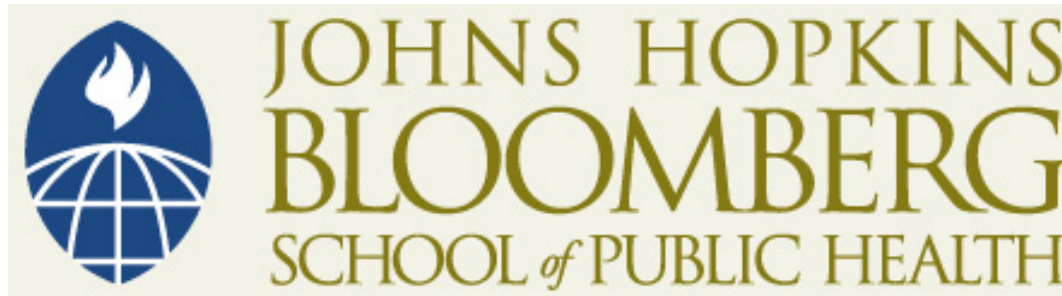


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# Session I

# Measurement

Social and Economic Aspects of Fertility Decline

Population, Family and Reproductive Health

380.655

AY 2008-2009

# Objectives of the Lecture

- At the end of this lecture and the accompanying readings, students will be able to:
  - identify and distinguish among the major measures of fertility

# Brief Discussion of Measurement of Fertility

- Crude Birth Rate
  - Number of births during t/mid-year population in t
- General Fertility Rate
  - Number of births during t/mid-year population of women aged 15-49
- Age Specific Fertility Rate
  - Number of births to women aged x during t/mid-year population of women aged x

# Crude Birth Rate

(Number of Births in the U.S. in  
1988/Number of People in the  
U.S. in 1988) \* 1000

$(3,046,162/298,444,215) * 1000$

**10.2**

# General Fertility Rate

(Number of Births in the U.S. in  
1988/Number of Women aged  
15-49 in the U.S. in 1988) \*  
1000

$(3,046,162/54,022,000) * 1000$

**56.4**

# Age Specific Fertility Rates (U.S. 1988)

<b>Age</b>	<b>Number of Births (A)</b>	<b>Number of Women (B)</b>	<b>ASFR (A/B) × 1,000</b>
15-19	319,544	7,213,000	<b>44.30</b>
20-24	804,622	7,852,000	<b>102.47</b>
25-29	1,010,748	9,057,000	<b>111.60</b>
30-34	661,414	9,069,000	<b>72.93</b>
35-39	217,754	8,110,000	<b>26.85</b>
40-44	31,068	7,024,000	<b>4.42</b>
45-49	1,012	5,697,000	<b>0.18</b>

# Total Fertility Rate

- The number of children a woman would have if she experienced a specific set of age specific fertility rates for her whole lifetime
- Remember, there is no woman who experiences the age specific rates of the U.S. in 1988
  - That is, a woman 20-24 in 1988 will experience the 1988 20-24 rates, but will experience the 25-29 rates from 1993

# Total Fertility Rate U.S. 1988

1	2
ASFR	Cumulative ASFR
44.30	221.51
102.47	733.87
111.60	1291.87
72.93	1656.52
26.85	1790.77
4.42	1812.89
0.18	1813.78
	1.80

# Gross Reproduction Rate

- Special Case of the TFR
- Counts only daughters
- Indicator of how women are reproducing themselves, assuming no mortality
- Can multiply the TFR by the proportion of births that are female
  - Imprecise because in some populations the sex ratio at birth varies by age at mother, so the GRR will depend on how births are distributed by age of mother

# Net Reproduction Rate

- Same as the GRR (i.e. counts only daughters), but
- Includes mortality of women

# Some data from Taiwan

- 1970

- CBR = 27.2/1000
- GFR = 120/1000
- TFR = 4.0
- GRR = 1.94
- NRR = 1.84

- 1980

- CBR = 23.3/1000
- GFR = 91/1000
- TFR = 2.5
- GRR = 1.22
- NRR = 1.17

# Objectives of the Lecture

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