Extended Abstract

Projecting Fertility for the 2012 National Population Projections

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The U.S. Census Bureau periodically produces population projections based on the components of population change: births, deaths, and international migration. This paper examines the development of assumptions on fertility trends by age, race, and Hispanic origin for use in projecting the age-specific fertility rates (ASFRs). The methodological challenges of projecting fertility will also be explored, such as assigning race and Hispanic origin to future births, determining the future racial and ethnic composition of potential fathers, and identifying the propensity for specific combinations of race and Hispanic origin groups to produce children. Finally, preliminary projected rates of fertility by race and Hispanic origin for use in the next set of Census Bureau population projections will be presented.

Population projections produced by the U.S. Census Bureau rely on a cohort-component method whereby the components of population change are projected for each birth cohort. As the population is advanced one year of age to accommodate each passing year, the age categories are updated based on projected survival rates and levels of international migration for that year. Meanwhile, projected age-specific fertility rates are applied to the female population of childbearing age to produce the new cohort under one year of age, which is then likewise subjected to rates of mortality and net international migration. Within this process, assumptions are used to determine the direction of and patterns in the ASFRs as they are projected out and applied to the female population of childbearing age. The development of these assumptions relies, in part, on patterns of fertility evident in a time series of natality data obtained from the National Center for

Health Statistics (NCHS) in conjunction with Census Bureau estimates of the female population. Current research in the area of fertility is also taken into consideration.

For the 2008 National Population Projections based on Census 2000, assumptions for three mutually exclusive and exhaustive groups were used: Hispanic origin of any race, non-Hispanic Black alone, and non-Hispanic all other races. The disparate fertility schedules of the three groups were assumed to converge in 2100, when the levels of the Hispanic and non-Hispanic Black alone populations would assume the schedule of the non-Hispanic all other races population. For the next set of population projections, we anticipate projecting ASFRs for more race and Hispanic origin groups. This is especially important when taking into consideration differences in fertility by racial and ethnic groups suggested by current research. Additionally, specific fertility levels assumed for each of the race and Hispanic origin groups will be reexamined for the 2012 national projections. Recent data from NCHS reveals a continuation of the overall decline in births and fertility rates (Sutton, Hamilton, and Mathews 2011). However, specific variation in fertility patterns by race and Hispanic origin will need to be identified. For example, some research argues that previously-held notions regarding higher Hispanic fertility were incorrect, and that continued incorporation of such levels in the assumptions would "considerably exaggerate Hispanic population growth" (Parrado 2011: 1059). The potential influence of such research and its implications for the future population will be examined in the development of our assumptions.

When ASFRs are projected and applied to females of childbearing age, a race and Hispanic origin must be determined for the resultant births before they can be subjected to survival and international migration rates and aged through the population. Birth certificates collect information on the race and Hispanic origin of the mother and father, but this information is not collected for the child. In order to utilize data from birth certificates in our projections, a method must be developed for assigning race and Hispanic origin to each birth. We have used various methods to make these assignments in the past, including assigning race and Hispanic origin solely

based on that of the mother or father. For the most recent national projections released in 2008 and 2009, we used a method that considered four pieces of information: (1) the race of the mother; (2) the composition of potential fathers by race in the projected population; (3) the propensity of women of a given race and Hispanic origin combination to have children with men of a given race and Hispanic origin combination; and (4) how particular race and Hispanic origin combinations of parents identify their child with regard to race and Hispanic origin. The first two components come from the projected population. The third and fourth components can be produced using decennial Census data to link characteristics of children to the characteristics of their parents. A Census 2000-based file was created for this purpose for the 2008 and 2009 projections.

For the 2012 projections, we will evaluate use of a version of the file linking children and parents based on the 2010 Census and possibly one based on American Community Survey (ACS) data. These files make it possible to identify the racial and ethnic composition of parents and the frequency with which women of each race and Hispanic origin combination have children with men of each of the race and Hispanic origin combinations. Proportions based on these frequencies can be held constant over the projection horizon or projected to change based on past trends. If they are held constant, as they were for the 2008 and 2009 national projections, fluctuations in the number of men and women of each race and Hispanic origin group produce similar variation in the number of each parent combination, as well as the number of children born to each combination. As with the proportions of specific parent combinations, the proportion of children assigned to each race and Hispanic origin group can be held constant or varied over the projection horizon. We will evaluate the need for varying these proportions by analyzing data from Census 2000, the ACS, and the 2010 Census. Using these methodologies, we can project the population aged 0 for each year by race and Hispanic origin and provide the necessary input data for the cohort-component method-based projection of the population.

Works Cited

Parrado, Emilio A. 2011. "How High is Hispanic/Mexican Fertility in the United States? Immigration and Tempo Considerations." *Demography* 48: 1059-1080.

Sutton P. D., B. E. Hamilton, and T. J. Mathews. 2011. "Recent Decline in Births in the United States, 2007–2009." *NCHS Data Brief No. 60*. Hyattsville, MD: National Center for Health Statistics.