ECON6300/7320/8300
Advanced Microeconometrics
Linear Panel Models

Assignment Project Exam Help

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Practical 6
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Introduction

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- This class will review:
  - Panel IV estimation
  - Dynamic panel data models

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- We begin with a demonstration from Microeconometrics using STATA Chapter 9 looking at the classical wage equation

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- We move on to a practical

Demonstration (1)

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- We analyse PSID data from Baltagi and Khanti-Akom (1990) for 595 people observed in 1976-1982
  - We analyse the classical wage equation in which log-wage (lwage) depends on experience (exp), experience squared (exp2), education (ed) and weeks worked (wks)

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Practical (1)

- We have wage data from Koop and Tobias (2004) (KTpanel.csv)
- We estimate a wage equation. Our wage variable is logwage.
- Our covariates include education (educ), potential experience (potexper), cognitive ability (cogability).
- We also have data on mother/father education (mothered/fathered), an indicator for growing up in a broken home (brknhome) and number of siblings (siblings)
- Individual identifier is personid and time identifier is timetrnd.

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Practical (2)

1. Load the data into STATA and summarize the panel
2. Estimate random and fixed effects models using outcome logwage and covariates educ, potexper and cogability
3. Perform a Hausman test to determine whether random effects or fixed effects is appropriate
4. Estimate a panel IV regression using random effects, in which you treat cogability and potexper as exogenous covariates and educ as endogenous. Use an appropriate set of instruments for educ.
5. Perform a Hausman-Taylor regression in which educ is allowed to be correlated with α_i. Use the bootstrap to obtain standard errors which are robust to heteroskedasticity and serial correlation. Are the overidentifying restrictions valid?
6. Estimate an AR(1) dynamic panel data model with no covariates, and then using potexper and educ treating educ as endogenous and using lags as instruments. Is there serial correlation? Are the instruments valid? Try adding the additional instruments mothered and fathered (use inst(mothered fathered))

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