

HEALTH AND RETIREMENT STUDY

Contextual Data Resource Series

USDA Food Access Information

Restricted Data

All Respondents, 1992-2014

Data Description and Usage

Version 1.0, July 2017

To the Restricted Data Investigator: This restricted data set is intended for exclusive use by you and the persons specified in the *Agreement for Use of Restricted Data from the Health and Retirement Study* and/or the *Supplemental Agreement with Research Staff for Use of Restricted Data from the Health and Retirement Study*.

If there are any questions about this data set and its use, refer to the HRS Restricted Data Web Site (<http://hrsonline.isr.umich.edu/rda>) or contact the HRS Help Desk (hrsquestions@umich.edu).

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1. Overview

The Health and Retirement Study (HRS) is a national longitudinal study of the economic, health, marital, and family status, as well as public and private support systems, of older Americans. The HRS is a rich source of longitudinal, cross-sectional data for researchers and policymakers who study aging. Funding for the Health and Retirement Study is provided by the National Institute on Aging at NIH (U01AG009740), with supplemental support from the Social Security Administration. The study is conducted by the Institute for Social Research (ISR) at the University of Michigan.

The Health and Retirement Study Contextual Data Resource (HRS-CDR) is a collection of user friendly datasets that enable researchers to study the impact of place on health and well-being among HRS respondents. The HRS-CDR data products are created by a joint project of the University of Southern California and the University of Michigan, sponsored by the National Institute on Aging (NIA_R21AG045625).

1a. Contextual Data Resource Content

The overall goal of the HRS-CDR project is to develop multiple datasets covering a variety of area measures (defined by administrative boundaries) that can be linked to HRS data by household and/or person identifier. The HRS-CDR datasets are provided at various geographic levels (e.g. state, census tract, county) and various time periods. The datasets are designed to account for HRS respondent geographic mobility as well as the changes in geographic definitions over time. The goal of the HRS-CDR project is to reduce the burden on individual researchers by creating contextual measures that can be linked to HRS at different geographic levels and by including measures that might not otherwise be available to researchers. The HRS Contextual Data Resource includes:

- Datasets containing contextual measures, with complete documentation, linked to HRS respondent-level data;
- Datasets that contain measures at multiple geographic levels (e.g., census tract, county/metro area);
- Buffer and distance-based measures linked to household and respondent identifiers;
- Measures that cover entirety of the survey period (i.e., 1992-2014).

By using common geographic identifiers, place-based data can be merged with the respondents' household locations in two ways:

- Non-Concurrent Merging -- the CDR-Year may be different from the Respondent-Year, i.e. a lagged neighborhood value
- Concurrent Merging -- the CDR-Year matches the Respondent-Year

1b. HRS Respondent Location File

CDR data, geographic definitions, and locations of HRS respondents vary over time. In order to merge Respondent-Year (the location of the respondent at each HRS wave-year) data with CDR-Year (area measures collected on a year-by-year basis) a file that defines the location where each respondent lived in each wave-year is required.

The respondent location file was created as follows: HRS respondent addresses were collected and/or confirmed by the interviewer with each contact. At the time of this project, there were a total of 276,726 records from 45,293 HRS respondents covering the period 1992 through 2014. To retain only valid HRS respondents, raw address records were matched to the 2014 Tracker file. Respondents with an Interview Type value of 99 ("not in this wave") were dropped. Raw addresses for each study wave were compiled and standardized whenever possible. Techniques used for standardization included:

- Abbreviation of directional e.g., "N" for "North", "S" for "South", etc.;
- Removal of secondary address information such as unit designators or apartment numbers from the main address;
- Corrections to misspellings of street and city names;
- Validation of zip codes;
- Abbreviation of street types e.g., "Avenue", "Street", "Boulevard" were abbreviated;
- Addition of ordinal indicators to numeric street names.

Respondent addresses were geocoded using SAS v9.4 PROC GEOCODE. This procedure uses lookup data generated by the Census Bureau TIGER/Line shapefiles. Street-level geocoding was employed and when a match failed, the procedure would attempt a zip code-level match. Notes produced by the procedure assisted in further enhancement of the address data. The data set matches the 2014 Tracker File and is keyed on HHID, PN, and Wave/Year. This procedure resulted in latitude-longitude coordinates for each respondent address location that were in turn used to assign state, county, and census tract values.¹

¹ For further reading on HRS address geocoding see:
http://hrsonline.isr.umich.edu/sitedocs/rda/metadata/GeoCode/Detail/XyrGeoDetDD_2014.pdf

2. Dataset Content

The 2017 version of the *HRS-CDR USDA Food Access Information* data set contains information from the United States Department of Agriculture related to food access at the state, census tract and county level. This information is linked to HRS detailed geographic indicators derived from respondent addresses.

The USDA dataset is derived from two data files: Food Environment Atlas and Food Access Research Atlas. The Food Environment Atlas' stated objectives are to (1) assemble statistics on food environment indicators to stimulate research on the determinants of food choices and diet quality; and (2) to provide a spatial overview of a community's ability to access healthy food and its success in doing so. The Food Access Research Atlas is meant to (1) present a spatial overview of food access indicators for low-income and other census tracts using different measures of supermarket accessibility; (2) provide food access data for populations within census tracts; and (3) offer census-tract-level data on food access that can be downloaded for community planning or research purposes.

2a. Dataset Summary

Dataset Name: USDA Food and County Data

Data Source: U.S. Department of Agriculture (USDA)

Data Source URL: <http://www.ers.usda.gov/data-products/>

Data Collection Method: Combination of primary data collected by the USDA and secondary data from Census and other government sources

Units of Observation and Sample: County and Census Tract; population

Years Collected: Varies, ranging from 2000 to 2015

Geographic Level of Collection: State, County, and Census Tract

2b. Years Available and Temporal Interpolation

While all USDA data is available on an annualized basis, each of the three constituent data sets are available for different periods. The Food Access Research Atlas data is available for 2010. County Typology data are available for 2004 and 2013. The Food Environment Atlas data are available for different years/periods by category, as shown in Table 1 below.

Table 1. Availability for Food Environment Atlas Data by Category

Category	Years Available
Access and Proximity to Grocery Store	2010
Store Availability	2007, 2012
Restaurant Availability and Expenditures	2007, 2012
State Food Insecurity	2000-2002, 2007-2009, 2010-2012
Local Foods	2009, 2013
Health and Physical Activities	2007, 2009, 2010, 2012
Socioeconomic Characteristics	2000, 2010

None of the USDA data have been temporally interpolated.

2c. Geocoding and Spatial Interpolation

The Food Environment Atlas is available at the county level, with the exception of food insecurity data within the Food Environment Atlas, which is available at the state level only. The Food Access Research Atlas is available at the census tract level.

None of the USDA data have been spatially interpolated.

2d. Glossary

The following definitions are taken from the USDA's Food Access Research Atlas Documentation (<https://www.ers.usda.gov/data-products/food-access-research-atlas/documentation/>)

2d1. Food Access Research Atlas Definitions

Food access

Limited access to supermarkets, supercenters, grocery stores, or other sources of healthy and affordable food retailers may make it harder for some Americans to eat a healthy diet. There are many ways to measure food store access for individuals and for neighborhoods, and many ways to define which areas are food deserts—neighborhoods that lack healthy food sources. Most measures and definitions take into account at least some of the following indicators of access:

- Accessibility to sources of healthy food, as measured by distance to a store or by the number of stores in an area.
- Individual-level resources that may affect accessibility, such as family income or vehicle availability.
- Neighborhood-level indicators of resources, such as the average income of the neighborhood and the availability of public transportation.

In the Food Access Research Atlas, several indicators are available to measure food access along these dimensions. For example, users can choose alternative distance markers to measure low access in a neighborhood, such as the number and share of people more than half a mile to a supermarket or 1 mile to a supermarket. Users can also view other census-tract-level characteristics that provide context on food access in neighborhoods, such as whether the tract has a high percentage of households far from supermarkets and without vehicles, individuals with low income, or people residing in group quarters.

Low-income neighborhoods

The criteria for identifying a census tract as low-income are from the Department of Treasury's New Markets Tax Credit (NMTC) program. This program defines a low-income census tract as any tract where:

- The tract's poverty rate is greater than 20 percent; or
- The tract's median family income is less than or equal to 80 percent of the State-wide median family income; or
- The tract is in a metropolitan area and has a median family income less than or equal to 80 percent of the metropolitan area's median family income.

Low-access census tracts

In the Food Access Research Atlas, low access to healthy food is defined as being far from a supermarket, supercenter, or large grocery store ("supermarket" for short). A census tract is considered to have low access if a significant number or share of individuals in the tract is far from a supermarket.

In the original Food Desert Locator, low access was measured as living far from a supermarket, where 1 mile was used in urban areas and 10 miles was used in rural areas to demarcate those who are far from a supermarket. In urban areas, about 70 percent of the population was within 1 mile of a supermarket, while in rural areas over 90 percent of the population was within 10 miles (see [Access to Affordable and Nutritious Food: Updated Estimates of Distance to Supermarkets Using 2010 Data](#)). Updating the original 1- and 10-mile low-access measure shows

that an estimated 18.3 million people in these low-income and low-access census tracts were far from a supermarket in 2010. Three additional measures of food access based on distance to a supermarket are provided in the Atlas:

- One additional measure applies a 0.5-mile demarcation in urban areas and a 10-mile distance in rural areas. Using this measure, an estimated 52.5 million people, or 17 percent of the U.S. population, have low access to a supermarket;
- A second measure applies a 1.0-mile demarcation in urban areas and a 20-mile distance in rural areas. Under this measure, an estimated 16.5 million people, or 5.3 percent of the U.S. population, have low access to a supermarket; and
- A slightly more complex measure incorporates vehicle access directly into the measure, delineating low-income tracts in which a significant number of households are located far from a supermarket and do not have access to a vehicle. This measure also includes census tracts with populations that are so remote, that, even with a vehicle, driving to a supermarket may be considered a burden due to the great distance. Using this measure, an estimated 2.1 million households, or 1.8 percent of all households, in low-income census tracts are far from a supermarket and do not have a vehicle. An additional 0.3 million people are more than 20 miles from a supermarket.

For each of the first three measures that are based solely on distance, a tract is designated as low access if the aggregate number of people in the census tract with low access is at least 500 or the percentage of people in the census tract with low access is at least 33 percent. For the final measure using vehicle availability, a tract is designated as having low vehicle access if at least one of the following is true:

- At least 100 households are more than ½ mile from the nearest supermarket and have no access to a vehicle; or
- At least 500 people or 33 percent of the population live more than 20 miles from the nearest supermarket, regardless of vehicle access.

Methods used to assess distance to the nearest supermarket are the same for each of these measures. First, the entire country is divided into ½-km square grids, and data on the population are aeri ally allocated to these grids (see *Access to Affordable and Nutritious Food: Updated Estimates of Distance to Supermarkets Using 2010 Data*). Then, distance to the nearest supermarket is measured for each grid cell by calculating the distance between the geographic center of the ½-km square grid that contains estimates of the population (number of people and other subgroup characteristics) and the center of the grid with the nearest supermarket. Once the distance to the nearest supermarket is calculated for each grid cell, the estimated number of people or housing units that are more than 1 mile from a supermarket in urban tracts, or 10 miles in rural census tracts, is aggregated at the census-tract level (and similarly for the alternative distance markers). A census tract is considered rural if the population-weighted centroid of that tract is located in an area with a population of less than 2,500; all other tracts are considered urban tracts.

Food deserts

The Food Access Research Atlas maps census tracts that are both low income (li) and low access (la), as measured by the different distance demarcations. This tool provides researchers and other users multiple ways to understand the characteristics that can contribute to food deserts, including income level, distance to supermarkets, and vehicle access.

2d2. Additional tract-level indicators of access

Vehicle availability

A tract is identified as having low vehicle availability if more than 100 households in the tract report having no vehicle available and are more than 0.5 miles from the nearest supermarket. This corresponds closely to the 80th percentile of the distribution of the number of housing units in a census tract without vehicles at least 0.5 miles from a supermarket (the 80th percentile value was 106 housing units). This means that about 20 percent of all census tracts had more than 100 housing units that were 0.5 miles from a supermarket and without a vehicle. This indicator was applied to both urban and rural census tracts.

Overall, 8.8 percent of all housing units in the United States do not have a vehicle, and 4.2 percent of all housing units are at least 0.5 mile from a store and without a vehicle. Vehicle availability is defined in the American Community Survey as the number of passenger cars, vans, or trucks with a capacity of 1-ton or less kept at the home and available for use by household members. The number of available vehicles includes those vehicles leased or rented for at least 1 month, as well as company, police, or government vehicles that are kept at home and available for non-business use. Whether a vehicle is available to a household for private use is an important additional indicator of access to healthy and affordable food. For households living far from a supermarket or large grocery store, access to a private vehicle may make accessing these retailers easier than relying on public or alternative means of transportation.

Group quarters population

Users may be interested in highlighting tracts with large shares of people living in group quarters. Group quarters are residential arrangements where an entity or organization owns and provides housing (and often services) for individuals residing in these buildings. This includes college dormitories, military quarters, correctional facilities, homeless shelters, residential treatment centers, and assisted living or skilled nursing facilities. These living arrangements frequently provide dining and food retail solely for their residents. While individuals living in these areas may appear to be far from a supermarket or grocery store, they may not truly experience difficulty accessing healthy and affordable food. Tracts in which 67 percent of individuals or more live in group quarters are highlighted.

3. Additional Concerns

This document is intended to serve as a brief overview of the *HRS-CDR USDA Food Access Information* data set. If you have questions or concerns that are not adequately covered here or on our Web site, or if you have any comments, please contact us. We will do our best to provide answers.

3a. Obtaining Access to HRS-CDR Data

Prospective users of HRS-CDR restricted geocode data should apply for access to the [MiCDA Enclave](#) Virtual Desktop Infrastructure.² For instructions on how to proceed, visit the [HRS Restricted Data Web](#) site or contact the HRS Restricted Data Applications Processing Team (hrrdaapplication@umich.edu) by email. Although the content of HRS-CDR datasets may not present confidentiality issues, when such datasets are merged with HRS location data below the Census Region/Division level, the result must be treated as restricted. All HRS-CDR users must sign the *Confidentiality Agreement for Use of Restricted Data from the Health and Retirement Study*.

3b. Publications Based on Restricted Data

The restricted data agreement required of all Enclave users specifies that they will inform HRS of any papers, publications, or presentations based on the restricted dataset to which they have access. Copies of such publications in PDF format should be sent via e-mail to hrrquestions@umich.edu with "Attn: Papers and Publications" in the subject line. A bibliographical reference may be included.

As an alternative, paper format publications may be transmitted by postal mail:

Health and Retirement Study
Attn: Papers and Publications
The Institute for Social Research, Room 3410
P.O. Box 1248

3c. HRS Internet Site

Health and Retirement Study public release data and additional information about the study are available on the Internet. To access public data or to find out more about restricted data products and procedures, visit the [HRS Web site](#).

3d. Contact Information

If you need to contact us, you may do so by one of the methods listed below.

Internet: Help Desk at the HRS Web site (<http://hrsonline.isr.umich.edu>)

E-mail: hrrquestions@umich.edu

Postal Service:

Health and Retirement Study
The Institute for Social Research
426 Thompson Street, 3050 ISR
Ann Arbor, Michigan 48104

² HRS-CDR data products are not available through the traditional licensing agreement.

Appendix: Installation Information³

Figure A1: MiCDA Enclave: HRS-CDR USDA Folder/File Structure

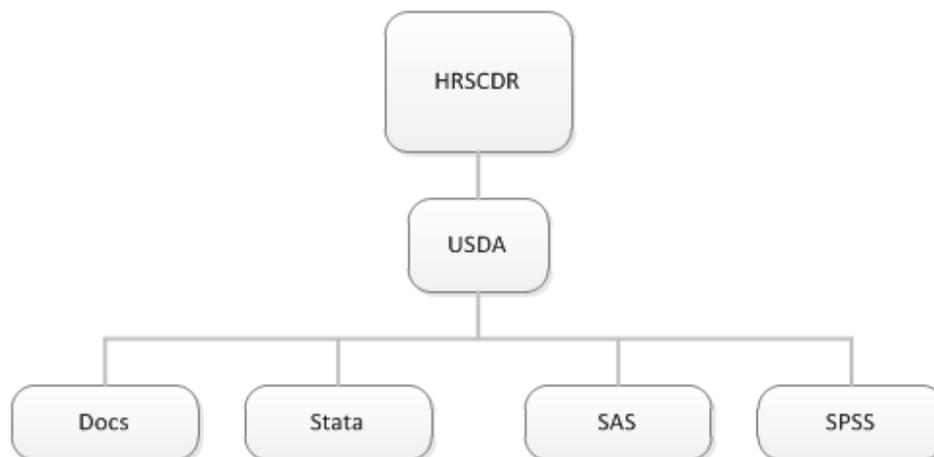


Table A1: Release Package Components (Inputs)⁴

V:\SECURE\Geocode\HRS_CDR\USDA\distro\data		
Data files (ASCII):	State Tract County	HRSUSDAA_R.da HRSUSDAB_R.da HRSUSDAC_R.da
V:\SECURE\Geocode\HRS_CDR\USDA\distro\docs		
Codebook files (ASCII text):	State Tract County	HRSUSDAA_R.txt HRSUSDAB_R.txt HRSUSDAC_R.txt
V:\SECURE\Geocode\HRS_CDR\USDA\distro\sas		
SAS program statements:	State Tract County	HRSUSDAA_R.sas HRSUSDAB_R.sas HRSUSDAC_R.sas
V:\SECURE\Geocode\HRS_CDR\USDA\distro\spss		
SPSS program statements:	State Tract County	HRSUSDAA_R.sps HRSUSDAB_R.sps HRSUSDAC_R.sps
V:\SECURE\Geocode\HRS_CDR\USDA\distro\stata		
Stata dictionary and "do" files:	State Tract County	HRSUSDAA_R.dct/.do HRSUSDAB_R.dct/.do HRSUSDAC_R.dct/.do

³This section included for use by data management personnel and does not apply to HRS-CDR users.

⁴ Created from information contained in "V:\SECURE\Geocode\HRS_CDR\USDA\codebook\usdacodebook.mdb".

Table A2: Release Package Components (Outputs)

V:\SECURE\Geocode\HRS_CDR\USDA\distro\ToEnclave\sas		
SAS	State	HRSUSDAA_R.sas7bdat
	Tract	HRSUSDAB_R.sas7bdat
	County	HRSUSDAC_R.sas7bdat
V:\SECURE\Geocode\HRS_CDR\USDA\distro\ToEnclave\spss		
SPSS	State	HRSUSDAA_R.sav
	Tract	HRSUSDAB_R.sav
	County	HRSUSDAC_R.sav
V:\SECURE\Geocode\HRS_CDR\USDA\distro\ToEnclave\stata		
Stata	State	HRSUSDAA_R.dta
	Tract	HRSUSDAB_R.dta
	County	HRSUSDAC_R.dta

Table A3: Package Components (as installed on the Enclave server)

Directory	File	Type
Note: HRS-CDR components are installed in folder R:\Restricted\HRS_CDR		
\USDA\docs\	HRSUSDAA_R.txt HRSUSDAB_R.txt HRSUSDAC_R.txt	Codebook files (ASCII text): State, tract, county
\USDA\sas\	HRSUSDAA_R.sas7bdat HRSUSDAB_R.sas7bdat HRSUSDAC_R.sas7bdat	SAS system files State, tract, county
\USDA\spss\	HRSUSDAA_R.sav HRSUSDAB_R.sav HRSUSDAC_R.sav	SPSS system files State, tract, county
\USDA\stata\	HRSUSDAA_R.dta HRSUSDAB_R.dta HRSUSDAC_R.dta	Stata system files State, tract, county

MiCDA Enclave Virtual Desktop Environment users are given access to pre-built SAS, Stata and SPSS versions of all HRS-CDR datasets. To create the USDA contextual data files do the following:

1. Make sure that the Enclave server file structure outlined in Figure 1 has been created.
2. Execute the command files listed in Table 1.
3. As outlined in Table 2, SAS, Stata, and SPSS system files will be created in sub-folders:
 - "V:\SECURE\Geocode\HRS_CDR\USDA\distro\ToEnclave\sas"
 - "V:\SECURE\Geocode\HRS_CDR\USDA\distro\ToEnclave\spss"
 - "V:\SECURE\Geocode\HRS_CDR\USDA\distro\ToEnclave\stata"
4. Use **sftp** to copy the system files to the Enclave server locations listed in Table 3.