Assignment #1 -- Decomposition
Due: Monday, April 17

This assignment may be completed in groups of size 1-4. Be prepared to present your solutions orally in class. In some instances, there may be several possible ways of answering the question. Decomposition is an art as well as a science.

The link “Ass. 1 Data” on the list of links page for this week contains a Stata .dta file on educational attainment and its covariates from the 1972-2002 GSS's. Use these data to do the following:

1. Compute the proportions of individuals who complete 16 or more years of schooling separately for white and blacks. Decompose the difference in these proportions into race differences due to:
   a. Proportion completing at least 10th grade
   b. Proportion completing at least 12th grade given 10th grade completion
   c. Proportion completing at least 13th grade given 12th grade completion
   d. Proportion completing at least 16th grade given 13th grade completion

2. Compute mean years of schooling separately for blacks and whites. Decompose the difference in these means into race differences due to the four components listed in question # 1 and to a fifth component, the proportion completing at least 17th grade given 16th grade completion.

3. Estimate logit models for the linear effects of mother’s highest grade of school completed on the probabilities of completing each of the five school transitions listed in questions # 1 and #2 separately for blacks and whites. Decompose the race difference in mean years of school completed into parts associated with race differences in the transition-specific effects of mother’s schooling and with race differences in average levels of mother’s schooling.