

ANALYSIS OF PANEL DATA

Fixed-Effect and Random-Effect Models

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Fixed-Effect vs. Random-Effect Models

Fixed Effect vs Random Effect Models

- Because fixed effects allows arbitrary correlation between α_i and the x_{itj} , while random effects does not, FE is widely thought to be a more convincing tool for estimating ceteris paribus effects.
- Still, random effects is applied in certain situations. Most obviously, if the key explanatory variable is constant over time, we cannot use FE to estimate its effect on y .
- In fact, we had to rely on the RE (or pooled OLS) estimate of the β in the example given previously.
- However, as emphasized before, we use random effects because we are willing to assume the unobserved effect is uncorrelated with all explanatory variables; this assumption may not always be sensible.

- RE is preferred to pooled OLS because RE is generally more efficient.
- Whenever considering using RE model, one has to give substantial reasons why the assumption $Cov(x_{itj}, a_i) = 0$ is reasonable.
- Hausman (1978) first proposed a test to test the full set of random effects assumptions. The idea is that one uses the random effects estimates unless the Hausman test rejects $Cov(x_{itj}, a_i) = 0$. We will cover Hausman in the R demo.

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