University of California San Diego Spring 2025

Practice Question Solutions

1. In "Delayed Marriage and Very Low Fertility in Pacific Asia," what major trend in Asian marriage patterns does Jones describe? In his view, how does this trend differ from what is happening in Europe?

Jones describes how Asians are spending more and more of their adult lives single, due to later marriage and non-marriage. He notes that Europeans are also marrying later and marrying less than in the past, but unlike in Asia, cohabitation has become common in Europe.

2. In a famous article, Amartya Sen claimed that "more than 100 million women are missing." How did he come up with this number?

Sen noted that the sex ration—the number of males divided by the number of females—was much higher in several Asian countries than in Western countries. To make Asian sex ratios more similar to Western sex ratios, one would need to add 11% more women, amounting to over 100 million women, to the denominator. (You would not need to specify the 11% to get full credit.)

3. In "How Many More Missing Women," Bongaarts and Guilmoto refine Sen's calculation by taking into account three factors. What are they?

Bongaarts and Guilmoto refine the calculation by taking into account variation in age structure, the natural sex ratio at birth, and the overall mortality level.

4. In "The Global Demography of Aging," Bloom and Luca describe population pyramids that look like pyramids, domes, and beehives. Describe how these shapes relate to the Demographic Transition.

When fertility and mortality are high, the population pyramid looks like a pyramid, with many young people forming a broad base. As mortality begins to fall, the pyramid widens at young and old ages as more children and adults survive to older ages. Then when fertility begins to fall, the base gets pulled in, first turning the pyramid into a dome, and then turning the dome into a beehive with fewer infants than young people.

5. The graph at right shows the sex ratio at birth for South Korean infants, by birth order and year. What do you infer about the demand for male births at different birth orders over time?

In the 1990s, the sex ratio at birth for third-born and fourth-or-higher-born infants was very high, with twice as many boys born as girls. This pattern suggests that the demand for male births was very high for later birth orders during this period. That answer alone would have been sufficient, but you could have also noted that the decline in sex ratios in the 2000s suggests declining demand for male births, and that the lower sex ratios in the 1980s could reflect either lower demand or lower availability of sex-selective abortion.

6. The graph at right is from "Immigration in American Economic History," by Abramitzky and Boustan. It portrays the US foreign-born share over time. Which periods of immigration do the authors mention in describing the graph? How did the composition of sending countries differ between these two periods?

The authors call the first wave, from the mid-1800s to the early-1900s, the Age of Mass Migration. The call the second wave, starting in the 1960s, the period of renewed mass migration. The Age of Mass Migration mainly involved migrants from Europe, while the period of renewed mass migration mainly involves migrants from Asia and Latin America.

7. The graph at right is from "Mortality and Morbidity in the 21st Century," by Case and Deaton. It portrays the death rate from drugs, alcohol, and suicide by age and birth cohort for white non-Hispanics with less than college education. Does the graph show evidence of between-cohort increases in this death rate? How about within-cohort increases? For the within-cohort changes, is it possible to distinguish between the effects of age and period?

The graph shows evidence of between-cohort increases; at basically every age, each cohort experiences a higher death rate than the cohort born five years earlier. The graph also shows evidence of within-cohort increases; as the cohort gets older, the death rate rises. It is not generally possible to distinguish between age and period effects for a given cohort.

8. The graph at right shows the survivorship curves associated with 2023 death rates for Japan and Nigeria. How would you use this information to determine Japanese life expectancy at birth?

Japanese life expectancy at birth is the area under the red curve—which we can approximate by summing its values across ages—divided by its starting level, 100,000.

9. The graph at right shows period life expectancy (in red) and cohort life expectancy (in blue) over time in France. Why are they similar before 1900? Why does cohort life expectancy rise above period life expectancy in the 1900s?

Period and cohort life expectancy were similar in the 1800s because mortality was declining very slowly. Thus, age-specific mortality rates in a given year were not far from the age-spcific mortality rates that infants born in that year would go on to experience over their lives. Cohort life expectancy rises above period life expectancy in the 1900s because mortality decline accelerated. Infants born in 1900 went on to experience much lower midlife and old-age mortality rates than those that prevalied in 1900.

10. The graph at right shows the total fertility rate and the number of births over time in China. What does the total fertility rate mean? Why does the number of births increase in the 1980s while the total fertility rate does not?

The total fertility rate is the number of children a woman could expect to have if she experienced current age-specific fertility rates over her life (or equivalently over her reproductive period). The number of births rises in the 1980s even though the total fertility rate does not because the number of women of childbearing age rises due to past fertility fluctuations (population momentum).