

The University of Texas at Austin, Department of Sociology

General Comprehensive Examination in Demography

April 16, 2007

Part A. Migration/Urban Ecology. Please answer A1 or A2.

A1. A scholar interested in explaining the generally better health of immigrants compared to the native born is writing a proposal to obtain funds for original data collection and at least part of her project will involve implementing a survey. She has asked your advice on how to draw a sample that will help her to answer key questions in this area of research. Write an essay providing a description of at least two theories commonly employed to explain the better health outcomes of immigrants. Then describe two potential sampling approaches and the advantages and disadvantages of each for evaluating these theories.

A2. A recent study by Perreira, Harris, and Lee (*Demography* Aug. 2006) shows “That first-generation youth of Hispanic, Asian, and African heritage obtain more education than their parents, but the second generation and third or higher generations lose ground.” Present at least two broad theories describing patterns of immigrant assimilation, identifying the researchers most strongly associated with the position. Then determine which of these theories the pattern of effects Perreira et al observe best supports and explain why you think this is so.

Part B. Health/Mortality. Please answer B1 or B2.

B1. Life expectancy and infant mortality are widely used as indicators of the standard of living and quality of health care. The United States fares well in terms of indicators such as mean income, but not so well, relative to other developed countries, in terms of life expectancy and infant mortality. Please say more about the relative position of the United States, and provide an explanation of why it is not ranked more highly.

B2. Over the years, various scholars including Weber have argued that mortality is not properly subject to behavioral analysis since few people choose to die, and that people, for the most part, seek to reduce mortality as much as possible. Yet a substantial literature documents large differentials in health outcomes by race-ethnicity and nativity and the fact that these differences cannot be completely explained by socioeconomic status. Caldwell and others have also pointed out that in Third World countries there is only a weak association between economic development and life expectancy, and that there examples to be found of countries that have achieved good health at low cost. Write an essay describing what we know about the impact of education, families, culture, and religion on health, and in which you try to persuade your reader of the notion that mortality is indeed “a socially meaningful action”.

Part C. Fertility. Please answer C1 or C2.

C1. Demographers try to measure such concepts as desired number of children, ideal number of children, intended number of children, etc. Please try to clarify the distinctions between these terms (and any related ones you may be familiar with). What is the alleged relationship between these concepts and actual fertility and contraceptive use? How does the relationship depend on the availability of effective contraception?

C2. As Morgan and colleagues have noted, in the US, while there is a relatively good correspondence at the aggregate level between intended parity and final parity, the fit at the individual level is poor. Why might this be the case? Does the lack of correspondence at the individual level weaken the case for rational choice based explanations of fertility decline? Can you think of populations in which the overshooting and undershooting of fertility intentions does not balance out? How important are such imbalances in populations currently experiencing “lowest-low” fertility?

Part D. Methods. Please answer D1 or D2.

D1. When a DHS survey is conducted, there is first a survey of households. Women age 15-49 are eligible to be included in the survey of women. These women (or a sample of them) are interviewed and their retrospective birth histories are obtained.

In addition to the birthdates in the birth histories, what other information is required in order to calculate an array of age-period-specific fertility rates?

- a) Give a verbal description of what would go into the numerator and denominator of, say, the age-specific fertility rate for ages 25-29 during the five years before the survey?
- b) How would you calculate the Total Fertility Rate for the five years before the survey, using the age-specific rates for ages 15-19 through 45-49? How would you interpret the TFR?
- c) What additional information would you have to have to calculate a Net Reproduction Rate? Can that be done with information in a regular DHS survey or would you need another source?

Now say that we carry out a survey of men 15-59 identified in the household survey, collect complete birth histories from the men, and calculate the five-year age-specific rates for the five years before the survey.

- d) Would you expect the male TFR to be the same as the female TFR? Would you expect a male NRR to be the same as a female NRR? What kinds of factors might cause them to differ?

D2. There has been a considerable controversy over the possible demographic consequences of immigration reform in the US, with some conservative organizations arguing that the legislation proposed in 2006 would lead to an increase of more than 100 million in the number of people legally residing in the country. To explore the possible impact of migration on population growth, consider the following scenario for the female population:

Assume that the population has been closed and for a long time subject a constant level of mortality as depicted in a recent life table for US females (2003, attached), and has each year up until the present had a constant number of female births, 2 million per year. This is close to the actual number for the US in 2004. Assume that fertility occurs in only two age groups, 25-29 and 30-34, and that it is (and has always been) the same in each of these age groups.

- a) What is the constant level of fertility in each of those age groups, and the corresponding GRR?
- b) Graph (roughly) the age distribution of this initial population.
- c) What is the size of this female population?
- d) What is the crude death rate in this population?

Now suppose a new program of legal immigration is put in place beginning on January 1, 2008 that allows 1 million young childless women exact age 25 to enter the country each year on January 1st. Assume that these women are subject to the same fertility and mortality rates as the rest of the population once they have entered the country.

- e) What will be the population growth rate in the first year of the program?
- f) What will be the population growth rate a long time into the future, say in 2108? (Hint: you could treat migration like mortality, but in reverse. You don't have to give an exact answer but show how you would get one.)
- g) Graph (roughly) the age distribution of this eventual population.

Year	Age	mx	qx	ax	lx	dx	Lx	Tx	ex
2003	0	0.00615	0.00611	0.07	100000	611	99432	7993722	79.94
2003	1-4	0.00028	0.00110	1.64	99389	110	397297	7894290	79.43
2003	5-9	0.00013	0.00065	2.45	99279	65	496231	7496993	75.51
2003	10-14	0.00015	0.00075	2.63	99214	74	495896	7000762	70.56
2003	15-19	0.00039	0.00195	2.80	99140	193	495275	6504866	65.61
2003	20-24	0.00050	0.00249	2.52	98947	246	494125	6009591	60.74
2003	25-29	0.00055	0.00277	2.59	98701	273	492844	5515466	55.88
2003	30-34	0.00073	0.00364	2.66	98427	358	491299	5022622	51.03
2003	35-39	0.00115	0.00572	2.66	98070	561	489035	4531323	46.21
2003	40-44	0.00179	0.00891	2.66	97509	869	485508	4042287	41.46
2003	45-49	0.00264	0.01312	2.63	96640	1268	480200	3556779	36.80
2003	50-54	0.00381	0.01890	2.64	95372	1802	472613	3076579	32.26
2003	55-59	0.00588	0.02902	2.68	93569	2715	461558	2603965	27.83
2003	60-64	0.00937	0.04586	2.66	90854	4167	444520	2142407	23.58
2003	65-69	0.01429	0.06911	2.64	86688	5991	419307	1697887	19.59
2003	70-74	0.02248	0.10672	2.63	80697	8612	383054	1278579	15.84
2003	75-79	0.03616	0.16650	2.62	72086	12002	331909	895525	12.42
2003	80-84	0.06055	0.26419	2.59	60084	15873	262166	563617	9.38
2003	85-89	0.10455	0.41435	2.50	44210	18319	175214	301450	6.82
2003	90-94	0.16946	0.58568	2.36	25892	15164	89487	126236	4.88
2003	95-99	0.26781	0.75648	2.12	10727	8115	30301	36749	3.43
2003	100-104	0.39174	0.87748	1.85	2612	2292	5851	6448	2.47
2003	105-109	0.53150	0.94394	1.58	320	302	568	596	1.86
2003	110+	0.64636	1.00000	1.55	18	18	28	28	1.55