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Total Fertility Rates

Data analysis and Report writing workshop for Civil registration and vital statistics data.

UNITED NATIONS
ESCAP
Economic and Social Commission for Asia and the Pacific

Question:

Which country has higher fertility?

TFR	
Country A	Country B
3.9	2.7

Question:

TFR is calculated from ASFRs, which are not affected by population structure.
Higher TFR = higher fertility

TFR	
Country A	Country B
3.9	2.7

Total fertility rate

- Although ASFRs accurately measure the fertility of women in each age group, it is difficult to use them to make comparisons among populations or within a certain population over time.

- ASFRs do not easily portray the overall level of fertility.

- Therefore, a summary index was developed, known as the total fertility rate.

- The total fertility rate is useful when comparing two different populations or when examining a given population over time.

- Readily understood by decision makers

- An indicator of how fast the population may grow and subsequently how the age structure may change (although obviously this is only one part of the equation – the others being mortality rates and migration)

Definition

- The **total fertility rate (TFR)** is the average number of children a woman would give birth to during her lifetime if she were to pass through her childbearing years (15-49 years) experiencing the present day age-specific fertility rates.

- The TFR is usually simply described as the average number of children per woman which makes it an intuitive measure of fertility.

- The TFR is calculated by adding up all the age-specific fertility rates, multiplying this sum by five (the width of the age-group interval), and then dividing by 1,000.

TFR   = (Sum of ASFR x 5) / 1,000

Calculating ASFRs

Table IV-1. Age-Specific Fertility Rates and Total Fertility Rate for Chile: 1983

Age of women	Female population	Number of births	Fertility rate
(1)	(2)	(3)	(4) = (3)/(2) x 1,000
15-19	593,262	36,784	62.0
20-24	587,076	81,213	138.3
25-29	505,362	65,236	129.1
30-34	424,186	37,506	88.4
35-39	385,749	17,532	45.4
40-44	325,105	4,929	15.2
45-49	266,575	512	1.9
		Sum =	480.4
		Sum x 5 / 1,000 =	2.4

Source: U.S. Census Bureau's *Population Analysis with Microcomputers Volume I Presentation of Techniques*

The total fertility rate in Chile in 1983 was 2.4 births per woman.

Calculating Total Fertility

Start with:	Age specific fertility rate	=	Births per 1,000 women per year
But:	Our age group is 5 years of age wide		
So:	(Theoretically) Every women is exposed to that rate for 5 years	multiply by 5	Births per 1,000 women over 5 years of exposure to this rate
Now:	We want the number of births per woman while she is in that age group	divide by 1000	Births per woman over that 5 year age group
Finally:	There are 7 age groups that a women will go through in her childbearing years (15-19, 20-24, etc)	ADD births per woman over each age group	Births per woman over her childbearing years (from ages 15-49)

Exercise

- Calculate the TFR for the test data set
  - How does this compare to the rest of the world?
  - Bonus question: Is this at, above, or below replacement level?
- Repeat this exercise with data from your country and if possible look at trends over time.
- How is fertility changing over time in your country?
  - Is this what you would expect?
  - What factors do you think are influencing fertility?