

Advanced Econometrics 2 (2017/2018)

Panel Data - UvA

Assignment

- In teams of 2 students, see Blackboard for the team division.
- Email your report and programming code (Stata do file) to: e.aristodemou@uva.nl
- Length of the report maximum 3 pages text; excluding tables; assuming basic econometric knowledge
- Deadline: Thursday 17:00 hours, 1 February 2018.
- The purpose of this assignment is for you to gain practical experience with panel data techniques.

Levine, Loayza and Beck (2000), hereafter LLB, analyze the causal relation between financial intermediary development and growth. They estimate cross-section and panel data regressions explaining the growth rate of GDP per capita by an indicator of financial development and a number of control variables. The data from LLB include three different measures of financial development ("private credit", "liquid liabilities" and "commercial-central bank"). In general they find a positive correlation between financial development and growth.

Aghion, Howitt and Mayer-Foulkes (2005), hereafter AHM, develop a theory implying that economic growth convergence depends on the level of financial development. They test their theory in a cross-country growth regression including an interaction term between initial GDP per capita and an indicator of financial development. Their specifications furthermore include different sets of control variables (labeled "empty", "policy" and "full").¹ They find a nonlinear causal relation between financial development and economic growth. In other words, low financial development makes growth convergence less likely.

¹The policy control variables are average years of schooling, government size, inflation, black market premium and trade openness. The full conditioning set is the policy set plus indicators for revolution and coups, political assassinations and ethnic diversity.

Both LLB and AHM conjecture that financial development is an endogenous regressor because of feedback from growth to financial development, or because of relevant omitted variables. In their cross-section analysis both LLB and AHM follow La Porta et al. (1997, 1998) and use legal origin as source of exogenous variation in financial development to construct instrumental variables. Having panel data LLB exploit a fixed effects specification in combination with GMM exploiting (suitable transformed) lagged values of endogenous regressors as instruments.

In this assignment you are going to combine both analyses. You are asked to build an empirical growth model based on the panel data of LLB including a nonlinear effect of financial development on growth. In your preferred specification you test the theory of AHM by checking whether the coefficient of an interaction term between initial GDP per capita and an indicator of financial development is significantly different from zero.

The panel data used by LLB on growth rates and many other variables for 74 countries over seven 5-year periods are available from the Blackboard site. It is completely up to you how you make use of the data, but main goal is to arrive at plausible estimates of the parameter(s) of interest. Estimating empirical specifications you should take into account the following econometrical issues: (1) omitted relevant variables; (2) simultaneous causality; (3) serial correlation. Your report should furthermore include both OLS and IV/GMM estimates.

References

Aghion, P., Howitt, P. and D. Mayer-Foulkes (2005). The effect of financial development on convergence: theory and evidence. *The Quarterly Journal of Economics* 120(1), 173-222.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A. and R.W. Vishny (1997). Legal determinants of external finance. *Journal of Finance* 52, 1131-1150.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A. and R.W. Vishny (1998). Law and finance. *Journal of Political Economy* 106, 1113-1155.

Levine, R., Loayza, N. and T. Beck (2000). Financial intermediation and growth: causality and causes. *Journal of Monetary Economics* 46, 31-77.