

Assessment Task Sheet

Case Report

Assessment Type:	Individual Case Report
Due Date:	4 pm on 6/1/2025
Weighting:	50 %

Rationale

Econometric analysis often deals with dependent variables that are not continuous, such as binary outcomes, counts, or proportions. These "limited dependent variables" require specialized models to accurately capture their structure and relationships with independent variables. Writing a case report on this topic provides significant value in the academic, practical, and methodological realms. The rationale includes:

1. Advancing Methodological Understanding

Limited dependent variable models, such as Probit, Logit, Tobit, and Count models, are crucial tools in econometrics. A case report serves to:

- Illustrate the appropriate contexts for their use.
- Clarify the assumptions underlying these models.
- Compare and contrast their performance in various scenarios. By doing so, the report enriches the understanding of applied econometricians and students.

2. Bridging Theory and Practice

A case report grounds theoretical concepts in practical applications. It highlights how limited dependent variable models are applied in real-world contexts, such as:

- Estimating the probability of an event occurring (e.g., consumer purchasing decisions).
- Modeling the number of occurrences (e.g., hospital visits).
- Accounting for censored or truncated data (e.g., income data with a minimum reporting threshold).

3. Promoting Robust Policy and Decision-Making

Policy analysts and decision-makers often rely on econometric findings to design interventions. Misinterpreting limited dependent variable data can lead to flawed conclusions. A well-documented case report demonstrates best practices for:

- Model specification.
- Interpretation of coefficients and marginal effects.
- Addressing issues like heteroskedasticity and multicollinearity.

4. Providing a Learning Resource

The report serves as an educational tool for those new to econometrics, offering:

- Step-by-step guidance on model estimation and diagnostics.
- Examples of common pitfalls and their solutions.
- Insights into interpreting and presenting results effectively.

5. Fostering Research Innovation

By documenting challenges and solutions encountered in a specific case, the report can:

- Encourage exploration of advanced or hybrid models (e.g., mixed Logit models).
- Highlight the need for further research into less studied areas, such as dynamic limited dependent variable models.

6. Showcasing the Versatility of Econometric Tools

A focused report underscores how econometric techniques adapt to diverse data types and research questions, enhancing their relevance across disciplines like economics, finance, healthcare, and social sciences.

By detailing a specific case study, this report becomes a valuable resource that blends rigorous econometric methods with practical insights, ultimately contributing to both academic discourse and practical applications.

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Task Description

Guidelines for individual case report:

- (1) Select a topic of interest with a well-defined research question.
- (2) Use the appropriate technique(s) that you have learnt in this course to address your research question.

The primary goal of this case study is to explore the application of econometric models for analysing limited dependent variables. This involves selecting an appropriate dataset, applying relevant models, and interpreting the results to provide insights into real-world phenomena. The study aims to bridge theoretical concepts with practical implementation, highlighting best practices and addressing common challenges.

Scope of Work:

1. Introduction and Contextualization:

- Define limited dependent variables and their significance in econometrics.
- Discuss examples of such variables (e.g., binary outcomes, counts, censored or truncated data).
- Highlight the importance of selecting appropriate models for such data.

2. Literature Review:

- Summarize existing research and methodologies for modelling limited dependent variables.
- Identify gaps or challenges in the application of these models.

3. Dataset Selection and Description:

- Choose a dataset relevant to the study's objectives (e.g., consumer behaviour, healthcare usage, financial decisions).
- Describe the dataset, including dependent and independent variables, sample size, and any unique features.

4. Model Selection and Implementation:

- Select suitable econometric models based on the nature of the dependent variable:
 - Binary outcomes: Logit or Probit models.
 - Censored data: Tobit model.
 - Count data: Poisson or Negative Binomial models.
- Justify the choice of model(s) based on theoretical considerations and data characteristics.
- Estimate the models using statistical software (e.g., R).

5. Analysis and Interpretation:

- Present estimation results, including coefficients, standard errors, and model diagnostics.
- Interpret key findings, focusing on marginal effects and their implications.
- Address any potential limitations, such as omitted variable bias, heteroskedasticity, or endogeneity.

6. Discussion of Challenges and Best Practices:

- Identify challenges encountered during model estimation or interpretation.
- Propose solutions or alternatives to overcome these challenges.
- Highlight practical tips for handling limited dependent variables.

7. Policy or Practical Implications:

- Discuss the implications of the findings for policy-making, business strategy, or decision-making.
- Provide recommendations based on the analysis.

8. Conclusion and Recommendations:

- Summarize the study's key contributions.
- Suggest areas for future research or further methodological exploration.

Deliverables:

1. A written report detailing the case study, including:
 - Clear explanations of the chosen methodologies.
 - Tables and figures summarizing the analysis results.

- Interpretation and discussion of findings.
- 2. Code or scripts used for model estimation.
- 3. Dataset (if permissible for sharing) or a detailed description of how the dataset was sourced and processed.

Structure

Title Page:

Title, Name, Abstract / Executive summary

Main text:

1. Introduction
2. Review of literature
3. Data and Methodology
4. Discussion of results
5. Conclusion
6. References
7. Appendix

Formatting

Project must be typed in 1.5 space with Font 12 in Times New Roman or Arial. Project must be submitted in iLearn in a single PDF file. Project should not exceed 20 pages (excluding appendix).

Criteria	Weight	Below Expectations	Satisfactory	Good	Excellent	Outstanding
General Description		<i>Work that fails to attain the required outcome(s), lacking in basic knowledge, understanding, analysis & presentation.</i>	<i>Work that satisfactorily attains the required outcome(s), with adequate knowledge, understanding, analysis & presentation.</i>	<i>Work that soundly attains the required outcome(s), showing a good level of knowledge, understanding, analysis, presentation, and some evidence of critical interpretation.</i>	<i>Excellent work that substantially attains the required outcome(s) showing a high level of knowledge, understanding, analysis, critical interpretation, presentation, and some originality.</i>	<i>Outstanding work that comprehensively attains the required outcome(s) showing superior knowledge, understanding, analysis, critical interpretation, presentation, and originality.</i>
Critical Analysis. The depth and quality of the analyses.	40%	Little to no analysis of the time series concept is evident. The answer and opinions provided are barely or not supported by any argument or appeal to information in the lecture, lab session or other relevant source. The argument is narrow, superficial, and/or one-sided.	The quality of the analysis falls somewhere between the standard for a "Good" and a "Below Expectations" submission.	Analysis is good, but could be strengthened in one or more areas (The answer and opinions provided are generally supported though some assumptions are not obvious or stated clearly. Some propositions may not be defended well. The argument mentions all sides of an issue, though not all sides are analyzed in equally appropriate depth).	The quality of essay falls somewhere between the standard for a "Good" and an "Outstanding" submission.	The answer and opinions provided are well-supported with obvious and direct reference to pertinent information. The argument examines all sides of an issue thoroughly.
Accuracy. The degree to which the problems (both theoretical and applied) are solved.	40%	The response contains several factual errors. The model specification is not clearly followed. Reproducing the output generated by R.	The quality of the falls somewhere between the standard for a "Good" and an "Below Expectations" submission.	The response communicates most of the relevant information in a correct and understandable way. Reproducing the output generated by R with minimal interpretation.	The quality falls somewhere between the standard for a "Good" and an "Outstanding" submission.	The response uses the information from appropriate sources clearly, fully, directly, and accurately. The hypothesis and the relevant parameters are clearly defined and presented in the report. Present the results in a professional way (for example, equation form) without reproducing the output from R. The interpretation and recommendation of the results in a given context.
Writing Mechanics & Organisation. The degree to which the final essay is well-written, organised and follows all instructions.	20%	The structure of the written assessment is poorly organised. Writing includes several errors in grammar, punctuation and/or spelling. Other guidelines for the assignment have not been followed.	The quality of the essay falls somewhere between the standard for a "Good" and a "Below Expectations" submission.	The quality of writing is good with few, though noticeable, errors in usage, spelling, and grammar. All other instructions for the assignment have been followed.	The quality of essay falls somewhere between the standard for a "Good" and an "Outstanding" submission.	Written assessment is organised in a clear, easy-to-follow structure. Writing is persuasive and engaging and reflects careful editing & proofreading. Assessment follows all instructions and requirements.