

# HEALTH AND RETIREMENT STUDY

## **Cross-wave 2015-2017 Life History Mail Survey (LHMS): Harmonized and Aggregated Public Data Resource**

### Data Description

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"The HRS (Health and Retirement Study) is sponsored by the National Institute on Aging (grant number NIA U01AG009740) and is conducted by the University of Michigan."

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## Table of Contents

1. Introduction.....	4
2. General Information.....	4
2.1. Overview of the LHMS data collection 2015 to 2017.....	5
3. File Structure .....	5
3.1. LHMS Wave Indicators.....	7
4. Data Quality.....	5
4.1. Sample Updates.....	7
4.2. Questions harmonization in the cross-wave file.....	8
4.2.1. Harmonization between LHMS 2015 and LHMS 2017.....	8
4.2.2. Changes to the LHMS 2015 Educational History grids .....	9
4.2.3. Harmonization between LHMS 2017 Spring and 2017 Fall.....	9
4.3. Editing Data because of Inconsistences or Implausible Values.....	9
4.4. Coding Specific Question Clarification.....	10
4.4.1. State Coding Scheme.....	10
4.4.2. Open End Questions.....	10
5. Distribution Files .....	11
6. Program Statements.....	11
7. Linking Respondents across Time .....	13
8. Documentation: Codebook.....	13
9. Registration and Downloading the Data .....	13
10. If You Need to Know More.....	13

## 1. Introduction

The Cross-wave Life History Mail Survey (LHMS) file harmonizes and consolidates public data previously released in separate files for the 2015 and 2017 waves. The LHMS contains questions about residential, educational, employment and health history, and other important childhood and family events (Table 1). The LHMS is part of the Health and Retirement Study (HRS), which is funded under a cooperative agreement between the National Institute on Aging (NIA) and the Survey Research Center at the University of Michigan. The HRS is designed to study labor force, health, and family transitions of the U.S. population aged 51 and older, and the impact of those transitions on economic resources, claims on structured programs such as Social Security, Medicare, and Medicaid, informal assistance and transfers to and from family members as well as health and well-being in later life.

The National Institute on Aging (NIA) provided funding (grants U01AG009740; R01AG051142) for the LHMS, which was conducted by the Survey Research Center (SRC), at the Institute for Social Research (ISR), at the University of Michigan.

By receiving the dataset, you agree to use it for research and statistical purposes only and make no effort to identify respondents. In addition, you agree to send the bibliographic reference (including a PMID and/or DOI, if available) or a pdf copy to [hrrpublications@umich.edu](mailto:hrrpublications@umich.edu). See Registration and Downloading the Data (at the end of this document) for additional details.

Data alerts, new file notifications, and updates concerning this file will be placed on the HRS Data Alert web page <http://hrsonline.isr.umich.edu/alerts>.

## 2. General Information

The questions in the LHMS expand the content of HRS early-life histories and complement information consolidated in the Cross-Wave Childhood family and Childhood Health file: <https://hrsdata.isr.umich.edu/data-products/cross-wave-childhood-health-and-family-aggregated-data>. Items in the LHMS questionnaire are semi-harmonized with similar studies around the world, including the English Longitudinal Study of Aging (ELSA, England), the Survey of Health, Ageing and Retirement in Europe (SHARELIFE), and the China Health and Retirement Longitudinal Study (CHARLS). Those studies collected retrospective life history information in computer-assisted in-person interviews. This strategy was not feasible in the HRS due to cost and the steady-state longitudinal panel protocol followed by the HRS. Instead, the HRS designed a self-administered questionnaire to mail to participants in the off years between the biennial HRS core interviews. The initial LHMS, fielded to a subsample of HRS participants in 2015, included sections on early-life contexts as well as residential and educational histories. The content was expanded to cover additional topics in 2017 (see Table 1), and additional HRS sample members were added in that year. This cross-wave file aggregates and harmonizes data

obtained in Fall 2015 and in Spring and Fall 2017 from respondents in different subsamples of the HRS panel. The cross-wave LHMS file can be linked using the HRS household and person-specific indicators to other public-use HRS data (e.g., the cross-wave Tracker file, the Cross-wave Childhood Family and Childhood Health file, as well as biennial HRS core waves).

## 2.1. Overview of the LHMS data collection 2015 to 2017

The LHMS 2015 and 2017 data were initially released as separate public data files (see links below). Data collection occurred in different waves for pragmatic reasons.

- In Fall 2015, in order to take quick advantage of new funding, a short LHMS survey covering only residential and education histories was mailed to eligible English-speaking panel members who had not been assigned to a different mail survey, the HRS Consumption and Activity Mail Survey (CAMS). (Fall 2015: <https://hrsdata.isr.umich.edu/data-products/2015-life-history-mail-survey>).
- In 2017, data collection was split into separate waves to accommodate the steady-state CAMS longitudinal survey collection that occurs in the fall of each off-year. The Spring 2017 LHMS was sent to mid Baby Boomers (MBB) and older cohorts in CAMS. (Spring 2017: <https://hrsdata.isr.umich.edu/data-products/2017-spring-life-history-mail-survey>).
- HRS panel members who are not in CAMS received the LHMS in the fall of 2017 (MBB and older cohorts). Those participants who responded to the 2015 LHMS received a shortened (supplemental) version of the LHMS in 2017 which excluded questions about residential and education histories that were included in the 2015 survey. All others received the full LHMS. (Fall 2017: <https://hrsdata.isr.umich.edu/data-products/2017-fall-life-history-mail-survey>).

The simple response rate (RR1), calculated using the American Association for Public Opinion Research (AAPOR) standards, differs across the LHMS waves and HRS subsample. In Fall 2015 the RR was 58%, whereas it was 74% in the Spring 2017 LHMS, 83% in the Fall 2017 supplement LHMS for 2015 respondents, and 27% in the Fall 2017 full LHMS sent to 2015 non-respondents and other panel members not asked in 2015. The unweighted RR for the 2015-2017 cross-wave LHMS public resource, which includes partial data from 2015, is 66% (AAPOR RR2 definition).

## 3. File Structure

Data in this aggregated and harmonized 2015-2017 LHMS file are at the respondent level. The data file contains one record for each respondent ( $N = 11,761$ ) who provided at least one non-missing response to either LHMS 2015, LHMS 2017 Spring, LHMS 2017 Fall Full, and/or LHMS 2017 Fall-Supplement. These data include proxy responses, in which a spouse or other individual responded to the survey on behalf of the invited HRS sample member. The data file contains 568 variables. Table 1 summarizes the topics covered and their respondent-level source

in the different waves, and lists the harmonized variable names related to each topic. Variable names begin with the letters LH and correspond to the question number from the LHMS 2017 Spring questionnaire. Information about the harmonization process is included below.

Table 1. Overview of Harmonized Content in the Cross-Wave File <sup>a</sup>: Data sources from 2015 and 2017

LHMS Sections	Variable Content Groups <sup>b</sup>	File Variable Names	2015 LHMS Fall	2017 LHMS Spring	2017 LHMS Fall Full	2017 LHMS Fall Supp <sup>c</sup>
Residential History	Atypical contexts before/after age 16	LH1, LH2, LH4	✓	✓	✓	
	Age when left parental home	LH3	✓	✓	✓	
	Residences from birth to present	LH5	✓	✓	✓	
	Household composition at age 10	LH6 – LH11	✓	✓	✓	
	Household composition at first job	LH13 – LH17	✓	✓	✓	
	Household composition at age 40	LH18 – LH21	✓	✓	✓	
Education History	K-12 schools	LH22	✓	✓	✓	
	Issues in elementary and high school	LH24 – LH28	✓	✓	✓	
	Extracurricular and sport activities	LH29 – LH33	✓	✓	✓	
	Colleges and professional training	LH35	✓	✓	✓	
Partnership History	Grids of marriages and partnerships	LH36, LH37		✓	✓	✓
Work History	Family-work arrangements	LH38 – LH40		✓	✓	✓
	Industry/job title history <sup>d</sup>	LH41		✓	✓	✓
	Self-defined most important job at age 30-40	LH42 – LH49		✓	✓	✓
	Job Quality of important job age 30-40	LH50		✓	✓	✓
Caregiving History	Start/stop spells of unpaid caregiving	LH51		✓	✓	✓
Health	Health conditions and gynaecological illnesses	LH52, LH53		✓	✓	✓
	Major surgeries before age 50	LH54		✓	✓	✓
	Therapy for drug/alcohol use	LH55		✓	✓	✓
	Injuries in major accidents before 50	LH56		✓	✓	✓
	Spells of ill health/disability after age 16	LH57		✓	✓	✓
Physical activity	Frequency of vigorous and moderate-level activities, ages 18-29, 30-39, and 40-49	LH58, LH59	✓	✓	✓	
Important achievements	Thematic content codes (e.g., education, family, work, health, adversity)	LH60		✓	✓	✓

Note: a = Content is harmonized to the LHMS 2017 Spring

b = Variable Content groups listed in the order questions are in the LHMS 2017 Spring

c = The LHMS Fall 2017 Supplement was completed by Rs who participated in Fall 2015

d = Categories from 2010 Census, consistent with HRS public employment data

The data file is called LHMS1517A\_R, which stands for Life History Mail Survey 2015-2017, with the “\_R” indicating that the file is at the respondent level.

The HRS primary identification variables (IDs) are:

HHID            HRS HOUSEHOLD IDENTIFIER  
 PN              HRS PERSON NUMBER IDENTIFIER

Records in the data files are sorted by HHID PN. Identification variables are stored in character format. For further information about HRS identification variables and merging data, see <https://hrsdata.isr.umich.edu/sites/default/files/documentation/data-descriptions/trk2018v2a.pdf>.

### 3.1. LHMS Wave Indicators

There are two indicators for the LHMS waves (see Table 2): “LHMS” provides a code to indicate 2015, 2017 Spring or 2017 Fall waves. A more detailed variable “LHMSIWIND” indicates the LHMS interview completion.

Table 2. Indicators for LHMS Waves in Harmonized Data File

LHMS	LHMSWIND	n	Q1-Q35	Q36-Q61
1	1	5212	2015 (Q1-Q35)	2017 Fall Supplement (Q36-Q61)
1	2	1265	2015 (Q1-Q35)	
1	3	2		2017 Fall Supplement (Q36-Q61)
2	4	3839	2017 Spring (Q1-Q61)	
3	5	1443	2017 Fall Full (Q1-Q61)	
	Total	11761		

*Note.* LHMS = "LHMS STUDY" (1 = 2015 and/or 2017 Fall Supplement; 2 = 2017 Spring; 3 = 2017 Fall Full). LHMSIWIND = "LHMS IW COMPLETE INDICATOR" (1 = completed 2015 and 2017 Supplement; 2 = completed 2015 but not 2017 Supplement; 3 = completed 2017 Supplement but was not in the 2015 interviewed sample; 4 = completed 2017 Spring; 5 = completed 2017 Fall Full).

## 4. Data Quality

### 4.1. Sample Updates

During the harmonization process of the initial LHMS data across 2015, 2017 Spring, and 2017 Fall waves, we made a few changes in the samples, relative to the unharmonized datasets (Table 3 summarizes these changes). Specifically, for the LHMS 2015 and/or 2017 Fall Supplement, four respondent cases were removed and two new respondent cases were added, resulting in changes of the sample size from 6481 to 6479. For the LHMS 2017 Spring, five respondent cases were removed, resulting in a total of 3839 cases instead of 3844 cases in the initial data file. For the LHMS 2017 Fall Full, one case was removed, resulting in 1443 cases. We removed cases when respondents filled in more than one questionnaire across waves and we selected the most complete questionnaire to include in the harmonized data. Two respondents who completed the

LHMS 2017 Fall Supplement but did not complete the LHMS 2015 questionnaire were added to the sample (those respondents have LHMSWIND = 3, see Table 2).

Table 3. Sample Updates: Changes in the Sample Size and Respondents <sup>a</sup>

Public data wave	Public data (n)	Harmonized data (n)	Changes
2015 and/or 2017 Fall Supplement	6481	6479	Deleted 4 respondents: HHID = 904718 PN = 010, HHID = 533229 PN = 010, HHID = 048743 PN = 010, HHID = 916871 PN = 020 Added 2 respondents: HHID = 032256 PN = 010, HHID = 904718 PN = 020
2017 Spring	3844	3839	Deleted 5 respondents: HHID = 031300 PN = 010, HHID = 056296 PN = 010, HHID = 143495 PN = 010, HHID = 201144 PN = 021, HHID = 500253 PN = 010
2017 Fall Full	1444	1443	Deleted 1 respondent HHID = 021166 PN = 010
Total	11,769	11,761	

Note. a = the case with HHID = 906543, PN = 020 in the harmonized data is the case with HHID = 906126, PN = 010 in the LHMS 2015 and 2017 Fall Supplement public data.

## 4.2. Question harmonization in the cross-wave file

### 4.2.1. Harmonization between LHMS 2015 and LHMS 2017

For the harmonized data, we used the LHMS 2017 Spring questionnaire for the question order, variable names and labels, answer choices and coding categories. Because the LHMS 2015 questionnaire could be considered as a pilot questionnaire, there were some differences between the LHMS 2015 and LHMS 2017 questionnaires. Those differences are found in questions Q1 – Q35, because the LHMS 2015 questionnaire covered only Residential History and Educational History (see Table 4 for the list of issues and corrections).

Table 4. List of Question Harmonization Issues and Corrections

	Issue	Correction
1	Questions are in the LHMS 2015 but not in the LHMS 2017	These questions are not included in the harmonized data (data from these questions are available in the public data for the LHMS 2015)
2	Questions are not in the LHMS 2015 but are in the LHMS 2017	Responses for the respondents from the LHMS 2015 were coded as missing and indicated in the codebook as “Blank. MISSING/NOT ASKED IN 2015”
3	Questions are in the LHMS 2015 and 2017 but wording, response scale, or instructions are different	LHMS 2017 wording is used in the harmonized data
4	Questions are in the LHMS 2015 and 2017 but order is different	LHMS 2017 question order is used in the harmonized data

#### **4.2.2. Changes to the LHMS 2015 Educational History grids**

Educational History data (K-12 school grids) in the LHMS 2015 were collected separately for Primary/Elementary schools (Q20) and for Junior/Middle and High schools (Q21). We harmonized LHMS 2015 educational grids with LHMS 2017 data by merging LHMS 2015 Q20 and Q21 into one grid to match the 2017 variables. During this process, we removed extra empty rows and renamed variables. The question SCHOOL END GRADE was not asked in LHMS 2015 and was coded as Blank. MISSING/NOT ASKED IN 2015. Three questions from the LHMS 2015, which are not in the LHMS 2017, were not included in the harmonized data file: LH20\_1E\_15 – LH207E\_15 ELEMENTARY SCHOOL NUMBER IN CLASS; LH21\_1E\_15 - LH21\_7E\_15 HIGH SCHOOL HOW FAR, and LH21\_1F\_15 - LH21\_7F\_15 HIGH SCHOOL HOW TRAVEL.

For College / Community Colleges and Professional or Technical schools or programs (Q35 in the LHMS 2017 and Q23 in LHMS 2015), college degrees (2017 LH35\_1G\_17 - LH35\_7G\_17 and LH23\_1F\_15 - LH23\_7F\_15) were coded using different categories in the previously released public data files. During harmonization, the LHMS 2015 college degree categories were recoded to match the LHMS 2017 categories. After recoding, respondents from 2015 did not contribute any observations to the categories 9, 10, or 11 in the harmonized data (9. SPECIALIST DEGREE BEYOND MASTER'S; 10. CURRENTLY ENROLLED; 11. CONTINUING EDUCATION).

#### **4.2.3. Harmonization between LHMS 2017 Spring and LHMS 2017 Fall**

The LHMS 2017 Fall is the same as the LHMS 2017 Spring; however, coded data from the LHMS 2017 Fall includes an additional variable LH41\_1FM\_FLAG - LH41\_10FM\_FLAG. SECOND JOB FLAG. This flag variable denotes whether there was a second job title listed. HRS plans to include this information pertaining to second job titles in a subsequent release.

#### **4.3. Editing Data with Inconsistencies or Implausible Values**

While cleaning the data, when extreme, unlikely or conflicting values were encountered, electronic images of the questionnaires were checked directly 1) to determine if errors were introduced during the data entry/scanning process and 2) to possibly correct those values. The instances of conflicting values include where a start year is greater than an end year, or a start age is greater than an end age. Inconsistencies were detected for thematically related questions, especially for the questions with a skip pattern instruction. For example, a respondent could select NO for Q1. LIVED OUTSIDE US but answered either Q1A. LIVED IN HOW MANY COUNTRIES or any of the Q1B. LIVED OUTSIDE US BETWEEN questions. We reviewed respondents' electronic images of the questionnaires and, when possible, corrected detected inconsistencies. In cases of inadequate or ambiguous information, responses were not changed. We did not include a skip question Q29 "Did you go to high school?" in the harmonized data file

because respondents often marked “no” but answered questions that followed (e.g., Q29a – Q33) that indicated that they did (and the HRS Tracker file reports number of school years consistent with having attended high school).

We also identified and edited values that were outside of expected or plausible value ranges. For example, for the question Q3A. AGE ESTABLISHED OWN HOME all values that were smaller than 16 were reviewed and, when possible, corrected based on relevant information provided in the questionnaires. In cases of inadequate or ambiguous information, values were recoded to 96. IMPLAUSIBLE VALUE.

Please note, that for Q22 (Educational history) Start/End age variables, there are some out-of-expected range values of 0 or younger than age 4. Users are advised to refer to the HRS restricted data (<https://hrs.isr.umich.edu/data-products/restricted-data>) where data were comprehensively checked and corrected and included additional information about school city and state.

#### **4.4. Coding Specific Question Clarification**

##### **4.4.1. State Coding Scheme**

Respondents were asked to provide the state for their residency (LH5), education (LH22, LH35), and employment history (LH44). The state variable in these series is coded as follows: beginning with LH5, the first state mentioned is coded as 1, the second state is coded as 2, and so on for each unique state mentioned. If the first state mentioned is repeated on a later line in LH5, it is coded as 1, if the second state mentioned is repeated on a later line it is coded as 2, etc. Mentions of foreign countries are coded as 96. The same codeframe is maintained across LH22, LH35 and LH44 within each individual’s data. For example, a 1 in the state variables in the education and employment series represents the same state as the 1 in the LH5 residential series.

##### **4.4.2. Open End Questions**

Responses to the LH35 series, post high school training or education, were coded based on the Classification of Instructional Programs (CIP) categories, provided by the National Center for Educational Statistics (<https://nces.ed.gov>). The codes for LH35FM\_17, major field of study, were then grouped into larger categories to protect respondent confidentiality (see Data Description for LHMS Spring 2017 for NCES CIP codes: [https://hrsdata.isr.umich.edu/sites/default/files/documentation/data-descriptions/2017LHMS\\_Spring\\_data\\_description\\_rel2.pdf](https://hrsdata.isr.umich.edu/sites/default/files/documentation/data-descriptions/2017LHMS_Spring_data_description_rel2.pdf)).

Responses to the employment series beginning at LH41 were coded based on the same 2010 US Census codeframes used to code J166 and J168 (Section J) in the core interview. These codes were then grouped into larger categories to protect respondent confidentiality, also using the same masking code used in the HRS core study.

Responses to the health questions (LH54 and LH57), and to major accomplishments (LH60), were coded based on a content analysis of response frequencies.

Responses were reviewed for all questions with an “Other: Specify” option. These were either coded into existing code frames, or new codes were created (see Data Description for LHMS Spring 2017 for more information on coding frames).

## 5. Distribution Files

The *Cross-wave 2015-2017 Life History Mail Survey* data are packaged for distribution in a .ZIP file. Extract the data file, the program statement file that matches your analysis environment, the data description (this file), and the codebook file. If you have problems when downloading this data set or in extracting its contents, please contact the HRS Help Desk ([hqsquestions@umich.edu](mailto:hqsquestions@umich.edu)).

The following extensions are used for the six different types of distribution files:

- .DA for data files
- .SAS for SAS program statements
- .SAS7BDAT for “ready-to-use” SAS files
- .SPS for SPSS program statements
- .SAV for “ready-to-use” SPSS files
- .DO for Stata DO statements
- .DCT for Stata dictionary statements
- .DTA for “ready-to-use” Stata files
- .TXT for codebook files

For example,

- LHMS1517A\_R.DA contains ASCII data
- LHMS1517A\_R.SAS contains corresponding SAS program statements
- LHMS1517A\_R.sas7bdat contains “ready-to-use” data in SAS format,
- LHMS1517A\_R.SPS contains corresponding SPSS program statements
- LHMS1517A\_R.sav contains “ready-to-use” data in SPSS format,
- LHMS1517A\_R.DO contains corresponding Stata DO statements
- LHMS1517A\_R.DCT contains corresponding Stata dictionary statements
- LHMS1517A\_R.da contains “ready-to-use” data in Stata format,
- LHMS1517A\_R.TXT contains the ASCII codebook

## 6. Program Statements

The data are provided as SAS (.sas7bdat), SPSS (.sav) and Stata (.dta) “ready-to-use” files and in ASCII format. Each ASCII data file comes with associated SPSS, SAS, or STATA program statements to read the data. Files containing SPSS statements are named with a .sps extension,

those with SAS statements with a .sas extension, and those with STATA statements with .do and .dct extensions.

### **6.1. Using the Files with SAS**

To create a SAS system file for a particular dataset, two file types must be present for that dataset -- .SAS program statement files and .DA data files.

To create a SAS system file, load the \*.SAS file into the SAS Program Editor. If the \*.SAS file is located in "c:\LHMS1517\sas" and the data file is located in "c:\LHMS1517\data", you can run the file as is. A SAS system file (\*.SD2 or \*.SAS7BDAT) will be saved to directory "c:\LHMS1517\sas".

If the files are not located in the specified directories, you will need to edit the \*.SAS file to reflect the proper path names prior to running the file.

### **6.2. Using the Files with SPSS**

To create an SPSS system file for a particular dataset, two file types must be present for that dataset -- .SPS program statement files and .DA data files.

To create an SPSS system file, open the \*.SPS file in SPSS as an SPSS Syntax File.

If the \*.SPS file is located in "c:\LHMS1517\spss" and the data file is located in "c:\LHMS1517\data", you can run the file as is. An SPSS system file (\*.SAV) will be saved to directory "c:\LHMS1517\spss".

If the files are not located in the specified directories, you will need to edit the \*.SPS file to reflect the proper path names prior to running the file.

### **6.3. Using the Files with Stata**

To use Stata with a particular dataset, the following three file types must be present for that dataset -- .DCT files, .DO files, and .DA data files.

Files with the suffix .DA contain the raw data for Stata to read. Files with the suffix .DCT are Stata dictionaries used by Stata to describe the data. Files with the suffix .DO are short Stata programs ("do files") which you may use to read in the data. Load the .DO file into Stata and then submit it.

If the \*.DO and \*.DCT files are located in "c:\LHMS1517\stata" and the data file is located in "c:\LHMS1517\data", you can run the .DO file as is.

If the files are not located in these directories, you must edit the \*.DO and \*.DCT files to reflect the proper path names before you run the files.

Note that the variable names provided in the .DCT files are uppercase. If you prefer lower case variable names, you may wish to convert the .DCT files to lower case prior to use. You may do

this by reading the .DCT file into a text or word processing program and changing the case. For instance, in Microsoft Word, Edit, Select All, Format, Change Case, lowercase.

## **7. Linking Respondents across Time**

Respondent records in the *Cross-wave 2015-2017 Life History Mail Survey* file can be linked to respondent records in the cross-wave Tracker file and biennial core HRS waves by HHID and PN. The core sub-household identifiers can be used to link household data with the cross-sectional respondent level data.

## **8. Documentation: Codebook**

The *Cross-wave 2015-2017 Life History Mail Survey* codebook is provided as an ASCII text file. Each variable has its own codebook entry that includes variable name, label, variable type (e.g., character, numeric). Variable names begin with the letters LH to designate the Life History Mail Survey and correspond to the question number found in the LHMS questionnaire. For example:

LH1A            Q1A. LIVED IN HOW MANY COUNTRIES

## **9. Registration and Downloading the Data**

### **9.1. Registration**

The HRS data are available for free to researchers and analysts on the HRS web site. In order to obtain public release data, you must first register <https://hrsdata.isr.umich.edu/user/>. Once you have completed the registration process, a username and password will be sent to you via e-mail. Your username and password are required to download data files.

Registered users receive user support, information related to errors in the data, future releases, workshops, and publication lists. The information you provide will not be used for any commercial use, and will not be redistributed to third parties.

### **9.2. Conditions of Use**

By registering, you agree to the [Conditions of Use](#) governing access to Health and Retirement public release data.

### **9.3. Publications Based on Data**

As part of the data registration process, you agree to include specified citations and to inform HRS of any papers, publications, or presentations based on HRS data. Please send a copy and full citation of any publications you produce based on HRS data to [hrspublications@umich.edu](mailto:hrspublications@umich.edu).

## **10. If You Need to Know More**

This document is intended to serve as a brief overview and to provide guidelines to using the *Cross-wave 2015-2017 Life History Mail Survey* data. Additional information about the HRS and

the LHMS can be obtained from the HRS web site. If you have questions or concerns that are not adequately covered here or on our web site, please contact us at [hqsquestions@umich.edu](mailto:hqsquestions@umich.edu). We will do our best to provide answers.

### **10.1. HRS Website**

Public release data from the Health and Retirement Study and additional information about the study are available at <http://hrs.isr.umich.edu/>.

### **10.2. Contact Information**

For specific questions, please contact the helpdesk at [hqsquestions@umich.edu](mailto:hqsquestions@umich.edu).

The HRS mailing address and fax are:

Health and Retirement Study  
The Institute for Social Research  
426 Thomson Street  
Ann Arbor, MI 48106-1248  
FAX: (734) 647-1186