

Analysing the effect of agglomeration economies on the financial performance of South African automotive dealerships

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ABSTRACT

TITLE: Analysing the effect of agglomeration economies on the financial performance of South African automotive dealerships.

KEYWORDS: South Africa, agglomeration, urbanisation, localisation, economies of scale, automotive, dealerships.

The occurrence of urbanisation around the world is an ongoing phenomenon with ever-increasing importance for businesses who look to keep-up and exploit external economies of scale which emerge as a result of the gradual increase in the proportion of people living in urban areas. Urbanisation economies and, to a lesser extent localisation economies, emerge as a result of this increase in urban populations – making it imperative for businesses to strategically plan for the effects of urbanisation, in order to remain competitive. This study focuses on one of the factors associated with a gradual increase in people residing in a specific area: Agglomeration economies.

It is historically evident that the automotive industry has frequently agglomerated in areas where the benefits of co-location might be enjoyed – from the automotive factories in Detroit (colloquially known as “Motor City”) to the ‘auto-rows’ which line most cities (co-located automotive dealerships). The automotive industry has historically benefitted from agglomeration economies.

Through review of relevant literature, it is evident that these agglomeration economies, specifically urbanisation and localisation economies, effectively promote heightened performance in entities which seek to exploit them and a firm should certainly be cognisant of these benefits when deciding where to locate geographically.

The main objective of this study was to analyse the extent to which supposed agglomeration economies affect the financial performance of South African automotive dealerships. The results proved that there is an impact on financial statement line items which are presumably most closely related to geographical location. Specific expense line items, generally linked to staff costs, as well as absolute sales figures all showed a positive trend in urban dealerships compared to rural dealerships. The net effect on the financials of the dealerships, however, did not seem material enough for this to single-handedly determine the location strategy of dealerships. It would be prudent for dealers

to at least incorporate the aspect of agglomeration economies into their strategy setting process as a factor to consider, along with the other numerous relevant elements, in deciding where to locate geographically.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	I
ABSTRACT	II
LIST OF TABLES	VII
LIST OF FIGURES.....	VIII
CHAPTER 1	1
1 INTRODUCTION	1
1.1 BACKGROUND.....	1
1.2 LITERATURE REVIEW	2
1.3 RELEVANCE OF THE TOPIC TO BUSINESS IN SOUTH AFRICA.....	4
1.4 PROBLEM STATEMENT	4
1.5 OBJECTIVES	5
1.6 RESEARCH DESIGN / METHOD	5
1.7 Paradigmatic assumptions and perspectives	8
1.8 OVERVIEW	10
CHAPTER 2	12
2.1 INTRODUCTION	12
2.2 PARADIGM	12
2.3 RESEARCH METHODOLOGIES	14
2.4 PURPOSE OF RESEARCH	16
2.5 USE OF RESEARCH	18

2.6	DATA COLLECTION AND ANALYSIS	19
2.7	RESEARCH DESIGN.....	20
2.8	VALIDITY AND RELIABILITY	23
2.9	ETHICAL CONSIDERATIONS	24
2.10	SUMMARY	24
CHAPTER 3		26
3	LITERATURE.....	26
3.1	INTRODUCTION	26
3.2	AGGLOMERATION THEORY	26
3.3	AGGLOMERATION IN THE AUTOMOTIVE INDUSTRY	32
3.4	SUMMARY	33
CHAPTER 4		35
4	EMPIRICAL STUDY: RESULTS AND FINDINGS	35
4.1	INTRODUCTION.....	35
4.2	RURAL VS. URBAN CLASSIFICATION.....	35
4.3	PROCESS OF DATA COLLECTION.....	36
4.4	RESULTS AND FINDINGS	39
4.5	SUMMARY	45
CHAPTER 5		46
5	CONCLUSIONS.....	46
5.1	INTRODUCTION.....	46

5.2	SUMMARY OF FINDINGS	46
5.3	DISCUSSION AND CONCLUSION.....	48
5.4	RECOMMENDATION.....	49
5.5	LIMITATIONS OF THE STUDY	49
5.6	RECOMMENDATIONS FOR FUTURE RESEARCH	50
	REFERENCES	51

LIST OF TABLES

Table 1-1:	Interpretivism vs. positivism: ontology, epistemology, and methodology.....	9
Table 2-1:	Conditions required for inferring a causal relationship	15
Table 2-2:	Purposes of research types.....	17

LIST OF FIGURES

Figure 4-1:	Extract example of income statement data used for the study	38
Figure 4-2:	Extract example of balance sheet data used for the study	39
Figure 4-3:	Dealership expenditure to gross profit comparisons (sample expenses).....	41
Figure 4-4:	Average dealership sales (units): rural vs. urban	43
Figure 4-5:	Comparison of earnings before interest and tax (EBIT) and gross profit (GP) margins – rural vs. urban	45

CHAPTER 1

1 INTRODUCTION

1.1 BACKGROUND

1.1.1 South African automotive industry

The South African automotive industry is integral to the broader South African economic make-up and, in 2015, the automotive retail industry contributed 2,2% to the gross domestic product (GDP), with strong growth from 1,9% in 2006 (Stats SA, 2018). The GDP contribution from the automotive industry as a whole was 7,7% in 2015 (Econometrix, 2018).

The South African automotive industry value chain is, for the most part, driven by the seven main original equipment manufacturers (OEMs) of the automotive industry, namely BMW, Nissan, Ford, Volkswagen, General Motors, Mercedes-Benz, and Toyota (ASCCI, 2013).

1.1.2 Urbanisation

Globally, there are more people living in urban areas than in rural areas. The United Nations (UN) has projected that by 2050, 66% of the world's population will reside in urban areas. The rural population, on the other hand, is close to reaching its peak and is projected to decline in the same period. Additionally, it is anticipated that nearly all of the estimated 1,1 billion global population increase between 2015 and 2030 will be confined to urban areas (UN, 2014).

This process of societal change from rural to urban, with a gradual increase in the proportion of people living in urban areas, is defined as urbanisation (U.S. National Library of Medicine, 1968). This consistently increasing concentration of population groups in urban areas has, over a period of time, given rise to a body of academic work that may be labelled "agglomeration theory", which propagates the existence of agglomeration economies. According to Malmberg *et al.* (2000:305), agglomeration economies are external economies of scale which are beneficial to a firm and exist by virtue of such a

firm being located in close proximity to one or more other related firms within a large urban area.

The literature enveloping this phenomenon confronts two apparent characteristics of the modern world economy, namely the common inclination for people and economic activity to converge in economic core regions, and the agglomeration of similar or related firms in particular locations (Malmberg *et al.*, 2000:306).

1.2 LITERATURE REVIEW

Urbanisation provides opportunities for external economies of scale to surface, and the overall prospect for a business to, according to Chandler (1993:236), become more efficient while demonstrating an increase in size or speed of operation. It would therefore be necessary for a firm to consider urbanisation in its entirety and incorporate such consideration into its corporate strategy.

The essence of corporate strategy is the pursuit of improving the competitive strategies of the operating units of an organisation (Raynor, 2007), and this segment of an organisation's encompassing strategy, according to Steyn and Niemann (2010:10), defines the arrangement of businesses that should form the organisation's overall portfolio – selecting tactics for diversification and growth, and managing corporate resources and capabilities (Harrison & St. John, 1998:170).

Agglomeration economies exist in relation to the concentration of an industry, as well as the size of a city or urban area (Rosenthal & Strange, 2004:5). The former is known as a localisation economy, where the size of a firm's own industry directly affects productivity, while the latter is known as an urbanisation economy, where the size of the urban ecosystem within which a firm operates impacts productivity.

The idea that economies of scale arise as a result of an industry being geographically located in a concentrated area dates back to 1920 when Marshall (1920:225) identified that, along with the likeliness for an industry to remain in a locality which it has chosen for itself for a long time, a main benefit to significant industry localisation is the concentration of a good workforce in the area. A localised industry offers a constant market for skill,

attracting a strong workforce which can be utilised by firms operating within such an industry.

Urbanisation economies emerge as a result of a different aspect associated with agglomeration – an increased urban diversity in an area that positively impacts economic productivity. Rosenthal and Strange (2004:5) indicate that a broad range of economic activities in a geographically large urban area enables the establishment of economies of scale which promote productivity gains in firms operating within such a system.

The cluster effect is a phenomenon that arises when the majority of commercial organisations seem to naturally group together geographically. The idea of business clusters existing as specialised industries concentrating in particular localities dates back to the beginning of the twentieth century, when Marshall (1920:222) wrote about the phenomenon. The renowned economics and strategy academic, Porter (2000), has written that geographic concentrations of interconnected companies occur virtually everywhere, even more so in more developed nations. Richardson (1995:125) mentions that several factors contribute to the scale economies associated with clustering, such as (1) intra-industry specialised economies; (2) labour market economies (effectively reducing personnel recruitment costs); (3) improved communication that facilitates innovation spread; and (4) industry-specific public service economies of scale.

The concept of urbanisation economies, and the source of productivity gains associated with these economies of scale, is less straightforward than relating increased productivity to the localisation of an industry. Richardson (1995:125) poses the question whether large cities are more productive as a direct result of urbanisation economies, or rather due to the fact that such cities have a different industrial make-up from small cities by virtue of a collection of localisation economies existing within a large urban ecosystem. Nakamura (1985) found that, in reality, it can be either one or the other and that light industries (less capital intensive, more raw-material oriented) enjoy more advantages from urbanisation economies while heavy industries (more capital intensive, less raw-material oriented) experience more productivity gains from localisation economies. It is therefore the composition of the industry that dictates the level of productivity gained from either largely urban areas or heavily localised industries.

1.3 RELEVANCE OF THE TOPIC TO BUSINESS IN SOUTH AFRICA

Automotive dealerships in South Africa continue to expand into rural areas, with dealer groups strongly competing for valuable market share. It is presumed that the main driver for dealer network expansion is the geographic location of potential customers. Prior research done by the researcher (unpublished report) suggests that this is the most significant factor taken into consideration when dealer groups consider opening new dealerships.

By focusing on the location where potential customers might purchase vehicles, and deciding on a geographic location based on this, other important factors might be overlooked; factors which might affect the profitability and sustainability of a dealership, especially if there is a blinding promise of increased market share at the end of the investment.

The goal of this study was to gain an understanding of the factors that play a role in creating economies of scale for dealerships locating in urban areas and co-locating in close proximity to one another through conducting a literature review. Thereafter, an analysis was done on the impact of such economies of scale on the financial performance of dealerships.

This study attempted to identify whether one would potentially need to additionally discount rural expansion appraisals for the lost opportunity of not being able to exploit agglomeration economies prevalent in urban areas.

1.4 PROBLEM STATEMENT

Large retail corporations, such as automotive dealers, are still expanding and doing business in rural areas throughout South Africa. This indicates that dealers might not view the bottom-line effect of urban agglomeration economies as an integral aspect to enhancing group performance; or they might not be entirely cognisant of this specific factor when appraising expansion decisions.

For the purpose of this mini-dissertation, the research problem can be defined as:

Do agglomeration economies of scale have a material effect on the financial performance of South African automotive dealerships?

1.5 OBJECTIVES

The following objectives were formulated for the study:

1.5.1 Primary objective

Based on the aforementioned problem statement, the primary objective of this research project was to analyse the effect that agglomeration economies of scale have on the financial performance of automotive dealerships.

1.5.2 Secondary objectives

The secondary objectives of this research project were:

- to present an appropriate research methodology to address the set research objective (Chapter 2);
- to gain an understanding of the factors which contribute to economies of agglomeration for South African automotive dealerships (Chapter 3);
- to analyse the financial impact of economies of agglomeration on the financial performance of automotive dealerships by following a quantitative approach (Chapter 4); and
- to make recommendations based on the findings of the study and conclude the research (Chapter 5).

1.6 RESEARCH DESIGN / METHOD

The study comprised a literature review and an empirical study.

1.6.1 Literature review

A literature review was undertaken to understand the aspects associated with agglomeration and, more specifically, the two main economies of scale arising from

agglomeration, namely localisation and urbanisation economies. A number of secondary data sources were considered, including books, journal articles and internet publications.

The existing literature effectively described aspects important to the study and provided a basis from which to draw assumptions for the empirical portion of the study.

The literature review focused on relevant information in order to provide an objective, unbiased foundation for the research study to analyse the practical employment of specific concepts in the South African automotive industry.

The literature review comprised the following components:

- An introduction to and description of agglomeration economies of scale.
- A comparison of urbanisation economies and localisation economies.
- An introduction to a social phenomenon, the cluster effect, alluding to the reasoning behind the natural agglomeration of people and industries.

1.6.2 Empirical study

It is inferable that urbanisation plays a role in the strategy setting process of automotive dealers, especially in a country like South Africa, which is in the midst of rapid urbanisation. The external economies of scale associated with urbanisation, however, may not be a conscious focal point for dealers and the benefits of expanding into urban areas, or opportunity costs associated with expanding into rural areas, may be overlooked.

Quantitative research focusing on financial performance metrics of South African automotive dealerships was used for the empirical portion of the study. Quantitative research is generally based on gathering and interpreting data in numerical form; it is the empirical investigation of phenomena using mathematical techniques (Given, 2008:185). In contrast to a qualitative research methodology, which is commonly exploratory in form, quantitative research is typically used to test hypotheses (Mangal, 2013:158).

The quantitative research in this study was, in fact, exploratory in nature, and followed a descriptive and correlational design in order to provide guidance towards answering the posed research problem. Data collection was observational in nature.

The empirical research was aimed at identifying whether correlational relationships between financial performance and geographical location alluded, effectively enough, to a causative relationship between the two aspects, and whether a strong-enough causative relationship exists to be able to conclusively address the posed research problem. The research design and methodology discussed in Chapter 2 is utilised in the empirical study to address the research problem.

1.6.3 Target population

The target population in this study has the following two main characteristics: (1) Automotive retail organisations, and (2) operating in South Africa.

1.6.4 Sampling frame

The study sample consisted of dealerships of four major automotive OEM brands, namely Volkswagen, Toyota, Ford and Nissan.

These OEM brands were specifically chosen due to their dominance in the South African automotive trade market.

1.6.5 Sample method

The sample method which was utilised is non-probability, purposive (or selective) sampling. The sample size was maximised as much as possible in order to promote objectivity in the research findings.

1.6.6 Sample size

Due to a lack of similar studies, not much reference could be found of an adequate sample size to enable comparability with other findings. The sample size was maximised as much as was allowed by time and resources for analysis in order to promote legitimacy in the findings. A sample of 32 dealerships per OEM for four of the main OEMs was taken, evenly split between dealerships operating in urban and rural areas. A combination of different OEM brands was targeted in order to promote validity in generalising the findings as relevant to the entire South African automotive industry.

In order to determine a sample size which is an acceptable representation of the population, the market leading OEM in passenger vehicle sales as at April 2019, according to proprietary data obtained from NAAMSA (National Association of Automobile Manufacturers of South Africa) – Volkswagen, with around 120 dealerships in South Africa (VW, n.d.) – was used as a benchmark for an upper limit. It was assumed that the OEMs lagging behind would naturally have a substantially lower dealership count and it was therefore important to decide on a sample size which would be acceptable for all major OEM brands.

1.6.7 Measuring instrument and data collection method

Financial records of dealerships in the form of trial balances, income statements and balance sheet data were analysed. The data was provided by a specialist automotive research consultancy.

Data was delivered in .xlsx format, analysed using data analysis software – a combination of SAS (Statistical Analysis Software) and Microsoft Excel. At a foundational level, a distinction was made between the urban and rural dealerships used in the sample based on each dealership's geographical location. Comparisons between the urban and rural dealerships were made at a financial line-item level, as well as by analysing relevant financial ratios which provided insight into differences between the two categories. The study was instituted with the supposition that correlations existing between geographical location (rural/urban) and trends in these ratios would provide insight into the financial effect of enjoying, or not enjoying, agglomeration economies of scale.

1.7 Paradigmatic assumptions and perspectives

Various paradigms exist with regard to research methodology and any given paradigm is determined through the combination of three factors: ontology, epistemology, and methodology (Lindgreen, 2008:21).

The following table (Table 1-1) compares positivism and interpretivism according to their ontologies, epistemologies, and methodologies.

Table 1-1: Interpretivism vs. positivism: ontology, epistemology, and methodology

Ontology	Positivist	Interpretivist
Nature of being / nature of the world	Direct access to real world	No direct access to real world
Reality	Single external reality	No single external reality
Epistemology		
Grounds of knowledge / relationship between reality and research	Possible to obtain hard, secure objective knowledge	Understood through perceived knowledge
	Research focus on generalisation and abstraction	Research focuses on the specific and concrete
	Governed by hypothesis and stated theories	Seeking to understand specific context
Methodology		
Focus of research	Concentrates on description and explanation	Concentrates on understanding and interpretation
Role of the researcher	Detached, external observer Clear distinction between reason and feeling Aim to discover external reality rather than creating the object of study Strive to use rational, consistent, verbal, logical approach Seek to maintain clear distinction between facts and value judgements Distinction between science and personal experience	Researchers want to experience what they are studying Allow feeling and reason to govern actions Partially create what is studied; the meaning of phenomena Use of pre-understanding is important Distinction between facts and value judgement less clear Accept influence from both science and personal experience
Techniques used by the researcher	Formalised statistical and mathematical methods predominant	Primarily non-quantitative

Source: Carson *et al.*, 2001:6

The two common paradigms related to this research are discussed above and form the extreme points of the paradigmatic spectrum, namely positivism and interpretivism (De Villiers & Fouché, 2015:127).

Positivism is adopted by researchers who pursue objectivity in their research, due to the researcher being viewed as being detached from subjects under study and explanations being derived from empirical evidence (McKerchar, 2008:7). In contrast to this, McKerchar (2008:7) notes that the basis of interpretivism is the fact that the researcher cannot be detached from subjects being studied – it takes an insider view and uses controlled inferences, formal logic, induction, deduction, retroduction and abductive reasoning to make sense of data (Gephart, 2018:50).

1.8 OVERVIEW

This study comprises the following chapters:

Chapter 1: Introduction

A brief description of the concepts of urbanisation and agglomeration economies, and an overview of the South African automotive industry were provided. The research objectives were set and the research design discussed.

Chapter 2: Research design and methodology

The research design and methodology along with data collection techniques will be presented.

Chapter 3: Literature review

A detailed discussion of literature related to agglomeration economies and the South African automotive industry will be contextualised.

Chapter 4: Empirical study: results and findings

Communication of the results obtained from the quantitative empirical study will be done, explained and represented diagrammatically.

Chapter 5: Conclusions and recommendations

The overall conclusion of the study based on the findings will be drawn and recommendations on the outcome of the research study will be made.

The next chapter will present the chosen research methodology of the study.

CHAPTER 2

2.1 INTRODUCTION

This chapter focuses on obtaining a complete view of the manner in which the current research study was conducted. The chapter aims to satisfy the first secondary objective mentioned in Chapter 1 (section 1.5.2, page 5) of presenting an appropriate research methodology to address the primary research objective of analysing the effect of agglomeration economies on the financial performance of automotive dealerships.

Research design, in its most basic sense, is a defined type of inquiry within qualitative, quantitative and mixed-method approaches which provides a specific direction for procedures in research (Creswell, 2003:51). It is described by Mouton (2001:55) as a plan or a blueprint for how the researcher intends on conducting the research. Research design therefore provides direction to the researcher in his pursuit of answering the posed research question. Marczyk *et al.* (2005:22) note that *research design* refers to the various ways in which research can be conducted, and that the encompassing *research methodology* should be looked at as the entire process of conducting research.

The rest of this chapter elaborates on both research design and methodology, both in a general sense and specific to this study. Additionally an overview of the research paradigm is provided, and the paradigm relevant to this study is identified. Following this, a discussion is had on the three main research approaches, and the quantitative approach is then identified as the research approach used in this study.

2.2 PARADIGM

Rehman and Alharthi (2016:51) mention that a paradigm, being a basic system of beliefs, is a theoretical framework which contains assumptions about (1) ontology; (2) epistemology; (3) methodology; and (4) methods. It is our way of understanding the reality of the world. Each of these assumptions will now be presented and its application within this study will be described.

2.2.1 Ontology

According to the Oxford Dictionary (2017), ontology can be seen as a combination of ideas and categories in a particular domain that shows the properties and interrelations between them. Furthermore, Crotty (2003:10) defines ontology as “the study of being”. The ontological assumption can therefore be conceptualised as responding to the questions “what is there that can be known?” or “what is the nature of reality?” (Guba & Lincoln, 1994:108).

Richards (2003:33) mentions that ontology refers to the nature of one’s beliefs about reality, and Rehman and Alharthi (2016:51) expand on this by noting that it is specifically the ontological question that leads a researcher to inquire about the existence of reality. With respect to this research study, the assumption is that there is no single reality or truth and that reality is created by individuals in groups. In this study, reality comprised the financial records of dealerships for the sampled automotive OEMs (refer section 1.6.7, page 8).

2.2.2 Epistemology

Crotty (2003:3) writes that epistemology is a way of understanding and communicating the reasons relating to how we know what we know. According to the Stanford Encyclopedia of Philosophy (2005), epistemology can be narrowly defined as the study of justified knowledge, conforming to the definition provided by Gall *et al.* (2003:13) describing epistemology as the area of philosophy that studies the very nature of knowledge and the process by which it was acquired and validated. The assumption with respect to this research study is that the findings from the study need to be analysed to discover the underlying effect of agglomeration economies of scale on automotive firm performance.

2.2.3 Methodology

Methodology is the approach, plan of action, procedure or design underlying the choice and use of specific methods and links the choice and use of the methods to the desired results (Crotty, 2003:3). According to Creswell (2003:5), methodology is the strategy that links approaches to results. Ellen (1984:9) refers to methodology as the production of

data through an articulated and theoretically informed approach. The methodological assumption in this study is that the process of the study and the observation of different themes throughout the study give rise to an admission of what reality is.

2.2.4 Rhetoric

Rhetoric is the art of communicating effectively. In general terms, it refers to the use of language, but its characterisation has somewhat diverted to meaning the insecure or even manipulative use of language (Frye, 1957). Consequently, the assumption is that this study reports on what reality is through the eyes of the researcher.

2.3 RESEARCH METHODOLOGIES

The principles, procedures and practices that govern the research, being research methodology (Marczyk *et al.*, 2005:22) and the philosophical foundation of this methodology, must be comprehended by the researcher (De Villiers & Fouché, 2015). This research project requires the researcher to adopt a positivist paradigm in testing the posed research problem. Because positivism is based on viewing the world as being separate or detached from the researcher's knowledge of it (McKerchar, 2008), this conforms to the methodology required in performing a quantitative analysis on the relationship between financial metrics and geographical location, as is done in this research project. Independent from the researcher's knowledge of reality, the source of reality with respect to this study – financial performance metrics of automotive dealerships – is the sole basis for providing insight into answering the research problem; the only input had by the researcher was in interpreting the findings.

The underlying theme of this study is the investigation into whether, and to what extent, particular variables of interest are related. By definition, this is why empirical research is undertaken (Myers & Well, 2003:1). A distinction can be drawn between quantitative variables and qualitative variables (Marczyk *et al.*, 2005:49). This distinction can be explained by identifying qualitative or categorical variables as those variables which vary in kind, and quantitative variables as those variables which vary in amount (Christensen *et al.*, 2015:47). According to Christensen *et al.* (2015:47), variables – things that vary in value or category – are the foundational constituents of quantitative research and are, in essence, opposite to constants (those things which cannot vary). There is value in the

fact that this particular research study focuses solely on the relationship between different financial variables, as this is in essence, as described above, the gist of quantitative research.

The analysis of relationships between variables, and determining the degree of relationship existing between them, is known as a correlational study (Christensen *et al.* 2015:61). Analysing a correlational relationship between variables and discovering a reliable relationship provides much insight into the interplay between two variables. Not only has the relationship been described, but the ability has been gained to be able to predict one variable based on the behaviour of another variable. This predictive ability may lead some to assume a causal relationship exists between the two variables being examined; however, the idea that correlation implies causation is a logical fallacy (Gardner, 1999).

Christensen *et al.* (2015:51) note three distinct requirements to be satisfied to be able to infer that a causal relationship exists between two correlated variables (refer Table 2-1). It may be accepted that, in the absence of all three of these conditions being met, it would be imprudent to prematurely conclude that the behaviour of one variable directly and proportionately impacts that of another variable purely due to a high correlative relationship.

Table 2-1: Conditions required for inferring a causal relationship

The following conditions must be satisfied to be able to claim that changes in variable A <i>cause</i> changes in variable B:	
Condition 1	Variable A (the presumed causal or independent variable) and variable B (the presumed effect or dependent variable) must be associated or related. This is called the relationship condition.
Condition 2	Changes in variable A must precede the changes in variable B. This is called the temporal order condition.
Condition 3	No plausible alternative explanations exist for the relationship between variable A and variable B. This is called the no alternative explanation condition.

Source: Christensen *et al.*, 2015:51

Quantitative research contains various distinct methods which intend to accentuate objective measurements and analysis of data – being statistical and mathematical in nature – using computational techniques (Babbie, 2007:222), and focuses on generalising gathered numerical data across groups or organisations to explain a specific phenomenon. The most appropriate methodology identified for this study was deemed to be case study research as, according to Hartley (1994), a case study can be understood as an investigation, usually with data collected over a period of time, of either one or numerous organisations or groups within organisations, with a goal to providing an analysis of the context and processes involved in the phenomena under study. This purpose of this study relates to the above description of case study research, in that it seeks to analyse the phenomena of agglomeration economies and their financial impact in the context of automotive dealerships in South Africa.

As Stake (1978:7) notes, a case can be any bounded system which is of interest. A case *study* is not defined by the methods of inquiry used, but by the individual cases investigated (Stake, 1994:236). Therefore, the case study in itself relates to the research design as a whole, and not the specific methodologies pursued in performing the investigation.

2.4 PURPOSE OF RESEARCH

Neuman (2014:37) explains that studies are bound to have numerous purposes, but that there is usually a single dominant overarching purpose behind a study. These are generally categorised into the three purposes, being exploratory, descriptive and explanatory research (refer Table 2-2).

Table 2-2: Purposes of research types

Exploratory
Become familiar with the basic facts, setting and concerns Create a general mental picture of conditions Formulate and focus questions for future research Generate new ideas, conjectures or hypotheses Determine the feasibility of conducting research Develop techniques for measuring and locating future data
Descriptive
Provide a detailed, highly accurate picture Locate new data that contradict past data Create a set of categories or classify types Document a causal process or mechanism Report on the background or context of a situation
Explanatory
Test a theory's predictions or principles Elaborate and enrich a theory's explanation Extend a theory to new issues or topics Support or refute an explanation or prediction Link issues or topics to a general principle Determine which of several explanations is best

Source: Neuman, 2014:38

Yin (2003:3) goes further by saying that case studies in their research design may be structured in an exploratory, descriptive or explanatory sense.

Exploratory studies, according to Neuman (2014:38), have the ultimate goal to formulate more precise questions towards which future investigations may be directed, especially if a topic is new or if there is little current knowledge available, necessitating exploration into the topic. Exploratory research is typically performed for three purposes: (1) to satisfy the curiosity of the researcher and inquisitiveness into a topic; (2) as a proving ground for the possibility of performing more in-depth research into a particular topic in the future

and/or (3) as a means to develop methods to employ in future studies in the topic (Babbie, 2007:88).

Descriptive research allows a researcher to “paint a picture” in describing situations and events (Neuman, 2014:38). It attempts to completely describe a phenomenon within its context, and therefore aims to describe a specific group with no intention of diverging from that group (Hancock & Algozzine, 2006:4).

According to Hancock and Algozzine (2006:33) the aim of explanatory research is to seek and establish cause-and-effect associations, with such research primarily directed at trying to explain how specific events transpire, and how the outcomes of particular events are influenced by others. Yin (2003:120) notes that the aim of explanatory research is to, in fact, explain a phenomenon, and in explaining it, the researcher prescribes a presumed set of causal relations about it.

This study takes a descriptive approach in associating certain economies of scale, brought about by the specific phenomenon of economic agglomeration, with a financial impact on automotive dealers.

2.5 USE OF RESEARCH

Neuman (2014, 26) mentions that the use and audience of research differs between two general orientations of research, with one being more scientific or academic and the other being more practical and action-oriented. These two general categories are basic research and applied research and, as Neuman (2014, 26) notes, although quite different in definition, the separation between the two is not completely rigid, and many researchers work in both or move between the two as their research and careers progress. The OECD (Organisation for Economic Co-operation and Development) (2015:29) also terms these two orientations as basic and applied research. Gulbrandsen and Kyvik (2010) identify the OECD definitions of the terms in its *Franscati Manual* as bona fide explanations of the basic and applied research with the OECD (2015:29) defining basic research as follows:

Basic research is experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundations of phenomena and observable facts, without any particular application or use in view.

This is in line with Neuman's (2014:26) explanation of basic research advancing fundamental knowledge, and it being a source of most new scientific ideas and ways of thinking.

With regard to applied research, the OECD (2015:29) defines it as follows:

Applied research is original investigation undertaken in order to acquire new knowledge. It is, however, directed primarily towards a specific practical aim or objective.

In addition to this definition, Ritchie (2003:24) describes applied research as being concerned with using knowledge gained by virtue of research to directly contribute to the resolution or heightened understanding of a current issue.

This research study can therefore be described as basic research, as it seeks to understand the financial impact of agglomeration economies on automotive dealerships and provide a basis for understanding agglomeration economies' financial impact on a larger scale to work from in the future.

2.6 DATA COLLECTION AND ANALYSIS

As previously mentioned (section 2.3, page 14), the most fundamental distinction which can be made in terms of research methodologies, is between quantitative research and qualitative research. According to Neuman (2014:46), this grouping also suffices for classifying data collection techniques, in that collection of data in the form of numbers is essentially quantitative and collecting data from language is qualitative.

This research study maintains a positivist paradigm suited to the quantitative analysis employed.

The explanatory, basic quantitative research study's design will be discussed in more detail in the section below.

2.7 RESEARCH DESIGN

The research design adopted in this study, conforming to the explained concept of basic research, assists the researcher in an attempt to acquire new knowledge of a particular phenomenon. Marczyk *et al.* (2005:23) notes that deciding on, and formulating a research design precedes the collection and analysis of data, which then leads to forming conclusions on the analysis.

2.7.1 Case study research design

According to Yin (2003:21), when it comes to research design in case studies, there are five important components in particular to consider:

- A study's questions
- Its propositions, if any
- Its unit(s) of analysis
- The logic linking the data to the propositions
- The criteria for interpreting the findings

These components will be discussed in more depth below.

The study's questions

According to Shareia (2016:3851), a study's questions are usually based on theories to be tested by the researcher - this is especially the case in quantitative research. In qualitative research, this is contrasted by the gradual adaptation and refinement of theories throughout the research process in the researcher's attempt to logically link diverse and seemingly unrelated facts.

The research question for this study has been formulated as (refer section 1.4, page 4):

Do agglomeration economies of scale have a material effect on the financial performance of South African automotive dealerships?

After the study's questions, the next component that Yin (2003:21) mentioned be considered in the research design, is the study's propositions. This will be discussed in the next section.

The study's propositions

A proposition is a statement about phenomena which is observable and that may be judged as being true or false. It is only after a proposition was formulated for empirical testing that it assumes the title of hypothesis (Cooper & Schindler, 2014:58). According to Yin (2003:22), attention is directed to something that should be examined within the scope of a study by a study's propositions.

The following propositions have been formulated for this study:

Proposition 1:

Economies of scale arise for businesses which operate in close vicinity to each other, as well as in densely populated areas where the general population have a direct and indirect impact on the success of the businesses. It is proposed by the researcher that these economies of scale are attributable to automotive dealerships in South Africa which stand to benefit from the agglomeration of people and competitors in a particular area within which they operate.

Proposition 2:

Urbanisation of a geographical area equates to the agglomeration of people and businesses in such an area (refer to Section 1.1.2). Therefore, the phenomenon of urbanisation would contribute to a continual improvement in the financial performance of a particular business which enjoys the economies of scale that emerge as a result of economic agglomeration (refer to Proposition 1).

Units of analysis

It is necessary to determine the case which is being investigated. This is, as described by Yin (2003:22), the unit of analysis – the specific instance of investigation relevant to the study. According to Yin (2003:22), selection of an appropriate unit of analysis will occur when the researcher accurately stipulates the primary research questions.

Specific to this study, the research question is:

Do agglomeration economies of scale have a material effect on the financial performance of South African automotive dealerships?

Therefore, according to the research question, the unit of analysis is the South African automotive dealer industry.

Logic linking the data to the propositions

Yin (2003:26) notes that the components of linking data to propositions, as well as interpreting findings, have been the least well developed in case studies, but mentions that linking data to propositions can be done in any number of ways, including:

- Pattern matching: a particular theoretical proposition may underly several pieces of information from the same case study. According to Yin (2003:116), pattern matching comprises the comparison of an empirically based pattern with a predicted pattern.
- Explanation building: stipulating a presumed set of causal links about a phenomenon, with the goal of analysing a case study by constructing an explanation about the case.
- Time-series analysis: matching between a series of data points compared to (1) a theoretically important trend, identified before the commencement of the investigation, versus (2) an opposing series, also identified before commencement of the investigation, versus (3) any other series based on some artefact.
- Logic models: deliberate chain of stipulated events whereby a dependent variable at an earlier stage in the change becomes the independent variable for the next.
- Cross-case synthesis: analysis of multiple cases to increase the robustness of findings.

In relation to the stipulated strategies of linking data to propositions, this research study promotes explanation building due to the explanatory purpose for which the research has been conducted.

Criteria for interpreting the findings

Yin (2003:111) suggest three general strategies for analysing case study evidence:

- Relying on theoretical propositions: the most preferred strategy; as the propositions would shape a study's research collection plan, relevant analytic strategies would be given priority by the propositions of the study.
- Thinking about rival explanations: the more rivals that a study's analysis addresses and rejects, the more confidence can be had in a study.
- Developing a case description: develop and utilise a defined framework for organising the case study; serves as an alternative when difficulty is had in making the other approaches work.

This study relies on the theoretical propositions posed in shaping the data collection and analysis plan, as the propositions directly relate to the research question.

2.8 VALIDITY AND RELIABILITY

It is important to distinguish between the technicalities regarding the terms *validity* and *reliability* (Oppenheim, 1992:144). Golafshani (2003:600) states that the concept of validity in qualitative research is a construct – not fixed, nor universal – which is contingent to the methodologies followed and intentions had by the researcher. Validity in qualitative research is therefore a much less specific concept than in quantitative research – as Joppe (2000) describes – quantitative validity as being a determinant focusing on whether research truly measures that which it has undertaken to measure.

Regarding this particular research study, confirmation of validity may be had by virtue of the high quality sample of financial data used in the quantitative analysis. Additionally, the data in itself is unbiased in that it represents a random selection of automotive dealership financial information with the only external influence in the sampling process being the classification of data based on automotive dealerships' geographical location.

As is the case for the concept of validity, a similarity exists with regard to reliability when quantitative and qualitative research is compared. Golafshani (2003:601) states that reliability is mainly a concept used for evaluating quantitative research, and it is less

structured as a measure in qualitative research. Eisner (1991:58), however, states that reliability is an organic construct in good qualitative research, with such research being reliable if it can help us understand a particular situation that would otherwise be mysterious. According to Healy and Perry (2000), good quality research should adhere to the particular research paradigm's terms and by being reliable, research has a high level of consistency, precision, repeatability and trustworthiness (Chakrabartty, 2013). As the quantitative analysis in this particular research consisted fundamentally only of comparisons of line-item financial figures, the particular method used is completely repeatable – as it is precise and consistent both in methodology and findings – all of this promotes trustworthiness and effectively ensures that there is reliability in the research.

2.9 ETHICAL CONSIDERATIONS

Permission to conduct the study was first sought from the data-providing research consultancy. Written approval was given by the consultancy for the use of the data (see Addendum). It was also indicated that the non-disclosure terms would restrict view of all data to the researcher and his supervisor. Additionally, all sensitive identifying information was withheld by the consultancy, and where an identifying classification was necessary (such as to distinguish between different OEM brands, dealerships or geographical locations), this was done by allocating a pseudonym to an identifying attribute in order to enable distinctions to be made (e.g. a pseudonym A, B, C, and D was allocated to each distinct OEM brand), and total anonymity was upheld in reporting findings on the analysis of dealerships' financial performance.

The North West University's ethical process was followed in terms of the above in order to provide assurance to all stakeholders that sensitive information was not disclosed and remained anonymous. The North-West University's Ethics in Commerce Research Committee approved the study with ethics number NWU-01357-19-A4.

2.10 SUMMARY

This chapter aimed to address the first of the secondary objectives (page 5), to present an appropriate research methodology to address the set research objective. The different research type, research design, and research methodology were described herein.

The chapter laid out the ontological, epistemological, methodological, and rhetorical paradigmatic assumptions adopted in this study, and briefly communicated the relevance of these paradigmatic assumptions.

An detailed explanation on the data collection and analysis was had, as well as the research design – with the choice of case study research substantiated in this chapter. The study's main propositions were laid out and explained in detail linking to the validity and reliability of the research study's findings.

The chapter concluded by reviewing the ethical considerations. With the analysis of proprietary financial data, ethical considerations play an important role in ensuring the integrity of the research.

The next chapter will review the literature on agglomeration economies and provide more context to the research study.

CHAPTER 3

3 LITERATURE

3.1 INTRODUCTION

This section attempts to address the second one of the secondary objectives laid out in the first chapter (section 1.5.2, page 5), namely gaining an understanding of the factors which contribute to economies of agglomeration for South African automotive dealerships. This chapter also addresses literature relating to agglomeration and the effect thereof on an economy within which it occurs in the automotive industry.

3.2 AGGLOMERATION THEORY

In the early 20th century, Marshall (1920:154) introduced the concept of permanent advantages being enjoyed by firms locating in close proximity to other similar or related firms. It is Marshall's (1920:280) opinion that the greater competitiveness of clustered (small) firms, compared to large integrated companies, could be attributed to three distinct aspects. First, it is implied by the small size of firms that better control of employees would be had, as well as easier communication and less wastage of materials. Secondly, these firms' mode of production with independent producers who specialise in different stages of the value chain promotes flexibility in terms of product characteristics and output quantities. And lastly, but most importantly, the spatial concentration of firms is thought to promote, and lead to, the emergence of external economies of scale. The literature around the topic of agglomeration economies has majorly touched on the causes and effects thereof (Press, 2006:42).

3.2.1 Agglomeration economies

According to Press (2006:42), usually two distinct kinds of agglomeration economies exist, namely urbanisation and localisation economies, which, as mentioned, are economies of scale related to the geographical characteristics of the environment within which a business operates. Hoover and Giarratani (1984:64) note that urbanisation economies derive from the agglomeration of different industries and services, in general, and those deriving from the geographical agglomeration of related economic activities

are, as described by Maskell (2001), localisation economies. It is rather self-evident that these two types of agglomeration economies are not mutually exclusive in their presence in an area but these two distinct types of economies of scale may rather be closely associated both in cause and effect, and their emergence should largely coincide with one another, particularly in an urbanised area which is characterised by a high level of urban success. According to Glaeser (2010:2), urban economists attribute urban success to high local wages, robust real estate prices and growth in the number of people within an area. Glaeser (2010:2) also notes that if a place is doing well, then there should be more incentive for employers to pay more for labour in that area, people (consumers and labourers) would be more incentivised to pay more for access to that place, and more people should move to that area. This is a simple explanation for the emergence of economies of scale associated with the agglomeration of people and businesses. It is not imprudent to then simply conclude that a more urbanised area would spur greater economic activity and lead to productivity gains in businesses operating within such an economic ecosystem. After all, a major factor contributing to the phenomenon of urbanisation is the heightened promise for economic rewards unto those who contribute to the local economic ecosystem (International Organization for Migration, 2015). This idea is the foundation upon which cluster theory – as described by Porter (2000:27) – shapes the notion of agglomeration economies arising by virtue of the occurrence of urbanisation in an area.

3.2.2 Urbanisation economies and localisation economies

According to Rosenthal and Strange (2004:5), a large mixture of economic activities in a geographically large urban area provides the basis for economies of scale to emerge, which promotes productivity gains in firms operating within such a system. This is the principle upon which the idea of distinct urbanisation economies is built. Although it has been established that urbanisation and localisation economies of scale should not be regarded as mutually exclusive in the existence of an agglomerated economic ecosystem, there are some dissimilarities between these two types of economies. Urbanisation economies differ from localisation economies in that urbanisation economies result from the scale of the entire urban area's economy within which it operates, not merely the scale of a particular industry; and the benefits generated by urbanisation economies may be

enjoyed by various related and unrelated firms, not just those who operate within a particular industry (O'Sullivan, 1996:28).

O'Sullivan (2012:60) notes that the inception of urbanisation and localisation economies are quite similar and the four distinct agglomeration economies which generate localisation economies also generate urbanisation economies.

The first of these is input sharing, as O'Sullivan (2012:60) describes that most industries share numerous business services such as banking, accounting, building maintenance and insurance. Firms also share infrastructure such as highways, transit systems and educational institutions. By sharing these inputs, firms in a larger urban area effectively tap into a wider variety of inputs at a lower cost than those which may not be party to such sharing.

Secondly, labour pooling, emphasised by Marshall (1920:225) as a major source of agglomeration economies of scale, also enables the emergence of urbanisation economies, as it does localisation economies. Labour pooling occurs when the movement of employees from firing to hiring firms is facilitated by a cluster of firms in the same industry and, according to O'Sullivan (2012:60), labour pooling generates urbanisation economies when demand for labour varies across industries, with some industries expanding while other industries decline – enabling and enforcing inter-industry movement of labour supply.

Thirdly, labour matching, another source of agglomeration economies of scale, is as responsible for the emergence of urbanisation economies as it is for localisation economies, and O'Sullivan (2012:60) notes that an increase in an urban area's workforce increases the density of skills within the area, alleviating the mismatch between skill supply and skill demand. These benefits cross industry boundaries and catalyse the emergence of both localisation and urbanisation economies.

Lastly, and rather importantly when discussion of the causes of agglomeration economies is had, is knowledge spillover. The fundamental fact that physical proximity facilitates the exchange of knowledge between people is reason enough to acknowledge the role that knowledge spill-overs play in creating localisation and urbanisation economies. As O'Sullivan (2012:60) notes, some knowledge spill-overs occur within an industry, but they

are often prevalent in inter-industry settings, promoting a larger and denser knowledge base for an entire urban area.

When comparing localisation and urbanisation economies, as emphasised in this paper, it is neither one nor the other which occurs exclusively in an area. The clustering of firms operating in the same industry – typically known to promote economies of scale termed localisation economies – may be thought to be brought about, or at least catalysed, by urbanisation (Porter, 2000). Localisation economies are economies of scale which occur when production costs of firms operating within the same or related industries decrease due to the industry as a whole experiencing productivity gains related to the co-location of these firms (Marshall, 1920:154). The event of localisation economies emerging, as described, is certainly affected by numerous factors, not merely the co-location of intra-industry firms, but also the agglomeration of related industries near each other. Kolko (2010:151) labels this inter-industry co-location as coagglomeration, and defines it as the tendency of industries to co-locate near other related industries. It is undeniable that industries are geographically concentrated (Duranton & Overman, 2005), which Ellison and Glaeser (1997:891) attribute to two main contributing factors – the geographical prevalence of spill-overs, for example localised knowledge spill-overs, and the idea that firms may want to locate to an area where they might enjoy some sort of natural advantage, for example access to raw materials. Ellison and Glaeser (1997:890) mention that the two more famous examples of such concentrated or localised industries are the high-tech industries in Silicon Valley and the automotive industry in Detroit. As suggested by Krugman (1991:63), these prominent examples of industry localisation may be more the rule than the exception and this phenomenon is becoming increasingly important in research around international trade, urban growth, industrial organisation, business strategy and urban economics in investigating the origins of the existence of industrial agglomerations (Ellison & Glaeser, 1997:890).

Ellison *et al.* (2010:1) note that the benefits of industrial agglomeration ultimately reflect the positive effect that close proximity has in reducing transport costs. According to Marshall (1920:267) these costs could be categorised into three different groups, namely the moving of goods, people and ideas. Press (2006:38) expands on this notion by classifying the benefits of co-location into two classes, namely first-order or geographic benefits, and second-order or agglomeration benefits. According to Press (2006:38),

geographic proximity offers first-order/geographic benefits to firms in accessing location-intrinsic resources, such as raw materials, as well as transport and transaction cost reductions. Second-order/agglomeration benefits can emerge due to geographic proximity if positive externalities in an agglomerated ecosystem imply an effect of activities of local firms on the activities of others.

Bottazzi *et al.* (2002:168) mention five broad categories of agglomerations, which is by no means an exhaustive list of such phenomena: (1) horizontally diversified agglomerations; (2) agglomerations of vertically disintegrated activities; (3) hierarchical spatially localised relations; (4) agglomeration phenomena based on knowledge complementarities; and (5) agglomerations as sheer outcomes of path dependence. They comment that different types of agglomeration clearly hint that agglomeration itself is driven by different drivers, or sources, and their different sectorial particularities.

3.2.3 Sources of agglomeration

The sources of agglomeration economies were mentioned above. Marshall (1920) suggests three main categories under which these sources could be classified: (1) sharing of inputs where production involves internal increasing returns to scale; (2) labour market pooling and matching where an employer's needs for skills is better matched with the local supply of skills through agglomeration; and (3) knowledge spill-overs allowing workers operating in close proximity to one another to learn from each other. These sources of agglomeration economies will be discussed in more detail below.

Input sharing

Rosenthal and Strange (2002:27) consider Marshall's notion of input sharing as depending critically on the existence of economies of scale in the production of inputs, and note that if there were no economies of scale, a downstream firm's input procurement costs would not differ compared to if it were operating in an environment where other similar firms operate. This proposition in particular is the concept that drives the notion of increased input sharing from localised industries begetting agglomeration economies. When looking at the ten most concentrated industries in the United States, Holmes (1999:2) identifies a positive relationship between vertical disintegration and industrial concentration; vertical disintegration being the breaking up of the production

process into separate firms, rather than being centralised in a single company (Cambridge Dictionary, 2019). Rosenthal and Strange (2002:28) point out that this relationship is highly suggestive of Marshallian input sharing. Jofre-Monseny *et al.* (2010:61) pose the supposition that if input sharing is a relevant source of agglomeration economies, then industries which make use of inputs more intensively should be geographically concentrated. Holmes (1992:20) implicitly proves this to be accurate in analysing the most concentrated industries in the United States and observing that establishments located in areas where an industry is concentrated have a purchased-inputs intensity factor (purchased inputs as a percentage of the value of output – a measure of vertical disintegration) which is, on average, higher than establishments in a non-concentrated industry, to the degree of three hundred basis points.

Labour market pooling

Rosenthal and Strange (2002:2) explain that labour market pooling, in an agglomerated industry or co-agglomerated economic environment, improves the match between employers' needs for skills and the labour market's skill supply. In Marshall's identification of labour market pooling as one of the main sources of agglomeration economies, Marshall (1920:225) emphasises that a constant market for skill provides a great advantage for a localised industry. Glaeser (2010:149) notes that labour market issues play a key role in the eventual clustering of industries, and the impression also exists that the clustering of industries begets greater concentrated labour market pools (Cortwright, 2006:19). This implies that labour pooling eventually compounds the intensity of agglomeration economies as labour pooling (and therefore agglomeration economies of scale) is effectively a self-generating phenomenon.

Knowledge spill-overs

According to O'Sullivan (2012:31), the majority of new patents for products or production processes are issued to people in cities, as such areas promote innovation in facilitating the flow of knowledge between people working in close proximity to each other. Jaffe *et al.* (1993:22) show that new patents are between five and ten times more likely to cite previous patents in the same metropolitan area than to cite patents originating from further away, promoting the idea that knowledge is relatively localised. Knowledge is fairly mobile and is often transferred between individuals – and this takes place particularly

when an industry is localised, allowing employees to learn from each other (Rosenthal & Strange, 2002:2).

Although knowledge spill-overs undoubtedly provide advantage for firms operating in close proximity to each other, Alcácer and Chung (2007:775) make the point that they are not easy to take advantage of, and all potential spill-overs created by firms in an area might not be accessible or useful to all firms. Alcácer and Chung (2007:8) note that, due to its tacit nature, it is difficult for knowledge to be transferred at arm's length, and the firms who reap the full benefit of knowledge spill-overs in a localised industry are those which have the capacity to absorb knowledge garnered from more sophisticated competitors. This explains some of the motivation of less sophisticated firms to locate closer to stronger competitors, and effectively exploit agglomeration economies.

Porter (2000:1) mentions that clustering of firms strikingly occurs in virtually every national, regional, state and metropolitan economy, and according to O'Sullivan (2012:64), they do so to exploit agglomeration economies – be it localisation economies at the industry level or urbanisation economies at the city level. O'Sullivan (2012:64) notes the following generally accepted elements related to the clustering of firms:

- Firms cluster to make use of a supplier of an intermediate input if the input is subject to large-scale economies.
- Firms may cluster to share labour pools if, at the firm level, the variation in product demand is greater than at the industry level.
- Better skill matches exist in larger cities, which leads to higher productivity and increased wages.
- Cities facilitate knowledge spill-overs, learning and social opportunities, leading to the attraction of people and firms.
- Changes in location are self-reinforced by agglomeration economies. Firms are incentivised to move to a city due to other firms moving there as well.

3.3 AGGLOMERATION IN THE AUTOMOTIVE INDUSTRY

As noted by Ellison and Glaeser (1997:890), the prime example of agglomeration in the automotive industry is that of the automotive sector of Detroit in the United States. According to Klepper (2001:1), the city's six-fold population increase of 305 000 to

1 837 000 between 1900 and 1930 was fuelled by the concentration of the automobile industry around Detroit – which by 1929 was the largest industry in the country (Davis, 1988:ix).

Agglomeration in the automotive industry occurs throughout the entire value chain, from manufacturing firms to dealerships. Klier and McMillen (2008:266) found that automotive supplier and assembly plants, particularly in the United States, are more concentrated than random location choice would imply, and that purposeful agglomeration exists in the automotive supplier industry. Klier and McMillen (2008:266) also found, through empirical research, that new automotive supplier plants are more likely to locate in regions where high-concentrations of plants already exist. According to Klier and McMillen (2006:3), an automotive producer interested in serving the national market faces the question of where the most cost-effective location for its vehicle assembly plants could be and where production costs would be minimised. Production costs include materials and parts procurement, as well as final product distribution to dealers and, in the case of such large, expensive products as cars, it is extremely important for producers to be cognisant of these costs (Klier & McMillen, 2006:3).

The phenomenon of dealerships to so frequently co-locate has given rise to the designation of these agglomerations as auto-rows – densely populated strips of land occupied by dealerships competing for local market share. Sewell (2011:1280) mentions that because automotive dealers are so vertically integrated with regard to service and parts sales, the importance of dealership location is intensified as the customer must return to the dealership for any required warranty service. Additionally, Sewell (2011:1280) indicates that due to the inability of dealerships to compete on price for warranty work, focus is placed on competing through quality and location, heightening the importance of location on the performance of the firms. Whether it is in the manufacturing of automobiles or their sale and distribution, the importance of strategically locating in agglomerated economies is one of the many aspects that provides a competitive advantage in a highly competitive industry.

3.4 SUMMARY

The aim of this chapter was to address the second secondary objective as set in chapter 1 (section 1.5.2, page 5) of gaining an understanding of the factors which contribute to

economies of agglomeration for South African automotive dealerships. Since Marshall's (1920:222) original description of the phenomenon of agglomeration economies, there has been an awareness in literature of three main sources for the emergence of these scale economies. The sources of agglomeration economies were identified and discussed in this chapter to address the secondary objective of gaining an understanding of factors which contribute to economies of agglomeration. Additionally, the distinction between localisation economies and urbanisation economies was highlighted in this chapter in order to gain a deeper understanding of the topic of agglomeration economies. Lastly, agglomeration in the automotive industry was highlighted in order to directly address the aforementioned secondary objective.

Chapter 4 will provide a discussion on the findings of the empirical study to address the primary objective of the study in analysing the effect that agglomeration economies have on the financial performance of automotive dealerships.

CHAPTER 4

4 EMPIRICAL STUDY: RESULTS AND FINDINGS

4.1 INTRODUCTION

The aim of this chapter is to address both the third secondary objective and primary objective of the study (section 1.5, page 5), which is analysing the effect that agglomeration economies have on the financial performance of automotive dealerships.

This chapter will explore various relevant financial metrics and ratios and attempt to explain supposed correlative relationships between the trends present in these metrics and ratios, and the geographical location of automotive dealerships studies, categorised as operating in either rural or urban settings.

The layout of the chapter will be as follows:

- Discussion of the classification adopted for distinguishing between rural and urban.
- Discussion of the process of data collection for the empirical analysis.
- Discussion of the results and findings from the empirical analysis.
- Concluding remarks on the results and findings from the empirical analysis.

Firstly, the classification adopted between rural and urban will be presented.

4.2 RURAL VS. URBAN CLASSIFICATION

Many different definitions are used to distinguish rural and urban areas, which are multidimensional concepts and, when being defined, usually leads to confusion and undesired mismatches in categoric eligibility. This difficulty in classification is inherent in distinguishing such broad categories from one another, which leads to population density generally being chosen as the defining concern in this case (United States Department of Agriculture, n.d.). Due to the difficulty in defining specifically what a rural or urban area might be, in this study it makes most sense to more generally define these terms on the basis of total population in a particular area, using population count as a determining factor. The UN (n.d.) notes that a locality is best defined as a distinct population cluster – agreeing to this study’s partitioning of urban cities and rural areas based on population –

and that although the distinction between urban and rural has become blurred, the main difference between these two generally tends to relate to the degree of population. Due to the level of population always underlying the definition of rural and urban areas, it seems prudent to distinguish between rural areas and urban built-up cities based on this.

4.3 PROCESS OF DATA COLLECTION

Prior to the conducting of the study, the researcher had corresponded with the providers of the proprietary data in communicating the research goals (section 1.5, page 5) and specific data (section 1.6.7, page 8) required for analysis. The data was provided in the form of financial records which had been reported to the data provider and included the trial balances, income statements and balance sheets of the dealerships being studied.

The specific sample of data used was randomly drawn from a database containing the above-mentioned financial information from the majority of automotive dealerships operating in South Africa. Total sample data from 32 dealerships from four of the main OEMs (Volkswagen, Ford, Toyota and Nissan) was taken. The split between dealerships operating in a rural area vs. an urban area was done by categorising the dealerships based on the cities within which they operate. Based on a 50:50 split of rural to urban dealerships, 16 dealerships per OEM were randomly drawn from areas falling in the top 15 most populated South African urban agglomerations according to the UN (2018), being:

1. Johannesburg,
2. Cape Town,
3. Ekurhuleni,
4. Durban,
5. Pretoria,
6. Port Elizabeth,
7. West Rand,
8. Soshanguve,
9. Vereeniging,
10. East London,
11. Bloemfontein,
12. Pietermaritzburg,

13. Rustenburg,
14. Witbank, and
15. Polokwane.

For the rural dealerships sample, a random selection of 16 dealerships per OEM was taken from all dealerships operating outside of these specified urban agglomerations.

The data received for the study was in the form of financial statements (income statements and balance sheet), an example of which depicted below with figures adjusted for anonymity (Figure 4-1):

Figure 4-1: Extract example of income statement data used for the study

SALES	Dealership Sales	206,457,764.66	195,045,241.88	175,126,541.56
GROSS PROFIT	TOTAL GROSS PROFIT (TGP)	32,293,408.37	30,247,461.57	28,068,227.80
	MIX: (GP % of TS)	15.64%	15.51%	16.03%
VARIABLE EXPENSES		5,526,648.80	4,860,251.10	5,608,641.52
	% of GP	17.11%	16.07%	19.98%
	Sales Commission	2,873,645.04	2,717,772.91	2,754,992.82
	Direct: Advertising & Promotions	674,112.35	657,028.58	685,120.50
	Aftersales	378,797.25	210,321.95	205,733.19
	Pre Delivery & Free Service	364,524.18	172,120.07	593,322.94
	Rep Car			
	Freight Inward			
	Delivery & Freight Out	120,545.99	52,405.09	39,508.70
	Demo Expenses	1,053,089.96	1,006,045.67	1,291,178.05
	Policy Adjustment			
	Other Selling Exp.	61,934.03	44,556.83	38,785.32
VARIABLE SELLING GROSS		26,766,759.57	25,387,210.47	22,459,586.28
	% of Sales	12.96%	13.02%	12.82%
TOTAL SEMI VARIABLE EXPENSES		15,833,168.88	15,181,455.38	13,818,364.97
	% of GP	49.03%	50.19%	49.23%

PERSONNEL		12,677,787.42	11,956,896.15	11,060,220.22
% of GP		39.26%	39.53%	39.40%
Salaries & Wages		6,970,490.78	6,419,042.97	5,885,968.77
Incentives		942,679.07	928,723.91	1,065,798.90
Employee Benefits		2,944,997.28	2,908,740.34	2,666,284.08
Leave Pay Provision		307,359.82	278,519.41	205,039.87
Company Car		1,097,984.22	1,031,816.80	946,085.36
Fuel				
Superannuation / Prov Fund / Pension				
Payroll Taxes				
Staff Recruitment				
Staff Refreshments				
Training		377,115.00	363,555.85	281,179.64
Other Personnel Exp.		37,161.25	26,496.87	9,863.60
SEMI VARIABLE EXPENSES		3,155,381.46	3,224,559.23	2,758,144.75
% of GP		9.77%	10.66%	9.83%
Audit Fees		75,379.20	74,893.02	66,240.00
Professional Fees		15,339.58	3,445.47	7,039.07

Loose Tool Replacement				
Maintenance		265,235.24	199,993.49	158,408.23
Aftermarket Costs				
Business Services Taxes				
Cleaning		654,106.93	618,709.12	555,820.18
Consumables		103,523.61	114,829.44	97,861.77
Goodwill				
Hire Charges				
Insurance		264,847.86	426,000.00	220,800.00
Leasehold Improvements				
Licences				
Lost and found				
Office Supplies		137,543.57	161,222.57	127,017.26
Policy Payout				
Rail & Freight & Delivery Freight		-251,200.00		
Security		226,293.34	215,862.37	177,554.93
Telecommunications		326,683.33	280,381.91	307,929.85
Travel & Entertainment		55,835.43	49,061.57	29,746.74
Warranty		57,000.00	48,000.00	30,000.00
Other Semi Variable Exp.		530,515.25	328,914.93	319,661.53

The entire income statement data for a dealership includes numerous more line items, including financials partitioned by business type within the dealership (e.g. new cars, used cars, parts, finance and insurance, etc.). Figure 4-2 reflects an example of an extract of a balance sheet used with figures adjusted to ensure anonymity.

Figure 4-2: Extract example of balance sheet data used for the study

Page	Balance Sheet	Jan 2018 - Dec 2018	Jan 2017 - Dec 2017	Jan 2016 - Dec 2016
LIABILITIES				
SHAREHOLDER FUNDS		20,765,378.87	18,821,631.79	15,667,706.38
	Share Premium	10,800.00	10,800.00	10,200.00
	Share Capital	8,780.40	8,780.40	8,292.60
	Members Accounts			
	Non Distributable Reserves	5,760.00	5,760.00	5,440.00
	Distributable Reserves			
	Revaluation of Fixed Assets			
	Retained Earnings	20,740,038.47	18,796,291.39	15,643,773.78
NON-CURRENT LIABILITIES	Interest-bearing borrowings	223,525.29	16,723.29	1,605,857.74
CURRENT LIABILITIES		17,141,597.41	21,006,445.29	24,972,525.97
	Creditors & other current liabilities (Note 1)	16,622,951.13	20,111,609.70	24,396,987.46
	Short-term loans	87,417.19	87,417.19	40,287.63
	Deferred tax	197,372.58	514,378.85	504,017.23
	Overdraft			
	Deposits (Note 2)			
	Provisions (Note 3)	233,856.51	293,039.55	31,233.65
TOTAL FUNDS INVESTED		38,130,501.57	39,844,800.37	42,246,090.09

ASSETS				
NON CURRENT ASSETS		1,491,004.03	1,659,707.80	2,715,487.39
	Land & Buildings	-403,520.13	-396,656.45	-321,093.75
	Goodwill			
	Equipment and Other Fixed Assets (Note 4)	1,714,309.10	1,876,149.19	2,860,577.36
	Investments	180,215.06	180,215.06	176,003.78
	Other			
CURRENT ASSETS		36,639,386.55	38,184,988.55	39,530,496.70
	Inventory (Note 5)	25,459,009.95	29,200,818.48	29,132,813.38
	RECEIVABLES	9,810,138.51	6,671,431.32	5,007,134.75
	Receivables: Non-Vehicles (Note 6a)	3,454,318.74	1,918,472.84	2,023,065.69
	Receivables: Vehicles (Note 6b)	6,367,595.91	4,759,495.56	3,001,985.10
	Receivables: Other (Note 6c)	-11,776.14	-6,537.08	-17,916.04
	Other Current (Note 7)	629,168.35	793,635.06	3,396,168.13
	Cash and Cash equivalents (Note 8)	741,069.74	1,519,103.69	1,994,380.44
BRAND VARIANCE	Brand Variance Amount (Incl in Investments)			
TOTAL ASSETS		38,130,390.58	39,844,696.35	42,245,984.09

The entire balance statement data for a dealership includes numerous more line items such as notes to the balance sheet and including financials partitioned by business type within the dealership (e.g. new cars, used cars, parts, finance and insurance, etc.).

4.4 RESULTS AND FINDINGS

The effect that agglomeration economies of scale might have on operations is logically two-fold in that it is theorised to reduce expenses (by lowering transport costs) and increase income (through enhanced competitiveness and quality of a market). This means that margins are potentially widened on both sides of the income statement.

4.4.1 Expenditure

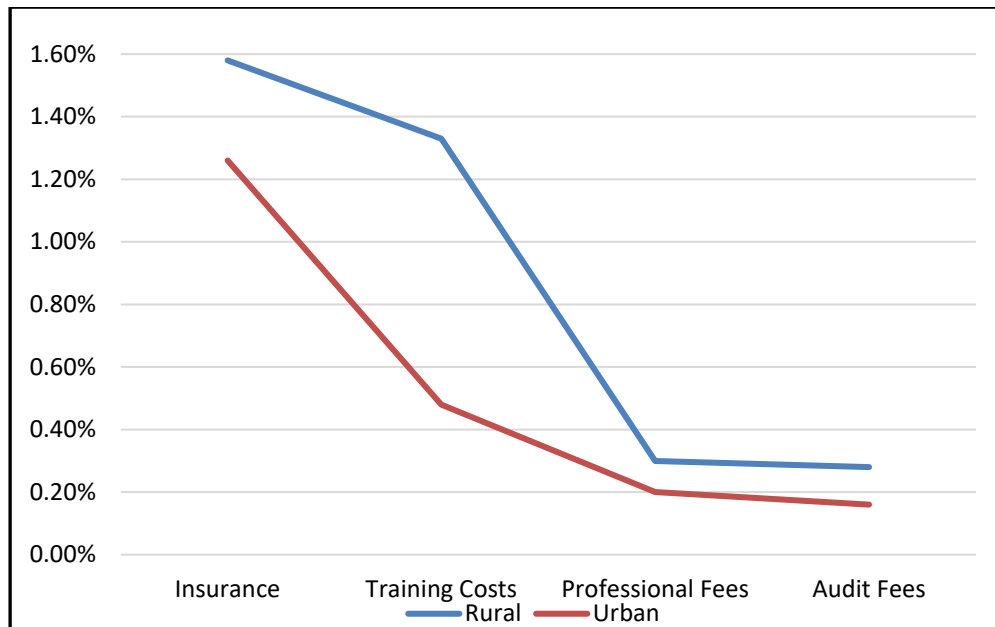
In order to try and isolate the effect that agglomeration economies of scale have on performance, it is necessary to focus on components which would most directly be influenced by these scale economies. It is obvious that numerous factors affect the financial performance of firms, and it would not be enough to merely compare the overall

performance of rural and urban dealerships. It is necessary to direct attention to items which are logically affected by agglomeration economies.

The area of expenses where it seems most logical that agglomeration economies of scale might have an impact, would naturally be staff-related expenditure, with Moxey and Raley (2000:67) explaining that the outmigration of young people from rural to urban areas negatively impacts the educational achievement profile of a rural society. With a lower skilled population to draw from, rural firms are required to actively train current employees or recruit in urban areas – potentially inflating their employee transport expenditure and offered salaries and incentives. Both of these options would translate to higher employee costs purely due to the geographical location of these firms.

Scale economies arising from locating close to competitors and close to areas where staff might agglomerate would have a dramatically improved quality staff pool to draw from (resulting in less of a need to finance the training and development of staff in an organisation). This is evidenced by the current study, where training costs as a percentage of gross profit is, on average, relatively much higher in the rural sample of dealerships than in the urban sample (Figure 4-3). These results concurs with current literature where staff skills is listed as one of the major performance impediments for rural firms (Phillipson *et al.*, 2019:237) along with other factors such as regulation, staff recruitment, and obtaining finance. From the sampled data, the average training expenditure as a percentage of gross profit over 3 years was 1,33% for rural dealerships and 0,48% for urban dealerships (refer Figure 4-3).

Figure 4-3: Dealership expenditure to gross profit comparisons (sample expenses)



Source: Own compilation

Other expenditure areas which follow this pattern include a heightened relationship between service provider costs (measured as audit fees) and gross profit for rural dealerships compared to urban dealerships, with rural dealerships' reported audit fees to gross profit ratio averaging out at 0,28% compared to 0,16% for urban dealerships annually, measured over 3 years (refer Figure 4-3). It is assumed that this trend may be the case for other external service providers as well, which could be explained by a fee premium being charged to firms located in unconventional areas because service providers might be required to spend more on transport and accommodation (Phillipson, 2019:232).

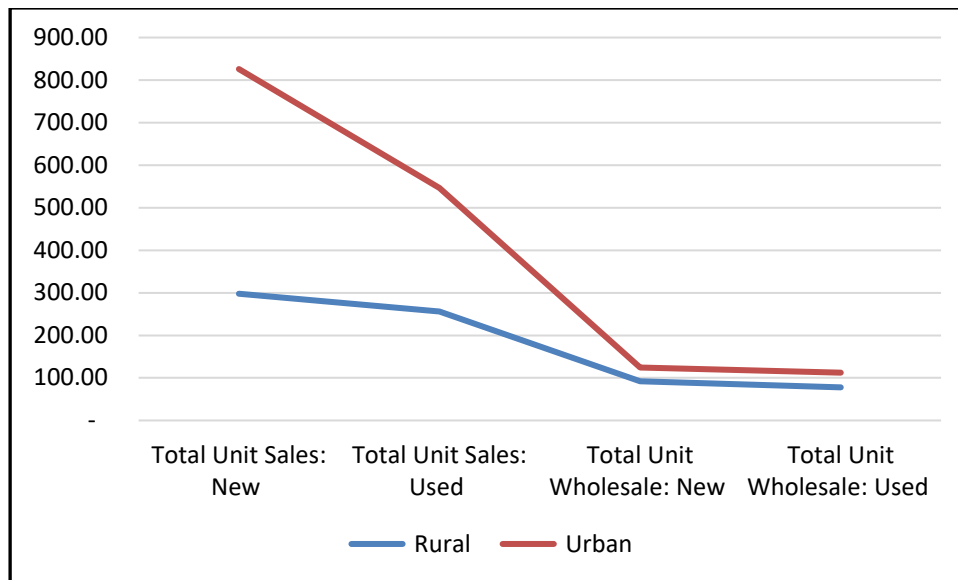
In a more general sense, professional service providers to rural firms would not benefit from the inherent advertising that they might enjoy from being more visible to other potential clients in a more agglomerated geographical area. This assumption is substantiated by analysing the dealerships' reported "professional fees" expenditure to gross profit ratio where rural dealerships' fees to gross profit ratios average out at 0,30% and urban dealerships average out at 0,20% annually over the past 3 years.

The benefit of locating in urban agglomerations also seems to have an impact on the dealerships' insurance expenditure. On an average basis, from the sample data, the dealerships' insurance expenditure as a percentage of gross profit is higher for rural dealerships than for urban dealerships, with rural dealerships' insurance expenditure to gross profit equating to 1,58% and urban dealerships returning a lower expenditure to gross profit ratio of 1,26%.

4.4.2 Income

The top line of the income statement also correlates strongly to the dealerships' geographic location, agreeing to the logic that consumer demand is higher in those areas where agglomeration of customers occurs (Tolley, 1987:16). In turn, suppliers agglomerate in such areas to exploit the high demand.

Figure 4-4: Average dealership sales (units): rural vs. urban



Source: Own compilation

This is evidenced from this study, where sales quantities per dealership are dramatically higher on an average basis for urban dealerships than they are for dealerships operating in rural areas. The average annual new car unit sales over 3 years for all of the dealerships being studied came out to 297,81 units for rural dealerships and 825,96 units for urban dealerships. New wholesale units followed this pattern with average unit sales for rural dealerships coming to 91,71 and new urban wholesale units averaging out at 124,50.

The same trend was seen in used car sales with individual sales averaging out at 256,15 units for rural dealerships and 546,81 for urban dealerships, while average used wholesale units were 77,79 for rural dealerships and 112,31 for urban dealerships. Across all categories, urban dealerships were, on average, selling more units than rural dealerships.

4.4.3 Bigger picture

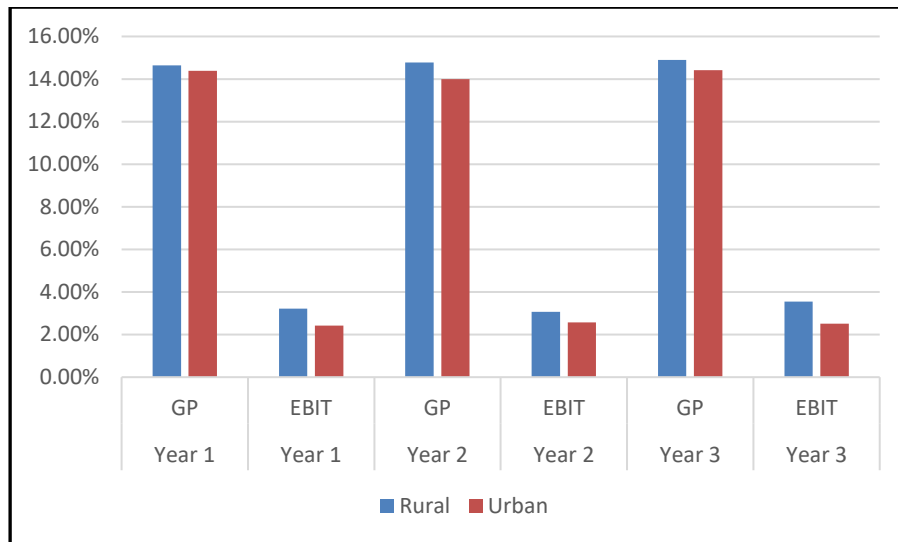
In order to analyse the potential effect of agglomeration economies on the financial performance of a dealership, as mentioned above, it is important to attempt to isolate only the items which are theorised to be directly affected by a dealership locating within such an economic area. This is due to the fact that there are numerous variables unrelated to

agglomeration economies of scale which also play a part in performance. It is thought that there is indeed a part that agglomeration economies play in improving financial performance by alleviating elements which lead to higher costs, as well as by improving a dealership's ability to sell its products to clients, leading to higher turnover across the board.

In a more high-level view, however, the positive contribution of these scale economies on the financial performance of dealerships may not be experienced as dramatically as an analysis of particular financial line items might suggest. After all, it would not make sense for dealerships to locate in areas where they do not enjoy the benefits of agglomeration economies if these economies of scale have a material effect on performance. Additionally, the specific areas where it is thought that agglomeration economies have the greatest impact – in terms of reducing expenditure, at least – represent low values when looking at a dealership's business as a whole. Therefore, it seems that if dealers are already cognisant of the benefit that agglomeration economies might provide, they still sometimes deliberately locate in non-agglomerated, or lesser-agglomerated areas, as other factors may weigh more heavily on their respective strategies (refer chapter 3).

Although there is certainly an impact that agglomeration economies have on the performance of dealerships, especially when looking at specific financial line items which may be impacted by locating close to competitors, this does not necessarily translate into the bottom line of a dealership's performance. Interestingly, out of the sample of dealerships studied, it is rural dealerships who on average enjoy the best margins (both gross and net). This is evident from Figure 4-5 that reflects that in each of the three years the rural dealerships outperformed the urban dealerships on both the gross profit margins and earnings before interest and tax.

Figure 4-5: Comparison of earnings before interest and tax (EBIT) and gross profit (GP) margins – rural vs. urban



Source: Own compilation

4.5 SUMMARY

This chapter served to provide an illustrative discussion of the results obtained from sampling an even split of rural and urban South African dealerships, from four of the major OEMs and analysing specific financial information with the goal of making comparisons based on these dealerships' respective geographies. This chapter's main goal was to address both the third secondary objective and the primary objective of analysing the effect that agglomeration economies have on the financial performance of automotive dealerships.

Interestingly, although the rural dealerships had higher dealership expenditure to gross profit percentages in comparison to urban dealerships over a three-year average, the rural dealerships outperformed their urban counterparts over the same period.

In the next chapter, a discussion of the findings will be had, along with an assessment of the study and consideration of an overall conclusion to be drawn from the study.

CHAPTER 5

5 CONCLUSIONSINTRODUCTION

This chapter will serve to conclude by discussion of results obtained in the study in order to address the fourth and final secondary objective as set in chapter 1 (page 5). The primary objective of the study was to analyse the effect that agglomeration economies of scale have on the financial performance of automotive dealerships. To satisfy this objective, it was decided to analyse particular reported financial line items and infer whether a correlation might exist between these and the geographical location of automotive dealerships.

This chapter will aid in communicating the results from the above-mentioned investigation by providing a summary of the literature review and empirical study. Additionally contained in this chapter, recommendations will be made, the limitations of the study will be highlighted and areas for future research will be suggested.

5.2 SUMMARY OF FINDINGS

5.2.1 Literature review

The purpose of the literature review in this study was to aid in achieving the secondary objective of obtaining an overall understanding of economies of scale arising by virtue of the phenomenon of agglomeration of automotive dealerships in a localised economic ecosystem. This was done by describing the concept of agglomeration theory and detailing the specific types of economies of scale which emerge as a result of firms agglomerating close to each other or within an urbanised economic area. Additionally, the literature review delved into the specific sources of agglomeration, namely input sharing, labour market pooling and knowledge spill-overs, in an attempt to logically describe the process of the inception of these particular scale economies.

In reviewing the relevant literature, it was quite apparent that the organic inception of scale economies naturally occurs wherever intra-industry firms might co-locate or where such firms locate in areas with high-enough levels of urbanisation in order to promote efficiencies linked to cost saving and increased revenues. The notion is not new and, at

the turn of the 20th century, this was already mentioned, most notably by Marshall (1920:154). The more recent literature supports Marshall's (1920:280) original opinion that the above-mentioned sources of agglomeration contribute to the competitiveness of clustered firms. The recent literature has elaborated on this and the establishment of well-known industry agglomerations such as the automotive industry in Detroit and the tech industry in Silicon Valley can confidently be attributed to a conscious or subconscious attempt to exploit these particular economies of scale.

The concept of an agglomeration economy was also analysed in a deeper sense, and emphasis was placed on the two main types of agglomeration economies – localisation and urbanisation economies. The defining traits for these specific categories of agglomeration economies were discussed, and the two broad categories were distinguished from each other in describing industrial agglomeration. This aided in obtaining a well-rounded view of the concept of agglomeration and the factors at play in the emergence of agglomeration economies.

Agglomeration in the automotive industry was also discussed and, specific to dealers, “auto-rows” – a collective term for the agglomeration of automotive dealerships – were highlighted. Auto-rows are one of the more obvious displays of the co-location of firms, certainly to exploit geographical location benefits such as reduced transport costs and a high supply of workers (Phillipson, 2019:232), as well as high demand from customers in the area.

5.2.2 Empirical study

The empirical study spoke to the primary objective, as an understanding of the impact of agglomeration on the South African automotive industry was ultimately pursued. This was done through the analysis of reported financial information from a sample of South African automotive dealerships.

The analysis focused on the factors which are most likely to be impacted by agglomeration economies – expenditure line items which are thought to be significantly impacted by urbanisation and localisation economies. It was found that cost efficiencies seem to exist more so in dealerships located in urban areas than other dealerships. Although there is a definite trend of heightened expenses in those line items which were

analysed, the absolute effect of the cost savings remain somewhat immaterial to the effective financial performance of the dealerships.

In addition to the analysis of particular expenditure line items, the overall sales figures of the partitioned dealerships were also analysed since locating in areas where demand is high drives much of the automotive agglomeration. It was found that dealerships located in urban areas tend to enjoy higher sales figures, which would explain their decision to locate in areas where there are more customers, even if it means higher local competition (Figure 4-4). This trend highlights the impact of urbanisation economies on the performance of automotive dealers as the top line of the income statement seems to be even more susceptible to the geographic location of dealers.

The above-mentioned effects highlighted in the analysis need to be contextualised and a comparison was made between urban and rural profit margins (Figure 4-5) to determine if the cost savings and increased revenue promoted by agglomeration economies have a material effect on the performance of automotive dealerships. From the sampled group of dealerships, the earnings before interest and tax margins, as well as the gross profit margins, were still greater in rural dealerships than they were in urban dealerships.

5.3 DISCUSSION AND CONCLUSION

Through review of relevant literature it is clear that agglomeration economies surface when areas urbanise as well as when firms, from the same industry or other industries, co-locate in a particular area. The study has revealed that these agglomeration economies do have an impact on automotive dealerships' financial performance. There are noticeable relationships between the geographical location of automotive dealerships – rural or urban – and the trends of particular reported financial line items. This leads to satisfy the primary objective of analysing the effect that agglomeration economies of scale have on the financial performance of automotive dealerships since specific areas of the dealerships' financial performance are investigated with relation to the dealerships' geographical location – assuming that the agglomeration economies of scale being investigated are mostly present in urban regions.

The empirical study has suggested, however, that although the promise of improved financial performance in some areas of the dealerships' business exists when exploiting

these particular economies of scale, there is no evidence to suggest that this would materially affect the bottom line of the businesses to such an extent that the dealerships would be dissuaded from locating in non-urban areas, where agglomeration economies are less prevalent. The evidence from the empirical study highlights the fact that rural dealerships still enjoy better margins on an average basis – suggesting that other external factors may be counteracting the disadvantage of not being able to enjoy agglomeration economies fully, and may be promoting improved performance in other unrelated areas.

5.4 RECOMMENDATION

The primary recommendation relates to the finding of the study that there is an impact on financial performance for automotive dealers in South Africa when these dealers exploit, consciously or not, agglomeration economies present in the immediate region within which they operate. As it has been found that there is indeed an impact, it is essential for automotive dealers to be cognisant of all of the variables at play when deciding on where to locate. The particular decision is multi-faceted in its considerations, and although numerous relevant factors contribute to heightened performance, dealers must be aware of the advantages that agglomeration economies offer when making such a decision. Whether the strategic decision of an automotive dealer is to locate in an agglomerated area or not, all factors must be weighed against each other.

It is therefore recommended, based on the findings of this study, that when strategic decisions are made based on expansion and relocation of dealerships, the topic of agglomeration economies is explicitly focused on so as not to disregard a potentially important component contributing to the performance of dealerships.

5.5 LIMITATIONS OF THE STUDY

The most prominent limitation of the study resonates from the sample group randomly chosen for the study. The entire sample group of dealerships totalled to 32 with a 50:50 split between rural and urban dealerships. The two aspects necessary to emphasise with regard to the sample group are the extent to which the sample group represents the South African automotive industry, and the suitability of criteria used to distinguish between rural and urban dealerships.

The sample group of dealerships studied was maximised as much as time and resources allowed; however, it still remained rather small and therefore generalising findings to address the entire automotive industry might inherently have some room for error.

It has been mentioned that using population as a determining factor of distinguishing rural from urban areas may be deemed acceptable. However there exists a limitation in that this criteria is non-dimensional, and other aspects may need to be considered as well when determining more effectively the distinction between rural and urban areas.

5.6 RECOMMENDATIONS FOR FUTURE RESEARCH

To address the limitations described, future research may be done on a larger sample of dealerships. It would also be beneficial to incorporate other criteria into partitioning these dealerships into groups that are participants in agglomeration economies and those that are not – or at least to a much lesser extent.

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