

**DEMOGRAPHY PRELIMINARY EXAM**  
**AUGUST 2002**  
**AFTERNOON EXAM**

**IV. ANSWER EITHER A OR B.**

- A. Identify and describe a recent methodological advance in studying fertility, union formation, mortality, or migration. What new understandings have been produced by research using the method? What is its future potential?
- B. A closed population has had constant fertility, mortality, marriage, and divorce rates for the past two centuries. There is no out-of-wedlock childbearing and no remarriage. Everyone who survives to age 25 marries on their 25th birthday. The following data have been recorded:
- the number of marriages in 1995 was 1000
  - the number of births in 1995 was 3000
  - the number of divorces in 1995 was 500
  - the number of marriages in 1950 was 1000
  - there were 15,000 married persons in 1995

Estimate:

- 1) the growth rate of the population
- 2) the probability of surviving from birth to age 25
- 3) the probability that a marriage ends in a divorce
- 4) the life expectancy of a marriage
- 5) the average number of births per marriage
- 6) the probability that a newborn will marry
- 7) the expected number of divorces in a lifetime

**V. ANSWER EITHER A OR B.**

- A. Samuel Preston's 1980 PAA presidential address focused on changing intergenerational relations in the United States. Describe how the fortunes of children and the elderly have continued to evolve since the 1970s. In light of these changes, provide a critical reevaluation of Preston's theoretical arguments and policy conclusions.
- B. Discuss recent trends in the labor force participation for women in the United States. Review factors that have been argued to affect levels and trends, and how these changes may have influenced women's marital (and union) statuses. Critically evaluate current theories and empirical evidence on these issues.

**VI. ANSWER EITHER A OR B.**

- A. You are the demographic policy advisor to the leader of a high fertility country. Make a proposal to the leader to reduce fertility; give theories and evidence (past or present) to back up your position.
- B. Important policy decisions depend on mortality forecasts, yet projections of U.S. life expectancy vary considerably. The Social Security Administration (SSA) in the mid-1990s projected an estimated sex-combined life expectancy of 80.7 years in 2070 (Board of Trustees 1995). SSA forecasts imply a slower rate of mortality decline at most ages relative to the long-run average rates of decline since 1900. Lee and Carter (1992) made probabilistic forecasting for U.S. mortality based on an extrapolative method. Their projected estimate of sex-combined life expectancy for 2065 is  $86.1 \pm 4$  years, based on their analysis of the history of U.S. mortality since 1900. In 1998, a sex-combined life expectancy in the United States was 76.7 years.

If you were to predict the future course of life expectancy in the United States, would your estimate of life expectancy be closer to SSA's or Lee and Carter's? Discuss your answer in light of recent and historical evidence of mortality decline in the US and elsewhere. What factors do you believe are particularly important when considering future trends in mortality? Cite available evidence to support your speculations.