Does Industry promotes forest depletion?

Siddhartha Rayamajhi
Saishab Bhattarai

Prepared for : Numeric Mind Data Fellowship Program

February 19, 2022

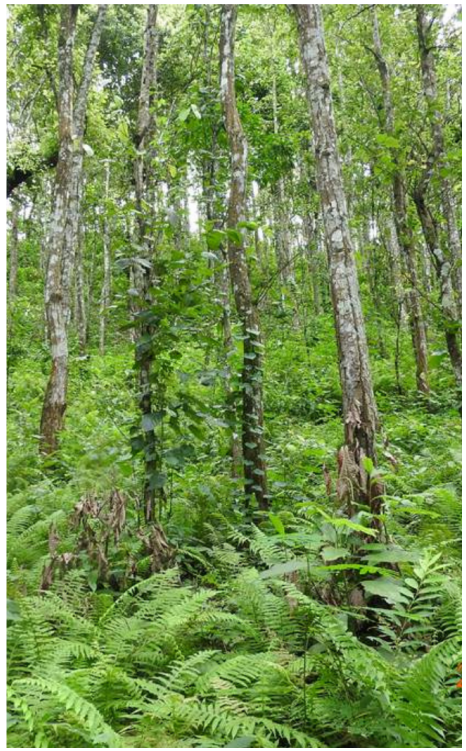
Overview

- Introduction
- Objective
- Significance of the study
- Research methods
- Exploratory Data Analysis
- Model specification
- Findings
- Conclusion

Introduction





Objectives

- **To Generate a Statistical model from observational data .**
- **To understand relation between Industry and Environment**
- **To implement R language in the project.**

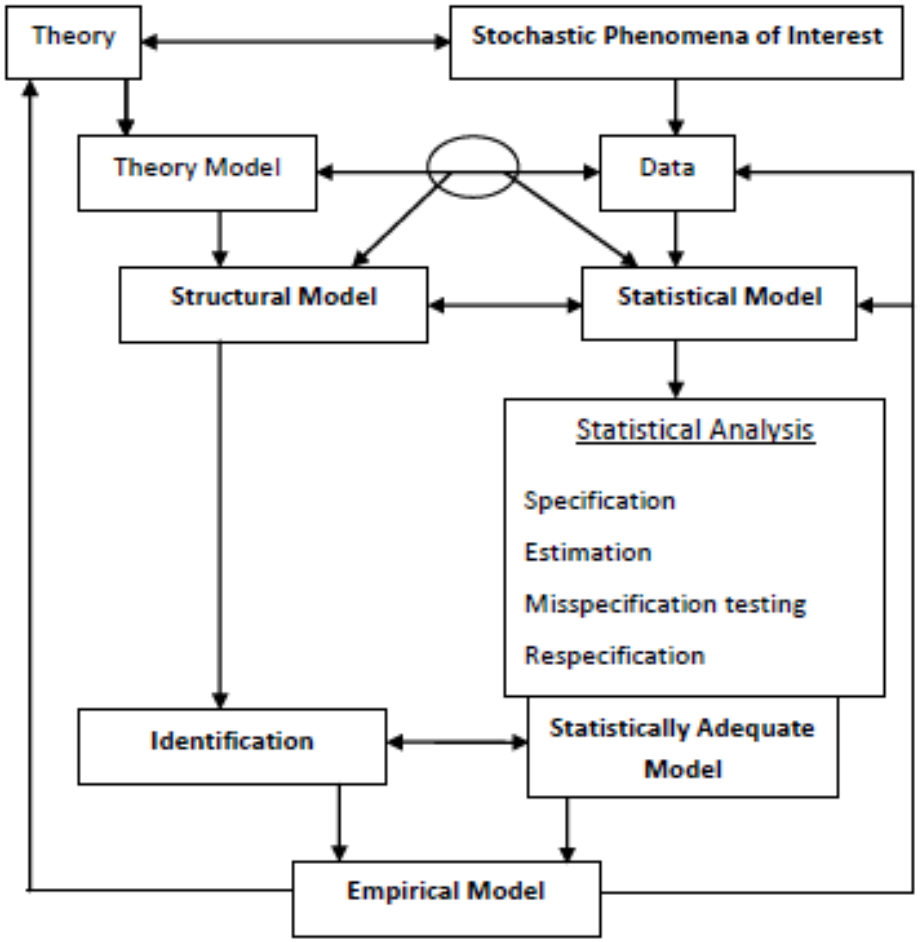
Significance of the study

- **Provides current state of Industry, Population, and Environmental Degradation of Nepal .**
- **The study aims to help local and central authorities to implement relevant strategies to overcome problems.**
- **The study will also help to plan industrial setups with respect to Environment.**

Variables Definition

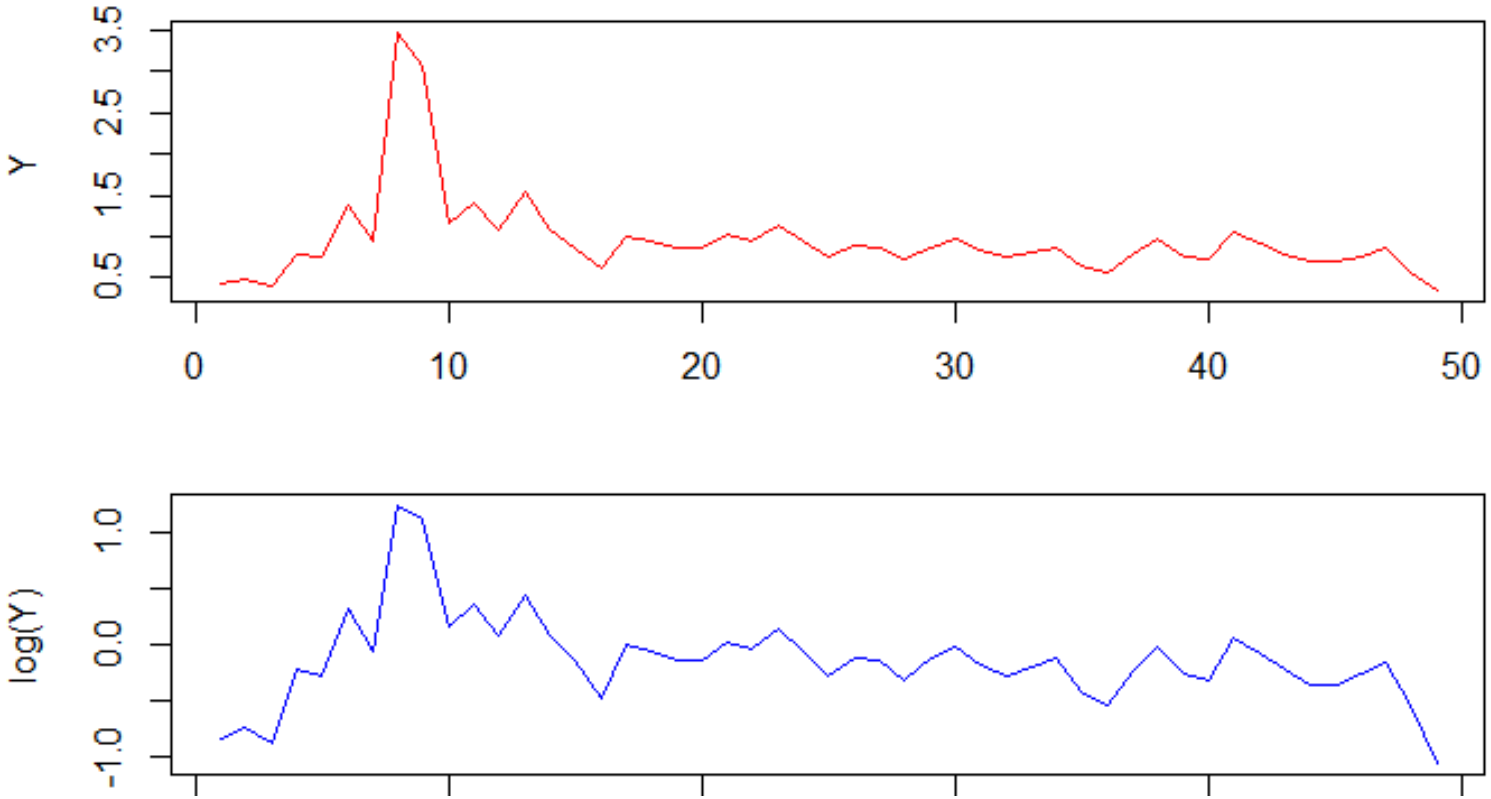
Variables	Indicator	Meaning	Source
Forest Depletion	Adjusted Saving Net Forest Depletion	Net forest depletion is calculated as the product of unit resource rents and the excess of roundwood harvest over natural growth.	World Bank - Metadata Glossary
Industry	Industry(including construction) ,value added (% of GDP)	It comprises value added in mining, manufacturing , construction, electricity, water, and gas.	World Bank - Metadata Glossary
GDP	GDP per capita (current US$)	Total monetary or market value of all the finished goods and services produced within a country's borders in a specific time period.	Investopedia
Population	Population, total	Total population is based on the de facto definition of population, which counts all residents regardless of legal status or citizenship.	World Bank - Metadata Glossary

Research Methods



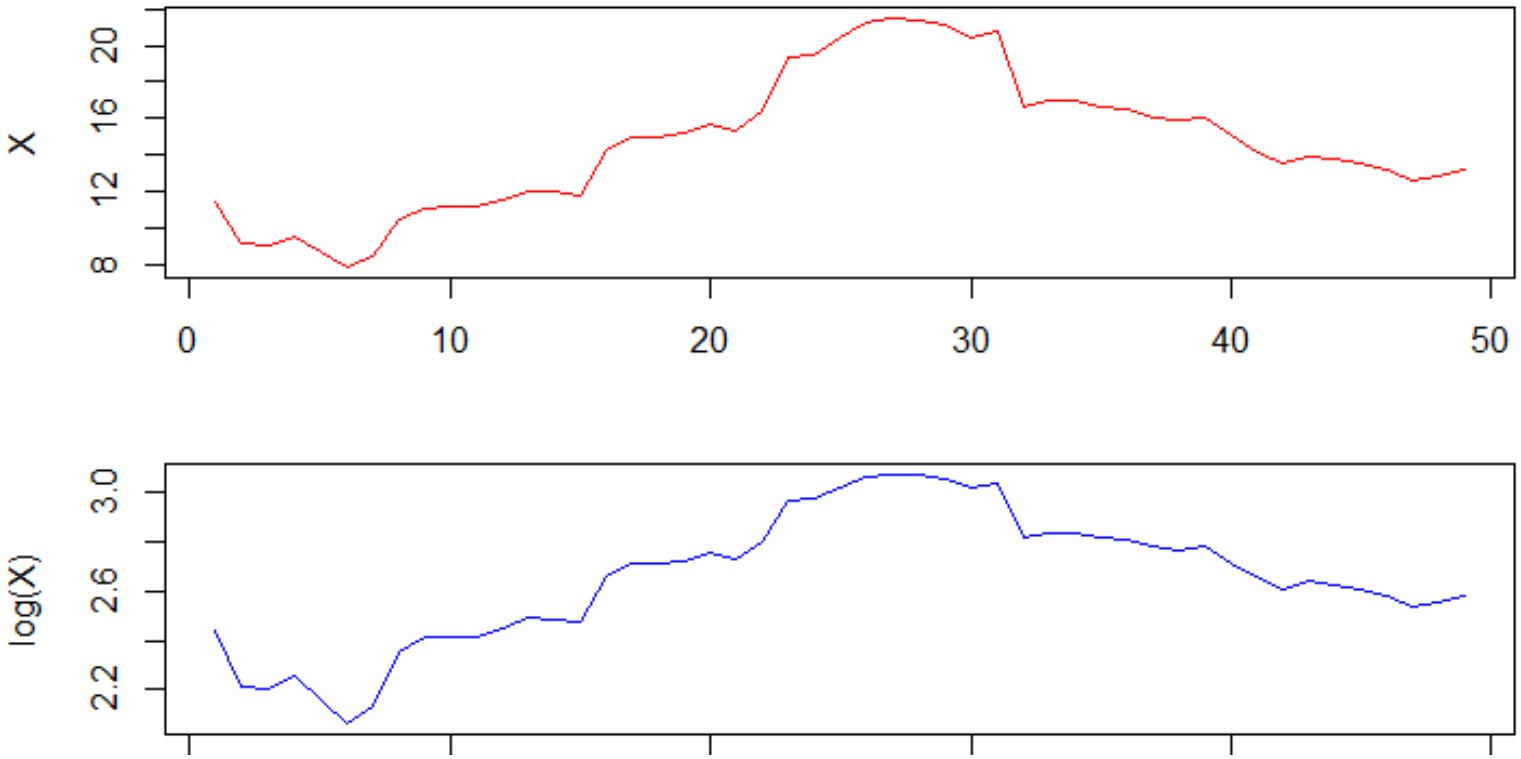
Probability Reduction approach (PR approach)

Exploratory Data Analysis

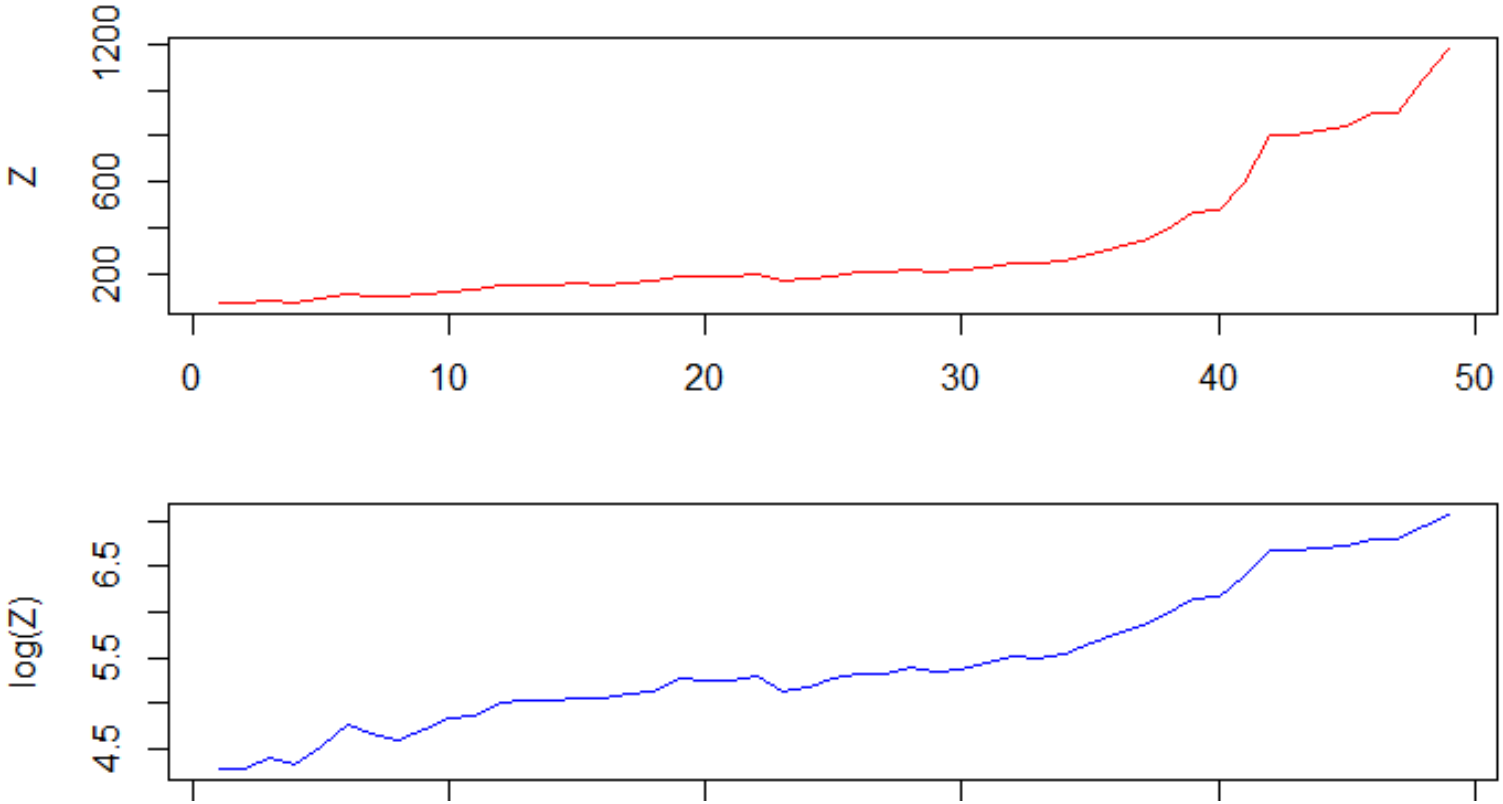


Y(Data Adjusted savings: net forest depletion (% of GNI)‘)

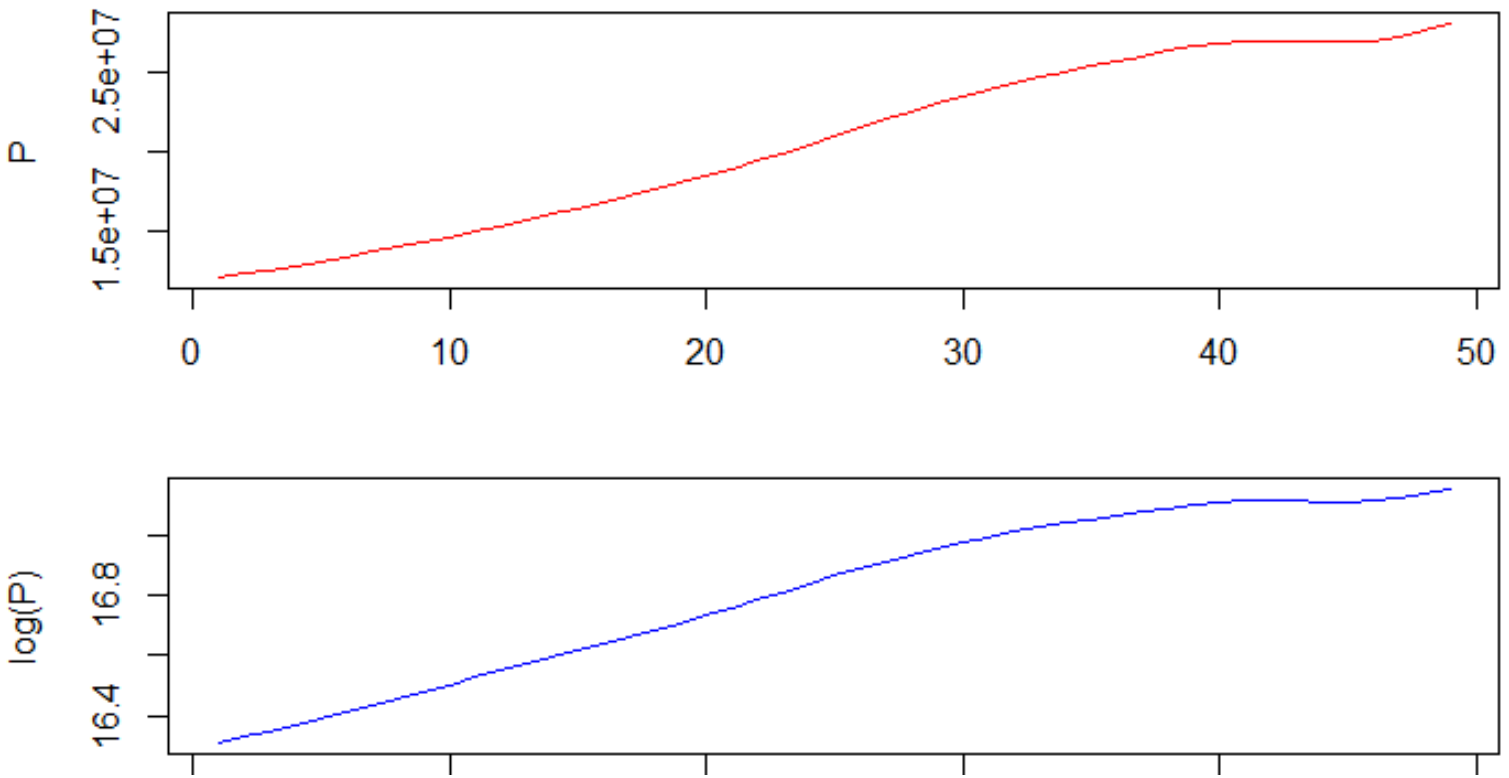
Industry (including construction),value added (% of GDP)



GDP per capita (current US$)



Population, Total



Model Specification

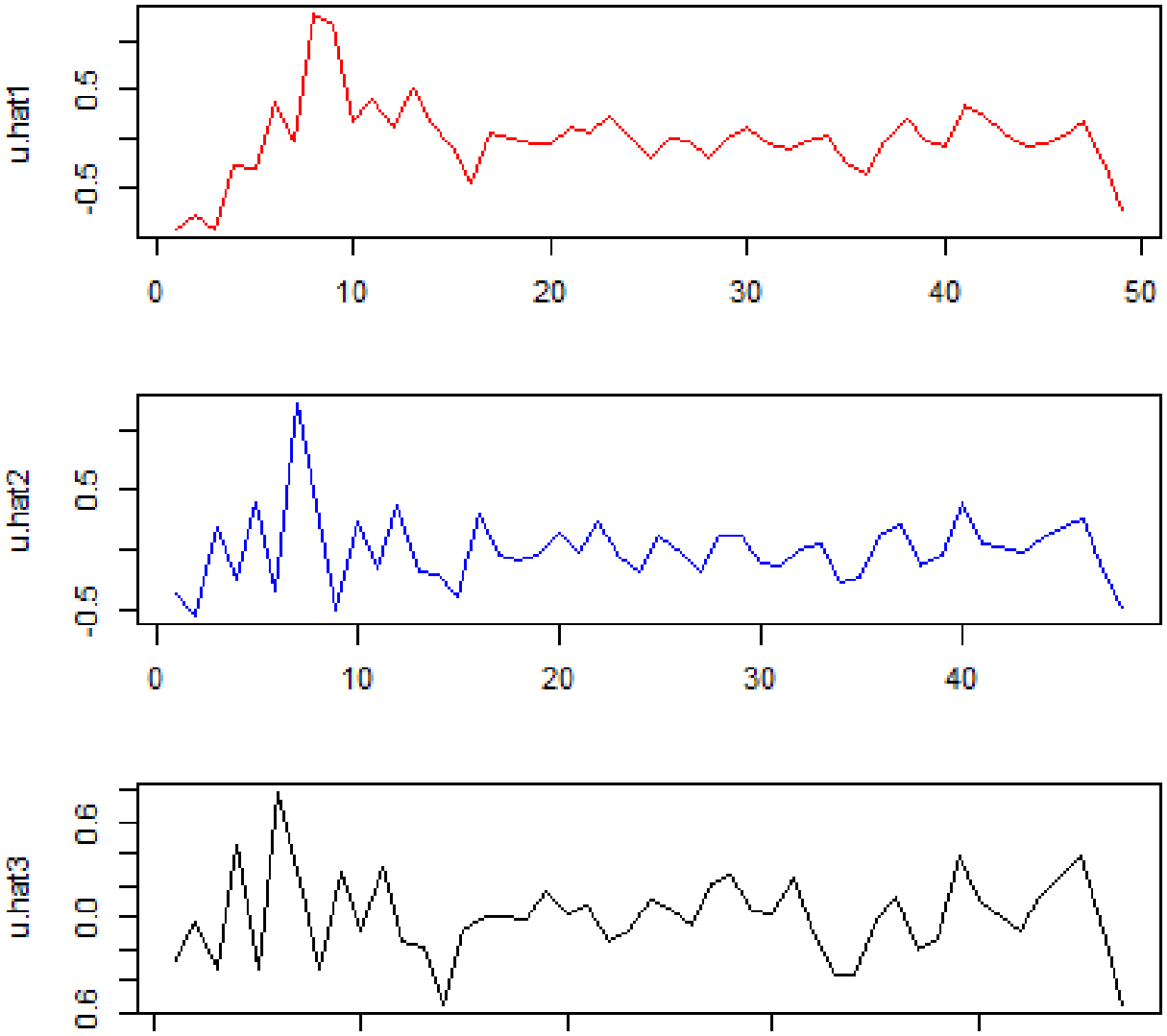
An initial model is specified: Model 1.

- Misspecification tests show that Model 1 is highly misspecified.
- A new model is specified based on steps 1 and 2: Model 2.
- Misspecification tests are applied to Model 2.
- Steps 1-4 are repeated until the misspecification tests fail to reject the model. This final model can be called statistically adequate.
- All inferences, including hypothesis testing, are done using the statistically adequate model.

Contd..

- Model 1
  DGP: $Y_t = \beta_0 + \beta_1 X_t + \beta_2 Z_t + \beta_3 P_t + u_t$
- Model 2
  DGP: $Y_t = \beta_0 + \beta_1 t + \beta_2 X_t + \beta_3 Z_t + \beta_4 P_t + \beta_5 Y_{t-1} + u_t$
- Model3
  DGP: $Y_t =$
  $\beta_0 + \beta_1 t + \beta_2 X_t + \beta_3 Z_t + \beta_4 P_t + \beta_5 Y_{t-1} + \beta_6 X_{t-1} + \beta_7 X_{t-2} + u_t$

Residuals comparison



Conclusion

- No significant relationship between Industry and forest Depletion.
- In fact other variables do not have significant relationship with Forest depletion.
- Only lag term are significant of both industry and forest depletion .
- Small sample .

References

- Popper, K. (2005). The logic of scientific discovery. Routledge.
- Spanos, A. (2009). The pre-eminence of theory versus the european cvar per- spective in macroeconometric modeling. Economics , 3 (1)

Thank you

Any Questions?