Module 3: Data Interpretation & Manipulation
Key Demographic Concepts

*(What Demographers Think About)*
Key Demographic Concepts

• Population Size
  – Change & Components of Change

• Population Distribution
  – Geography & Type of Residence

• Population Characteristics
  – Sex Composition
  – Age Composition
  – Racial & Ethnic Composition
  – Marital & Family Composition
  – Educational Characteristics
  – Economic Characteristics
Key Demographic Concepts

Population Size—Change & Its Components
Components of Population Change

Births

Deaths

In-Migration & Out-Migration
Components of Population Change

The Demographic Balancing Equation

Population Today = Population Yesterday + (Births – Deaths) + (In-migrants - Out-migrants)

“natural increase”

“net migration”
Population Change, 2000-2009:
Walworth County, Southern Extension District and State of Wisconsin

<table>
<thead>
<tr>
<th></th>
<th>Walworth County</th>
<th>Southern District</th>
<th>Wisconsin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural Increase</td>
<td>3.5%</td>
<td>3.5%</td>
<td>3.5%</td>
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<tr>
<td>Net Migration</td>
<td>3.5%</td>
<td>3.5%</td>
<td>3.5%</td>
</tr>
<tr>
<td>Total</td>
<td>10.2%</td>
<td>10.2%</td>
<td>10.2%</td>
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</table>

% Change 2000-2009:
- Total
- Natural Increase
- Net Migration
Key Demographic Concepts

Population Distribution
Heavily Concentrated in SE Growth Across the State

Distribution of Wisconsin Latino Population

2007 Census Estimates

1990 Census & 2007 Census Estimates

Heavily Concentrated in SE Growth Across the State

Latino Population Distribution

2007 Census Estimates

1990 Census & 2007 Census Estimates

Latino Population Distribution

2007 Latino Pop Est

- 30 - 975
- 976 - 3,399
- 3,240 - 9,661
- 9,662 - 23,158
- 110,057

1990-2007 Est Pct Chg

- 70% - 158%
- 159% - 264%
- 285% - 406%
- 407% - 813%
- 614% - 842%
Population Density for Municipalities, 2009

Source: Data from the Demographic Services Center.
Key Demographic Concepts

Population Characteristics—Age & Sex
Selected Age Groups, 2000 & 2010
Wisconsin

- Age 65 and over: 11% Increase
- Age 45-64: 33% Increase
- Age 20-44: 1% Decrease
- Age 5-19: 5% Decrease
- Age 0-4: 5% Increase

Persons

2000  2010
Key Demographic Concepts

Population Characteristics—Race/Ethnicity
Growth of Race/Ethnic Groups, 1990 to 2008
Wisconsin

- Hispanic/Latino: 207% Increase
- Black: 37% Increase
- American Indian: 30% Increase
- Asian or Pacific Islander: 120% Increase

Persons

- 1990
- 2000
- 2008
Wisconsin American Indian Population, 2000*
By County of Residence

American Indian Population by County
- Less than 500
- 500 or more

Number of American Indian Persons by Municipality
- 1 Dot = 50

* Not of Hispanic/Latino origin
Wisconsin Counties

Hmong Population

Percent of Total Population, 2000

Percent Hmong
- 0 - 0.1%
- 0.2 - 0.4%
- 0.5 - 0.9%
- 1.0 - 1.9%
- 2.0 - 3.5%
Key Demographic Concepts

Population Characteristics—Economics
Wisconsin Labor Force Participation Rates by Sex, 1970-2008

- Male: 76.9% in 1970, 76.4% in 1980, 75.5% in 1990, 74.3% in 2000, 74.3% in 2008
- Female: 42.7% in 1970, 52.7% in 1980, 60.1% in 1990, 64.1% in 2000, 65.9% in 2008
Race-Specific Poverty Rate for Wisconsin Counties, 2000 & 2005-07

African American

2000: 28.4%
2005-07: 30.7%

American Indian

2000: 19.8%
2005-07: 24.4%

Hispanic

2000: 18.6%
2005-07: 21.9%

Asian American

2000: 15.8%
2005-07: 13.9%

Non-Hispanic White

2000: 3.7%
2005-07: 4.9%

Sources: US Census 2000 SF3 (all counties) and 2005-07 ACS (counties of 20,000 people or more)
Appropriate Unit of Analysis
Appropriate Unit of Analysis

Unit of analysis...
• The thing being studied
• Corresponds with the question asked

<table>
<thead>
<tr>
<th>Individuals</th>
<th>Groups</th>
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<tr>
<td>Political Parties</td>
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<td>Schools</td>
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<td>Perceptions</td>
<td>Counties</td>
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<tr>
<td>Cities</td>
<td>Neighborhoods</td>
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What is the appropriate unit if I want to know…

if my community is aging compared to the state?

how much communities in my county have grown?

who is living in poverty?

where the impoverished population lives?
Giving Meaning to Raw Data
B16001. LANGUAGE SPOKEN AT HOME BY ABILITY TO SPEAK ENGLISH FOR THE POPULATION 5 YEARS AND OVER - Universe: POPULATION 5 YEARS AND OVER
Data Set: 2008 American Community Survey 1-Year Estimates
Survey: American Community Survey

NOTE. Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for the nation, states, counties, cities and towns and estimates of housing units for states and counties.

For information on confidentiality protection, sampling error, nonsampling error, and definitions, see Survey Methodology.
Benefits of Comparisons
Comparisons

Why?
• Contextualizes issue or place of interest

How?
• Geographic—compare places
• Temporal—compare time period
• Both—compare places over time
Population Change, 2000-09 for Walworth County with comparisons to Southern Extension District & Wisconsin
Walworth County Population Growth, 1960-2009

<table>
<thead>
<tr>
<th>Year</th>
<th>Population</th>
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<tr>
<td>1960</td>
<td>52,368</td>
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<tr>
<td>1970</td>
<td>63,444</td>
</tr>
<tr>
<td>1980</td>
<td>71,507</td>
</tr>
<tr>
<td>1990</td>
<td>75,000</td>
</tr>
<tr>
<td>2000</td>
<td>93,759</td>
</tr>
<tr>
<td>2009*</td>
<td>101,808</td>
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Bringing in Local Knowledge
Local Knowledge

Why?

• Ground-truth data
• Enhance or explain observed trends or issues
• Guides more in-depth analysis
Poverty Rate for Counties Ranked Highest & Lowest in 1970 & 2000

MENOMINEE
MILWAUKEE
OZAUKEE
WAUKESHA
State Average (5.6%)
Local Knowledge

How?

• Tap working knowledge of area and population
  – Events
  – Anecdotes
  – Service providers (including schools)
  – Local survey data
Supplemental Data
Supplemental (to Census) Data

Sources

- State agencies
  - Economic indicators
  - Official population estimates

- County agencies
  - Public health departments
  - Tax assessors

- School districts
  - School enrollment

- Municipal agencies
  - Local utilities

- Judicial districts
  - Foreclosures

- And more!
# Crawford County UWEX 4-H Profile

<table>
<thead>
<tr>
<th>Total 4-H Membership</th>
<th>2009</th>
<th>2008</th>
<th>2007</th>
<th>2006</th>
<th>2005</th>
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<tr>
<td>Race</td>
<td></td>
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<tr>
<td>American Indian (Grades K-12)</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Asian (Grades K-12)</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>2</td>
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<td>African American (Grades K-13)</td>
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<td>0</td>
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<tr>
<td>Pacific Islander (Grades K-13)</td>
<td>0</td>
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<td>0</td>
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<td>Other (Grades K-15)</td>
<td>N/A</td>
<td>N/A</td>
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<td>3</td>
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<td>Two or More Races (Grades K-15)</td>
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<td>White (Grades K-15)</td>
<td>276</td>
<td>271</td>
<td>251</td>
<td>254</td>
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<td>Ethnicity</td>
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<td>Female (Grades K-13)</td>
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<td>125</td>
<td>132</td>
<td>145</td>
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<td>Male (Grades K-13)</td>
<td>142</td>
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<td>124</td>
<td>124</td>
<td>132</td>
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<tr>
<td>Age / Grade</td>
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<tr>
<td>Kindergarten - 2nd Grade</td>
<td>65</td>
<td>86</td>
<td>59</td>
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<td>3rd Grade - 5th Grade</td>
<td>81</td>
<td>80</td>
<td>78</td>
<td>74</td>
<td>75</td>
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<td>6th Grade - 8th Grade</td>
<td>71</td>
<td>75</td>
<td>71</td>
<td>70</td>
<td>64</td>
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<td>Marinette</td>
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<td>6</td>
<td>5</td>
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<td>Scott</td>
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<td>19</td>
<td>17</td>
<td>9</td>
<td>10</td>
<td>11</td>
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</tbody>
</table>
Percent Hispanic Population Change
1990-2000
(Omits counties with fewer than 50 Hispanic persons in 1990)
Growth of Race/Ethnic Groups, 2000 to 2008
Sauk County

Percent increases are from 1990 to 2008

Hispanic: 645% Increase
Black: 466% Increase
American Indian: 106% Increase
Asian or Pacific Islander: 214% Increase
School Enrollment by Selected Race/Ethnic Groups, 2008-2009
Sauk County School Districts

- Wisconsin Dells SD
- Weston SD
- Sauk Prairie SD
- River Valley SD
- ReedsburgSD
- Bamboo SD

Percent of Total Enrollment

- Black or African American
- American Indian
- Asian
- Hispanic or Latino
Common Mistakes
Common Mistakes

• Unit of analysis
  – County as community

• Data definitions
  – Household income versus personal income

• Universe
  – Households versus families, and group quarters

• Data manipulation
  – Calculations of percentages versus counts

• Interpretation
  – Trends versus causes
Common Mistakes
(ACS Specific)

1. Data availability and release depends on size of geography

2. “Long form” data topics but questions/topics can be added

3. Produces period estimates not point in time counts

4. Provides data about the quality of the estimates (margins of error, MOE)

5. Uses different residence rule
Data Interpretation and Manipulation Lab
Lab Exercise 1

Create and interpret an age-sex population pyramid

- Choose an area (e.g., state, county)
- Locate age by sex data from American Factfinder
- Place females on the right, males on the left
- Use 5-year age intervals
- Graph your pyramid using the Excel template provided or draw it by hand

What are the interesting aspects of your pyramid?

- Is one age bar different on the left from the right?
- Are there differences between age groups?
Lab Exercise 2

Analyze change in an area’s Hispanic composition

• Choose an area (e.g., state, county)
• Locate data on Hispanic origin by race from American Factfinder for 1990, 2000 and 2008
  – Use STF1 for 1990 and STF1 for 2000 (Decennial Census)
  – Use ACS 1-year estimates for 2008 (also available through Population Estimates program)

Comment on the following:

What percent of the population is Hispanic and non-Hispanic in each year?
How have the percentages changed between years?

Note: The Census Bureau treats “Hispanic” as an ethnicity, not a racial status.