

DEMOGRAPHY PRELIMINARY EXAM
JANUARY 2003
MORNING EXAM

I. ANSWER EITHER A OR B.

- A. The “Second Demographic Transition” is a term that is sometimes used to describe the decline of the NRR in developed nations to below replacement levels, as well as to the constellation of family changes that have accompanied it. Using the United States as an example, (i) describe recent secular trends in fertility; (ii) discuss other demographic and social changes that are related to these trends; and (iii) speculate about possible future implications of the second demographic transition, including implications for policy.
- B. Despite the obvious connection between sexual intercourse and fertility, some critics have argued that demographers largely ignore sex, both in their theoretical and empirical research. Discuss the extent to which this criticism is a valid one and assess the extent to which greater attention to issues related to sexual behavior and sexuality would improve demographic research on fertility.

II. ANSWER EITHER A OR B.

- A. What are the factors explaining mortality decline in less-developed countries? In your answer, (i) discuss causal pathways through which each factor can lead to lower mortality, (ii) provide evidence illustrating the relative importance of various factors, and (iii) give recommendations for policy-makers in less-developed countries who wish to achieve further reductions in mortality.
- B. Summarize controversies concerning the so-called “compression of morbidity,” according to which individuals in developed societies experience both longer life spans and a concentration of poor health into the last few years of life. Review alternative perspectives on this issue and available empirical evidence.

III. ANSWER EITHER A OR B.

- A. Decennial censuses are an important source of data for demographers studying internal migration and urbanization/suburbanization in the United States. Describe information collected in the decennial census and coded by the Census Bureau that is useful to demographers interested in migration and spatial redistribution. Identify some major research findings to emerge from secondary analyses of data from the recent censuses. In your answer, be sure to pay attention to the ways in which geographic units are defined.
- B. Controlling immigration flows has emerged as a major political issue in many industrialized countries. Using migration theory, discuss and evaluate various policy options that governments could use to control immigration flows.

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AFTERNOON EXAM

IV. ANSWER EITHER A OR B.

- A. The original Brass method for estimating infant/child mortality consists of taking a representative sample of women aged 15–50 and asking them about the number of children ever born and the number of children surviving. An alternative is to ask women about their complete birth histories (date of birth and date of death, if applicable, for each child ever born). Describe the logic behind each of these methods, and discuss the advantages and sources of errors involved. Are there reasons for preferring one or the other?
- B. Consider a closed population composed of two subgroups. Denote the size of the two groups at time t by $N_1(t)$ and $N_2(t)$ and consider the model:

$$\frac{dN_1(t)}{dt} = aN_1(t) + bN_2(t)$$

$$\frac{dN_2(t)}{dt} = cN_1(t) + dN_2(t)$$

where $dN_1(t)/dt$ and $dN_2(t)/dt$ denote change in the population size of groups 1 and 2, respectively, at time t .

1. Provide a demographic interpretation of the parameters a , b , c , and d .
2. Identify circumstances (e.g., values of the parameters a , b , c , and d) in which the population dynamics for the two groups are more complex than for a single homogeneous population. Explain this complexity in terms of both short- and long-term population dynamics.
3. Identify a substantive problem for which such a model might be applied. Explain how this model might yield different answers for your problem than more traditional models.

V. ANSWER EITHER A OR B.

- A. With the populations of most industrialized countries aging rapidly, there is a growing interest in projecting the health and economic well-being in later life of large cohorts currently approaching old age. While simple extrapolation from the experiences of past and current cohorts of elderly can provide some information, large compositional differences between current and future cohorts of elderly may limit the value of naive projections.
1. Discuss important changes in the characteristics of future cohorts of elderly (relative to current and past cohorts). It may be helpful to limit your focus to one or perhaps two specific countries.
 2. Discuss the potential implications of these compositional changes for the later-life economic well-being and health of future cohorts of elderly.
- B. Two groups demonstrate a “cross-over” in mortality rates, such that Group A has lower deaths rates than group B below a particular age, but higher death rates above that age. One analyst attributes this cross-over to “unobserved heterogeneity.” Discuss a simple example that would illustrate how unobserved heterogeneity can give rise to such cross-overs.

VI. ANSWER EITHER A OR B.

- A. The current administration’s policy focus on the promotion of marriage has been the subject of much discussion. First, describe the changes in nuptiality that are at the center of this policy discussion. Second, discuss the policy implications of recent (i.e., during past 20–30 years) changes in nuptiality. That is, why are policymakers concerned about current patterns of nuptiality in this country? What are seen as the potential benefits of policy efforts to influence nuptiality?
- B. Critically review available theory and empirical evidence on whether and how public assistance (e.g., welfare) in the United States or some other country affects demographic behavior.