A SYSTEMATISED REVIEW OF THE LITERATURE RELATED TO THE USE OF DETERRENCE AND RECIPROCITY MESSAGES AS A NUDGE TO INFLUENCE TAX COMPLIANCE BEHAVIOUR

by

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"Onthatile O Morena, onthatile llena!" This is a song by my favourite gospel artist, Lebo Sekgobela, titled "Onthantile", meaning you have loved me dear Lord, you have loved me. I acknowledge this song because it has given me strength when I had none and was on the verge of giving up. It constantly reminded me that I am a child of a King and I am loved by the King.

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Secondly, I would like to extend my deepest gratitude to my family for their support. To my big brothers, Thabo and Kagiso, thank you for the selfless sacrifices you have made to get me to this point. To my mother, Zandile Shakoane, thank you for your love, your relentless prayers and sacrifices. I will forever be indebted to you for rearranging your priorities just to put me through school.

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Love

Lesego

ABSTRACT

A SYSTEMATISED REVIEW OF THE LITERATURE RELATED TO THE USE OF DETERRENCE AND RECIPROCITY MESSAGES AS A NUDGE TO INFLUENCE TAX COMPLIANCE BEHAVIOUR

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Background: Tax compliance has become a focal point for countries that have to cope with limited revenue and increasing expenditure. Tax authorities do not collect even half of what they would if taxpayers complied with tax laws and regulations. As a result, some governments are compelled to rely on foreign aid to provide public goods and services to their citizens. Therefore, tax authorities must seek ways in which they can encourage tax compliance in order to raise revenue.

Main purpose of study: This study focuses on strategies, namely deterrence messages and reciprocity messages, as a nudge to influence tax compliance behaviour. This study creates awareness among tax authorities that such tax compliance strategies have been studied and can be incorporated into the tax collection processes to encourage tax compliance.

Method: This was achieved by systematically reviewing academic literature that related to the effectiveness of deterrence messages and reciprocity messages as tax nudges.

Results: The results from the systematic review were varied. Deterrence messages as a nudge were effective and positively influenced tax compliance. On the other hand, studies

of reciprocity messages indicated that reciprocity messages increased tax compliance while other studies observed no effect.

Conclusions: It is irrefutable that a government needs sufficient revenue in order to provide a healthy and functioning society for its citizens. Increasing revenue would allow governments to provide essential public goods and services to citizens. Encouraging tax compliance behaviour through the use of deterrence messages and reciprocity messages will aid tax authorities to collect sufficient revenue to provide a healthy functioning society.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS AND ACRONYMS

Table 1: Abbreviations and acronyms used in this document

Abbreviation	Meaning
ABDC	Australian Business Deans Council
OECD	Organisation for Economic Co-operation and Development
SMS	Short Message Service

CHAPTER 1: INTRODUCTION

1.1. BACKGROUND

"Governments have to cope with limited revenue and increasing expenditure" (OECD, 2014:30). This has resulted in fiscal constraints and dependence on foreign aid. Raising revenue has become an important function in driving a country's economy (OECD, 2014:30), and it is for this reason that taxes are important. Taxes help achieve a prosperous, functional and orderly society (The World Bank Group, 2018: No page).

Taxes serve as primary means for financing programmes aimed at providing education, health services, infrastructure and other important public goods and services (The World Bank Group, 2018: No page). In order to provide these programmes to citizens, governments need to raise revenue.

Raising revenue depends on a country's economic aspirations and fiscal policies (OECD, 2014:30). There are a number of tax compliance strategies that have been identified to develop tax systems; these include encouraging voluntary tax compliance (OECD, 2004:70). The OECD (2019: No page) defines tax compliance as a "degree to which a taxpayer complies (or fails to comply) with the tax rules of his country, for example by declaring income, filing a return, and paying the tax due in a timely manner".

Improving tax compliance is a goal for governments and tax authorities (Hallsworth, 2014:658). It is for this reason that tax authorities have to seek ways to assist the government in encouraging voluntary tax compliance. This study aims to understand how two measures (i.e. deterrence messages and reciprocity messages) can be used as a nudge to influence voluntary tax compliance.

1.2. RATIONALE FOR THE STUDY

"Some developing countries do not collect even half of what they would if taxpayers complied with tax regulations." (Castro & Scartascini, 2013:2). Tax compliance has become a focal point for these countries. Tax authorities must seek ways in which they can encourage tax compliance. When deciding whether or not to be compliant with tax

8

regulations taxpayers do not only weigh the monetary payoff of not paying taxes, they also weigh the moral implications of their decisions (Castro & Scartascini, 2013:2). Taxpayers' decisions to pay taxes or not are influenced by their attitude towards taxes (tax morale), their knowledge about the tax system (tax education), the probability of being audited, penalties being raised (deterrence measures) and their perception of how the government uses public revenue (reciprocity). Tax compliance cannot be encouraged by only looking at how high or how low tax rates are: a taxpayer's subjective beliefs must also be considered. Tax compliance strategies must therefore consider how taxpayers react to the factors mentioned above.

This study seeks to explore two tax compliance strategies, namely deterrence messages and reciprocity messages, and their effect on tax behaviour. In this study, recently published academic articles, discussion papers and working papers related to deterrence messages and reciprocity messages as a nudge will be searched to determine if these strategies are successful in encouraging tax compliance behaviour.

This study is important because to date no known systematic review has been conducted to understand the state of literature related to the effectiveness of deterrence messages and reciprocity messages as tax nudges. This study contributes to the body of knowledge relating to how tax nudges can influence tax behaviour. This study further creates awareness among tax authorities that such tax compliance strategies have been studied and can be incorporated into the tax collection processes to encourage tax compliance.

1.3.   RESEARCH OBJECTIVE

The main objective of this study is to provide a systematic review of literature related to the use of deterrence messages and reciprocity messages as a nudge to encourage tax compliance behaviour.

This study aims to achieve this objective by:

- Identifying academic literature and analysing the literature related to the use of deterrence messages as a nudge to encourage tax compliance.

9

- Identifying academic literature and analysing the literature related to the use of reciprocity messages as a nudge to encourage tax compliance.
- Providing a report on the analysis performed on academic literature following a systematic review of academic literature relating to the influence of deterrence messages as a nudge to encourage tax compliance behaviour.
- Providing a report on the analysis performed on academic literature following a systematic review of academic literature relating to the influence of reciprocity messages as a nudge to encourage tax compliance.

Furthermore, the purpose of this study is to address the following research questions:

- What is the effect of deterrence messages on tax compliance behaviour?
- What is the effect is of reciprocity messages on tax compliance behaviour?
- What are the types of deterrence measures used in deterrence nudge messages?
- What are the types of public goods or services used in reciprocity nudge messages?
- What types of delivery methods have been used to deliver deterrence and reciprocity nudge messages?
- Do deterrence and reciprocity nudge messages have a long-term effect on tax compliance?

1.4. RESEARCH DESIGN AND METHODOLOGY

This study follows a systematic review approach and applies a qualitative research methodology. It also follows a pragmatism philosophical stance and the nature of the study is descriptive. It was conducted at one point in time and analyses existing literature as a source of data.

1.5. MAIN CONSTRUCTS OF THIS STUDY

A construct is defined as a main idea, theme or subject matter that a researcher wants to measure using an experiment, survey or questionnaire (Lavrakas, 2008:133). The main

constructs related to this study are nudges and tax compliance, which will both be discussed in the subsections that follow.

1.5.1. Nudges

Various governments and tax authorities make use of nudges in order to encourage compliance with laws and regulations. Nudging has become an attractive tool in increasing tax compliance because of how easy it is to implement and how cost effective it tends to be. Thaler and Sunstein (in Jung & Mellers, 2016:62) define nudges as "… any aspect of the choice architecture that alters people's behaviour in a predictable way without forbidding any options or significantly changing their economic incentives". In other words, nudges encourage people to do what is right for them without being coerced or significantly changing their economic incentives (Jung & Mellers, 2016:62).

There are several types of nudges. According to Hansen and Jespersen (2013:27), there are transparent nudges where "individuals understand the expected behavioural change and how the change will occur" and non-transparent nudges where "individuals are less likely to recognize the possibility of behavioural change, and they cannot reconstruct the change".

Another type of nudge is based on the target. Hagman, Andersson, Västfjäll and Tinghög (2015: No page) explain that there are "pro-self nudges (for example smoking cessation and weight loss) and pro-social nudges (recycling or default settings for charitable giving)".

Hansen and Jespersen (2013:13) made another distinction that addresses the cognitive mechanism. This nudge is based on two thinking methods: System 1 and System 2. "System 1 nudges are more likely to operate without the awareness of the decision maker by relying on implicit defaults and status quo options" (Dinner *et al.*, 2011:4). This means that this nudge is more automatic, for example automatically changing your food order whilst in line because of what is on display (Jung & Mellers, 2016:63). System 2 consists of information that may sometimes be educational to make people aware and to think a little bit more about their decision (Jung & Mellers, 2016:63).

Nudging is a concept resulting from behavioural economics. Behavioural economics is defined as "economic science that uses methods and analytical techniques from psychology to study the decision-making process and economic behaviours" (Neatu, 2015:256). Tax authorities make use of behavioural letters to study taxpayers' decision-making process. Thereafter they make use of psychological techniques to communicate with taxpayers in order to get them to comply with tax laws and regulations (Antinyan & Asatryan, 2019:4).

Behavioural letters come in the form of deterrence interventions where, for example, letters are sent to taxpayers to inform them about audit probabilities or potential penalties. Another form of behavioural letters can be reciprocity interventions where taxpayers are informed about the importance of paying taxes in order to provide sufficient public goods and services. The reason for behavioural letters is to appeal to taxpayers' moral obligation to pay their taxes (Antinyan & Asatryan, 2019:4).

Nudges have been described as not coercive and do not deceive people; however, nudges have been criticised for manipulating people (Dworkin, 2020: No page). According to Wilkinson (2013:343), nudging makes use of clever tricks of modern psychology and economics to manipulate people. Manipulation is defined as "controlling or influencing a person or situation in a cleverly or unscrupulous way" (Lexico, 2020: No page). Manipulation interferes, perverts or takes advantage of factors that people would not want to be influenced. Manipulation fails to respect people as rational and capable choosers (Dworkin, 2020: No page).

Dworkin (2020: No page) argues that "we don't like manipulation when it's done to sell us things; we shouldn't like manipulation when our governments do it to us". Therefore, nudging can be seen as some form of manipulation as it takes away the liberty for people to choose for themselves.

1.5.2. Tax Compliance

"Tax compliance sits at the heart of a healthy functioning society" (De Neve, 2019:2), hence it is important for tax authorities to understand what motivates tax compliance. Tax compliance is defined as the "degree to which a taxpayer complies (or fails to comply) with the tax rules of his country, for example by declaring income, filing a return, and paying the tax due in a timely manner" (OECD, 2019: No page).

Hallsworth (2014:659) provides a similar definition but adds that although filing a return timeously, reporting accurate returns and paying taxes timeously are the main obligations to be tax compliant, these factors may not all be applicable to a taxpayer. In other words, a taxpayer may file an accurate return on time and still have no obligation to pay tax because of a nil return. Just because the taxpayer has not made payment it does not mean that they were non-compliant.

However, instances of taxpayers not complying with laws or regulations because of deliberate evasion, ignorance, carelessness or weakness in tax administration are inevitable. The primary goal of tax authorities is to keep these instances at a minimum. In order to achieve a healthy functioning society, tax authorities need to devote considerable resources to ensure that taxpayers understand their obligation under the tax laws and understand how important their role is in a healthy functioning society. A taxpayer's obligation would be to declare their income accurately, file a return timeously and pay the tax due on time (OECD, 2004:7).

As far as drivers of compliance are concerned, taxpayers' behaviour can be motivated by making use of deterrence and reciprocity (Mascagni *et al.*, 2017:7). Deterrence is the taxpayer's belief about fine enforcements and reciprocity is their beliefs of how the government utilises public resources (Castro & Scartascini, 2015:4). Experimental literature testing the validity of deterrence and reciprocity is growing at a very fast rate. Field experiments indicate that deterrence is effective in encouraging tax compliance. On the other hand, results related to the use of reciprocity messages are mixed.

1.6. STRUCTURE OF THE MINI-DISSERTATION

1.6.1. Chapter 1: Introduction

This chapter provides a summary of the mini-dissertation by outlining the background of this study, explaining the rationale of the study, presenting the research objectives of the study and introduces the research questions.

1.6.2. Chapter 2: Research design and methodology

Chapter 2 describes the research design and methodology applied in this study. This chapter commences with discussing the research design applied and concludes with the research methodology adopted.

1.6.3. Chapter 3: Data analysis and presentation of results

This chapter presents the findings of the systematic analysis of selected academic articles, working papers and discussion papers (referred to as academic literature) by discussing the answer to the research questions.

1.6.4. Chapter 4: Conclusion

Chapter 4 concludes the study by summarising the findings and conclusions. Furthermore, this chapter makes recommendations for future research topics and discusses limitations of this study.

CHAPTER 2:
RESEARCH DESIGN AND METHODOLOGY

2.1. INTRODUCTION

The main objective of this study is to provide a systematised review of academic literature on the effect of deterrence and reciprocity messages on tax compliance. The previous chapter introduced the study and provided a brief rationale of the study. This chapter provides a detailed description of the research design and methodology applied in this study. The first section of this chapter outlines the research design adopted in this study. The second section of this chapter provides the research methodology applied in this study to identify journal articles and other research papers selected to answer the research questions.

2.2. RESEARCH DESIGN

In this section the research design will be addressed. Research design refers to the framework that has been created to answer the research question for a study (Miller & Brewer, 2003: No page). This section analyses the following research design elements in detail: the philosophical stance, the nature of the study, the reasoning approach, the study's time horizon, the unit of analysis, the types of data and the sources of data.

2.2.1. Philosophical stance of the study

The philosophical stance of a study is the belief that strongly influences the reasoning of a study. This reasoning affects the data required to conduct the study and the manner data is analysed (Sutrisna, 2009:4). There are four types of philosophical stances, namely:

- Positivism: This philosophical stance adopts a school of thought that makes use of deductive logic and quantitative methods to get to the truth. Positivists utilise cause and effect laws that one can discern from using a scientific approach to research (Sekaran & Bougie, 2013:394).

15

- Realism: Realism adopts a particular way of thinking, it combines the objective truth with the rejection of the claim that this external reality can be objectively measured (Sekaran & Bougie, 2013:390).
- Interpretivism (Constructionism): This stance adopts an approach to research that is based on the idea that the world as we know it is fundamentally mental or mentally constructed. Interpretivists aim to understand the rules people use to make sense of the world by investigating what happens in people's minds (Sekaran & Bougie, 2013:390).
- Pragmatism: This philosophical stance does not take a particular position on what makes good research. Pragmatists feel that research on both objective, observable phenomena and subjective meanings can produce useful knowledge, depending on the research question of the study (Sekaran & Bougie, 2013:395).

This study adopts a pragmatism philosophical stance. This is because this study seeks to obtain an understanding of the impact of the use of deterrence and reciprocity messages on tax compliance behaviour without taking a particular position on what encourages tax compliance.

2.2.2. The nature of the study

The nature of a study refers to the research design applicable to a study. There are three types of research designs a study can adopt, namely:

- Exploratory research: This is research that aims to investigate a problem by looking for patterns, building ideas or generating a theory. This research method is used to get a better understanding of a problem, rather than to test or confirm a hypothesis (Jupp, 2006:110).

- Descriptive research: This research method describes the key characteristics of populations or phenomena that are being studied. It focuses on the "what is being studied" of research rather than the "why is it studied" (Sekaran & Bougie, 2013:391).

16

- Experimental research: This research is carried out to identify the nature of a cause and effect relationship and to further evaluate the cause and effect among variables (Sekaran & Bougie, 2013:389).

This study falls within the ambit of descriptive research because this study describes the current state of literature related to the use of deterrence and reciprocity messages as a nudge to influence tax compliance behaviour. This is done by gathering experimental studies that have been conducted on the effect of deterrence and reciprocity messages on tax compliance.

2.2.3. Reasoning methods

Reasoning can be defined as a logical way of thinking (Lexico, 2020: No page). "Reasoning and logic represent vital components of a research process. If these elements are absent, the research process is weakened and jeopardized so severely as to render it useless" (Drew *et al.*, 2008:17). There are three types of reasoning methods that a study can adopt, namely:

- Inductive reasoning: This method of reasoning makes use of a specific case or occurrence and then develops inferences about the general idea, model or theory, for example "If a specific behaviour occurs, then this general theory is supported." (Drew *et al.*, 2008:17).

- Deductive reasoning: This method of reasoning, on the other hand, makes use of logic that develops from the general to the specific. This reasoning uses general statements, ideas or theory and makes a conclusion about a specific case (Drew *et al.*, 2008:17).

- Abductive reasoning: This method of reasoning first follows the inductive reasoning and then uses deductive reasoning (Sekaran & Bougie, 2013:26).

This study follows an inductive reasoning method because this study observes specific academic literature and makes a generalisation about the population based on the findings in the specific literature analysed.

2.2.4. Time horizon of the study

The time horizon in a study is the time frame of when the study was carried out (Sekaran & Bougie, 2013:390). There are two types of time horizons that a study can adopt, namely:

- Cross-sectional study: This type of study gathers and analyses data at one particular point in time in order to answer the research question (Sekaran & Bougie, 2013:390).

- Longitudinal study: This is a type of study where data is gathered and analysed at more than one point in time (Sekaran & Bougie, 2013:393).

This study is a cross-sectional study because the data for this study was collected at one particular point in time.

2.2.5. Unit of analysis

The unit of analysis refers to the persons or things being studied (Vogt, 2005: No page). It is the "who" or the "what" is being studied. This could vary from students to attitudes or even programmes (Sekaran & Bougie, 2013:102). The unit of analysis is the unit that will be studied.

The collection of relevant academic literature will be the focal point of this study. Therefore, the unit of analysis for this study is the academic literature relating to the use of deterrence and reciprocity messages as a nudge to encourage tax compliance behaviour.

2.2.6. Types of data

The type of data is the type of information that can be obtained from the real world (Clamp *et al.*, 2004:196). There are two types of data a study can use, namely:

- Quantitative data: This data is numerical in nature, it can be counted and expressed in numbers, for example surveys (Sekaran & Bougie, 2013:271).

- Qualitative data: This data is gathered from participants in an interview or focus group. It is expressed in the form of words (Sekaran & Bougie, 2013:271).

This study falls within the ambit of qualitative data because data collected for this study is expressed in the form of words.

2.2.7. Sources of data

Subsequent to the type of data used in a study, external information that could assist in answering the research question must be determined. There are two sources of data a study can use, namely:

- Primary data: This data is gathered directly from research participants by means of questionnaires, surveys, focus groups or experiments (Kolb, 2008:87).

- Secondary data: This data already exists as someone else has already collected it as a result of previous research (Kolb, 2008:87). This information is gathered from journal articles or books.

This study makes use of secondary data because this study collects information from existing academic literature (previous research) to answer the research question.

2.3.   RESEARCH METHODOLOGY

This section analyses the research methodology adopted in this study by clarifying the methodological classification, the systematised review and the data collection technique. This chapter concludes with an overview of data collected and the assessment of the quality of journal articles.

2.3.1. Methodological classification

A study can be classified according to any one of the following research methods:

- Quantitative research: This research qualifies problems numerically and transforms the numerical data into useful statistics. The data gathered in a quantitative study generalises quantified opinions, attitudes and behaviour. This research measures data and produces facts (Meadows, 2003:520).
- Qualitative research: This research has an exploratory nature. Its aim is to understand underlying reasons, opinions and motivations. Unlike quantitative research, this research dives deeper into the problem by providing insights into problems or developing ideas that can assist in solving the problem for quantitative research (Bacon-Shone, 2016:44).
- Mixed method research: This is a research process where quantitative research methods such as surveys and experiments are combined with qualitative research methods such as focus groups and interviews (Plano & Ivankova, 2016:56).

This study adopts a qualitative research method because this study dives deep into understanding how communicating deterrence and reciprocity messages can assist tax authorities and governments to encourage tax compliance behaviour.

2.3.2. Systematised review of the literature

This study follows a systematised literature review. A systematised review is a limited type of a systematic review. It is a strategy that is usually adopted for mini-dissertations which form part of postgraduate study (Grant & Booth, 2009:95).

The systematic review is a method that integrates or compares findings from literature reviews. The findings gathered from the literature reviews lead to the formulation of a research question. This method identifies general themes or constructs that lie across existing literature. The main aim of a systematic review is to broaden the understanding of a particular phenomenon (Grant & Booth, 2009:99).

The advantage of using a systematic review is that it makes use of rigorous criteria to identify, critically evaluate and synthesise all the literature gathered to answer the research

question (Cronin *et. al.*, 2008:39). It is for this reason that a systematic review was adopted for this study.

On the other hand, the disadvantage of this methodology is that it is limited. Only literature that may already be known and has been conducted (pieces where colleagues have conducted research or have been told about) or literature which confirms the research question will be analysed, whilst neglecting to review literature which is contrary to the research question. It is for this reason that a systematic review can be criticised for not being rigorous enough (Bower, 2010: No page).

2.3.3. Data collection technique

This section addresses the technique used to collect data systematically. It further explains how relevant academic journal articles, working papers and discussion papers were identified and selected for this study. These logical steps are followed in the headings below: keywords, search criteria, and the recording of data.

2.3.3.1. Keywords

Table 2: Keywords

Searched Terms	
Searched terms for studies on reciprocity nudges	**Searched terms for studies on deterrence nudges**
Reciprocity	Deterrence
Nudges	Nudges
Tax Compliance	Tax Compliance
Experiment	Experiment

To conduct this study, a combination of the key words listed in Table 2 was used to search for relevant academic articles. The first combination used was "reciprocity", "nudges", "tax compliance" and "experiments". This combination was used to find literature related only to experiments where reciprocity messages were used as a nudge. The second combination used was "deterrence", "nudges", "tax compliance" and "experiments". This combination

was used to find literature related only to experiments where deterrence messages were used as a nudge. A third combination was used to expand the search: "reciprocity", "deterrence", "nudges", "tax compliance" and "experiments" were all searched to find literature on experiments where deterrence and reciprocity messages were used as a nudge.

Subsequent to the keyword search, the academic literature gathered were skimmed through to determine whether they were relevant or not. The bibliographic references of relevant academic literature were also used to search for more academic literature that would assist in answering the research questions.

2.3.3.2. *Search criteria*

The search criteria used to include relevant journal articles, working papers and discussion papers (inclusion criteria) for this study are explained. The following criteria were used to identify, select and record relevant literature for this study:

- This review only considered academic articles, working papers and discussion papers.

- Journal articles, working papers and discussion papers from other specific sciences (for example social sciences) were considered.

- Journal articles, working papers and discussion papers were not limited to any specific country.

- Journal articles, working papers and discussion papers related only to conducted experimental research were included.

- This review only considered journal articles, working papers and discussion papers published in English.

- This review only considered electronic academic articles, working papers and discussion papers available on Google Scholar, EBSCOhost and ProQuest.

22

- Only journal articles, working papers and discussion papers that included experiments on deterrence or reciprocity messages as tax nudges in their abstracts were included in this study.

The section below explains the technique used to record the academic literature that were adopted for this study.

2.3.3.3. *Recording of selected academic articles*

Forty studies were gathered using the keywords and a bibliography search (discussed in section 2.3.3.1). These studies were assessed using the criteria in section 2.3.3.2 to determine whether these studies are relevant for this study. After the assessment, 31 studies were selected and uploaded on to Qiqqa for further analysis.

Qiqqa is a research and knowledge management tool which serves the purpose of searching, recording, sharing and instantly recalling important information from thousands of documents with ease (Graham, 2013:1-3). The main reason this tool was used for this study is because of its effectiveness and efficiency in analysing relevant academic literature. This analysis was done through tagging. Tagging is a process of analysing academic literature where relevant tags are put on each publication based on predetermined elements (Graham, 2013:1-3). After tagging the relevant academic literature, summaries of the tags are generated from Qiqqa to study and draw conclusions. Qiqqa helps to draw data and analyse it effectively.

2.3.4. Quality assessment of the data

In this section the quality of the journal articles is assessed. The quality of the journal articles that were selected for this study is assessed in terms of the Australian Business Dean Council (ABDC) list. The ABDC publishes a list of journal articles and classifies them into four categories. The aim of this classification is to effectively review and assess the quality of journals.

The ABDC list applies the following categories:

- A*-rated: Journals in this category are the best leading journals in their respective fields. The journals are outstanding and original, and the rigorous research done here shapes their respective fields. This category is the highest and represents 5-7% of journals assigned to the primary field of research.

- A-rated: This category represents 15-25% of journals assigned to the primary field of research. It is the second highest quality category.

- B-rated: This category represents 35-40% of journals assigned to the primary field of research. It is the third highest quality category.

- C-rated: This category is the last category of journals assigned to the primary field of research. The remaining journals are recognised in this category.

Table 3 presents the classification of the journal articles selected for this study.

Table 3: Quality assessment results

Name of the Journal	A*-rated	A-rated	B-rated	C-rated	Not rated	Total number	%
Journal of Public Economics	5					5	21%
National Tax Journal		4				4	17%
Journal of Economic Behavior & Organization	2					2	8%
The National Bureau of Economic Research					2	2	8%
Contemporary Accounting Research	1					1	4%
Journal of the European Economic Association	1					1	4%
The Scandinavian Journal of Economics		1				1	4%
American Society of Criminology					1	1	4%
Revista de Analisis Economico				1		1	4%
Journal of Asian Economics			1			1	4%
Management science	1					1	4%
Economic Inquiry		1				1	4%
Econometrica	1					1	4%
Economia				1		1	4%
Games			1			1	4%
Total	**11**	**6**	**2**	**2**	**3**	**24**	100%

24

Percentage	46%	25%	8%	8%	13%	100%	

Based on the table above, 46% of the journal articles selected for this study are A*-rated, 19% are A-rated, 25% are B-rated, 8% are C-rated and 13% are not rated. A* rating is the highest rating in terms of the ABDC list. The results above indicate that deterrence and reciprocity messages are topical in literature.

2.3.5. Summarised overview of data collected and quality assessment

In order to gather thirty-one academic studies, a specific criterion was used to filter for relevant academic literature for this study. The process adopted is illustrated in Figure1 below:

Figure 1: Quality assessment: summary of results

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┌─────────────────────────────────────────┐
│    Academic literature gathered from     │
│             Google Scholar               │
│               EBSCOhost                  │
│                ProQuest                  │
│                  (40)                    │
└─────────────────────────────────────────┘
               │
        ┌─────────────────────────────────────────────┐
        │ Exclude: Research papers or any articles that did │
        │ not study the association or relationship between │
        │   tax compliance behaviour and deterrence or   │
        │              reciprocity nudges                │
        │                    (9)                        │
        └─────────────────────────────────────────────┘
               │
          ┌──────────────────────────────────────────┐
          │  Total of journal articles, working papers and │
          │   discussion papers  included in the research  │
          │                  (31)                      │
          └──────────────────────────────────────────┘
```
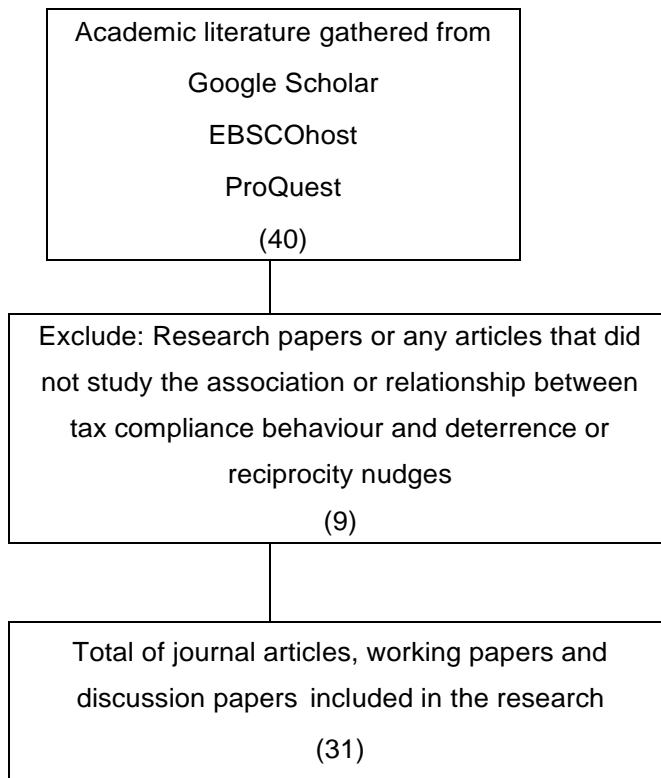
Forty articles were obtained using Google Scholar, EBSCOhost and ProQuest in the initial search. The search was conducted using keywords and a bibliography search as discussed in section 2.3.3.1. To further filter academic literature, all literature that did not

examine the association or relationship between tax compliance behaviour and deterrence or reciprocity nudges were excluded. After the process of eliminating irrelevant academic literature, thirty-one academic studies remained.

The academic studies that remained were filtered according to their abstracts. In order to focus the study, only academic literature that included experiments on deterrence and reciprocity messages as a nudge in their abstracts were included in this study. To ensure that only relevant and current data was obtained for this study, only academic literature from the past 20 years was included.

2.4.   CONCLUSION

This chapter addressed the research design adopted in this study by outlining the philosophical stance, the nature of the study, the reasoning method, the time horizon, the unit of analysis, the type of data and the sources of data. The chapter concluded by addressing the research method used to find journal articles, working papers and discussion papers that are analysed in the next chapter.

CHAPTER 3:
DATA ANALYSIS AND RESULTS

3.1. INTRODUCTION

The main purpose of this study is to systematically explore existing literature related to the use of deterrence messages and reciprocity messages as a nudge to influence tax compliance. Chapter 1 introduced the research question, rationale, objectives and main constructs of the study. Chapter 2 described the research design and methodology used to select published journal articles, working papers and discussion papers (herein referred to as "academic literature") adopted for this study.

In this chapter, the academic literature will be systematically analysed by making use of the following subheadings: Data analysis, research design and research methodologies. Each element will be analysed and followed by a brief discussion.

Lastly, this chapter concludes with the presentation of results obtained from the academic literature.

3.2. DATA ANALYSIS TECHNIQUE

Data analysis is defined as a systematic process of applying statistical and/or logical techniques to describe and evaluate data (Sharma, 2018:4). In other words, it is a process of transforming raw data into useful information that enables a researcher to answer a research question.

3.2.1. Data analysis technique

There are various data analysis techniques a study can adopt, namely a statistical analysis that includes descriptive analysis, inferential analysis and thematic analysis technique.

- Descriptive analysis: A technique that analyses statistics such as the mean, standard deviation and frequencies. This method provides descriptive information

27

about the set of data the researcher is studying (Sekaran & Bougie, 2013:391). This information includes the age or gender of the participants of an experiment.

- Inferential analysis: This technique assists in establishing a relationship between variables and draws a conclusion from there. It is usually applied to generalise a population by making use of results obtained from a sample set (Sekaran & Bougie, 2013:301, 392).

- Thematic analysis: A systematic approach of analysing qualitative data. This technique identifies common themes or patterns that come up repeatedly in textual data. It looks out for commonalities, relationships, patterns and theoretical constructs in research (Mills, Durepos & Wiebe, 2017:926, 927).

This study adopts a thematic analysis because this study makes use of a systematised review to look for commonalities, patterns and theoretical constructs in recently published journal articles, working papers and discussion papers related to the use of deterrence messages and reciprocity messages as a nudge to influence tax compliance.

Table 4 indicates data analysis techniques adopted by the literature selected for this study. The data analysis technique component indicates methods used in the academic literature to understand the relationship between deterrence messages and reciprocity messages as a nudge to influence tax compliance. For purposes of this study, an analysis performed in the academic literature will be classified as a statistical analysis if inferential analysis and descriptive analysis of data is conducted.

Table 4: Data analysis techniques

Data analysis technique	Number of studies	Percentage of articles
Statistical analysis	31	100%
Total	31	100%

Based on Table 4, 100% of the academic literature analysed data by making use of a statistical analysis. Statistical analysis involves collecting data from a sample set and scrutinising the data collected (Sekaran & Bougie, 2013:301,392).

The studies firstly provided variables that influenced tax compliance and nudges and also highlighted variables that do not have an influence on the two main constructs.

Thereafter the studies determined a relationship between compliance and messaging as a nudge and drew a conclusion from the experiment conducted with a sample of taxpayers (inferential analysis).

3.2.2. Sources of data

There are various methods researchers can utilise to collect data. Collecting primary data is one, where data is gathered directly from research participants. It is collected mainly through experiments; see section 3.3 for a more detailed description of experiments.

Each study's data collection method was identified using the "data" section in the selected study. In the absence of the data section in a study the research method or research design section was studied to determine the collection technique employed. Table 5 illustrates the type of data collection method employed in each of the studies selected for analysis in this study.

Table 5: Data collection techniques

Data collection technique	Percentage of selected academic literature
Primary data	100%
Secondary data	-
Total	100%

Based on the analysis, 100% of the selected academic literature made use of primary data. A vast majority of the researchers gathered data from research participants. This indicates that the data that was collected from the selected study was collected for the very first time and for the specific experiment related to that study.

The next section presents the results that relate to the research strategy and research methodology employed by authors of the selected study. The research strategy and research methods adopted are discussed below.

3.2.3. Research strategy adopted by academic literature

29

Research strategy is defined as a plan to achieve research objectives and answer research questions (Sekaran & Bougie, 2013:96). As discussed in section 2.2.2, there are various strategies a study can adopt, namely exploratory research, descriptive research and experimental research. Based on the analysis, all the studies selected for this study are experiments that examine the use of deterrence messages or reciprocity messages as nudges to influence tax compliance. There are three types of experimental designs that an experimental research can adopt, namely:

- True experimental design: This design consists of two groups, an experimental group and a control group. A control group in the experiment is the group that is not exposed to the experiment, while the experimental group will be exposed to the experiment. The experiment includes a variable that can be manipulated by the researcher conducting the experiment. The participants must be randomly selected (Sekaran & Bougie, 2013:181).
- Quasi-experimental design: Quasi means partial (Lexico 2020: No page). A quasi-experiment partially resembles a true experimental design. However, the biggest difference between the two is that the quasi-experiment does not assign participants randomly and it does not have a control group. This type of experiment is usually used when randomisation is difficult (Sekaran & Bougie, 2013:390).
- Causal-comparative research: This design is a type of quasi-experimental design that studies how an independent variable affects a dependent variable prior to the study of participants. This research cannot be manipulated and there is no control group (Sekaran & Bougie, 2013:184).

Table 6 indicates the experimental research designs adopted by the academic literature.

Table 6: Research strategy

Research Design	Percentage of selected academic literature
True experimental design	94%
Quasi-experimental design	3%
Pre-experimental design	3%
Total	100%

As mentioned before, all the academic literature was experimental in nature. Table 5 indicates the type of experiment that the selected academic literature adopted. The

majority of the experiments for the academic literature (94%) were true experiments, while 3% were quasi-experimental and 3% were pre-experimental. Experimental designs are used by researchers mainly to establish a cause and effect relationship. Researchers used this design to test inferences about tax compliance and nudging. It is evident from the literature analysed in this study that literature on the construct of tax compliance and nudging are based mainly on experiments.

3.2.4. Research methodology adopted by academic literature

Research methodology is described as a procedure or technique used in research to identify, collect, process and analyse data in order to answer a research question. Research methods can be classified into three categories, namely qualitative research, quantitative research and mixed method research; see section 2.3 for a discussion.

Table 7 indicates the research methodology adopted in the academic literature.

Table 7: Methodological classification

Research Methodology	**Percentage of selected academic literature**
Quantitative	100%
Qualitative	-
Mixed Method	-
Total	100%

Based on the results presented in Table 7, all the academic literature that have been reviewed adopted a quantitative research methodology. This was expected, because in all the academic literature an experiment was conducted to determine the cause and effect relationship between tax compliance and nudging.

3.3. PRESENTATION OF RESULTS AND DISCUSSION

This section presents the results of the analysis performed on the journal articles, working papers and discussion papers selected for this study. The articles and papers were analysed using the tagging function on Qiqqa. Tagging is a process of analysing literature

31

where relevant tags are put on each study based on predetermined elements (Graham, 2013:1-3).

The following elements were used to tag the selected academic literature: academic journals (where applicable), academic discipline, constructs, country perspective, taxpayer perspective, type of reciprocity message communicated, type of deterrence message communicated, message delivery method, whether the long-term effects of the message were tested, and the manner in which tax compliance was operationalised.

After tagging the journal articles, working papers and discussion papers a report was created to give a summary of the analysis for each element tagged on those journal articles, working papers and discussion papers. All elements tagged on the journal articles, working papers and discussion papers are explained in detail and the results are presented below.

3.3.1. Academic journals and working paper and discussion paper sources

This section presents the names of the journals in which the selected journal articles were published as well as the source of the working papers and discussion papers selected for analysis in this study. This is followed by a presentation of the scientific discipline of the academic literature. As explained before, journal articles, working papers and discussion papers were selected in this study. Therefore, the analysis performed in section 3.3.1.1 is not applicable to the working papers and discussion papers.

3.3.1.1.   Journals

A total of 24 journal articles were analysed. The various journal articles were published in the publications as shown in Table 8.

Table 8: Academic journals

Name of journal	Number of articles
Journal of Public Economics	5
National Tax Journal	4

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Journal of Economic Behavior & Organization	2
National Bureau of Economic Research	2
Contemporary Accounting Research	1
Journal of the European Economic Association	1
The Scandinavian Journal of Economics	1
American Society of Criminology	1
Revista de Analisis Economico	1
Journal of Asian Economics	1
Management Science	1
Economic Inquiry	1
Econometrica	1
Economia	1
Games	1
Total	24

Table 8 has two columns. The first column indicates the journal in which the article was published. The second column shows the number of journal articles from the selected articles that were published in the respective journals.

Five journal articles were published in the *Journal of Public Economics*. Four journals were published in the *National Tax Journal*, two were published in the *Journal of Economic Behavior & Organization*, and one journal was published in *The National Bureau of Economic Research*. Based on the analysis in Table 8, it can be said that the use of behavioural economics is an area of interest in the economics discipline.

3.3.1.2.   Sources of working papers and discussion papers

A total of seven working papers and discussion papers were analysed. The various working papers and discussion papers were published in sources shown in Table 9. At the time of conducting this research, none of the selected working papers and discussion papers had been published as journal articles.

Table 9: Sources of working papers

Source of working paper/discussion paper	Number of academic

33

	papers
Leibniz Information Centre for Economics	2
World Bank Group Policy Research Working Paper	1
Centre for European Economic Research	1
Centre for Economic Performance	1
African Tax Administration Forum	1
Job Market Paper	1
Total	7

From the anaysis above, the selected working papers and discussion papers were published by the Leibniz Information Centre for Economics; World Bank Group Policy Research Working Paper, Centre for European Economic Research, Centre for Economic Performance, African Tax Administration Forum and the Job Market Paper. The majority of the selected working papers and discussion papers (four) emanate from the economics discipline. This indicates that the study of nudges is relevant and topical in the economics discipline.

3.4. Academic discipline

Discipline refers to the field of study where the academic literature originates from (Lexico, 2020: No page). The discipline of each study is shown in Table 10. This was identified using the name of the journal in which the study was published or the source the working paper or discussion paper was obtained from.

Table 10: Academic discipline

Discipline	Percentage of selected academic literature
Economics	58%
Taxation	13%
Other sciences	13%
Behavioural economics	6%
Accounting	3%
Criminology	3%
Management science	3%
Total	100%

From the anaysis above, the majority (58%) of the selected academic literature were obtained from the economics discipline, while 6% emanated from behavioural economics. This indicates that the study of nudges is relevant and topical in the economics discipline.

3.5. Constructs

A construct is defined as a main idea, theme or subject matter that a researcher wants to measure, using an experiment, survey or questionnaire (Lavrakas, 2008:133). The main construct adopted in the selected academic literature was tax compliance. Tax compliance is defined as the "degree to which a taxpayer complies (or fails to comply) with the tax rules of his country, for example by declaring income, filing a return, and paying the tax due in a timely manner" OECD (2019: No page). This definition provides that tax compliance can be operationalised and measured by assessing whether taxpayers declare income (Hasseldine *et. al.*, 2007; Snow & Warren, 2005; Bergolo, 2017), file a tax return (Koumpias & Martinez-Vazquez, 2019) or pay tax timeously (Ariel, 2012). For the purpose of this study the definition of tax compliance includes the correct calculation and claiming of tax deductions.

Table 9 summarises how tax compliance was measured in the selected journal articles, discussion papers and working papers to determine whether the nudge messages were efficient and effective.

Table 11: Tax compliance measure

Tax compliance measure	Percentage of academic literature
Income declaration	70%
Tax payment	15%
Filing return timeously	11%
Correctly claimed deductions	4%
Total	100%

The first column describes the tax compliance component used to measure compliance. The second column shows the percentage of the studies from the selected academic literature that have utilised the specific compliance measure. Of these studies, 70% measured compliance by observing if taxpayers declared their income correctly. One of these studies is that of Hasseldine *et al.* (2007), who investigated the effect of persuasive communications on tax compliance. Of the selected academic literature, 15% measured compliance by determining if taxpayers paid their outstanding tax liability and 11% measured compliance by determining if returns were filed on time. De Neve (2019)

conducted an experiment to investigate how to improve tax compliance using deterrence messages, tax morale and information frictions. The study measured compliance by determining whether tax returns were filed on time and whether taxes were paid.

One of the studies (Ariel, 2012), which represents 4% of the selected academic literature, measured compliance by determining if companies and self-employed individuals correctly claimed deductions for tax purposes.

3.6. Perspectives

This section discusses the perspectives from which the experiments in the selected academic literature were conducted. In each of the studies, an experiment was conducted in a specific country with a specific set of taxpayers. In order to determine the perspective from which the study was written, the title or abstract was analysed to see if it included a specific country or taxpayer's perspective. A vast majority of the selected academic literature indicated the specific country and taxpayer's perspective in the title or the abstract.

3.6.1. Country perspective

The country perspective is identified as the country in which the study was conducted. Of the 31 studies analysed, the majority of the studies highlighted the city in which the study was conducted and some highlight the country. For consistency, Table 12 indicates the country in which the study was conducted and not the city.

Table 12: Country perspective

<u>Country</u>	<u>Percentage of selected academic literature</u>
United States of America	24%
Colombia	8%
United Kingdom	5%
Argentina	5%
Uruguay	5%
Belgium	3%

Country	Percentage of selected academic literature
Bolivia	3%
Brazil	3%
Ecuador	3%
Panama	3%
Peru	3%
Venezuela	3%
Rwanda	3%
Australia	3%
Austria	3%
Pakistan	3%
Italy	3%
Costa Rica	3%
Norway	3%
Guatemala	3%
Israel	3%
Venezuela	3%
Slovenia	3%
Denmark	3%
Total	100%

Table 12 provides an overview of the countries that have studied the use of deterrence message and/or reciprocity messages as a nudge to influence tax compliance. The first column indicates the country in which the study was conducted, and the second column shows the percentage of the selected academic literature that focused on a specific country. A total of 24% of the selected academic literature related to studies conducted in the United State of America, whereas 8% related to Columbia and 5% were conducted in the United Kingdom, Argentina and Uruguay.

Based on the findings presented in Table 12, most of these studies (70%) were conducted in developed countries such as the United States of America and the United Kingdom. Only 30% of the studies were conducted in developing countries, with the majority of these studies conducted in Latin American developing countries and only one study conducted in an African developing country.

3.6.2. Taxpayer perspective

A taxpayer perspective is the type of taxpayer a study focuses on. A taxpayer is defined as a person who is liable to pay tax (Lexico, 2020: No page). Table 13 indicates which taxpayer perspectives were addressed in the selected academic literature.

Table 13: Taxpayer perspective

Taxpayer perspectives	Percentage of selected academic literature
Individuals	68%
Companies	26%
Individuals and companies	6%
Total	100%

Based on the table above, the majority of the selected academic literature focused only on individuals (68%), while 26% focused only on companies and 6% focused on both individuals and companies. This indicates that a vast majority of experiments that test the effect of deterrence and reciprocity messages are from an individual's perspective. Experimental literature on companies is steadily growing, but only a limited number of studies are conducted on both individuals and companies.

3.7.   Type of taxes

Tax is defined as a contribution towards revenue utilised by the government to provide public goods and services (Lexico, 2020: No page). The government levies different types of taxes on different income streams and on some goods, services and transactions. Table 14 shows the different types of tax focused on in the selected academic literature.

Table 14: Type of tax

Type of tax	Percentage of selected academic literature
Personal income taxes	52%
Corporate taxes	15%
Value-added tax (VAT)	15%
Property taxes	12%

Wealth taxes	3%
Vehicle taxes	3%
Total	100%

Taxes are generally levied on personal income (personal income tax) and business profits (corporate tax). Depending on the country, taxes are also added to costs of various goods, services and transactions. Based on the table above, 52% of the selected academic literature examined compliance with personal income tax; 15% examined compliance with corporate tax and another 15% examined compliance with value-added tax. On the same basis, 12% focused on property taxes and 3% on wealth taxes, while 3% of the studies focused on vehicle taxes.

3.8. Deterrence message communicated

Allingham and Sandmo (1972) developed a decision model of tax evasion. This model highlights economic factors taxpayers take into consideration when deciding to be tax compliant or not. Allingham and Sandmo believe taxpayers weigh costs and benefits of not declaring the correct amount of income that is subject to tax. If a taxpayer is caught cheating on their taxes through an audit, they will be penalised. In the event a taxpayer is not caught, they escape paying their taxes. Deterrence nudges assume that heightening the perceived probability of being detected through an audit and being penalised will increase tax compliance.

Of the 31 studies selected for analysis in this study, 25 focused on communicating deterrence messages. Of the 25 studies, three focussed on both deterrence messages and reciprocity messages (reciprocity messages are discussed in section 3.3.7). Table 15 shows the type of deterrence measures that were communicated in those studies.

Table 15: Deterrence message communicated

Type of deterrence message communicated	Percentage of selected academic literature
Penalty (fines) threat	55%
Audit threat	44%
Total	100%

39

The type of deterrence measure communicated in 55% of the selected academic literature were penalty threats and 44% of the deterrence measures communicated were audit threats. In a study conducted by Castro and Scartascini (2015), communicating deterrence messages was found to be effective in increasing tax compliance. In the study an experiment was conducted in Argentina to examine whether communicating possible penalties and probability of being audited would increase tax compliance. The results of the study indicated that communicating such messages had a significant effect on tax compliance. Hasseldine (2007) found results similar to those of Castro and Scartascini (2015) with regard to audit threats.

Deterrence messages are effective in improving tax compliance, but they should be used cautiously. Penalties and audit threats only work if taxpayers believe that they will be enforced. If taxpayers incur large penalties and fines which are not collected, sending deterrence messages to taxpayers will be a signal of empty threats resulting in these messages being ineffective. Increasing fines in this regard would result in tax non-compliance (Chirico *et al.*, 2016:131).

3.9. Reciprocity message communicated

Alm, McClelland and Schulze (1992:22) suggest that "compliance occurs because some individuals value the public goods their tax payments finance". Taxpayers pay their taxes to receive public goods and services provided by the government. Therefore, if the government provides public goods and services, this may increase taxpayers' attitude towards paying taxes and their commitment to the tax system (Togler, 2003:35). Taxpayers will feel robbed if they believe that the government does not spend the money well. However, if the government uses taxes to provide services that correspond with taxpayer preferences, taxpayers may be willing to comply and pay their taxes (Togler, 2003:35).

Taxpayers and the government can be seen to have a psychological contract based on the exchange between the two in both directions (taxpayer pays taxes in exchange for public goods and services; government receives taxes to finance public goods and services). For the purpose of this study, this exchange will be referred to as reciprocity.

40

The purpose of a reciprocity message is to remind taxpayers what the government spends taxes on (provide public goods and service) in exchange for paid taxes. Table 16 indicates the type of public good or service communicated in the reciprocity nudge messages of the selected academic literature. Of the 31 studies selected for analysis, six related to reciprocity nudge messages and the results presented in Table 16 relate to those studies.

Table 16: Reciprocity message communicated

Reciprocity messages communicated	Percentage of selected academic literature
Essential services (education, health, security, roads)	84%
Public goods (street lights)	12%
Law and order	4%
Total	100%

The communications that were identified in the selected academic literature were essential services (84%), public goods (12%) and law and order (4%). Hallsworth *et al.* (2017) conducted an experiment in the United Kingdom where one of the treatment letters examined the effect of communicating essential public services. The message that was sent to taxpayers stated: *"Paying tax means we all gain from vital public services like the National Health Services, roads and schools".* The effectiveness of this message was measured by how fast or how quickly taxpayers paid their taxes soon after they received the letter. The results indicated that communicating essential public services messages increased tax compliance by accelerating tax payments.

Mascagni *et al.* (2017) found results similar to those of Hallsworth *et al.* (2017). Mascagni *et al.* conducted a field experiment in Rwanda to determine efficient and effective methods of delivering deterrence and reciprocity messages. The treatment letters that tested reciprocity stated*: "By paying your taxes you make it possible to educate our children, fund our healthcare and keep us safe".* The results indicated that all treatments that contained reciprocity messages had a positive effect on tax compliance.

A field experiment conducted in Switzerland by Blumenthal *et al.* (2001) found different results to those of Mascagni *et al.* (2017) and Hallsworth *et al.* (2017). The Blumenthal *et al.* (2001) study results indicated that the messages emphasising reciprocity had no effect on tax compliance behaviour.

41

Another study that observed that reciprocity messages has no effect on tax compliance, is a study by Castro and Scartascini (2015). This study looked at how effective reciprocity and deterrence messages are as a nudge that could influence tax compliance. The study observed that reciprocity messages had no effect on tax compliance.

Based on the findings above, results of studies on the effect of reciprocity messages on tax compliance are mixed. Some studies indicate that reciprocity messages increase tax compliance behaviour, while other studies indicate that reciprocity messages have no effect on tax compliance behaviour.

3.10. Delivery Method

After determining which message content increases tax compliance, a vital question must be answered, namely "What is the best delivery method for reaching taxpayers when sending messages to improve compliance?" (Mascagni *et al.*, 2017:7). The delivery method used by tax authorities to inform taxpayers about their outstanding liabilities and warn them about consequences of non-payment serves as a sign to taxpayers of the probability of being forced to pay (Ortega & Scartascini, 2015:2). Table 17 shows the delivery methods utilised to deliver deterrence and reciprocity messages in the studies selected for analysis.

Table 17: Delivery method

Mode of delivery	Percentage of selected academic literature
Physical letter	74%
Media (television and newspaper)	12%
Personal visit	6%
Email	3%
SMS	3%
Pop-up message	3%
Total	100%

Based on the analysis above, in a vast majority (74%) of the selected academic literature the nudge messages were communicated through physical letters posted to taxpayers. Researchers only recently started testing different delivery methods to determine the effectiveness of deterrence and reciprocity messages. A few of the selected academic

42

literature examined the use of other delivery methods, such as media, including television and newspapers (12%), personal visits by tax authorities (6%), emails (3%), SMS (3%) and pop-up messages (3%).

Mascagni *et al.* (2017) conducted a field experiment on the effect of reciprocity and deterrence messages on tax compliance behaviour. The experiment investigated different delivery methods that can be used to reach taxpayers in order to improve tax compliance. The deterrence and reciprocity messages were delivered via SMS, physical letter and email. The results of this experiment found emails and SMSs to be more effective compared to physical letters.

Ortega and Scartascini (2015) conducted a similar study as Mascagni *et al.* (2017). Ortega and Scartascini (2015) investigated the effects of three delivery methods, namely physical letter, email and personal visit by a tax inspector. The study found that personal visits by a tax inspector were more effective regarding tax compliance behaviour compared to physical letters and emails.

Koumpias and Martinez-Vazquez (2019) examined the effect of mass media campaigns in Pakistan on income tax filing. Mass media campaigns used newspaper advertisements and television advertisements to deliver reciprocity and deterrence messages. The effectiveness of this experiment was measured by an increased response to income tax filing. The results indicated that newspaper advertisements and television advertisements improved tax compliance. Television advertisements were found to be more effective compared to newspaper advertisements.

3.11. Longevity

This section examines if the experiments conducted in the selected academic literature tested the long-term effects of the deterrence and reciprocity messages. Table 18 indicates the number of studies that did or did not test the long-term effects of the messages.

43

Table 18: Longevity

Did the study test longevity?	Percentage of academic literature
No	84%
Yes	16%
Total	100%

Based on the table above, it is evident that the majority of the selected academic literature did not test the long-term effects of the deterrence and reciprocity messages on tax compliance behaviour. Only 16% of the selected academic literature tested the long-term effects. A field experiment conducted in Norway by Bott, Cappelen, Sorensen and Tungodden (2017) tested the long-term effects of physical letters. The long-term effect was measured by examining self-reported behaviour in the year after the experiment was conducted. The results of this examination indicated that reciprocity messages increased tax compliance compared to deterrence messages after a year of the experiment. This could be an indication that taxpayers who already pay their taxes, based on it being the right thing to do morally, continued paying their taxes in the following year; the letter that emphasised the importance of paying taxes did not necessarily change their behaviour.

3.12. CONCLUSION

The purpose of this chapter was to provide results on the selected academic literature. The literature analysed on the use of deterrence messages as a nudge to influence tax compliance behaviour shows that these messages are effective in positively influencing tax compliance. However, it is cautioned that deterrence messages are only effective if taxpayers perceive that these messages will be enforced. Studies of reciprocity messages, on the other hand, provided mixed results. Some studies indicated that reciprocity messages increased tax compliance while other studies observed no effect. Furthermore, studies indicate that messages delivered personally by a tax authority representative are more effective than letters and emails. However, emails reach many more taxpayers. Different methods of delivering messages have not been thoroughly tested.

CHAPTER 4: CONCLUSION

4.1. INTRODUCTION

The previous chapter thoroughly analysed the data techniques adopted in the selected academic literature and presented the results from the analysis. This chapter brings this study to a conclusion by providing a brief summary of findings and a conclusion. The limitations of this study are discussed in this chapter and opportunities for future research that arise from this study are addressed. Finally, this chapter ends with some concluding remarks.

4.2. SUMMARY OF FINDINGS AND CONCLUSION

It is irrefutable that the government needs sufficient revenue in order to provide a healthy and functioning society for its citizens. Low levels of revenue force the government to depend on foreign aid because tax authorities do not collect even half of what they would if taxpayers complied with tax laws and regulation (Castro & Scartascini, 2015:65). Increasing revenue would allow the government to provide essential public goods and services to its citizens. It is for this reason that this study looks at nudges that can encourage tax compliance in order to raise sufficient revenue.

The main research objective of this study was to evaluate the use of deterrence and reciprocity messages as a nudge to influence tax compliance behaviour. This objective was achieved by systematically exploring existing literature using four sub-objectives.

The first and second sub-objectives were to identify academic literature and analyse the literature related to the use of deterrence and reciprocity messages as a nudge to encourage tax compliance. Forty articles were identified and gathered from electronic databases (see section 2.3.5) using keywords given in Table 2 (see section 2.3.3.1). Search criteria in section 2.3.3.2 were used to select the studies analysed in this study. Twenty-five of the selected academic literature focused on communicating deterrence messages and seven focused on communicating reciprocity messages. Out of the 31

45

selected academic literature three studies focused on both deterrence messages and reciprocity messages.

The third and fourth sub-objectives were to provide a report on the analysis performed on selected academic literature following a systematic review of academic literature relating to the influence of deterrence and reciprocity messages as a nudge to encourage tax compliance behaviour. The selected academic literature was analysed using the following elements: academic journals (where applicable), academic discipline, constructs, country perspective, taxpayer perspective, tax type and the manner in which tax compliance was operationalised (see section 3.3.1 to 3.3.5 for a discussion).

The academic journals (where applicable) illustrated where journal articles were published. The academic discipline referred to the field of study where the selected academic literature originated from, for example economics, accounting, etc. The main construct that was identified in the selected academic literature was tax compliance. The majority (70%) of the studies measured tax compliance by observing the income that a taxpayer declared (see section 3.3.3).

The majority (70%) of the selected academic literature were conducted in developed countries and were conducted mainly from an individual taxpayer perspective (68%) and more than 50% of the studies were published in the economics discipline (see section 3.3.2). The selected academic literature was experimental in nature (see section 3.2.3) and all tested the use of deterrence and reciprocity messages as nudges to influence tax compliance behaviour.

The following elements were examined in order to answer the four research questions in section 1.3: type of reciprocity message communicated, type of deterrence message communicated, message delivery method and whether the long-term effects of the message were tested (see section 3.3.6 to 3.3.9 for a discussion).

Based on the analysis of the selected academic literature, there are two types of deterrence messages that were communicated to taxpayers, namely penalty threats and audit threats. The results of this study indicate that communicating deterrence messages is effective in increasing tax compliance (see section 3.3.6).

With regard to reciprocity messages, there are three types of reciprocity messages that were communicated to taxpayers, namely essential services, public goods and law and order. The results of this study indicate that communicating reciprocity messages to increase tax compliance is inconclusive. Some studies indicate that reciprocity messages increase tax compliance behaviour while other studies indicate that reciprocity messages have no effect on tax compliance behaviour (see section 3.3.7).

The selected academic literature examined the following message delivery methods: physical letter, media (television and newspaper), personal visits by tax authority representative, email, SMS and pop-up messages. The results of this study indicate that physical letters were used extensively but they were not as effective as personal visits and emails (see section 3.3.8).

Lastly, the study examined if the studies tested the long-term effects of deterrence and reciprocity messages. The results of this study indicate that the majority (84%) of the studies did not test the long-term effects of deterrence and reciprocity messages (see section 3.3.9).

4.3. LIMITATIONS

This study only looked at journal articles, working papers and discussion papers that were available on electronic databases. This study did not make use of any books related to tax compliance and nudges. This presents a limitation because there could be valuable contributions and insights in books that this study has not consulted. This study also selected academic literature that were written in English, while studies written in other languages were not selected. This study also selected academic literature published in the last 20 years; studies prior to 1990 were not selected.

4.4. FUTURE RESEARCH

The results of this study provide evidence that the use of the internet (social media) has not been explored as a delivery method of deterrence messages and reciprocity messages. We live in a more digitised age where the internet has become a great part of

our daily lives. The internet is defined as "a global computer network providing a variety of information and communication facilities, consisting of interconnected networks using standardized communication protocols" (Lexico, 2020: No page). It is used by people to connect and interact with each other every day. Considering that there are 4.54 billion internet users and approximately 80% of internet users (3.81 billion) are social media users (Omnicore Agency, 2020: No page), advertisements on social media about tax compliance behaviour would reach more people and create more awareness about tax compliance behaviour around the world. In-depth research is needed to understand how effective the internet, social media in particular, can be to influence tax compliance behaviour.

4.5. CONCLUDING REMARKS

Encouraging tax compliance behaviour is an on-going activity in order for tax authorities to collect sufficient revenue to provide a healthy functioning society. Tax revenue plays a vital role in the economy, and this study contributes to the existing body of literature that encourages tax compliance.

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APPENDIX A:
SAMPLE OF SELECTED QUALITY ACADEMIC PUBLICATIONS

Alm, J., Cifuentes, L.R., Niño, C.M.O. & Rocha, D. 2019. Can behavioral "nudges" improve compliance? The case of Colombia social protection contributions. *Games*, 10(4):43.

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APPENDIX B:

DECLARATION REGARDING PLAGIARISM

The Faculty of Economic and Management Sciences emphasises integrity and ethical behaviour with regard to the preparation of all written assignments.

Although the lecturer will provide you with information regarding reference techniques, as well as ways to avoid plagiarism, you also have a responsibility to fulfil in this regard. Should you at any time feel unsure about the requirements, you must consult the lecturer concerned before submitting an assignment.

You are guilty of plagiarism when you extract information from a book, article, web page or any other information source without acknowledging the source and pretend that it is your own work. This does not only apply to cases where you quote the source directly but also when you present someone else's work in a somewhat amended (paraphrased) format or when you use someone else's arguments or ideas without the necessary acknowledgement. You are also guilty of plagiarism if you copy and paste information <u>directly</u> from an electronic source (e.g., a website, e-mail message, electronic journal article, or CD-ROM) without paraphrasing it or placing it in quotation marks, <u>even if you acknowledge the source</u>.

You are not allowed to submit another student's previous work as your own. You are furthermore not allowed to let anyone copy or use your work with the intention of presenting it as his/her own.

Students who are guilty of plagiarism will forfeit all credits for the work concerned. In addition, the matter will be referred to the Committee for Discipline (Students) for a ruling. Plagiarism is considered a serious violation of the University's regulations and may lead to your suspension from the University. The University's policy regarding plagiarism is available on the Internet at *http://www.library.up.ac.za/plagiarism/index.htm.*

For the period that you are a student in the Faculty of Economic and Management Sciences, the following declaration must accompany **all** written work that is submitted for evaluation. No written work will be accepted unless the declaration has been completed and is included in the particular assignment.

I (full names & surname):	Dimpho Lesego Shakoane
Student number:	13410769

declare the following:
- I understand what plagiarism entails and aware of the University's policy in this regard.
- I declare that this mini-dissertation is my own original work. Where someone else's work was used (whether from a printed source, the internet or any other source), due acknowledgement was given, and reference was made according to departmental requirements.
- I did not copy and paste any information directly from an electronic source (e.g. a web page, electronic journal article or CD ROM) into this document.
- I did not make use of another student's previous work and submitted it as my own.
- I did not allow and will not allow anyone to copy my work with the intention of presenting it as his/her own work.

27 August 2020

_____   _____
Signature   Date