



Dr. Marcel Bluhm
Assistant Professor of Economics

The Wang Yanan Institute for Studies in Economics
Xiamen University

Special Topics in Applied Econometrics: Cross-Country Studies
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Hands-On Assignment 7:
Panel Sample Selection

Please take out the following hands-on assignment in Matlab

In this hands-on assignment you will analyze the effects of IMF loan participation on countries output growth using a very simple pooled panel framework. The separate analysis of countries under loan participation and those not gives rise to potential sample selection bias which needs to be corrected. Note that the dataset (DatasetIMF.xls) provided for this analysis is unbalanced, furthermore the growth regression taken out is highly unbalanced. Make sure that all estimators are adequately corrected for unbalanced panel data.

1. Load the quinquennial dataset „DatasetIMF.xls“ from the second spreadsheet of the Excel file into Matlab. All variables are described on the first spreadsheet.
2. Estimate the participation selection equation [Equation (2.18)] using IMF5a as dependent variable and the following variables as explanatory variables: constant, reserves, oecd,quotashare,investment share, government share, openness, inflation, democracy, staff at IMF, political proximity to U.S., political proximity to major Europe, economic proximity to U.S., economic proximity to major Europe.
3. Calculate t-statistics for all explanatory variables and interpret the effect of significant explanatory variables.
4. Using estimation results, compute the inverse mills ratio following Equation (2.21)
5. To investigate the effect of IMF loan programs on output growth, estimate two growth equations within a pooled panel framework, separately for country-years under IMF participation and those not under participation. In both cases the dependent variable is the real gdp per capita growth rate and the independent variables are: constant, investment share, government share, openness, inflation, democracy.
6. For both sets of coefficient estimates calculate the t-statistics and interpret significant results.
7. Calculate a counterfactual, that is, use the coefficients from the estimation of country-years not under IMF loan participation to predict the growth of countries under participation. This serves to statistically investigate how high the output growth of countries would have been, had they not participated. Compare the average output growth of the counterfactual with the average predicted growth of countryyears under IMF loan participation.
8. Outline potential statistical pitfalls of the approach taken to investigate IMF loan programs.