ASSIGNMENT 2 – MICROECONOMETRICS I

Master in Applied Econometrics and Forecasting

2º SEMESTER 2022/2023

Consider the following equation that explains the volume of the credit offered by institution i at time t,

$$\log(loans_{it}) = \alpha_0 + \alpha_1 \log(loans_{i,t-1}) + \beta_2 ird_{it} + \beta_3 ird_{i,t-1} + \beta_4 irl_{it} + \beta_5 irl_{i,t-1} + \\ + \beta_6 \log(dinc_{it}) + \beta_7 \log(dinc_{i,t-1}) + v_{it} \quad (1)$$

with $v_{it} = c_i + \lambda_t + u_{it}$. The composite error v_{it} has the usual interpretation: c_i is the unobserved individual heterogeneity, constant in time; λ_t is a time fixed effect; u_{it} is the usual idiosyncratic error. The variables have the following meaning:

$loans_{it}$ – volume of loans from the credit institution *i*, at time *t*

ird_{it}– average interest rate on time deposits of credit institution *i*, at time *t*

irl_{it} – average interest rate on loans granted to customers of credit institution *i*, at time *t*

$dinc_{it}$ – average disposable income of credit institution *i*, at time *t*

The aim is to perform the estimation of equation (1) using the data from file "**T2_data.dta**" performing an analysis that addresses succinctly the following topics:

- Estimation of equation (1) with pooled OLS, Fixed Effects and First Differences, comparing the estimates for α_1.
- Estimation of equation (1) with one-step and two-step GMM estimators of Arellano and Bond and Blundell and Bond (starting by assuming pre-determined independent variables relatively to u_{it}):
    - Justifying the need to use instrumental variables.
    - Testing the instruments validity.
    - Indicating and justifying the choice for the estimation of the standard errors.
    - Referring the advantages and drawbacks of the methods used.
- Comparison of the results obtained with the methods used with a special focus in the estimate of the coefficient of the lagged dependent variable.
- Choice of the best estimator.

- Interpretation of the parameter estimates and highlight of the main conclusions about the problem under analysis.

The text should not exceed **5 pages plus the cover and Appendices** with font "Times New Roman" and size **12pt.** Line spacing should be **1.5 lines** or higher. Outputs should be in the Appendices. A file "**.do**" should be submitted with all the commands run to obtain the output in the Appendices.

The assignment should be submitted by email to isabelp@iseg.ulisboa.pt, in a **word document**, the respective **pdf file** and the **do file**.

The assignment should be delivered till the **23th April** at 24h.