

Writing a Scientific Research Article

Scientific Research Methodology

Title page

- Title
 - Authors
 - Contact Information
- ***Does it clearly describe the article?

Abstract

- 100 – 200 words (look up the guidelines)
 - 4 – 5 sentences
- Key words
- 1st sentence - Background, general question
- 2nd sentence – Research Question/Hypothesis
- 3rd sentence – Model and data
- 4th sentence – Results
 - Find the general story of the results
- 5th sentence – Conclusion/Implications/Recommendations
 - Depending on the purpose of the article

*** Does it reflect the content of the article?

Introduction/Background

- First 2 pages
 - Global Statement: There is an issue here
 - Specific Statement: Frame the issue
- Significance (Contribution)
 - Why the topic is important and interesting

***Does it describe what the author(s) hoped to achieve accurately, and clearly state the problem being investigated? Normally, the introduction should summarize relevant research to provide context, and explain what other authors' findings, if any, are being challenged or extended. It should describe the experiment, the hypothesis(es) and the general experimental design or method.

Literature review

- Find a way to synthesize prior knowledge
 - Turn it into a story to support/inform your own research
- Contribution of your study
 - What makes yours different from others?

Objectives (more generic statements)

- Hypothesis to test
 - How you address the research question
 - Significance of coefficient in a model
- Model/Data and how useful the results are

Theoretical Model/Considerations

- Theoretical framework (descriptive theory)
 - Examples:
 - Principal-Agent theory
 - Asymmetric information
 - Utility/Risk Return
 - Risk Aversion
- Formulation of the model
 - Constrained maximization
 - Minimum problem
- Developments
 - FOC
 - Expectations
- Description of the Theory

Empirical Model

- Restate the problem in a more technical way
 - Or how it follows from theoretical model
- Link the econometric model
- Name of the Model and Equations
- Define variables for your study
 - Justify their appropriateness
 - Theoretically or
 - Based on previous literature
 - Provide expected relationship for each variable

Data

- Description of data
 - Source of the data
 - Sampling frame (description of the sample)
 - Limitations
 - Descriptions of variables
 - Link to categories from empirical model
 - Descriptive Statistics (table 1)
- ***Do the figures and tables inform the reader, are they an important part of the story? Do the figures describe the data accurately? Are they consistent, e.g. bars in charts are the same width, the scales on the axis are logical.

*Notes on Method & Data

- ***Does the author accurately explain how the data was collected?
 Is the design suitable for answering the question posed?
 Is there sufficient information present for you to replicate the research?
 Does the article identify the procedures followed?
 Are these ordered in a meaningful way?
 If the methods are new, are they explained in detail?
 Was the sampling appropriate?
 Have the equipment and materials been adequately described?
 Does the article make it clear what type of data was recorded; has the author been precise in describing measurements?

Results

- Restate what model you are estimating
- Report results from testing of assumptions (if any)
- Provide main story
 - Significance and key relationship from hypothesis test
 - Significance and relationship of other variables (demographics...)
- Compare and contrast
 - With previous literature, Previous expectations, Theory
 - Why or Why not it matched

*Notes on Results

***This is where the author(s) should explain in words what he/she/they discovered in the research.

It should be clearly laid out and in a logical sequence.

You will need to consider if the appropriate analysis has been conducted.

Are the statistics correct?

Interpretation of results may be included in this section or another section.

Conclusion/Policy Implications

- Same structure as the abstract but with more emphasis on the results (longer than the abstract)
- Provide specific recommendations based on the finding for the study
 - For whom is it useful?
 - *** Are the claims in this section supported by the results, do they seem reasonable?
Have the authors indicated how the results relate to expectations and to earlier research?
Does the article support or contradict previous theories?
Does the conclusion explain how the research has moved the body of scientific knowledge forward?

References

- 100% correspondence between text and reference list
- ***If the article builds upon previous research does it reference that work appropriately?
Are there any important works that have been omitted?
Are the references accurate?

Language

- Academic language

***If an article is poorly written due to grammatical errors, it may make it more difficult to understand the science.

Other Considerations

Provide overview sentences for each section

The entire manuscript should flow naturally between sentences, paragraphs, and sections.