .....	4
REFUSED .....	-7
DON'T KNOW .....	-8

---

CATI CHECK #IP3: IS YOUTH PLANNING TO GO TO COLLEGE  
 DURING THE NEXT FEW YEARS?  
 {IP-14 = 1 OR 2}

---

YES .....	1	(IP-11A)
NO .....	2	(IP-17)

---

IP-11A. How likely is it that you will receive an officer's commission through participation in the Army Reserve Officer's training Corps, that is, the ROTC?

definitely .....	1
probably .....	2
probably not, or .....	3
definitely not? .....	4
REFUSED .....	-7
DON'T KNOW .....	-8

AIMS. YOUTH QUESTIONNAIRE (October 13, 1986) INTENTIONS & PROPENSITY  
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IP-17. We've talked about several things you might be doing in the next few years. Taking everything into consideration, what are you most likely to be doing in the (next year/fall after you finish high school)? (IF "GOING TO SCHOOL" OR "WORKING" PRCE: Will that be full-time or part-time?)  
 [RECORD ALL THAT APPLY]

GOING TO SCHOOL FULL-TIME .....	1
GOING TO SCHOOL PART-TIME .....	2
WORKING FULL-TIME .....	3
WORKING PART-TIME .....	4
SERVING IN THE MILITARY .....	5
BEING A FULL-TIME HOMEMAKER .....	6
OTHER .....	7
REFUSED .....	-7
DON'T KNOW .....	-8

IP-20. How likely is it that you will talk to someone [such as, family, friends, or teacher] about joining the Army? Would you say...

definitely .....	1
probably .....	2
probably not, or .....	3
definitely not? .....	4
REFUSED .....	-7
DON'T KNOW .....	-8

IP-21. How likely is it that you will do something about joining Army [such as, see an Army Recruiter, call a toll-free : answer an Army ad, or visit an Army base]?

Would you say...

definitely .....	1
probably .....	2
probably not, or .....	3
definitely not? .....	4
REFUSED .....	-7
DON'T KNOW .....	-8

IP-23. Before we talked today, had you ever thought about joining the military?

YES .....	1
NO .....	2
REFUSED .....	-7
DON'T KNOW .....	-8

[GO TO BEHAVIORS MODULE]



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MODULE: BEHAVIORS  
pg. 3-1

BE-1A. Have you ever talked with any military recruiter to get information about the military?

YES ..... 1  
NO ..... 2  
REFUSED ..... -7  
DON'T KNOW ..... -8

BE-1. In the past six months, have you talked with anyone about possibly joining the Army?

YES ..... 1 (BE-2)  
NO ..... 2 (BE-10)  
REFUSED ..... -7 (BE-10)  
DON'T KNOW ..... -8 (BE-10)

BE-2. With whom have you talked? [RECORD ALL THAT APPLY]

FRIENDS ..... 01  
MOTHER ..... 02  
FATHER ..... 03  
A BROTHER OR SISTER ..... 04  
SOME OTHER RELATIVE ..... 05  
(BOY/GIRL) FRIEND OR SPOUSE ..... 06  
A TEACHER ..... 07  
A COUNSELOR AT SCHOOL ..... 08  
A RECRUITER ..... 09  
CO-WORKER ..... 10  
EMPLOYER ..... 11  
OTHERS ..... 12  
REFUSED ..... -7  
DON'T KNOW ..... -8

---

CATI CHECK #BE1: WERE FRIENDS MENTIONED?  
[BE-2 = 01]

YES ..... 1 (BE-3)  
NO ..... 2 (CATI CHECK #BE2)

---

BE-3. You mentioned talking with friends. (Were these friends) from school?

YES ..... 1  
NO ..... 2

BE-4. (Were these friends) At work?

YES ..... 1  
NO ..... 2

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MODULE: BEHAVIORS  
pg. 3-2

BE-5 Were these friends) In the service?

YES ..... 1 (BE-6)  
NO ..... 2 (CATI CHECK #BE2)

BE-6 Were these friends) In the Army?

YES ..... 1  
NO ..... 2

---

CATI CHECK #BE2: WAS RECRUITER MENTIONED?  
[BE-2 = 09]

YES ..... 1 (BE-8)  
NO ..... 2 (BE-7)

---

BE-7 In the past six months, have you talked to an Armed Forces  
recruiter about military service?

YES ..... 1 (BE-8)  
NO ..... 2 (BE-10)  
REFUSED ..... -7 (BE-10)  
DON'T KNOW ..... -8 (BE-10)

BE-8 Was the recruiter you spoke with an:

	<u>YES</u>	<u>NO</u>	<u>REF</u>	<u>DK</u>
Army recruiter? ..... 1 (BE-8A)	2	-7	-8	
Air Force recruiter? .... 1 (BE-10)	2	-7	-8	
Navy recruiter? ..... 1 (BE-10)	2	-7	-8	
Marine recruiter? ..... 1 (BE-10)	2	-7	-8	

BE-8A. How did you have your first contact with the Army recruiter?

Did you contact the Army recruiter on the advice of another Service recruiter .....	1
(Did you) contact the Army recruiter first .....	2
Were you contacted by the Army recruiter first .....	3
(Were you) with a friend with whom the recruiter was meeting .....	4
Did you contact the Army recruiter through a US Army Reserve or National Guard unit or member, or .....	5
Was your first contact by some other way .....	6
REFUSED .....	-7
DON'T KNOW .....	-8

BE-8B. Under what circumstances did you first talk with an Army recruiter? Did you talk:

By telephone .....	1
At a recruiting station .....	2
At a job fair .....	3
At school .....	4
At an Army Reserve unit, or .....	5
Some other way .....	6
REFUSED .....	-7
DON'T KNOW .....	-8

BE-10. In the past six months, have you responded to an Army ad by calling a toll-free number or sending for a gift?

YES .....	1
NO .....	2
REFUSED .....	-7
DON'T KNOW .....	-8

BE-11. In the past six months, have you visited an Army recruiting station?

YES .....	1
NO .....	2
REFUSED .....	-7
DON'T KNOW .....	-8

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MODULE: BEHAVIORS  
pg. 3-4

BE-12. In the past six months, have you taken a written test used for the Army, such as the Armed Services Vocational Aptitude Battery?

YES ..... 1  
NO ..... 2  
REFUSED ..... -7  
DON'T KNOW ..... -8

CATI CHECK #BE3: IS RESPONDENT CURRENTLY IN COLLEGE OR  
A COLLEGE GRADUATE?  
[SC-15 OR SC-29 = 2 OR 3 OR IF  
EE-1 > 09]

YES ..... 1 (CATI CHECK #BE4)  
NO ..... 2 (BE-16)

BE-16. In the past six months have you given any thought to going to college?

YES ..... 1 (BE-17)  
NO ..... 2 (CATI CHECK #BE4)  
REFUSED ..... -7 (BE-17)  
DON'T KNOW ..... -8 (BE-17)

BE-17. In the past six months, have you talked to anyone about going to college?

YES ..... 1 (BE-18)  
NO ..... 2 (BE-21)  
REFUSED ..... -7 (BE-21)  
DON'T KNOW ..... -8 (BE-21)

BE-18. With whom have you talked? [RECORD ALL THAT APPLY]

FRIENDS ..... 01  
MOTHER ..... 02  
FATHER ..... 03  
A BROTHER OR SISTER ..... 04  
SOME OTHER RELATIVE ..... 05  
(BOY/GIRL) FRIEND OR SPOUSE ..... 06  
A TEACHER ..... 07  
A COUNSELOR AT SCHOOL ..... 08  
A RECRUITER ..... 09  
CO-WORKER ..... 10  
EMPLOYER ..... 11  
OTHERS ..... 12  
REFUSED ..... -7  
DON'T KNOW ..... -8

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BE-19 Have they talked to you about:

	YES	NO	REF	DK
The Army College Fund .....	1	2	-7	-3
The GI Bill .....	1	2	-7	-3
ROTC Scholarships .....	1	2	-7	-3
VEAP (Veterans Educational ... Assistance Package) .....	1	2	-7	-3

BE-21. In the past six months, have you taken any college admissions tests, for example, the PSAT, SAT, or ACT?

YES ..... 1  
NO ..... 2  
REFUSED ..... -7  
DON'T KNOW ..... -8

BE-24. In the past six months, have you submitted a college application?

YES ..... 1  
NO ..... 2  
REFUSED ..... -7  
DON'T KNOW ..... -8

CATI CHECK #BE4: IS YOUTH CURRENTLY EMPLOYED FULL-TIME? [EE-16 = 1 AND EE-19 >34]	
YES .....	1 (SOCIAL INFLUENCE MODULE)
NO .....	2 (BE-25)

BE-25. In the past six months, have you given any thought to getting a full-time civilian job?

YES ..... 1 (BE-26)  
NO ..... 2 (SOCIAL INFLUENCE MODULE)  
REFUSED ..... -7 (BE-26)  
DON'T KNOW ..... -8 (BE-26)

BE-26. In the past six months, have you spoken with anyone about getting a full-time civilian job?

YES ..... 1 (BE-27)  
NO ..... 2 (BE-31)  
REFUSED ..... -7 (BE-31)  
DON'T KNOW ..... -8 (BE-31)

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BE-27. With whom have you spoken? [RECORD ALL THAT APPLY]

FRIENDS .....	01
MOTHER .....	02
FATHER .....	03
A BROTHER OR SISTER .....	04
SOME OTHER RELATIVE .....	05
(BOY/GIRL) FRIEND OR SPOUSE .....	06
A TEACHER .....	07
A COUNSELOR AT SCHOOL .....	08
A RECRUITER .....	09
CO-WORKER .....	10
EMPLOYER .....	11
OTHERS .....	12
REFUSED .....	-7
DON'T KNOW .....	-8

BE-31. In the past six months, have you visited any prospective employers or employment agencies?

YES .....	1
NO .....	2
REFUSED .....	-7
DON'T KNOW .....	-8

BE-32. In the past six months, have you applied for any civilian jobs?

YES .....	1
NO .....	2
REFUSED .....	-7
DON'T KNOW .....	-8

[GO TO SOCIAL INFLUENCE MODULE]

INTRODUCTION: Now I am going to ask you a few questions about the attitudes of your family and friends about the military

SI-1. For each of the following people, please tell me how you think they would feel about your enlisting in the Army. Use a scale of 1 to 5 where a 1 means they would think it is a very bad idea, 3 means its a bad idea, 3 means its neither a good nor a bad idea, 4 means its a good idea, and a 5 means they would think it is a very good idea.

[CODE 6 IF NOT APPLICABLE-PERSON DECEASED, DOES NOT EXIST]

1 = VERY BAD  
 2 = BAD  
 3 = NEUTRAL  
 4 = GOOD  
 5 = VERY GOOD

	1	2	3	4	5	NA	REF	DK
Your father .....	1	2	3	4	5	6	-7	-8
Your mother .....	1	2	3	4	5	6	-7	-8
Friends with Army experience .....	1	2	3	4	5	6	-7	-8
Friends with other military experience .....	1	2	3	4	5	6	-7	-8
Friends with no military experience .....	1	2	3	4	5	6	-7	-8
Your school counselor .....	1	2	3	4	5	6	-7	-8
Your teachers .....	1	2	3	4	5	6	-7	-8
Your co-workers ...	1	2	3	4	5	6	-7	-8
Your fellow students .....	1	2	3	4	5	6	-7	-8
Your employer .....	1	2	3	4	5	6	-7	-8

SI-2. Do you have friends who are currently serving in the military?

YES ..... 1 (SI-3)  
 NO ..... 2 (SI-5)  
 REFUSED ..... -7 (SI-5)  
 DON'T KNOW ..... -8 (SI-5)

SI-3. In what branch of the military are these friends serving? [CODE ALL THAT APPLY]

AIR FORCE ..... 1  
 ARMY ..... 2  
 COAST GUARD ..... 3  
 MARINE CORPS ..... 4  
 NAVY ..... 5  
 REFUSED ..... -7  
 DON'T KNOW ..... -8

CATI CHECK #SI1: FRIENDS IN ARMY?  
 [SI-3 = 2]

YES ..... 1 (SI-4)  
 NO ..... 2 (SI-5)

SI-4. Are your friends in the Army serving in the:

	YES	NO	REF	DK
Active Army .....	1	2	-7	-8
Army Reserve .....	1	2	-7	-8
Army National Guard, or ..	1	2	-7	-8
Army Reserve Officer's Training Corps? .....	1	2	-7	-8

SI-5. Do you have family members who are currently serving in the military?

YES ..... 1 (SI-6)  
 NO ..... 2 (IMPORTANCE MODULE)  
 REFUSED ..... -7 (IMPORTANCE MODULE)  
 DON'T KNOW ..... -8 (IMPORTANCE MODULE)

SI-6. In what branch of the military are these family members serving?  
 (CODE ALL THAT APPLY)

AIR FORCE ..... 1  
 ARMY ..... 2  
 COAST GUARD ..... 3  
 MARINE CORPS ..... 4  
 NAVY ..... 5  
 REFUSED ..... -7  
 DON'T KNOW ..... -8

CATI CHECK #SI2: FAMILY IN ARMY?  
 [SI-6 = 2]

YES ..... 1 (SI-7)  
 NO ..... 2 (IMPORTANCE MODULE)

SI-7. Are they serving in the:

	YES	NO	REF	DK
Active Army .....	1	2	-7	-8
Army Reserve .....	1	2	-7	-8
Army National Guard, or ..	1	2	-7	-8
Army Reserve Officer's Training Corps? .....	1	2	-7	-8

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[GO TO IMPORTANCE MODULE]



IA-1. In thinking about your plans for the next year, please tell me how important it is that you have opportunities for the following things?

Use a scale of 1 to 5 where a "1" means it is not at all important and "5" means it is very important.

	NOT IMP				VERY IMP	SEE	OK
a. Having a physical challenge? .....	1	2	3	4	5	-7	-3
b. Working with highly trained people? .....	1	2	3	4	5	-7	-3
d. Earning money for college or vocational school? .....	1	2	3	4	5	-7	-3
e. Training in useful skill areas? ..	1	2	3	4	5	-7	-3
g. Developing self-confidence? .....	1	3	3	4	5	-7	-3
h. Serving your country? .....	1	2	3	4	5	-7	-3
i. Developing leadership skills? ...	1	2	3	4	5	-7	-3
l. A chance to work with the latest high-tech equipment? .....	1	2	3	4	5	-7	-3
o. Having experiences you can be proud of? .....	1	2	3	4	5	-7	-3
p. Developing your potential? .....	1	2	3	4	5	-7	-3
q. Helping your career development? ..	1	2	3	4	5	-7	-3
y. Serving your own in community? ..	1	2	3	4	5	-7	-3
z. Having weekend excitement? .....	1	2	3	4	5	-7	-3
aa. Staying in your own hometown? ...	1	2	3	4	5	-7	-3
af. A stepping stone between high school and college? .....	1	2	3	4	5	-7	-3
ah. Becoming more mature and responsible?.....	1	2	3	4	5	-7	-3
ai. The opportunity to make changes and use your own judgment? .....	1	2	3	4	5	-7	-3
aj. Having a mental challenge? .....	1	2	3	4	5	-7	-3

[SKIP TO MEDIA HABITS MODULE]



ACOMS: YOUTH QUESTIONNAIRE (October 13, 1986)  
OMB # 0702-0077 expiration 31 August, 1989

MODULE: MEDIA HABITS  
pg. 6-1

MH-1. Do you regularly watch TV?

YES .....	1	(MH-2)
NO .....	2	(MH-14)
REFUSED .....	-7	(MH-2)
DON'T KNOW .....	-8	(MH-2)

MH-2. How many hours per week do you spend watching..

b. Programs on commercial networks  
such as ABC, CBS, or NBC?

\_\_\_\_\_ # HOURS

a. Programs on commercial cable  
stations such as ESPN, MTV,  
USA, or TBS?

\_\_\_\_\_ # HOURS

CATI CHECK #MH1: IS CABLE OR SUBSCRIPTION TV WATCHED?  
[MH-2b > 0]

YES .....	1	(MH-11)
NO .....	2	(MH-12)

MH-11. Do you watch any of the following Cable or Subscription TV  
channels regularly?

	YES	NO	REF	DK
MTV? .....	1	2	-7	-8
Nashville Network (TNN)?	1	2	-7	-8
ESPN (Sports)?	1	2	-7	-8
WTBS (Syndicated)?	1	2	-7	-8
Black Entertainment TV (BET)?	1	2	-7	-8

MH-12. Do you frequently watch any of the following types of TV shows?

	YES	NO	REF	DK
Sports? .....	1	2	-7	-8
Suspense or mystery? ..	1	2	-7	-8
General drama? .....	1	2	-7	-8
Music or music video? ..	1	2	-7	-8
Situation comedy? .....	1	2	-7	-8
TV movies? .....	1	2	-7	-8
Talk shows? .....	1	2	-7	-8

MH-13. Please tell me if you watch any of the following TV shows?

	<u>YES</u>	<u>NO</u>	<u>REF</u>	<u>DK</u>
David Letterman?	1	2	-7	-8
Friday Night Videos?	1	2	-7	-8
Monday Night Football?	1	2	-7	-8
College Football?	1	2	-7	-8
Sunday Night at the Movies?	1	2	-7	-8

MH-14. Does your household have a Video Cassette Recorder (VCR)?

YES .....	1	(MH-15)
NO .....	2	(MH-16)
REFUSED .....	-7	(MH-16)
DON'T KNOW .....	-8	(MH-16)

MH-15. How many hours per week do you usually spend watching your VCR?

                      
# HOURS

MH-16. Now let's talk about radio listening. Do you regularly listen to the radio?

YES .....	1	(MH-17)
NO .....	2	(MH-28)
REFUSED .....	-7	(MH-28)
DON'T KNOW .....	-8	(MH-28)

MH-17. How many hours per week do you listen to ..

a. AM Radio?                       
# HOURS

b. FM Radio?                       
# HOURS

MH-26. Do you frequently listen to any of the following types of radio programs?

	<u>YES</u>	<u>NO</u>	<u>REF</u>	<u>DK</u>
News? .....	1	2	-7	-8
Classical music? .....	1	2	-7	-8
Pop? .....	1	2	-7	-8
Country? .....	1	2	-7	-8
Sports? .....	1	2	-7	-8
Talk Shows? .....	1	2	-7	-8
Rock & Roll? .....	1	2	-7	-8
"Easy Listening"? .....	1	2	-7	-8

SCMS: YOUTH QUESTIONNAIRE (October 13, 1986)  
SMB : 0702-0077 expiration 31 August, 1989

MODULE: MEDIA HABITS  
pg. 6-3

MH-27. Do you listen to the following programs?

	<u>YES</u>	<u>NO</u>	<u>REF</u>	<u>DK</u>
American Top 40?	1	2	-7	-8
King Biscuit Flower Hour?	1	2	-7	-8
Rick Dees' Top 40?	1	2	-7	-8
Metalshop?	1	2	-7	-8
Rockline?	1	2	-7	-8

MH-28. How often do you read the newspaper? Is it...

never, .....	1	(MH-31)
less than twice a week, .....	2	(MH-29)
2-3 times per week, .....	3	(MH-29)
4-5 times per week, or .....	4	(MH-29)
daily? .....	5	(MH-29)
REFUSED .....	-7	(MH-31)
DON'T KNOW .....	-8	(MH-31)

MH-29. How many hours do you spend reading the newspaper each week?

        
# HOURS

MH-30. Do you regularly read any of the following sections?

	<u>YES</u>	<u>NO</u>	<u>REF</u>	<u>DK</u>
Sports? .....	1	2	-7	-8
Comics? .....	1	2	-7	-8
News? .....	1	2	-7	-8
Local? .....	1	2	-7	-8
Food? .....	1	2	-7	-8
Lifestyle? .....	1	2	-7	-8
Classified? .....	1	2	-7	-8

MH-31. Finally, I would like to discuss magazine readership. Do you regularly read magazines?

YES .....	1	(MH-32)
NO .....	2	(RECALL MODULE)
REFUSED .....	-7	(RECALL MODULE)
DON'T KNOW .....	-8	(RECALL MODULE)

ACOMS: YOUTH QUESTIONNAIRE (October 13, 1986)  
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MODULE: MEDIA HABITS  
pg. 6-4

MH-12. What magazines do you read on a regular basis, that is, those that you have read at least 3 of the past 4 issues?

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_

REFUSED ..... -7  
DON'T KNOW ..... -8

MH-13. About how many hours a week do you spend reading magazines?

\_\_\_\_\_

# HOURS

[GO TO KNOWLEDGE-RECALL MODULE]

ACOMS: YOUTH QUESTIONNAIRE (October 10, 1986) MODULE: KNOWLEDGE-RECALL  
 LMB : 0702-0077 expiration 31 August, 1989 pg. 7-1

KR-1. Now, thinking about TV, radio, newspapers, magazines, and any other sources of advertising, for what military service or services do you recall seeing or hearing any advertising?  
 (PROBE: Any other services?)  
 [RECORD ALL THAT APPLY.]

NONE .....	0 (KR-5)
AIR FORCE.....	1 (CATI CHECK #KR5)
ARMY .....	2 (CATI CHECK #KR6)
RESERVE OFFICER'S TRAINING	
CORPS, or R.O.T.C. ....	3 (CATI CHECK #KR1)
NATIONAL GUARD .....	4 (CATI CHECK #KR2)
RESERVE .....	5 (CATI CHECK #KR3)
COAST GUARD .....	6 (CATI CHECK #KR10)
MARINE CORPS .....	7 (CATI CHECK #KR11)
NAVY .....	8 (CATI CHECK #KR12)
ONE AD FOR ALL SERVICES .....	9 (CATI CHECK #KR4)
REFUSED .....	-7 (KR-5)
DON'T KNOW .....	-8 (KR-5)

CATI CHECK #KR1: WAS R.O.T.C. MENTIONED?

[KR-1 = 3]

YES ..... 1 (KR-2)

NO ..... 2 (CATI CHECK #KR2)

KR-2. You mentioned seeing or hearing advertising for the Reserve Officer's Training Corps. For which military service or services was this advertising? [RECORD ALL THAT APPLY]

AIR FORCE .....	1
ARMY .....	2
NAVY .....	3
MARINE CORPS .....	4
COAST GUARD .....	5
REFUSED .....	-7
DON'T KNOW .....	-8

CATI CHECK #KR2: WAS NATIONAL GUARD MENTIONED?

[KR-1 = 4]

YES ..... 1 (KR-3)

NO ..... 2 (CATI CHECK #KR3)

KR-3. You mentioned seeing or hearing advertising for the National Guard. For which military service or services was this advertising? [RECORD ALL THAT APPLY]

AIR FORCE .....	1
ARMY .....	2
NAVY .....	3
MARINE CORPS .....	4
COAST GUARD .....	5
REFUSED .....	-7
DON'T KNOW .....	-8

CATI.CHECK #KR3: WAS RESERVE MENTIONED?  
 [KR-1 = 5]

YES .....	1	(KR-4)
NO .....	2	(CATI CHECK #KR4)

KR-4. You mentioned seeing or hearing advertising for the Reserve. For which military service or services was this advertising? [RECORD ALL THAT APPLY]

AIR FORCE .....	1
ARMY .....	2
NAVY .....	3
MARINE CORPS .....	4
COAST GUARD .....	5
REFUSED .....	-7
DON'T KNOW .....	-8

CATI CHECK #KR4: DID RESPONDENT RECALL ALL INDIVIDUAL ADS AND ONE AD FOR ALL SERVICES?  
 [KR-1 = 1 THROUGH 9]

YES .....	1	(KR-14)
NO .....	2	(CATI CHECK #KR5)

#KR5: DID RESPONDENT RECALL SEEING OR HEARING AN AD FOR THE AIR FORCE?  
 [KR-1 = 1]

YES .....	1	(CATI CHECK #KR6)
NO .....	2	(KR-5)

KR-5. Do you recall seeing or hearing any advertising for the Air Force?

YES .....	1
NO .....	2
REFUSED .....	-7
DON'T KNOW .....	-8

CATI CHECK #KR6: DID RESPONDENT RECALL SEEING OR HEARING  
 AN AD FOR THE ARMY?  
 [KR-1 = 2]

YES ..... 1 (CATI CHECK #KR7)  
 NO ..... 2 (KR-6)

KR-6. [Do you recall seeing or hearing any advertising for] The Army?

YES ..... 1  
 NO ..... 2  
 REFUSED ..... -7  
 DON'T KNOW ..... -8

CATI CHECK #KR7: DID RESPONDENT RECALL SEEING OR HEARING  
 AN AD FOR THE ARMY R.O.T.C.?  
 [KR-2 = 2]

YES ..... 1 (CATI CHECK #KR8)  
 NO ..... 2 (KR-7)

KR-7. [Do you recall seeing or hearing any advertising for] The Army  
 Reserve Officer's Training Corps, that is, the Army R.O.T.C.?

YES ..... 1  
 NO ..... 2  
 REFUSED ..... -7  
 DON'T KNOW ..... -8

CATI CHECK #KR8: DID RESPONDENT RECALL SEEING OR HEARING  
 AN AD FOR THE ARMY NATIONAL GUARD?  
 [KR-3 = 2]

YES ..... 1 (CATI CHECK #KR9)  
 NO ..... 2 (KR-8)

KR-8. [Do you recall seeing or hearing any advertising for] The Army  
 National Guard?

YES ..... 1  
 NO ..... 2  
 REFUSED ..... -7  
 DON'T KNOW ..... -8

---

CATI CHECK #KR9: DID RESPONDENT RECALL SEEING OR HEARING  
AN AD FOR THE ARMY RESERVE?  
[KR-4 = 2]

YES ..... 1 (CATI CHECK #KR10)  
NO ..... 2 (KR-9)

---

KR-9. [Do you recall seeing or hearing any advertising for] The Army  
Reserve?

YES ..... 1  
NO ..... 2  
REFUSED ..... -7  
DON'T KNOW ..... -8

---

CATI CHECK #KR10: DID RESPONDENT RECALL SEEING OR HEARING  
AN AD FOR THE COAST GUARD?  
[KR-1 = 6]

YES ..... 1 (CATI CHECK #KR11)  
NO ..... 2 (KR-10)

---

KR-10. [Do you recall seeing or hearing any advertising for] The Coast  
Guard?

YES ..... 1  
NO ..... 2  
REFUSED ..... -7  
DON'T KNOW ..... -8

---

CATI CHECK #KR11: DID RESPONDENT RECALL SEEING OR HEARING  
AN AD FOR THE MARINE CORPS?  
[KR-1 = 7]

YES ..... 1 (CATI CHECK #KR12)  
NO ..... 2 (KR-11)

---

KR-11. [Do you recall seeing or hearing any advertising for] The Marine  
Corps?

YES ..... 1  
NO ..... 2  
REFUSED ..... -7  
DON'T KNOW ..... -8

SCMS: YOUTH QUESTIONNAIRE (October 10, 1986) MODULE: KNOWLEDGE-RECALL  
OMB # 0700-0077 expiration 31 August, 1989 pg. 7-5

---

CATI CHECK #KR12: DID RESPONDENT RECALL SEEING OR HEARING  
AN AD FOR THE NAVY?  
[KR-1 = 8]

YES ..... 1 (CATI CHECK #KR13)  
NO ..... 2 (KR-12)

---

KR-12. (Do you recall seeing or hearing any advertising for) The Navy?

YES ..... 1  
NO ..... 2  
REFUSED ..... -7  
DON'T KNOW ..... -8

---

CATI CHECK #KR13: DID RESPONDENT RECALL SEEING OR HEARING  
ONE AD FOR ALL THE SERVICES?  
[KR-1 = 9]

YES ..... 1 (CATI CHECK #KR14)  
NO ..... 2 (KR-13)

---

KR-13. (Do you recall seeing or hearing any advertising for) All the  
services in one ad?

YES ..... 1  
NO ..... 2  
REFUSED ..... -7  
DON'T KNOW ..... -8

---

CATI CHECK #KR14: DID RESPONDENT RECALL SEEING OR HEARING  
ARMY OR ARMY COMPONENT AD?  
[KR-1 = 2], OR  
[KR-2, OR KR-3 OR KR-4 = 2] OR  
[KR-6, OR KR-7, OR KR-8, OR KR-9 = 1]

YES ..... 1 (KR-14)  
NO ..... 2 (CATI CHECK #KR15)

---

KR-14. Did you see or hear Army ads...

	YES	NO	REF	PK
On TV? .....	1	2	-7	-3
On the radio? .....	1	2	-7	-3
In magazines? .....	1	2	-7	-3
In newspapers? .....	1	2	-7	-3
On billboards? .....	1	2	-7	-3
Through the mail? .....	1	2	-7	-3
On posters? .....	1	2	-7	-3
In brochures or pamphlets? .....	1	2	-7	-3
In the Yellow Pages? .....	1	2	-7	-3
Somewhere else? .....	1	2	-7	-3

CATI CHECK #KR15: DID RESPONDENT RECALL SEEING OR HEARING  
 AN ARMY AD (UNAIDED OR AIDED)?  
 [KR-1 = 2 OR KR-6 = 1]

YES ..... 1 (KR-15)  
 NO ..... 2 (CATI CHECK #KR15)

KR-15. Other than trying to get you to enlist, what was the main message  
 you got from Army advertising?

(VERBATIM RESPONSES RECORDED)

CATI CHECK #KR16: DID RESPONDENT RECALL ANY ADS OTHER  
 THAN THE ARMY AD?  
 [KR-1 = 1, 3, 4, 5, 6, 7, 8 OR 9] OR  
 [KR-5, OR KR-7, OR KR-8, OR KR-9, OR KR-10,  
 OR KR-11, OR KR-12, OR KR-13 = 1]

YES ..... 1 (CATI CHECK #KR17)  
 NO ..... 2 (ATTITUDES MODULE)

#KR17: RANDOMLY SELECT SERVICE OR SERVICE  
 COMPONENT OR JOINT SERVICES AD FROM THOSE  
 RECALLED (OTHER THAN ARMY)

KR-17. Other than trying to get you to enlist, what was the main message  
 you got from (SERVICE/SERVICE COMPONENT) advertising?

(VERBATIM RESPONSES RECORDED)

SCMS: YOUTH QUESTIONNAIRE (October 10, 1986) MODULE: KNOWLEDGE-RECALL  
IMS : 0702-0077 expiration 31 August, 1989 pg. 7-7

[GO TO ATTITUDES MODULE]



---

CATI CHECK #AT1: DID RESPONDENT RECALL SEEING OR HEARING  
 ARMY ADS?  
 {KR-1 = 2 OR KR-6 = 1}  
 YES ..... 1 (AT-1)  
 NO ..... 2 (SLOGAN MODULE)

---

AT-1. Use a scale of "1" to "5" where "1" means you do not like the  
 advertising and "5" means you like the advertising very much.

Overall, how much do you like the Army ads you have seen or heard  
 over the past year?

DO NOT LIKE .....	1
SOMEWHAT DISLIKE .....	2
NEUTRAL .....	3
LIKE SOMEWHAT .....	4
LIKE VERY MUCH .....	5
REFUSED .....	-7
DON'T KNOW .....	-8

AT-2. Use a scale of "1" to "5" where "1" means you do not believe the  
 advertising and "5" means you believe the advertising very much.

How much do you believe what the ads say?

DO NOT BELIEVE .....	1
SOMEWHAT DISBELIEVE .....	2
NEUTRAL .....	3
BELIEVE SOMEWHAT .....	4
STRONGLY BELIEVE .....	5
REFUSED .....	-7
DON'T KNOW .....	-8

[GO TO SLOGAN RECOGNITION MODULE]



CATI CHECK #KS1: RANDOMIZE SERVICES (ARMY, AIR FORCE,  
MARINE CORPS, NAVY) FOR LISTING IN KS-1.

KS-1. I am going to mention some slogans used by the military in its advertising. After I read each slogan, please tell me whether it is used by the (RANDOMIZED LIST OF SERVICES), or by all four active duty services together in the same ad or commercial.

KS-2. Which military service uses the advertising slogan, "Blank. It's not just a job. It's an adventure."?

AIR FORCE .....	1
ARMY .....	2
MARINE CORPS .....	3
NAVY .....	4
ALL FOUR SERVICES IN SAME AD .....	5
REFUSED .....	-7
DON'T KNOW .....	-8

KS-3. [Which military service uses the advertising slogan,] "The Few. The Proud. The Blank."?

AIR FORCE .....	1
ARMY .....	2
MARINE CORPS .....	3
NAVY .....	4
ALL FOUR SERVICES IN SAME AD .....	5
REFUSED .....	-7
DON'T KNOW .....	-8

KS-4. [Which military service uses the advertising slogan,] "Be all you can be."?

AIR FORCE .....	1
ARMY .....	2
MARINE CORPS .....	3
NAVY .....	4
ALL FOUR SERVICES IN SAME AD .....	5
REFUSED .....	-7
DON'T KNOW .....	-8

KS-5. [Which military service uses the advertising slogan,] "Blank, a great way of life."?

AIR FORCE .....	1
ARMY .....	2
MARINE CORPS .....	3
NAVY .....	4
ALL FOUR SERVICES IN SAME AD .....	5
REFUSED .....	-7
DON'T KNOW .....	-8

JOHNS. YOUTH QUESTIONNAIRE (October 13, 1986) MODULE: SLOGAN RECOGNITION  
 IMB # 0711-0077 expiration 31 August, 1989 pg. 9-2

KS-5. [Which military service uses the advertising slogan,] "We're looking for a few good men."?

AIR FORCE .....	1
ARMY .....	2
MARINE CORPS .....	3
NAVY .....	4
ALL FOUR SERVICES IN SAME AD .....	5
REFUSED .....	-7
DON'T KNOW .....	-8

KS-7. [Which military service uses the advertising slogan,] "It's a great place to start."?

AIR FORCE .....	1
ARMY .....	2
MARINE CORPS .....	3
NAVY .....	4
ALL FOUR SERVICES IN SAME AD .....	5
REFUSED .....	-7
DON'T KNOW .....	-8

KS-8. [Which military service uses the advertising slogan,] "Aim high. Blank."?

AIR FORCE .....	1
ARMY .....	2
MARINE CORPS .....	3
NAVY .....	4
ALL FOUR SERVICES IN SAME AD .....	5
REFUSED .....	-7
DON'T KNOW .....	-8

KS-9. [Which military service uses the advertising slogan,] "We're not a company, we're your country."?

AIR FORCE .....	1
ARMY .....	2
MARINE CORPS .....	3
NAVY .....	4
ALL FOUR SERVICES IN SAME AD .....	5
REFUSED .....	-7
DON'T KNOW .....	-8

[GO TO PERCEPTIONS MODULE]

PE-1. I am going to read you a list of statements describing different things the Army might offer. Please tell me how much you disagree or agree that the Army offers each item on the list. A "1" means you disagree completely, a "2" means you disagree somewhat, a "3" means you neither agree nor disagree, a "4" means you agree somewhat and a "5" means you agree completely.

	DS					AG				
	1	2	3	4	5	1	2	3	4	5
The Army offers...										
A. a wide variety of opportunities to find a job you can enjoy?	1	2	3	4	5	-7	-8			
B. a physically challenging environment?	1	2	3	4	5	-7	-8			
C. an experience you can be proud of?	1	2	3	4	5	-7	-8			
D. an advantage over going right from high school to college?	1	2	3	4	5	-7	-8			
E. an opportunity to develop leadership skills?	1	2	3	4	5	-7	-8			
F. the chance to work with the latest high tech equipment?	1	2	3	4	5	-7	-8			
G. a great value in your civilian career development?	1	2	3	4	5	-7	-8			
H. an excellent opportunity to develop self-confidence?	1	2	3	4	5	-7	-8			
I. the opportunity to develop your potential?	1	2	3	4	5	-7	-8			
J. a mentally challenging experience?	1	2	3	4	5	-7	-8			
K. an opportunity for you to become more mature and responsible?	1	2	3	4	5	-7	-8			
L. many opportunities for training in useful skill areas?	1	2	3	4	5	-7	-8			
M. many chances to work with highly trained people?	1	2	3	4	5	-7	-8			
N. an excellent opportunity to obtain money for a college or vocational education?	1	2	3	4	5	-7	-8			

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PERCEPTIONS/BELIEFS  
pg. 11-2

CATI CHECK #PE2: RANDOMLY SELECT A CAREER OPTION FROM  
ARMY RESERVE, ARMY NATIONAL GUARD,  
AIR FORCE, NAVY, MARINE CORPS, GOING  
TO COLLEGE, WORKING IN A FULL-TIME  
CIVILIAN JOB, ALL SERVICES.

#PE3: WHICH CAREER OPTION WAS SELECTED?

ARMY RESERVE .....	1 (PE-1A)
ARMY NATIONAL GUARD .....	2 (PE-4A)
AIR FORCE .....	3 (PE-6)
NAVY .....	4 (PE-6)
MARINE CORPS .....	5 (PE-6)
ALL SERVICES .....	6 (PE-6)
WORKING IN A FULL-TIME CIVILIAN JOB .....	7 (PE-7)
GOING TO COLLEGE .....	8 (PE-8)

PE-1A. Have you ever heard of the United States Army Reserve?

YES .....	1 (PE-4)
NO .....	2 (PE-4A)
REFUSED .....	-7 (PE-4A)
DON'T KNOW ...	-8 (PE-4)

ADAMS: YOUTH QUESTIONNAIRE (October 13, 1986)  
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PERCEPTIONS/BELIEFS  
 pg. 11-3

PE-4. Now, I am going to read you a list of things the United States Army Reserve might offer. Please tell me how much you disagree or agree that the United States Army Reserve offers each item on the list. Again, a "1" means you disagree completely, a "2" means you disagree somewhat, a "3" means you neither agree nor disagree, a "4" means you agree somewhat and a "5" means you agree completely.

The United States Army Reserve offers:

	DS					AG					REF	OK
A. a wide variety of opportunities to find a job you can enjoy?	1	2	3	4	5	-7	-8					
B. an experience you can be proud of?	1	2	3	4	5	-7	-8					
C. an opportunity to develop leadership skills?	1	2	3	4	5	-7	-8					
D. a great value in your civilian career development?	1	2	3	4	5	-7	-8					
E. an excellent opportunity to develop self-confidence?	1	2	3	4	5	-7	-8					
F. the opportunity to develop your potential?	1	2	3	4	5	-7	-8					
G. a mentally challenging experience?	1	2	3	4	5	-7	-8					
H. the opportunity to become more mature and responsible?	1	2	3	4	5	-7	-8					
I. many opportunities for training in useful skill areas?	1	2	3	4	5	-7	-8					
J. many chances to work highly trained people?	1	2	3	4	5	-7	-8					
K. an excellent opportunity to obtain money for a college or vocational education?	1	2	3	4	5	-7	-8					
L. an opportunity to serve America while staying in your own home?	1	2	3	4	5	-7	-8					
M. a chance to serve your own community?	1	2	3	4	5	-7	-8					
N. interesting and exciting weekends?	1	2	3	4	5	-7	-8					

[SKIP TO PE-12]

ACOMS: YOUTH QUESTIONNAIRE (October 13, 1986) PERCEPTIONS/BELIEFS  
OMB # 0702-0077 expiration 31 August, 1989 pg. 11-4

PE-4A. Have you ever heard of the United States Army National Guard?

YES .....	1 (PE-5)
NO .....	2 (PE-12)
REFUSED .....	-7 (PE-6)
DON'T KNOW ...	-8 (PE-12)

PE-5. Now, I am going to read you a list of statements describing different things the United States Army National Guard might offer. Please tell me how much you disagree or agree that the United States Army National Guard offers each item on the list. Again, a "1" means you disagree completely, a "2" means you disagree somewhat, a "3" means you neither agree nor disagree, a "4" means you agree somewhat and a "5" means you agree completely.

The Army National Guard offers:

	DS			AG			REF	OK
A. a wide variety of opportunities to find a job you can enjoy?	1	2	3	4	5	-7	-3	
B. an experience you can be proud of?	1	2	3	4	5	-7	-3	
C. an opportunity to develop leadership skills?	1	2	3	4	5	-7	-3	
D. a great value in your civilian career development?	1	2	3	4	5	-7	-3	
E. an excellent opportunity to develop self-confidence?	1	2	3	4	5	-7	-3	
F. the opportunity to develop your potential?	1	2	3	4	5	-7	-3	
G. a mentally challenging experience?	1	2	3	4	5	-7	-3	
H. an opportunity to become more mature and responsible?	1	2	3	4	5	-7	-3	
I. many opportunities for training in useful skill areas?	1	2	3	4	5	-7	-3	
J. many chances to work with highly trained people?	1	2	3	4	5	-7	-3	
K. an excellent opportunity to obtain money for a college or vocational education?	1	2	3	4	5	-7	-3	
L. an opportunity to serve America while staying in your own home?	1	2	3	4	5	-7	-3	
M. a chance to serve your own community?	1	2	3	4	5	-7	-3	
N. gives you interesting and exciting weekends?	1	2	3	4	5	-7	-3	

[SKIP TO PE-12]

ACOMS: YOUTH QUESTIONNAIRE (October 13, 1986)  
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PE-6. I am going to read you a list of statements describing different things the (SERVICE) might offer. Please tell me how much you disagree or agree that the (SERVICE) offers item on the list. Again, a "1" means you disagree completely, a "2" means you disagree somewhat, a "3" means you neither agree nor disagree, a "4" means you agree somewhat and a "5" means you agree completely.

The (SERVICE) offers:

	DS			AG			REF	DK
A. a wide variety of opportunities to find a job you can enjoy?	1	2	3	4	5	-7	-3	
B. a physically challenging environment?	1	2	3	4	5	-7	-3	
C. an experience you can be proud of?	1	2	3	4	5	-7	-3	
D. an advantage over going right from high school to college?	1	2	3	4	5	-7	-3	
E. an opportunity to develop leadership skills?	1	2	3	4	5	-7	-3	
F. the chance to work with the latest high tech equipment?	1	2	3	4	5	-7	-3	
G. a great value in your civilian career development?	1	2	3	4	5	-7	-3	
H. an excellent opportunity to develop self-confidence?	1	2	3	4	5	-7	-3	
I. the opportunity to develop your potential?	1	2	3	4	5	-7	-3	
J. a mentally challenging experience?	1	2	3	4	5	-7	-3	
K. an opportunity to become more mature and responsible?	1	2	3	4	5	-7	-3	
L. many opportunities for training in useful skill areas?	1	2	3	4	5	-7	-3	
M. many chances to work with highly trained people?	1	2	3	4	5	-7	-3	
N. an excellent opportunity to obtain money for a college or vocational education?	1	2	3	4	5	-7	-3	

[SKIP TO PE-12]

AD-A197 517

THE ARMY COMMUNICATIONS OBJECTIVES MEASUREMENT SYSTEM

4/4

(ACOMS): SURVEY DESIGN(U) WESTAT INC ROCKVILLE MD

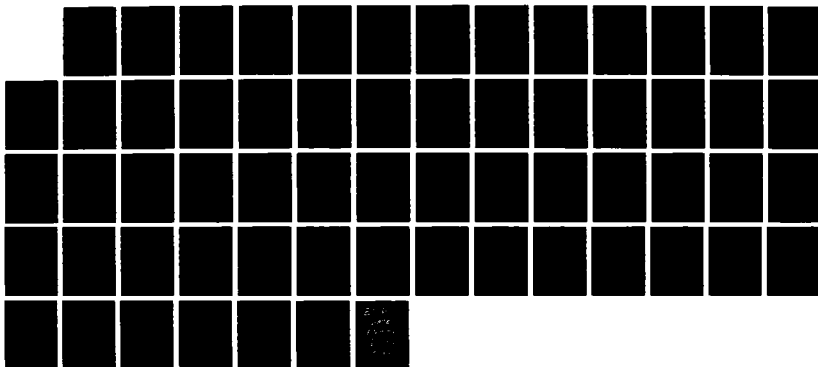
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### UTION TEST CHART

PE-7. I am going to read you a list of statements describing different things working in a full-time civilian job might offer. Please tell me how much you disagree or agree that working in a full-time civilian job offers each item on the list. Again, a "1" means you disagree completely, a "2" means you disagree somewhat, a "3" means you neither agree nor disagree, a "4" means you agree somewhat and a "5" means you agree completely.

Working in a full-time civilian job offers:

	DS				AG	REF	EX
A. a physically challenging environment?	1	2	3	4	5	-7	-3
B. an experience you can be proud of?	1	2	3	4	5	-7	-3
C. an advantage over going right from high school to college?	1	2	3	4	5	-7	-3
D. an opportunity to develop leadership skills?	1	2	3	4	5	-7	-3
E. the chance to work with the latest high tech equipment?	1	2	3	4	5	-7	-3
F. a great value in your civilian career development?	1	2	3	4	5	-7	-3
G. an excellent opportunity to develop self-confidence?	1	2	3	4	5	-7	-3
H. the opportunity to develop your potential?	1	2	3	4	5	-7	-3
I. a mentally challenging experience?	1	2	3	4	5	-7	-3
J. the opportunity to become more more mature and responsible?	1	2	3	4	5	-7	-3
K. many opportunities for training in useful skill areas?	1	2	3	4	5	-7	-3
L. many chances to work with highly trained people?	1	2	3	4	5	-7	-3
M. an excellent opportunity to obtain money for a college or vocational education?	1	2	3	4	5	-7	-3

[SKIP TO PE-12]

PE-3. I am going to read you a list of statements describing different things going to college might offer. Please tell me how much you disagree or agree that going to college offers each item on the list. Again, a "1" means you disagree completely, a "2" means you disagree somewhat, a "3" means you neither agree nor disagree, a "4" means you agree somewhat and a "5" means you agree completely.

Going to college offers...

	<u>DS</u>			<u>AG</u>		<u>REF</u>	<u>OK</u>
A. an experience you can be proud of?	1	2	3	4	5	-7	-8
B. an opportunity to develop leadership skills?	1	2	3	4	5	-7	-8
C. a great value in your civilian career development?	1	2	3	4	5	-7	-8
D. an excellent opportunity to develop self-confidence?	1	2	3	4	5	-7	-8
E. the opportunity to develop your potential?	1	2	3	4	5	-7	-8
F. a mentally challenging experience?	1	2	3	4	5	-7	-8
G. the opportunity to become more mature and responsible?	1	2	3	4	5	-7	-8
H. many chances to work with highly trained people?	1	2	3	4	5	-7	-8

PE-12. Of the people who joined the Army in the last year, what proportion do you think are high school diploma graduates? Would you say...

less than one quarter, .....	1
about one quarter, .....	2
about one half, .....	3
about three quarters, or .....	4
almost all? .....	5
REFUSED .....	-7
DON'T KNOW .....	-8

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PERCEPTIONS/BELIEFS  
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PE-13. Of the people who joined the Army last year, what proportion do you think would score in the upper half of an intelligence test? Is it...

all of them, .....	1
three quarters of them, .....	2
half of them, .....	3
one quarter of them, or .....	4
none of them? .....	5
REFUSED .....	-7
DON'T KNOW .....	-8

PE-14. Of the people who joined the Army in the last year, what proportion do you think will get a college diploma either while they are in the Army or after they complete their Army service? Would you say...

less than one quarter, .....	1
about one quarter, .....	2
about one half, .....	3
about three quarters, or .....	4
almost all? .....	5
REFUSED .....	-7
DON'T KNOW .....	-8

PE-15. Do you think very many young (men/women) with backgrounds and plans for the future like (YOUTH) are joining the Army?

YES .....	1
NO .....	2
REFUSED .....	-7
DON'T KNOW .....	-8

CATI CHECK #PE1: IS YOUTH ROTC POTENTIAL?

YES .....	1 (PE-15A)
NO .....	2 (KNOWLEDGE AWARENESS MODULE)

PE-15A. Have you ever heard of the Army Reserve Officer's Training Corps on a college campus?

YES .....	1 (PE-2)
NO .....	2 (KNOWLEDGE-AWARENESS MODULE)
REFUSED .....	-7 (KNOWLEDGE-AWARENESS MODULE)
DON'T KNOW ..	-8 (PE-2)

PE-2. Next, I will read you a few statements describing different things that the Army Reserve Officer's Training Corps on the college campus might offer. Please tell me how much you disagree or agree that being an officer offers each item on the list. A "1" means you disagree completely, a "2" means you disagree somewhat, a "3" means you neither agree nor disagree, a "4" means you agree somewhat and a "5" means you agree completely.

The Army Reserve Officer's Training Corps on the college campus provides...

	DS					AG	REF	OK
A. leadership and management training?	1	2	3	4	5	-7	-3	
B. the opportunity to develop self-confidence?	1	2	3	4	5	-7	-3	
C. a college elective that can be taken together with other college courses?	1	2	3	4	5	-7	-3	
D. an officer's commission in the active Army, Army Reserve, or the Army National Guard?	1	2	3	4	5	-7	-3	

PE-3. Being an officer in the United States Army means different things to different people. Please tell me how much you disagree or agree that being an officer offers each item on the list. A "1" means you disagree completely, a "2" means you disagree somewhat, a "3" means you neither agree nor disagree, a "4" means you agree somewhat and a "5" means you agree completely.

Being an officer in the United States Army provides...

	DS					AG	REF	OK
A. a wide variety of job opportunities?	1	2	3	4	5	-7	-3	
B. experiences you can be proud of?	1	2	3	4	5	-7	-3	
C. the opportunity to use your college acquired skills?	1	2	3	4	5	-7	-3	
D. the opportunity to make changes and use your own judgment?	1	2	3	4	5	-7	-3	

[GO TO KNOWLEDGE-AWARENESS MODULE]

KA-7. Can you become eligible to earn money for college by enlisting in the Army?

YES ..... 1 (KA-1)  
 NO ..... 2 (CATI CHECK #KA4,  
 REFUSED ..... -7 (KA-1)  
 DON'T KNOW ..... -8 (KA-1)

KA-1. How much do you think can be earned through Army education benefits? [PROBE: This would be the total education benefits that could be earned while in the Army.]

UNDER \$5,000 ..... 1  
 \$5,000 TO \$9,999 ..... 2  
 \$10,000 TO \$14,999 ..... 3  
 \$15,000 TO \$19,999 ..... 4  
 \$20,000 TO \$24,999 ..... 5  
 \$25,000 OR MORE ..... 6  
 REFUSED ..... -7  
 DON'T KNOW ..... -8

KA-2. Do you think Army education benefits would cover your entire college education?

YES ..... 1  
 NO ..... 2  
 REFUSED ..... -7  
 DON'T KNOW ..... -8

KA-3. Do you think Army education benefits are more, less or about the same as the Navy, Air Force, or Marines offer?

MORE ..... 1  
 LESS ..... 2  
 ABOUT THE SAME ..... 3  
 REFUSED ..... -7  
 DON'T KNOW ..... -8

CATI CHECK #KA4: ROTATE ORDER OF SERVICES FOR KA-4

KA-4. Please tell me whether or not each of the following services offers the "GI Bill"?

	DOES OFFER	DOES NOT OFFER	REF	DK
Army .....	1	2	-7	-8
Air Force .....	1	2	-7	-8
Navy .....	1	2	-7	-8
Marines .....	1	2	-7	-8

KA-5. What is the minimum number of years that a new recruit has to serve on active duty in the Army?

REFUSED ..... -7  
DON'T KNOW ..... -8

KA-6. Is it possible to sign up for the Army and actually start serving up to one year later?

YES ..... 1  
NO ..... 2  
REFUSED ..... -7  
DON'T KNOW ..... -8

KA-8. Are 17 year old high school juniors eligible to join the Army Reserve or Army National Guard?

YES ..... 1 (KA-10)  
NO ..... 2 (KA-9)  
REFUSED ..... -7 (KA-9)  
DON'T KNOW ..... -8 (KA-9)

KA-9. Is high school graduation required before joining the Army Reserve or Army National Guard?

YES ..... 1  
NO ..... 2  
REFUSED ..... -7  
DON'T KNOW ..... -8

KA-10. Who sponsors the "Scholar-Athlete Award Program"? Is it the...

Marine Corps, ..... 1  
National Guard, ..... 2  
Army Reserve, ..... 3  
Air Force, or ..... 4  
Navy? ..... 5  
REFUSED ..... -7  
DON'T KNOW ..... -8

KA-11. Can qualified people who join the Army Reserve or Army National Guard receive money for college?

YES ..... 1 (KA-12)  
NO ..... 2 (KA-13)  
REFUSED ..... -7 (KA-12)  
DON'T KNOW ..... -8 (KA-12)

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KNOWLEDGE-AWARENESS  
pg. 12-3

KA-12. What is the maximum amount of money for college that qualified people who join the Army Reserve or Army National Guard can receive under the "GI Bill"?

UNDER \$1,000 .....	1
\$1,000 TO \$1,999 .....	2
\$2,000 TO \$3,999 .....	3
\$4,000 TO \$5,999 .....	4
\$6,000 TO \$7,999 .....	5
\$8,000 TO \$9,999 .....	6
\$10,000 OR MORE .....	7
REFUSED .....	-7
DON'T KNOW .....	-8

[GO TO DEMOGRAPHICS MODULE]



INTRODUCTION: Now I have some questions about your background.

CATI CHECK #DE1: IS RESPONDENT HISPANIC?  
 [SC-20 OR SC-34 = 1]

YES ..... 1 (DE-5)  
 NO ..... 2 (DE-5)

DE-5. What is your ethnic background? Are you:

Mexican American ..... 1  
 Puerto Rican, or ..... 2  
 Some other Hispanic? ..... 3  
 REFUSED ..... -7  
 DON'T KNOW ..... -8

DE-6. What is your current marital status? Are you:

Single, ..... 1  
 Married, ..... 2  
 Separated, ..... 3  
 Divorced, or ..... 4  
 Widowed? ..... 5  
 REFUSED ..... -7  
 DON'T KNOW ..... -8

INTRODUCTION: Now I would like to ask some questions about your father and mother, or other adults in your household.

DE-14. (When not attending college) Do you live in the same household as one or both of your parents? (Please include any natural parents, step-parents or guardians.)

YES ..... 1 (DE-15)  
 NO ..... 2 (DE-16)  
 REFUSED ..... -7 (DE-16)  
 DON'T KNOW ..... -8 (DE-15)

DE-15. Which of your parents do you live with?

BOTH ..... 1  
 MOTHER, STEP-MOTHER OR FEMALE GUARDIAN.. 2  
 FATHER, STEP-FATHER OR MALE GUARDIAN.... 3  
 REFUSED ..... -7  
 DON'T KNOW ..... -8

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 CMB : 0702-0077      expiration 31 August, 1989      pg. 13-2

DE-16. Who is the principal wage earner in the household?

BOTH .....	1
MOTHER, STEP-MOTHER OR FEMALE GUARDIAN..	2
FATHER, STEP-FATHER OR MALE GUARDIAN....	3
OTHER .....	4
NO WAGE EARNER .....	5
REFUSED .....	-7
DON'T KNOW .....	-8

DE-19. What was the highest grade or level of education that your father completed?

LESS THAN 8TH GRADE .....	07
8TH GRADE .....	08
9TH GRADE .....	09
10TH GRADE .....	10
11TH GRADE .....	11
12TH GRADE .....	12
1ST YEAR OF 4-YEAR COLLEGE .....	13
2ND YEAR OF 4-YEAR COLLEGE .....	14
3RD YEAR OF 4-YEAR COLLEGE .....	15
4TH YEAR OF 4-YEAR COLLEGE .....	16
5TH YEAR COLLEGE/1ST YEAR	
GRADUATE OR PROFESSIONAL SCHOOL ....	17
2ND YEAR GRADUATE OR	
PROFESSIONAL SCHOOL .....	18
3RD YEAR GRADUATE OR	
PROFESSIONAL SCHOOL .....	19
MORE THAN 3 YEARS GRADUATE/	
PROFESSIONAL SCHOOL .....	20
1ST YEAR OF JR. OR COMMUNITY	
COLLEGE .....	21
2ND YEAR OF JR. OR COMMUNITY	
COLLEGE .....	22
1ST YEAR OF VOCATIONAL,	
BUSINESS OR TRADE SCHOOL .....	23
2ND YEAR OF VOCATIONAL,	
BUSINESS OR TRADE SCHOOL .....	24
MORE THAN 2 YEARS VOCATIONAL,	
BUSINESS OR TRADE SCHOOL .....	25
REFUSED .....	-7
DON'T KNOW .....	-8

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MODULE: DEMOGRAPHICS  
pg. 13-1

DE-20. Is your father now...

working full-time, .....	1	(DE-26)
working part-time, .....	2	(DE-26)
unemployed, .....	3	(DE-26)
retired, .....	4	(DE-26)
taking care of a family at home, or .....	5	(DE-26)
in the military? .....	6	(DE-21)
DECEASED .....	7	(DE-26)
OTHER .....	8	(DE-26)
REFUSED .....	-7	(DE-26)
DON'T KNOW .....	-8	(DE-26)

DE-21. In which branch of the military is your father currently  
serving?

AIR FORCE .....	1
ARMY .....	2
COAST GUARD .....	3
MARINES .....	4
NAVY .....	5
REFUSED .....	-7
DON'T KNOW .....	-8

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MODULE: DEMOGRAPHICS  
pg. 13-4

DE-26. What was the highest grade or level of education that your mother completed?

LESS THAN 8TH GRADE .....	07
8TH GRADE .....	08
9TH GRADE .....	09
10TH GRADE .....	10
11TH GRADE .....	11
12TH GRADE .....	12
1ST YEAR OF 4-YEAR COLLEGE .....	13
2ND YEAR OF 4-YEAR COLLEGE .....	14
3RD YEAR OF 4-YEAR COLLEGE .....	15
4TH YEAR OF 4-YEAR COLLEGE .....	16
5TH YEAR COLLEGE/1ST YEAR GRADUATE OR PROFESSIONAL SCHOOL ....	17
2ND YEAR GRADUATE OR PROFESSIONAL SCHOOL .....	18
3RD YEAR GRADUATE OR PROFESSIONAL SCHOOL .....	19
MORE THAN 3 YEARS GRADUATE/ PROFESSIONAL SCHOOL .....	20
1ST YEAR OF JR. OR COMMUNITY COLLEGE .....	21
2ND YEAR OF JR. OR COMMUNITY COLLEGE .....	22
1ST YEAR OF VOCATIONAL, BUSINESS OR TRADE SCHOOL .....	23
2ND YEAR OF VOCATIONAL, BUSINESS OR TRADE SCHOOL .....	24
MORE THAN 2 YEARS VOCATIONAL, BUSINESS OR TRADE SCHOOL .....	25
REFUSED .....	-7
DON'T KNOW .....	-8

DE-27. Is your mother now...

working full-time, .....	1
working part-time, .....	2
unemployed, .....	3
retired, or .....	4
taking care of a family at home, or .....	5
in the military? .....	6
DECEASED .....	7
OTHER .....	8
REFUSED .....	-7
DON'T KNOW .....	-8

CATI CHECK #DELA:	DOES RESPONDENT LIVE WITH PARENTS?
	[DE-14 = 1] OR [DE-14 = OK OR REFUSED]
	AND DE-19 = OK OR REF AND
	DE-26 = OK OR REF
YES .....	1 (DE-16)
NO .....	2 (DE-17)

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MODULE: DEMOGRAPHICS  
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DE-17. What relationship to you is the head of household in the house or apartment you are living in?

BROTHER .....	1 (DE-19A)
SISTER .....	2 (DE-19A)
UNCLE .....	3 (DE-19A)
AUNT .....	4 (DE-19A)
GRANDFATHER .....	5 (DE-19A)
GRANDMOTHER .....	6 (DE-19A)
COUSIN .....	7 (DE-19A)
SPOUSE .....	8 (DE-19A)
NON-RELATIVE .....	9 (DE-19A)
RESPONDENT .....	10 (DE-36)
OTHER .....	91 (DE-18)
REFUSED .....	-7 (DE-19A)
DON'T KNOW .....	-8 (DE-19A)

DE-19A. What was the highest grade or level of education that PERSON in DE-17) completed?

LESS THAN 8TH GRADE .....	07
8TH GRADE .....	08
9TH GRADE .....	09
10TH GRADE .....	10
11TH GRADE .....	11
12TH GRADE .....	12
1ST YEAR OF 4-YEAR COLLEGE .....	13
2ND YEAR OF 4-YEAR COLLEGE .....	14
3RD YEAR OF 4-YEAR COLLEGE .....	15
4TH YEAR OF 4-YEAR COLLEGE .....	16
5TH YEAR COLLEGE/1ST YEAR GRADUATE OR PROFESSIONAL SCHOOL ....	17
2ND YEAR GRADUATE OR PROFESSIONAL SCHOOL .....	18
3RD YEAR GRADUATE OR PROFESSIONAL SCHOOL .....	19
MORE THAN 3 YEARS GRADUATE/ PROFESSIONAL SCHOOL .....	20
1ST YEAR OF JR. OR COMMUNITY COLLEGE .....	21
2ND YEAR OF JR. OR COMMUNITY COLLEGE .....	22
1ST YEAR OF VOCATIONAL, BUSINESS OR TRADE SCHOOL .....	23
2ND YEAR OF VOCATIONAL, BUSINESS OR TRADE SCHOOL .....	24
MORE THAN 2 YEARS VOCATIONAL, BUSINESS OR TRADE SCHOOL .....	25
REFUSED .....	-7
DON'T KNOW .....	-8

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MODULE: DEMOGRAPHICS  
pg. 13-6

DE-36. Did you ever participate in a Reserve Officer's Training Corps (ROTC) course?

YES .....	1	(DE-37)
NO .....	2	(DE-39)
REFUSED .....	-7	(DE-39)
DON'T KNOW .....	-8	(DE-39)

DE-37. Was that Junior ROTC in high school or Senior ROTC in college?

JUNIOR (IN HIGH SCHOOL) .....	1	(DE-39)
SENIOR (IN COLLEGE) .....	2	(DE-38)
REFUSED .....	-7	(DE-39)
DON'T KNOW .....	-8	(DE-39)

DE-38. Was that Army ROTC, Air Force ROTC or Navy ROTC?

ARMY .....	1
AIR FORCE .....	2
NAVY .....	3
REFUSED .....	-7
DON'T KNOW .....	-8

DE-39. What is the name of the county in which you live?

REFUSED .....	-7
DON'T KNOW .....	-8

DE-40. What is the name of the city in which you live?

REFUSED .....	-7
DON'T KNOW .....	-8

DE-41. What is your zip code?

REFUSED .....	-7
DON'T KNOW .....	-8

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OMB # 0702-0077      expiration 31 August, 1989      pg. 13-7

DE-42. Now I need to record your Social Security Number. We are asking for this number for use in another study to determine if the ideas we have been discussing are related to whether or not someone enlists in a military service.

Let me remind you that your answers are voluntary and will be completely confidential. Under no circumstances will your identity be made know to anyone in the military.

DOES NOT HAVE SSN ..... 0  
REFUSED ..... -7  
DON'T KNOW ..... -8

CATI CHECK #DE2: IS YOUTH SELECTED FOR POTENTIAL  
INCLUSION IN LONGITUDINAL COMPONENT?

YES ..... 1 (TRACKING MODULE)  
NO ..... 2 (CATI CHECK #DE3)

#DE3: IS PARENT OF YOUTH TO BE SELECTED  
FOR PARTICIPATION IN THE INFLUENCER  
SAMPLE?

YES ..... 1 (PARENTAL LOCATION MODULE)  
NO ..... 2 (TERMINATION)



ACOMS: YOUTH QUESTIONNAIRE (October 13, 1986) MODULE: PARENTAL LOCATION  
OMB # 0702-0077 expiration 31 August, 1989 pg. 14-1

PL-1. We would like to interview your (PARENT) regarding (his/her) thoughts about future plans and possibilities for you. Please give me (his/her) name and telephone number.

\_\_\_\_\_  
(NAME)

( ) ( ) - ( )  
AREA EXCHANGE LOCAL

PL-2. Think now about the possibility of joining the Armed Services in the future. How important is your (PARENT)'s advice in your decision about serving in the military. Is it...

- very important, ..... 1
- somewhat important, ..... 2
- neither important nor unimportant, ... 3
- somewhat unimportant, or..... 4
- very unimportant? ..... 5
- REFUSED ..... -7
- DON'T KNOW ..... -8

TERMINATION



ACOMS: YOUTH QUESTIONNAIRE (October 13, 1986) MODULE: TRACKING  
OMB : 0702-0077 expiration 31 August, 1989 pg. 15-1

INTRODUCTION: It is possible that we will call again sometime in the future to obtain some updated information from you. I'd like to ask you a few questions that will help us to recontact you at a later date.

TR-1. In what name is this phone number (AREA CODE & NUMBER) listed?

NOT LISTED ..... 0  
REFUSED ..... -7  
DON'T KNOW ..... -8

TR-2. If we were to recontact you one year from now, do you expect that we could reach you at this same telephone number?

YES ..... 1 (TR-9)  
NO ..... 2 (TR-9)  
REFUSED ..... -7 (TR-9)  
DON'T KNOW ..... -8 (TR-9)

TR-3. Why is that?

MOVING ..... 1 (TR-4)  
NUMBER BEING CHANGED ..... 2 (TR-6)  
OTHER(SPECIFY) ..... 91 (TR-9)  
REFUSED ..... -7 (TR-9)  
DON'T KNOW ..... -8 (TR-9)

TR-4. When do you expect to be moving?

\_\_\_\_\_  
(MM/YY)  
REFUSED ..... -7  
DON'T KNOW ..... -8

TR-5. To what address will you be moving?

STREET: \_\_\_\_\_  
CITY: \_\_\_\_\_  
STATE: \_\_\_\_\_  
ZIP: \_\_\_\_\_  
REFUSED ..... -7 (TR-7)  
DON'T KNOW ..... -8 (TR-7)

ACOMS: YOUTH QUESTIONNAIRE (October 13, 1986) MODULE: TRACKING  
OMB # 2702-0077 expiration 31 August, 1989 pg. 15-2

TR-6. When do you expect your telephone number to be changed?

\_\_\_\_\_  
(MM/YY)  
REFUSED ..... -7  
DON'T KNOW ..... -8

TR-7. Do you know what your new telephone number will be?

YES ..... 1 (TR-8)  
NO ..... 2 (TR-9)  
REFUSED ..... -7 (TR-9)

TR-8. What is that new number?

\_\_\_\_\_  
REFUSED ..... -7  
DON'T KNOW ..... -8

TR-9. Do you have a work telephone number where you could be contacted  
a year from now?

YES ..... 1 (TR-10)  
NO ..... 2 (TR-12)  
REFUSED ..... -7 (TR-12)  
DON'T KNOW ..... -8 (TR-12)

TR-10. What is that number?

\_\_\_\_\_  
REFUSED ..... -7  
DON'T KNOW ..... -8

TR-11. What is your employer's name and address?

COMPANY NAME: \_\_\_\_\_  
STREET: \_\_\_\_\_  
CITY: \_\_\_\_\_  
STATE: \_\_\_\_\_  
ZIP: \_\_\_\_\_  
REFUSED ..... -7  
DON'T KNOW ..... -8

ACOMS: YOUTH QUESTIONNAIRE (October 13, 1986) MODULE: TRACKING  
OMB # 0702-0077 expiration 31 August, 1989 pg. 15-3

TR-12. Please give me the name, address and telephone number of two friends or family members who are most likely to know how to reach you a year from now.

NAME: \_\_\_\_\_  
STREET: \_\_\_\_\_  
CITY: \_\_\_\_\_  
STATE: \_\_\_\_\_  
ZIP: \_\_\_\_\_  
PHONE: \_\_\_\_\_

TR-12A PROBE: And the second person's name, address, and telephone number?]

NAME: \_\_\_\_\_  
STREET: \_\_\_\_\_  
CITY: \_\_\_\_\_  
STATE: \_\_\_\_\_  
ZIP: \_\_\_\_\_  
PHONE: \_\_\_\_\_  
• REFUSED ..... -7  
DON'T KNOW ..... -8

CATI CHECK #TR1	IS RESPONDENT A TARGET YOUTH?
	YES ..... 1 (PARENTAL LOCATION)
	NO ..... 2 (TERMINATE)



ACOMS: PARENT QUESTIONNAIRE (October 13, 1986) PARENTAL INFLUENCERS  
OMB # 1702-0077 expiration 31 August, 1989 pg. 1-1

INTRODUCTION: I would like to ask you a few questions as the (father/mother) of (YOUTH'S NAME), about talks you may have had with (him/her) about (his/her) educational and job plans. By talks, we mean any kind of informal talking you and (YOUTH'S NAME) may have done concerning what (he/she) plans to do about education, jobs, or job preparation.

PI-2. How often have you had such discussions in the last 12 months? Was it...

never, .....	1	(PI-6)
rarely, .....	2	(PI-5)
occasionally, or .....	3	(PI-5)
often? .....	4	(PI-5)
REFUSED .....	-7	(PI-5)
DON'T KNOW .....	-8	(PI-5)

PI-5. During these talks, do you typically give your opinions or do you try to stay neutral?

GIVE OPINION .....	1
TRY TO STAY NEUTRAL .....	2
REFUSED .....	-7
DON'T KNOW .....	-8

PI-6. How much influence do you think you have had on (YOUTH'S NAME) plans for the future? Have you had:

a great deal of influence, .....	1
a considerable amount of influence, .....	2
some influence, .....	3
very little influence, or .....	4
no influence at all? .....	5
REFUSED .....	-7
DON'T KNOW .....	-8

PI-7. What would you like to see (YOUTH'S NAME) do in the future? Would you like (him/her) to:

Go to college, .....	1
Get training in a vocational or technical program, .....	2
Get a full-time job, .....	3
Join the Armed Services, .....	4
Get married and not work, or ....	5
Something else? (SPECIFY) .....	91
REFUSED .....	-7
DON'T KNOW .....	-8

ACOMS: PARENT QUESTIONNAIRE (October 13, 1986) PARENTAL INFLUENCERS  
 OMB : 0702-0077 expiration 31 August, 1989 pg. 1-2

PI-8. For most young men, do you think service in the military is...

Definitely a good idea, .....	1
Probably a good idea, .....	2
Probably not a good idea, or.....	3
Definitely not a good idea? .....	4
REFUSED .....	-7
DON'T KNOW .....	-8

PI-9. For most young women, do you think service in the military is...

Definitely a good idea, .....	1
Probably a good idea, .....	2
Probably not a good idea, or .....	3
Definitely not a good idea? .....	4
REFUSED .....	-7
DON'T KNOW .....	-8

PI-10. Have you talked to (YOUTH'S NAME) about enlisting in the Armed Services?

YES .....	1	(PI-11)
NO .....	2	(PI-18)
REFUSED .....	-7	(PI-18)
DON'T KNOW .....	-8	(PI-18)

PI-11. How often have you talked about this?

NEVER .....	1	(PI-18)
RARELY .....	2	(PI-18)
OCCASIONALLY .....	3	(PI-14)
OFTEN .....	4	(PI-14)
REFUSED .....	-7	(PI-14)
DON'T KNOW .....	-8	(PI-14)

PI-14. Were these talks about entering as an officer, as an enlisted person, or both?

ENLISTED .....	1
OFFICER .....	2
BOTH .....	3
NEITHER .....	4
REFUSED .....	-7
DON'T KNOW .....	-8

PI-15. Which services have you talked about? (CODE ALL THAT APPLY)

	YES	NO	DK	REF
ARMY .....	1	2	-7	-8
NAVY .....	1	2	-7	-8
AIR FORCE .....	1	2	-7	-8
MARINE CORPS .....	1	2	-7	-8
ALL SERVICES IN GENERAL .....	1	2	-7	-8

ACOMS: PARENT QUESTIONNAIRE (October 13, 1986) PARENTAL INFLUENCERS  
 OMB : 0700-0077 expiration 31 August, 1989 pg. 1-3

PI-16. Have you talked about (YOUTH'S NAME) signing up for active duty, for the Reserve, or for the National Guard? (PROBES: The Reserve are people in all services who train once a week, or one weekend a month and a couple of weeks in the summer. The National Guard consists of Army and Air Force units which are under the control of the governor of the state; they also train just once a week, or one weekend a month, and a couple of weeks in the summer.) (CODE ALL THAT APPLY)

	YES	NO	DK	REF
ACTIVE DUTY .....	1	2	-7	-8
RESERVE .....	1	2	-7	-8
NATIONAL GUARD .....	1	2	-7	-8

PI-17. When you talk about military service, do you generally encourage, discourage, or stay neutral about (YOUTH'S NAME) enlisting?

ENCOURAGE .....	1
STAY NEUTRAL .....	2
DISCOURAGE .....	3
REFUSED .....	-7
DON'T KNOW .....	-8

PI-18. How much influence do you think you have had on (YOUTH'S NAME)'s plans about enlisting? Have you had:

a great deal of influence, .....	1
a considerable amount of influence, .....	2
some influence, .....	3
very little influence, or .....	4
no influence at all? .....	5
REFUSED .....	-7
DON'T KNOW .....	-8

PI-19. Have you pointed out ads for the services in the mass media?

YES .....	1
NO .....	2
REFUSED .....	-7
DON'T KNOW .....	-8

PI-21. Have you talked to your (son/daughter) about seeing a military recruiter?

YES .....	1	(PI-22)
NO .....	2	(PI-23)
REFUSED .....	-7	(PI-23)
DON'T KNOW .....	-8	(PI-23)

ADAMS: PARENT QUESTIONNAIRE (October 13, 1986) PARENTAL INFLUENCERS  
 IMS : 0001-0077 expiration 31 August, 1989 pg. 1-4

PI-22. Have you done this for the ....

	YES	NO	REF	DK
Army? .....	1	2	-7	-8
Navy? .....	1	2	-7	-8
Air Force? .....	1	2	-7	-8
Marines? .....	1	2	-7	-8

PI-23. Have you received military recruiting materials mailed to you or  
 (YOUTH'S NAME) at your home address?

YES .....	1	(PI-24)
NO .....	2	(PI-25)
REFUSED .....	-7	(PI-25)
DON'T KNOW .....	-8	(PI-25)

PI-25. How likely is it that (YOUTH'S NAME) will enlist in the military  
 in the next few years? Would you say that (he/she)...

definitely will .....	1	(PI-26)
probably will .....	2	(PI-26)
probably will not, or .....	3	(IMPORTANCE MODULE)
definitely will not .....	4	(IMPORTANCE MODULE)
REFUSED .....	-7	(IMPORTANCE MODULE)
DON'T KNOW .....	-8	(IMPORTANCE MODULE)

PI-26. Do you expect that (YOUTH'S NAME) will enter the military as an  
 enlisted person or as an officer?

ENLISTED PERSON .....	1
OFFICER .....	2
REFUSED .....	-7
DON'T KNOW .....	-8

[GO TO IMPORTANCE OF ATTRIBUTES MODULE]

ACOMS: PARENT QUESTIONNAIRE (October 13, 1986) IMPORTANCE OF ATTRIBUTES  
 LMB # 0002-0077 expiration 31 August, 1989 pg. 2-1

IA-3. In thinking about (YOUTH'S NAME)'s future, how important is it to you that (he/she) have opportunities for the following things?

Use a scale of 1 to 5 where a "1" means it is not at all important and "5" means it is very important.

	NOT IMP				VERY IMP	DEF	BY
a. Having a physical challenge .....	1	2	3	4	5	-7	-3
b. Working with highly trained people .....	1	2	3	4	5	-7	-3
c. Earning money for college or vocational school .....	1	2	3	4	5	-7	-3
d. Training in useful skill areas ..	1	2	3	4	5	-7	-3
e. Developing self-confidence .....	1	3	3	4	5	-7	-3
f. Serving (his/her) country .....	1	2	3	4	5	-7	-3
g. Developing leadership skills ....	1	2	3	4	5	-7	-3
h. Working with the latest high tech equipment .....	1	2	3	4	5	-7	-3
i. Having experiences (he/she) can be proud of .....	1	2	3	4	5	-7	-3
j. Developing (his/her) potential ..	1	2	3	4	5	-7	-3
k. Helping (his/her) career development .....	1	2	3	4	5	-7	-3
l. Serving (his/her) own community?.	1	2	3	4	5	-7	-3
m. Having weekend excitement .....	1	2	3	4	5	-7	-3
n. Staying in (his/her) own hometown .....	1	2	3	4	5	-7	-3
o. Having a stepping stone between high school and college .....	1	2	3	4	5	-7	-3
p. Becoming more mature and responsible .....	1	2	3	4	5	-7	-3
q. The opportunity to make changes and use (his/her) own judgement.	1	2	3	4	5	-7	-3
r. Having a mental challenge .....	1	2	3	4	5	-7	-

[SKIP TO MEDIA HABITS MODULE]



ACOMS: PARENT QUESTIONNAIRE (October 13, 1986) MODULE: MEDIA HABITS  
 CMB : 0702-0077 expiration 31 August, 1989 pg. 3-1

MH-1. Do you regularly watch TV?

YES .....	1	(MH-2)
NO .....	2	(MH-14)
REFUSED .....	-7	(MH-2)
DON'T KNOW .....	-8	(MH-2)

MH-2. How many hours per week do you spend watching..

b. Programs on commercial networks  
 such as ABC, CBS, or NBC?

# HOURS

a. Programs on commercial cable  
 stations such as ESPN, MTV,  
 USA, or TBS?

# HOURS

CATI CHECK #MH1: IS CABLE OR SUBSCRIPTION TV WATCHED?  
 [MH-2b > 0]

YES .....	1	(MH-11)
NO .....	2	(MH-12)

MH-11. Do you watch any of the following Cable or Subscription TV  
 channels regularly?

	YES	NO	REF	DK
MTV? .....	1	2	-7	-8
Nashville Network [TNN]? .....	1	2	-7	-8
ESPN [Sports]? .....	1	2	-7	-8
WTBS [Syndicated]? .....	1	2	-7	-8
Black Entertainment TV [BET]? .....	1	2	-7	-8

MH-12. Do you frequently watch any of the following types of TV shows?

	YES	NO	REF	DK
Sports? .....	1	2	-7	-8
Suspense or mystery? ..	1	2	-7	-8
General drama? .....	1	2	-7	-8
Music or music video? ..	1	2	-7	-8
Situation comedy? .....	1	2	-7	-8
TV movies? .....	1	2	-7	-8
Talk shows? .....	1	2	-7	-8

MH-13. Please tell me if you watch any of the following TV shows?

	<u>YES</u>	<u>NO</u>	<u>REF</u>	<u>DK</u>
David Letterman?	1	2	-7	-8
Friday Night Videos?	1	2	-7	-8
Monday Night Football?	1	2	-7	-8
College Football?	1	2	-7	-8
Sunday Night at the Movies?	1	2	-7	-8

MH-14. Does your household have a Video Cassette Recorder (VCR)?

YES .....	1	(MH-15)
NO .....	2	(MH-16)
REFUSED .....	-7	(MH-16)
DON'T KNOW .....	-8	(MH-16)

MH-15. How many hours per week do you usually spend watching your VCR?

            
# HOURS

MH-16. Now let's talk about radio listening. Do you regularly listen to the radio?

YES .....	1	(MH-17)
NO .....	2	(MH-28)
REFUSED .....	-7	(MH-28)
DON'T KNOW .....	-8	(MH-28)

MH-17. How many hours per week do you listen to ..

a. AM Radio?

            
# HOURS

b. FM Radio?

            
# HOURS

MH-26. Do you frequently listen to any of the following types of radio programs?

	<u>YES</u>	<u>NO</u>	<u>REF</u>	<u>DK</u>
News? .....	1	2	-7	-8
Classical music? .....	1	2	-7	-8
Pop? .....	1	2	-7	-8
Country? .....	1	2	-7	-8
Sports? .....	1	2	-7	-8
Talk Shows? .....	1	2	-7	-8
Rock & Roll? .....	1	2	-7	-8
"Easy Listening"? .....	1	2	-7	-8

ACOMS: PARENT QUESTIONNAIRE (October 13, 1986) MODULE: MEDIA HABITS  
 CMB : 0702-0077 expiration 31 August, 1989 pg. 3-3

MH-27. Do you listen to the following programs?

	YES	NO	REF	DK
American Top 40?	1	2	-7	-8
King Biscuit Flower Hour?	1	2	-7	-8
Rick Dees' Top 40?	1	2	-7	-8
Metalshop?	1	2	-7	-8
Rockline?	1	2	-7	-8

MH-28. How often do you read the newspaper? Is it...

never, .....	1	(MH-31)
less than twice a week, .....	2	(MH-29)
2-3 times per week, .....	3	(MH-29)
4-5 times per week, or .....	4	(MH-29)
daily? .....	5	(MH-29)
REFUSED .....	-7	(MH-31)
DON'T KNOW .....	-8	(MH-31)

MH-29. How many hours do you spend reading the newspaper each week?

\_\_\_\_\_ # HOURS

MH-30. Do you regularly read any of the following sections?

	YES	NO	REF	DK
Sports? .....	1	2	-7	-8
Comics? .....	1	2	-7	-8
News? .....	1	2	-7	-8
Local? .....	1	2	-7	-8
Food? .....	1	2	-7	-8
Lifestyle? .....	1	2	-7	-8
Classified? .....	1	2	-7	-8

MH-31. Finally, I would like to discuss magazine readership. Do you regularly read magazines?

YES .....	1	(MH-32)
NO .....	2	(RECALL MODULE)
REFUSED .....	-7	(RECALL MODULE)
DON'T KNOW .....	-8	(RECALL MODULE)

ACCMS: PARENT QUESTIONNAIRE (October 13, 1986) MODULE: MEDIA HABITS  
OMB : 0702-0077 expiration 31 August, 1989 pg. 3-4

MH-12. What magazines do you read on a regular basis, that is, those  
that you have read at least 3 of the past 4 issues?

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_

REFUSED ..... -7  
DON'T KNOW ..... -8

MH-13. About how many hours a week do you spend reading magazines?

\_\_\_\_\_ # HOURS

[GO TO KNOWLEDGE-RECALL MODULE]

ACOMS: PARENT QUESTIONNAIRE (October 13, 1986) MODULE: KNOWLEDGE-RECALL  
 SMB : 0702-0077 expiration 31 August, 1989 pg. 4-1

KR-1. Now, thinking about TV, radio, newspapers, magazines, and any other sources of advertising, for what military service or services do you recall seeing or hearing any advertising?  
 (PROBE: Any other services?)  
 (RECORD ALL THAT APPLY.)

NONE .....	0 (KR-5)
AIR FORCE .....	1 (CATI CHECK #KR5)
ARMY .....	2 (CATI CHECK #KR6)
RESERVE OFFICER'S TRAINING CORPS, or R.O.T.C. ....	3 (CATI CHECK #KR1)
NATIONAL GUARD .....	4 (CATI CHECK #KR2)
RESERVE .....	5 (CATI CHECK #KR3)
COAST GUARD .....	6 (CATI CHECK #KR10)
MARINE CORPS .....	7 (CATI CHECK #KR11)
NAVY .....	8 (CATI CHECK #KR12)
ONE AD FOR ALL SERVICES .....	9 (CATI CHECK #KR4)
REFUSED .....	-7 (KR-5)
DON'T KNOW .....	-8 (KR-5)

CATI CHECK #KR1: WAS R.O.T.C. MENTIONED?	
[KR-1 = 3]	
YES .....	1 (KR-2)
NO .....	2 (CATI CHECK #KR2)

KR-2. You mentioned seeing or hearing advertising for the Reserve Officer's Training Corps. For which military service or services was this advertising? (RECORD ALL THAT APPLY)

AIR FORCE .....	1
ARMY .....	2
NAVY .....	3
MARINE CORPS .....	4
COAST GUARD .....	5
REFUSED .....	-7
DON'T KNOW .....	-8

CATI CHECK #KR2: WAS NATIONAL GUARD MENTIONED?	
[KR-1 = 4]	
YES .....	1 (KR-3)
NO .....	2 (CATI CHECK #KR3)

KR-3. You mentioned seeing or hearing advertising for the National Guard. For which military service or services was this advertising? [RECORD ALL THAT APPLY]

AIR FORCE .....	1
ARMY .....	2
NAVY .....	3
MARINE CORPS .....	4
COAST GUARD .....	5
REFUSED .....	-7
DON'T KNOW .....	-8

CATI CHECK #KR3: WAS RESERVE MENTIONED?  
 [KR-1 = 5]

YES .....	1	(KR-4)
NO .....	2	(CATI CHECK #KR4)

KR-4. You mentioned seeing or hearing advertising for the Reserve. For which military service or services was this advertising? [RECORD ALL THAT APPLY]

AIR FORCE .....	1
ARMY .....	2
NAVY .....	3
MARINE CORPS .....	4
COAST GUARD .....	5
REFUSED .....	-7
DON'T KNOW .....	-8

CATI CHECK #KR4: DID RESPONDENT RECALL ALL INDIVIDUAL ADS AND ONE AD FOR ALL SERVICES?  
 [KR-1 = 1 THROUGH 9]

YES .....	1	(KR-14)
NO .....	2	(CATI CHECK #KR5)

#KR5: DID RESPONDENT RECALL SEEING OR HEARING AN AD FOR THE AIR FORCE?  
 [KR-1 = 1]

YES .....	1	(CATI CHECK #KR6)
NO .....	2	(KR-5)

KR-5. Do you recall seeing or hearing any advertising for the Air Force?

YES .....	1
NO .....	2
REFUSED .....	-7
DON'T KNOW .....	-8

ACOMS: PARENT QUESTIONNAIRE (October 13, 1986) MODULE: KNOWLEDGE-RECALL  
CMB : 0702-0077 expiration 31 August, 1989 pg. 4-2

CATI CHECK #KR6: DID RESPONDENT RECALL SEEING OR HEARING  
AN AD FOR THE ARMY?  
[KR-1 = 2]

YES ..... 1 (CATI CHECK #KR7)  
NO ..... 2 (KR-6)

KR-6. [Do you recall seeing or hearing any advertising for] The Army?

YES ..... 1  
NO ..... 2  
REFUSED ..... -7  
DON'T KNOW ..... -8

CATI CHECK #KR7: DID RESPONDENT RECALL SEEING OR HEARING  
AN AD FOR THE ARMY R.O.T.C.?  
[KR-2 = 2]

YES ..... 1 (CATI CHECK #KR8)  
NO ..... 2 (KR-7)

KR-7. [Do you recall seeing or hearing any advertising for] The Army  
Reserve Officer's Training Corps, that is, the Army R.O.T.C.?

YES ..... 1  
NO ..... 2  
REFUSED ..... -7  
DON'T KNOW ..... -8

CATI CHECK #KR8: DID RESPONDENT RECALL SEEING OR HEARING  
AN AD FOR THE ARMY NATIONAL GUARD?  
[KR-3 = 2]

YES ..... 1 (CATI CHECK #KR9)  
NO ..... 2 (KR-8)

KR-8. [Do you recall seeing or hearing any advertising for] The Army  
National Guard?

YES ..... 1  
NO ..... 2  
REFUSED ..... -7  
DON'T KNOW ..... -8

CATI CHECK #KR9: DID RESPONDENT RECALL SEEING OR HEARING  
 AN AD FOR THE ARMY RESERVE?  
 [KR-4 = 2]

YES ..... 1 (CATI CHECK #KR10)  
 NO ..... 2 (KR-9)

KR-9. [Do you recall seeing or hearing any advertising for] The Army  
 Reserve?

YES ..... 1  
 NO ..... 2  
 REFUSED ..... -7  
 DON'T KNOW ..... -8

CATI CHECK #KR10: DID RESPONDENT RECALL SEEING OR HEARING  
 AN AD FOR THE COAST GUARD?  
 [KR-1 = 6]

YES ..... 1 (CATI CHECK #KR11)  
 NO ..... 2 (KR-10)

KR-10. [Do you recall seeing or hearing any advertising for] The Coast  
 Guard?

YES ..... 1  
 NO ..... 2  
 REFUSED ..... -7  
 DON'T KNOW ..... -8

CATI CHECK #KR11: DID RESPONDENT RECALL SEEING OR HEARING  
 AN AD FOR THE MARINE CORPS?  
 [KR-1 = 7]

YES ..... 1 (CATI CHECK #KR12)  
 NO ..... 2 (KR-11)

KR-11. [Do you recall seeing or hearing any advertising for] The Marine  
 Corps?

YES ..... 1  
 NO ..... 2  
 REFUSED ..... -7  
 DON'T KNOW ..... -8

ACOMS: PARENT QUESTIONNAIRE (October 13, 1986) MODULE: KNOWLEDGE-RECALL  
OMB : 0702-0077 expiration 31 August, 1989 pg. 4-5

CATI CHECK #KR12: DID RESPONDENT RECALL SEEING OR HEARING  
AN AD FOR THE NAVY?  
[KR-1 = 3]

YES ..... 1 (CATI CHECK #KR13)  
NO ..... 2 (KR-12)

KR-12. [Do you recall seeing or hearing any advertising for] The Navy?

YES ..... 1  
NO ..... 2  
REFUSED ..... -7  
DON'T KNOW ..... -8

CATI CHECK #KR13: DID RESPONDENT RECALL SEEING OR HEARING  
ONE AD FOR ALL THE SERVICES?  
[KR-1 = 9]

YES ..... 1 (CATI CHECK #KR14)  
NO ..... 2 (KR-13)

KR-13. [Do you recall seeing or hearing any advertising for] All the  
services in one ad?

YES ..... 1  
NO ..... 2  
REFUSED ..... -7  
DON'T KNOW ..... -8

CATI CHECK #KR14: DID RESPONDENT RECALL SEEING OR HEARING  
ARMY OR ARMY COMPONENT AD?  
[KR-1 = 2], OR  
[KR-2, OR KR-3 OR KR-4 = 2] OR  
[KR-6, OR KR-7, OR KR-8, OR KR-9 = 1]

YES ..... 1 (KR-14)  
NO ..... 2 (CATI CHECK #KR15)

ACOMS: PARENT QUESTIONNAIRE (October 13, 1986) MODULE: KNOWLEDGE-RECALL  
 CMS # 1702-0077 expiration 31 August, 1989 pg. 4-6

KR-14. Did you see or hear Army ads...

	YES	NO	REF	OK
On TV? .....	1	2	-7	-3
On the radio? .....	1	2	-7	-3
In magazines? .....	1	2	-7	-3
In newspapers? .....	1	2	-7	-3
On billboards? .....	1	2	-7	-3
Through the mail? .....	1	2	-7	-3
On posters? .....	1	2	-7	-3
In brochures or pamphlets? .....	1	2	-7	-3
In the Yellow Pages? .....	1	2	-7	-3
Somewhere else? .....	1	2	-7	-3

CATI CHECK #KR15: DID RESPONDENT RECALL SEEING OR HEARING  
 AN ARMY AD (UNAIDED OR AIDED)?  
 [KR-1 = 2 OR KR-6 = 1]

YES ..... 1 (KR-15)  
 NO ..... 2 (CATI CHECK #KR16)

KR-15. Other than trying to get you to enlist, what was the main message  
 you got from Army advertising?

[VERBATIM RESPONSES RECORDED]

CATI CHECK #KR16: DID RESPONDENT RECALL ANY ADS OTHER  
 THAN THE ARMY AD?  
 [KR-1 = 1, 3, 4, 5, 6, 7, 8 OR 9] OR  
 [KR-5, OR KR-7, OR KR-8, OR KR-9, OR KR-10,  
 OR KR-11, OR KR-12, OR KR-13 = 1]

YES ..... 1 (CATI CHECK #KR17)  
 NO ..... 2 (ATTITUDES MODULE)

#KR17: RANDOMLY SELECT SERVICE OR SERVICE  
 COMPONENT OR JOINT SERVICES AD FROM THOSE  
 RECALLED (OTHER THAN ARMY)

KR-17. Other than trying to get you to enlist, what was the main message  
 you got from (SERVICE/SERVICE COMPONENT) advertising?

[VERBATIM RESPONSES RECORDED]

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[GO TO ATTITUDES MODULE]



CATI CHECK #AT1: DID RESPONDENT RECALL SEEING OR HEARING  
 ARMY ADS?  
 [KR-1 = 2 OR KR-6 = 1]

YES ..... 1 (AT-1)  
 NO ..... 2 (SLOGAN MODULE)

AT-1. Use a scale of "1" to "5" where "1" means you do not like the  
 advertising and "5" means you like the advertising very much.

Overall, how much do you like the Army ads you have seen or heard  
 over the past year?

DO NOT LIKE ..... 1  
 SOMEWHAT DISLIKE ..... 2  
 NEUTRAL ..... 3  
 LIKE SOMEWHAT ..... 4  
 LIKE VERY MUCH ..... 5  
 REFUSED ..... -7  
 DON'T KNOW ..... -8

AT-2. Use a scale of "1" to "5" where "1" means you do not believe the  
 advertising and "5" means you believe the advertising very much.

How much do you believe what the ads say?

DO NOT BELIEVE ..... 1  
 SOMEWHAT DISBELIEVE ..... 2  
 NEUTRAL ..... 3  
 BELIEVE SOMEWHAT ..... 4  
 STRONGLY BELIEVE ..... 5  
 REFUSED ..... -7  
 DON'T KNOW ..... -8

[GO TO SLOGAN RECOGNITION MODULE]



PE-1. I am going to read you a list of statements describing different things the Army might offer. Please tell me how much you disagree or agree that the Army offers each item on the list. A "1" means you disagree completely, a "2" means you disagree somewhat, a "3" means you neither agree nor disagree, a "4" means you agree somewhat and a "5" means you agree completely.

	DS					AG		PER	BY			
The Army offers...												
A.	a wide variety of opportunities to find a job you can enjoy?					1	2	3	4	5	-7	-3
B.	a physically challenging environment?					1	2	3	4	5	-7	-3
C.	an experience you can be proud of?					1	2	3	4	5	-7	-3
D.	an advantage over going right from high school to college?					1	2	3	4	5	-7	-3
E.	an opportunity to develop leadership skills?					1	2	3	4	5	-7	-3
F.	the chance to work with the latest high tech equipment?					1	2	3	4	5	-7	-3
G.	a great value in your civilian career development?					1	2	3	4	5	-7	-3
H.	an excellent opportunity to develop self-confidence?					1	2	3	4	5	-7	-3
I.	the opportunity to develop your potential?					1	2	3	4	5	-7	-3
J.	a mentally challenging experience?					1	2	3	4	5	-7	-3
K.	an opportunity for you to become more mature and responsible?					1	2	3	4	5	-7	-3
L.	many opportunities for training in useful skill areas?					1	2	3	4	5	-7	-3
M.	many chances to work with highly trained people?					1	2	3	4	5	-7	-3
N.	an excellent opportunity to obtain money for a college or vocational education?					1	2	3	4	5	-7	-3

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CATI CHECK #PE2: RANDOMLY SELECT A CAREER OPTION FROM  
ARMY RESERVE, ARMY NATIONAL GUARD,  
AIR FORCE, NAVY, MARINE CORPS, GOING  
TO COLLEGE, WORKING IN A FULL-TIME  
CIVILIAN JOB, ALL SERVICES.

#PE3: WHICH CAREER OPTION WAS SELECTED?

ARMY RESERVE .....	1 (PE-1A)
ARMY NATIONAL GUARD .....	2 (PE-4A)
AIR FORCE .....	3 (PE-6)
NAVY .....	4 (PE-6)
MARINE CORPS .....	5 (PE-6)
ALL SERVICES .....	6 (PE-6)
WORKING IN A FULL-TIME CIVILIAN JOB .....	7 (PE-7)
GOING TO COLLEGE .....	8 (PE-8)

---

PE-1A. Have you ever heard of the United States Army Reserve?

YES .....	1 (PE-4)
NO .....	2 (PE-4A)
REFUSED .....	3 (PE-4A)
DON'T KNOW ...	-8 (PE-4)

PE-4. Now, I am going to read you a list of things the United States Army Reserve might offer. Please tell me how much you disagree or agree that the United States Army Reserve offers each item on the list. Again, a "1" means you disagree completely, a "2" means you disagree somewhat, a "3" means you neither agree nor disagree, a "4" means you agree somewhat and a "5" means you agree completely.

The United States Army Reserve offers:

	DS				AG	REF	OK
A. a wide variety of opportunities to find a job you can enjoy?	1	2	3	4	5	-7	-8
B. an experience you can be proud of?	1	2	3	4	5	-7	-8
C. an opportunity to develop leadership skills?	1	2	3	4	5	-7	-8
D. a great value in your civilian career development?	1	2	3	4	5	-7	-8
E. an excellent opportunity to develop self-confidence?	1	2	3	4	5	-7	-8
F. the opportunity to develop your potential?	1	2	3	4	5	-7	-8
G. a mentally challenging experience?	1	2	3	4	5	-7	-8
H. the opportunity to become more mature and responsible?	1	2	3	4	5	-7	-8
I. many opportunities for training in useful skill areas?	1	2	3	4	5	-7	-8
J. many chances to work highly trained people?	1	2	3	4	5	-7	-8
K. an excellent opportunity to obtain money for a college or vocational education?	1	2	3	4	5	-7	-8
L. an opportunity to serve America while staying in your own home?	1	2	3	4	5	-7	-8
M. a chance to serve your own community?	1	2	3	4	5	-7	-8
N. interesting and exciting weekends?	1	2	3	4	5	-7	-8

[SKIP TO PE-12]

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PE-4A. Have you ever heard of the United States Army National Guard?

YES .....	1 (PE-5)
NO .....	2 (PE-12)
REFUSED .....	-7 (PE-6)
DON'T KNOW ...	-8 (PE-12)

PE-5. Now, I am going to read you a list of statements describing different things the United States Army National Guard might offer. Please tell me how much you disagree or agree that the United States Army National Guard offers each item on the list. Again, a "1" means you disagree completely, a "2" means you disagree somewhat, a "3" means you neither agree nor disagree, a "4" means you agree somewhat and a "5" means you agree completely.

The Army National Guard offers:

	<u>DS</u>				<u>AG</u>	<u>REF</u>	<u>DK</u>
A. a wide variety of opportunities to find a job you can enjoy?	1	2	3	4	5	-7	-8
B. an experience you can be proud of?	1	2	3	4	5	-7	-8
C. an opportunity to develop leadership skills?	1	2	3	4	5	-7	-8
D. a great value in your civilian career development?	1	2	3	4	5	-7	-8
E. an excellent opportunity to develop self-confidence?	1	2	3	4	5	-7	-8
F. the opportunity to develop your potential?	1	2	3	4	5	-7	-8
G. a mentally challenging experience?	1	2	3	4	5	-7	-8
H. an opportunity to become more mature and responsible?	1	2	3	4	5	-7	-8
I. many opportunities for training in useful skill areas?	1	2	3	4	5	-7	-8
J. many chances to work with highly trained people?	1	2	3	4	5	-7	-8
K. an excellent opportunity to obtain money for a college or vocational education?	1	2	3	4	5	-7	-8
L. an opportunity to serve America while staying in your own home?	1	2	3	4	5	-7	-8
M. a chance to serve your own community?	1	2	3	4	5	-7	-8
N. gives you interesting and exciting weekends?	1	2	3	4	5	-7	-8

[SKIP TO PE-12]

PE-6. I am going to read you a list of statements describing different things the (SERVICE) might offer. Please tell me how much you disagree or agree that the (SERVICE) offers item on the list. Again, a "1" means you disagree completely, a "2" means you disagree somewhat, a "3" means you neither agree nor disagree, a "4" means you agree somewhat and a "5" means you agree completely.

The (SERVICE) offers:

	<u>DS</u>					<u>AG</u>	<u>REF</u>	<u>EX</u>
A. a wide variety of opportunities to find a job you can enjoy?	1	2	3	4	5	-7	-3	
B. a physically challenging environment?	1	2	3	4	5	-7	-3	
C. an experience you can be proud of?	1	2	3	4	5	-7	-3	
D. an advantage over going right from high school to college?	1	2	3	4	5	-7	-3	
E. an opportunity to develop leadership skills?	1	2	3	4	5	-7	-3	
F. the chance to work with the latest high tech equipment?	1	2	3	4	5	-7	-3	
G. a great value in your civilian career development?	1	2	3	4	5	-7	-3	
H. an excellent opportunity to develop self-confidence?	1	2	3	4	5	-7	-3	
I. the opportunity to develop your potential?	1	2	3	4	5	-7	-3	
J. a mentally challenging experience?	1	2	3	4	5	-7	-3	
K. an opportunity to become more mature and responsible?	1	2	3	4	5	-7	-3	
L. many opportunities for training in useful skill areas?	1	2	3	4	5	-7	-3	
M. many chances to work with highly trained people?	1	2	3	4	5	-7	-3	
N. an excellent opportunity to obtain money for a college or vocational education?	1	2	3	4	5	-7	-3	

[SKIP TO PE-12]

PE-7. I am going to read you a list of statements describing different things working in a full-time civilian job might offer. Please tell me how much you disagree or agree that working in a full-time civilian job offers each item on the list. Again, a "1" means you disagree completely, a "2" means you disagree somewhat, a "3" means you neither agree nor disagree, a "4" means you agree somewhat and a "5" means you agree completely.

Working in a full-time civilian job offers:

	DS			AG			REF	OK
A. a physically challenging environment?	1	2	3	4	5	-7	-3	
B. an experience you can be proud of?	1	2	3	4	5	-7	-3	
C. an advantage over going right from high school to college?	1	2	3	4	5	-7	-3	
D. an opportunity to develop leadership skills?	1	2	3	4	5	-7	-3	
E. the chance to work with the latest high tech equipment?	1	2	3	4	5	-7	-3	
F. a great value in your civilian career development?	1	2	3	4	5	-7	-3	
G. an excellent opportunity to develop self-confidence?	1	2	3	4	5	-7	-3	
H. the opportunity to develop your potential?	1	2	3	4	5	-7	-3	
I. a mentally challenging experience?	1	2	3	4	5	-7	-3	
J. the opportunity to become more more mature and responsible?	1	2	3	4	5	-7	-3	
K. many opportunities for training in useful skill areas?	1	2	3	4	5	-7	-3	
L. many chances to work with highly trained people?	1	2	3	4	5	-7	-3	
M. an excellent opportunity to obtain money for a college or vocational education?	1	2	3	4	5	-7	-3	

[SKIP TO PE-12]

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PE-3. I am going to read you a list of statements describing different things going to college might offer. Please tell me how much you disagree or agree that going to college offers each item on the list. Again, a "1" means you disagree completely, a "2" means you disagree somewhat, a "3" means you neither agree nor disagree, a "4" means you agree somewhat and a "5" means you agree completely.

Going to college offers...

	<u>DS</u>				<u>AG</u>	<u>REF</u>	<u>DK</u>
A. an experience you can be proud of?	1	2	3	4	5	-7	-8
B. an opportunity to develop leadership skills?	1	2	3	4	5	-7	-8
C. a great value in your civilian career development?	1	2	3	4	5	-7	-8
D. an excellent opportunity to develop self-confidence?	1	2	3	4	5	-7	-8
E. the opportunity to develop your potential?	1	2	3	4	5	-7	-8
F. a mentally challenging experience?	1	2	3	4	5	-7	-8
G. the opportunity to become more mature and responsible?	1	2	3	4	5	-7	-8
H. many chances to work with highly trained people?	1	2	3	4	5	-7	-8

PE-12. Of the people who joined the Army in the last year, what proportion do you think are high school diploma graduates? Would you say...

less than one quarter, .....	1
about one quarter, .....	2
about one half, .....	3
about three quarters, or .....	4
almost all? .....	5
REFUSED .....	-7
DON'T KNOW .....	-8

ACOMS: PARENT QUESTIONNAIRE (October 13, 1986) MODULE: PERCEPTIONS  
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PE-13. Of the people who joined the Army last year, what proportion do you think would score in the upper half of an intelligence test? Is it...

all of them, .....	1
three quarters of them, .....	2
half of them, .....	3
one quarter of them, or .....	4
none of them? .....	5
REFUSED .....	-7
DON'T KNOW .....	-8

PE-14. Of the people who joined the Army in the last year, what proportion do you think will get a college diploma either while they are in the Army or after they complete their Army service? Would you say...

less than one quarter, .....	1
about one quarter, .....	2
about one half, .....	3
about three quarters, or .....	4
almost all? .....	5
REFUSED .....	-7
DON'T KNOW .....	-8

PE-15. Do you think very many young (men/women) with backgrounds and plans for the future like (YOUTH) are joining the Army?

YES .....	1
NO .....	2
REFUSED .....	-7
DON'T KNOW .....	-8

CATI CHECK #PE1: IS YOUTH ROTC POTENTIAL?

YES .....	1 (PE-15A)
NO .....	2 (KNOWLEDGE AWARENESS MODULE)

PE-15A. Have you ever heard of the Army Reserve Officer's Training Corps on a college campus?

YES .....	1 (PE-2)
NO .....	2 (KNOWLEDGE-AWARENESS MODULE)
REFUSED .....	-7 (KNOWLEDGE-AWARENESS MODULE)
DON'T KNOW ..	-8 (PE-2)

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PE-2. Next, I will read you a few statements describing different things that the Army Reserve Officer's Training Corps on the college campus might offer. Please tell me how much you disagree or agree that being an officer offers each item on the list. A "1" means you disagree completely, a "2" means you disagree somewhat, a "3" means you neither agree nor disagree, a "4" means you agree somewhat and a "5" means you agree completely.

The Army Reserve Officer's Training Corps on the college campus provides...

	DS					AG	REF	OK
A. leadership and management training?	1	2	3	4	5	-7	-3	
B. the opportunity to develop self-confidence?	1	2	3	4	5	-7	-3	
C. a college elective that can be taken together with other college courses?	1	2	3	4	5	-7	-3	
D. an officer's commission in the active Army, Army Reserve, or the Army National Guard?	1	2	3	4	5	-7	-3	

PE-3. Being an officer in the United States Army means different things to different people. Please tell me how much you disagree or agree that being an officer offers each item on the list. A "1" means you disagree completely, a "2" means you disagree somewhat, a "3" means you neither agree nor disagree, a "4" means you agree somewhat and a "5" means you agree completely.

Being an officer in the United States Army provides...

	DS					AG	REF	OK
A. a wide variety of job opportunities?	1	2	3	4	5	-7	-3	
B. experiences you can be proud of?	1	2	3	4	5	-7	-3	
C. the opportunity to use your college acquired skills?	1	2	3	4	5	-7	-3	
D. the opportunity to make changes and use your own judgment?	1	2	3	4	5	-7	-3	

[GO TO KNOWLEDGE-AWARENESS MODULE]

ACOMS: PARENT QUESTIONNAIRE (October 13, 1986) KNOWLEDGE-AWARENESS  
 CMB # 0702-0077 expiration 31 August, 1989 pg. 8-1

KA-1. Is it possible to earn money for college by enlisting in the Army?

YES ..... 1 (KA-1)  
 NO ..... 2 (CATI CHECK #KA4)  
 REFUSED ..... -7 (KA-1)  
 DON'T KNOW ..... -8 (KA-1)

KA-1. How much do you think a young (man/woman) can earn through Army education benefits for college?

(PROBE: This would be the total education benefits that could be earned while in the Army.)

UNDER \$5,000 ..... 1  
 \$5,000 TO \$9,999 ..... 2  
 \$10,000 TO \$14,999 ..... 3  
 \$15,000 TO \$19,999 ..... 4  
 \$20,000 TO \$24,999 ..... 5  
 \$25,000 OR MORE ..... 6  
 REFUSED ..... -7  
 DON'T KNOW ..... -8

KA-2. Do you think Army education benefits would pay for (YOUTH's) entire college education?

YES ..... 1  
 NO ..... 2  
 REFUSED ..... -7  
 DON'T KNOW ..... -8

KA-3. Do you think Army education benefits are more, less or about the same as the Navy, Air Force, or Marines offer?

MORE ..... 1  
 LESS ..... 2  
 ABOUT THE SAME ..... 3  
 REFUSED ..... -7  
 DON'T KNOW ..... -8

CATI CHECK #KA4: ROTATE ORDER OF SERVICES FOR KA-4

KA-4. Please tell me whether or not each of the following services offers the "GI Bill"?

	DOES OFFER	DOES NOT OFFER	REF	OK
Army .....	1	2	-7	-8
Air Force .....	1	2	-7	-8
Navy .....	1	2	-7	-8
Marines .....	1	2	-7	-8

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KA-5. What is the minimum number of years that a new recruit has to serve on active duty in the Army?

REFUSED ..... -7  
 DON'T KNOW ..... -8

KA-6. Is it possible to sign up for the Army and actually start serving up to one year later?

YES ..... 1  
 NO ..... 2  
 REFUSED ..... -7  
 DON'T KNOW ..... -8

KA-8. Are 17 year old high school juniors eligible to join the Army Reserve or Army National Guard?

YES ..... 1 (KA-10)  
 NO ..... 2 (KA-9)  
 REFUSED ..... -7 (KA-9)  
 DON'T KNOW ..... -8 (KA-9)

KA-9. Is high school graduation required before joining the Army Reserve or Army National Guard?

YES ..... 1  
 NO ..... 2  
 REFUSED ..... -7  
 DON'T KNOW ..... -8

KA-10. Who sponsors the "Scholar-Athlete Award Program"? Is it the...

Marine Corps, ..... 1  
 National Guard, ..... 2  
 Army Reserve, ..... 3  
 Air Force, or ..... 4  
 Navy? ..... 5  
 REFUSED ..... -7  
 DON'T KNOW ..... -8

KA-11. Can qualified people who join the Army Reserve or Army National Guard receive money for college?

YES ..... 1 (KA-12)  
 NO ..... 2 (KA-13)  
 REFUSED ..... -7 (KA-12)  
 DON'T KNOW ..... -8 (KA-12)

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KA-12. What is the maximum amount of money for college that qualified people who join the Army Reserve or Army National Guard can receive under the "GI Bill"?

UNDER \$1,000 .....	1
\$1,000 TO \$1,999 .....	2
\$2,000 TO \$3,999 .....	3
\$4,000 TO \$5,999 .....	4
\$6,000 TO \$7,999 .....	5
\$8,000 TO \$9,999 .....	6
\$10,000 OR MORE .....	7
REFUSED .....	-7
DON'T KNOW .....	-8

[GO TO DEMOGRAPHICS MODULE]



ACOMS: PARENT QUESTIONNAIRE (October 13, 1986) MODULE: DEMOGRAPHICS  
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INTRODUCTION: Now I have some questions about your background.

DE-1. First, what is your birthdate?

MONTH	DAY	YEAR	
REFUSED			-7
DON'T KNOW			-8

DE-3. Please tell me whether you consider yourself...

White,	1
Black,	2
Asian or Pacific Islander, or	3
American Indian, Alaskan Native?	4
REFUSED	-7
DON'T KNOW	-8

DE-4. Are you of Hispanic background?

[INCLUDES SPANISH-AMERICAN, MEXICAN AMERICAN, CHICANO, CUBAN-AMERICAN]

YES	1
NO	2
REFUSED	-7
DON'T KNOW	-8

[QUESTION BANK ITEM DE-5 NOT USED IN QUARTER 1]

DE-6. What is your current marital status? Are you:

Single,	1
Married,	2
Separated,	3
Divorced, or	4
Widowed?	5
REFUSED	-7
DON'T KNOW	-8

[QUESTION BANK ITEMS DE-7, DE-8 NOT USED IN QUARTER 1]

DE-9. What is the highest grade or year of school or college that you have completed and gotten credit for?

LESS THAN 8TH GRADE .....	07	(DE-11)
8TH GRADE .....	08	(DE-11)
9TH GRADE .....	09	(DE-11)
10TH GRADE .....	10	(DE-11)
11TH GRADE .....	11	(DE-11)
12TH GRADE .....	12	(DE-10)
1ST YEAR OF 4-YEAR COLLEGE (FR) .....	13	(DE-10)
2ND YEAR OF 4-YEAR COLLEGE (SO) .....	14	(DE-10)
3RD YEAR OF 4 YEAR COLLEGE (JR) .....	15	(DE-10)
4TH YEAR OF 4 YEAR COLLEGE (SR) .....	16	(DE-10)
5TH YEAR COLLEGE/1ST YEAR		
GRADUATE OR PROFESSIONAL SCHOOLS ...	17	(DE-10)
2ND YEAR GRADUATE OR PROFESSIONAL		
SCHOOL .....	18	(DE-10)
3RD YEAR GRADUATE OR PROFESSIONAL		
SCHOOL .....	19	(DE-10)
MORE THAN 3 YEARS GRADUATE/		
PROFESSIONAL SCHOOL .....	20	(DE-10)
1ST YEAR OF JUNIOR OR		
COMMUNITY COLLEGE .....	21	(DE-10)
2ND YEAR OF JUNIOR OR		
COMMUNITY COLLEGE .....	22	(DE-10)
1ST YEAR OF VOCATIONAL, BUSINESS,		
OR TRADE SCHOOL .....	23	(DE-10)
2ND YEAR OF VOCATIONAL, BUSINESS,		
OR TRADE SCHOOL .....	24	(DE-10)
MORE THAN 2 YEARS VOCATIONAL,		
BUSINESS, OR TRADE SCHOOL .....	25	(DE-10)
REFUSED .....	-7	(DE-10)
DON'T KNOW .....	-8	(DE-10)

DE-10. Do you have a regular high school diploma, a GED, an ABE, or some other kind of certificate (of high school completion)?

REGULAR HIGH SCHOOL DIPLOMA .....	1
GED (GENERAL EDUCATIONAL	
DEVELOPMENT) .....	2
ABE (ADULT BASIC EDUCATION)	
CERTIFICATE (E.G., CORRESPONDENCE,	
NIGHT SCHOOL) .....	3
SOME OTHER KIND OF CERTIFICATE .....	4
NONE OF THE ABOVE .....	5
REFUSED .....	-7
DON'T KNOW .....	-8

DE-11. Are you currently employed either full-time or part-time?

YES, FULL-TIME .....	1	(DE-13)
YES, PART-TIME .....	2	(DE-12)
NO .....	3	(DE-12)
REFUSED .....	-7	(DE-12)
DON'T KNOW .....	-8	(DE-12)

ACOMS: PARENT QUESTIONNAIRE (October 13, 1986) MODULE: DEMOGRAPHICS  
OMB : 0702-0077 expiration 31 August, 1989 pg. 9-3

DE-12. Have you ever held a full-time job? [MORE THAN 34 HOURS PER WEEK]

YES .....	1
NO .....	2
REFUSED .....	-7
DON'T KNOW .....	-8

DE-13. How easy or difficult is it for someone (YOUTH'S NAME) age to get a full-time job in your community? Is it....

Almost impossible .....	1
Very difficult .....	2
Somewhat difficult, or .....	3
Not difficult at all .....	4
REFUSED .....	-7
DON'T KNOW .....	-8

[QUESTION BANK ITEMS DE-14, DE-15, DE-16, DE-17, DE-18,  
DE-19, DE-20, DE-21, DE-22, DE-23, DE-24, DE-25, DE-26,  
DE-27, DE-28 NOT USED IN QUARTER 1]

DE-29. I am going to read you some income categories and ask you to choose the letter of the alphabet associated with the category that best describes your total family income for the year 1985. Include all sources of income in your response. Please tell me only the letter.

A-Less than \$5,000 .....	1
B-\$5,001 to \$10,000 .....	2
C-\$10,001 to \$20,000 .....	3
D-\$20,001 to \$30,000 .....	4
E-\$30,001 to \$40,000 .....	5
F-\$40,001 to \$50,000 .....	6
G-\$50,001 and above .....	7
REFUSED .....	-7
DON'T KNOW .....	-8

DE-30. Have you ever served in the United States Armed Forces?

YES .....	1	(DE-31)
NO .....	2	(TERMINATE)
REFUSED .....	-7	(TERMINATE)
DON'T KNOW .....	-8	(TERMINATE)

DE-31. What month and year did you begin military service?

MONTH	YEAR
REFUSED .....	-7
DON'T KNOW .....	-8

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DE-32. Are you still in the Armed Forces?

YES .....	1
NO .....	2
REFUSED .....	-7
DON'T KNOW .....	-8

DE-33. What month and year (did/will) you finish serving in the Armed Forces?

MONTH	YEAR	
REFUSED .....		-7
DON'T KNOW .....		-8

DE-34. In which branch of the Armed Forces (did you serve/are you serving)?

Army .....	1	(DE-35)
Navy .....	2	(TERMINATE)
Marines .....	3	(TERMINATE)
Air Force .....	4	(TERMINATE)
Coast Guard .....	5	(TERMINATE)
REFUSED .....	-7	(TERMINATE)
DON'T KNOW .....	-8	(TERMINATE)

DE-35. Were you part of the Reserve Officers Training Corps (ROTC), a National Guard unit or the Army Reserves?

YES, ROTC .....	1
YES, NATIONAL GUARD .....	2
YES, ARMY RESERVES .....	3
NO .....	4
REFUSED .....	-7
DON'T KNOW .....	-8

[QUESTION BANK ITEMS DE-36, DE-37, DE-38, DE-39, DE-40,  
DE-41, DE-42 NOT USED IN QUARTER 1]

END

DATE

FILMED

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9-88