

A STUDY ON THE EFFECTS OF PEER REVIEW ON KNOWLEDGE PRODUCTION

SOPHIA HUSSEIN ALLY MWINYI

MWNSOP001

mwmsop001@myuct.ac.za



Submitted to the University of Cape Town. In partial fulfilment of the requirements for the degree **Master of Philosophy specialising in Financial Technology**.

Faculty of Commerce

UNIVERSITY OF CAPE TOWN

Supervisor: Associate Professor Co-Pierre Georg

January 2022

The copyright of this thesis vests in the author. No quotation from it or information derived from it is to be published without full acknowledgement of the source. The thesis is to be used for private study or non-commercial research purposes only.

Published by the University of Cape Town (UCT) in terms of the non-exclusive license granted to UCT by the author.

Declaration

By submitting this thesis electronically, I declare that the entirety of the work contained therein is my own, original work, that I am the sole author thereof (save to the extent explicitly otherwise stated), that reproduction and publication thereof by the University of Cape Town will not infringe any third party rights and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

I empower the university to reproduce for the purpose of research either the whole or any portion of the contents in any manner whatsoever.

Signed by candidate

10 July 2023

Signature

Date

Abstract

Collaborations in research takes place formally or informally. Formally, when researchers co-author scholarly work or through an editorial peer review and informally, when researcher peer review each others work or provide feedback or comments informally. While there has been a lot of research on the formal editorial peer review process in other fields, less is known about its effects in economics knowledge production.

Economic decision-makers rely on data from government agencies, private firms, and peer-reviewed and published academic research to formulate well-informed policies and decisions. Therefore, peer review process is at the core of ensuring that policies and decisions are made from accurate information, not only in economics but also in other fields. Despite its extensive use, peer review process has been subjected to a number of biases that may affect the quality of the information generated.

This paper evaluates various aspects affecting the peer review process using data from 661 manuscripts submitted to ERSA between 2013 and 2018. Aspects discussed include reviewer bias, recommendation biases resulting from conflict of interest, author prominence & institutional affiliation, gender composition of the authors, duration of manuscript review and quality of the manuscripts & ERSA's editorial process.

Keywords: *authors, bias, editors, ERSA, peer-review, recommendation, reviewers*

Acknowledgements

The author wishes to acknowledge the following people and institutions for their contributions to this work:

- To God, for his immeasurable grace and help in completing this journey. For in him I truly live, I really move and have my whole being.
- My supervisor, Associate Professor Co-Pierre Georg, for his support, patience, guidance, effort and time that he offered me to ensure I complete my studies and particularly this work. Your academic and financial support kept me going.
- My mother, Hellen Siboka, for her constant support, prayers and words of encouragement all my life. Thank you for sacrificing so much, so that I would never lack.
- My friends, your support and prayers kept me going. Thank you for keeping me motivated and giving me all the support I needed to complete this work.
- The Economic Research Southern Africa (ERSA) for making some of the confidential work related to the peer reviewed manuscripts available.

Table of Contents

Abstract	ii
Acknowledgements	iii
List of Acronyms	vi
List of Figures	vii
List of Tables	viii
1 Introduction	1
1.1 Background	1
1.2 Research Objectives	2
1.3 Research scope	2
1.4 Research Limitations	3
1.5 Thesis organisation	3
2 Literature Review	5
2.1 Overview	5
2.2 History of Peer Review	6
2.3 Purpose, Benefits and Criticisms of Peer Review	6
2.4 Peer Review Biases	8
3 Data and Key Variables	12
3.1 Data Sources and Key Variables	12
3.1.1 Economic Research Southern Africa	12

3.1.2 Journal Ranking and Publication Data	15
3.1.3 Gender Data	15
3.1.4 Renowned Institutions and Economics Authors Data	16
3.2 Summary Statistics	17
4 Results	20
4.1 Reviewers Bias	20
4.2 Manuscript Quality	24
4.2.1 ERSA Recommendation and Subsequent Publication	24
4.2.2 Subsequent Publication Biases	27
4.3 Recommendation Bias	30
4.3.1 Author is from a Renowned Institution Factor as a Recommendation Bias	30
4.3.2 Days under review by Recommendation	31
4.3.3 Authors Gender Composition by Recommendation	33
4.3.4 Author and Reviewer Professional Relationship by Recommendation	34
4.3.5 Recommendation Bias Regression Analysis	35
5 Discussion	39
5.1 Results Evaluation	39
6 Conclusion	44
6.1 Thesis Summary	44
6.2 Recommendations	45
6.3 Future Work Suggestions	46
References	48
A Descriptive Summary of Key Variables	50
B Detailed Reviewer Bias Regression Output	51
C Formulae for the data summary statistics	53

List of Acronyms

BMJ: British Medical Journal

CI: Confidence Interval

DUR: Days Under Review

ERSA: Economic Research Southern Africa

HSRC: Human Sciences Research Council

ID No: Identification Number

ISI: Institute of Scientific Information

SARB: South African Reserve Bank

SFS: Society for Financial Studies

STEM: Science, Technology, Engineering and Mathematics

List of Figures

3.1 The Overview of ERSAs Peer Review Process Flow	13
4.1 The proportion of manuscripts reviewed by each reviewer by recommendation	21
4.2 Percentage proportion of manuscripts subsequently published to other peer reviewed journals based on ERSAs recommendation status	24
4.3 Institution Factor Bias by Recommendation	30
4.4 Author Status by Recommendation	31
4.5 Days Under Review by Recommendation	32
4.6 Author Gender by Recommendation	33
4.7 Author and Reviewer professional relationship status by Recommendation	35

List of Tables

3.1 Statistics of the manuscripts published on ERSA's website by recommendation	14
3.2 Manuscripts and Author Characteristics Summary Statistics	18
3.3 Summary statistics of the categorical variables	19
4.1 Regression analysis of the relationship between recommendation status and reviewers	22
4.2 Regression output on the relationship between ERSA recommendation and subsequent publication status	25
4.3 Regression table showing factors influencing the journal ranking	28
4.4 Recommendation Bias Regression Analysis	36
A.1 A descriptive summary of the variables in the data set	50
B.1 Detailed regression output of reviewer bias analysis	52

CHAPTER 1

Introduction

1.1 Background

Institutions in both the public and private sectors need sufficient data to make decisions. However, in both sectors, economic decisions are made based on limited data and analysis (National Research Council, 1999). Decision-makers within the economic sector rely on data from government agencies, private businesses, and academic research to produce well-informed policies and judgments. According to Bénassy-Quéré, Blanchard and Tirole (2017), academic research on critical economic policy themes, is one means of engagement between economic scholars and the world of public decision-making. Academic research must undergo peer review and publishing of a research paper or policy brief before being considered for inclusion in the policy or decision-making process. The peer review process not only influences policy and national decision-making, but also the evolution of economics and finance, and academic economists' incentives and professional fate. However, the participants have limited objective knowledge of the process. To ensure that economic policies and decisions are accurate, we must ensure that the peer review process is fair, quick, efficient, and effective.

Undoubtedly, peer review is a vital component that adds value to research and academic knowledge, and as a result it is extensively used across disciplines and by most publications. It ensures that papers published in a range of journals address relevant research issues and arrive at trustworthy conclusions based on well-designed experiments (Kelly, Sadeghieh & Adeli, 2014). However, this process has been subjected to a number of criticisms. Some of the critics and shortcomings of the peer review process, according to Kelly et al. (2014), include the speed with which findings are published, as well as alleged bias by editors and reviewers. Similarly, Smith (2006) also claims that, in addition to being poor at detecting major flaws and almost useless at detecting fraud, peer review is also a slow, expensive, and highly subjective process that takes up a lot of academics' time; is a lottery because there is no standard definition of a good research paper and is prone to bias and susceptible to abuse.

Despite these critics, peer review is the way through which various grants are distributed, research papers are published, academics are promoted, Nobel prizes are won, policies are established, and

micro and macro decisions are made (Smith, 2006). Therefore, reducing bias in peer review is of a critical importance.

Despite its relevance, peer review was largely unstudied until recently. A lot of studies have been undertaken to assess its benefits and to identify its flaws. However, much of the research has been done in the fields of medicine, politics and science, with minimal attention paid to economics. Therefore, the purpose of this research is to identify the effects of peer review process in economic research production.

1.2 Research Objectives

Primarily, this thesis will *conduct* a thorough survey of the literature related to peer review, its associated biases and effects on knowledge production. Next, this thesis will *analyse* some of these biases and identified weaknesses of peer review process in the context of the economics field using data obtained from ERSA. This thesis will then *substantiate* by comparing and contrasting the results we obtain from analysing the data in this study to the facts established in literature. Finally, this thesis will *conclude* and provide recommendations on ways through which peer review biases and weaknesses could be mitigated and also suggest appropriate follow-up studies on the thesis's findings.

1.3 Research scope

Due to the fact that peer review is a wide subject, the following scope of biases will be assessed in this study:

Reviewer Bias will be evaluated by taking reviewers who have reviewed at least 4 manuscripts and identify whether there are reviewers who are more generous or conservative compared to others others.

Manuscript Quality will be evaluated based on its subsequent publication status. For those manuscripts that are subsequently published in other journals, their quality will also be evaluated based on the journal ranking. Additionally, the assessment of biases in the subsequent journals where papers are published will be based on ERSA's final recommendation, authors' gender composition, and the prominence of the author and their institutions.

ERSA Review Quality will be assessed by analysing whether manuscripts in each category of the recommendations are either published or not in a subsequent journal. Our hypothesis is that, manuscripts which are published in a subsequent journal are those which are accepted or recommended for a minor revision during ERSA's peer review process.

Recommendation Bias will be evaluated by assessing which of the following factors influence the recommendations given:

1. Institutional affiliations (conflict of interest)
2. Prominence of the author and author institution
3. Gender composition of the authors; and
4. Duration of the review

1.4 Research Limitations

Some of the limitations of our study include:

- The study uses ERSA working paper series data which may not necessarily take the form of a peer review process done with the most reputable journals.
- This study will be limited to examining single-blind peer review process based on ERSA's use of a single blind peer review system. Thus, it does not take into account any biases arising from any other form of peer review.
- The fact that there are fewer manuscripts with authors and reviewers from the same institution overall does not fully explain the observed imbalances in institutional affiliation contributions to the peer-review process.

1.5 Thesis organisation

This paper comprises seven chapters, a bibliography and appendices. The first chapter introduces and describes the study's central problem. This chapter introduces the reader to the role of peer review in economic decision-making and policy formulation. It further clarifies why it is critical to ensure that the peer review process is free of errors and biases. Furthermore, the research objectives, research scope and research limitations are stated.

Chapter 2 is devoted to a literature review on the overview of the peer review process. Thereafter, the focus shifts to pertinent literature on the history of the concept and the evolution of peer review, followed by the purpose, benefits and critics of the peer review process. The remainder of the chapter is devoted to the detailed discussion of the literature and critical analysis of the biases of the peer review process limited to those stipulated on the scope work above.

Chapter 3 gives detailed description of the data sources and key data variables. The chapter starts by highlighting the key data sources and the respective variables generated from them. This is followed by description of the summary statistics of these keys variables.

Chapter 4 comprises of analysis of data and a detailed description of the output results. The chapter focuses on the results on reviewer bias, manuscript quality and recommendation bias.

Chapter 5 focuses on a critical evaluation of the results in relation to the literature in chapter 2.

Chapter 6 includes the conclusion of this study which comprises of a summary of the research findings in the thesis, recommendations on the key issues raised in our findings and suggests some follow-up work that can be pursued in the future.

CHAPTER 2

Literature Review

2.1 Overview

Collaboration is indeed an essential aspect of scientific development, and both formal and informal collaborations have a significant contribution in the knowledge production process (Georg & Rose, 2016).

Informal collaborations which do not involve any formal or contractual obligation, are prevalent in academia and take many forms, which include providing comments to colleagues, input during seminar lectures, participating in conference discussions, or refereeing submissions for scholarly journals through the peer review process (Georg & Rose, 2016). These informal collaborations facilitate the exchange of ideas, insights, and critiques that help refine research and shape scientific inquiry. A few studies that have explored the impact of informal collaboration in economics discipline include a paper by Welch (2014), in which he quantitatively examined referee recommendations from eight prestigious economics and finance journals, as well as the SFS (Society for Financial Studies) Cavalcade Conference, where a known algorithm paired reviewers to their respective papers. This study reported that the quality of referee reports varied significantly across different journals and reviewers. Furthermore, Georg and Rose (2016) used the acknowledgements of scientific articles published in six financial economics journals to create a social network of informal collaboration and found that the network structure of informal collaborations among economists is hierarchical, with a small group of highly connected researchers playing a central role in the network. On the other hand, Rose et al. (2020) also investigated the role of discussants, a type of informal collaboration, in the development and dissemination of academic knowledge which typically usually involves a researcher or expert who is invited to comment on a paper or presentation at a conference or seminar. This study reported that the quality of discussant comments significantly affects the subsequent publication and citation success of a paper.

However, with a few notable exceptions including some which are stated above, despite the significant contribution made by informal collaborations, most literature on collaborations in academia

tends to focus on formal collaborations between authors. Formal collaborations are usually more structured and involve a more formalized division of labor and responsibilities. They include joint grant proposals, team teaching, and co-authoring research papers as well as editorial peer review process. Formal collaborations can have significant impacts on the quality and quantity of research output, especially when the collaborators have complementary skills and expertise.

The peer review process is one of the most widely studied forms of formal collaboration in academia (Kelly et al., 2014). Peer review is an essential component of scholarly communication and knowledge production, and it serves as a quality control mechanism for academic research (Kelly et al., 2014). Despite the critical role that peer review plays in maintaining the integrity and quality of academic research, its impact on the economics field is still not widely explored.

Therefore, our research aims to fill this gap by investigating the effects of the peer review process on economics knowledge production. We seek to understand the weaknesses, advantages and the impact of the peer review process in shaping research questions, design and output for policy formulation the economics discipline.

2.2 History of Peer Review

The concept of peer review was conceived long before its use in scholarly journals. Notably, since ancient Greece in the 5th Century BC, the peer review process is thought to have been utilized as a means of appraising written work (Kelly et al., 2014). Peer review is no longer just a concept in the modern era; it has become an integral part of the academic and research writing processes.

Peer review has been used to examine content before publication for over 300 years (Jana, 2019). The Royal Society of Edinburgh introduced it to scholarly publication in 1731, when it published a collection of peer-reviewed medical articles (Kelly et al., 2014). Despite this early start, in many scientific journals, editors had the final say on whether an article was published or not until after World War II (Kelly et al., 2014). The goal was to assist the editor in selecting appropriately themed articles rather than to strictly evaluate their quality. Peer review has since become the "gold standard" for everything ranging from scholarly publications to grant applications to tenure decisions, such as the nomination of scientists and scholars to scholarly societies like science academies, as well as the selection of recipients of prestigious prizes, including the Nobel Prize (Jana, 2019).

2.3 Purpose, Benefits and Criticisms of Peer Review

According to Kelly et al. (2014), peer review is a process in which experts in the field critically assess and scrutinize an author's scholarly or professional research work. Before making a publication decision, these experts analyze and comment on submitted manuscripts to ensure that the content is of

high quality. This procedure is typically carried out by researchers who are experts in their fields and have a specialized or broad understanding of the content of the manuscript.

Haffar, Bazerbachi and Murad (2019) point out that there are various types of scientific peer review, with the following three being the most common:

- Single blind peer review, where the author's identity is known to the reviewers but not vice versa.
- Double blind peer review is when the names of reviewers and authors are kept hidden from each other throughout the review process; and
- Open peer review is one in which the names of authors and reviewers are made public.

Each of the aforementioned methods has its merits and demerits. While double-blind peer review is currently the most popular, single-blind peer review is by far the most common.

Journal editors often recruit and maintain a pool of reviewers from various backgrounds to ensure that a varied range of view points are represented. High-quality peer reviewers with a proven track record are frequently recruited by journals. Some journals allow writers to choose between preferred and non-preferred reviewers. However, several studies have demonstrated that reviewers recommended by the author assess submissions more favorably than reviewers chosen by the editors (Hurst, Howard & Wedzicha, 2005; Wager, Parkin & Tamber, 2006; Rivara, Cummings, Ringold, Bergman, Joffe & Christakis, 2007).

Kelly et al. (2014) argues that the main purpose and benefits of peer review include:

Firstly, it acts as a filter to ensure that only high quality research is published, especially in reputable journals, by determining the validity, significance and originality of the study. However, Smith (2006) argues that it is hard to test this aim because there is no standard agreed definition of what constitutes a good paper or research proposal. Secondly, peer review is intended to improve the originality of the manuscripts that are deemed suitable for publication and also identify any errors that need to be corrected before publication. Critics, however, argue that peer review is not effective at detecting errors. To draw attention to this point, Smith (2006) argues that in the British Medical Journal (BMJ), several experiments were conducted where major errors were inserted into papers that were then sent to many reviewers. From this experiment, only a handful of the reviewers had spotted a quarter of the errors, while the majority of the reviewers did not spot any of the errors; and thus, it was concluded that peer review sometimes picks up fraud by chance, but generally it is not a reliable method for detecting fraud because it works on trust.

Smith (2006) notes that people have many great fantasies about peer review, and one of the most powerful is that it is a highly objective, reliable, and consistent process. However, peer review has been criticised for being inconsistent. For example, Smith (2006) reported that, he usually received letters from authors who were upset that the BMJ rejected their paper and then published what they

thought to be a much inferior paper on the same subject. In essence, the quality of the peer reviewed paper is subjective to the reviewer's perspective. Therefore, this suggests that there is a tendency for the authors to believe that the process is rather subjective and thus inconsistent.

In addition, peer review has also been critiqued for being prone to abuse. Smith (2006) reports that there are several ways in which the process can be abused, including plagiarism, which is the misrepresentation of ideas of another as one's own, and giving unfair reviews to inhibit or slow down the publication of the ideas of a competitor. However, many believe that detecting plagiarism cannot be practically included as a component of peer review. Alice Tuff, a development manager at Sense About Science, states that while 81% of authors and reviewers believe that the peer review process should detect plagiarism, only 38% of them think that it is capable, while the majority of those who believe it should detect plagiarism do not actually think that it is capable of doing so (Kelly et al., 2014:239). Therefore, this shows that if detecting plagiarism was one of the core parts of the peer review process, it would take reviewers a very long time to complete reviews, which would cause the system to grind to a halt. As a result, we have seen publishing houses such as Elsevier begin to develop electronic plagiarism tools with the help of journal editors since 2009 to help improve this issue (Kelly et al., 2014:239).

Kelly et al. (2014) also claim that peer review has reduced research quality by limiting researchers' creativity. Proponents of this viewpoint argue that peer review has discouraged scientists from pursuing innovative research ideas and bold research questions that have the potential to make major advances and paradigm shifts in the field, with the belief that this work will likely be rejected by their peers upon review (Corbyn, 2014). Indeed, in some cases, peer review may result in the rejection of innovative research, as some studies may not seem particularly strong initially, yet may be capable of yielding very interesting and useful developments when examined under different circumstances or in the light of new information. Similarly, scientists opposed to peer review also argue that the process stifles the development of ingenious ideas, the release of fresh knowledge, and new developments in the scientific community.

Lastly, the peer review process has also been criticized for the limited number of competent reviewers (Kelly et al., 2014:240). This means that the reviewers may have academic knowledge of the subject but may have limited experience and skill in reviewing their peers' work.

Therefore, despite the wide-spread usage and effectiveness of the peer review process, we see that there is considerable evidence of its defects. Not only has the peer review process been criticised but also a number of biases have been identified, such as conflict of interest, reviewer and editor bias, gender bias, author and institution bias, time etc.

2.4 Peer Review Biases

Conflict of Interest

Kelly et al. (2014) argue that peer review of specialized work is usually performed by people who are interested and hold similar views or opinions as the author, which can cause bias in their review. Therefore, given that reviewers are selected from the same pool of authors, the likelihood of having a conflict of interest and potentially a bias is very high. According to Resnik and Elmore (2018), finding non-conflicted reviewers can be challenging in less prominent academic subjects. However, Shamoo & Resnik (2015) suggest that if an editor is having difficulty finding non-conflicted reviewers, he or she may try to manage the situation by incorporating some non-conflicted reviewers into the review process to compensate for potential bias.

The impact of authors' conflicts of interest on study evaluations is widely known, as Chaudhry, Schroter & Smith (2003) have reported. The significance of reviewers' conflicts is increasingly recognized, and most editors now ask their reviewers to report their conflicts of interest before reviewing or to contact the editors in case of doubt. Financial ties, academic commitments, personal relationships, political or religious beliefs, and institutional affiliations are all examples of conflicts of interest, according to Ferris and Fletcher (2010).

Reviewer and Editor Bias

According to Welch (2014), reviewer-specific bias is caused in part by the fact that certain reviewers are intrinsically more generous than others, and in part by referees' inability to agree on how good articles are, compared to one another. He goes on to claim that if recommendations were more idiosyncratic, knowledge progress would be more path-dependent and economists' careers would be more random in comparison to the reflection of the broad consensus (Welch, 2014: 2774). There are a variety of reasons why reviewers agree or disagree with each other. Ellison (2002) points out that reviewers may agree not just on submission features such as novelty, curiosity, accuracy, rigor, and polish, but also on non-submission factors such as the authors' identities. He goes on to say that referees may disagree for a variety of reasons. There could be differences in how these traits are weighted, or there could be referee-specific elements including noise, abilities, time commitments, moods, opinions, ideologies, personal preferences, age or cohort, professional networks, vanity, and suppression of contrary evidence or turf motives.

In any study seeking to prove the reliability of the reviewers' suggestions, the fact that editors do not choose reviewers at random is a fundamental concern. As a result, determining whether the perceived consensus reflects a reliable component of the referees' views on the submissions or just the editorial referee selection decision becomes difficult.

With respect to editor bias, Welch (2014) points out that editors may select the number and identities of referees based on their own prior assessments of submission quality or even a desire to influence the referees' recommendation and/or the agreement among multiple referees.

In addition to the above-mentioned editor and reviewer biases, other types of biases that can be found in the peer review process include:

Gender Bias

A recent surge in women's engagement in science, technology, engineering, and mathematics (STEM) over the last 60 years has not narrowed the difference in women's academic research production and impact. Men still publish more articles in prominent journals in subjects such as humanities, psychology, and social sciences, where the gender composition of the community has been more favorable to women for decades (Squazzoni, Bravo, Farjam, Marusic, Mehmani, Willis, Birukou, Dondio & Grimaldo, 2021). Although scholarly publications are sometimes criticized for the gender gap in publishing rates, it is unclear if peer review and editorial processes play a role.

Helmer, Schottdorf, Neef & Battaglia (2017) show that women are underrepresented in the peer-review process and that editors of both genders operate with substantial same-gender preference *homophily* whose mechanisms are gender-dependent. Contrary to this, a study conducted by Squazzoni et al. (2021) where they examined gender bias in peer review with data from 145 journals in various fields of research, demonstrating that manuscripts written by women as solo authors or co-authored by women were treated more favorably by referees and editors, despite the differences between various fields of research.

According to Squazzoni et al. (2021), a recent survey conducted by Political Science Association members revealed that women prefer not to submit their manuscripts to certain journals as they perceive that they will have lower chances of being published compared to their male counterparts with similar expertise. They also found that manuscripts with a higher proportion of women among authors were accepted more frequently in biomedical, health sciences, and physical sciences journals, whereas no evidence of any effect of the gender variable was found in life sciences and social sciences journals.

Furthermore, Tomkins, Zhang & Heavlin (2017) studied reviewer biases in single versus double-blind peer review reports and found that there is no statistical significance to the influence of the author's gender on reviewing behaviour. Knobloch-Westerwick, Glynn & Huges (2013) proposed calling this type of peer review bias the Matilda effect, in which papers from male first authors are evaluated to have greater scientific merit than papers from female first authors, particularly in male-dominated fields.

Prominent Author and Institution Bias

Tomkins et al. (2017) reported that a reviewer is more likely to accept a manuscript with the knowledge that a particular paper is from a top university or written by a famous author as compared to a reviewer who does not have this information. In addition to this, they also found that single-blind reviewers are relatively more likely to submit a positive review for papers by a famous author and for papers from a top university or top company than double-blind reviewers. This paper demonstrated a reasonable basis for the concern that authors who are not famous and not from top institutions may have a lower likelihood of acceptance for the same work.

Another prominent example of bias against authors is shown in a study by Peters & Ceci (1982) in

which 12 studies from prestigious institutions published in psychology journals were retyped and had minor changes to the titles, abstracts, and introductions with a complete change of the authors' names and institutions. They replaced the names with those of authors and institutions that were not prominent or prestigious, and then resubmitted the manuscripts to the journals that had first published them. In only three cases did the journals realize that they had already published the paper, and eight of the remaining nine were rejected, not because of a lack of originality but because of poor quality. Therefore, Peters and Ceci (1982) concluded that this was evidence of bias against authors from less prestigious institutions.

Merton (1968) proposed that this bias is known as the Matthew effect, in which renowned researchers and institutions receive the lion's share of recognition for new work. The Mathew effect refers to "to those who have, more shall be given; to those who have not, all shall be taken away, even the little that they have" (Smith, 2006:180).

Time

Many journals, even in the age of the internet, take more than a year to review and publish a paper (Smith, 2006: 179). According to Kelly et al. (2014), on average, it takes approximately six hours to review one paper. However, this number may vary greatly depending on the content of the paper and the nature of the reviewer. One in every 100 participants in the "Sense About Science" survey claims to have taken more than 100 hours to review their last paper (Kelly et al., 2014: 239).

Additionally, peer review is also criticized for being a delay to the dissemination of new knowledge into the scientific community and is seen as an unpaid activity that takes scientists' time away from activities that they would otherwise prioritize, such as research and teaching, for which they are paid. However, Kelly et al. (2014) argues against the claim that the peer review process takes a long time and consumes scientists' time, as they claim that reading new scientific papers is an effective way for scientists to keep up-to-date with the latest developments in their field.

CHAPTER 3

Data and Key Variables

This chapter contains a full description of all the data sources and the corresponding key variables used in this study's analysis. The first section discusses the various data sets that were used. These include data from ERSA, gender estimation using the genderize.io database, publication data from Google Scholar, the Web of Science, and Scopus, and data on prominent South African authors and institutions from IDEAS. Additionally, the summary statistics for each data set are examined in greater detail.

3.1 Data Sources and Key Variables

This study analyzes data pertaining to various manuscripts submitted for peer review to the ERSA Working Paper Series between 2013 and 2018. Additionally, we rely on secondary data from a variety of sources that include publication information, gender data, a list of the top 25% of South African institutions, and South African economists with recent publications. Below is the detailed description of the data.

3.1.1 Economic Research Southern Africa

Economic Research Southern Africa (ERSA) is a programme designed to facilitate economic research activities through the publication of working papers, policy papers, policy briefs, and policy bulletins. The programme presents research findings from various economic themes, such as economic growth, international integration of the South African economy, social expenditure and its impact, labour market analysis, tax policy, data quality issues, policy analysis, and financial sector policy.

ERSA accepts complete working papers that have not yet been accepted for publication in another journal. The submitted papers are then subjected to a peer review process. When a paper is accepted, it is designated as an ERSA Working or Policy Paper. If a paper is later published in a peer-reviewed journal, the author is compensated for the journal article using the ISI ranking scale, which is based on the total number of citations in the economic subject category.

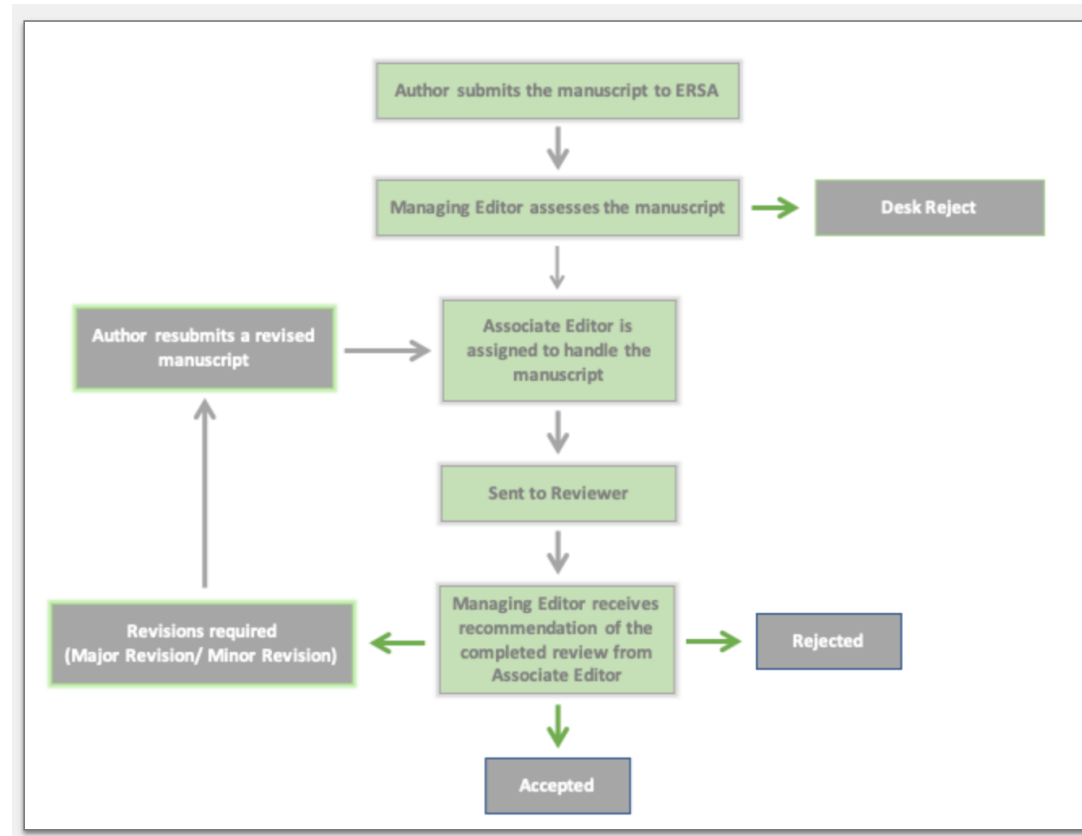


FIGURE 3.1: An overview of ERSA's peer review process. When a researcher completes a research study and submits the manuscript for review to ERSA, the peer review process commences. The administrator then processes the paper, ensuring that it adheres to the ERSA template, and uploads it to Manuscript Central (ERSA's manuscript repository). The Managing Editor reads, evaluates, and decides whether or not to send the manuscripts out for peer review. Very few papers pass this initial evaluation. If the paper needs to be reviewed, the Managing Editor assigns it to an Associate Editor. If the Associate Editor believes the paper meets the requirements, it will be sent to an accomplished researcher(s) in the field for formal peer review. Normally, the Associate Editor seeks out a suitable referee and requests that the referee review the paper. This does not always work in the first instance, hence requiring the Associate Editor to ask several referees before someone agrees to evaluate the paper. Once the referee has agreed, he or she can review the paper by downloading it from Manuscript Central. On completion of the review, the Associate Editor makes a recommendation based on the referees' review comments to the Managing Editor and the process is complete. Thereafter, the Managing Editor decides what should happen with the paper by deciding whether to reject, accept, or recommend a major revision or minor revision of the manuscript. The referee's report and all the editor's comments are then provided to the author, who works on the paper and resubmits it if revisions are recommended. This process is repeated until a paper is eventually accepted or rejected.

ERSA Data

Data obtained from ERSA includes a list of 709 manuscripts which were submitted to the ERSA Working Paper Series for review for the period between 2013 and 2018. There were 48 duplicate entries, which were excluded from the data set, and the remaining 661 manuscripts were then used for further analysis. Each manuscript in the data set has a unique identification number (Manuscript ID), title, submission date and year, author names and their respective affiliations, recommendation (reject, major revision, minor revision, or accept), decision date, and final decision, which shows whether a manuscript was accepted or rejected, reviewers' full names and their respective affiliations, and the number of days each manuscript was under review. More variables were also created from the pre-existing variables, and they are further discussed below.

For each manuscript, we conducted a manual search on ERSA's website to identify whether it was published as part of ERSA's working paper series on the website or not. Below is a summary of the working paper series web-publication status of the manuscripts by recommendation.

ERSA Publication Status	Recommendation					Total
	Desk Reject	Reject	Major Revision	Minor Revision	Accept	
Published	2	5	94	142	62	305
Not Published	12	120	91	31	8	262
Total	14	125	185	173	70	567

TABLE 3.1: Statistics of the manuscripts published on ERSA's website by recommendation

Table 3.1 shows the recommendation status versus the publication status of the manuscripts submitted and reviewed at ERSA. 142 of the manuscripts which were recommended for a minor revision were eventually published on ERSA's website, while 31 manuscripts were not published. Similarly, 94 manuscripts that were recommended for a major revision were also eventually published on ERSA's website, while 91 were not. There were also a few manuscripts that were desk rejected (2) or rejected (5) yet were published on ERSA's website, while eight of the accepted manuscripts were not published on ERSA's website.

From the above analysis, a variable known as *eventually_accepted* was created to identify manuscripts from these categories which were eventually accepted and published on ERSA's website and those which were not. This is a binary variable where 1 represents manuscripts that are eventually accepted and 0, otherwise. The criteria for categorising manuscripts as eventually accepted include those manuscripts which were recommended for a major revision or minor revision and were eventually accepted and published on ERSA's website as working paper journal articles.

The days taken to review each manuscript were recalculated and represented as *Days_Under_Review* (*DUR*) variable in the data set. The recalculated *DUR* for each manuscript was obtained using the formula below:

$$DUR_i = (\text{Submission Date})_i - (\text{Decision Date})_i$$

Moreover, manuscripts written by an author who was also an editor during the review period were identified. At ERSA, all these manuscripts are usually automatically accepted without undergoing a peer review process. Therefore, manuscripts whose DUR is less than seven (7) days, whose recommendation is *Accept* and had no reviewer were identified (58 manuscripts) and are all excluded from the data set. The outstanding 603 manuscripts were then used for further analysis.

Lastly, a variable known as *is_colleague* was created. This is a binary variable where 1 represents manuscripts whose author affiliation is the same as that of the reviewer and 0, otherwise.

3.1.2 Journal Ranking and Publication Data

Through an online search, we identified whether each manuscript in the data set had been published in any other credible journal. This search was conducted on the following platforms: Google Scholar, Web of Science, and Scopus.

We created a new variable called *Publication* for the papers that were published in subsequent journals. This variable includes the name of the journal for each manuscript that was published. Furthermore, the year of publication was also recorded on a variable called *Publication Year*.

A new variable called *Is_Published* was also created. This is a binary variable that is encoded with 1 if a manuscript is subsequently published in another journal and 0 if it is not.

Journal ranks were obtained from SCImago Journal and the Country Rank portal. A new variable that includes the journal ranks was created called *JournalRankingSJR*. SCImago Journal Rank Indicator is a measure of the journal's impact, influence and prestige. It expresses the average number of weighted citations received in the selected year by the documents published in the journal in the three previous years. SJR value greater than 1.0 has above average citation potential and journal with a SJR value less than 1.0 has below average citation potential. Given that the average SJR is now equal to 1, which means that journals with SJRs higher than 1 are more prestigious than average. Some of the manuscripts published in the journals with the highest SJR value include: American Journal of Political Science (SJR: 7.13), Journal of International Business Studies (SJR: 4.99), Journal of International Economics (SJR: 3.77), Review of Finance (SJR: 3.65), and Renewable & Sustainable Energy Reviews (SJR: 3.63), among others. From our data set a manuscript published in the journal with the highest SJR value is published in the America Journal of Political Science with an SJR value of 7.13. And a manuscript published in the journal with the lowest SJR value was published in the Mediterranean Journal of Social Sciences with an SJR value of 0.

3.1.3 Gender Data

Using the genderize.io database, we estimated the gender of each author by using their first name, if available. We identified gender estimates for 492 of the 540 authors in our database, amounting to

93.89 % of all authors. We found that the database was unable to identify the gender of 33 authors. To bridge the gap, we did a manual search on Google to identify their gender. We also conducted a Google search to confirm whether the genderize.io database's gender prediction was accurate for the authors' gender that the database was able to identify. We discovered that the gender of 33 authors was wrongly predicted, and this was updated with the correct gender. As a result, a new variable called *Is_EitherAuthorFemale* was created. This is a binary variable in which 1 represents manuscripts written by at least one female author, and 0 represents manuscripts written by only male authors.

3.1.4 Renowned Institutions and Economics Authors Data

Data on renowned South African economists and institutions is extracted from the IDEAS (ideas.repec.org) economic database.

Renowned Institutions

A list of the top 25% South African institutions with publications in the last ten (10) years as of June 2021 was extracted from the IDEAS database, and used to create a new variable.

From the list, we identified the top five (5) tertiary institutions and three (3) non-tertiary institutions and created a variable to identify manuscripts written by authors affiliated with prestigious South African institutions. These institutions include the University of Pretoria, University of Cape Town, Stellenbosch University, University of Johannesburg, University of the Witwatersrand, Economic Research Southern Africa (ERSA), South African Reserve Bank (SARB), and the Human Sciences Research Council (HSRC).

As previously stated, the new variable created called *is_RenownedAuthorInstitution* is a binary variable in which 1 represents manuscripts whose author is from a prestigious South African institution and 0 otherwise.

Renowned Authors

Similarly, a list of the top 25 % economics authors in South Africa with publications in the last 10 years as of June 2021 was also obtained from IDEAS. The criteria used to determine who makes it into the top 25 % of Economics authors in South Africa on the IDEAS website is based on a composite score that considers multiple factors such as the number of citations, the number of publications, the impact factor of the journal, and other measures of research productivity and impact. The list includes 97 of South Africa's most prominent economics academic researchers. From this list, a binary variable called *Is_RenownedAuthor* was constructed, with 1 indicating manuscripts in which one of the writers is a renowned economics author in South Africa and 0 indicating manuscripts in which neither of the authors is a renowned economics author in South Africa.

3.2 Summary Statistics

There are two main sets of information that we use in this study, namely: information with respect to the manuscripts and information about the authors and/or reviewers. Table 3.2 below presents summary statistics of the key variables present in our data set. The key variables in the data set are categorised into those which explain the manuscript characteristics, e.g. *days_under_review* shows the number of days it takes to review a manuscript; and those which explain the author or/and reviewer characteristics, e.g. *is_renownedauthor* which shows whether an author is renowned or not.

All variables which explain the manuscripts' characteristics are categorical variables, except *journal_rankingjsjr* and *days_under_review*.

In Table 3.2, *id_nrecommndation* and *id_nrecommndation_i* are two different variables representing the recommendation status of the manuscripts. *id_nrecommndation* includes four levels of recommendation: accept, minor revision, major revision, and reject, while *id_nrecommndation_i* includes a fifth level, desk reject, on top of these four levels. The difference between these two variables lies in how the manuscripts were classified based on their recommendation status. Manuscripts that were desk rejected were not included in the *id_nrecommndation* variable because they did not receive a recommendation from the reviewers. However, they were included in the *id_nrecommndation_i* variable because they were still classified as being rejected, albeit at an earlier stage in the review process.

The average number of days it takes to review a manuscript is approximately 70 days. The minimum number of days a paper was under review is 0, which represents manuscripts whose author was an editor during the review process. The maximum number of days a paper is under review is 627 days, i.e., approximately 2 years. There are 268 manuscripts that have been published and have a journal ranking. The average ranking of the journals in which the manuscripts were published is 0.733. This score is below the average SCimago score which indicates that a majority of the papers published in ERSA were unlikely to be cited. The minimum journal rank is 0, whereas the maximum is 7.130. A score of zero likely means that the journal did not receive any citations during the selected time period.

Similarly, all variables that explain the author and/or reviewer characteristics are categorical, except *num_review*, which is the number of reviewed manuscripts each reviewer has. On average, each referee reviews approximately seven manuscripts. The minimum number of manuscripts a referee has reviewed is 1, and the maximum number of manuscripts reviewed by a reviewer is 33.

Table 3.2 does not show enough information to understand the categorical variables in depth. As a result, Table 3.3 shows a detailed summary of statistics on these categorical variables.

We observe that 287 out of 603 (47.6%) manuscripts submitted to ERSA for review were subsequently

VARIABLES	N	Mean	Sd	Min	Max
Manuscript Characteristics					
id_nrecommndation	566	2.337	0.964	1	4
days_under_review	580	69.919	78.916	0	627
journalrankingsjr	238	0.733	0.858	0	7.130
is_renownedauthorinstitution	603	0.663	0.473	0	1
eventually_accepted	603	0.406	0.492	0	1
id_nrecommndation_i	581	3.277	1.021	1	5
is_published	603	0.476	0.500	0	1
Author & Reviewer Characteristics					
author_is_editor	603	0	0	0	0
is_renownedauthor	603	0.347	0.476	0	1
is_eitherauthorfemale	597	0.370	0.483	0	1
nis_colleague	462	1.071	0.258	0	1
num_reviews	527	7.463	9.147	1	33

TABLE 3.2: *Manuscripts and Author Characteristics Summary Statistics*

published in journals and books, while the outstanding manuscripts were not published. Moreover, 209 of 603 (34.7%) manuscripts were written by the top 25% renowned economics authors in South Africa, while 65.3% of them were not. Similarly, we observe that 66.3% (400 of 703) of the manuscripts are written by authors who are affiliated with prominent institutions in South Africa, while the rest of the manuscripts are not. With respect to gender, 37% (221 of 597) of the manuscripts are written by at least one female author, whereas 63% (376) of the manuscripts are written by only male authors. Lastly, our data set consists of 33 of the 462 manuscripts (7.1%) in which at least one author and a reviewer are from the same institution, and 92.9% of the manuscripts are not.

Further details of the key variables in the data set are represented in Table A.1 in the Appendix section.

Variables	Frequency	Percentage
ERSA Website Publication Status		
Not Published	272	46.2%
Published	317	53.8%
Total	589	100%
Is_Published		
No (0)	316	52.4%
Yes (1)	287	47.6%
Total	603	100%
Is_RenownedAuthor		
No (0)	394	65.3%
Yes (1)	209	34.7%
Total	603	100%
Is_RenownedAuthorInstitution		
No (0)	203	33.7%
Yes (1)	400	66.3%
Total	603	100%
Is_EitherAuthorFemale		
No (0)	376	63.0%
Yes (1)	221	37.0%
Total	597	100%
Eventually_Accepted		
No (0)	358	59.4%
Yes (1)	245	40.6%
Total	603	100%
Author_is_Editor		
No (0)	603	100.0%
Yes (1)	0	0.0%
Total	603	100%
is_colleague		
False (0)	429	92.9%
True (1)	33	7.1%
Total	462	100%

TABLE 3.3: Summary statistics of the categorical variables

CHAPTER 4

Results

This chapter gives a detailed description of the results from the analysis of the data. These results will aid in answering our research objective questions and will therefore be further discussed in relation to the literature review in the discussion section.

4.1 Reviewers Bias

During the peer review process, reviewers may be biased if they consistently make the same recommendation for all of the papers they review. Upon completion of the peer review process, the recommendations provided usually include: "Reject", "Major Revision", "Minor Revision" and "Accept". However, in some cases, editors are permitted to reject manuscripts prior to peer review, which are referred to as "*desk rejects*".

From our observation, performing a regression analysis on all the reviewers' data results does not yield us the most appropriate and interpretable results. Therefore, for this analysis, we selected reviewers who had assessed at least four (4) manuscripts in our data set to observe whether their recommendations were biased. Figure 4.1 shows the proportion of manuscripts assessed by each reviewer and their respective recommendation statuses. From this analysis, we observe that some reviewers are more likely to give certain recommendations as compared to others.

To confirm the observations above, we run an ordinal logistic regression where we use the *Recommendation* variable as our dependent variable, which consists of ordinal levels such as: "Reject", "Major Revision", "Minor Revision" and "Accept". Similarly, a *Reviewer_ID* variable is used as an independent factor variable to assess whether there is any existing relationship between reviewers and their peer review recommendations.

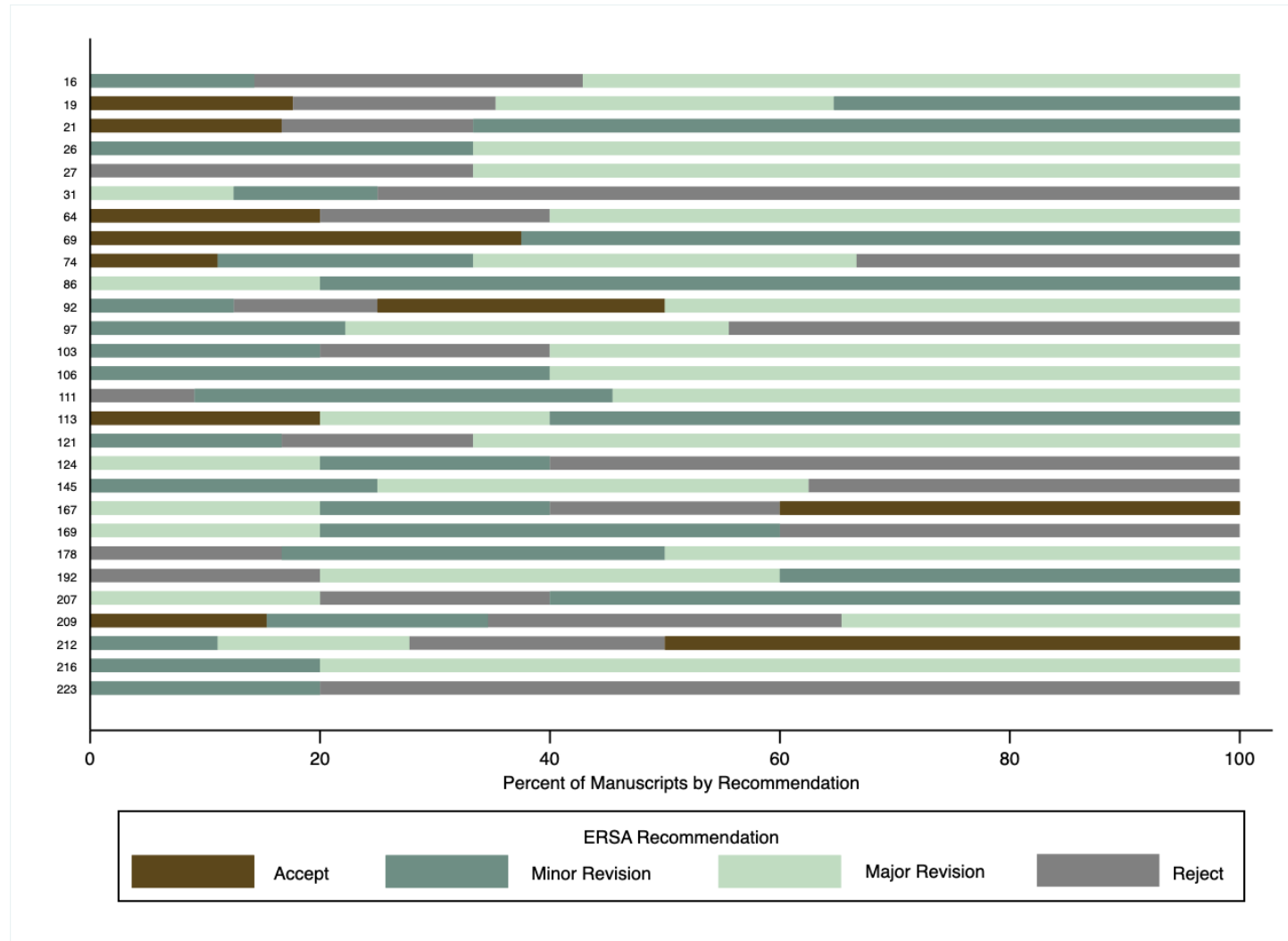


FIGURE 4.1: The proportion of manuscripts reviewed by each reviewer by recommendation. From this figure, we observe that only 29 reviewers had reviewed at least 4 manuscripts for the entire period. Furthermore, we observe that some reviewers are often more likely to give particular recommendations as compared to others. For example, the reviewer with ID No.223 recommended "Reject" and "Minor Revision" for 80% and 20% of the manuscripts reviewed, respectively. Similarly, the reviewer with ID No.16 recommended "Reject", "Major Revision" and "Minor Revision" for 25%, 60% and 15% of the manuscripts reviewed, respectively. However, the reviewer with ID No.212 is more likely to recommend "Reject", "Major Revision", "Minor Revision" and "Accept" for approximately 21%, 18%, 11% and 50% of the total manuscripts reviewed, respectively.

We use Stata to perform this regression analysis, and the mathematical equation of the ordinal logistic model is represented by the equation below:

$$\text{logit}[P(Y \leq j)] = \alpha_j - \sum \beta_i X_i$$

where:

j - is the level of an ordered category with j levels. In our case, $j = 1$ refers to "Reject", $j = 2$ refers to "Major Revision", $j = 3$ refers to "Minor Revision", and $j = 4$ refers to "Accept".

i - corresponds to independent variables, which in this case is the Reviewer ID variable with a base of Reviewer_ID: 16.

	Logit coefficients		Odds Ratio	
Rev_ID: 19	1.386*	(0.817)	4.000*	(3.269)
Rev_ID: 21	2.157**	(1.007)	8.645**	(8.708)
Rev_ID: 69	3.111***	(0.932)	22.45***	(20.93)
Rev_ID: 86	1.911*	(0.999)	6.761*	(6.753)
Rev_ID: 113	2.309**	(1.038)	10.07**	(10.45)
Rev_ID: 167	2.124*	(1.176)	8.369*	(9.840)
Rev_ID: 212	2.486***	(0.869)	12.015***	(10.456)
/cut1	-0.607	(0.670)		
/cut2	1.290*	(0.675)		
/cut3	3.263***	(0.709)		
Log likelihood	-284.937			
LR chi2(28)	61.7			
Prob >chi2	0.0002			
Pseudo R2	0.098			
Observations	241			
Standard errors in parentheses			*** p<0.01, ** p<0.05, * p<0.1	

TABLE 4.1: *Regression analysis of the relationship between recommendation status and reviewers*

Table 4.1 shows the statistically significant regression results between the recommendation and the reviewers. See Table [B.1](#) in the appendix for the corresponding detailed results, which include all reviewers (both statistically significant and non-significant).

At iteration 0, Stata fits a null model, which is an intercept-only model. It then proceeds to fit the full model and stops the iteration process once the difference in the log likelihood between successive iterations becomes sufficiently small. Eventually, the final log likelihood is used in comparisons of nested models. In the lower portion of the output table, we observe that the final log likelihood is -284.937.

241 observations were used to fit this model. The likelihood ratio chi-square of 61.7 with a p-value of 0.0002 shows that our model as a whole is statistically significant compared to a null model with no

predictors.

The cut points shown at the bottom of the output table indicate where the latent variable is cut to make the four groups that we observe in our data. In general, these are not used in the interpretation of the results. The cut points are closely related to the thresholds, which are reported by other statistical packages.

The coefficients and odd ratios are shown in the upper portion of the output table, together with their standard errors and accompanying p-values in asterisks. Only seven reviewers were statistically significant out of the 29 who read at least four (4) manuscripts with the following IDs: 19, 21, 69, 86, 113, 167, and 212.

The order of our recommendation status in this analysis is encoded and commences with: 1 = "Reject", 2 = "Major Revision", 3 = "Minor Revision" and 4 = "Accept", where Accept is the highest level and Reject is the lowest. The odds of accepting manuscripts versus deciding on minor revision, major revision, and rejection recommendations are four times greater at a 10% significance level for Rev_ID: 19, as compared to Rev_ID: 16, given that all the other variables in the model are held constant. Likewise, the odds of accepting and recommending a minor revision versus a major revision and rejecting it are four times greater, given that all the other variables in the model are held constant.

Similarly, we further observe that the odds of accepting versus recommending a minor revision and rejecting a manuscript are 8.645 times greater at a 5% significance level for Rev_ID: 21 as compared to Rev_ID: 16, given other variables in the model are held constant.

Compared to Rev_ID: 16, Rev_ID: 69's odds of accepting manuscripts versus recommending them for a minor revision, major revision, or rejection are 22.45 times greater at a 1% significance level, given that all of the other variables in the model are held constant.

In general, we can conclude that in comparison to reviewers with Rev_ID: 16, reviewers with Rev_ID: 86, 113, 167 & 212's odds of accepting manuscripts versus recommending for a minor revision, major revision, and rejection are 0.15, 0.101, 0.122 and 0.0855 greater, at 10%, 5%, 10% and 1% significance levels, respectively, given that all the other variables in the model are held constant.

Therefore, from our regression results above, we can conclude that some reviewers, such as Rev_ID: 69 and 212, are more likely to accept manuscripts compared to other reviewers who have reviewed more than 4 manuscripts over the duration of the study. This is also confirmed in Figure 4.1, which shows that Rev_ID: 69 and 212 are the most likely to accept manuscripts as compared to other reviewers.

4.2 Manuscript Quality

4.2.1 ERSA Recommendation and Subsequent Publication

As previously highlighted, upon review and acceptance of manuscripts submitted to ERSA, they are then published in ERSA's working paper series. Subsequent to this, manuscripts that are published in other peer-reviewed journals are also awarded a fund by ERSA.

To gauge the effectiveness and accuracy of the peer review process conducted by ERSA, we analyze the relationship between the recommendation provided by ERSA's review process and the subsequent publication status of the submitted manuscripts. Our hypothesis for the effectiveness of ERSA's peer review process is that if the majority of manuscripts that are later published in other peer-reviewed journals are those that were accepted by ERSA, then ERSA's peer review process is effective, as long as the recommendation matches that of other journals.

Table 3.3 shows that 52.4% of the manuscripts submitted to ERSA for review were not published in other peer reviewed journals, whereas 47.6% were published in various journals and books. These statistics are further analysed in Figure 4.2, which shows the percentage proportion of manuscripts which were subsequently published and those which were not published in other journals based on ERSA's recommendation status.

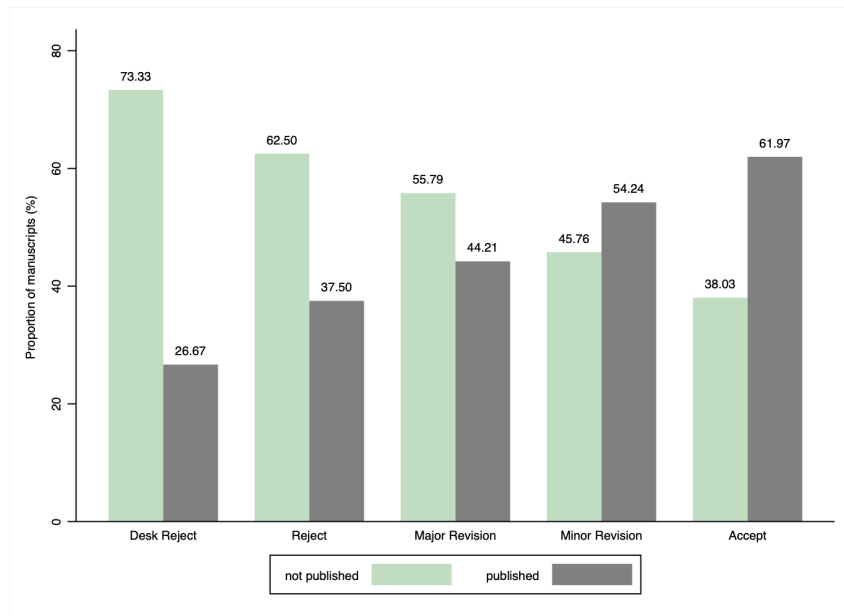


FIGURE 4.2: *Percentage proportion of manuscripts subsequently published in other peer-reviewed journals based on ERSA's recommendation status. 61.97% of manuscripts accepted by ERSA's were subsequently published in other journals, while 38.03% of them were not published. Whereas among the manuscripts which were recommended for "minor revision" and "major revision", 54.24% and 44.21% of them were published, while 45.76% and 55.79% were not published, respectively. Furthermore, manuscripts which were rejected and recommended for desk rejection, 37.5% and 26.67% were published, whereas 62.5% and 73.33% are not published, respectively.*

Therefore, the figure above indicates that manuscripts which are accepted during ERSA's peer review process are more likely to be published compared to the manuscripts which received other recommendations. Similarly, the manuscripts which were desk rejected were more likely not to be published in other journals as compared to manuscripts which received other recommendations.

Further to this, we perform a regression analysis to observe the relationship between the subsequent publication status and ERSA's peer review recommendation. We use *Recommendation* as our response variable and *Is_Published* as our independent variable for this analysis. The recommendation variable consists of five levels, encoded : 1 = Desk Reject, 2 = Reject, 3 = Major Revision, 4 = Minor Revision and 5 = Accept. We first analyse the data using a logistic regression given that our dependent variable is binary encoded. In addition to this, we also perform a fixed effect logistic regression analysis with the *submission_year* variable as the fixed variable, given that data set consists of longitudinal data.

	(1)	(2)
Is_Published		.
Recommendation: Reject	0.501 (0.612) 1.650	0.515 (0.624) 1.674
Recommendation: Major Revision	0.779 (0.602) 2.179	0.713 (0.612) 2.040
Recommendation: Minor Revision	1.181* (0.603) 3.259	1.124* (0.613) 3.077
Recommendation: Accept	1.500** (0.633) 4.481	1.483** (0.643) 4.408
Constant	-1.012* (0.584) 0.364*	
Observations	581	518
Time FE	NO	YES
Prob >chi2	0.00125	0.00258
LR chi2	17.97	16.36
Log Likelihood	-393	-368.2
Number of submission_year		5
Pseudo Rsquare		0.0217
Standard errors in parentheses	Odd Ratio in bold	*** p<0.01, ** p<0.05, * p<0.1

TABLE 4.2: Regression output on the relationship between ERSA recommendation and subsequent publication status

The mathematical equation of the logistic model is represented by the equation below:

$$\log(odds) = \log(\Omega) = \log\left(\frac{E(Y|X)}{1 - E(Y|X)}\right) = \beta_0 + \beta_i X_i$$

where:

i - corresponds to independent variables, which in this case it is the attributes mentioned above.

Similarly, the fixed effect logistic regression model equation is represented below:

$$Y_{it} = \beta_1 X_{1,it} + \dots + \beta_k X_{k,it} + \alpha_i + \epsilon_{it}$$

where :

$i = 1, \dots, N$ (observations), $t = 1, \dots, T$ (time), and α_i are entity-specific intercepts that capture heterogeneities across entities and this is called the fixed effect, and can statistically depend on $X_{k,it}$.

Table 4.2 presents the regression analysis results, which show the relationship between ERSAs' recommendations and subsequent publication status. From the output, model (1), a logistic regression with no fixed effect, is fitted with 581 observations. Model (2) is a fixed effect logistic regression model with submission year as the fixed variable, which is fitted with 518 observations across 5 submission years. The models' test statistics are 17.97 and 16.36, respectively. Given that their p-values are 0.00125 and 0.00258, respectively, both models are statistically significant at the 1% significance level.

The probability of a positive outcome is assumed to be determined by the logistic cumulative distribution function. Results are reported as coefficients and odds ratios. The recommendation coefficients are all in comparison to the "Desk Reject" manuscripts. The coefficients are all positive and only the "Minor Revision" and "Accept" coefficients are statistically significant for both model (1) and model (2) at 10% and 5% significance levels, respectively.

The odds ratio for "minor revision" is 3.259 and 3.077 for models (1) and (2), respectively. For model (1), this means that manuscripts recommended for a minor revision by ERSAs' peer review are 3.259 times more likely to be published in other journals than those that are desk rejected. Similarly, manuscripts that are accepted during ERSAs' peer review process are 4.481 times more likely to be subsequently published in other journals as compared to manuscripts that are desk rejected.

We also observe similar results with slightly different odd magnitudes in model (2), where a submission year fixed effect has been applied. Over time, the manuscripts recommended for a minor revision are 3.077 times more likely to be published subsequent to ERSAs' review than manuscripts that are desk rejected. Manuscripts that are accepted are 4.408 times more likely to be published in other journals upon ERSAs' review than manuscripts that are recommended for desk rejection.

On both models, we observe that rejected manuscripts are more likely to be published in other journals than desk rejected ones, 1.612 and 1.674 times for models (1) and (2), respectively. Whereas, manuscripts that are recommended for a major revision are 2.179 and 2.040 more likely to be pub-

lished in other journals compared to the manuscripts that are desk rejected in models (1) and (2), respectively. However, the two coefficients are not statistically significant in either model.

Generally, we observe that the coefficients of model (2) are slightly lower than those of model (1) due to the application of the fixed effect, which is a technique that allows one to control for time-invariant unobserved individual characteristics, that can be correlated with the observed independent variables. The binomial logit model with fixed effects allows for the possibility of confounding unobserved heterogeneity at the level of the submission years.

Therefore, based on these results, we observe that manuscripts that are accepted and those that are recommended for a minor revision are more likely to be published in subsequent journals as compared to those that are desk rejected, rejected, or recommended for a major revision.

4.2.2 Subsequent Publication Biases

A journal's ranking is a measure of the quality and scientific influence of scholarly publications within a journal. We define the manuscripts' quality based on the journal in which they are published, i.e., the higher the journal ranking, the higher the quality of the manuscript.

For analysis, we use the *journal_ranking* variable as our dependent variable. Given that we have a longitudinal data set where we observe some authors across a number of years, we perform a fixed effect linear regression with *submission_year* as a fixed variable, to assess the influence of attributes such as ERSA's recommendation status, the authors' and their affiliated institutes' prominence in South Africa and the gender composition of the manuscript's authors on journal ranking.

Table 4.3 shows that the regression output models (1), (2), (3), and (4) are univariate linear regression models, while Model (5) is a multivariate model that includes all the above mentioned attributes.

Model (1) fits the *Recommendation* variable as an independent variable. The recommendation variable has four levels encoded: 1 = Reject, 2 = Major Revision, 3 = Minor Revision, and 4 = Accept. For this model, we analyse whether ERSA's recommendations have a positive or negative effect on the journal ranking in which the manuscript is subsequently published after ERSA's peer review. This is a univariate regression analysis with *journal_ranking* as a response variable. The model is fit with 227 observations across 5 years. The model's f-statistic is 4.597 and the p-value is 0.00384, which is statistically significant at a 1% significance level. The model coefficients show that manuscripts that are recommended for major and minor revisions and those that were accepted are published in journals that are ranked 0.280, 0.468 and 0.531 units higher, respectively, compared to those that are rejected. The coefficient of manuscripts recommended for a major revision is statistically significant at a 90% confidence interval (CI), where as the coefficients of manuscripts recommended for a minor revision and those which were accepted are both statistically significant at a 5% significance level.

Model (2) is also a univariate fixed-effect regression model that is fit with 238 observations across 6

	(1)	(2)	(3)	(4)	(5)
journal ranking (sjr)					
Recommendation: Major Revision	0.280*				0.201
	(0.149)				(0.151)
Recommendation: Minor Revision	0.468***				0.390***
	(0.143)				(0.146)
Recommendation: Accept	0.531***				0.432**
	(0.168)				(0.170)
1.is_renownedauthor		0.249**			0.167
		(0.111)			(0.111)
1.is_renownedauthorinstitution			0.216*		0.176
			(0.118)		(0.120)
1.is_eitherauthorfemale				0.232**	0.0825
				(0.114)	(0.103)
Constant	0.368***	0.632***	0.584***	0.650***	0.214
	(0.119)	(0.0703)	(0.0974)	(0.0696)	(0.133)
Observations	227	238	238	236	225
Number of submission_year	5	6	6	6	5
Prob >F	0.00384	0.0257	0.0673	0.0435	0.00111
F-Stat	4.597	5.040	3.379	4.121	3.864
Min Observation per Group	28	3	3	3	28
Avg Observation per Group	45.40	39.67	39.67	39.33	45
Max Observation per Group	53	54	54	53	52
R-Square: within	0.0592	0.0214	0.0144	0.0177	0.0977
R-Square: between	0.188	0.331	0.435	0.638	0.549
R-Square: overall	0.0522	0.0221	0.0175	0.0268	0.101
Standard errors in parentheses	*** p<0.01, ** p<0.05, * p<0.1				

TABLE 4.3: Regression table showing factors influencing the journal ranking

years. The model is fit with an independent variable called *is_renownedauthor*. The model's f-statistic and p-value are 5.040 and 0.0257, respectively. Therefore, this model is statistically significant at a 5% significance level. From the output, we observe that the variable coefficient shows that manuscripts written by renowned economics authors in South Africa are published in journals that are ranked 0.249 units higher as compared to those written by non-prominent economics authors in the country. The variable's coefficient is statistically significant at 95% CI. Therefore, this shows that there is a positive effect on journal ranking for manuscripts that are written by renowned economics authors in South Africa when they are subsequently published in other journals as compared to those that are written by non-prominent economics authors.

Model (3) consists of only one independent variable named *is_renownedauthorinstitution*. The model is fitted on 238 observations across 6 years and has a p-value of 0.0673, which is significant at 90% CI. The coefficient output shows that manuscripts written by authors affiliated with renowned institutions in South Africa are published in journals that are ranked 0.216 units higher as compared to those that are not. This coefficient is also significant at a 10% significance level. Therefore, this shows that

there is a positive effect on the journal ranking of a manuscript in subsequent journal publications when it is written by authors from renowned institutions in South Africa compared to those who do not.

Furthermore, the only independent variable in model (4) is *is_eitherauthorfemale*. Model (4) fits 236 observations across 6 years and has a p-value of 0.0435, which is statistically significant at 95% CI. From the model coefficient output, we observe that manuscripts written by at least one female author are published in journals that are ranked 0.232 units higher as compared to those that are written by only male authors. This coefficient is also statistically significant at 95% CI. Therefore, this shows that there is a positive effect in journal rankings for manuscripts with at least one female author as compared to those that are written by only their male counterparts when published in subsequent journals.

Lastly, model (5) represents a multivariate fixed effect regression model which consists of all the above-mentioned attributes in one model. The model fits 225 observations across the span of 5 years. The p-value of the model is 0.00111, which is statistically significant at 99% CI. From the coefficient output, we observe that only the manuscripts that were recommended for a minor revision or were accepted have coefficients that are significant at 1% and 5% significance levels, respectively. The rest of the recommendation variable levels and other independent variable coefficients are not statistically significant. The statistically significant coefficients show that manuscripts which are recommended for a minor revision and those which are accepted are published in journals that are ranked 0.390 and 0.432 units higher compared to the manuscripts that are rejected, respectively.

Therefore, from the analysis of the results presented in Table 4.3 above, we observe that manuscripts which are accepted, recommended for minor revision, and major revision are more likely to be published in journals with a higher ranking compared to manuscripts which are rejected by ERSAs peer review process. Similarly, manuscripts that are written by renowned economics authors in South Africa are more likely to be published in journals with a higher ranking as compared to those that are not. Furthermore, manuscripts written by authors who come from renowned institutions in South Africa are more likely to be published in journals with a higher ranking as compared to those that are not. Lastly, manuscripts with at least one female author are more likely to be published in journals with a higher ranking as compared to those written by only their male counterparts.

4.3 Recommendation Bias

Recommendation bias includes different factors that are likely to influence the recommendation that reviewers arrive at upon completing the peer review process. In this study, we assess the following factors: whether the author is from a renowned institution and/or a renowned economics author in South Africa or not; whether the author and the reviewer are from the same institution; whether at least one author of a manuscript is female; and the number of days taken to review manuscripts. The following figures show the relationship between the recommendation variable and the above-mentioned factors.

4.3.1 Author is from a Renowned Institution Factor as a Recommendation Bias

As demonstrated in the figure below, manuscripts that are written by authors from renowned institutions are more likely to be accepted, recommended for a minor revision, or major revision. There is an equal chance for manuscripts that are written by authors from renowned institutions and those that are not to be rejected. Whereas, it is less likely for the manuscripts that are written by authors from renowned institutions to be desk-rejected as compared to those written by authors from non-renowned institutions in South Africa.

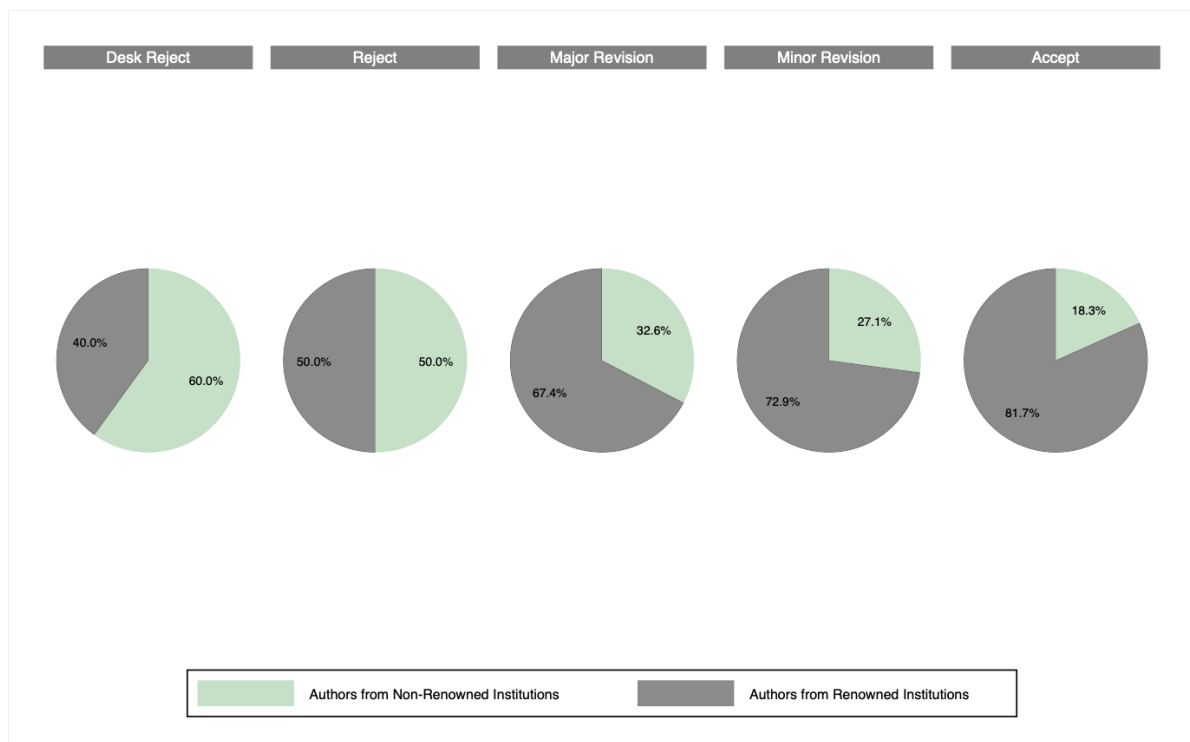


FIGURE 4.3: *Institution Factor Bias by Recommendation.* This figure shows the proportion of the number of manuscripts written by authors from renowned institutions in South Africa and those that are not, based on ERSA's recommendation status. We observe that 81.7% of the manuscripts accepted are authored or co-authored by researchers from renowned institutions in South Africa, and the outstanding manuscripts are not. Similarly, 72.9% of the manuscripts recommended for a minor revision, 67.4% recommended for a major revision, 50% rejected, and 40% desk rejected, were written by authors from renowned institutions in South Africa.

Renowned Author Factor as a Recommendation Bias

Similarly, the figure below demonstrates that manuscripts written by a renowned economics author in South Africa are more likely to be accepted during ERSA's peer review as compared to being recommended for a minor revision, major revision, rejection, or desk rejection.

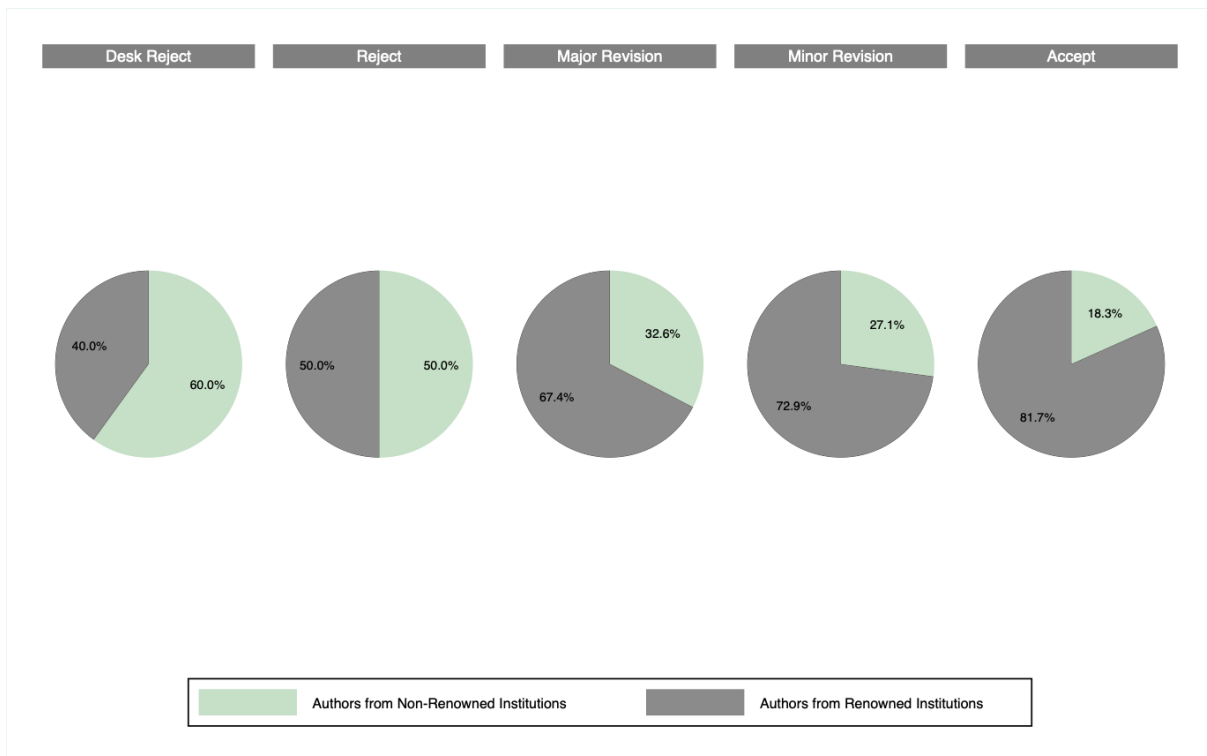


FIGURE 4.4: *Author Status by Recommendation.* This figure shows the proportion of the manuscripts written by renowned economics authors in South Africa as compared to those that are not, based on ERSA's recommendation status. Most of the manuscripts accepted or recommended for a minor revision have at least one author who is a renowned economics author in South Africa at 46.5% and 42.9%, respectively, compared to manuscripts recommended for a major revision (32.8%), those which are rejected (25.8%) and desk rejected (13.3%).

4.3.2 Days under review by Recommendation

In evaluating the efficiency of the ERSA review process, we considered various metrics, including the number of days taken to review a manuscript. While the number of days taken to review a manuscript can be influenced by factors such as the manuscript quality and field, it is still an important metric to consider in evaluating efficiency. However, we acknowledge that the number of days taken to review a manuscript should not be the sole determinant of the reviewer's recommendation, and other factors, such as the quality of the review and the relevance of the feedback provided, should also be considered.

Figure 4.5 above represents the summary statistics of the number of days it takes to review manuscripts based on their recommendation status. The box plot shows that desk rejected manuscripts have the

lowest median DUR, followed by the accepted and rejected manuscripts, minor revised manuscripts, and lastly, major revised manuscripts. The number of DUR for desk rejected manuscripts is less variable than any other recommendation. This is due to the fact that manuscripts that are desk rejected are excluded immediately within 7 days of the submission date and are therefore not submitted to the reviewer, in contrast to the other recommendation categories, in which reviewers may take different durations to review the manuscripts.

We also observe that the median number of DUR for the accepted manuscripts is slightly skewed towards the lower number of days. The median number of days under review for manuscripts recommended for major revision and minor revision is relatively skewed to the lower percentile and also has an approximately equal number of median days under review. The median DUR for the rejected manuscripts is not skewed to the lower or upper percentile.

The occurrence of DUR outliers within the accepted, rejected, major revision, and minor revision categories is due to the non-specified duration for which a manuscript is under review. However, the number of DUR may be dependent on the quality of the manuscript being reviewed and other associated factors.

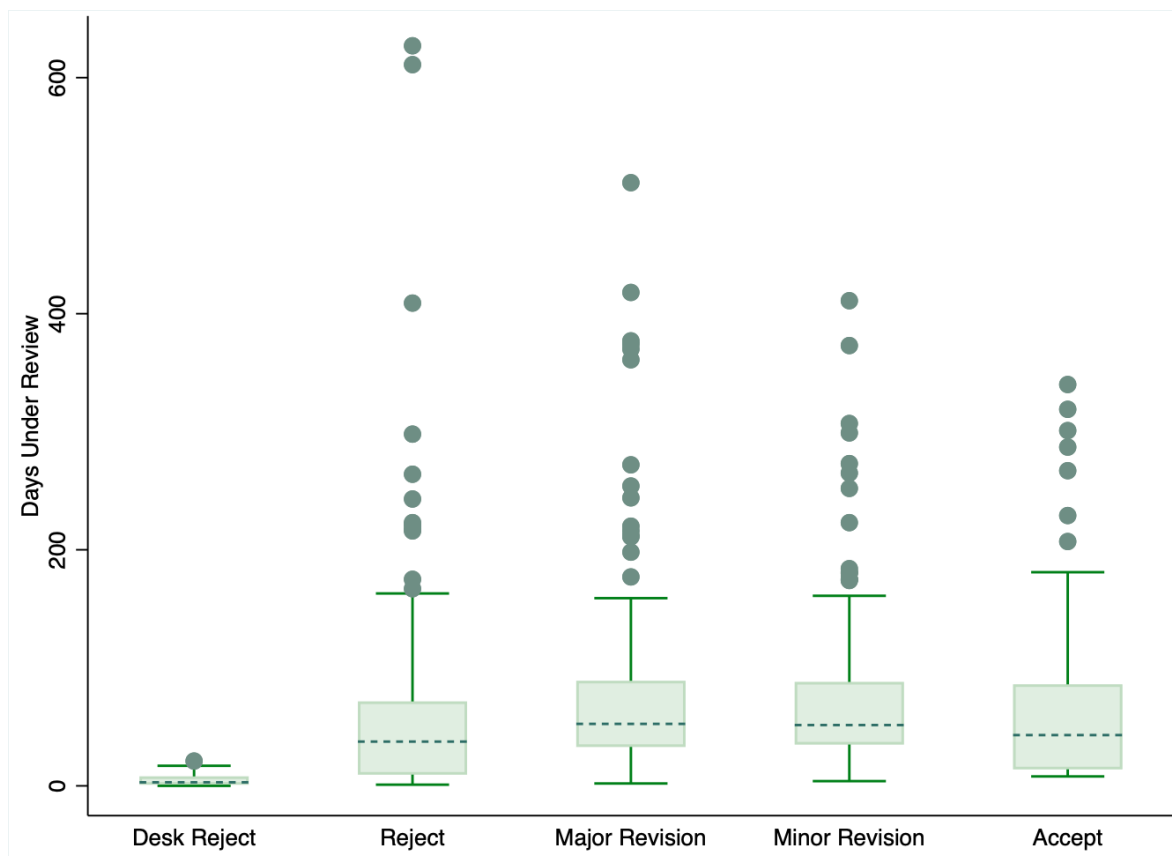


FIGURE 4.5: *Days Under Review by Recommendation*

4.3.3 Authors Gender Composition by Recommendation

Figure 4.6 shows the the proportion of manuscripts with at least one female author and those with only male authors, categorized by their recommendation status. This analysis shows that 47.1% of manuscripts with at least one female author were accepted, 39.9% were recommended for minor revisions, 36.5% were recommended for major revisions, 34.9% were rejected, and none were desk-rejected. The increasing trend of the ratio of manuscripts with at least one author from desk reject to accepted recommendation displayed in Figure 4.6 suggests that having at least one female author may increase the likelihood of a manuscript being accepted. This may further indicate that having a female author may improve the quality of the manuscript, leading to more constructive feedback and suggestions for improvement from the reviewers.

One potential explanation for how having a female author could influence the recommendation is through the diversity of perspectives and experiences brought by having a gender-balanced team of authors. This can lead to a more comprehensive and well-rounded analysis of the research question and findings, leading to a higher-quality manuscripts that are more likely to be accepted.

These findings support the hypothesis that having at least one female author can positively influence the recommendation status of a manuscript. However, it is important to note that this is only one study, and further research is necessary to validate these findings and to explore the underlying mechanisms through which having a gender-balanced author team can improve the quality and acceptance rate of manuscripts.

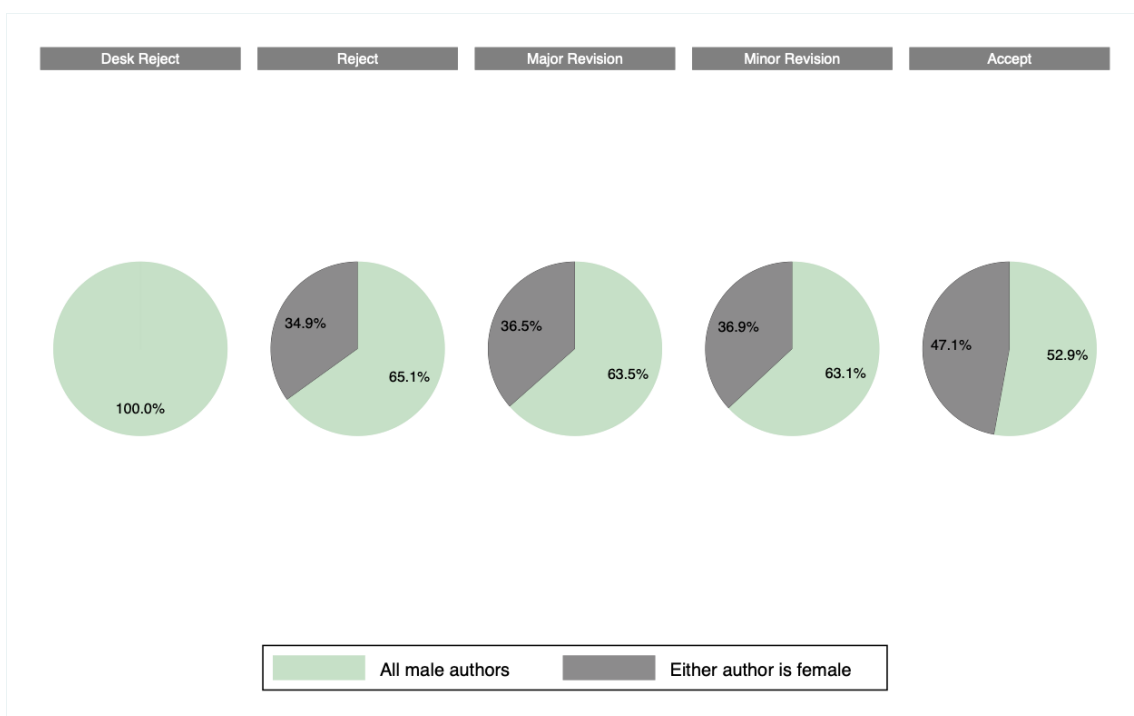


FIGURE 4.6: *Author Gender by Recommendation*

4.3.4 Author and Reviewer Professional Relationship by Recommendation

Lastly, as demonstrated in the figure below, from a general perspective, we observe a trend that when the reviewer and the author are affiliated with the same institution, the likelihood of being accepted is slightly higher compared to any other recommendation. However, this may not be conclusive due to the insignificant number of manuscripts whose author and reviewer are from the same institution, across all the recommendation levels. This may result in poor regression outputs given the under-representation of this data.

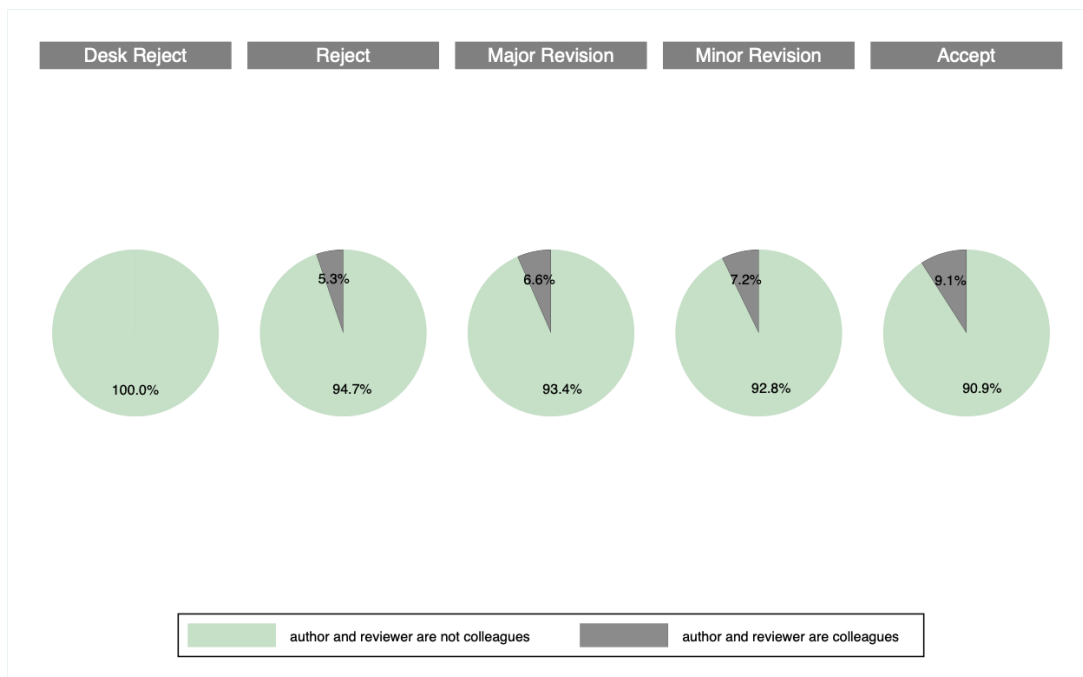


FIGURE 4.7: We look at the proportion of manuscripts by recommendation in which the author and reviewer are from the same institution and those that are not. This figure shows that 9.1% of the manuscripts that were accepted after review are those in which the author and reviewer were affiliated with the same institution, whereas 7.2% were recommended for a minor revision, 6.6% were recommended for a major revision, 5.3% were rejected, and there were no desk rejected manuscripts. This is primarily due to the fact that desk rejects are not assigned reviewers because they are rejected prior to the review process, and therefore, comparison of authors and reviewers affiliated with the same institution is impossible to look into.

4.3.5 Recommendation Bias Regression Analysis

On the basis of recommendations offered after ERSAs peer review for each paper submitted, we examine the effects of several characteristics, such as author gender, author and reviewer professional standing, type of institution the author is affiliated with, and whether the author is renowned or not.

Given that our dependent variable is an ordinal variable *Recommendation*, encoded as: 1 = Desk Reject, 2 = Reject, 3 = Major Revision, 4 = Minor Revision, and 5 = Accept, we fitted panel-ordered logit models with fixed effects using the new community-contributed command "feologit" in Stata. Baetschmann, Ballantyne, Staub, and Winkelmann (2020) created this command, which is the first in Stata to allow you to run an ordered logit model with fixed effects. We used fixed-effect models because they can easily account for unobserved time-invariant heterogeneities.

feologit fits fixed effects ordered logit models with the BUC ("blow-up and cluster") estimator, which replaces each observation in the data set with $K-1$ copies of the observation (where K is the number of categories of the ordered dependent variable) and then uses the conditional maximum likelihood estimator **clologit** to cluster the standard errors at the level of the original panel unit (Baetschmann et al., 2020). After the estimation, the data set is restored to its original state, unless the option *keepsample* is specified.

	(1)	(2)	(3)	(4)	(5)	(6)
Recommendation						
Is_colleague: TRUE	0.364 (0.296)					0.227 (0.279)
	1.439					1.254
1.Is_EitherAuthorFemale		0.380** (0.184)				-0.0249 (0.133)
		1.462**				0.975
1.Is_RenownedAuthorInstitution			0.891*** (0.0900)			0.579*** (0.190)
			2.437***			1.785***
1.Is_RenownedAuthor				0.891*** (0.0900)		0.281 (0.262)
				1.950***		1.325
Days_Under_Review					0.00181 (0.00119)	-0.000619 (0.000810)
					1.002	0.999
Number of panel units	5	5	5	5	5	5
Number of observations	451	575	581	581	580	447
Number of iterations	2	2	3	3	2	3
Pseudo R-square	0.00143	0.00558	0.0292	0.0171	0.00334	0.0213
Log likelihood	-647.7	-927.8	-921.1	-932.6	-944.5	-626.9
Wald chi2	1.505	4.262	97.91	10.92	2.292	
Prob >chi2	0.220	0.0390	0.0000	0.000951	0.130	
Robust standard errors in parentheses		Odd Ratios in Bold		*** p<0.01, ** p<0.05, * p<0.1		

TABLE 4.4: Recommendation Bias Regression Analysis

Table 4.4 shows the output for six (6) regression models. Models 1 to 5 are univariate models fitted to assess the performance of each variable on its own, whereas model (6) includes all the variables as mentioned above. Based on the number of iterations from the output table, we observe that the algorithm for maximizing the log conditional likelihood is converged after three (3) steps for models 3, 4, and 6, whereas it is converged after two (2) steps for models 1, 2, and 5. Observations that are observed only once are excluded from the model because their log likelihood contribution is zero. Thus, we see a variation in the number of observations used to fit each model.

Model (1) examines the impact of the author and reviewer being affiliated with the same institute on the reviewer's recommendation status during the peer review process. The response and predictor variables in this case are: *is_colleague* and *Recommendation*, respectively. 451 observations from the data set are used to fit the model. The Wald chi-square and p-value are 1.505 and 0.220, respectively, which indicates that this model is not statistically significant, and neither is its variable coefficient. This is largely due to the significantly lower number of manuscripts in which the author(s) and reviewer are both affiliated with the same institution.

Model (2) demonstrates the effect of the gender composition of the manuscript' authors on the recommendation status. The only predictor variable is *is_eitherauthorfemale*. 575 observations are used to fit this model. The Wald chi-square and p-value estimates are 4.262 and 0.0390, respectively, which indicates that this model is statistically significant at 95% CI. Similarly, the variable coefficient is also statistically significant at a 5% significance level. Therefore, the coefficient and the odds ratio of this variable show that the odds of accepting the manuscripts versus recommending them for a minor revision, major revision, rejecting, or desk rejecting are 1.462 times greater for manuscripts where at least one author is female as compared to those written by exclusively male authors.

Based on the output of model (3), we observe that it uses 581 observations to fit the model. This model explains the effect that a manuscript that is written by an author from a reputable institution in South Africa has on ERSA's peer review recommendation. This model is statistically significant with a Wald chi-square of 97.91 and a p-value of 0.0000. The variable coefficient is also statistically significant at 99% CI. This means that, given that an author is from a renowned institution in South Africa, the odds of the manuscript being accepted versus being recommended for a minor revision, major revision, rejection, or desk rejection are 2.487 times greater, *ceteris paribus*. As a result, when a manuscript is written by an author(s) from a reputable South African institution, it is more likely to be accepted in a peer review process.

Model (4) shows the relationship between manuscripts submitted by renowned economics authors in South Africa and their recommendation status in the peer review process. This model uses 581 observations and is statistically significant at a 1% significance level, given a Wald chi-square and p-value of 10.92 and 0.000951, respectively. Similarly, the variable coefficient is also statistically significant at 99% CI. Therefore, our interpretation of the model's variable is that, in the instance that a manuscript is written by a renowned economics author in South Africa, the odds of it being accepted are 1.950

times greater as compared to recommending it for minor revision, major revision, rejection, or desk rejection, given that all factors are held constant. Therefore, we conclude that when a manuscript is written by a renowned economics author(s) in South Africa, there is an increased likelihood of acceptance in a peer review process.

Model (5) shows the effect of the manuscripts' DUR on ERSA's peer review recommendation. To fit the model, 580 observations were used. The model's Wald chi-square statistic and p-value are 2.292 and 0.130, respectively. Therefore, we can conclude that there is no statistically significant evidence that the manuscript's DUR has an effect on ERSA's peer review recommendation status.

Lastly, 447 observations are used to fit model (6), which combines all the above mentioned variables into one model. It is observed that only one variable, i.e., *is_renownedauthorinstitution*, is statistically significant at 99% CI. Therefore, our interpretation of these variable coefficients is that, in the instance that a manuscript is written by an author from a renowned institution in South Africa, the odds of accepting it are 1.758 times greater as compared to recommending it for minor revision, major revision, rejection, or desk rejection, given that all factors are held constant. In this model, the odds for this variable have decreased from 2.437, as observed in the univariate model, to 1.785 in this multivariate model.

CHAPTER 5

Discussion

This chapter critically evaluates the findings of our analysis in relation to the literature and focuses on addressing the key objective questions of our study, from which we will later draw a conclusion and make recommendations based on our findings.

5.1 Results Evaluation

Reviewer Bias

In this study, we assess reviewer bias by observing whether some reviewers are more likely to give a specific recommendation more often as compared to others.

Based on Welch's (2014) definition of reviewer bias, in which he notes it might be caused in part by the fact that some reviewers are naturally more generous than others, we grouped the reviewers into two, i.e., those who are more generous (recommending "accept" and "minor revision" for > 50% of all the manuscripts reviewed) and those who are conservative (recommending "major revision" and "reject" for > 50% of all the manuscripts reviewed).

This definition coincides with our findings, as demonstrated in Figure 4.1 and Table 4.1, that certain reviewers are more generous compared to others, as seen in instances where reviewers with ID No. 69, 86, and 212, among others, tend to either accept or recommend a minor revision for more than 50% of the manuscripts they have reviewed. Similarly, reviewers with ID No. 16, 21, 64, 223, 216 are more conservative as they tend to either reject or recommend a major revision for more than 50% of the manuscripts they have reviewed.

Given that recommendations can be tailored to the distinctive characteristics of reviewers, such as generosity or conservatism, this may have an impact on the quality of research produced because it is based on the opinions of reviewers rather than being an accurate reflection of reality. In addition to this, Welch (2014) claims that such idiosyncratic factors, among others, may also lead to knowledge advancement becoming increasingly path-dependent and making the careers of economists more unpredictable.

Further to this, Ellison (2002) defines reviewer bias as the ability of reviewers to agree on specific submission and non-submission features to determine whether a manuscript should be accepted, rejected, or subject to revisions.

From the above analysis, only idiosyncratic factors such as conservatism and generosity have been taken into consideration. However, Ellison (2002) notes that such reviewer bias could be due to the inability of reviewers to agree on specific submission and non-submission features and, therefore, can not be limited to only conservatism and generosity, but also other referee-specific traits, including but not limited to abilities, time commitments, moods, opinions, ideologies, personal preferences, age or cohort, professional networks, vanity, and suppression of opposing evidence.

Therefore, our results show that reviewer bias is likely to arise due to the fact that some reviewers are inherently more generous or conservative than others. However, the observed generosity or conservatism among reviewers could be related to the fact that some reviewers are more likely to receive articles that are good and well articulated, or vice versa.

Gender

Although scholarly publications are sometimes criticized for the gender disparity in publication rates, it is uncertain if peer review and editorial processes are to blame. Therefore, we investigate whether the peer review process contributes to the gender gap in research publications in our study.

Earlier work was typically considered for papers whose first author was female, but manuscript submissions do not always follow the same convention for first authors. Hence, in this study, we considered papers with at least one female author versus papers with exclusively male authors.

Our results demonstrate that, with respect to journal ranking, manuscripts that are written by at least one female author are published in journals that are highly ranked compared to those that are solely written by their male counterparts. In one way or another, this coincides with Squazzoni et al. (2021) views on women's preference not to submit their manuscripts to certain journals, with the perception of lower chances of being published as compared to their male counterparts with similar expertise. As a result of this perception, women work meticulously to perfect their research works, submitting fewer manuscripts of comparably higher quality than those solely authored by men, resulting in publication in highly ranked journals.

Similarly, our results also show that the odds of being accepted versus recommending a minor revision, major revision, rejection, or desk rejection are higher for manuscripts written by at least one female author compared to those written by exclusively male authors. This finding coincides with that of Squazzoni et al. (2021) where they similarly found that manuscripts written by women as solo authors or co-authored by women were treated even more favorably by referees and editors.

Our results demonstrate that manuscripts with a higher proportion of women among the authors are accepted more frequently in ERSA, contrary to what is reported in previous empirical findings. This contributes to research on the effects of author gender in peer review recommendations, in line with

Squazzoni et al. (2021) view on the lack of evidence of the effect of the gender variable in life science and social sciences journals. Furthermore, our findings show that, despite women's underrepresentation in the field of economics, manuscripts with at least one female author have a higher acceptance rate in prestigious working paper series such as ERSA and a higher likelihood of being published in higher-ranking journals than their male counterparts.

Conflict of Interest

The peer review process, in its nature, is subject to conflict of interest due to the high degree of both formal and informal collaborations that exist between researchers. Conflicts of interest in the peer review process cannot be eliminated altogether, but can be managed so as to achieve minimal effects on journal content and credibility. According to Ferris and Fletcher (2010), instances of conflict of interest include but are not limited to institutional affiliations, academic commitments, and personal relationships.

In this study, we assess whether institutional affiliations are a cause of bias in peer review recommendations. The results of our analysis show that only 7.1% (33 out of 429) of the manuscripts had authors and reviewers who are affiliated with the same institution. However, there is no statistical evidence that institutional affiliations have an effect on peer review recommendations. This is merely due to the lower number of manuscripts in which authors and reviewers are affiliated with the same institution.

Therefore, in this study, we cannot conclude whether institutional affiliations are a cause of bias in the peer review process, despite being identified as one of the sources of bias in other literature. However, it would be of value to look into other forms of conflict of interest, such as those that may arise from a history of formal or informal collaborations between authors and reviewers, and assess their effects on the peer review process.

Time

The peer review procedure has been criticized for wasting academics' time because reviewers are not compensated and it takes a long time to review at least one paper. According to Kelly et al. (2014), one out of every 100 participants in the "Sense About Science" survey claimed to have spent more than 100 hours reviewing their most recent work.

In this study, we established that it takes an average of approximately 70 days ((DUR) ≈ 10 weeks, for an article to be reviewed. According to a study conducted by Huisman and Smits (2020), in the economics and business fields, it takes an average of 18 weeks for a manuscript to be completely reviewed, i.e., the first response time. This shows that ERSA's editorial process is quick and efficient as authors are able to receive a response relatively quickly.

According to Huisman and Smits (2020), another important duration indicator is the time it takes for an editor to tell authors that their manuscript is not considered fit for publication. This is also known as "desk rejection". In this study, we established that it takes a maximum of 7 days (approximately 1

week) for a manuscript to be desk rejected, which is lower compared to the 13 days taken by journals in economic and business fields, as reported in a study by Huisman and Smits (2020). A shorter time for desk rejection indicates that the journal has an efficient editorial procedure, and it also allows authors to spend less time revising their papers and submitting them to other journals. However, a shorter duration alone is insufficient to address the efficiency of the editing process; a reasonable motivation for a desk rejection is also necessary, since a faster decision turnaround and a reasonable motivation can help turn a rejection into a positive experience.

We also looked to see if the DUR varied depending on the peer review recommendation. We could not find any statistically significant evidence that DUR differed depending on the recommendation status.

Additionally, we observe a number of outliers in the duration of review for rejected, major revision, minor revision, and accepted manuscripts, as there is no set time limit for reviewers and the number of days taken to review a manuscript varies depending on the quality of the manuscript, the reviewer's pace, and other associated factors.

In conclusion, the findings suggest that despite the time-consuming nature of peer review, studies suggest that researchers may still find it valuable to advance their own research careers in terms of improving the quality of their own research through exposure to new ideas and experimental methodologies. Kelly et al. (2014) indicate that reviewers may be interested in developing relationships with prestigious journals and editors and becoming involved in their communities, as reviewers who exhibit a commitment to the publication may be appointed as editors in the future. In addition, some scientists perceive peer review as a way to learn about new research ahead of their peers, allowing them to be the first to develop new insights from acquired knowledge. However, further research would be needed to fully understand the motivations behind researchers' participation in the peer review process.

Prominent Author and Institution

Numerous studies of peer review bias have established a fair basis for the belief that prominent economic authors and those affiliated with renowned institutions have a greater chance of having their manuscripts accepted throughout the peer review process ((Tomkins et al., 2017); (Peters & Ceci, 1982); (Merton, 1968)).

One of the goals of this study was to see if articles published by prominent economic authors and those affiliated with prominent institutions received positive peer review recommendations. Our findings illustrate and validate that when an author is affiliated with a prominent institution in South Africa, the likelihood of their submissions being accepted is greater than being recommended for minor revision, major revision, rejection, or desk rejection. We also observe a higher likelihood of acceptance in a peer review process when a manuscript is published by a prominent economic author(s) in South Africa. Additionally, manuscripts in this category are more likely to be accepted and

published in journals with a higher ranking than those recommended for minor revision, major revision, rejection, or desk rejection.

These biases may damage the quality of research, as papers are not always evaluated on the basis of their inherent characteristics, such as the quality of the content, but rather on the basis of external characteristics, such as the authors' names and the institution with which they are affiliated. In this regard, it may be necessary to withhold the authors' names and affiliations from the reviewer in order to ensure that the work is evaluated only on the basis of its content.

Although Smith (2006) criticized the premise of concealing the writers' identities, he noted that in the research they conducted, neither of them discovered that concealing the reviewer's name increased the review's quality. However, Tomkins et al. (2017) discovered that single-blind reviewers are far more likely to provide positive ratings to papers by well-known authors or publications from major universities or corporations than double-blind reviewers.

Despite the mixed views on the premise of concealing the authors' identities and the institutions with which they are affiliated, it appears necessary to employ this technique in order to minimize bias and the possibility of impairing the quality of knowledge produced. In addition, new technologies like Blockchain, which have encryption features, can help aid in concealing the authors' identities when required. It's possible to be both transparent and pseudonymous with the help of Blockchain, where everyone is able to see the same data store, which makes it easier to verify peer review processes while protecting the real identities and other private information of the participants.

It is important to note that this study is limited to examining ERSA's single-blind review process. However, some of the findings discussed in this section may still apply to a double-blind review process. For example, the study found that manuscripts written by at least one female author tend to be published in more highly ranked journals than those solely written by male authors. This finding could still hold true in a double-blind review process, since the quality of the manuscript is not affected by the gender of the author. On the other hand, the study also found that certain reviewers are more generous or conservative than others, which may be influenced by the identity of the author. In a double-blind review process, where the identities of the authors are kept anonymous, this may lead to different results. However, it is important to note that these are merely hypotheses and further research is needed to confirm the impact of these factors on different review processes and whether the findings on single blind peer review studies would still hold for other types of review.

CHAPTER 6

Conclusion

This chapter concludes by highlighting the summary of our study, providing recommendations on our findings, and suggestions for future work that may originate from or be expanded from this study.

6.1 Thesis Summary

In this paper, we study various aspects of the peer review process using data from 669 manuscripts submitted to ERSA between 2013 and 2018. Aspects discussed include reviewer bias, recommendation biases resulting from conflict of interest, author prominence, institutional affiliation, gender composition of the authors, duration of manuscript review, and quality of the manuscripts, all within ERSA's editorial process.

We established that reviewer bias is a source of concern for the peer review process's effectiveness in knowledge production given that certain reviewers are more conservative or more generous in their recommendations on the manuscripts they assess. Similarly, we also established that the prominence of an author and/or their institutional affiliation is also a cause of bias in the peer review process, which may, as a result, impair the quality of the research produced.

While the conflict of interest associated with the reviewer and author sharing the same institutional affiliation is concerning, our study was limited by the data available, and thus we did not obtain sufficient statistical evidence to establish whether sharing an institutional affiliation between an author and a reviewer has an effect on the effectiveness of the peer review process.

Additionally, we found that submissions with at least one female author are more likely to be approved during ERSA's peer review process, contrary to previous empirical studies that concluded that gender has no effect on peer review recommendation in life science and social science domains. Our results further demonstrated that papers with at least one female author are more likely to get published in higher-ranking journals than those with just male authors.

In terms of the quality of ERSA's editorial process, we discovered that it takes 10 weeks on average to complete a review process and 8 days to issue a desk rejection, which are both shorter than the 18 weeks and 13 days reported in a study by Huisman and Smits (2020). Similarly, we established that

there is significant statistical evidence that manuscripts accepted or recommended for minor revision during ERSA's peer review are more likely to be published in other peer-reviewed journals, demonstrating that ERSA's recommendations are consistent with those of other peer-reviewed journals. This clearly shows that ERSA's peer review process is consistent and fast, as it allows for early communication with authors who may be rejected, allowing them to revise their manuscripts and submit them to other journals.

Finally, we noted that manuscripts written by prominent economics authors and those with authors linked with prominent South African institutions have a higher likelihood of being published in journals with a higher ranking in conjunction with being accepted in ERSA's peer review process.

Given the widespread use of peer review in numerous critical processes such as scholarly publication, grant applications, scientist and scholar nominations to scholarly institutions, and the selection of recipients of prestigious accolades such as Nobel prizes, it is critical that we work to minimize the inherent biases in this process in order to ensure that these processes are fair, timely, efficient, and effective.

The following are some recommendations for addressing concerns identified in our research that would aid in the overall improvement of the peer review process.

6.2 Recommendations

The review process for academic journals can be lengthy, and it's important to ensure that the process is fair and timely. One way to achieve this is by implementing a maximum time limit for reviewers to read and provide feedback on a manuscript. This not only reduces the risk of plagiarism or unfair practices but also ensures that research knowledge is shared in a timely manner, which is crucial for the advancement of the field. By setting a cap on the review process time, journals can promote transparency, fairness, and efficiency in the peer-review process, ultimately leading to better research outcomes.

Ferris and Fletcher (2010) emphasizes that the foundation of conflict of interest management is complete written disclosure; without it, nothing else is feasible. However, disclosure alone is an insufficient remedy; editors must still evaluate if a conflict has the potential to undermine an individual's neutrality to the point where the manuscript should be withheld from publication. Therefore, additional research should be conducted to identify potential sources of conflict of interest in the ERSA peer review process, to ensure that authors and reviewers disclose any potential conflicts of interest prior to the peer review process, and to establish regulations to ensure that reviewers are carefully selected with the goal of minimizing potential conflicts of interest.

Additionally, to address any biases that may occur as a result of the author's and author institution's notoriety, blinding reviewers to the author's and their respective institutions' identities would be

preferable in reducing this bias, as would utilizing emerging technologies such as Blockchain, which has encryption features and thus provides a transparent platform that takes participants' anonymity into account when required.

Furthermore, subject matter experts are often chosen as reviewers due to their expertise in the field. However, it is important to note that some reviewers may lack the necessary ethical and technical competencies required for the peer review process. This can result in inconsistent or inadequate reviews, which ultimately impacts the quality and speed of the review process. To address this issue, it is recommended that reviewers receive training to ensure that they possess the necessary ethical and technical skills necessary to perform a high quality peer review process. For example, providing training on specific review criteria or ethical guidelines can help reviewers produce more accurate and comprehensive reviews. In one study, reviewers skilled in epidemiology and statistics, who were younger in age, and who spent no more than three hours on a review, were associated with increased review quality. Therefore, providing training to subject matter experts can contribute to enhancing the quality and speed of the reviews they conduct.

Considering the potential limitations and challenges of the peer review process, it is crucial to conduct further research to identify biases and other factors that may impede its effectiveness, fairness, and accuracy. Such research can help us gain a better understanding of the underlying issues and enable us to implement solutions that can benefit not only the field of economics but any other field that uses peer review. To this end, the following research suggestions can be expanded upon from the current study:

6.3 Future Work Suggestions

- In future work, it would be useful to quantify the selection bias in articles submitted to ERSA by determining the ratio of published authors who submit their work to ERSA. This would involve collecting data on the number of authors who have submitted their work to ERSA and the total number of published authors in the same set of journals that have subsequently published ERSA submitted articles.
- Our results show that there are manuscripts which were recommended for minor revision, major revision, and rejection; they were published in ERSA's working paper series. Thus, we would say these manuscripts were eventually accepted. It would be useful to conduct a study to better understand the average number of times the average manuscript is re-submitted before it is accepted and published in the working paper series.
- Due to the scarcity of data, we were unable to discover statistical evidence of the influence of identical institutional affiliations for an author and a reviewer on the peer review process. Additional data collection is necessary to determine whether this has an influence on the peer

review process. Additionally, various forms of conflict of interest should be investigated to generate conclusive evidence of their impact on the peer review process. These may include a reviewer's prior history of co-authorship with an author, papers produced by authors who are also reviewers, and various types of conflict of interest that may occur as a result of formal and informal collaborations.

References

- Baetschmann, G., Ballantyne, A., Staub, K., & Winkelmann, R. (2020). Feologit: A new command for fitting fixed-effects ordered logit models. *The Stata Journal*, 20(2), 253–275. <https://doi.org/https://doi.org/10.1177%2F1536867X20930984>
- Bénassy-Quéré, A., Blanchard, O., & Tirole, J. (2017). What role for economists in policy-making? *Notes du conseil d'analyse économique*, 42(6), 1–12.
- Chaudhry, S., Schroter, S., & Smith, R. (2003). Does declaration of competing interests affect reader perceptions? a randomised trial. *BMJ Clinical Research*, 325(7377), 1391–2. <https://doi.org/10.1136/bmj.325.7377.1391>
- Corbyn, Z. (2014). *Call to scrap peer review in hunt for brilliant ideas*. Retrieved December 14, 2021, from <http://www.timeshighereducation.co.uk/404707.article>
- Ellison, G. (2002). Evolving standards for academic publishing: A q-r theory. *Journal of Political Economy*, 110(5), 994–1034. <https://doi.org/http://dx.doi.org/10.1086/341871>
- Ferris, L., & Fletcher, R. (2010). Conflict of interest in peer-reviewed medical journals: The world association of medical editors position on a challenging problem. *The Journal of Young Pharmacists*, 2(2), 113–5.
- Georg, C.-P., & Rose, M. (2016). Mirror, mirror on the wall, who is the most central of them all? *ERSA Working Paper*, (571). <https://signal.org/blog/private-contact-discovery/>
- Haffar, S., Bazerbachi, F., & Murad, H. (2019). Peer review bias: A critical review. *Mayo Clinic Proceedings*, 94(4), 670–676. <https://doi.org/https://doi.org/10.1016/j.mayocp.2018.09.004>
- Helmer, M., Schottdorf, M., Neef, A., & Battaglia, D. (2017). Gender bias in scholarly peer review. *Elife*, 6. <https://doi.org/10.7554/eLife.21718>
- Huisman, J., & Smits, J. (2020). Duration and quality of the peer review process: The author's perspective. *Scientometrics*, 113, 633–650. <https://doi.org/10.1007/s11192-017-2310-5>
- Hurst, J., Howard, E., & Wedzicha, J. (2005). Reviewer selection: Author or editor knows best? *Thorax*, 60, 799. <https://doi.org/http://dx.doi.org/10.1136/thx.2005.051870>
- Jana, S. (2019). A history and development of peer-review process. *Annals of Library and Information Studies*, 66, 152–162. <https://www.researchgate.net/publication/337916647>

- Kelly, J., Sadeghieh, T., & Adeli, K. (2014). Peer review in scientific publications: Benefits, critiques, & a survival guide. *The Journal of the International Federation of Clinical Chemistry and Laboratory Medicine*, 25(3), 227–243.
- Knobloch-Westerwick, S., Glynn, C., & Huge, M. (2013). The matilda effect in science communication: An experiment on gender bias in publication quality perceptions and collaboration interest. *Science Communication*, 35(5). <https://doi.org/10.1177/1075547012472684>
- Merton, R. (1968). The matthew effect in science: The reward and communication systems of science are considered. *Science*, 159(3810), 56–53. <https://doi.org/10.1126/science.159.3810.56>
- National-Research-Council. (1999). Informed public economic policy. In J. F. Geweke, J. T. Bonnen, A. A. White, & J. J. Koshel (Eds.), *Sowing seeds of change: Informing public policy in the economic research service of usda* (pp. 17–31). The National Academies Press.
- Peters, D., & Ceci, S. (1982). Peer-review practices of psychological journals: The fate of submitted articles, submitted again. *Behavioral and Brain Sciences*, 5, 187–195. <https://doi.org/10.1017/S0140525X00011183>
- Resnik, D., & Elmore, S. (2018). Conflict of interest in journal peer review. *Toxicologic Pathology*, 46(2), 112–114. <https://doi.org/10.1177/0192623318754792journals.sagepub.com/home/tpx>
- Rivara, F., Cummings, P., Ringold, S., Bergman, A., Joffe, A., & Christakis, D. (2007). A comparison of reviewers selected by editors and reviewers suggested by authors. *The Journal of Pediatrics*, 151(2), 202–205. <https://doi.org/10.1016/j.jpeds.2007.02.008>
- Rose, M., Georg, C.-P., & Opolot, D. (2020). Discussants. *Max Planck Institute for Innovation and Competition*, (20-19). <https://ssrn.com/abstract=3727173>
- Shamoo, A., & Resnik, D. (2015). Responsible conduct of research. Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780195368246.001.0001>.
- Smith, R. (2006). Peer review: A flawed process at the heart of science and journals. *Journal of the Royal Society of Medicine*, 99, 178–182.
- Squazzoni, F., Bravo, G., Farjam, M., Marusic, A., Mehmani, B., Willis, M., Birukou, A., Dondio, P., & Grimaldo, F. (2021). Peer review and gender bias: A study on 145 scholarly journals. *Science Advances*, 7(2). <https://doi.org/10.1126/sciadv.abd0299>
- Tomkins, A., Zhang, M., & Heavlin, W. (2017). Reviewer bias in single- versus double-blind peer review. *Proceedings of the National Academy of Sciences*, 114(48). <https://doi.org/10.1073/pnas.1707323114>
- Wager, E., Parkin, E., & Tamber, P. (2006). Are reviewers suggested by authors as good as those chosen by editors? results of a rater-blinded, retrospective study. *BMC Medicine*, 4(13). <https://doi.org/10.1186/1741-7015-4-13>
- Welch, I. (2014). Referee recommendations. *The Review of Financial Studies*, 27(9), 2773–2804.

APPENDIX A

Descriptive Summary of Key Variables

Table [A.1](#) contains a descriptive summary of the key variables in the data set analysed in this study.

TABLE A.1: *A descriptive summary of the variables in the data set used in this study.*

Variable	Description
Manuscript ID	Unique ID for each manuscript
Manuscript Title	A title of the manuscript
Submission Date	The date a manuscript was submitted to ERSA for review
Author Names	Names of the authors of the submitted manuscript
Author Affiliations	The institutions in which the authors of the manuscripts are affiliated to
Publication	Name of the journal in which the manuscript was subsequently published on
JournalRankingSJR	The (SJR)rank of the journal in which the manuscript was subsequently published on
Decision Date	The date in which the recommendation decision was made
Recommendation	(1 = Reject, 2 = Major Revision, 3 = Minor Revision, 4 = Accept)
AcceptorRejectFinalDecision	Final decision after recommendation is made (1 = Reject, 2 = Accept)
Reviewers Full Name	Name of the reviewer of the manuscript
Reviewer Affiliations	The institutions in which the reviewer of the manuscripts are affiliated to
Days Under Review	The number of days taken to review the manuscript i.e. from the date of submission to the decision date
Eventually Accepted	(1 = Yes, 0 = No)
Author is Editor	(1 = Yes, 0 = No)
Is_Published	(1 = Yes, 0 = No)
Is_colleague	Author and Reviewer are from the same institution (1 = Yes, 0 = No)
Is_renownedauthorinstitution	Author is from a renowned institution in South Africa (1 = Yes, 0 = No)
Is_renownedauthor	Author is a renowned economic researcher in South Africa (1 = Yes, 0 = No)
Is_eitherauthorfemale	At least one author of the manuscript is a female (1 = Yes, 0 = No)
num_reviews	Number of manuscripts each referee has reviewed
Reviewer_ID	Unique identifier for each reviewer

APPENDIX B

Detailed Reviewer Bias Regression Output

Table [B.1](#) on the next page shows the detailed regression relationship between recommendation and each reviewer.

	Logit coefficient		Odds Ratio	
Rev_ID: 19	1.386*	(0.817)	4.000*	(3.269)
Rev_ID: 21	2.157**	(1.007)	8.645**	(8.708)
Rev_ID: 26	0.960	(0.951)	2.611	(2.482)
Rev_ID: 27	-0.367	(0.970)	0.693	(0.672)
Rev_ID: 31	-1.604	(1.059)	0.201	(0.213)
Rev_ID: 64	0.498	(1.066)	1.646	(1.754)
Rev_ID: 69	3.111***	(0.932)	22.447***	-20.928
Rev_ID: 74	0.395	(0.932)	1.484	(1.383)
Rev_ID: 86	1.911*	(0.999)	6.761*	(6.753)
Rev_ID: 92	1.190	(0.955)	3.288	(3.141)
Rev_ID: 97	-0.274	(0.921)	0.76	(0.701)
Rev_ID: 103	0.311	(1.024)	1.364188	(1.397)
Rev_ID: 106	1.095	(1.000)	2.989571	(2.991)
Rev_ID: 111	0.870	(0.732)	2.38755	(1.749)
Rev_ID: 113	2.309**	(1.038)	10.07**	(10.45)
Rev_ID: 121	0.317	(0.964)	1.372429	(1.324)
Rev_ID: 124	-0.837	(1.133)	0.4328033	(0.490)
Rev_ID: 145	-0.016	(0.939)	0.9840072	(0.924)
Rev_ID: 167	2.124*	(1.176)	8.369*	(9.840)
Rev_ID: 169	0.263	(1.103)	1.300608	(1.434)
Rev_ID: 178	0.662	(0.980)	1.938284	(1.899)
Rev_ID: 192	0.745	(1.044)	2.105414	(2.197)
Rev_ID: 207	1.222	(1.049)	3.393585	(3.560)
Rev_ID: 209	0.548	(0.771)	1.729116	(1.333)
Rev_ID: 212	2.486***	(0.869)	12.015***	(10.456)
Rev_ID: 216	0.698	(0.988)	2.010639	(1.987)
Rev_ID: 223	-1.775	(1.320)	0.1694673	(0.224)
/cut1	-0.607	(0.670)		
/cut2	1.290*	(0.675)		
/cut3	3.263***	(0.709)		
Log likelihood	-284.937			
LR chi2(28)	61.7			
Prob >chi2	0.0002			
Pseudo R2	0.098			
Observations	241			
Standard errors in parentheses	*** p<0.01, ** p<0.05, * p<0.1			

TABLE B.1: Detailed regression output of reviewer bias analysis

APPENDIX C

Formulae for the data summary statistics

This appendix shows the formulae for the data variables summary statistics.

The sample mean (\bar{X}):

$$\bar{X} = \frac{\sum_{i=1}^n x_i}{n}$$

The sample standard deviation (s):

$$s = \sqrt{\frac{\sum (x - \bar{x})^2}{n - 1}}$$