

Guidelines for Project 2 (8 points)

Group 4 - Elodie Djemaï

Deadline: April 3, 2020 at 4 p.m.

Each group of 2 has to

- upload their work (data saved as a gretl file, **AND** report) on mycourse (File name = first 4 letters of the surname and the first 2 letters of the first name of one student of the team); report: 10 pages maximum single spacing, font size 12 pt
- give a copy of the document (**recto-verso**) to Mrs. Bévier (office P313)

General rules:

- **Tests must be implemented as in class (compute the test statistic, compare to the critical value and apply the decision rule, conclude). All steps must be detailed.**
- Name the variables in a relevant way
- Write this paragraph in the front page:

Je déclare sur l'honneur que ce mémoire a été écrit de ma main, sans aide extérieure non autorisée, qu'il n'a pas été présenté auparavant pour évaluation et qu'il n'a jamais été publié, dans sa totalité ou en partie.

Toutes parties, groupes de mots ou idées, aussi limités soient-ils, y compris des tableaux, graphiques, cartes etc. qui sont empruntés ou qui font référence à d'autres sources bibliographiques sont présentés comme tels, sans exception aucune.

Outline:

1. Model selection

Find the optimal model using one of the five methods
Justify the choice of the method if relevant
Comment and summarize the estimation results

2. Tests for autocorrelation of order 1

Perform both tests:

- Durbin Watson test
- Breush Godfrey test

3. Tests for heteroscedasticity

Perform both tests covered in class:

- Goldfeld-Quandt Test
- White Test

Scenario 1: if errors in your optimal model are both serially correlated and heteroscedastic, go to section 4a;

Scenario 2: if errors are either autocorrelated or heteroscedastic, go to section 4b;

Scenario 3: if errors are not autocorrelated and are homoscedastic in your optimal model, go to section 4c.

4a. Corrections:

- Correction in case of autocorrelation using the 1st method to estimate ρ
- Correction if errors are heteroscedastic

4b. One correction and a second selection method

- correct for either autocorrelation or heteroscedasticity based on your conclusions in sections 3 and 4
- apply a second selection method on your data

4c. Additional tests

- apply a second selection method on your data
- provide a forecast interval for $t = n+1$

5. Conclusion

Present the final model and give comments (significance, size and sign of the effects)