# Introduction to the IPUMS and other MPC Data Projects

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#### Overview

- What is IPUMS?
- Overview of Data Projects
- IPUMS Enhancements
- Obtaining data
- Online Demonstration
- Questions



#### What is IPUMS?

Integrated - consistent codes, labels, and documentation

Public Use - anonymized, downloadable

Microdata - individual-level

Series - pooled data over time and place



## But, What is IPUMS Data?

Individual level: Summary level:

Demographic Data Demographic Data

Census Data Census Data

Survey Data Historical Data

Health Data Mapping Data

Historical Data

Migration Data

Time Use Data



**IPUMS: DATA PROJECTS OVERVIEW** 

# MPC Data Projects



#### Home of the IPUMS and other data projects

The MPC is one of the world's leading developers of demographic data resources. We provide population data to thousands of researchers, solicymakers, teachers, and students. All MPC data are available free over the internet.

#### Integrated Public Use Microdata Series



#### IPUMS-International

Harmonized data for 1960 forward, covering 279 million people in 130 censuses from around the world



#### **IPUMS-USA**

Harmonized data on people in the U.S. census and American Community Survey, from 1850 to the present



#### IPUMS-CPS

Harmonized data on people in the Current Population Survey, every March from 1962 to the present

http://www.ipums.org/

#### Other MPC Projects



#### North Atlantic Population Project

Complete-count data from 1800s censuses of Canada, Great Britain, Norway, Sweden, and the U.S.



#### National Historical Geographic Information System

Tabular J.S. census data and GIS boundary files from 1790 to 2000



#### Integrated Health Interview

Annual harmonized data on people in the U.S. National Health Interview Survey from the 1960s to the present



#### American Time Use Survey-X

Annual harmonized data from 2003 forward on how U.S. adults divide their time among activities



Microdata Data:

**IPUMS-USA** 



#### **IPUMS-USA**

- Database includes public use microdata samples:
  - U.S. decennial censuses (1850-2000)
  - Complete-count dataset for 1880
  - Linked Samples 1850 1930
  - Samples from Puerto Rico (1910-2008)
  - American Community Survey (2000-2009)
- The first MPC data project
- Most widely used database ~ 30,000 users



#### **Census Samples**

| Census Year | Sample<br>Density | Number of persons in dataset |
|-------------|-------------------|------------------------------|
| 1850        | 1%                | 198,000                      |
| 1860        | 1%                | 354,000                      |
| 1870        | 1%                | 428,000                      |
| 1880        | 100%              | 50,300,000                   |
| 1900        | 6%                | 5,189,000                    |
| 1910        | 1.4%              | 1,265,000                    |
| 1920        | 1%                | 1,037,000                    |
| 1930        | 5%                | 6,060,000                    |
| 1940        | 1%                | 1,351,000                    |
| 1950        | 1%                | 1,922,000                    |
| 1960        | 1%                | 1,780,000                    |
| 1970        | 6%                | 12,180,000                   |
| 1980        | 9%                | 20,403,000                   |
| 1990        | 6%                | 15,000,000                   |
| 2000        | 6%                | 16,885,000                   |



# The American Community Survey

- Replaced the long form of the Decennial Census
- Rolling sample design
- Public use microdata samples

#### Microdata samples:

- Full survey responses for 1% of US population
- Yearly samples, multi-year samples



# **ACS Samples**

| Year | Sample<br>Density | Number of Persons in dataset |
|------|-------------------|------------------------------|
| 2000 | 1 in 750          | 372,000                      |
| 2001 | 1 in 230          | 1,200,000                    |
| 2002 | 1 in 260          | 1,075,000                    |
| 2003 | 1 in 230          | 1,200,000                    |
| 2004 | 1 in 240          | 1,194,000                    |
| 2005 | 1 in 100          | 2,878,000                    |
| 2006 | 1 in 100          | 2,970,000                    |
| 2007 | 1 in 100          | 3,100,000                    |
| 2008 | 1 in 100          | 3,001,000                    |
| 2009 | 1 in 100          | 3,030,700                    |



#### Census and ACS Variable Topics

- Basic demographic
- Marriage
- Family structure
- Fertility
- Ethnicity
- Disability

- Education
- Work
- Income
- Migration
- Housing Characteristics



Microdata Data:

**IPUMS-CPS** 



#### **Current Population Survey (CPS)**

- Administered starting 1940
- Monthly survey administered by the Bureau of Labor Statistics
- Household survey was designed to measure unemployment
- Source of the official Government statistics on employment and unemployment
- Supplemental questions given in various months throughout year



# Current Population Survey March Supplement

- Labor force participation and unemployment
- Work experience and educational attainment
- Sources of income including non-cash benefits
- Program participation
- Tax filing status
- Health Insurance
- Migration



#### **IPUMS - CPS**

- All March Data (Back to 1962)
- Basic Monthly Surveys
  - Samples from 2000-2008 (back to 1976 soon)
  - Data for every month
  - ~50,000 households surveyed each month
  - Less variables than March supplement
    - Demographic information
    - Family characteristics
    - Employment status
    - Education information



Microdata Data: **IPUMS-INTERNATIONAL** 



#### **IPUMS-International**

- World's largest collection of publicly available individual-level census data
- Incorporates microdata from 62 countries
- Samples from 1960-present
- Plan to process and release data for 6-8 new countries per year through 2012
- Agreements with countries to process 2010 round of census data

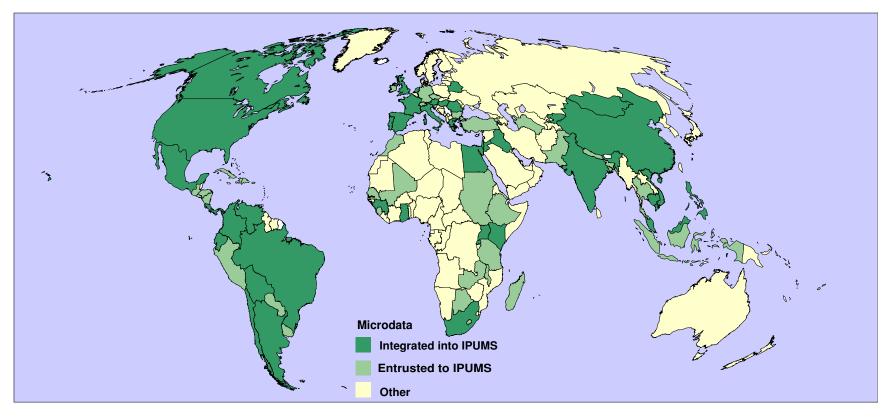


#### Countries in IPUMS-International

| <u>Africa</u> | <u>Asia</u>     | <u>Americas</u>      | <u>Europe</u>         |
|---------------|-----------------|----------------------|-----------------------|
| Egypt         | Armenia         | Argentina            | Austria               |
| Ghana         | Cambodia        | Bolivia              | Belarus               |
| Guinea        | China           | Brazil               | France                |
| Kenya         | India           | Canada               | Germany               |
| Malawi        | Iran            | Chile                | Greece                |
| Mali          | Iraq            | Colombia             | Hungary               |
| Rwanda        | Israel          | Costa Rica           | Ireland               |
| Senegal       | Jordan          | Cuba                 | Italy                 |
| Sierra Leone  | Kyrgyz Republic | Ecuador              | Netherlands           |
| South Africa  | Malaysia        | Jamaica              | Portugal              |
| Sudan         | Mongolia        | Mexico               | Romania               |
| Tanzania      | Nepal           | Panama               | Slovenia              |
| Uganda        | Palestine       | Peru                 | Spain                 |
|               | Pakistan        | Puerto Rico          | Switzerland           |
|               | Philippines     | Saint Lucia          | <b>United Kingdom</b> |
|               | Thailand        | <b>United States</b> |                       |
|               | Vietnam         | Venezuela            |                       |
| 62 countries  | 185 censuses    | 397 million persons  | 1960-present          |



#### **IPUMS-International Partners**



Dark green = disseminating data Light green = will disseminate data

83 participating countries



#### **IPUMS-International Variable Topics**

- Basic demographics
- Marriage
- Family structure
- Fertility and mortality
- Migration
- Ethnicity, language, religion
- Education
- Work
- Income
- Housing characteristics

600 Integrated variables

19,000 Unharmonized variables



Microdata Data:

**NAPP** 



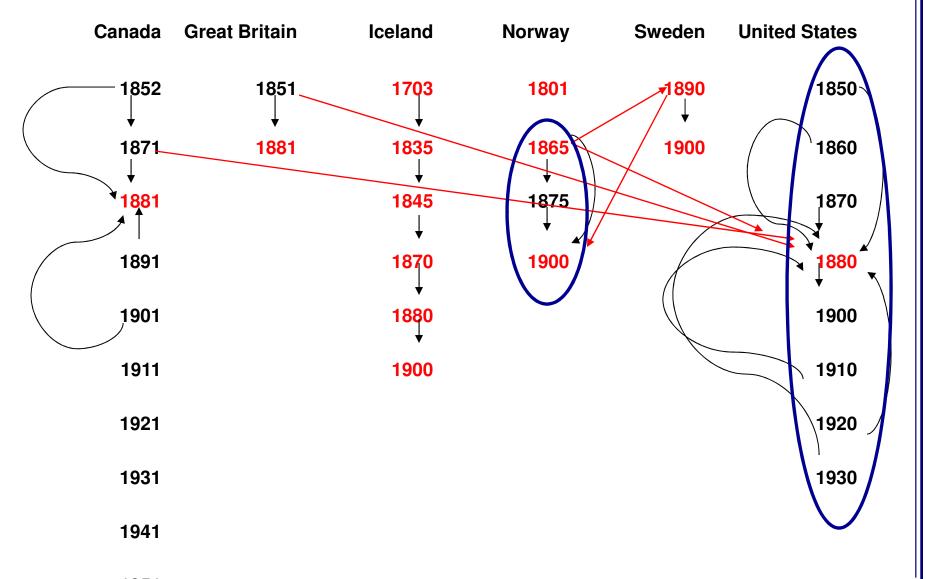
#### North Atlantic Population Project

- 32 historical censuses from Canada, Great Britain, Iceland, Norway, Sweden, and the U.S. (1703-1951)
- Complete count data for 14 censuses
- When complete, will contain 130 million individual records
- Linking project, across time and counties



#### NAPP Plans, 2011-2013

create longitudinal data





University of Minnesota

Microdata Data:

**IHIS** 



#### Integrated Health Interview Series

- National Health Interview Survey
- Principal source of information on the health of the U.S. population
- Annual survey data, 1969-2009
- 45,000 households sampled per year
- More than 7,000 variables
- Geographic identification for some major metropolitan areas and regions



# **IHIS Variable Topics**

- Demographics
- Socio-Economic
- Housing Characteristics
- Chronic Health and Limitations
- Healthy Behaviors
- Risky Behaviors

- Access to Medical
   Care
- Health InsuranceCoverage
- Alternative Health
   Practices
- Mental Health
- Primary PreventivePractices



Microdata Data:

**ATUS-X** 



## American Time Use Survey

- Funded by the BLS and fielded by the Census Bureau
- Drawn from households in out-going rotation group of the Current Population Survey
- Annual samples from 2003-2009
- Respondents were asked about how they spent their day and reports:
  - What they were doing
  - Where they were
  - Who was with them



#### ATUS- X

- Custom extract builder for the ATUS
- Standard time-use variables available
- Users can create custom time-use variables
- Allows for filtering on the time of day and 'with who' the respondent it with
- Eating and health supplement variables



Summary Data:

#### **NHGIS**



# National Historical Geographic Information System (NHGIS)

- Summary tables for Census Data 1790-2000
- Can identify aggregate characteristics for smaller geographic areas (tract, block, etc)
- GIS Boundary files available
- New features coming soon!



IPUMS Enhancements:

INTEGRATION

| MARS | T Marital Status        | China           | Colombia           | Kenya        | Mexico                | U.S.A.          |
|------|-------------------------|-----------------|--------------------|--------------|-----------------------|-----------------|
|      | i maritai Status        | 1982            | 1973               | 1989         | 1970                  | 1990            |
| code | label                   | CN82A403        | CO73A411           | KN89A413     | MX70A402              | US90A425        |
|      |                         |                 |                    |              |                       |                 |
| 100  | SINGLE/NEVER MARRIED    | 1=never married | 4=single           | 1=single     | 9=single              | 6=never married |
| 200  | MARRIED/IN UNION        |                 |                    |              |                       |                 |
| 210  | Married (not specified) | 2=married       | 2=married          | 3=monogamous |                       | 1=married       |
| 211  | Civil                   |                 |                    |              | 3=only civil          |                 |
| 212  | Religious               |                 |                    |              | 4=only religious      |                 |
| 213  | Civil and religious     |                 |                    |              | 2=civil and religious |                 |
| 214  | Polygamous              |                 |                    | 3=polygamous |                       |                 |
| 220  | Consensual union        |                 | 1=free union       |              | 5=free union          |                 |
| 300  | SEPARATED/DIVORCED      |                 | 3=sep. or divorced |              |                       |                 |
| 310  | Separated               |                 |                    | 6=separated  | 8=separated           | 3=separated     |
| 321  | Legally separated       |                 |                    |              |                       |                 |
| 322  | De facto separated      |                 |                    |              |                       |                 |
| 330  | Divorced                | 4=divorced      |                    | 5=divorced   | 7=divorced            | 4=divorced      |
| 400  | WIDOWED                 | 3=widowed       | 5=widowed          | 4=widowed    | 6=widowed             | 5=widowed       |
| 999  | UNKNOWN/MISSING         | 0=missing       | 6=unknown          | B=blank      | 1=unknown             |                 |



- Category availability view
- General codes

O Case-count view

O Detailed codes

An 'X' indicates the category is available for that sample.

| Code | Label                            |   |   |   |   |   |   | CL<br>02 |   |   |   |
|------|----------------------------------|---|---|---|---|---|---|----------|---|---|---|
| 0    | NIU (not in universe)            |   |   |   |   |   |   |          |   |   |   |
| 1    | Single/never married             | Х | Χ | Χ | Χ | Χ | Χ | Χ        | Χ | Χ | Х |
| 2    | Married/in union                 | Х | Χ | Χ | Χ | Χ | Χ | Χ        | Χ | Χ | Х |
| 3    | Separated/divorced/spouse absent | Х | Χ | Χ | Χ | Χ | Χ | Χ        | Χ | Χ | Х |
| 4    | Widowed                          | Х | Χ | Χ | Χ | Χ | Χ | Χ        | Χ | Χ | Х |
| 9    | Unknown/missing                  |   |   | X |   |   |   |          |   | X |   |



Category availability view

General codes

Case-count view

O Detailed codes

| Code | Label                            | argent<br>2001 | austria<br>2001 | belaru<br>1999 | brazil<br>2000 |
|------|----------------------------------|----------------|-----------------|----------------|----------------|
| 0    | NIU (not in universe)            |                |                 |                |                |
| 1    | Single/never married             | 2,168,754      | 340,925         | 349,733        | 5,482,295      |
| 2    | Married/in union                 | 1,131,429      | 329,447         | 488,381        | 4,023,254      |
| 3    | Separated/divorced/spouse absent | 132,265        | 76,071          | 63,837         | 272,581        |
| 4    | Widowed                          | 193,655        | 57,028          | 88,379         | 357,892        |
| 9    | Unknown/missing                  |                |                 | 376            |                |



Category availability view

O General codes

O Case-count view

Detailed codes

| Code | Label                            |    |   |   |   |   | CA<br>01 |   |   |   | CR<br>00 |
|------|----------------------------------|----|---|---|---|---|----------|---|---|---|----------|
| 000  | NIU (not in universe)            |    |   |   |   |   |          |   |   |   |          |
| 100  | SINGLE/NEVER MARRIED             | X  | Χ | Χ | Χ | Χ | Χ        | Χ | Χ | Χ | Χ        |
| 110  | Engaged                          |    |   |   |   |   |          |   |   |   |          |
| 200  | MARRIED/IN UNION                 |    |   |   |   | Χ |          |   |   |   |          |
| 210  | Married (type not specified)     | X  | Χ | Χ | Χ |   | Χ        | Χ | Χ | Χ | Χ        |
| 211  | Civil                            |    |   |   | Χ |   |          |   |   |   |          |
| 212  | Religious                        |    |   |   | Χ |   |          |   |   |   |          |
| 213  | Civil and religious              |    |   |   | Χ |   |          |   |   |   |          |
| 216  | Monogamous                       |    |   |   |   |   |          |   |   |   |          |
| 217  | Polygamous                       |    |   |   |   |   |          |   |   |   | ٠.       |
| 220  | Consensual union                 | ٠. |   | Χ | Χ |   |          | Χ |   | Χ | Χ        |
| 300  | SEPARATED/DIVORCED/SPOUSE ABSENT |    |   |   |   |   |          |   |   |   |          |
| 310  | Separated or divorced            |    |   |   |   |   |          |   |   | Χ |          |
| 330  | Separated                        |    |   | Χ | Χ | Χ | Χ        | Χ |   |   | Χ        |
| 340  | Annulled                         |    |   |   |   |   |          | Χ |   |   |          |
| 350  | Divorced                         | Χ  | Χ | Χ | Χ | Χ | Χ        |   | Χ |   | Χ        |



**IPUMS Enhancements: IPUMS FEATURES** 



#### **Extensive Documentation**

- Sample Descriptions
- Variable Descriptions
  - Availability by Sample
  - Universes
  - Comparability
  - Allocation and Imputation Flags
  - Questions and Instructions to Respondents
  - Instructions to Enumerators



#### Additional Enhancements

- Consistent Geographic Regions (IPUMS-USA)
- Consistent industrial and occupation coding schemes
- Occupational standing variables
- Constructed family interrelationship variables



#### Family Interrelationship Variables

| Pe | erni | um | Relate | Age | Sex    | Marst            | Chborn | _        | Spouse's Location |
|----|------|----|--------|-----|--------|------------------|--------|----------|-------------------|
|    | 1    |    | head   | 46  | male   | male married n/a |        | <b>\</b> | 2                 |
|    | 2    |    | spouse | 44  | female | married 3        |        |          | 1                 |
|    | 3    |    | aunt   | 77  | female | widow            | 7      |          | 0                 |
|    | 4    |    | child  | 15  | female | single           | 0      |          | 0                 |
|    | 5    |    | child  | 13  | female | single           | n/a    |          | 0                 |
| 6  |      |    | child  | 11  | male   | single           | n/a    |          | 0                 |

| Pe | rnı | ım | Relate | Age | Sex    | Marst   | Chborn | _            | Mother's Location |     | Father's<br>Location |
|----|-----|----|--------|-----|--------|---------|--------|--------------|-------------------|-----|----------------------|
|    | 1   |    | head   | 46  | male   | married | n/a    | <b>—</b>     | 0                 | ٦ . | 0                    |
|    | 2   |    | spouse | 44  | female | married | 3      |              | 0                 |     | 0                    |
|    | 3   |    | aunt   | 77  | female | widow   | 7      |              | 0                 |     | 0                    |
|    | 4   |    | child  | 15  | female | single  | 0      | ] <b> </b> - | 2                 | F   | 1                    |
|    | 5   |    | child  | 13  | female | single  | n/a    | ]  -         | 2                 | -   | 1                    |
|    | 6   | ·  | child  | 11  | male   | single  | n/a    |              | 2                 | L   | 1                    |



Obtaining Data: **ONLINE EXTRACTION SYSTEM** 



# Online Extraction System

- Users create custom data files
  - Pick any samples of interest
  - Pick any variables of interest
- Creates custom syntax for reading the data files into SPSS, Stata, and SAS
  - Labels variables and values within the data
- Record of extract is preserved on user account
- DDI codebook provided



# Online Extraction System

- Additional Features:
  - Case Selection
  - Attach Variables
  - Custom Sample Size
- Learn one data set, learn them all
  - Documentation systems
  - Extract systems
  - Data files produced



#### Use IPUMS Data

- Comprehensive online documentation
- Integration makes analyzing change over time possible
- Data analysis system allows you access the data and analyze it online
- All of the data are available for free online
- User support is available by e-mail to help you as needed



Obtaining Data:

#### **ONLINE DEMO OF IPUMS**



# Questions — email us IPUMS User Support ipums@umn.edu

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