

Using population data for aging and life course research

Lara Cleveland

University of Minnesota

Minneapolis

18 July 2023

DATA-INTENSIVE RESEARCH CONFERENCE

Pre-conference workshop
presented by **IPUMS** and **NDIRA**

A visualization of the USA data set, showing a map of the United States composed of small, light blue rectangular blocks. The blocks are arranged to form the geographical outline of the country, with some internal detail suggesting population density or regional differences.

4796138925825634972846961
2862514197341212569321437
3154782418938587121934598
928386735389276967
347914272938427293842
1528421876639289487
6914872525291746676
5382593217875927823
7195721853237294576
864738643595872165983
325214791627418142153989
941982988918142153989
838169159567153372
1925424881953612146
68472131953612146
56387674239428652587
729193639451764917264
3874291562789679316431925
5938724619628951479254386

USA

U.S. Census and American Community Survey microdata from 1850 to the present.

A visualization of the CPS data set, showing a map of the United States composed of small, light orange rectangular blocks. The blocks are arranged to form the geographical outline of the country, with some internal detail suggesting population density or regional differences.

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729193639451764917264
3874291562789679316431925
5938724619628951479254386

CPS

Current Population Survey microdata including basic monthly surveys and supplements from 1962 to the present.

A visualization of the INTERNATIONAL data set, showing a world map composed of small, light blue rectangular blocks. The blocks are arranged to form the geographical outline of the world, with some internal detail suggesting population density or regional differences.

4796138925825634972846961
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68472131953612146
56387674239428652587
729193639451764917264
3874291562789679316431925
5938724619628951479254386

INTERNATIONAL

World's largest collection of census microdata with over 100 countries, contemporary and historical.

A visualization of the TIME USE data set, showing a map of the United States composed of small, light yellow rectangular blocks. The blocks are arranged to form the geographical outline of the country, with some internal detail suggesting population density or regional differences.

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928386735389276967
347914272938427293842
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68472131953612146
56387674239428652587
729193639451764917264
3874291562789679316431925
5938724619628951479254386

TIME USE

U.S. and international time use data for 1965 to the present.

A visualization of the HEALTH SURVEYS data set, showing a map of the United States composed of small, light green rectangular blocks. The blocks are arranged to form the geographical outline of the country, with some internal detail suggesting population density or regional differences.

4796138925825634972846961
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68472131953612146
56387674239428652587
729193639451764917264
3874291562789679316431925
5938724619628951479254386

HEALTH SURVEYS

Health survey data from the National Health Interview Survey and the Medical Expenditure Panel Survey.

USA

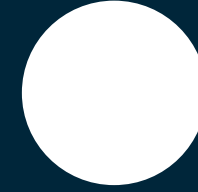
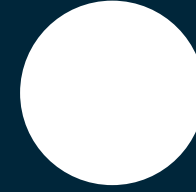
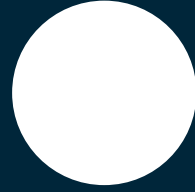
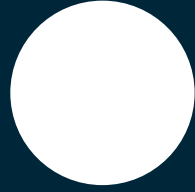
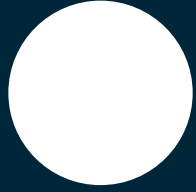
CPS

Int'l

ATUS

Health

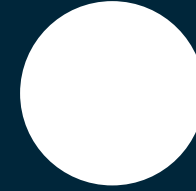
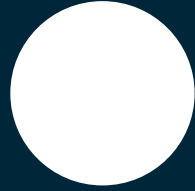
SES



Housing



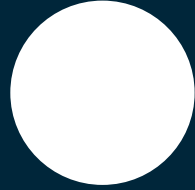
Work



Income



Poverty



USA

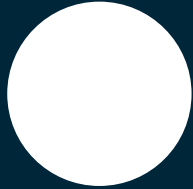
CPS

Int'l

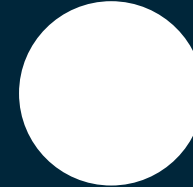
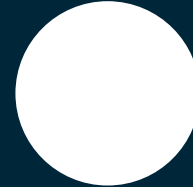
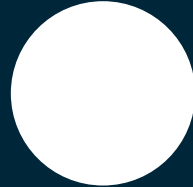
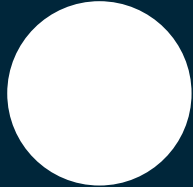
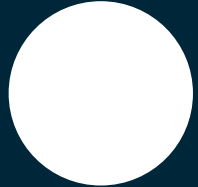
ATUS

Health

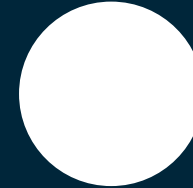
Fertility



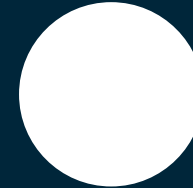
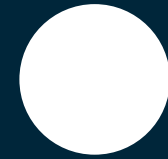
Household
or Family



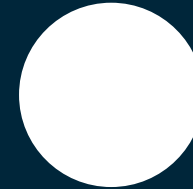
Health
Insurance



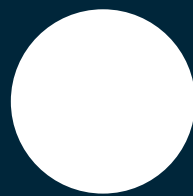
Health
behaviors



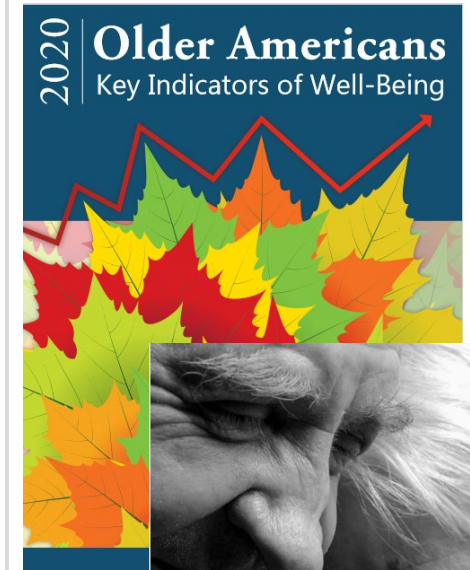
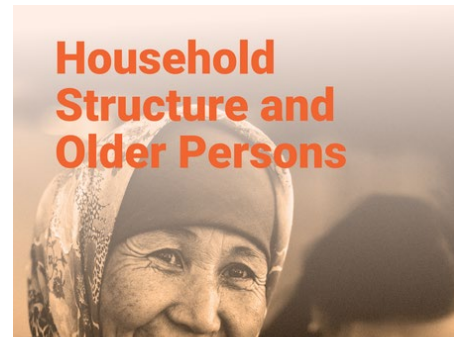
Disability



Migration

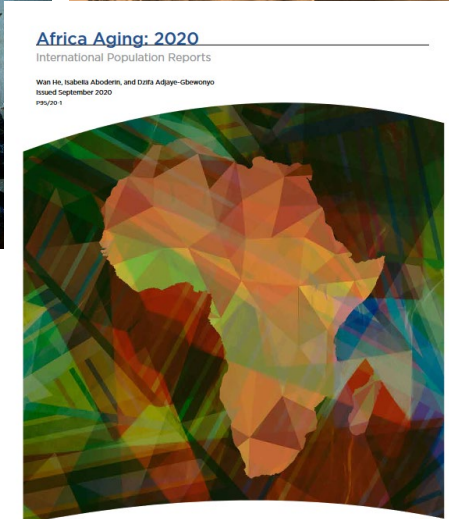
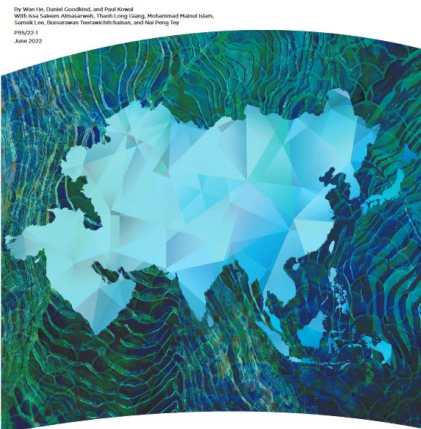


Census and HH surveys for aging research



Asia Aging: Demographic, Economic, and Health Transitions

International Population Reports



U.S. Department of Commerce U.S. CENSUS BUREAU
 U.S. Department of Health and Human Services National Institutes of Health NATIONAL INSTITUTE ON AGING
 African Population and Health Research Center

Research Report for Mayor's Commission on Aging

Philadelphia Corporation for Aging, November 28, 2016

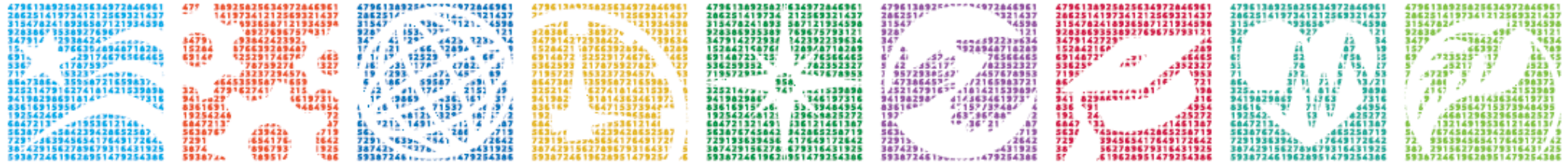
Allen Glicksman, Director of Research and Evaluation, aglicksman@pcaphl.org, 215.765.9000
 Lauren Ring, Planning Associate, lring@pcaphl.org 215.765.9000 x5074

Introduction
 Data taken from 2015 American Community Survey Public Use Microdata Sample IPUMS-USA, University of Minnesota, www.ipums.org

Individual Level Characteristics
 There are approximately 1.6 million persons living in the city of which about 24% (379,000) are aged those approximately 379,000 persons...



IPUMS Data: Features and Characteristics



USA CPS INTERNATIONAL TIME USE NHGIS PMA DHS HIGHERED MEPS NHIS IHGIS

FEATURES

Microdata	■	■	■	■	■	■	■	■	■	■	■	■
International			■	■								■
Earliest Year of Data	1790	1962	1960s	1965	1790	2013		1993	1996	1963		1960s
Geographic Detail	Sub-state	Sub-state	2 nd or 3 rd Sub-national	Sub-state	Census Block	Region	Region	None	Census Region	Census Region		Varies
Large sample sizes - Population representative - Long time spans												

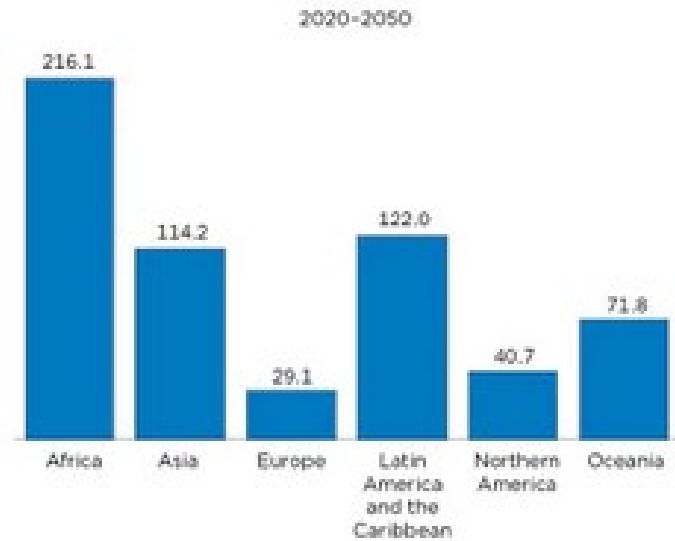
Large & representative samples across time and space

- **Disaggregation**
 - Multiple characteristics
 - Subnational geographic units
 - GIS shapefiles available
- **Place comparisons**
 - Policy conditions
 - Social conditions
 - Environmental factors
 - Space + time = treatment effects
- **Interoperability**
 - Surveys <-> censuses
 - Environmental & climate information
- **Stretch methods: estimation**
 - Projections
 - Small area estimation (SAE)
 - Complex calibration

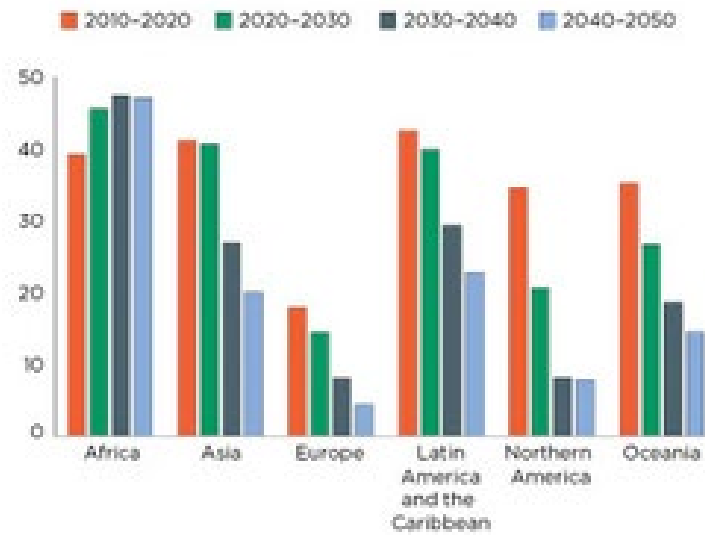
General trends in aging: global

Growth of Population Aged 60 and Older by World Region: 2020 and Projected 2050
(In percent)

(In percent)

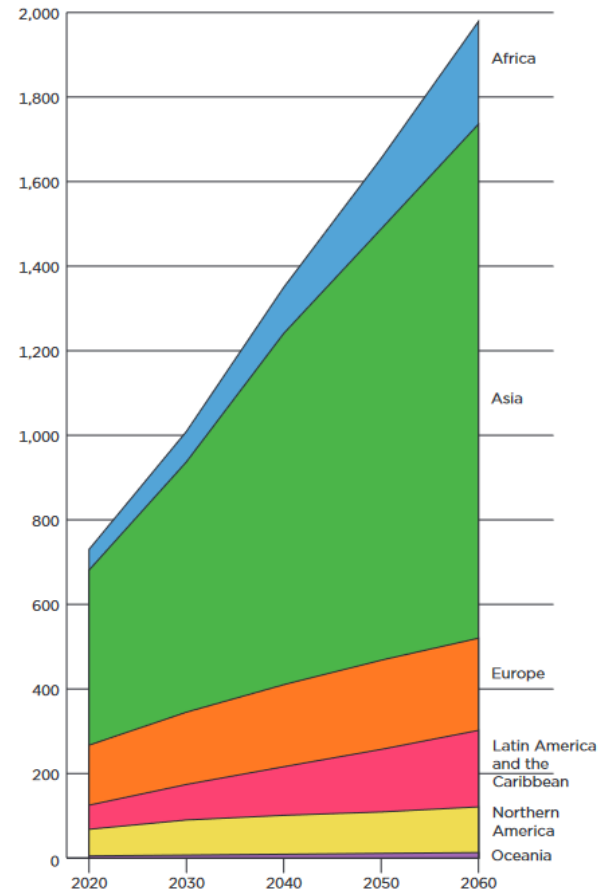


Source: U.S. Census Bureau, International Database, 2019.



Africa Aging: 2020 (USCB, 2020)

Figure 2-2. Population Aged 65 and Over by Region: 2020 Projected to 2060
(Numbers in millions)



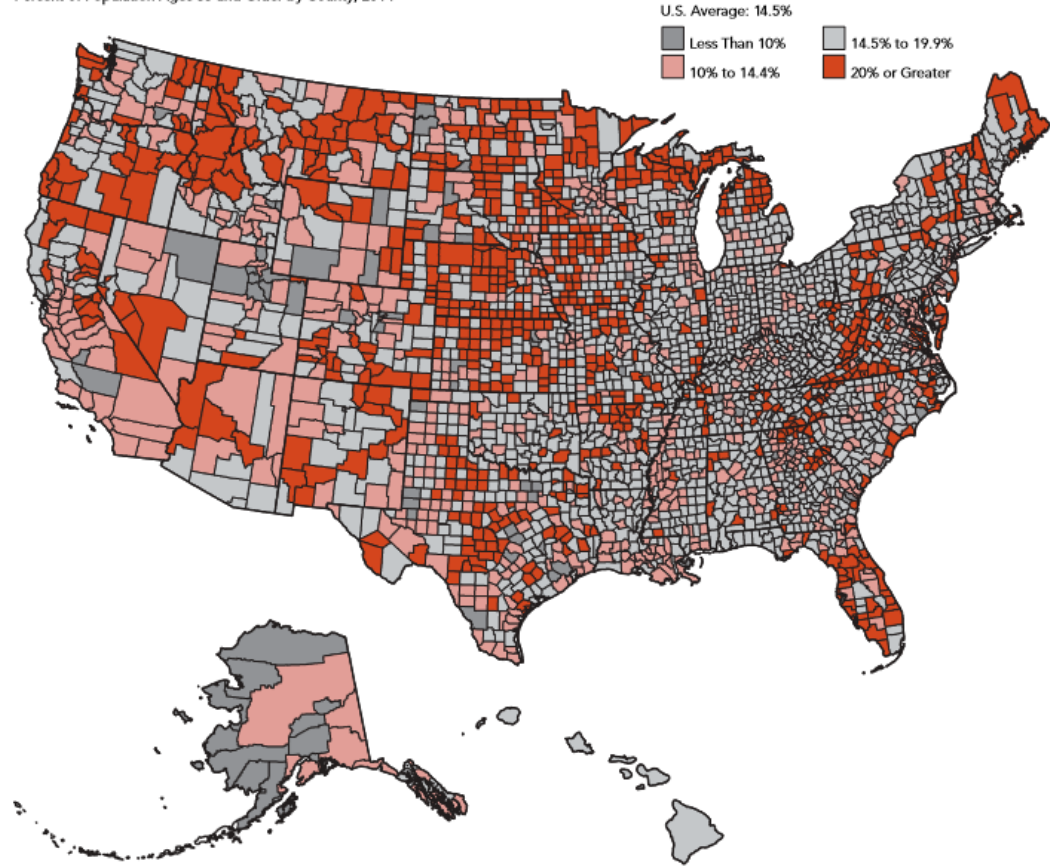
Source: U.S. Census Bureau, International Database, 2021.

Asia Aging (USCB, 2022)

General trends in aging: US

Older Americans Make Up At Least 20 Percent of the Population in One-Quarter of U.S. Counties.

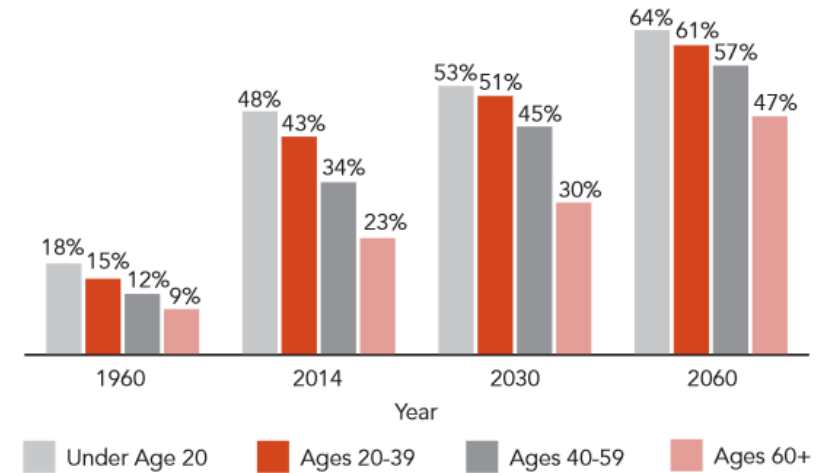
Percent of Population Ages 65 and Older by County, 2014



Source: PRB analysis of data from the U.S. Census Bureau, 2014 Population Estimates.

The Current "Diversity Gap" Between the 60+ Population and Younger Generations Will Widen by 2030.

Percent Minority in United States, by Age Group, 1960, 2014, 2030 and 2060



Note: Minorities include all racial and ethnic groups except non-Hispanic whites.

Source: PRB analysis of data from the U.S. Census Bureau; and IPUMS USA, University of Minnesota, www.ipums.org.

Source: PRB, Population Bulletin, 2016

Census for disaggregation

Figure 10. Proportion of older persons living alone by place of residence, based on countries with available data, 2000–2017

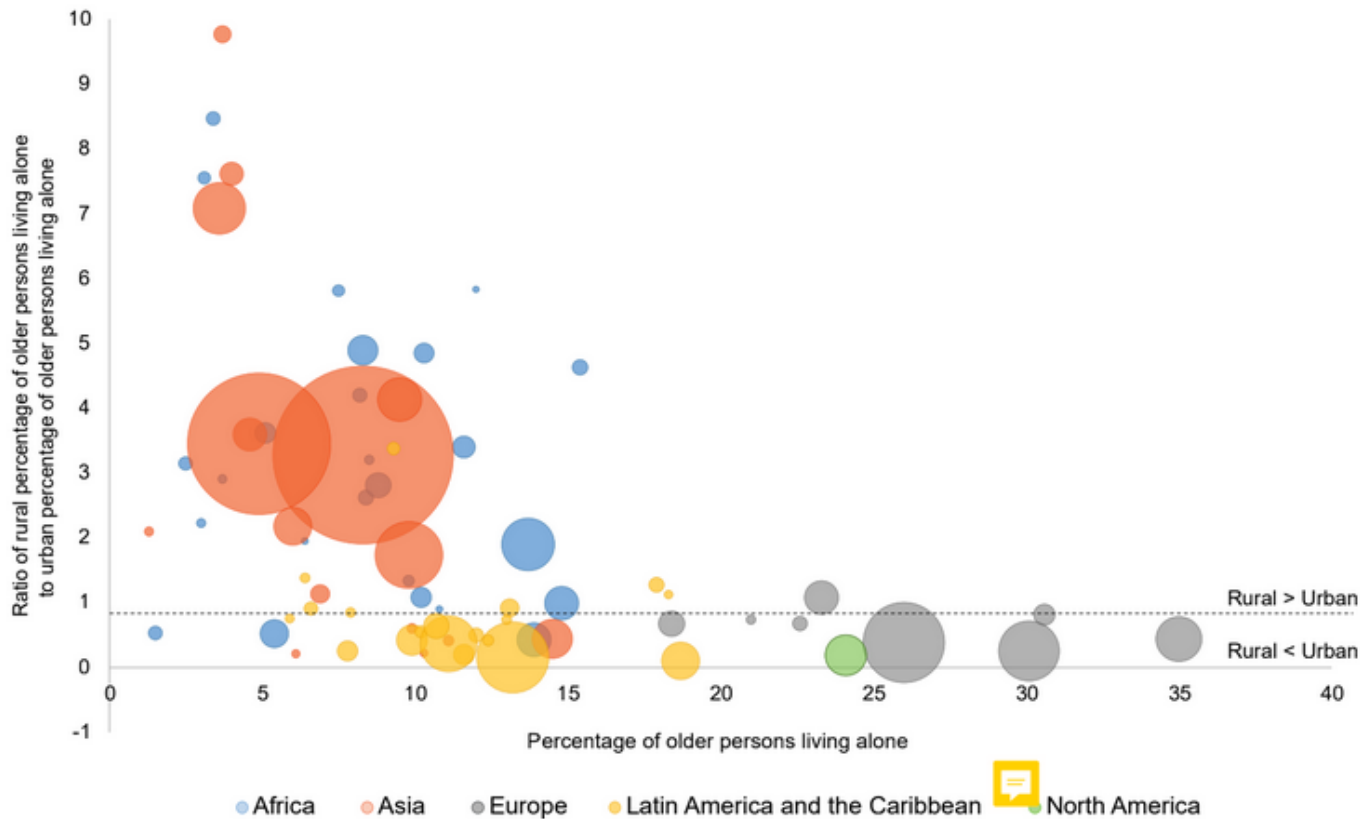
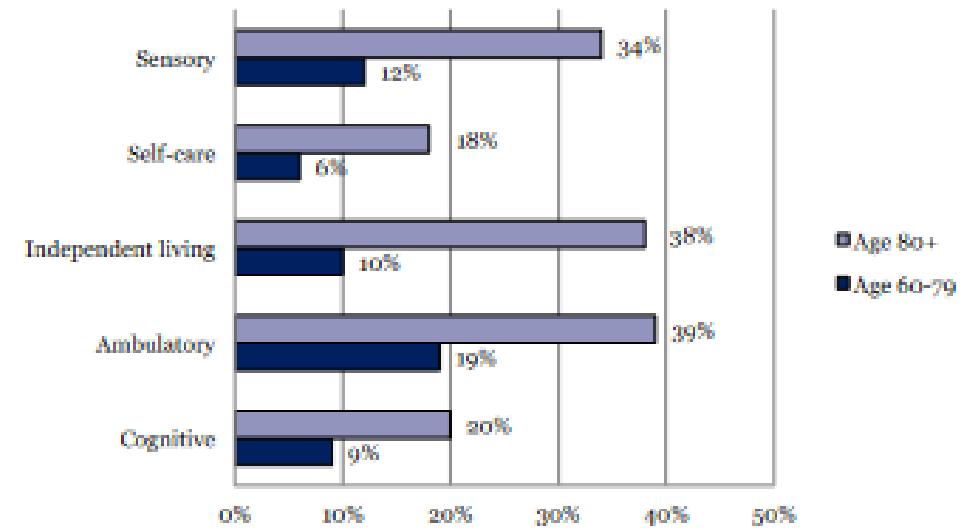


Figure 16: Prevalence of disability by type and age, Boston seniors

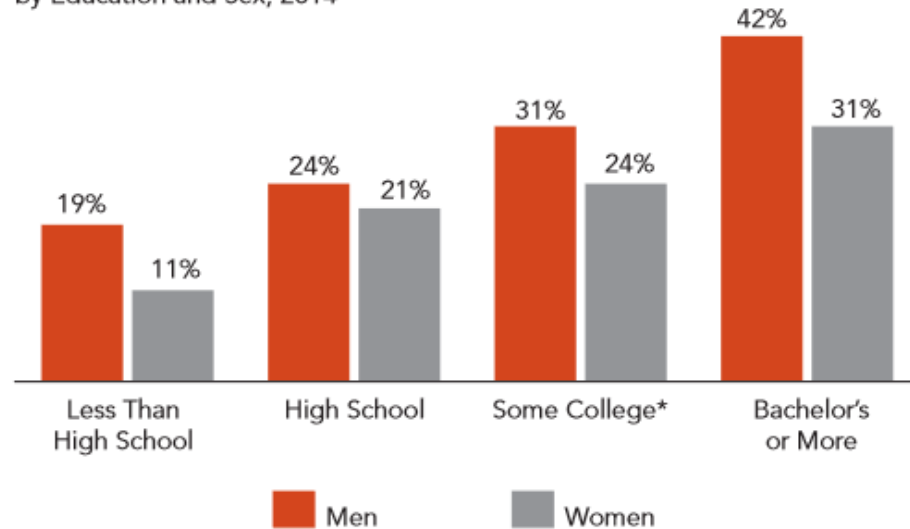


Source: American Community Survey IPUMS data, 3 year file, 2009–2011.
Note: Excludes individuals living in an institutional setting.

More disaggregation

College-Educated Americans Are More Likely to Be in the Labor Force After Age 65.

Labor Force Participation Rates of Older Adults Ages 65-74, by Education and Sex, 2014



*Includes those with some college but no degree and those with associate's degrees.

Source: U.S. Census Bureau, Current Population Survey, 2014 Annual Social and Economic Supplement.

POPULATION BULLETIN 70.2 2015

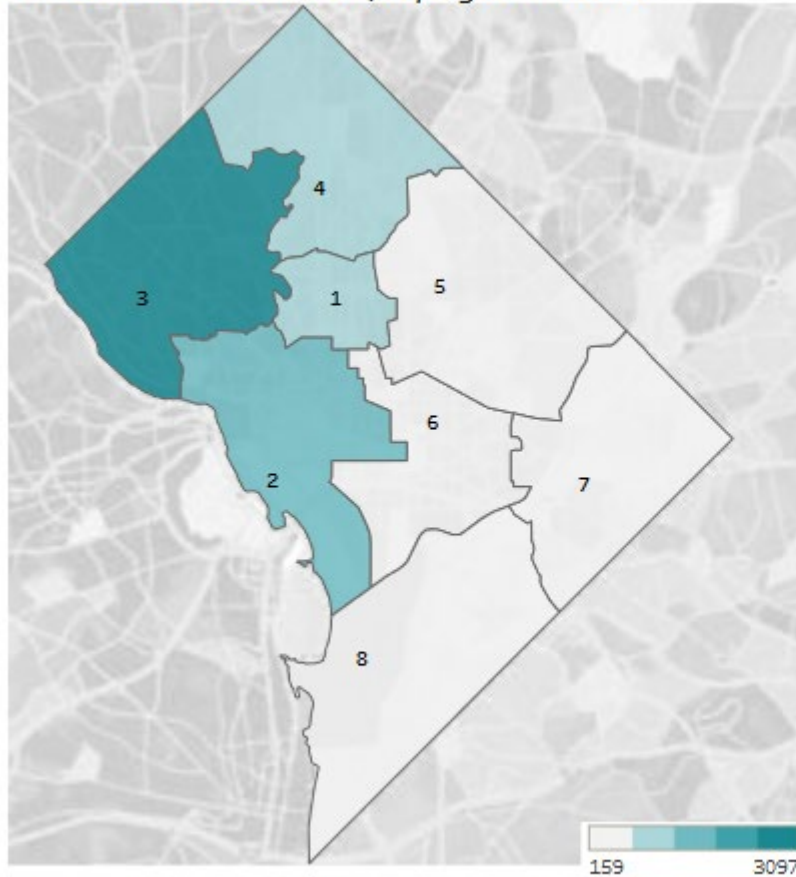
Table 2. Percentage with Income Below the Elder Index, Singles Ages 65 and Older, 2019

	Black or African American	White, non-Hispanic	Disparity (rate among Blacks - rate among Whites)
States with highest rates of economic insecurity among Blacks			
Rhode Island	80%	51%	29%
Massachusetts	76%	58%	18%
Mississippi	74%	48%	26%
Louisiana	71%	48%	23%
South Carolina	70%	44%	26%
States with lowest rates of economic insecurity among Blacks			
Oregon	53%	48%	5%
Arizona	53%	41%	12%
Washington	49%	47%	2%
Nevada	47%	38%	9%
West Virginia	46%	51%	-5%
U.S. Average	64%	47%	17%

Source: Authors' calculation based on data from the Elder Index (2019) and American Community Survey (2014-2018, retrieved from Ruggles et al., 2020).

Spatial disaggregation

D.C. Senior Householders, top 25% in income



D.C. Senior Householders, bottom 25% in income

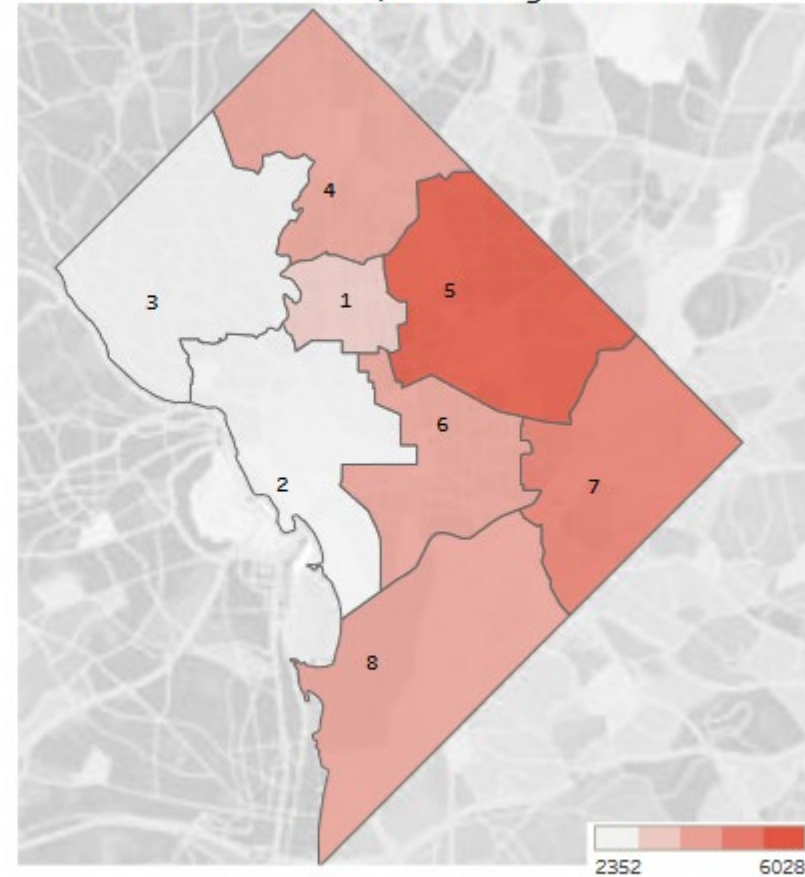


ILLUSTRATION 12: TOP AND BOTTOM 25% IN INCOME MAPS, BY WARD, IN D.C.

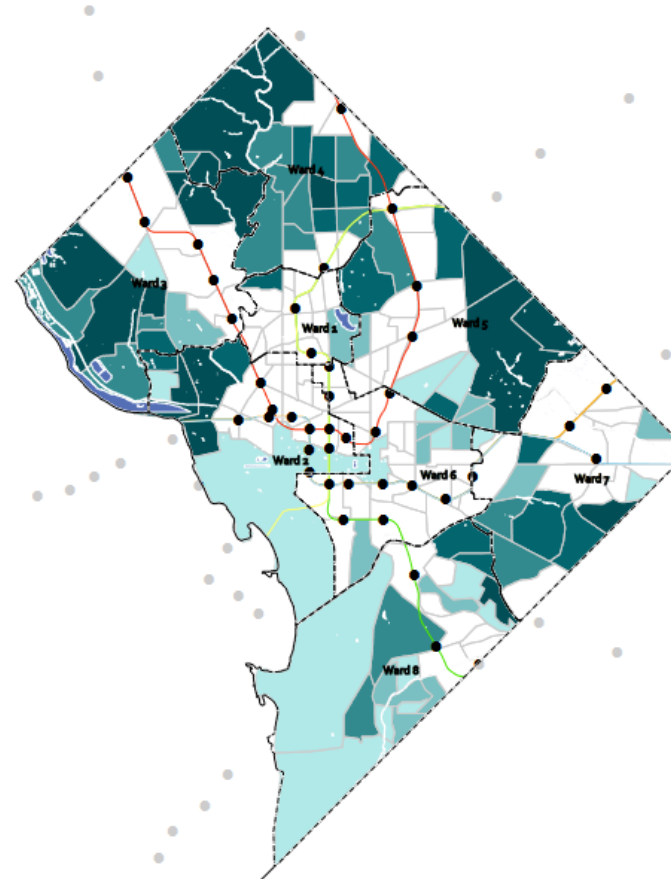
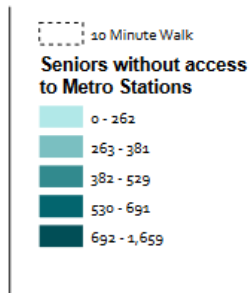
The State of Older Adults in the District of Columbia. (2020). Research report by the Office of the Budget Director.

Combining data: place-based interoperability

ILLUSTRATION 8: D.C. SENIORS ACCESS TO MAJOR TRANSIT

About 52.7 percent of senior residents live within 1 km of a Metrorail station

Seniors without access to Metro Stations



The State of Older Adults in the District of Columbia. (2020). Research report by the Office of the Budget Director.

Combining data: pop-based estimation

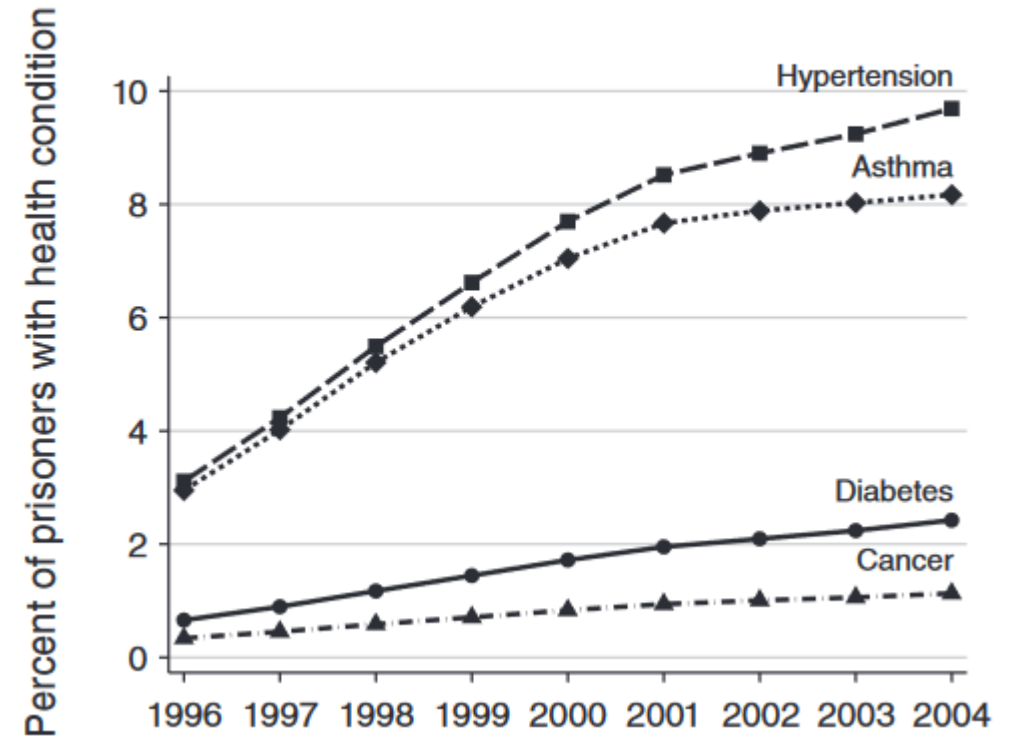
AEA Papers and Proceedings 2019, 109: 182–186
<https://doi.org/10.1257/pandp.20191089>

POLICY AND VULNERABLE POPULATIONS[‡]

The Burgeoning Health Care Needs of Aging Prisoners[†]

By HESSAM BAVAFA AND ANITA MUKHERJEE*

Panel A. Estimated prevalence of health conditions



IPUMS Data: Features and Characteristics

IPUMS
DATA PROJECTS



USA



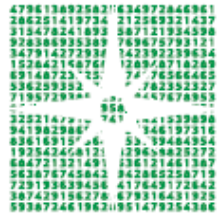
CPS



INTERNATIONAL



TIME USE



NHGIS



PMA DHS



HIGHERED



MEPS NHIS



IHGIS

FEATURES

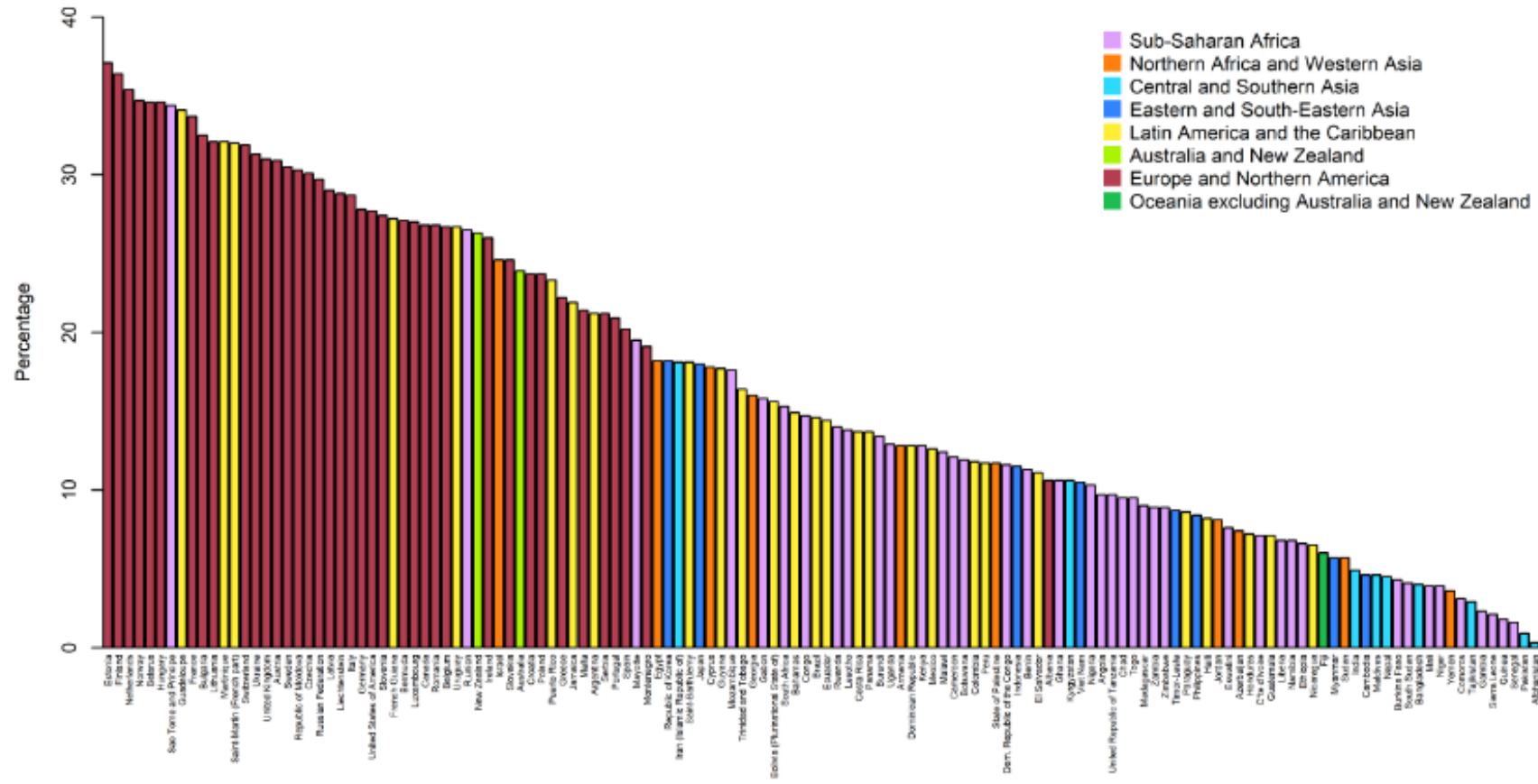
Microdata	■	■	■	■	■	■	■	■	■	■	■	■
International			■	■								■
Earliest Year of Data	1790	1962	1960s	1965	1790	2013		1993	1996	1963		1960s
Geographic Detail	Sub-state	Sub-state	2 nd or 3 rd Sub-national	Sub-state	Census Block	Region	Region	None	Census Region	Census Region		Varies

Household structure & family relationships

- Household size...
 - Living alone
 - 2 person households
 - Large households
 - ... & composition
 - Couples
 - Living with adult children
 - Multi-generational households
 - Group quarters
 - Family member characteristics
 - Educational characteristics
 - Employment status
 - Type of work
 - Economic status and earnings
 - Health and disability
 - Migration status
- Implications for**
- = Ability to care for ...
 - = Social interaction (or isolation)
 - = Economic stability

Household structure, living alone

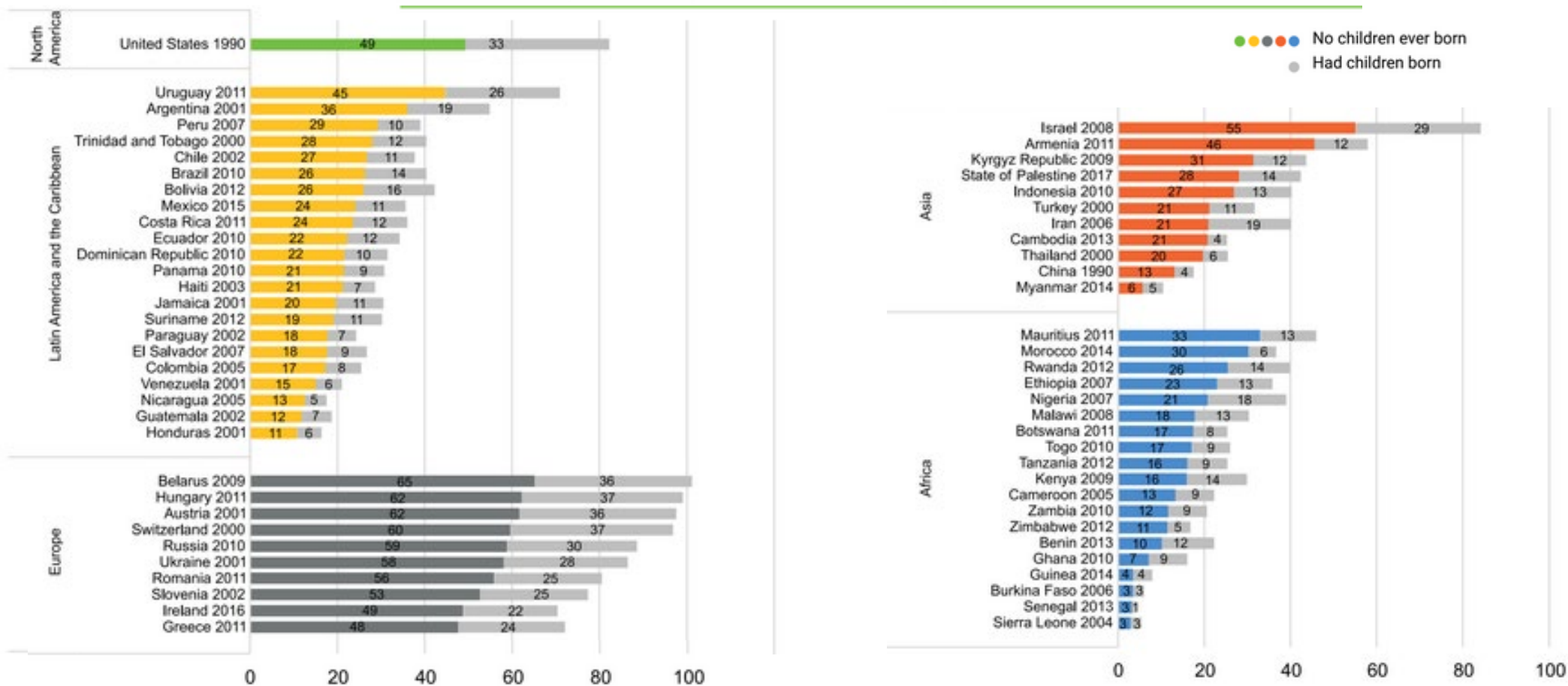
Percentage of persons aged 65 year or over who live alone, by country or area of residence, 2006-2015



World Population Ageing, 2020.
United Nations DESA, Population Division.

Women living alone by children ever born

Figure 13. Percentage of older women who live alone, by whether they have ever had children, in countries with available data, 2000–2017 (and other selected samples)



Household structure and older persons. Forthcoming, 2022. UNFPA.

Household structure and family care expectations

AGING & HEALTH

and Supports In The

By Carrie E. Henning-Smith and Tetyana P. Shippee

Respondents' Expectations About Using Various Sources Of Long-Term Service And Support, 2012

Middle-aged adults appear to have unrealistically low expectations about needing long-term services and supports.

AGING & H

Living arrangement	Odds ratio					
	Family	Hiring someone	Home health agency	Nursing home or assisted living facility	Other	Multiple sources
With spouse only	Ref	Ref	Ref	Ref	Ref	Ref
Alone	0.35****	1.88****	1.72****	1.78****	2.15****	1.01
With spouse and minor children only	1.51****	0.56****	0.91	0.92	0.54**	0.81
With minor children only	0.62***	0.71	1.37	1.84**	1.17	0.72
With extended family members or unrelated others	1.25***	0.69**	0.97	1.13	1.01	1.07

ABSTRACT Most middle-aged adults have low expectations about needing long-term services and supports and underestimate their likely future needs for such assistance. Using data from the 2012 National Health Interview Survey, we examined expectations about future use of long-term services and supports among adults ages 40–65 and how these expectations varied by household structure and family care expectations.

candidate in the Division of Health Policy and Management, School of Public Health, University of Minnesota, in Minneapolis.



Very unlikely

Somewhat unlikely

Somewhat likely

Likely

IPUMS Data: Features and Characteristics

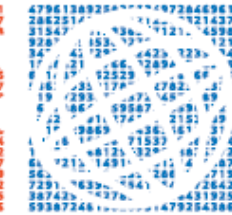
IPUMS
DATA PROJECTS



USA



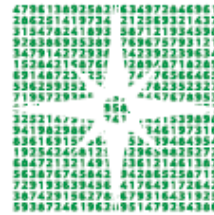
CPS



INTERNATIONAL



TIME USE



NHGIS



PMA DHS



HIGHERED



MEPS NHIS



IHGIS

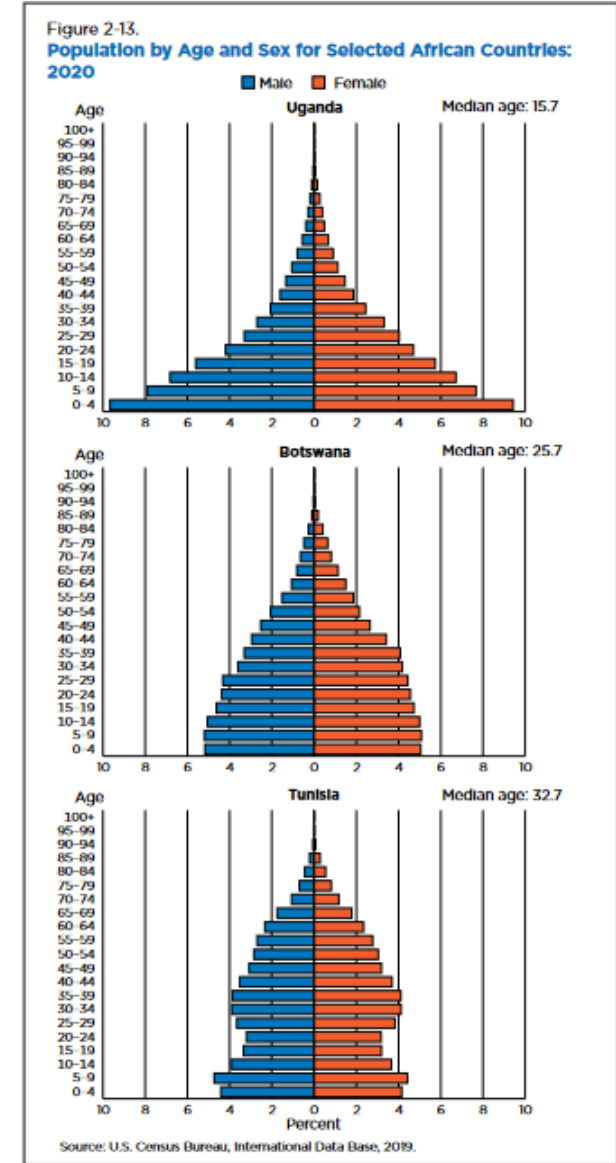
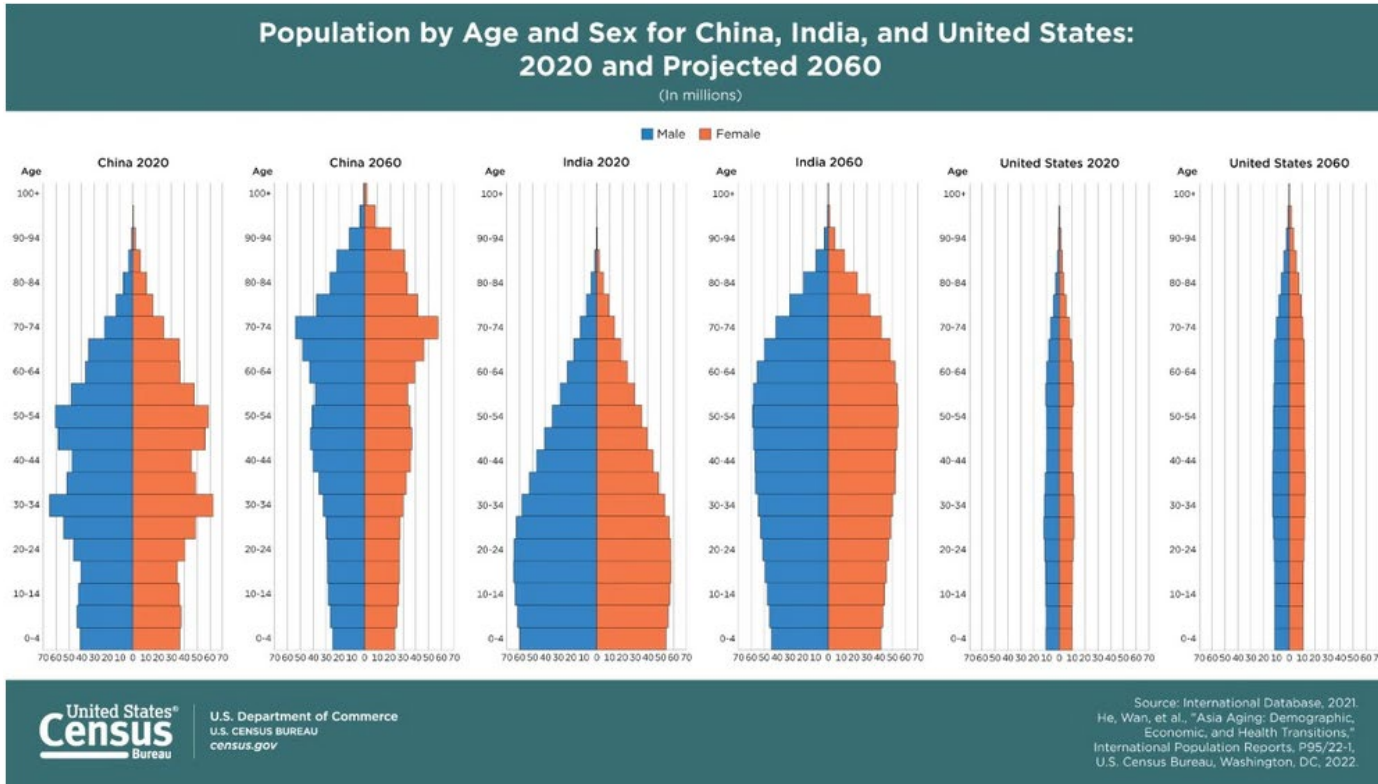
FEATURES

Microdata	■	■	■	■	■	■	■	■	■	■	■
International			■	■		■	■				■
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Geographic Detail	Sub-state	Sub-state	2 nd or 3 rd Sub-national	Sub-state	Census Block	Region	Region	None	Census Region	Census Region	Varies
Households & Families	■	■	■	■	■		■		■	■	■

Age detail

- Precise age information
 - Single year of age
 - Birth year (some incl. birth month/day)
- Large Ns in census samples
 - Disaggregation
 - Study small groups (e.g. oldest adults)
- Multiple years = Follow birth cohorts
 - Study change over life course
 - Generational effects early shocks/experiences on later life outcomes
 - Location info (BPL/MIG) isolate treatment effects to those who stay

Census for disaggregation: age & sex



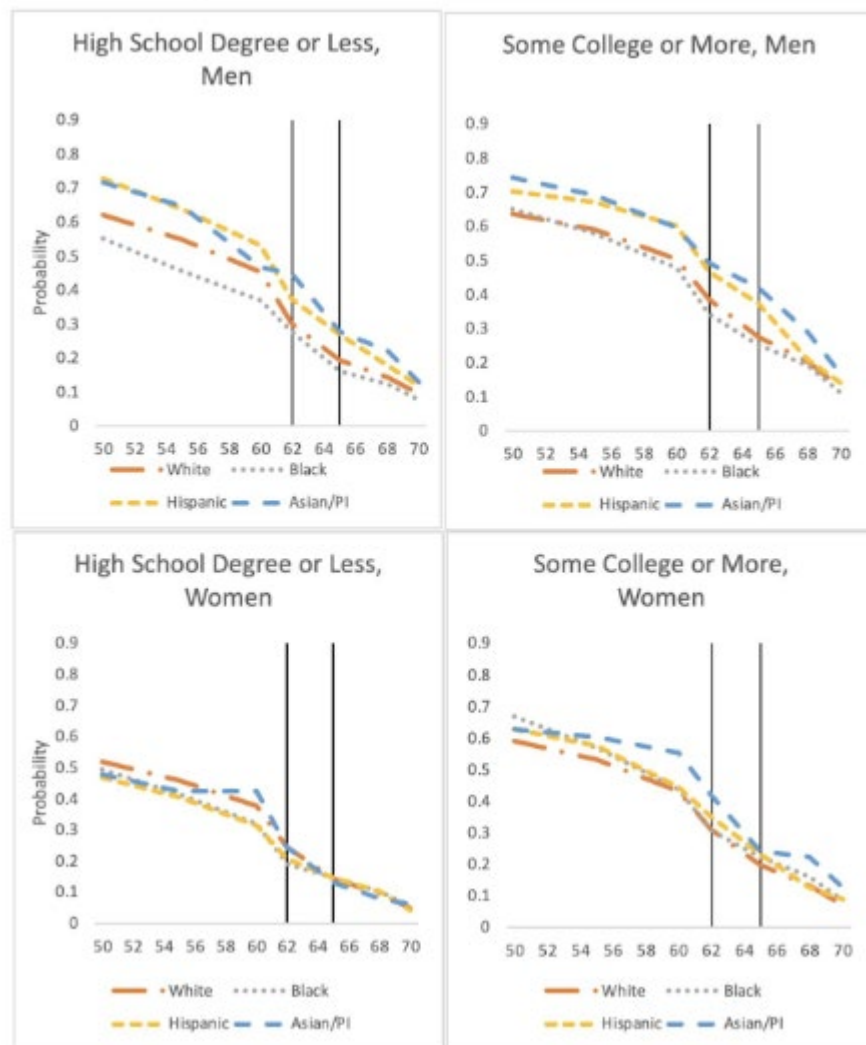
The Uneven Later Work Course: Intersectional Gender, Age, Race, and Class Disparities FREE

Phyllis Moen, PhD ✉, Sarah M Flood, PhD, Janet Wang, BS

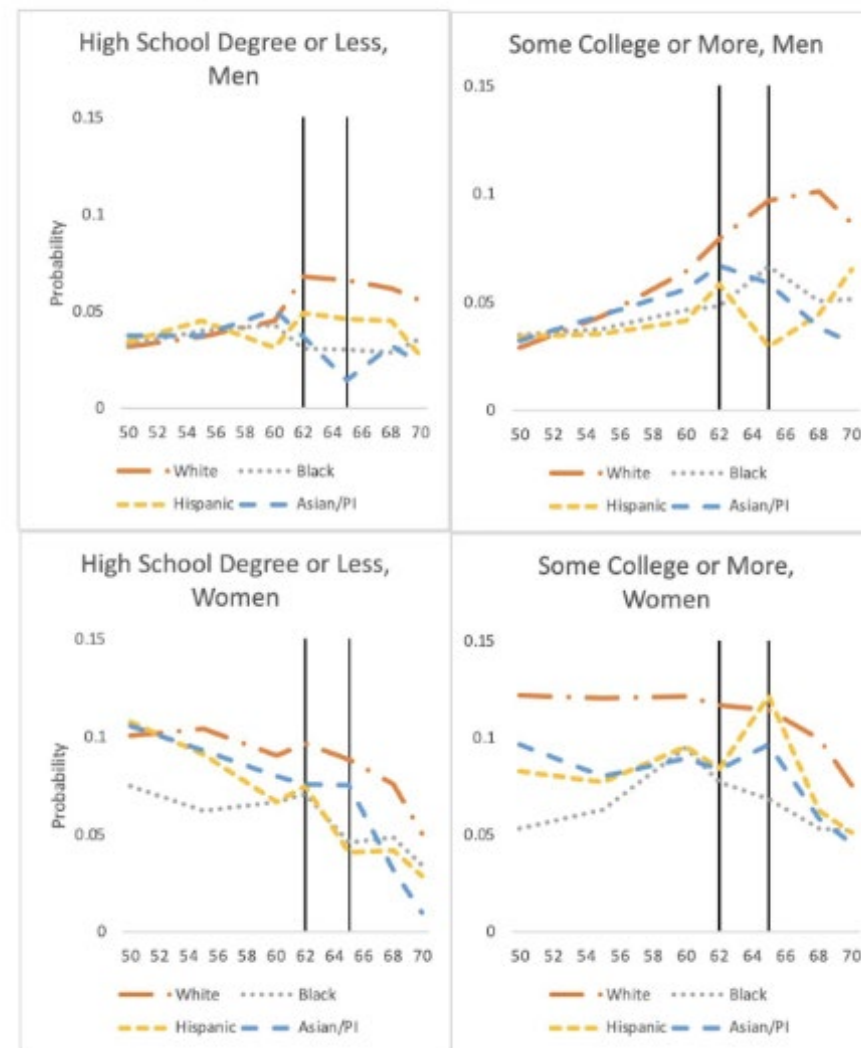
The Journals of Gerontology: Series B, Volume 77, Issue 1, January 2022,

Pages 170–180, <https://doi-org.eres.qnl.qa/10.1093/geronb/gbab039>

1b. Full Time Pathway

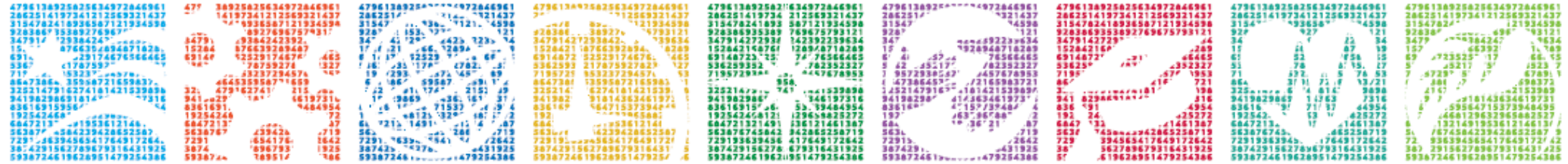


1c. Part Time Pathway



IPUMS Data: Features and Characteristics

IPUMS
DATA PROJECTS



USA

CPS

INTERNATIONAL

TIME USE

NHGIS

PMA

DHS

HIGHERED

MEPS NHIS

IHGIS

FEATURES

Microdata	■	■	■	■									
International			■										■
Earliest Year of Data	1790	1962	1960s	1965	1790	2013		1993	1996	1963	1960s		
Geographic Detail	Sub-state	Sub-state	2 nd or 3 rd Sub-national	Sub-state	Census Block	Region	Region	None	Census Region	Census Region	Varies		
Households & Families	■	■	■	■	■		■		■	■	■		■
All Ages	■	■	■	■	■	■			■	■	■		■
Linked Records	Historical & to other records	■	Historical	■		■			■	■			■



Longitudinal, panel, & linked data

- Linking unlocks huge research potential

- Change over the life course
- Early life on later outcomes

Historical US censuses

Historical North Atlantic censuses

- Panel data:

- Sequencing
(events, decision making, etc.)

CPS/ATUS short term linked

IHIS/MEPS short term linked

US FSRDC – merge IPUMS with restricted versions

Questions / Comments

ipums@umn.edu

 @ipums