

**Labor Economics**  
**Assignment 2**  
**Spring 1999**

On my web page (<http://www.econ.nyu.edu/user/flinn/home.html>) you will find a Gauss data set inside a zip file which you may download. It contains information on the duration of time spent searching for the first job taken after the completion of education (given that a positive amount of time was spent searching) and the wage that was eventually accepted. The data are extracted from the National Longitudinal Survey of Youth, 1979 Cohort. The duration measure (in weeks) is the first variable and the wage is the second (before conducting the analysis, convert duration from weeks to months by dividing by 4.33). There are 389 cases in the data set. All individuals in the sample had completed at least 12 years of schooling prior to entering the labor market “permanently.”

1. Using the duration data only, estimate the exit rate from unemployment. Conduct a test to determine whether or not the hazard rate is independent of duration. If you wish, obtain nonparametric estimates of the hazard rate function.
2. You are to use the technique utilized by Flinn and Heckman to estimate a structural search model. You should assume that jobs last forever and that there is no on-the-job search. Assume that the wage offer distribution is log normal, that is

$$f(w) = (\sigma w)^{-1} \phi\left(\frac{\ln(w) - \mu}{\sigma}\right), \quad w \geq 0,$$

where  $\mu$  and  $\sigma$  ( $> 0$ ) are unknown parameters to be estimated and  $\phi$  denotes the probability density function of a standard normal random variate. There are a number of very low hourly wages reported by some employed respondents. Estimate the model first using the lowest accepted wage in the sample as your estimate of the reservation wage. Replace this estimate with the 10<sup>th</sup> lowest wage in the sample. Do your estimates of the other structural parameters vary? Are both estimators consistent?

3. Assuming that the rate of discount  $\rho$  is equal to .005 (when time units are measured in months), solve for the implied instantaneous cost of search  $c$  using either set of estimates obtained in answering Question 2. If you like, obtain an estimate of the asymptotic standard error associated with this estimate of  $c$ .

4. Using your model estimates, determine the effect of a 10 percent increase in the rate of arrival of job offers on the expected duration of search. Now determine the effect of a 10 percent increase in the cost of search (reset the rate of arrival of offers to its original value). Discuss your results.