

BOSTON COLLEGE
Department of Economics
EC771: Econometrics
Spring 2004
Prof. Baum, Ms. Uysal

PROBLEM SET 4: DUE THURSDAY 25 MARCH 2004 AT CLASSTIME

All references to Greene, 5th ed., 2003.

1. Problem 6.4
2. Problem 6.5
3. Problem 6.11
4. Problem 6.12

5. Using Stata routine `ivreg2` (ssc install `ivreg2` if needed; full details on `ivreg` in BC WP 545):

```
use http://fmwww.bc.edu/ec-p/data/hayashi/griliches76.dta
xi i.year
```

a. Estimate the regression of log wage (`lw`) on experience (`expr`), years of schooling (`s`) and `iq`, considering `iq` as potentially mismeasured; instrument the equation with `age`, `kww` and `med` (mother's years of education). What is the identification status of this equation?

b. These data are pooled cross-section time-series (but not a panel). Introduce time effects (the year dummies) and reestimate the equation. What effect has this had on the model? What do you conclude?

c. Reestimate the equation of part b using robust standard errors. What effect does this have on the estimated model?

d. Reestimate the equation of part b using generalized method of moments (IV-GMM). What effect does this have on the model? What assumptions have been relaxed vis-a-vis the model estimated in part b? How do you interpret the Hansen J statistic for this model?

e. Use the IV-GMM `orthog` option (the "C" test) to test a subset of the orthogonality conditions: the exogeneity/endogeneity of s (years of schooling). What do you conclude?

f. Reestimate the model treating s as endogenous. What does the Hansen J test signify in this context?