The Intergenerational Transmission of Smoking and Schooling

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Across cohorts of Americans born from the 1920s to the 1950s, education and smoking status in families of origin have become more aligned (Maralani 2009). Over time, men who smoke have become more likely to marry women who smoke, especially among couples with less schooling. Spousal resemblance in smoking and changes in resemblance across cohorts remain significant net of changes in population composition. This alignment of education and smoking in processes of family formation is amplified by education-specific differences in the likelihood of quitting smoking between the time of marriage and first birth among couples where at least one spouse smokes. When both spouses are college educated, the predicted probability of quitting smoking before first birth has increased dramatically across cohorts whereas couples with less schooling have enjoyed much smaller gains. Taken together, these results suggest that families of origin have become more unequal across important predictors of social status and health.

To understand what this means for the wellbeing of future generations, however, one must examine how much this alignment of smoking and education in families of origin matters for children's life chances. We use a formal demographic model of population projection combined with simulations to examine how these changes in assortative mating affect the distribution of smoking and educational attainment in future generations. The model and simulations incorporate assortative mating, differential fertility and the transmission of status.

We use a two-sex demographic model that accounts for the statuses of both men and women and differences in assortative mating and fertility by education and smoking status (Preston and Campbell 1993; Mare 1997). The model takes a starting distribution of marriages and allows couples to have different fertility levels depending on their education and smoking status. It also includes an inheritance process between parents and children that maps parents' statuses to children's statuses and allows transmission to differ by the sex of the child. Finally, the model includes a marriage matching function, which accounts for the statuses of men and women in projecting assortative mating across generations. Because changes in assortative

mating are at the heart of our study, we consider two alternative marriage matching functions—Schoen's harmonic mean function and Choo and Siow's marriage matching function—to ensure our results are robust to different assumptions about the nature of matching in the population (Schoen 1988; Choo and Siow 2006). Using this model, we examine the joint occurrence of smoking and education for several birth cohorts of men and their wives. We estimate the parameters of the model from several data sources and then simulate generations using each of the two marriage functions to measure the quantitative impact of marriage and fertility on the joint distribution of smoking and schooling in future generations.

The data requirements for the intergenerational transmission of smoking and education and how this process changes under a regime of increasing assortative mating are intensive. We piece together data from several different sources in order to estimate the parameters of the model. Data on assortative mating and differential fertility by smoking and schooling status come from the Health and Retirement Study (HRS). The HRS allows us to construct a sample of 5,955 first and second marriages for three birth cohorts of men (born 1921-1930, 1931-1940, and 1941-1953) and their wives. The HRS, however, does not include the smoking status of the respondents' children. Thus, we use the National Longitudinal Study of Adolescent Health (Add Health), which includes the education and smoking histories of a cohort of young adults and the education and smoking status of their parents (N=4288) to estimate the parameters of the transmission process. Both of the marriage matching functions we consider require information on the proportion of marriages among men and women jointly classified by smoking and schooling status. We get these proportions from the HRS. The marriage functions also require the numbers of men and women "at risk of marriage" jointly classified by smoking and education as well as the overall number of marriages experienced by the birth cohorts. We use the weighted National Health Interview Surveys (NHIS) to get population estimates for the cohorts' number of marriages, and the numbers of men and women in each education and smoking group.

We conduct four simulations to evaluate the effects of the observed increases in assortative mating. All simulations assume the same transmission process. The simulations vary in their patterns of assortative mating and differential fertility. The first simulation uses the marriage and differential fertility patterns of the oldest cohort (1921-1930). The second simulation uses the marriage patterns of the oldest cohort but the differential fertility patterns of

the youngest cohort (1940-1953). The third simulation uses both the marriage and differential fertility patterns of the youngest cohort (1940-1953). The fourth simulation uses the marriage patterns of the youngest cohort (1940-1953) but the differential fertility of the oldest cohort (1921-1930). We simulate successive generations until equilibrium is reached, which occurs within six generations in all simulations.

Our preliminary findings show that the intergenerational results depend both on the which cohort's marriage and fertility rules are applied and whether we consider smoking status as a binary status (ever smoked) or a quantitative one such as number of cigarettes smoked. These differences, however, are all modest. Although these results are descriptively important, mobility across generations dominates the effects of assortative mating in the population. We also find that one important determinant of the magnitude of the intergenerational effects is how much the inheritance process differs if both parents have the same statuses—that is, whether the process of inheritance is additive or if there is an extra effect of resemblance in parents' statuses in the process of transmission.

References:

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