

Midterm exam

28 February 2012

The data set `exam1.dta` is an edited version of the Russia Longitudinal Monitoring Survey (RLMS) data set for 2006. The variable `health` measures subjective health status of the respondents. This is an ordinal variable with five values, but for the purpose of this exercise we will treat it as an interval variable.

1. Regress `health` on sex, age, education and smoking status. Present the model and give a complete statistical interpretation of the results (size and significance of the coefficients, R-squared). Write down the regression equation.

2. Check if the effect of age on health is nonlinear. Make a plot that shows the average health status of non-smoking men with higher education between the age of 16 and 70 years. (Use the model from question 1 to make this plot.)

3. Test the hypothesis that for smokers and non-smokers age is associated with health in a statistically significantly different way. Present and discuss the results. Make a plot that shows the association between age and health for smokers and non-smokers.

4. Regress `health` on sex, age, education and smoking status separately for people in the labour force and for retired people. Present two models and discuss the differences between them.

5. Make a model that estimates the association between health and the satisfaction with the changes that occurred in Russia in the last 15 years, controlling for sex, age and education. Present and discuss the results. Discuss possible reasons why there is a statistical association between the satisfaction with the changes in the country and subjective health.

6. Estimate a model that shows the association between income (the dependent variable) and sex, age, and education. Present and interpret the results. (Do you need to take a logarithm of income? Remember that the effect of age can be non-linear. Test if there is any interaction effect between age and sex).

7. With the model from the previous question, test if the effect of higher education on income is different for men and women. Present and discuss the results. Write down the regression equation.