HRS | HEALTH AND RETIREMENT STUDY

Sample Evolution: 1992-1998

1. Introduction

The original HRS core sample design was a multistage area probability sample of households based on the Survey Research Center's 84 strata National Sample frame. To allow independent analysis of key subgroups, the core sample was augmented by three supplements. These supplements were

- A 1.86:1 oversample of African Americans
- A 1.72:1 oversample of Hispanics
- A 2:1 oversample of Floridians.

In addition, in order to improve coverage of the oldest old households with extremely frail respondents, a second sampling frame was employed: the Health Care Financing Administration (HCFA) Enrollment Data Base. To correct for the differential sampling rates of these subgroups and for differential non-response, sampling weights are provided for each wave of data for use in making inferences to the population.

In the following sections the basic design and sample sizes for the four component cohorts of the HRS are described. The cohorts are presented in order of their enrollment in the study: HRS, AHEAD, War Babies and the Children of the Depression. Because the same core sample design was used in three of the four cohorts, we will spend relatively more time on the first cohort (HRS) and will emphasize only the most important deviations from that design for the latter three cohorts.

2. HRS Core Sample and Supplements

2a. Study Population

The target population for the HRS cohort includes all adults in the contiguous United States born during the years 1931 - 1941 who reside in households. Following conventional practice for population surveys, institutionalized persons (i.e. those in prisons, jails, nursing homes, long-term or dependent care facilities) are initially excluded from the survey population. We do, however, follow individuals when they move from the household population into institutions.

The HRS observational unit is an eligible household financial unit. The HRS household financial unit must include at least one age- eligible member from the 1931-1941 birth year cohorts: 1) a single unmarried age-eligible person; 2) a married couple in which both persons are age-eligible; or 3) a married couple in which only one spouse is age-eligible. Throughout this document, the convenient term "household" will be used interchangeably with the more precise "household financial unit" definition. If a sample housing unit (HU) contains more than one unrelated age-eligible person, one of these persons is randomly selected as the financial unit to be observed. If an age-eligible person has a spouse, the spouse is automatically selected for HRS even if he or she is not age-eligible.

2b. Multi-stage Area Probability Sample Design

The HRS sample is selected under a multi-stage area probability sample design. The sample includes four distinct selection stages. An overview of these selection stages is given here. The primary stage of sampling involves probability proportionate to size (PPS) selection of U.S. Metropolitan Statistical Areas (MSAs) and non-MSA counties. This stage is followed by a second stage sampling of area segments (SSUs) within sampled primary stage units (PSUs). The third stage of sample selection is preceded by a complete listing (enumeration) of all housing units (HUs) that are physically located within the bounds of the selected SSU. The third sampling stage is a systematic

selection of housing units from the HU listings for the sample SSUs. The fourth and final stage in the multi-stage design is the selection of an age- eligible person within a sample HU.

2c. Oversamples of Special Populations

In addition to the nationally-representative, multi-stage area probability sample (the **core** sample), the HRS design includes three **oversamples**. The oversamples are introduced as supplements to the core national sample and are designed to increase the numbers of Black and Hispanic HRS respondents as well as the number of HRS respondents who are residents of the state of Florida. Sampling weights are provided on all HRS data sets to compensate for the unequal probabilities of selection between the core and oversample domains.

1990 Census data suggest that the expected total of completed interviews from an equal probability sample of U.S. households would contain approximately 10% age-eligible Black households. Within the 84 PSUs which comprise the first stage of the SRC National Sample Design, a supplemental sample of SSUs (area segments) was selected from second stage strata of Census block groups containing 10% or more 1990 Census households with a Black head. Thus, eligible persons in residential areas eligible for the second stage sample supplement (more than 10% Black households per block group) have a greater probability of selection than persons in areas which have less than 10% Black households. Through the use of this procedure, the representation of eligible Black household units was expected to increase from 10% to about 18.6% of the total HRS sample.

For an equal probability sample of U.S. households, estimates from the Current Population Survey would suggest that 5% of the HRS households would include a respondent of Hispanic origin. Approximately 58% of these Hispanic households are of Mexican ancestry. The design objective for the HRS was to obtain a two-fold oversampling of Mexican-American households. The Hispanic supplement required additions to the PSU sample, especially in the West and Southwest. In addition to expanding the primary stage of the sample, supplemental sampling of SSUs in areas with Hispanic household density of 10% or more was used to assure sufficient sample size to permit subgroup analysis. Unlike the Black oversample eligibility in these SSUs was restricted to households containing an age-eligible Hispanic household member. The Hispanic supplement was designed to increase the representation of Hispanics, including the Mexican-American subgroup, from 5% to 8.6% of the total HRS sample. In addition to the oversamples of Black and Hispanic households, the HRS design incorporates a two-fold oversample of Florida households (across all race and ethnic groups). Supplemental funds were obtained to increase the number of Florida PSUs (from 5 to 12 Florida PSUs). This insured that there would be sufficient precision to allow separate state-level analysis of data from the HRS Florida respondents.

2d. HRS Household-level and Person-level Response Rates

Table 1 summarizes the household-level response rate experience of the overall HRS survey and its sample components. Table 2 shows the corresponding person-level response rates. The sample design specifications called for an 80 percent response rate. The tables below show that this rate was met or exceeded by all sample components except the Hispanic supplement which has a household response rate of 71 percent and a person-level response rate of 77 percent.

Table 1: HRS Wave 1 Household-level Response Rates

Sample Component		Elig. + DK Elig. HHs	Known Elig. HHs	Interviews	Response Rate[1]	
					Low	High
Complete Sample		9,481	9,267	7,608[2]	0.802	0.821
Subsets	Core (not Florida)	7,236	7,095	5,828	0.805	0.821
	Black Supplement	1,480	1,444	1,193	0.806	0.826
	Hispanic Supplement	331	304	236	0.713	0.776
	Florida Sample	434	424	351	0.809	0.828

Table 2: HRS Wave 1 Person-level Response Rates[3]

Sample Component		Eligible	Interviewed	Response Rate
Complete Sample		15,497	12,654	0.816
Subsets	Core (not Florida)	12,052	9,872	0.819
	Black Supplement	2,211	1,794	0.811
	Hispanic Supplement	509	392	0.770
	Florida Sample	725	596	0.822

Of the 12,654 HRS Wave 1 interviews, 609 interviews (351 R1s and 258 R2s) were obtained in response to special incentives as part of the HRS Nonresponse Study. These 609 interviews were from a sample of 2,602 HRS selected persons (1617 sample households) who initially refused to participate. Of the 1,617 household refusals in the Nonresponse Study, 67 were found to have no eligible sample members.

2e. Wave 1 HRS Weights for Data Analysis

The complex sample design of the Health and Retirement Study, which includes oversamples of Hispanics, Blacks, and households in the state of Florida requires compensatory weighting in descriptive analyses of the survey data. Beyond simple compensation for unequal selection probabilities, weighting factors are also used to adjust for geographic and race group differences in response rates and for the sub-sampling of households in a small number

[1] Two response rates are shown. The low response rate shows the DK eligible households in the denominator. The high response rate includes only known eligible households in the denominator.
[2] Household here means financial household. The household total here (7608) is less than the total household count for HRS Wave 1 (7703) because of 95 households with no financial respondent (due to refusal) and two lost pencil-and-paper interviews (one household).
[3]Though 12,654 respondents were interviewed, there are only 12,652 data records, due to the two lost pencil-and-paper interviews.

of locked buildings or dangerous areas.[4]Post-stratification adjustments are made at both the household and person level in order to control sample demographic distributions to known 1990 Census totals. This section describes the weight variables which have been developed for the HRS Wave 1 data.

The household analysis weight is a composite weight which has been formed from the product of five component factors: (1) the housing unit selection weight, (2) an adjustment factor for non-listed segments,[5] (3) an adjustment factor for sub-sampled areas, (4) a household non-response adjustment factor, and (5) a household post-stratification factor. The person level analysis weight incorporates two additional factors, the respondent selection weight and a person level post-stratification factor. In the few cases where a household contained both an HRS and an AHEAD eligible respondent there is a further adjustment to reflect a random allocation into one of the two studies.

The HRS household selection weight is a relative weight value designed to be used with contemporary software systems that support weighted estimation and data analysis. HRS data analysts may opt to scale this relative weight. Some analysts may prefer the sum of weights to equal the nominal sample size (n = 7608). Others may prefer a scaled version of the weight that sums over cases to the eligible household total (N = 17,649,279 for 1990 U.S. households). With the exception of estimates of household population totals, weighted estimation and analysis of HRS household data should be invariant to linear scaling of the relative household weight value. Nevertheless, HRS data analysts are advised to investigate how their chosen analysis program treats weights in estimation and inference.

2f. Person Level Weight - Respondent Selection Factor

The Health and Retirement Study is a sample of households with at least one person born during the period 1931 - 1941. Although non- age eligible persons were interviewed for HRS if they were a spouse or partner of an age-eligible respondent, the HRS is not a probability sample of persons born before 1931 or after 1941. These age-ineligible persons have a person level analysis weight of zero. Their data is useful in constructing household level estimates or models, but they should not be part of a person-level analysis if inferences are to be made to the finite population from which they were drawn.

Two factors determine the value of the respondent selection weight: (1) the marital status of the respondent, and (2) the number of age- eligible persons in the household. The respondent selection weight is the inverse of the probability of selection of the age-eligible respondent from the total number of age-eligible household members. In addition to the post-stratification to known 1990 Census household totals for Census Region by Race by Marital Status, the HRS survey data is post-stratified at the person level to 1990 PUMS totals for Census Region (4) by Race/Ethnicity (3) by Sex (2) by Age Group (3). In all, 72 post-stratification cells were formed (4 x 3 x 2 x 3 = 72). Age-eligible respondents were weighted by the product of the Household Analysis Weight and the Respondent Selection Weight and weighted totals were obtained for each of the 72 post-stratification cells. The person-level post-stratification factor was then formed by dividing the 1990 PUMS estimate of total population for each cell by the weighted HRS estimate of the population total.

The Person-level Analysis Weight is the product of the Household Analysis Weight, the Respondent Selection Weight and the Person-level Poststratification Weight. Only age-eligible respondents have valid person-level weights. Age-ineligible respondents have a value of zero for the person weight. Household-level data appears only on the primary respondent (R1) record. Therefore only R1s have valid household analysis weights. Secondary respondents (R2s) have a household weight of zero. Age-eligible R2 cases incorporate the household weight as one of the multiplicative factors of the final person-level analysis weight. Table 3 shows the relationship of respondent type, age-eligibility and weights

[4] A sub-sampling procedure was used in two types of areas: dangerous areas which were determined to be too risky for normal interviewing procedures, and locked buildings or gated residential areas in which the interviewers were unable to gain access. Instead of excluding the entire affected area, one-third of the sample lines in these segments were sub-sampled and special efforts and resources were concentrated on the smaller set of cases in order to have at least some representation from the area.

[5] Listing of area segments in Los Angeles coincided with the riots associated with the Rodney King verdict. Interviewers were not able to list two Black supplement segments and four Hispanic supplement segments. Sample lines in similar segments received weights to compensate for the non-listed segments.

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Table 3: Use of Household and Person Weights

Respondent Type	Age-Eligibility (Year of Birth: 1931-1941)	Unit of Analysis	Use Household Weight	Use Person Weight
Primary (R1)	Yes	Household	Yes	No
Primary (R1)	Yes	Person	No	Yes
Primary (R1)	No	Household	Yes	No
Primary (R1)	No	Person	No	No
Secondary (R2)	Yes	Household	No	No
Secondary (R2)	Yes	Person	No	Yes
Secondary (R2)	No	Household	No	No
Secondary (R2)	No	Person	No	No

2g. Sample Error Computation

The HRS is based on a stratified multi-stage area probability sample of United States households. The HRS sample design is very similar in its basic structure to the multi-stage designs used for major federal survey programs such as the Health Interview Survey (HIS) or the Current Population Survey (CPS). The survey literature refers to the HRS, HIS and CPS samples as complex designs, a loosely-used term meant to denote the fact that the sample incorporates special design features such as stratification, clustering and differential selection probabilities (i.e., weighting) that analysts must consider in computing sampling errors for sample estimates of descriptive statistics and model parameters. Standard analysis software systems such SAS and SPSS assume simple random sampling (SRS) or equivalently independence of observations in computing standard errors for sample estimates. In general, the SRS assumption results in underestimation of variances of survey estimates of descriptive statistics and model parameters. Confidence intervals based on computed variances that assume independence of observations will be biased (generally too narrow) and design-based inferences will be affected accordingly.

There are a variety of models and software packages available which can be used to estimate sampling errors which take into account deviations for simple random sampling of complex sample designs. Examples of commercially available programs for sample error computation include PC CARP, the SVY command set in STATA, SUDAAN and CLUSTERS. To facilitate the computation of sampling error for statistics based on HRS data, design-specific sampling error codes will be routinely included in all public-use versions of the data set. Although minor recoding may be required to conform to the input requirements of the individual programs, the sampling error codes that are provided should enable analysts to conduct either Taylor Series or Replicated estimation of sampling errors for survey statistics. Two variables are provided for this purpose:[6]

- STRATUM (formerly named SESTRAT) - The sampling error stratum code is the variable which defines the sampling error computation strata for all sampling error analysis of the HRS data. With the exception of the New York, Los Angeles and Chicago MSAs, each self-representing (SR) design stratum is represented by one sampling error computation stratum. Due to their population size, two sampling error computation strata are defined for each of the three largest MSAs. Pairs of similar non- self-representing (NSR) primary

[6] STRATUM and SECU values are provided for all respondents (i.e., all cohorts) in the Tracker file.

stage design strata are "collapsed" (Kalton, 1977) to create NSR sampling error computation strata.

Controlled selection and a "one-per-stratum" design allocation are used to select the primary stage of the HRS national sample. The purpose in using Controlled Selection and the "one-per-stratum" sample allocation is to reduce the between-PSU component of sampling variation relative to a "two-per-stratum" primary stage design. Despite the expected improvement in sample precision, a drawback of the "one-per-stratum" design is that two or more sample selection strata must be collapsed or combined to form a sampling error computation stratum. Variances are then estimated under the assumption that a multiple PSU per stratum design was actually used for primary stage selection. The expected consequence of collapsing design strata into sampling error computation strata is the overestimation of the true sampling error; that is, the sampling error computation model defined by the codes will yield estimates of sampling errors which in expectation will be slightly greater than the true sampling error of the statistic of interest.

- SECU (formerly named HALFSAM) - Stratum-specific half sample code for analysis of sampling error using the BRR method or approximate "two-per-stratum" Taylor Series method (Kish and Hess, 1959). Within the self- representing sampling error strata, the half sample units are created by dividing sample cases into random halves, HALFSAM=1 and HALFSAM=2. The assignment of cases to half-samples is designed to preserve the stratification and second stage clustering properties of the sample within an SR stratum. Sample cases are assigned to half samples based on the SSU in which they were selected. For this assignment, sample cases were placed in original stratification order (SSU number order) and beginning with a random start entire SSU clusters were systematically assigned to either HALFSAM=1 or HALFSAM=2.

In the general case of non-self-representing (NSR) strata, the half sample units are defined according to the PSU to which the respondent was assigned at sample selection. That is, the half samples for each NSR sampling error computation stratum bear a one-to-one correspondence to the sample design NSR PSUs.

The particular sample coding provided on the HRS public use data set is consistent with the "ultimate cluster" approach to complex sample variance estimation (Kish, 1965; Kalton, 1977). Individual stratum, PSU and SSU code variables may be needed by HRS analysts interested in components of variance analysis or estimation of hierarchical models in which PSU-level and neighborhood-level effects are explicitly estimated.

3. AHEAD Core Sample and Supplements

The target population for the AHEAD survey consists of United States household residents who were born in 1923 or earlier. AHEAD uses the same national probability sample of U.S. households with supplemental oversamples of Blacks, Hispanics and residents of the state of Florida as the HRS. Indeed, for most of the sample the same screening survey was used in the two cohorts. The major difference between the AHEAD and HRS sample design (other than the cohort) is that a dual frame approach was used for individuals born prior to 1914.

A discussion of AHEAD sample design and interview methodology requires the definition of two subgroups of eligible households in the survey population. The two groups of AHEAD-eligible households are defined solely for purposes of the sample design and determination of the primary mode of interview -- phone for younger households, face-to- face for older households. The assignment of households to the two groups is based on the age of the oldest person in the household financial unit. If the single adult or either spouse in a married couple was born prior to 1914, the household financial unit is assigned to Group 2. If the single adult or both persons in a married couple were born after 1913 the household financial unit is assigned to Group 1. The full national sample of AHEAD-eligible households is divided approximately 60% to Group 1 and 40% to Group 2. Under the AHEAD sample design, Group 1 households are selected exclusively from the area probability (AP) frame component. Group 2 households are selected using a dual-frame design, roughly 50% of the Group 2 sample originating with the AP frame and the remaining 50% from a stratified sampling from a list frame of Medicare enrollees.

Beginning with Wave 1, AHEAD Group 1 households -- those age 70-79 in 1993 -- were interviewed by telephone except in cases where there was no telephone in the household or the respondent was unable to complete the interview by telephone. Their spouses were also interviewed by telephone. Most AHEAD respondents in Group 2

were interviewed face- to-face in their homes, although telephone interviews were permitted in cases where the respondent preferred the telephone mode. Face-to- face interviews were also the primary mode of Wave 1 data collection for the spouses of these respondents, irrespective of the spouse's age. The percent of persons in each major age group who were interviewed in person or by telephone is summarized in Table 4 below.

Table 4. AHEAD Wave 1: Distribution of Wave 1 Responses by Respondent Age and Interview Mode

Respondent Type	In-Person Interview	Telephone Interview
Age 70 - 79	28%	72%
Age 80 +	70%	30%
Age-ineligible Spouse	28%	72%

3a. AHEAD Dual-Frame Sample Design

Both the area probability (AP) and the HCFA EDB file components of the Group 2 dual-frame approach employed multi-stage probability sampling. The AP design component employs conventional multi-stage area probability sampling down to the selection of addresses from second stage unit (SSU) listings generated by SRC enumerators. Anticipating that the sample would also be used as the basis for a national study of the oldest old, the HRS screening forms completed during contact with the approximately 69,000 sample housing units selected for HRS were designed to identify households with members who would be eligible to participate in AHEAD.

The HCFA EDB file list sample was selected from Medicare enrollees whose listed addresses were linked to a primary stage unit of the AP sample design. EDB file addresses were linked to AP primary stage units (PSUs) using county and ZIP Code identifiers that were present on each enrollee's record. Within PSUs, geographic clusters (based on ZIP Code areas) of persons born in 1913 or earlier (i.e., age 80 or older in 1993) were then linked to the AP SSUs (area segments) of the AP sample component. A sample of ZIP areas was selected and individual enrollees in sampled ZIPs were subsampled with probabilities that yielded an equal overall probability of selection for each eligible Group 2 enrollee. The union of these two independent samples, the AP sample and the HCFA EDB file list sample selections, produced a dual frame probability sample of the Group 2 AHEAD population.

Table 5 provides a summary of the AHEAD sample outcomes for Group 1 and Group 2 households and individual respondents. As the table shows, the total sample of age 80+ respondent households was divided between the AP and the HCFA EDB file list frames. The difference in the expected 80+ interview counts for the two frames was due to the fact that the AP frame sample includes supplements of Blacks, Hispanics and Florida residents that were not replicated in the HCFA EDB file selection.

Table 5: Summary of AHEAD Wave 1 Household and Respondent Samples

Sample Frame/ Sample Group	Eligible Households	Eligible Persons	Respondent Interviews	Unweighted Response Rate
Area Probability				
• Age 70-79 (Group 1) • Age 80+ (Group 2)	• 4,603 • 1,570	• 6,605 • 1,982	• 5,323 • 1,631	• 80.6% • 82.3%
HCFA EDB File List				
• Age 80+ (Group 2)	• 1,336	• 1,643	• 1,268	• 77.2%
Total Sample	7,509	10,229	8,222	80.4%

3b. HRS - AHEAD Overlap and Weighting

In roughly 100 instances household financial units (married couples) included both an HRS-eligible and an AHEAD-eligible person. In these cases a random subsampling was performed with 60% of the cases going to the HRS and the remaining going to the AHEAD.

For the AP portion of the sample the same weighting methods described above for the HRS cohort were applied for the AHEAD. The only differences are a result of certain sample reducing subsampling and the use of fewer cells in the post-stratification adjustments. For the HCFA EDB sample the base weight was simply the inverse of the selection probability which was .0002 for individuals in financial units containing only 1 AHEAD Group 2 eligible person and .0004 for those units containing two AHEAD Group 2 eligible partners.

4. War Babies and Children of the Depression Sample Designs

The sample design employed for the War Babies (1942 - 1947 birth cohorts) component of the 1998 HRS is exactly the same as that employed for the original HRS cohort. Indeed, the same 1992 screening interview was used as the basis of the sample. The only important difference results from the fact that some members of the War Babies cohort were age ineligible spouses of the HRS or AHEAD age eligible respondents and were already included in the study. With the introduction of the new cohort they are now age-eligible sample members in the own right and are given positive weights in 1998.

The sample for the Children of the Depression (1924 - 1930 birth cohorts) was drawn from HCFA files using a method similar to that used for the HCFA portion of the 1993 AHEAD.

5. Households and Persons: Who Answered What?

5a. Questions and Respondents

The most important distinction is between individuals who are part of a couple (either married and living with their spouse, or living with a partner) and those who are not. Those who are not part of a couple are asked all questions that apply to them as individuals and as economic units. For those who are part of a couple, some questions are asked either of them or their spouse/partner, but not both of them. Which questions were asked of only one member of a couple, and how that distinction was made, has not been completely consistent across waves of data collection. Another factor that influences whether or not certain questions were asked is whether the interview was conducted directly with the sampled individual or with a proxy informant.

A summary of sets of questions and the type of respondents who were asked those sets is provided in Table 6. The rows are general sets of questions. The columns are waves of data collection for HRS, AHEAD, and the merged HRS/AHEAD data collection in 1998. The cells indicate which types of respondents were asked questions in a particular set (defined by the row) in a particular wave (defined by the column). The following notation is used:

- *Coversheet R: The respondent who answered the coversheet questions. The respondent doing the first interview in a couple-household at a particular wave was asked the coversheet questions.
- *Fin R: Financial respondent
- *Fam R: Family respondent
- Self R or Proxy R: Whether the questions were asked of the sampled person directly or of a proxy informant
- All Rs: Includes both Self and Proxy Rs
- Informant: The person who gave the household listing for the selected household. May or may not be one of the selected respondents.

Note: In a single-R household (where the respondent is neither married nor living with a partner), that respondent is the Coversheet R, the Financial R, and the Family R.

Table 6: Questions and Respondents

This table is organized into three sections -- questions sets that pertain to individual respondents, those that pertain to the household, and those that collect information about other persons related to the respondents.

Class of questions	**HRS 1**	**AHEAD 1**	**HRS 2**	**AHEAD 2**	**HRS 3**	**HRS98**
Individual level:						
Most characteristics	All Rs	All Rs	All Rs	All Rs	All Rs	All Rs
Test of cognitive status	Self Rs	Self Rs	Self Rs	Self Rs	Self Rs	Self Rs
Assessment of R's cognitive status	-	Proxy Rs	-	Proxy Rs	-	Proxy Rs
Health care	All Rs	All Rs	All Rs	All Rs	All Rs	All Rs
Costs of health care	-	Fin Rs	All Rs	All Rs	All Rs	All Rs
Helper characteristics	-	All Rs	-	All Rs	-	All Rs
Current work status	All Rs	All Rs	All Rs	All Rs	All Rs	All Rs
Job characteristics of current/last job	All Rs	-	All Rs	-	All Rs	All Rs
Subjective questions about work and retirement	Self Rs	Self Rs	Self Rs	Self Rs	Self Rs	Self Rs
Disability	All Rs	-	All Rs	-	All Rs	All Rs
Expectations	Self Rs	Self Rs	Self Rs	Self Rs	Self Rs	Self Rs
Household level:						
Housing	Fin Rs	Fin Rs	Fin Rs	Fin Rs	Fin Rs	Fin Rs
Income and wealth	Fin Rs	Fin Rs	Fin Rs	Fin Rs	Fin Rs	Fin Rs
Health insurance	Fin Rs	All Rs	All Rs	All Rs	All Rs	All Rs
Life insurance	Fin Rs	Fin Rs	All Rs	All Rs	All Rs	All Rs
Other persons:						
Parents/parents-	Fam R	-	Fam R	-	Fam R	Fam R

in-law						
Siblings/siblings-in-law	Fam R (if living parents/ parents-in-law	-	Fam R (if living parents/ parents-in-law	-	Fam R (if living parents/ parents-in-law	Fam R (if living parents/ parents-in-law
Children: enumeration	"Informant"	Fam R	Coversheet R	Coversheet R	Coversheet R	Coversheet R
Children: characteristics	Fam R	Fam R	Fam R	Fam R	Fam R	Fam R
Co-residents: enumeration	"Informant"	Fam R	Coversheet R	Coversheet R	Coversheet R	Coversheet R
Co-residents: characteristics	"Informant"	Fam R	Fin R (earnings)	Fam R & Fin R (earnings)	Fam R & Fin R (earnings)	Fam R & Fin R (earnings)

6. Other Details

6a. Mode of data collection

Most of the interviews are done by telephone, although exceptions are made when respondents have health limitations that would make an hour- plus session on the telephone difficult or impossible or when there was no telephone in the household. The preferred mode of data collection was face-to-face for the following types of respondents:

1. The first wave of data collection on HRS
2. AHEAD respondents age 80 and older
3. The baseline interview, in 1998, with the CODA and War Baby cohort samples.

In addition, a mode experiment is built into the design for waves 2 and 3 of AHEAD. In wave 2, sample members born in the years 1914-17 were randomly assigned to telephone or face-to-face as the preferred mode of data collection. The consequence is that half of those in the birth cohorts of 1914 and 1915 were delayed for one wave in the transition from the telephone to the face-to-face mode, while half of those born in 1916 and 1917 were asked to make that transition one wave earlier than would ordinarily have been the case. Similarly, sample members in the birth cohorts of 1918 - 1920 were randomly assigned to telephone or face-to-face as the preferred mode in HRS98. The purpose of this experiment is to permit the assessment of possible mode effects on respondent behavior. Both the assigned and actual modes are indicated by variables on the public use data files.

6b. Proxy informants

The interviewers were instructed to attempt to obtain interviews with the sample members themselves whenever possible, but as in any survey, especially of the elderly, some of those individuals are unable to complete an interview because of physical or cognitive limitations. Moreover, in a small number of cases the sampled individuals were unavailable throughout the data collection period, unable to complete the interview in English or Spanish, or were unwilling to be interviewed, but did not object to someone else answering questions about them.
In some cases, the individual was willing to be interviewed but there were concerns about his or her ability to provide accurate data. In the second wave of AHEAD, three criteria were developed:

- how long the initial part of the interview took to complete;
- the number of questions to which the respondent gave a "don't know" response; and
- the respondent's score on a test of cognitive functioning.

Scores above a certain threshold (i.e., an unusually long time to complete the initial section, more than a threshold number of "don't know" responses, or less than a threshold score on the cognitive test) triggered a signal to the interviewer that a proxy respondent should be sought to do the interview or that someone should be asked to assist the respondent for the remainder of the interview. In practice this advice was not always followed, often because the interviewer did not think there was an appropriate person who could asked to be a proxy respondent or to help answer the questions. However, in some cases a proxy interview was completed and the responses made by the sample person were replaced by those of the proxy. In other cases another person assisted the respondent for the remainder of the interview; indeed, often those who scored poorly on the cognitive test were already were receiving assistance with the interview.

In HRS 1998, only the third criterion listed above (i.e., low scores on the cognitive test) was used, since the other two did not identify any additional wave 2 cases, and this criterion was used only for respondents aged 65 and older, but was applied to those in the original HRS sample and to those in the new cohorts as well as to those in the AHEAD sample who were in that age range.

When a proxy was needed for any of the reasons just described, the interviewers were instructed to attempt to interview the person who was most familiar with the financial, health, and family situation of the sampled individual. In practice, this was generally the spouse of the person if he or she was married or living with a partner. In the absence of a spouse, the proxy was often a daughter or a son, or less frequently another relative or a care giver. The relationship of the proxy to the sample person is noted in a variable that is present for each wave. In addition, if there was a proxy informant at two successive waves, there is a variable that indicates whether or not this was the same individual on each occasion.

A version of the questionnaire was developed that would be appropriate to administer to proxy informants. For most questions, this involved only wording changes (e.g., from "you" to "him" or "her"), but some questions were thought to be inappropriate to ask of proxies and so were omitted entirely. These included questions intended to assess psychological depression; the test of cognitive status; expectation questions; and questions about subjective evaluations of the person's job or retirement. Proxy informants were asked a different set of questions designed to measure the cognitive abilities of the sampled person.

6c. "Exit" interviews

For a number of reasons, including the fact that large health care costs are often incurred in the final months of life and assets are often distributed to children and other heirs following death, it is considered important to the objectives of HRS and AHEAD to obtain an interview with an appropriate informant following the death of each sample member. A special questionnaire, referred to as the "exit" interview, was developed for this purpose starting with the second wave of AHEAD. (A somewhat modified version of the core interview was administered to proxy informants for deceased sample members at the second wave of HRS.)

6d. Language

Some selected individuals prove to be unable to communicate well enough in English to be interviewed, at least with questions as numerous and sometimes as complex as those included in the HRS and AHEAD interviews. Past experience indicates that it is not a good idea to permit interviewers to handle this on an ad hoc basis, for example by speaking to the person through an English-speaking relative or by hiring a translator, since no control could be retained over the accuracy of the translated questions. For this reason, Spanish versions have been developed of each of the questionnaires, and have been administered by bilingual interviewers to Spanish-speaking respondents. Sample members who are unable to communicate adequately in either English or Spanish, and for whom interviews with proxy informants could not be obtained, are treated as non-respondents and have been dropped from the study.

6e. Residents of nursing homes

The target population for all cohorts is limited to those living in households at the time of the baseline data collection period. For this reason, interviews were not conducted with individuals living in nursing homes or other types of institutions at the time they were first contacted. (This does not apply to short-term stays in nursing homes or in other types of health care facilities; in such cases, the usual practice is to call back later in the field period to ascertain if the individual has returned to his or her usual place of residence.) After the baseline interview has been completed, however, the intention is to follow sample members wherever they go. Interviews are sought with those who move into nursing homes or other types of facilities, or with proxy informants for those who are unable to do the interview.

Starting with the second wave of AHEAD, it was recognized that important information was missed about the situation of sample members with spouses who were in nursing homes at the time of the baseline interview. For this reason, interviews (self or proxy) were sought at that wave with those spouses even if they were still living in nursing homes, and this practice is to continue in all subsequent waves.

6f. Changes in marital status

If a sample member who was not living with a spouse or partner at one wave is found to be living with a spouse or partner at the following wave, then an interview is requested with the new spouse or partner as well as with the sample member.

If a sample member was living with a spouse or partner at one wave is found not to be living with that same spouse or partner at the following wave, then interviews are requested with both members of the previous wave couple, and also with any spouse or partner with whom either of them is living at the time of the following wave.

The only exceptions to the rules described in the two preceding paragraphs are the following.

1. At the third wave of HRS, if a non-cohort eligible spouse or partner of a sample member was no longer living with the sample member at wave 2, and by wave 3 was married to or living with someone else, no interview was sought at wave 3 with that cohort-ineligible spouse/partner. That is, if at wave 1 one member of a couple was born in the HRS range (1931 - 41) and the other one was born outside of both the HRS and AHEAD ranges (i.e., in 1924 - 30 or after 1941), and they had separated by wave 2, then interviews were sought with both individuals at wave 2, regardless of their marital status at that time. However, if the cohort-ineligible person was married to or living with someone else by wave 3, an interview was not requested with that person or with that person's new spouse or partner. This exception was rescinded as of HRS98, so that now interviews are requested with all respondents to the baseline survey.

2. Interviews are sought with the new spouses or partners -- that is, individuals with whom the sample members were not living at the time of the baseline interview -- only until they no longer live with the sample member and are found to be married to or living with someone else.

7. Design History

7a. Early HRS and AHEAD Surveys

The *Health and Retirement Study* (HRS) and *Asset and Health Dynamics Among the Oldest Old* (AHEAD) studies were created as separate but related surveys. The original HRS study was supported by a cooperative agreement between the National Institutes on Aging (NIA) and the University of Michigan, with additional funding from the Social Security Administration, the Assistant Secretary for Planning and Evaluation (ASPE) in the U.S. Department of Health and Human Services (DHHS), and the Pension and Welfare Benefit Office (see Juster and Suzman 1995). It was joined in 1993 by a companion study, Assets and Health Dynamics of the Oldest Old (AHEAD), consisting of persons born before 1924 who were aged 70 and over in 1993. It was funded as a supplement to the HRS (see Soldo, et. al. 1997).

In its original conceptualization, the HRS study was designed to follow age- eligible individuals and their spouses as they made the transition from active worker into retirement; the AHEAD study was designed to examine the dynamic interactions between health, family, and economic variables, in the post-retirement period at the end of life.

The HRS study spanned three waves of data collection: 1992, 1994, and 1996. The AHEAD study included two waves: 1993 and 1995. The HRS and AHEAD sample designs provided for 'exit interviews' with a surviving spouse, child or other informant concerning medical expenditures and family interactions with the deceased during the final stages of life. Exit interviews were also designed to provide information about the disposition of assets following death.

Both studies obtained detailed information in a number of domains: demographics, health status, housing, family structure, employment of respondent, work history and current employment, disability, retirement plans, net worth, income, and health and life insurance. In addition, there were several important linkages between HRS and AHEAD survey data and information from employers and from administrative data. HRS supplementary data included administrative data from Social Security earnings and benefits records, National Death Index data, Medicare claims record data and employer pension data.

In 1998 the HRS and AHEAD studies were merged, respondents from each forming a cohort in a combined interview. At the same time, two new cohorts were added: the Children of the Depression Era (CODA), born in 1924-30 and War Babies (WB), born in 1942-47. See *Added Cohorts and the Movement to Steady State* (below) for further details.

7a-1. Sample Design and Sample Characteristics

The original HRS cohort sample size was the result of the trade-offs between survey length (driven by the data requirements of the various retirement and aging models) and budget constraints. The sample size that emerged from the planning process was very close to the sample size recommendations contained in the reports of expert groups convened by NIA; these recommendations, in turn, were based on analysis of the amount of statistical power needed for various types of analyses. In effect, decisions about sample size (and response rate) resulted from NIA's ability to finance substantially longer interviews than originally planned and budgeted by providing additional resources, thus maintaining the original targets for both sample size and response rates.

7a-2. Oversamples

Although sample size for both cohorts was a function of budgetary constraints, sample composition, in terms of the age range and oversample characteristics, resulted from quite different considerations. Specifically, the project oversight committees (the HRS Steering Committee and the NIA Data Monitoring Committee) regarded the oversampling of blacks as crucial to the success of the study of retirement. Many of the factors that influence retirement decisions are thought to be quite different for blacks than for whites. For example, the influence of family structure is thought to be different because of the greater extent of extended family relationships among blacks. The influence of health conditions is thought to be different because of the substantially greater prevalence of certain types of disease conditions and functional limitations among blacks. Blacks are also less likely to have jobs with private pensions, are likely to have fewer economic resources generally as they approach retirement age, and are less likely to be married than whites. All these conditions suggest the importance of providing a large enough sample of blacks to permit independent analysis on the black population, allowing for different parameter values and different responses to the same economic and other circumstances.

Many of the same considerations apply to the analysis of Hispanics, although less is known generally about Hispanics because of their relatively small numbers in the typical population sample. Both blacks and Hispanics were oversampled at the rate of 2:1 relative to whites, aided by supplementary funding from the NIA Office of Minority Affairs.[7]

[7] The oversampling procedure was done differently for blacks and Hispanics. For blacks, we selected Primary Sampling Units (PSUs) with very high densities of blacks and included all residents in the sample, provided they were age-eligible. For Hispanics, where even the highest densities in PSUs were relatively low, we selected only Hispanics by inquiring about ethnicity as well as age-eligibility.

HRS investigators also decided to oversample residents of the State of Florida, a decision importantly influenced by the Congressional Appropriation language for HRS, which specified that special attention be given in HRS to areas with "high densities and numbers of older populations". From that perspective, Florida was the obvious location in which to oversample, since other areas having as high an incidence of older households (Arizona) lacked numbers, and areas having equally large numbers (California, for example) lacked incidence. The Florida oversample was supported by special appropriations from the NIA general budget and from the State of Florida.

7a-3. Women

One of the weak features of previous retirement studies was the lack of attention paid to women, and the consequent inability to analyze retirement as a joint decision for couples where both spouses were working. The economy had changed drastically since the last major retirement study in the 1970's, and the prevalence of two-earner families was substantially higher. Thus HRS researchers decided early on to define the sample to include persons who were eligible by virtue of age, and include their spouses regardless of age. The unit of observation became the age-eligible spouse in the sample, while the characteristics of the spouse of an age-eligible person were regarded as an important source of variation that would influence the retirement decision of the age-eligible person. In effect, the characteristics of spouses of age-eligible persons were seen as right- hand-side variables in a retirement function.

7a-4. Age Range

The decision about sample age range was one of the most difficult faced in the planning process. On the one hand, it is desirable to begin collecting data for a retirement study before retirement decisions have been made, since recreating retirement decisions ex post facto is not analytically satisfactory. This would argue for constructing the age range so that virtually no one had yet made a retirement decision when he or she entered the sample; but collecting extensive data for years prior to retirement is costly.

To take an extreme case, one way to study retirement decisions would be to begin collecting data when people start their work careers in their twenties, and to continue collecting data up through the point when they retire. This would give the analyst a rich array of data over the entire work career, and would clearly represent the best chance for accurately modeling a retirement decision. But the cost of doing this would be extremely high -- one must wait many years, decades at the extreme -- before being able to observe the key variable of interest (the decision to retire), and data collection costs would be incurred for this entire period.

Thus the problem was to pick an age range such that most of the sample had not yet retired, but where the sample was not too much younger than the typical retirement age. After much discussion in the Working Groups, the Steering Committee and the Data Monitoring Committee, it was decided to set the age range for the HRS at 51-61, partly on the grounds that a common age at which private pension plans provided strong retirement incentive was around the mid-50's, and it would be well to collect several years of data prior to that decision point. The best compromise seemed to be the 51-61 age range.

7b. Survey Content

This section details some of the more important decisions made by the four expert Working Groups concerned with survey content: Labor Force Participation and Pensions, Health Conditions and Health Status, Family Structure and Mobility, and Economic Status. Some innovative features of the HRS design are also discussed.

7b-1. Labor Force Participation and Pensions

The HRS was fortunate in being able to build on the designs of the NLS, PSID and RHS, all of which dealt extensively with the measurement of work and job characteristics relevant to retirement decisions. Among decisions relating to data quality in this area were those involving job demands and characteristics, characteristics of employer pension plans, assessment of hours flexibility, and laying the groundwork for a reliable longitudinal work history.

- **Job Characteristics.** The labor supply literature contains many measures concerned with job demands and job characteristics. The problem for the Working Group was to select from this very large array. The solution generally was to identify measures that seemed to be most strongly related to labor supply decisions in other studies. This approach did not work for cognitive job demands, where the existing

measures are relatively sparse. The labor literature, by and large, assumes that jobs are typified by manufacturing activities that place heavy stress on physical characteristics, much less so on jobs where the primary requirements are cognitive. Thus the committee had to develop new items dealing with eyesight and memory, requirements for concentration or attention, for interpersonal skills, for analysis of data, etc.

- **Pension Characteristics.** To analyze the effect of pension plan provisions on retirement decisions, it is necessary to collect data on pension plans from all employers providing such plans to respondents, whether an HRS respondent is actually receiving pension benefits or is still making pension contributions. Descriptive data was collected on all pension plans for any current job the respondent held, for the most recent employer for a respondent not currently working and for the next most recent job held by either working or non-working respondents.

  HRS relied heavily on the analysis of pension plans developed in conjunction with the Survey of Consumer Finances (SCF), particularly the sequence developed for the 1989 SCF. These question sequences provided detailed characteristics of both defined benefit and defined contribution pension plans, and information on early retirement possibilities and incentives. As with the SCF pension data, HRS collected Summary Plan Descriptions from the employers of respondents included in pension plans, then coded the relevant formulas used to derive defined benefit schedules. Pension benefits based on pension plan provisions have been generated (Gustman, Mitchell, Samurek, Steinmeier 1998).

- **Hours Flexibility.** Labor economists are in general agreement that the degree of flexibility in work hours is an important factor in retirement decisions. The common view is that most jobs do not have any flexibility in work hours, and that the absence of such flexibility constitutes an important reason why people leave the work force. HRS was designed to provide extensive measures with which to test the influence of hours flexibility on labor supply.

- **Longitudinal Features.** Two important issues related to longitudinal analysis are worth noting in this brief overview. First, tracking job changes between waves of a longitudinal survey has long proved to be difficult: respondents report that they have changed employers when they appear not to have and vice versa; they report changes in work responsibility when it appears that no change has taken place, etc. The best solution was to identify the Wave 1 job precisely, including the job title and the name and location of the employer. Then in subsequent waves, the interviewer would not have to ask whether the respondent had changed employers, but could say something like: Our records indicate that you were working for the XYZ Company in location A. Are you still working for that employer? A respondent might answer that the records were wrong, but starting off with an actual name and location of an employer helps to extract a more accurate job history between waves of longitudinal surveys.

7b-2. Health Conditions and Health Status

- **Work, Health and Causality** One frequent criticism of past surveys on retirement decisions is the inability of the data to establish causality in the relation of health problems and work. The relationship can go in either direction: it is possible that poor health status discourages work, leading people to leave the work force early through retirement or disability, or it is possible that the assertion of poor health constitutes an acceptable rationale for a male in his middle 50s to leave the work force. Thus true causality is difficult to untangle if respondents to a survey are asked to relate health conditions to work status.

  There is no guarantee that causality can be firmly established from any survey design. Nevertheless, we deliberately placed questions exploring health conditions and functioning status very early in the survey, ahead of questions relating to work and jobs. The hope was that putting health status and conditions early would make it less likely that respondents who had left work but were actually in good health would refer to adverse health conditions or adverse functioning when they reported on their health status. And in the panel, dating major health transitions along with work transitions will provide additional opportunities to establish causality.
- **Functioning Status vs. Disease Conditions.** Another controversial issue is whether to measure health status in terms of function or in terms of epidemiology. Function involves asking people about their physical ability to do various tasks, while epidemiology asks about the nature of various medical conditions that might result in functional impairment, sooner or later.

  One big difference between functional measures of health and epidemiological measures is that the functioning measures can involve a degree of adaptation to medical conditions, while description of the medical condition itself tells us nothing about adaptation. In general, the Health Conditions and Health Status Working Group was persuaded that the most important dimension to measure was functional health, not disease epidemiology. Some potential users of the data took a different view: that a basic inventory of important medical conditions would not only satisfy the demands of an important class of analytic users, but might also be less susceptible to misreporting because of the causality problem involving the relation of health to work. That is, it may be simpler for a respondent to misreport functioning limitations than to misreport the presence of a heart condition, a stroke, an asthma problem, etc. The Working Group developed a rich set of measures of functional health, going well beyond basic activities of daily living (ADLs) to higher level functioning -- running, climbing stairs, etc. Instrumental ADLs (managing money, using the telephone) were also included. A disease inventory with measures of severity was included, as were various types of health behaviors -- smoking, drinking, exercise, etc.

- **Cognitive Measures.** Another important issue facing the Health Conditions and Health Status Working Group was the development of cognitive measures, since it was widely agreed that mismatches between cognitive capacity and the cognitive demands of jobs was at least as important a reason to leave the work force as mismatches between the physical demands of jobs and physical functioning. But there is little survey experience with the measurement of cognitive capacity. After extensive discussion with experts from a variety of disciplines, a few meta-memory measures were included, and a recall and delayed recall test of memory, a battery measuring crystallized intelligence, and a depression scale were included. These are some of the most innovative measures included in the HRS.

7b-3. Family Structure and Mobility

A distinctive design features of the HRS is the amount of attention paid to extended family structure. Extended families create the possibility that HRS respondents will be at risk for one of two possible types of events -- having to provide personal care for frail parents, which would tend to push people out of the work force, or having to provide financial support for either children or parents, which would tend to keep people in the work force. Mapping out the extended family structure of HRS respondents is one of the important ways in which the HRS database has analytic potential that goes beyond past databases. These data are expensive to collect. They represent a major HRS investment that should have an especially high payoff in understanding the work behavior of older women.

The HRS includes economic and demographic information about respondents' children, including their geographic proximity, about the health and economic status of respondents' (and spouse's) living parents, and about the economic status, family structure and proximity of respondents' (and spouse's) siblings. Information was also

collected about transfers of both money and time to test various theories of the motivations underlying transfers among kin. These data are important for understanding how middle-age families allocate resources to competing generations within the family. Over time, HRS will enable researchers to study reciprocal flows of support from children and the effect of these transfers on the parent-donor labor supply.

Finally, by providing information on the needs of elderly parents and the circumstances of the respondents' siblings, HRS provides an unprecedented opportunity to model the division of labor among adult children in providing assistance to elderly parents.

7b-4. Economic Status

As was the case with job characteristics and pensions, HRS had the benefit of a number of surveys in which both income and assets had been measured with a high degree of success. The PSID design for estimates of net worth was particularly useful as a guide, and we modified the SCF design for measurement of income.

- **Expenditures.** One issue facing the Economic Status Working Group was the degree to which the survey should attempt to collect data on expenditures. The need for such data in an important class of economic models is easily demonstrated: theories of life-cycle behavior involve models that look at change in expenditure as a function of both income and asset position. Available resources prohibited the collection of exhaustive expenditure data. Instead, PSID methodology was used to collect expenditures on food, both eaten in the home and eaten out, and on utility costs associated with dwellings along with some data on housing expenditures relating either to mortgage payments or rental payments.

- **Indirect Estimates of Consumption.** The HRS economic status data have the potential to provide substantially greater leverage in modeling spending and asset accumulation decisions than previously available. As HRS develops longitudinally, the plan is to re-measure net worth, either every two or four years, and at the same time to include variables that distinguish the capital gains component of net worth from the saving component. Such a module of survey questions exists and has been used on both PSID and SCF, although little analysis has been done with the resulting data. But the HRS data set has, on a biennial basis, change in net worth divided into a capital gains and a savings component, along with income. This has the potential for developing indirect estimates of expenditures and expenditure change -- estimates with a good deal of potential analytic power in life-cycle models of saving behavior.

7c. Added Cohorts and Movement to Steady State

The development of the Health and Retirement Study conforms to the original research proposals that were submitted to NIA to fund the first five years of the project. In preparing for the submission of the continuations grant to NIA for years 6-10, a set of discussions took place among the HRS research staff, the HRS Steering Committee, and members of the NIA Data Monitoring and Design Committee about the long-term future of the project. For reasons detailed below, these discussions led to the view that an important scientific goal should be the evolution of the HRS and AHEAD studies into a single ongoing survey that would be continually representative of the complete U.S. population over the age of 50.

This goal led to three major decisions:

- to merge the questionnaires into a single instrument for all cohorts;
- to add two new cohorts now and additional cohorts every six years in the future; and
- to merge the field operations into a single field period.

Before discussing these in detail it is probably worth saying a bit more about the reasons why the steady state plan evolved from the original design.

7c-1. Rationale for the Steady State Design

It is useful to contrast the idea of a "steady-state" HRS with an alternative design such as the old Retirement History Survey (RHS), which followed a single cohort of individuals initially aged 58-63 through retirement and was then discontinued. If preferences, technologies, prices, public policies and culture were stationary over time and across cohorts, the RHS could serve as a perfectly adequate source of data for research on health and retirement for all time: we would currently be observing changes in the average or mean outcomes of variables of interest, conditional on changes in the distribution of the exogenous variables that determine outcomes. Obviously, however, the real world departs dramatically from stationarity. Indeed, the original motivation for the HRS came from the universal agreement among researchers and policy makers that the RHS had become obsolete, so it was incapable of addressing the scientific and policy concerns of the 1990s and beyond.

Similarly, if the HRS and AHEAD remained as discrete surveys of specific cohorts they, too, would suffer obsolescence. Indeed, for several important questions, these surveys lose their relevance surprisingly quickly. The reason is that a scientific understanding of responses to changes in constraints facing individuals that occur in calendar time, such as changes in policy, legal changes, macroeconomic events, new diseases and medical technologies, requires us to be able to contrast behavior before and after the policy change.

In general, it is difficult to predict with any precision what policy changes will be made or when they will be made. At the beginning of the Clinton administration, a major health care reform appeared to be imminent; subsequently the prospect of changes in Social Security, Medicare, and inheritance taxes appeared more likely. As scientists, we would like to study the reactions to policy changes that actually occur. It now appears that innovations in health care financing are taking place more at the state than at the national level and that rapid changes in the organization of health care and health insurance are being generated much more by the private sector than by government initiative. As another example, the dramatic rise and subsequent fall of stock prices over the past ten years has altered the wealth of HRS households with and without defined contribution pension plans. Moreover, the end to the expanding economy of the 1990s has had a substantial effect on the perceived degree of job security of respondents. These changes have provided an intriguing opportunity for cross-sectional, intertemporal, and cross-cohort studies of policy effects and the effects of economic change on retirement and asset accumulation.

Some important policy changes can be predicted. For example, future changes in Social Security are already written into law. Cohorts from 1938-43 will experience a transition involving a change in the Social Security Law applying to 62 year olds in the year 2000 which increases the retirement age from 65 to 66 and reduces early retirement benefits from 80% to 75% of PIA. If the HRS is representative of the U.S. population over age 50, analysts will be able to compare the effects of this change in the Social Security law on the behavior of pre- transitional, transitional, and post-transitional cohorts.

The capacity to study the effects of expected and unexpected changes in policy, the economy, or the society in a timely way is a major strength of repeated cross-sectional samples such as the Current Population Survey and, over longer periods, the decennial Census. The weakness of such surveys is that they cannot follow the impact of such changes on any given individual. A steady state HRS has the advantages of the CPS in understanding the effects of period changes together with the ability of analyze (comparative) life cycle dynamics.

The addition of new cohorts to the HRS also enables researchers to use cross-cohort designs to study the impact of important social trends such as the implications of growing marital instability and fertility decline on the financial well-being of the older population, changes in the distribution of income and wealth by gender, and changes in their reliance on help from children and siblings. Recent findings by Kenneth Manton and his colleagues (Manton, Corder and Stallard, 1997) of decreases in disability at very old ages raise important and intriguing questions about trends in disability at younger ages that can be assessed using from cohorts represented in the HRS.

7c-2. Merging the Questionnaires

As noted above, the goal of creating a single steady state study led us to three important decisions. The first was to make a single questionnaire for all cohorts. This step was needed because HRS and AHEAD had begun as separate studies in which questions were not always asked in precisely the same way. In addition, the baseline AHEAD survey was less detailed, especially on employment and income, than the corresponding HRS baseline. Finally, as noted above, the fact that members of a given cohort may participate in different numbers of survey waves means that we must be especially careful to preserve intra-cohort comparability.

The task of merging the two questionnaires began with the design of the questionnaire for AHEAD 1995, which was made to conform to the HRS 1994 questionnaire, even when such changes led to some differences between the first and second wave of the AHEAD survey. This task was completed with the questionnaire for HRS 1996. Table 7 provides a summary of the content of the HRS 1996 questionnaire together with the corresponding sections of the AHEAD 1995 and HRS 1994 questionnaires. The comments in the final column indicate where the sections of the two questionnaires tend to be the same and where they differ.

Table 7: Comparison of HRS and AHEAD Sections

AHEAD 1995, HRS 1996 Section	Topic	HRS 1992 Section	HRS 1994 Section	AHEAD 1993 Section	Comparison of HRS 1994, AHEAD 1993
A	Demographics	A	A	A	Very similar
B	Health Status	B	B	B	Similar
C	Cognition	L	C	C	AHEAD easier
PC	Proxy Cognition	---	---	---	
D	Family Structure	E	E	D	Some differences
E	Health Care	B	B	E	Different
E	ADL/IADL	B	B	E	Different
F	Housing	D	D	F	Very similar
G	Employment	F	F	G	HRS more detail

GG	Last Job	G	---	---	
GH	Job History	H	---	---	
GD	Disability	J	J	---	
H	Expectations	K	C	H	HRS=AHEAD + Jobs
J	Assets	M	K	K	Very similar
J	Assets Buy/Sell	M	V	---	AHEAD 1995 adopt HRS 1994
J	Detailed Income	N	N	J	AHEAD less
R	Insurance	R	R	R	AHEAD longer
--	Widowhood	S	S	---	

7c-3. New Cohorts

The second major decision required to achieve the goal of a steady state sample of the 50+ population was to add two new groups in 1998. These were the "War Baby" cohort born in 1942-47 which is just entering its 50s, and the "Children of the Depression" or CODA cohort born in 1924-30 which entering its 70s. When combined with the existing HRS cohort, born in 1931-41, and AHEAD cohort, born in 1890- 1923, HRS 1998 represents all cohorts born between 1890 and 1947. We also plan to continue surveying members of each cohort at two year intervals from the time they enter the study until death and, at six year intervals, we plan to add the six year birth cohort that is 51-56 years of age in that year. This plan is depicted graphically in Figure 1. For example, under the steady state plan the "Early Boomers" who were born in 1948-53 will be added in 2004, and the "Baby Boomers," born in 1954-59, enter the study in 2010.

One problem that we faced in implementing the steady state plan is that, in the short run, the addition of new cohorts might have substantially increased the total number of interviews beyond the roughly 21,000 interviews conducted every two years with the original HRS and AHEAD cohorts. This would have increased the total expense of the survey beyond our budget. The solution to this problem is to sample the new cohorts at sixty percent of the rate at which the initial HRS and AHEAD cohorts were sampled. (By way of comparison, the original cohorts were sampled at approximately the same density as the Current Population Survey.) The age distribution of sample members from all cohorts is given in Figure 2. As can be seen from the figure, previously age-ineligible spouses of the HRS and AHEAD cohorts who were born in 1924-30 or 1942-47 become age-eligible members of the expanded survey in 1998. This means that the number of new respondents needed to attain the planned representation of these cohorts is less than sixty percent of the HRS sampling density.

Estimated sample sizes of the various cohorts in the merged HRS-98 are presented in Table 8. We conducted about 23,000 interviews during the 1998 field period. These include longitudinal interviews of 11,302 respondents in the fourth wave of HRS and 6337 respondents in the third wave of AHEAD. To these, we added 2,128 baseline interviews of persons in the CODA cohort and their spouses and 3474 individuals in the War Baby cohort and their spouses. The rows of Table 8 show the estimated sample sizes for each birth cohort. As we have already seen in Figure 2, these samples are composed of a mix of initially age- eligible persons who were recruited into the original HRS or AHEAD samples on the basis of their year of birth and originally age- ineligible spouses who have become age-eligible when members of their birth cohort are added to the study. Given the plans for a steady state HRS depicted in Figure 1, eventually all spouses will become age-eligible. For example, many of the 1126 spouses born after 1948 will become age-eligible in 2004 when the Early Boomers enter the study.

Table 8: HRS 1998 Estimates of Sample Size by Cohort and Interview Type

Cohort Name	Birth Year	Total	Longitudinal Interview		New Cohort Baseline Interview	
			HRS	AHEAD	CODA	War Babies
AHEAD	1890-1923	5733	108	5625		
CODA	1924-30	3591	853	610	2128	
HRS	1931-41	8494	8420	74		
War Babies	1942-47	3779	1057	21		2701
TBD	1948+	1126	346	7		773
TBD	Not Yet Allocated	518	518	0		0
Total Interviews		23241	11302	6337	2128	3474

Source: Preliminary calculations by Steve Heeringa, ISR

One unavoidable implication of this sampling plan is that members of a given cohort will vary in the number of survey waves that they receive. In 1998, for example, we see that over one quarter of the War Babies cohort are spouses of the HRS cohort who received the fourth wave longitudinal interview while the other three quarters were new members of the study who received a baseline questionnaire. A less important implication of the sampling plan is some ambiguity about nomenclature in the steady state HRS. Most current users refer to HRS in terms of the age-eligible persons, aged 51-61, and their spouses who entered the study in 1992 and refer to AHEAD as the sample of persons over age 70 and their spouses who were first interviewed in 1992. This usage corresponds to the columns in Table 2. The alternative usage implicit in Figure 1 and the rows of Table 8 is to give individuals the name of their birth cohort regardless of when they entered the survey.

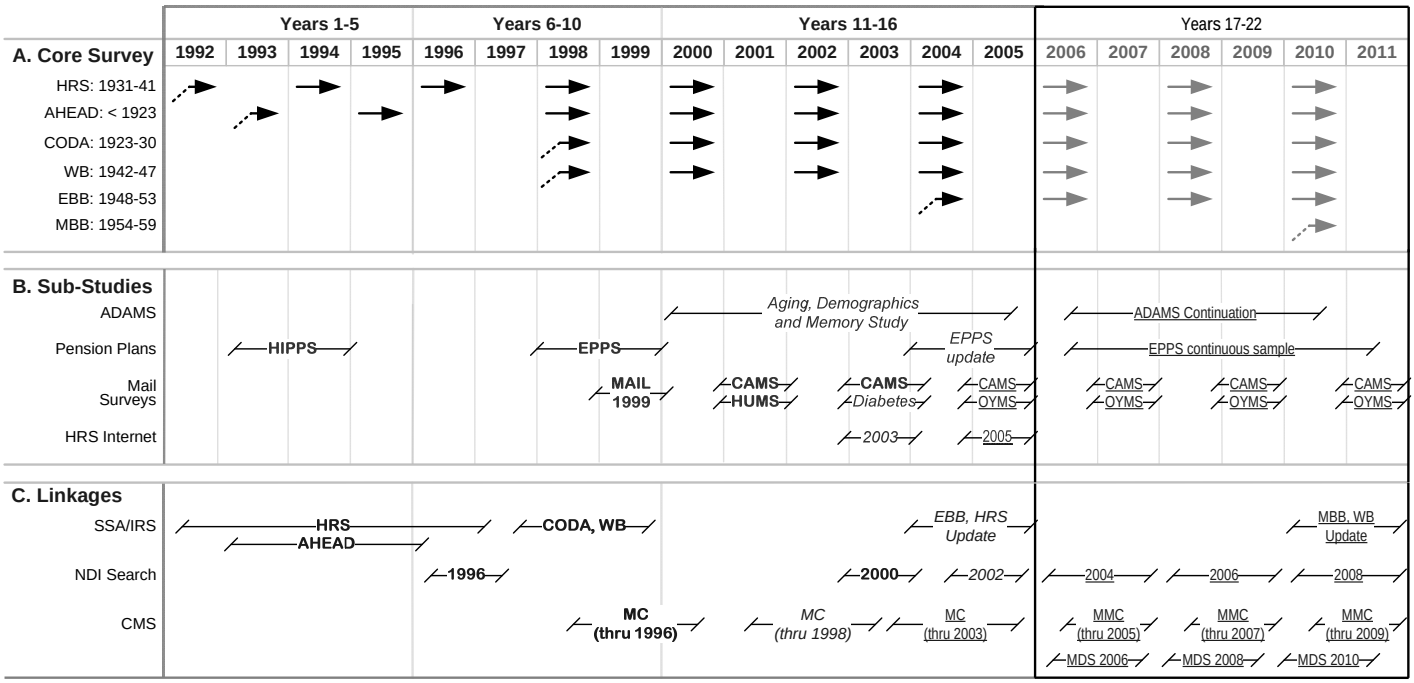
7c-4. Merging the Field Periods

The third major decision resulting from the goal of a steady state study was to merge the field periods for all cohorts beginning on February 1, 1998. This decision was taken for several reasons. First, the previous schedule in which HRS was fielded in even-numbered years and AHEAD in odd-numbered years means that many of the processing steps required to make the data suitable for final release to the research community were needlessly duplicated. Confining field activity to even numbered years provides an opportunity for a better division of labor for both the research staff and the survey staff. Second, with the addition of new cohorts and the decision to use a common questionnaire, it is much easier to maintain a coherent design when all cohorts are surveyed in a single field period. Third, since previous AHEAD waves had been fielded in November, shifting AHEAD from a 1995 to a February 1996 start date entailed minimum variation in the time distance between waves for the AHEAD cohort. Finally, economies on training of interviewing staff were achieved by extending the length of the interview period to nine months, from February through October. This extended field period increased opportunities to reduce non- response.

In the context of the steady state plan, the existence of the AHEAD study enables the HRS to move more rapidly towards a full representation of the over-50 population. The AHEAD and CODA respondents will eventually die out and respondents at the oldest ages in the survey will be represented entirely by individuals initially recruited into the HRS sample when they were in their early 50's. Although the survey is no longer composed of a fixed set of cohorts, we shall refer to the entire survey as the Health and Retirement Study.

ISR has developed sample weights that adjust appropriately for the probabilities of entering the sample of a given cohort as an age- ineligible spouse of an age-eligible respondent in another cohort or as newly recruited member of the given cohort.

Figure 1. Health and Retirement Study: Steady-State Design and Data System



Notes:

1. Initial interview year for cohort or study:
2. Subsequent interview year for cohort or study:
3. Status Indicators: **COMPLETED**, *In process*, Planned

Cohort Key:
HRS – Health & Retirement
AHEAD – Aging & Health Dynamics
CODA – Children of the Depression
WB – War Baby
EBB – Early Boomers
MBB – Mid Boomers

Sub-Study Acronyms:
ADAMS – Aging, Demographics & Memory
EPPS – Employer Pension Provider
CAMS – Consumption & Activities
HUMS – Human Capital & Educational Expenses
OYMS – Off-Year Mail Survey

Other:
SSA – Social Security Admin
IRS – Internal Revenue Service
CMS – Center for Medicare and Medicaid Services
MC – Medicare Claims
MMC – Medicare/Medicaid Claims
MDS – Minimum Data Set

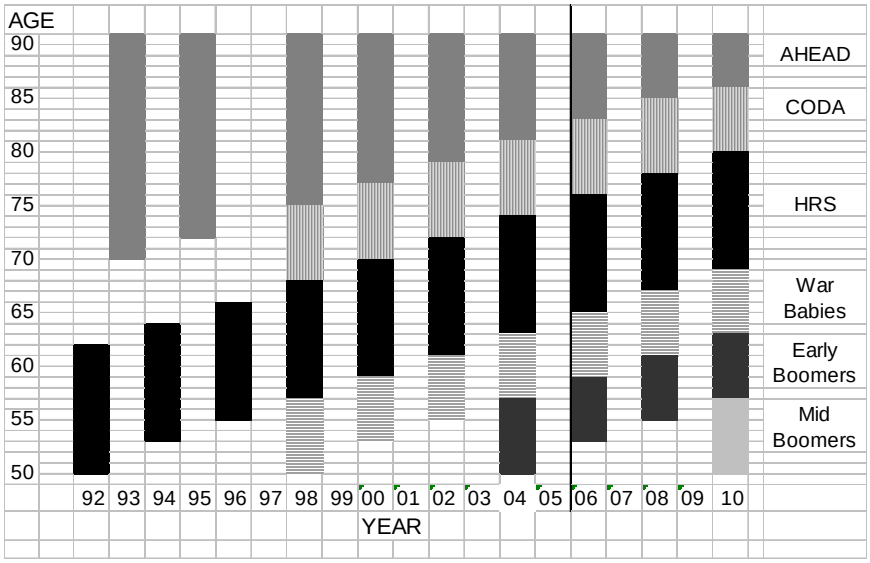



Figure 2. HRS Longitudinal Sample Design