

Using ACS PUMS Data in Occupational Health Surveillance

MyDzung Chu, MSPH

Kathleen Grattan, MPH

Massachusetts Department of Public Health

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Why use ACS & ACS PUMS in Occupational Health Surveillance?

ACS

Advantages:

- Larger sample size
- Many demographic, social, economic characteristics for cross-tabulations
- Sub-state geography
- Group quarters

Limitations/Other differences:

- Reference periods:
 - Last week (Emp status)
 - In past 12 mo. (usual weeks/hours worked)
- Current primary, most recent job
- Employment est. for ages 16+

ACS PUMS vs. Summary File

Advantages:

- Flexibility in cross-tabulations, modeling
- FTE calculations

Limitations:

- Smaller sample size
- PUMAs smallest geography
- Calculate own standard errors

U.S. Census Bureau references:

- Kromer BK. And Howard DJ. (2011). *Comparison of ACS and CPS Data on Employment Status*. www.census.gov/hhes/www/laborfor/compare-acs-cps.html
- Labor Force Statistics (2011). *Labor Force Fact Sheet: Differences Among the Employment and Unemployment Estimates from the ACS, the CPS, and the LAUS Program*. www.census.gov/people/laborforce/publications/laborfactsheet092209.html

Overview

1. ACS PUMS Documentation & Resources
2. ACS PUMS data access
3. Examples of ACS PUMS use for OH surveillance

ACS PUMS Documentation

Go to: www.census.gov/acs/www/data_documentation/pums_documentation/

Main | About the Survey | Guidance for Data Users | **Data & Documentation** | Methodology | Library

- Data
- Documentation
- Data Releases
- Geography
- Downloadable data via FTP
- Summary File
- Public Use Microdata Sample (PUMS)**
 - About PUMS
 - Confidentiality of PUMS
 - PUMS Data
 - PUMS Documentation**
 - PUMS on DataFerrett
 - PUMS FAQs
- Custom Tabulations

Tell us what you think!
Data Products Survey
until May 29th

PUMS Documentation

Print | Share this page | Connect with us

The documentation below is provided in support of the American Community Survey PUMS data.

2013	2012	2011	2010	2009	2008	2007	2006	2005	All
------	------	------	------	------	------	------	------	------	-----

Subjects in the PUMS

A list of topics included in each of the housing and population record files

- 2008-2012 5-year Subjects [PDF 41KB]
- 2010-2012 3-year Subjects [PDF 72KB]
- 2012 1-year Subjects [PDF 40KB]

Code Lists

Detailed codes for variables that contain a large number of coded responses, such as ancestry and occupation

- 2008-2012 5-year Code Lists [PDF 4.4MB]
- 2010-2012 3-year Code Lists [PDF 4.3MB]
- 2012 1-year Code Lists [PDF 3.8MB]

PUMS Top Coded and Bottom Coded Values

List of variables with responses exceeding a state-specific value that are replaced with a predetermined value

- 2012 Top and Bottom Coded Values [PDF 1.6MB]

PUMS Data Dictionary

Includes variables available for each PUMS release and how each variable is coded

- 2008-2012 5-year Data Dictionary [PDF 478KB]
- 2010-2012 3-year Data Dictionary [PDF 435KB]
- 2012 1-year Data Dictionary [PDF 353KB]

PUMS ReadMe

Information about working with ACS PUMS files, geographies, and variable changes.

- 2008-2012 5-year PUMS ReadMe [PDF 74KB]
- 2010-2012 3-year PUMS ReadMe [PDF 77KB]
- 2012 1-year PUMS ReadMe [PDF 77KB]

Accuracy of the PUMS

A basic explanation of the sample design, estimation methodology, and accuracy of the data

- 2008-2012 ACS 5-year PUMS Accuracy [PDF 1.3MB]
- 2010-2012 ACS 3-year PUMS Accuracy [PDF 1.2MB]
- 2012 PUMS Accuracy [PDF 1.2MB]

PUMS Estimates for User Verification:

Estimates for selected characteristics provided to assist data users in determining if they are correctly using the weights to compute estimates

Note that some of these estimates may be different from the estimates for the same characteristics published in the American FactFinder. For an explanation of these differences, see the Accuracy of the PUMS above.

- 2008-2012 PUMS Estimates for User Verification
 - PUMS estimates [SAS 160KB]
 - PUMS estimates [LST 177KB]
 - PUMS estimates [CSV 88KB]
- 2010-2012 PUMS Estimates for User Verification
 - PUMS estimates [SAS 160KB]
 - PUMS estimates [LST 176KB]

Additional ACS Resources

Subject Definitions:

www.census.gov/acs/www/data_documentation/documentation_main/
> year > Subject Definitions

Questionnaires:

www.census.gov/acs/www/methodology/questionnaire_archive/

Handbook for Data Users:

www.census.gov/acs/www/guidance_for_data_users/handbooks/

Training Presentations:

www.census.gov/acs/www/guidance_for_data_users/training_presentations/

ACS PUMS Data access

Go to: www.census.gov/acs/www/data_documentation/pums_data/

The screenshot shows the Census Bureau website's navigation and content for ACS PUMS Data. The top navigation bar includes links for Topics, Geography, Library, Data, About the Bureau, and Newsroom. The main content area features a breadcrumb trail: Census.gov > American Community Survey > Data & Documentation: Public Use Microdata Sample (PUMS) > PUMS Data. The page title is "American Community Survey". A secondary navigation bar contains links for Main, About the Survey, Guidance for Data Users, Data & Documentation (selected), Methodology, and Library. A left sidebar lists navigation options, with "Public Use Microdata Sample (PUMS)" highlighted. Under this section, "PUMS Data" is expanded to show a list of data releases. The "2012 ACS 1-year PUMS" entry is highlighted with a red box. The main content area displays "PUMS Data" with options to print, share, or connect. It provides supporting documentation for the data and lists available data for ACS 1998 and 1997, including state-specific links and file sizes. A right sidebar contains a search box, "Current Data Profiles" for the United States, a "Your Help Needed" call to action, "Website Feedback", and "Data by Topic" for Age and Sex.

Census.gov > American Community Survey > Data & Documentation: Public Use Microdata Sample (PUMS) > PUMS Data

American Community Survey

Main | About the Survey | Guidance for Data Users | **Data & Documentation** | Methodology | Library

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 - Custom Tabulations

Tell us what you think!

PUMS Data

Print | Share this page | Connect with us

Supporting documentation for the data below is available on the [PUMS Documentation](#) page.

PUMS Data 2000 - current	PUMS Data for ACS 1998	PUMS Data for ACS 1997
<p>Available through the American FactFinder website:</p> <ul style="list-style-type: none">2009-2013 ACS 5-year PUMS2011-2013 ACS 3-year PUMS2013 ACS 1-year PUMS2008-2012 ACS 5-year PUMS2010-2012 ACS 3-year PUMS2012 ACS 1-year PUMS2007-2011 ACS 5-year PUMS2009-2011 ACS 3-year PUMS2011 ACS 1-year PUMS2006-2010 ACS 5-year PUMS	<ul style="list-style-type: none">Florida [EXE 328KB]Nebraska [EXE 224KB]New York [EXE 142KB]Ohio [EXE 495KB]Oregon [EXE 321KB]South Carolina [EXE 372KB]Texas [EXE 1.4MB]	<ul style="list-style-type: none">Florida [EXE 398KB]Nebraska [EXE 973KB]New York [EXE 217KB]

SEARCH

Current Data Profiles

Social, Economic, Housing and Demographic Characteristics

United States Go

Your Help Needed

Participate in a brief [online usability test](#) to improve this website

Website Feedback

Tell us how to make this website better.

Data by Topic

People

- Age and Sex / Animo

ACS PUMS Data access

The screenshot shows the American FactFinder search interface. The top navigation bar includes the United States Census Bureau logo and the 'FactFinder' title. The main navigation menu has options for 'MAIN', 'COMMUNITY FACTS', 'GUIDED SEARCH', 'ADVANCED SEARCH' (highlighted), and 'DOWNLOAD CENTER'. A search instruction reads: 'Search - Use the options on the left (topics, geographies, ...) to narrow your search results'.

The 'Your Selections' sidebar on the left shows search criteria: Product Type: Public Use Microdata Sample; Dataset: 2012 ACS 1-year estimates. Below this are filters for Topics, Geographies, Race and Ethnic Groups, Industry Codes, and EEO Occupation Codes.

The main search results area shows 'Search Results: 1-2 of 2 tables and other products match "Your Selections"'. A search box contains 'topic or table name' and 'state, county or place (optional)'. Below the search box are radio buttons for 'topics', 'race/ancestry', 'industries', and 'occupations'. The 'topics' option is selected.

Below the search box, there are action buttons: 'View', 'Download', 'Compare', 'Clear All', and 'Reset Sort'. A table of results is displayed with the following columns: ID, Table, File or Document Title, Dataset, and About. The table contains two rows, with the second row highlighted in red:

ID	Table, File or Document Title	Dataset	About	
PUMS-CSV	2012 ACS 1-year Public Use Microdata Samples (PUMS) - CSV format	2012 ACS 1-year estimates	?	
<input checked="" type="checkbox"/>	PUMS-SAS	2012 ACS 1-year Public Use Microdata Samples (PUMS) - SAS format	2012 ACS 1-year estimates	?

Below the table, there are action buttons: 'View', 'Download', 'Compare', 'Clear All', and 'Reset Sort'. The page number '1' is visible in the bottom right corner of the results area.

ACS PUMS Data access

American FactFinder - Results

U.S. Department of Commerce
United States Census Bureau

AMERICAN FactFinder

Feedback FAQs Glossary Help

MAIN COMMUNITY FACTS GUIDED SEARCH ADVANCED SEARCH DOWNLOAD CENTER

Advanced Search - Search all data in American FactFinder

1 Advanced Search 2 Table Viewer

Result 1 of 1 VIEW ALL AS PDF

PUMS-SAS

2012 ACS 1-year Public Use Microdata Samples (PUMS) - SAS format ⓘ

2012 ACS 1-year estimates

BACK TO ADVANCED SEARCH

The ACS Public Use Microdata Sample files (PUMS) are a sample of the actual responses to the American Community Survey and include most population and housing characteristics. These files provide users with the flexibility to prepare customized tabulations and can be used for detailed research and analysis. Files have been edited to protect the confidentiality of all individuals and of all individual households. The smallest geographic unit that is identified within the PUMS is the Public Use Microdata Area (PUMA).

For complete PUMS documentation, visit the [ACS PUMS documentation page](#).

All files below are provided in SAS format. The 2012 ACS 1-year PUMS are also available in [comma separated value \(CSV\) format](#).

United States Population Records	United States Housing Unit Records
Alabama Population Records	Alabama Housing Unit Records
Alaska Population Records	Alaska Housing Unit Records
Arizona Population Records	Arizona Housing Unit Records
Arkansas Population Records	Arkansas Housing Unit Records
California Population Records	California Housing Unit Records

Iowa Population Records	Iowa Housing Unit Records
Kansas Population Records	Kansas Housing Unit Records
Kentucky Population Records	Kentucky Housing Unit Records
Louisiana Population Records	Louisiana Housing Unit Records
Maine Population Records	Maine Housing Unit Records
Maryland Population Records	Maryland Housing Unit Records
Massachusetts Population Records	Massachusetts Housing Unit Records
Michigan Population Records	Michigan Housing Unit Records
Minnesota Population Records	Minnesota Housing Unit Records

Examples of Occupational Health-related ACS PUMS Use

1. Descriptive statistics of working population
2. Derive Full-time Equivalent (FTE) estimates



US BLS. 2014. Women in the Labor Force: A Databook. Report 1052.
Available at <http://www.bls.gov/opub/reports/cps/women-in-the-labor-force-a-databook-2014.pdf>.

Ex 1: General employment statistics concerning women of reproductive age in MA by race/ethnicity

Background: Data request from the Bureau of Family Health and Nutrition for Title V needs assessment

- Occupational Health listed as a possible priority area

Interested in: Among women of reproductive age in MA who are currently employed, what is the percent distribution of ... by race/ethnicity?

- Hours worked per week
- Income-to-poverty threshold
- Industry
- Occupation

Data source: ACS PUMS data

Ex 1: Employment characteristics of Working Women in MA ages 16-44 by race/ethnicity, ACS PUMS 2012

Data source: 2012 ACS PUMS 1-year, population records

Geography: Massachusetts (st=25)

Create domain: Femaleworker=1 if:

- Age: 16-44 (agep=16-44)
- Sex: female (sex=2)
- Employment status: Civilian employed, at work and with a job but not at work (ESR=1,2)
- Weeks worked during past 12 mo: at least 1 week (wkw > 0)

Ex 1: Employment characteristics of Working Women in MA ages 16-44 by race/ethnicity, ACS PUMS 2012

Variables

- Race/ethnicity* (rac1p & hisp):
 - White alone non-Hispanic (NH), Black alone NH, Asian alone NH, Multiracial & Other NH, Hispanic
- Usual hours worked per week past 12 mo* (wkhp):
 - Part-time (<37.5), full-time (37.5-40.0), over-time (>40.0)
- Income-to-poverty threshold* (povpip):
 - <50%, 50-100%, 100-125%, 125%+
- Industry* (naicsp): Major two-digit 2007 NAICS categories
- Occupation* (socp): Major two-digit 2010 SOC categories

*created variable

Ex 1: Employment characteristics of Working Women in MA ages 16-44 by race/ethnicity, ACS PUMS 2012

Weighting: pwgtp (person-level)

Approximate direct standard errors:

- Use 80 PUMS replicate weights, pwgtp1-pwgtp80

- Take out negative replicate weights:

```
array temp(*) pwgtp1-pwgtp80;
```

```
DO i = 1 to dim(temp);
```

```
IF temp(i) < 0 THEN temp(i) = 0;
```

```
END;
```

References:

- www.census.gov/acs/www/methodology/methodology_main/
- <https://usa.ipums.org/usa/repwt.shtml>

Ex 1: Employment characteristics of Working Women in MA ages 16-44 by race/ethnicity, ACS PUMS 2012

```
proc surveymeans data = work.p25_12 varmethod =  
jackknife nobS STDERR cv clm nmiss sum mean;  
  weight PWGTP;  
  repweights PWGTP1 -- PWGTP80 / jkcoefs = 0.05;  
  domain femaleworker*race;  
  var hours povcat naicscat soccat;  
run;
```

$$SE(X) = \sqrt{\frac{4}{80} \sum_{r=1}^{80} (X_r - X)^2}$$

where:

X = estimate using the full-sample weight (pwgtp)

X_r = the 80 individual estimates based on each of the replicate weights.

References:

- www.ats.ucla.edu/stat/sas/faq/sample_survey_setups.htm
- www.census.gov/acs/www/methodology/methodology_main/

Ex 1: Employment characteristics of Working Women in MA ages 16-44 by race/ethnicity, ACS PUMS 2012

Table 1. Percent distribution of Currently Working **Black non-Hispanic Women**, Ages 16-44 in Massachusetts by Employment Characteristics, ACS 2012 1-year file (n=39,041)

Variable	Level	N	Sum	Mean	Std Error of Mean	95% CL for Mean		Coeff of Variation
		<i>sample n</i>	<i>Weighted N</i>	<i>Est</i>	<i>SE of Est</i>	<i>95% LL</i>	<i>95% UL</i>	<i>CV of Est</i>
hours	37.5-40	220	29,051	49.4%	2.2%	45.0%	53.8%	4.5%
	<37.5	236	25,582	43.5%	2.2%	39.1%	47.8%	5.0%
	>40	43	4,201	7.1%	1.1%	5.0%	9.3%	15.1%
povcat	125+%	374	47,625	84.7%	2.0%	80.6%	88.8%	2.4%
	100.0-124.9%	14	1,434	2.5%	0.8%	1.0%	4.1%	30.7%
	50.0-99.9%	42	4,608	8.2%	1.3%	5.6%	10.8%	15.8%
	<50.0%	20	2,570	4.6%	1.4%	1.8%	7.4%	30.8%
soccat	Office & Admin Support	103	10,503	17.9%	2.0%	13.8%	21.9%	11.4%
	Sales and Related	59	6,196	10.5%	1.5%	7.6%	13.5%	13.9%
	Healthcare Support	58	7,518	12.8%	1.5%	9.7%	15.9%	12.1%
	Personal Care and Service	38	4,587	7.8%	1.6%	4.7%	10.9%	20.2%
	Education, Training, and Library	37	4,149	7.1%	1.2%	4.7%	9.4%	16.6%
	Healthcare Practitioners & Technical	34	5,476	9.3%	1.7%	6.0%	12.7%	18.1%
	Food Prep & Serving Related	33	3,308	5.6%	1.1%	3.4%	7.9%	20.2%
	Management	26	2,559	4.3%	1.1%	2.2%	6.5%	24.9%
	Business & Financial Operations	25	2,860	4.9%	1.2%	2.4%	7.3%	24.9%
	Community and Social Services	21	3,030	5.2%	1.2%	2.7%	7.6%	23.5%
	Building and Grounds Cleaning and Maintenance	12	1,751	3.0%	1.0%	1.1%	4.9%	32.3%
	Transportation and Material Moving	12	1,624	2.8%	0.9%	0.9%	4.6%	33.9%
	Production	9	873	1.5%	0.5%	0.4%	2.6%	36.7%
	Protective Service	8	1,401	2.4%	0.9%	0.7%	4.1%	36.5%
Life, Physical, and Social Science	7	456	0.8%	0.4%	0.0%	1.5%	48.9%	
Legal	6	832	1.4%	0.6%	0.2%	2.6%	43.3%	

Alternative: Consider multi-year ACS PUMS file for sufficient sample size

Table 2. Percent distribution of Working Women Age 16-44 in Massachusetts by **Occupation** and Race/Ethnicity, ACS 2008-2012 5-year file (n=42,344)

	Black NH (n=2,326)		Hispanic (n=3,534)		Asian NH (n=2,811)		White NH (n=32,616)		Multiracial/ Other NH (n=1,057)	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
soccat										
Office & Admin Support	469	19.2	635	17.1	335	11.9	5,455	16.7	169	14.7
Sales and Related	276	11.8	428	12.0	217	8.0	3,759	11.9	141	14.1
Education, Training, Library	157	6.3	230	5.9	250	8.2	3,817	11.1	85	7.2
Healthcare Pract.& Technical	203	9.8	185	4.8	299	10.3	3,208	9.7	63	5.5
Management	115	4.6	189	5.5	230	8.1	2,983	9.0	70	6.7
Food Prep & Serving Related	113	4.8	273	8.6	121	4.1	2,482	8.2	94	9.1
Personal Care and Service	162	6.8	266	7.6	174	6.8	1,923	6.0	77	7.8
Business & Financial Op.	101	4.1	136	3.6	279	9.5	2,213	6.5	43	3.4
Healthcare Support	324	15.1	267	8.3	48	1.7	1,176	3.7	58	4.6
Community & Social Services Arts, Design, Enter., Sports, & Media	88	3.9	104	2.7	35	1.3	844	2.5	27	2.8
25	1.0	53	1.6	58	2.1	917	2.7	31	3.1	
Building & Grounds Cleaning/Maint	64	3.2	240	7.3	21	1.1	391	1.6	69	9.6
Production	40	1.5	223	6.5	145	5.9	471	1.5	24	3.0
Life, Physical, & Social Science	22	0.9	58	1.5	206	6.8	700	2.0	18	1.3
Computer and Mathematical	23	1.0	35	0.9	239	8.7	599	1.8	26	2.4
Other	144	6.1	212	6.1	154	5.5	1,678	5.1	62	4.7

Ex 2: Deriving Full-time Equivalent (FTE) Employee Count

Why FTEs?:

- Preferred denominator for calculating incidence rates than worker counts. More sensitive to part-time and over-time workers

Methods for ACS FTE calculation:

- U.S. Census Bureau - none recommended
- Several developed by Dr. Martha Jones, Associate Professor at Vanderbilt University
- Use ACS PUMS single-year file
- Note differences

FTE = Total Hours Worked / 2,000 hours

- 2,000 hours = 50 weeks/year x 40 hrs/wk

– 100 employees, all working 20 hrs/wk, had 5 injuries

$$\frac{5 \text{ Injuries}}{100 \text{ Employees}} \times 100 = 5$$

$$\frac{5 \text{ Injuries}}{50 \text{ FTE Employees}} \times 100 = 10$$

References:

- Ruser, John W. "Denominator choice in the calculation of workplace fatality rates." *American journal of industrial medicine* 33.2 (1998): 151-156.
- Jones M. 2014. Methods for calculating the number of full-time equivalent employees by industry. Presentation at the Council of State and Territorial Epidemiologists (CSTE) Annual Conference. Nashville, TN. June 23, 2014.

Ex 2: Deriving Full-time Equivalents (FTEs) by Major Industry Among Working Women in MA ages 16-44, ACS PUMS 2012

Method: Among currently employed (ESR=1,2 and wkw>0), compute:

1. Median weeks worked in last 12mo:

```
if wkw=1 then weeks='51';  
if wkw=2 then weeks='48.5';  
if wkw=3 then weeks='43.5';  
if wkw=4 then weeks='33';  
if wkw=5 then weeks='20';  
if wkw=6 then weeks='6.5';
```



2. Total hours worked in last 12mo



```
tothours=wkhp*weeks;
```

3. Annual FTE estimate:

```
FTE=(tothours/2000);
```

By

4. Industry category:

```
naicscat=substr(naicsp,1,2);
```

38 When did this person last work, even for a few days?

- Within the past 12 months
- 1 to 5 years ago → SKIP to L
- Over 5 years ago or never worked → SKIP to question 47

39 a. During the PAST 12 MONTHS (52 weeks), did this person work 50 or more weeks? Count paid time off as work.

- Yes → SKIP to question 40
- No

b. How many weeks DID this person work, even for a few hours, including paid vacation, paid sick leave, and military service?

- 50 to 52 weeks
- 48 to 49 weeks
- 40 to 47 weeks
- 27 to 39 weeks
- 14 to 26 weeks
- 13 weeks or less

40 During the PAST 12 MONTHS, in the WEEKS WORKED, how many hours did this person usually work each WEEK?

Usual hours worked each WEEK

References:

- www.census.gov/acs/www/Downloads/data_documentation/SubjectDefinitions/2012_ACSSubjectDefinitions.pdf
- Jones M. 2014. Methods for calculating the number of full-time equivalent employees by industry. Presentation at the *Council of State and Territorial Epidemiologists Annual Conference*. Nashville, TN. June 23, 2014.

Ex 2: Deriving Full-time Equivalents (FTEs) by Major Industry Among Working Women in MA ages 16-44, ACS PUMS 2012

```
/******  
* FTE CALCULATIONS:  
* SAS PROC MEANS code to estimate the SEs for an aggregated variable provided  
* by Martha Jones, via Karen Duong, California Department of Finance and Dale Garrett,  
* Mathematical Statistician, Decennial Statistical Studies Div, b.dale.garrett@census.gov *  
*****/
```

```
proc means data = work.p25_12 NOPRINT;  
  where femaleworker=1;*domain;  
  var pwgtp pwgtp1-pwgtp80;  
  weight fte; class naicscat;  
  output out = fte_ind (rename=(_freq_=sample_n))  sum = est_fte0-est_fte80; run;
```

```
Data se_estimates (KEEP=Industry SE variance cv MOE FTE sample_n);  
set fte_ind;
```

```
  ARRAY ftes (80)  est_fte1-est_fte80;  
  variance=0; *initialize the variance to 0;  
  DO i=1 to 80; *do the variance summations;  
    variance + ((ftes(i) - est_fte0)**2)/20;  
  END;
```

```
  std_error = SQRT(variance); *standard errors;  
  CV = std_error/est_fte0; *coefficient of variation;  
  MOE = 1.96*std_error; * margin of error, crit value 1.96 to calc 95% CIs ;  
  if _type_=0 then naicscat='All';  
  rename std_error=SE naicscat=Industry est_fte0=FTE; run;
```

```
proc print data=se_estimates noobs ;  
  var Industry FTE SE sample_n cv;  
  format FTE 12.0 SE 12.0 cv 12.3;  
  title "MA ACS 2012: FTEs by Industry among Employed Women ages 16-44"; run;
```

Ex 2: Deriving Full-time Equivalents (FTEs) by Major Industry Among Working Women in MA ages 16-44, ACS PUMS 2012

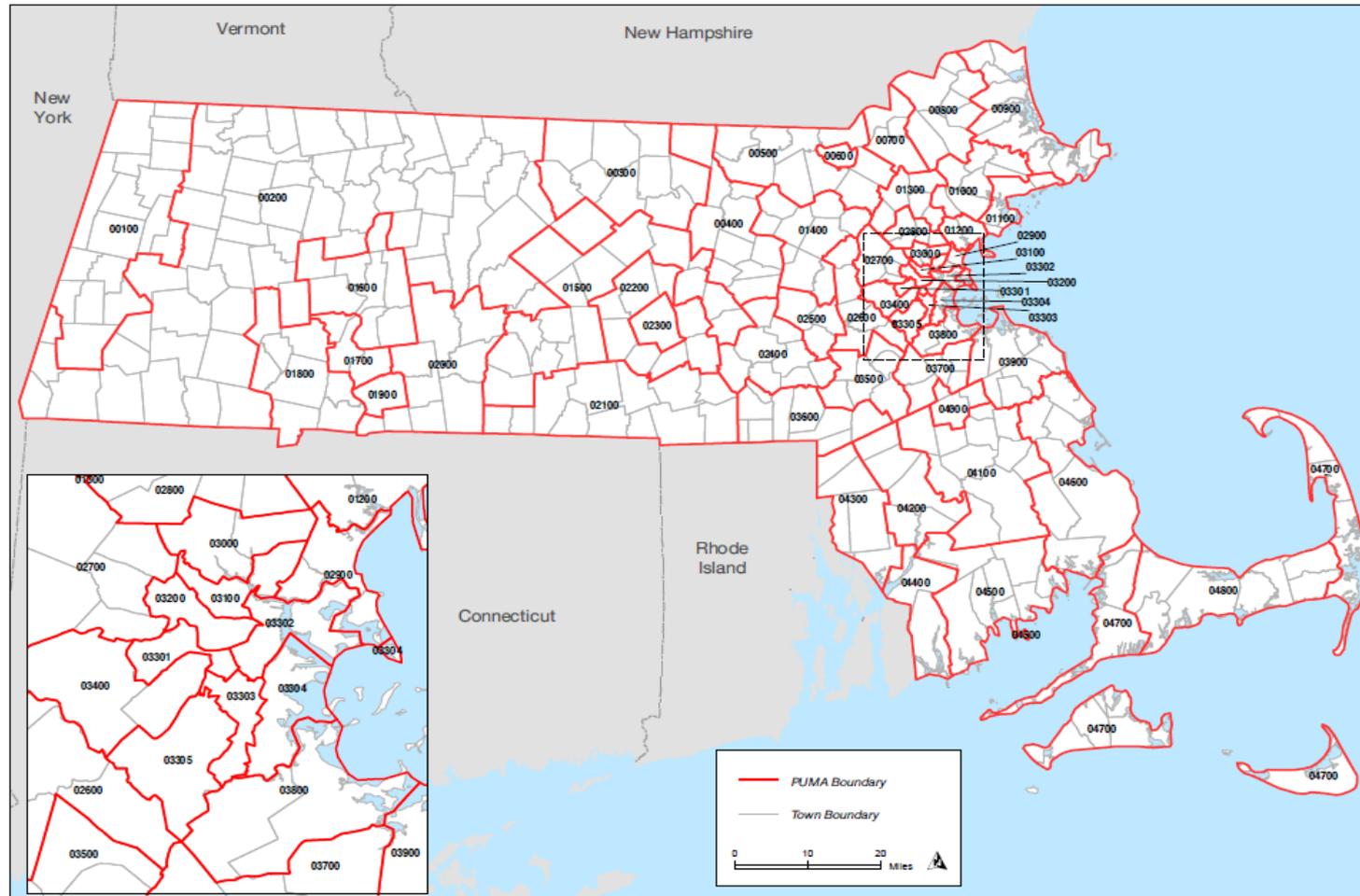
Table 3. FTEs by Industry among Employed MA Women ages 16-44, ACS 2012 1-year file

Industry	FTE	SE	sample_n	CV
All	723,756	6,819	8,549	0.01
11 Agriculture, Forestry, Fishing, and Hunting	1,227	387	22	0.32
21 Mining, Quarrying, and Oil and Gas Extraction	89	73	2	0.83
22 Utilities	840	235	14	0.28
23 Construction	6,752	1,068	67	0.16
31-33 Manufacturing	42,304	2,527	403	0.06
42 Wholesale Trade	10,666	1,291	97	0.12
44-45 Retail Trade	73,281	3,639	954	0.05
48-49 Transportation and Warehousing	6,594	830	85	0.13
51 Information	16,803	1,411	179	0.08
52 Finance and Insurance	53,888	2,820	511	0.05
53 Real Estate and Rental and Leasing	11,851	1,439	111	0.12
54 Professional, Scientific, and Technical Services	72,935	2,998	776	0.04
55-56 Management, administrative, and waste management services	23,401	2,181	227	0.09
61 Educational Services	100,986	3,393	1,521	0.03
62 Health Care and Social Assistance	181,052	5,278	1,940	0.03
71 Arts, Entertainment, and Recreation	11,226	1,105	196	0.10
72 Accommodation and Food Services	58,735	2,847	838	0.05
81 Other Services (Except Public Administration)	31,621	2,145	429	0.07
92 Public Administration	19,503	1,640	177	0.08

Sub-state geography: Public Use Microdata Areas

- Residential, migration to work, and place of work
 - Pre-2012 ACS based on Census 2000, 2012+ ACS based on Census 2010
 - Crosswalk available: <http://mcdc2.missouri.edu/websas/geocorr2k.html>
- Go to: <https://www.census.gov/geo/reference/puma.html>

Census 2000 PUMAs - Massachusetts



General take-ways....

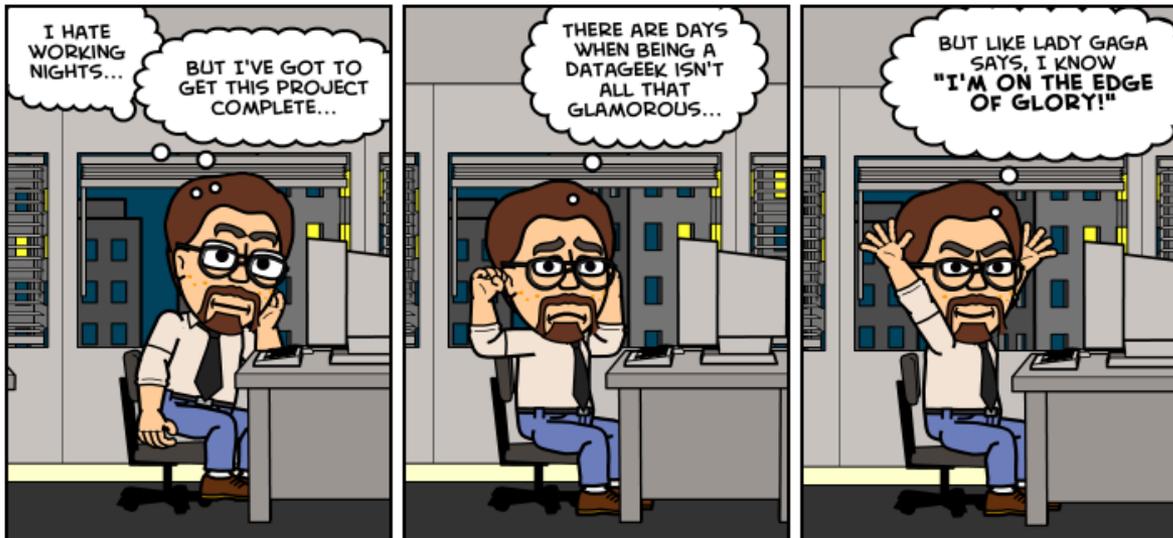
- Review ACS documentation!
- Consider multiyear ACS PUMS files for granular descriptive analyses
- Use single-year ACS PUMS for FTE calculations
- ACS allows for sub-state analyses
- U.S. Census Bureau – very helpful!

Acknowledgements

- **Martha Jones**, Center for Medicine, Health and Society, Vanderbilt University
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DATAGEEK & "THE EDGE OF GLORY"

BY RICH MURNANE



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Thank you!
Questions?

MA DPH contacts:

MyDzung Chu: mydzung.chu@state.ma.us

Kathleen Grattan: kathleen.grattan@state.ma.us

Extra slides

Alternative: Consider multi-year ACS PUMS file for sufficient sample size

Table 3. Percent Distribution of Top 10 Detailed Industries Among Each Race/Ethnic Group in Massachusetts, ACS 2008-2012 5-year file (n=42,344)

Rank	White NH %	(44.1%)	Black NH %	(51.9%)	Hispanic %	(45.5%)
1	ELEMENTARY AND SECONDARY SCHOOLS	9.1	HOSPITALS	14.3	RESTAURANTS AND OTHER FOOD SERVICES	10.0
2	RESTAURANTS AND OTHER FOOD SERVICES	8.4	NURSING CARE FACILITIES	9.4	HOSPITALS	6.6
3	HOSPITALS	7.9	RESTAURANTS AND OTHER FOOD SERVICES	5.5	ELEMENTARY AND SECONDARY SCHOOLS	4.9
4	COLLEGES AND UNIVERSITIES, INCLUDING JUNIOR COLLEGES	5.5	COLLEGES AND UNIVERSITIES, INCLUDING JUNIOR COLLEGES	4.9	COLLEGES AND UNIVERSITIES, INCLUDING JUNIOR COLLEGES	4.7
5	CHILD DAY CARE SERVICES	2.7	ELEMENTARY AND SECONDARY SCHOOLS	4.0	CHILD DAY CARE SERVICES	4.1
6	GROCERY STORES	2.5	CHILD DAY CARE SERVICES	3.4	NURSING CARE FACILITIES	3.7
7	INSURANCE CARRIERS AND RELATED ACTIVITIES	2.4	OTHER HEALTH CARE SERVICES	2.8	INDIVIDUAL AND FAMILY SERVICES	3.5
8	NURSING CARE FACILITIES	2.0	INDIVIDUAL AND FAMILY SERVICES	2.7	SERVICES TO BUILDINGS AND DWELLINGS, EX CONSTR CLN	3.0
9	BANKING AND RELATED ACTIVITIES	1.9	DEPARTMENT AND DISCOUNT STORES	2.5	DEPARTMENT AND DISCOUNT STORES	2.6
10	CLOTHING STORES	1.7	RESIDENTIAL CARE FACILITIES, WITHOUT NURSING	2.3	TRAVELER ACCOMMODATION	2.4

ACS Questionnaire archive

Go to: www.census.gov/acs/www/methodology/questionnaire_archive/

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Census.gov > American Community Survey > Methodology: Questionnaire Archive

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Questionnaire Archive

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Important Note: These questionnaires are for illustrative purposes only and should not be printed and completed by households or persons selected to participate in the American Community Survey. If you have misplaced the questionnaire that you received in the mail, please call 1-800-354-7271.

Examples of materials mailed to the sample addresses in the housing unit (HU) sample, and used in the group quarters (GQ) interviewing for the years indicated:

2015		
American Community Survey	Questionnaire	English [PDF 422KB] Spanish [PDF 340KB]
	Instruction Guide	English [PDF 235KB] Spanish [PDF 233KB]
	Group Quarters Questionnaire	English [PDF 340KB] Spanish [PDF 327KB]
	Group Quarters Instruction Guide	English [PDF 197KB] Spanish [PDF 213KB]
Puerto Rico Community Survey	Questionnaire	English [PDF 452KB] Spanish [PDF 424KB]

ACS Handbook for Data Users

Go to: [www.census.gov/acs/www/guidance for data users/handbooks/](http://www.census.gov/acs/www/guidance%20for%20data%20users/handbooks/)

The screenshot shows the United States Census Bureau website. At the top, there is a search bar and navigation tabs for Topics, Geography, Library, Data, About the Bureau, and Newsroom. The main heading is "American Community Survey" with a sub-heading "Guidance for Data Users: Handbooks for Data Users". A navigation bar includes "Main", "About the Survey", "Guidance for Data Users", "Data & Documentation", "Methodology", and "Library".

Handbooks for Data Users part of the American Community Survey's *Compass Products*

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You can use American Community Survey (ACS) data in different ways and for different reasons. Each one of our downloadable PDF Compass handbooks helps a particular group with specific how-to instructions and/or case studies.

For an introduction to ACS data, we recommend the compass handbook for General Data Users.

Handbook QuickLinks

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What General Data Users Need to Know
[PDF 1.6MB]

Here are the basics of the American Community Survey, with the opportunities and challenges of using data. Learn to access and use ACS data on the Census Bureau's website. Plus concrete examples of how ACS data can answer real-world questions about our society.

What Public Use Microdata Sample (PUMS) Data Users Need to Know
[PDF 3.5MB]

PUMS files are an extraordinary resource for researchers. Learn how to access PUMS files, create PUMS tables using general statistical software, create tables using DataFerrett, and measure statistical accuracy, margin of error, and confidence intervals.

Alternative: Use five-year ACS PUMS file for sufficient sample size

Table 1. Percent distribution of Working Women Age 16-44 in Massachusetts by **Industry** and Race/Ethnicity, ACS 2008-2012

	All (N=893,518)	White NH (N=659,600)	Black NH (N=60,026)	Hispanic (N=89,836)	Asian NH (N=60,972)	Multiracial/ Other NH (N=23,084)
naicscat	%	%	%	%	%	%
Health Care and Social Assistance	23.3	22.0	40.0	26.9	16.4	20.2
Educational Services	14.6	15.7	9.8	10.1	14.8	13.0
Retail Trade	11.9	12.0	11.9	12.9	9.5	13.8
Accommodation and Food Services	9.5	9.5	7.0	12.6	7.3	11.6
Professional, Scientific, and Technical Services	8.4	9.0	3.6	4.1	14.0	5.3
Finance and Insurance	6.6	6.9	5.9	4.4	8.5	4.9
Other Services (Except Public Administration)	5.5	5.2	3.9	5.8	7.6	10.6
Manufacturing	5.2	4.5	2.5	7.4	12.7	4.4
Management, administrative, and waste management services	3.1	2.7	4.4	5.6	1.7	6.4
Public Administration	2.4	2.4	3.7	2.7	1.2	1.9
Information	2.2	2.4	1.5	1.3	2.0	2.5
Arts, Entertainment, and Recreation	2.1	2.4	1.1	1.1	1.3	1.6
Other Industries (d)	5.1	5.4	4.8	5.3	2.9	3.8