

**Duke University  
of Sociology**

**Department**

**GRADUATE QUALIFYING EXAMINATION**

**POPULATION STUDIES**

August 29, 2005 – August 30, 2005

This examination has three sections. You must answer *one* question in each Section. Your answers should be as complete as possible. Your examination should not exceed a total of sixteen (16) double-spaced pages, excluding references. You should follow a journal format (e.g. Demography) for references and citations. You have 24-hours from the time you pick up your examination to return it to Claudette Parker as an email attachment.

No discussion of any Qualifying Examination with any other person is permitted until after all examinations have been completed (September 2, 2005).

**GRADUATE QUALIFYING EXAMINATION**

**POPULATION STUDIES**

**I. Methods. Answer 1 of the following 2 questions.**

1. The life table model:

There are two perspectives on the population life table model: (i) the cohort survival perspective, and (ii) the stationary population perspective. Describe these.

The piecewise-constant hazard/piecewise-exponential survival function population life table model has sample-based analogues for use with sample as opposed to longitudinal data. These analogues often are called hazard regression or event history models.

- a. Describe the mathematical form of a piecewise-constant hazard regression model and how it can be estimated from sample data.
- b. Then describe how sample survey data on a demographic event (e.g., age of transition from childless to first birth for women, age to first Activity of Daily Living Disability for older persons) can be used with event history/hazards regression models to develop sample-based life tables of age to this transition.

2. Unobserved heterogeneity or ‘frailty’ can be a major concern in survival models:

- a. Discuss and illustrate the problem of unobserved heterogeneity in survival analysis. Give an example from the fertility literature illustrating potential sources of unobserved heterogeneity in models of child birth.
- b. Elaborate on the biases arising from ignoring unobserved heterogeneity on estimates of duration dependence and covariate effects in proportional hazard models.
- c. Explain the rationale, review, and formally represent different alternatives to account for unobserved heterogeneity in modeling non-repeatable events.

**II. Demography of Fertility/Family. Answer 1 of the following 2 questions.**

1. One of the hottest topics in contemporary demography is “low” fertility. Respond to both a and b below:

- a. What is “low” fertility? Low relative to what? Discuss competing explanations and their implications for population growth.
- b. Take a position on “how low will fertility go?” Do you expect it to become a global crisis in the 21<sup>st</sup> century?

2. In his PAA presidential address and subsequent book A. Thornton elaborates on what he considers to be the fallacy and enduring impact of the developmental paradigm on family life:
  - a. Construct an argument citing relevant theoretical and empirical literature that supports or takes issue with Thornton's argument.
  - b. Do you think the fallacy is present in studies addressing changes in family life among immigrant families? Give examples.
  - c. Elaborate on alternative approaches to family change, especially in the context of migration.

**III. Aging and Migration. Answer 1 of the following 2 questions.**

1. What is the status of the debate over the "compression of morbidity" hypothesis in the demography of aging? Review the major contributions to the literature on this topic, assay the empirical evidence, and state your conclusion.
2. In recent decades, the literature on immigration has been evolving from a predominant emphasis on individual traits to a growing recognition of the causal significance of contextual factors in explaining patterns of immigrant adaptation.
  - a. Discuss the contextual forces affecting immigrant settlement in the U.S. and elaborate on their effect.
  - b. Select one area of research of your choice related to immigration and adaptation and formulate a research design that pays particular attention to contextual forces.
  - c. Identify a theoretical framework that might be useful in your project, detail the dependent and independent variables, and suggest possible data sources for the analysis.