



EE325 Introductory to Econometrics, Semester 2/2017

Instruction

1. You are freely allowed to discuss the problems with your colleagues, but you must complete and submit the finished problem set **individually**.
2. If you have any questions, please send me an e-mail at pwrasai@gmail.com
3. Use **Stata** for this homework. You must attach either do-file or log-file.
4. Due date: **Thursday 3 May 2018, 17.15 (before the lecture begins.)**

Name _____ Surname _____ Student No. _____

1.

$$GNI_i = \beta_1 + \beta_2 Child + u_i \quad (1)$$

$$GNI_i = \alpha_1 + \alpha_2 \frac{1}{Child} + v_i \quad (2)$$

- GNI_i is denoted as gross national income per capita (unit: US dollar).
 - $Child_i$ is denoted as child mortality rate.
- (a) Use data set from "hw3 data1" file to run a regression of the first model.
 - (b) Create a scatter plot of gross national income per capita and child mortality rate with GNI on the Y-axis.
 - (c) Run a regression of the second model.
 - (d) For both models, do the slope and intercept coefficients are statistically different from zero at 1 percent level of significance ?
 - (e) Interpret the slope coefficients of the first model and the result of the second model.
 - (f) Using these results, which model is better to explain the effect of child mortality on gross national income per capita?

2.

$$ROA_i = \beta_1 + \beta_2 SR_i + \beta_3 Slope_i + \beta_4 Capital_i + \beta_5 Size + \beta_6 Cost_i + \beta_7 Deposit_i + \beta_8 LoanProvision_i + \beta_9 LoanRisk_i + \beta_{10} GDP_i + \beta_{11} Inflation_i \quad (3)$$

- ROA_i is denoted as return on asset calculated by dividing net income with total asset.
- SR_i is denoted as short run interest rate using interbank rate as a proxy.
- $Slope_i$ is denoted as slope of yield curve calculated by subtracting government bond rate with interbank rate.
- $Capital_i$ is denoted as capital ratio calculated by dividing total equity with total asset.
- $Size_i$ is denoted as size of bank using natural log of total asset ($\ln(Asset)$) as a proxy.
- $Cost_i$ is denoted as cost efficiency calculated by dividing total expense (Interest Expense + Non-Interest Expense) with total income (Interest Income + Non-Interest Income).
- $Deposit_i$ is denoted as deposit ratio calculated by dividing total deposit with total liability.
- $LoanProvision_i$ is denoted as loan loss provision risk calculated by dividing loan loss provision with net loan. (Loan loss provision is the amount of money that bank keeps as reserve in case of uncollected loan payment.)
- $LoanRisk_i$ is denoted as loan default risk calculated by dividing non-performing loan with net loan.
- GDP_i is denoted as nominal GDP growth.
- $Inflation_i$ is denoted as inflation.

- (a) Use data set from "hw3 data2" file to run a regression.
- (b) List the variables that affect the return on asset at 5 percent level of significant.
- (c) How does loan loss provision risk and loan default risk affect banks profitability?