THE RELATIONSHIP BETWEEN GOVERNMENT SUPPORT AND THE SUSTAINABILITY OF THE SOUTH AFRICAN AUTOMOTIVE INDUSTRY

by

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The relationship between government support and the sustainability of the South African automotive industry

I declare that the above dissertation is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

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SIGNATURE DATE

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ABSTRACT

In the early 1990s the South African automotive sector was regarded as ineffective, uncompetitive and dependent on heavy tariff protection for survival. The government's policy support through the Motor Industry Development Programme lowered tariffs and provided strong support for exports, while the production incentives of the Automotive Production Development Programme reinforced the vision that the long-term development of the sector will best be served through considerable increases in production volumes and accelerated growth. The population consisted of the seven OEMs and the 110 First Tier Suppliers. The results indicate a difference in government support between the vulnerable and non-vulnerable suppliers. The government has shown its commitment to the future of the automotive industry by policy interventions such as the Motor Industry Development Programme and the Automotive Production Development Programme. The question arises as to what extent the government's guarantees are keeping the domestic automotive manufacturing industry sustainable? The objective of this research was to investigate the relationship between government support and the sustainability of the South African automotive industry. The conclusion of the study is that the South African automotive industry and its suppliers would not be able to survive without continued government support.

Keywords: MIDP, APDP, NAAMSA, NAACAM, DTI, AIEC, FTS, vulnerable, non-vulnerable, government support, sustainability, automotive industry.

ABBREVIATIONS

AGOA	African Growth and Opportunity Act
AIEC	Automotive Industry Export Council
AIS	Automotive Investment Scheme
APDP	Automotive Production Development Programme
ASCCI	Automotive Supply Chain Competitiveness Initiative
ATVM	Advanced Technology Vehicles Manufacturing
BRICS	Brazil, Russia, India, China and South Africa
CET	Common External Tariff
CU	Customs Union
DFA	Duty Free Allowance
DG	Director General
DTI	Department of Trade and Industry
EFTA	European Free Trade Association
EU	European Union
FDI	Foreign Direct Investment
FTA	Free Trade Agreement
FTS	First Tier Suppliers
GDP	Gross Domestic Product
GM	General Motors
GMSA	General Motors South Africa
IMSA	Isuzu Motors South Africa
IPAP	Industrial Policy Action Plan
IRCC	Import Rebate Credit Certificates
ITSA	Isuzu Trucks South Africa
MIDP	Motor Industry Development Programme
MITG	Motor Industry Task Group
NAACAM	National Association of Automotive Component and Allied Manufacturers

NAAMSA	National Association of Automobile Manufacturers of South Africa
NIPF	National Industrial Policy Framework
NNMI	National Network for Manufacturing Innovation
OEM	Original Equipment Manufacturer (Vehicle Manufacturer)
PAA	Productive Asset Allowance
PI	Production Incentive
SACU	Southern African Customs Union
SADC	Southern African Development Community
SMEs	Small and Medium Enterprises
TFTA	Tripartite Free Trade Agreement
UNCTAD	United Nations Conference on Trade and Development
USA	United States of America
VAA	Volume Assembly Allowance
WMMI	Willowvale Mazda Motor Industries
WTO	World Trade Organisation

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CHAPTER 1
BACKGROUND TO THE STUDY

1.1 INTRODUCTION

Through government incentive policies, such as the Motor Industry Development Programme (MIDP) and the Automotive Production Development Programme (APDP), the South African automotive sector has become a major domestic contributor to the economy (Kilbourne, 2015:6). The broader automotive industry in South Africa, through its well-integrated value chain from downstream to upstream activities, contributed 6.9% to the country's gross domestic product (GDP) in 2017 (AIEC, 2018:5). Furthermore, the vehicle and automotive component manufacturing industries accounted for 30.1% of the country's total manufacturing output, while record automotive export earnings of R164.9 billion comprised a significant 13.9% of South Africa's total export earnings (AIEC, 2018:5). The Automotive Industry Export Council (AIEC) (2017:6) stated that the automotive industry remains fundamentally important to South Africa's socio-economic prosperity, growth and development, and central to the South African government's efforts to industrialise and re-industrialise the nation's economy. According to Barnes and Black (2017), the automotive sector is one of the few sectors that has grown over the past decade, and it adds meaningfully to the total manufacturing output. Similarly, the AIEC (2018:11) reported that global vehicle production in 2017 rose by 2.4% to reach a record of 97.30 million vehicles, an increase on the 95.06 million units produced in 2016.

Structured engagements between government and business in relation to these policies are imperative, since business investments are essential for government to realise the country's economic goals. Business, conversely, depends on government to provide a favourable investment environment (AIEC, 2016:20). The MIDP, implemented in 1995, and its successor, the APDP, effected in 2013, represent some of the most inventive government programmes to develop and conserve the domestic vehicle and component manufacturing industries that have continued to contribute positively to the South African economy and society (AIEC, 2016:18).

According to Furlonger (2013), there has been a trade discrepancy or imbalance (this occurs when a country imports more than it exports) in the automotive industry every

year since 1995, when government first introduced the MIDP. This situation has been ongoing despite the objective of the MIDP being to turn the regressive industry into a contemporary, competitive force. The size of the discrepancy has given ammunition to those who claim that the South African automotive policy is flawed and that government ought to stop supporting it with billions of rand of public funds (Furlonger, 2013). However, according to Furlonger (2013) and Nkunzi (2014), proponents of the automotive policy argue that the automotive industry would struggle to continue without government funding. Furlonger (2013) quoted Garth Strachan, the acting Deputy Director-General of the Department of Trade and Industry (DTI) as saying that, "No country with a significant automotive industry does not provide substantial support. In a global context, South Africa's programme is on the modest side."

Without the automotive industry, part of the nation would be at risk of turning into an economic wasteland (Furlonger, 2013). This is particularly applicable to the Eastern Cape, where Ford, General Motors and Volkswagen have key operations in and around Port Elizabeth, and East-London where Mercedes-Benz is seen as the biggest private-sector employer. These areas would be devastated by the loss of these organisations and the scores of mechanisms and service businesses that back them (Furlonger, 2013). Dr Johan van Zyl, Chairman of Toyota SA and President and CEO of Toyota Motor Europe, who was also president of the National Association of Automobile Manufacturers of South Africa (NAAMSA) stated that without the programmes, multinational organisations would not keep investing in South Africa (Furlonger, 2013). Although this reflects the viewpoint of the automotive vehicle manufacturers, the automotive component suppliers have a less positive viewpoint regarding this issue.

Independent Online Media (2016) stated that even though the component manufacturers were given enough time and space to express their concerns under the incentive programmes, these concerns have still not been appropriately addressed. It appears that the government is not applying adequate pressure on vehicle manufacturers to decrease the import of components and to increase local sourcing from suppliers. In addition, Khan (2015:27, 30) stated that the APDP is perceived to have a negative impact on all material-intensive supplier industries, such as the leather and catalytic converter industries, amongst others. The reason

for the perception being that the APDP does not provide the same level of support to supplier industries as previously provided by the MIDP, thus making the material-intensive products less competitive (Khan, 2015:27, 30).

One of the secondary objectives was to investigate these perceptions that are prevalent among the suppliers and supporting automotive industries, and to determine if they are justified or not, especially seen in relation to the overarching influence of government support on the sustainability of the industry. In light of the above-mentioned research and recent recommendations regarding the APDP, the researcher aimed to establish what makes South Africa as a country attractive to international vehicle manufacturers, and subsequently the component suppliers that form part of the automotive supply chain. The researcher also wanted to determine if, and to what extent, incentives such as the APDP, sustain the automotive industry in South Africa. In addition, the study aimed to determine how the APDP Review recommendations, still to be implemented (to be discussed in Section 1.2.2), would impact on the attractiveness and sustainability of the South African automotive industry in general (AIEC, 2016:22).

1.2 BACKGROUND TO THE STUDY

According to Econometrix (2018:36), “South Africa is not a logical vehicle production location (only 0.62% of global vehicle production is situated here). However, due to the strategic location (it is seen as the gateway to Africa) and potential of Africa as a future market for exports, as well as the security that the APDP provides for investors, ongoing investments in the country’s vehicle manufacturing base makes sense”. South Africa’s various trade agreements with the European Union (EU), the United States of America (USA) and the South African Development Community (SADC) region, when viewed in combination with the potential of Africa as a future market for exports, as well as the security the APDP provides for investors, all offer an attractive proposition to global original equipment manufacturers (OEMs). OEMs are car manufacturers such as Ford, Toyota, BMW, Mercedes-Benz, Isuzu, Nissan and Volkswagen. These factors ensure that ongoing investment in the nation’s vehicle manufacturing base will continue (AIEC, 2018:14).

Over the past few decades, during which major structural changes took place in the South African automotive industry, it has grown in stature to become one of the

largest internationally competitive manufacturing sectors in the nation's economy (Naudé, 2013). An important global automotive trend is the shift in automobile manufacturing to emerging markets (Econometrix, 2018:42). In support of that argument, B&M Analysts (2017:3) have stated that South African suppliers will face the highest competition for local content in the medium term from Thailand, Spain, Germany, and gradually more from China. According to Econometrix (2018:44) and AIEC (2017:15), South Africa's competitors in manufacturing are other medium-sized emerging market economies, such as Mexico, Egypt, and Thailand, which produce similar models as those produced in South Africa. These competitors, however, enjoy the benefit of lower costs and greater proximity to key export markets (including South Africa's top auto export markets) in Europe and the USA (Econometrix, 2018:44).

Furlonger (2013) maintains that some government officials and union leaders are of the opinion that Mercedes-Benz, BMW, Toyota and the rest of the automotive manufacturers have invested so much money in their operations here that they cannot afford to withdraw from the South African market. Despite this commonly held belief, General Motors withdrew from South Africa in 2017, and their manufacturing plant and head office were taken over by Isuzu Motors SA (AIEC, 2018:15). According to Furlonger (2013), Canadian academic Frank Flatters, a former economic adviser in South Africa, said that the MIDP was just a concealed state subsidy system to retain an unproductive industry. Furlonger (2013) and Nkunzi (2014) stated that whatever reservations there might be about the level of backing, the motor industry's significance to South Africa cannot be renounced. The sustained investment by multinational automotive and components producers has created jobs, enhanced skill levels, and led to substantial technology transmission in the domestic market.

1.2.1 The global and South African automotive industry in perspective

The International Organisation of Motor Vehicle Manufacturers revealed that world-wide vehicle sales in 2017 grew by 3.1% to reach 96.80 million vehicles, up from the 93.91 million units sold in 2016 (AIEC, 2018:12). South Africa was ranked 22nd in the world in terms of international vehicle production, with a market share of 0.62%, and

23rd in the world in terms of international vehicle sales, with a market share of 0.58% (AIEC, 2018:11).

The future of the OEMs in South Africa is indistinguishably linked with that of global OEMs, as these are their parent companies, and they are consequently subject to similar market forces driving or detaining growth (AIEC, 2015:9).

South Africa manufactures vehicles for the world markets, which means a locally manufactured vehicle is similar in all regards to those from factories in Europe, Japan or the USA. This implies that local suppliers are capable of delivering technology and quality levels that are equivalent to that found anywhere else in the world, at a comparable cost (AIEC, 2016:23). The international nature of the industry requires profitable and on-time delivery of quality products anywhere in the world, at competitive global prices. Failure to do so will eventually force multinational automotive companies to locate elsewhere (AIEC, 2016:23).

The automotive sector remains an important focal point in the South African economy as it is one of the most critical sectors for all-inclusive growth, competitiveness, sustainability and job creation (AIEC, 2016:87). Sustainability, according to Ball, Geringer, Minor and McNett (2010:198), is about conserving something of value, and that something might be the individuals within the economy, the corporation, the environment, civilization, or the economy in general. In this instance, it is the preserve of the South African motor industry and its concomitant secondary and tertiary supply chains.

1.2.2 The role of the APDP as government incentive programme

Performance in the automotive industry depends on a reliable partnership between vehicle manufacturers, as the main drivers of the supply chain, and government (AIEC, 2015:15). The Automotive Production and Development Programme (APDP), a programme of the DTI which aims to support the automotive industry, was subject to an early review in 2014 (Independent Online Media, 2016). Independent Online Media (2016) stated that there were concerns that the government's support of the automotive sector could be better focused. The main concern raised by automotive component suppliers is that intensive support is given to vehicle manufacturers, without resulting in adequate localisation and value addition through the use of domestic components suppliers (Independent Online Media, 2016). Independent

Online Media (2016) stated that although vehicles may be manufactured in South Africa, the automotive units (cars) that are exported are assembled largely by using imported components, thus providing less added value to the South African economy. According to Independent Online Media (2016), an evaluation of the APDP Review raised concerns as it was clear that corporations in the automotive component sector which are typically SMEs (small and medium enterprises) would not get the necessary support in the latest APDP Review.

With regards to the APDP Review recommendations, the DTI (2015) opined that government remains devoted to the further development of the automotive industry post-2020 in line with the National Industrial Policy Framework (NIPF) and the Industrial Policy Action Plan (IPAP). The DTI (2015) stated that the long-term development of the sector would be accomplished through high vehicle manufacture volumes and allied local value addition. In an attempt to sustain and develop the industry whilst directing it towards the APDP's vision of high volume vehicle manufacturing, the following include some of the key plans that would be executed:

- Firstly, a post-APDP support structure will be developed (this was still being finalised at the time of the study) to offer certainty in terms of the policy environment for automotive manufacturing in South Africa after 2020, which is the termination date of the APDP (DTI, 2015).
- Secondly, the volume threshold for vehicle manufacturing per OEM will be reduced from 50 000 units to 10 000 units per annum to allow for the admittance of new entrants into the local industry from 2016 (DTI, 2015).
- The production incentive for catalytic converters will also be frozen at the 2017 level of 65%, rather than being further phased down (DTI, 2015).

Econometrix (2018:178) stated that the government's support policies for the automotive sector (MIDP and APDP) have effectively positioned South Africa as a global participant in automotive production. Since the introduction of these two policies, exports and capital investments in the industry have risen (Econometrix, 2018:178).

During his State of the Nation Address in February 2016, then President Zuma announced that the support provided by Government, through the DTI, had attracted investments of over R25-billion to the automotive industry in the preceding five years,

and that the investment was beginning to bear fruit (Wheels24, 2016). One such an example is the unveiling of the Toyota Fortuner and Hilux models as part of the execution of the Nine-Point Plan that President Zuma announced in 2015 to develop the economy and create jobs (Wheels, 2016). One of the pillars of the plan involves the higher impact Industrial Policy Action Plan (IPAP) that centres on increasing "manufacturing-based value addition, employment creation and export-intensity" (Wheels24, 2016). As such, the South African government's auto-incentive programme can be seen as an appeal to corporations such as Toyota, Ford and BMW to set up factories and invest in job creation in an economy with an unemployment rate of more than 26% (Alberts, 2016).

The current incentive scheme favours volume manufacturers, such as Ford, BMW, Toyota and Volkswagen, producing more than 50 000 units a year for the local and export markets (Venter, 2015; African News Agency, 2015). However, according to Venter (2015) and African News Agency (2015), this shift in government policy will offer vehicle manufacturers, selling smaller volumes in the local market, the opportunity to set up assembly plants in South Africa.

Positive automotive industry performance benchmarks and successes under the automotive policy regimes to date, according to NAAMSA (2015) and Phakathi (2015), include the substantial investment by multi-national vehicle manufacturers (and component suppliers) in manufacturing facilities and improvements. For example, Beijing Automotive Industry Holding Co., one of China's main automakers in terms of sales, intends to manufacture up to 100 000 vehicles at its new manufacturing base in South Africa in 2018 (Nan, 2016; AIEC, 2018:14).

Econometrix (2018:163) stated that it is widely recognised that the MIDP and APDP have contributed to a substantial inflow of foreign direct investment (FDI), as well as technology transfer, spurring growth in South Africa's motor industry. Employment in the vehicle and component manufacturing divisions has held up well (NAAMSA, 2015; Phakathi, 2015). NAAMSA (2015) and Phakathi (2015) stated that the industry's trade imbalance has started to decline as a result of solid growth in vehicle exports.

In 2016, it was reported by NAAMSA (2015) that since 2013, value creation has improved immensely. In fact, the total local APDP value addition climbed from

R41.8 billion in 2013 to R61.2 billion in 2017 – a rise of over R19 billion or 46.4% in the first four years of the Programme (NAAMSA, 2015, 2018). The South African-based OEMs perceive increased local sourcing and local value addition levels in the country as a prerequisite for establishing a more sustainable vehicle production base (AIEC, 2016:48).

Econometrix (2018:48) stated that apart from the direct economic impact of the automotive industry, the industry also stimulates economic activity through the whole automotive value chain, and as a result, due to its vast linkages through these industries, the automotive industry has a great multiplier effect on the domestic economy. However, Econometrix (2018:126) has cautioned that if the motor industry in South Africa does not receive the required domestic and international support with regards to the crucial investment in infrastructure, all the various abilities and innovations that are vital to increase productivity, economies of scale, and cost-effectiveness to develop the industry, will come to naught.

South Africa forms a significant part of the international supply chain by being completely integrated into the global automotive environment through the OEMs, and it has intensified the importance of creating new opportunities for economic growth (AIEC, 2015:15, 30).

1.3 PROBLEM STATEMENT

Various studies have been done on the South African automotive industry and the range of aspects around the automotive policy regimes, such as studies on supplier management and relations by Naudé (2009), Ambe (2012), Tolmay (2012) and Kilbourne (2015), and the study on the impact of the policy on the automotive leather industry that was done by Khan (2015). However, to date no studies on the relationship between government support and the sustainability of the South African automotive industry have been done.

Although the OEMs are the key drivers of the supply chain, the emerging issue is that supply chains are competing against supply chains, and therefore the competition is not only between the end products (the vehicles) (AIEC, 2015:15). International competitiveness remains the biggest challenge for the automotive industry in South Africa. The domestic market is generally not large enough to

generate sufficient economies of scale for world-class competitiveness/production, consequently exporting needs to be viewed as a necessary step towards international competitiveness (AIEC, 2016:18). Despite the noteworthy contribution by the automotive policy regime to the vehicle component manufacturing industries in the country over the past 20 years, questions still remain relating to government support, as well as the relationship between government's support and the sustainability of the overall South African automotive industry.

The early review of APDP commenced in 2014 due to dramatic changes in the global and domestic economies. The original APDP framework was announced in 2008, and subsequently concerns were raised that there could be limitations in the programme that may lead to failure to achieve the objectives set for the industry. The most notable changes recommended to the programme (as discussed in Section 1.2.2) included that OEMs may qualify for incentives under the programme based on reduced volumes of 10 000 units per plant per annum, instead of the original 50 000 units per annum, as well as the freezing of catalytic converter incentives in 2017, instead of a continuing reduction (AIEC, 2018:26). A masterplan for the automotive industry from 2021 to 2035 would be developed during 2016/2017 (the plan was not finalised at the time of this study).

The focus of this research was to determine the government incentive programme's contribution, as mentioned above, to making South Africa attractive as a sustainable vehicle manufacturing country in which to invest, given the current challenging worldwide economic situation and the country's geographic location far from the main consumer markets of the world. To achieve this focus, the research was conducted by firstly, identifying the factors that make a country attractive to multinationals such as the seven light vehicle manufacturers (OEMs), and secondly, by conducting empirical research aimed at OEMs that manufacture passenger cars and light commercial vehicles in South Africa. The empirical research also included the component suppliers, some of which became vulnerable due to the transition from the MIDP to the APDP. The aim would be to determine to what extent the literature regarding competitive advantage, international business and marketing supports the factors that multinationals and their suppliers consider when selecting a country for the establishment of a sustainable manufacturing network.

Given the background of the South African automotive sector and the role that the APDP plays, the following objectives and research questions were identified.

1.4 OBJECTIVES OF THE STUDY

This section presents the primary and secondary objectives of the research study.

1.4.1 Primary research objective

To investigate the relationship between government support and the sustainability of the South African automotive industry.

1.4.2 Secondary research objectives

The following secondary research objectives have been identified:

- To determine the effect of the previous policies, namely, the MIDP, current APDP, the recommended APDP changes, and the new South African Automotive Masterplan 2021-2035 on the current OEMs in South Africa.
- To determine what, if any, competitive advantage the South African automobile market has over other countries.
- To determine how new entrants could be sustainable in the vehicle manufacturing industry with lower thresholds, but with concurrent lower levels of support under the APDP.
- To determine how the OEMs, and subsequently, the automotive component suppliers would be impacted if the South African government does not provide long-term policy certainty.
- To determine the effect on the country's economy if the automotive industry is not sustained based on continued government support.

1.5 RESEARCH QUESTIONS

- What positive and/or negative impacts will the recommended changes to the APDP have on the South African vehicle manufacturers and listed vulnerable automotive component suppliers?

- What factors attract international vehicle manufacturers and component suppliers to invest in South Africa given the current worldwide economic situation of low growth?
- How would new entrants into the vehicle manufacturing industry be sustained with lower levels of support under the APDP, as mentioned in the current policy changes?
- Would government continue with monetary and government sponsored incentives to sustain the automotive industry in South Africa if the objectives of the automotive policy regime are not met in the long run?
- How would the OEMs, and subsequently, the automotive component suppliers be impacted if the South African government does not provide long-term policy support assurances beyond 2020?
- How would the country's economy be affected if the automotive industry is not adequately sustained by support from government?

1.6 THEORETICAL UNDERPINNING OF THE STUDY

As part of the theoretical foundation to the study, a literature study was done which included a review of the theory of Foreign Direct Investment, the competitive advantage of nations, international business management, and supply chain management.

The theoretical rationale for the research is founded in the area of global strategic management and is *inter alia* based on the work of Games (2012), Hill (2013), Naudé (2013), Davies (2016), AIEC (2018), Econometrix (2018), the Santander Trade Portal (2018), and works by other seminal authors regarding aspects, such as foreign direct investment (FDI), competitive advantage and the theory thereof, globalisation and business ethics.

Independent Online Media (2016) stated that historically, the backbone of the South African economy was the extraction of gold, but over the years this has shifted to the automotive sector. According to Independent Online Media (2016), government has put a lot of faith in vehicle manufacturers as the engine of the South African manufacturing division, and has gone to great lengths to steer its growth and exports. This helps to clarify why the bulk of government incentives to the manufacturing

industry presently go to automotive manufacturers. Hill (2016:221) stated that arguments for government involvement in industry generally take two paths, namely, political and economic. Political arguments for government involvement are concerned with guarding the interest of certain groups within a country (typically vehicle manufacturers), often at the expense of other groups (typically customers or automotive component suppliers). However, they may be also concerned with reaching some political objective that lies outside the sphere of economic relations, such as protecting the environment or improving the human rights position of citizens (Hill, 2013:221). Economic arguments for government's involvement are generally concerned with improving the overall wealth of a country (to the benefit of all, both manufacturers and customers) (Hill, 2013:221).

The basic premise in the global production of motor vehicles centre on the competitive advantage offered by countries based on cost parity exercises. When a global marque, such as Ford or BMW, commence with research to identify possible countries in which to locate their production facilities, the issue of the advantages posed by a country comes to the fore.

Furlonger (2013), AIEC (2018:25) and Econometrix (2018:161) stated that globally, it is standard procedure for governments to offer both financial and non-financial support to their automotive industries, and most nations offer a range of support measures to vehicle manufacturers, including grants, tariff support and tax concessions. Governments aggressively attempt to entice automotive investments via policy and support measures because of the vast investment necessary to set up a plant, as well as in recognition of the benefits that automotive investments create in terms of economic growth, employment, fiscal contributions, technology transfer and the multiplier effect on the broader economy (Econometrix, 2018:161).

1.7 RESEARCH DESIGN AND METHODOLOGY

Salkind (2013:2) states that, "research is, among other things, an intense activity that is based on the work of others and generates new ideas to pursue and questions to answer". Maylor and Blackmon (2005) define research as the procedure of finding out information and inspecting the unknown to solve a problem. De Langen (2009) defines research design as a blueprint for accomplishing a study with maximum control over aspects that may restrict the validity of the finding.

The research for this study was conducted using a review of the relevant literature and performing empirical research. The first stage consisted of a review of the relevant literature on this topic. The second stage consisted of a quantitative study, and included the collection of new (primary) data by utilising questionnaires that were distributed to the seven OEMs and 110 first-tier suppliers. The research design and methodology are discussed in greater detail in Chapter 4.

The researcher focused on the sectors that became vulnerable when the MIDP was replaced by the APDP. These vulnerable supplier sectors include alloy wheels, aluminium products, cast iron components, catalytic converters, flexible couplings, leather interiors, machined brass components and steel jacks (AIEC, 2018:27).

The section below briefly discusses the three stages of the research that were employed to analyse the relationship between government support and the sustainability of the South African automotive industry. (The data collection process is explained in more detail in the chapter on the research methodology.)

1.7.1 Stage 1: Literature review

Literature research was conducted through an in-depth review of a range of concepts that are relevant to the primary research. This stage was conducted by consulting various academic articles, scientific databases, newspapers, magazines, textbooks and various other published academic materials, all of which are referenced in the reference list of the dissertation.

1.7.2 Stage 2: Empirical study

In order to attain the most valuable data for the study, a quantitative research design was employed for the study.

Descriptive research, via the empirical survey, was administered through self-administered questionnaires which were completed by the respondents and administered electronically using the Internet (Saunders, Lewis & Thornhill, 2007:356; Maylor & Blackmon, 2005:185). A self-administered questionnaire containing open-ended, closed-ended, and ranking as well as rating questions was e-mailed to the respondents.

1.7.3 Stage 3: Assessment of the data

The assessment tools used to analyse the research must also be reliable and valid, otherwise the research hypotheses discarded by the researcher may be correct without the researcher even knowing. Reliability occurs when a test measures the same thing more than once and results in the same outcomes (Salkind, 2013:115). Thus, a reliable survey produces consistent results every time it is executed. In this sense, the researcher followed up with respondents where deviations occurred to ensure that the answers were exactly what the respondent meant when answering the questionnaire.

Validity, according to Salkind (2013:123), refers to the results of a test, not the test itself. Validity is never a question of all or none, and the validity of the test results must be interpreted within the context in which the test occurs. A questionnaire is valid if what it measures is what it had originally planned to measure, in this instance the role-players, are all intimately involved in this industry and are all impacted by the dynamics of the changes in policy.

A pilot study was utilised by pre-testing the questionnaire on three automotive industry experts in order to test the validity of the questionnaires. No changes were made to the questionnaire after the pilot test.

1.8 LIMITATIONS OF THE RESEARCH STUDY

The one limitation that applied to this study was obtaining informed consent and support from role-players willing to participate in the research. Some of the OEMs were hesitant about becoming involved in a survey of this nature. The South African Automotive Masterplan 2021-2035, which will replace the APDP post-2020, was also still in the process of being finalised during 2018 (the period of this study).

1.9 ETHICAL CONSIDERATIONS

All ethical and professional considerations were adhered to during the research study. The research study only commenced once permission for the research had been obtained from the University of South Africa (UNISA) Department of Business Management Research Ethics Review Committee (Appendix A).

The context and intention of the study were explained clearly and in detail to prospective respondents (Appendix B). The respondents were assured that they could withdraw from this study at any stage (Saunders *et al.,* 2007) as participation in the study was entirely voluntary, and answers to questions, viewpoints, information, and all data obtained in the course of the research would be treated with confidentiality.

1.10 OUTLINE OF THE STUDY

The study consists of the following six chapters:

- Chapter 1 presented the introduction and the background to the study. The research questions, the problem statement, and the research design were presented and the limitations of the study were mentioned.
- Chapter 2 focuses on the theoretical foundations of the study and how it is applied to the South African automobile industry. This includes the issues of FDI, the competitive advantage of nations, and international business practices.
- Chapter 3 entails an analysis of government's involvement in the automotive industry by outlining the MIDP and the APDP programmes. It also focuses on the global and South African automotive industry through an in-depth analysis of the automotive industry, and it presents an analysis of factors that attract investments to South Africa, given the current worldwide economic situation. This is followed by a discussion of Foreign Direct Investment, and a critical review of the impact on the South African economy if the automotive industry ceased to exist.
- Chapter 4 covers the research design and methodology.
- Chapter 5 focuses on data analysis, as well as descriptive and inferential statistics.
- Chapter 6 entails the conclusions and recommendations of the study.

CHAPTER 2
LITERATURE REVIEW

2.1 INTRODUCTION

Historically, South Africa is not known as a global player in the automotive industry. This is due to the globally competitive nature of the automotive industry and the supremacy of developed countries in the global automotive environment. This makes it improbable for a developing nation, such as South Africa, to flourish in the global automotive industry (Naudé & O'Neil, 2006). Automobiles, according to the Innovation Group (2016:3), have not only shaped the global economy but also how millions of people work, commute and live throughout South Africa.

This chapter will focus on the theoretical foundations that underpin decisions in the global automobile market. This will involve a literature review of Foreign Direct Investment, the competitive advantage of nations, international business management, and supply chain management. These concepts are all part of the theoretical foundation which were used to make South Africa an attractive country to invest in, even though it was once perceived as improbable that South Africa would succeed in the global automotive industry.

2.2 THE ROLE OF FOREIGN DIRECT INVESTMENT (FDI)

Santander Trade Portal (2016) stated that as a mainly free-market economy, South Africa encourages foreign direct investment (FDI) in both the private and public sectors. Factors enticing FDI into the nation include access to raw materials, a transparent regulatory framework, political stability, and a large population (Santander Trade Portal, 2016). Games (2012) stated that for more than a decade, international organisations have selected South Africa as the ideal entry point into Africa. This is mainly due to South Africa having strong financial establishments which make it a prominent FDI destination on the continent, and which entices investors looking to set up their African head office here (Games, 2012). However, according to Santander Trade Portal (2018), even though South Africa might have vast potential for attracting foreign investors, especially in comparison to other nations in the world, its record in terms of enticing FDI thus far has been rather poor.

South Africa's re-introduction into the global economy occurred (in the early 1990s, at the end of the apartheid regime) at a time of political volatility and thus, the nation did not benefit meaningfully from increased FDI levels (Paswan & Sinha, 2015:1921). Furthermore, Games (2012) stated that the nation is facing several internal challenges that influence its status as the best investment base for foreign corporations in Africa, while, externally, other nations are becoming more attractive to investors. Nonetheless, FDI has been improving in recent years due to new investments in infrastructure (Santander Trade Portal, 2016). The question arises whether FDI will continue to be available and whether it will be sufficient to outweigh the challenges currently faced by the South African automotive industry.

2.2.1 Foreign direct investment defined

Foreign direct investment (FDI), according to Hill (2013:250), occurs when a corporation invests directly in facilities to market or produce a product in a foreign nation. Muradzikwa (2002) and Hill (2013:250) further stated that FDI takes on two main forms. The first is a greenfield investment, which includes the establishment of a new operation (built by the parent company) in a foreign nation (Muradzikwa, 2002; Hill, 2013:250). The second involves merging with, or acquiring an existing corporation in the foreign nation (Muradzikwa, 2002; Hill, 2013:250). The automotive industry in South Africa has encountered both of these types of FDI.

Viljoen (2009) stated that FDI offers more advantages to nations that follow an outward-orientated trade regime than nations that implement an inward-oriented regime. A nation following an export promotion policy is expected to entice a higher volume of FDI, and to endorse the more effective utilisation thereof than an import substitution policy (Viljoen, 2009). This has been proven in the opening up of the South African economy since 1994.

2.2.2 FDI in statistics

In December 2015, the Government passed the Protection of Investment Act, which reinforces the legal protection of foreign investors (Farish, 2015; Santander Trade Portal, 2016). Despite this, the Santander Trade Portal (2016) stated that there are a number of legislative ambiguities in South Africa that inhibit foreign investors from fully investing in the country.

Joubert (2016) stated that at the 2016 World Economic Forum in Davos, then President Zuma and DTI minister, Rob Davies, emphasised investment opportunities in South Africa, reassuring investors that South Africa was open for business. What they neglected to mention was that on 13 December 2015 the controversial Protection of Investment Act was promulgated (Joubert, 2016). The aim of the act (2015:4) is:

- To protect investment in accordance with and subject to the Constitution, in a manner which balances the public interest and the rights and responsibilities of investors;
- To confirm the Republic's supreme right to regulate investments in the public interest; and
- To confirm the Bill of Rights in the Constitution and the laws that apply to all investors and their investments in the Republic.

The biggest concern, according to Joubert (2016), is that foreign investors, in the case of expropriation of their investments, no longer have remedy to investor-state dispute settlement in the form of international arbitration. The Protection of Investment Act now propositions domestic mediation as a first step, in case the investor and the government can't decide on the selection of the mediator (Joubert, 2016). Therefore, this act has implications for foreign investors that could prevent future FDIs in South Africa.

All investments, according to the act (Protection of Investment Act, 2015:5), should be verified in accordance with the laws of the Republic, and this act does not create a right for a foreign investor or potential foreign investor to establish an investment in the Republic. The act (Protection of Investment Act, 2015:5) stated that foreign investors and their investments should not be considered less favourable than South African investors in like-wise positions. At present it is too premature to decide what long-term effect the act will have on investment in South Africa, but the European Union's Regional Chamber of Commerce and Industry has indicated that foreigners are currently cautious about investing in South Africa, due to fears that there will be a lack of protection for their investment (Farish, 2015). Farish (2015) stated that locally there has been alarm as many South African corporations rely on FDI for their future existence. There are also concerns that the act will drive out investment to the

detriment of a large number of corporations whose compromised generation of capital may have a negative impact on the South African economy (Farish, 2015).

Another concern which is expected to deter investment, according to Malimela (2018), is the threat of expropriation rising from South Africa's land reform legislation. Uncertainty over property rights, at least until May 2019, is a predominantly negative indicator for South Africa's residential and commercial property market (Malimela, 2018). The government, according to Farish (2015), is placing South Africa's interest and strategies first, to the detriment of foreign investors. It is essential for South Africa to strike a balance between guarding its own economic interest and encouraging FDI at the same time (Farish, 2015).

South Africa dropped quite a large number of places in the Doing Business ranking issued by the World Bank (placing 82nd out of 190 countries in 2017, compared to 74th of 189 in 2016). The United Nations Conference on Trade and Development (UNCTAD) reported in the *Global Investment Trends Monitor 2018*, that FDI into South Africa contracted by 41% between 2016 and 2017, reaching a low of $1.3bn (Santander Trade Portal, 2018). According to the Santander Trade Portal (2018), one of the key factors that can explain this decline is a domestic demand that was lower than investor expectations. According to data published by UNCTAD in the World Investment Report 2018, FDI inflows contracted by 41% between 2016 and 2017, reaching $1.3 billion. Domestic demand, lower than investor expectations is among the key factors explaining this decline. The country is the 68th receiver of FDI in 2017, 13 places less well than the previous year (Santander Trade Portal, 2018).

Industrial strikes and structural issues in the country, such as in the electricity supply and logistics sectors, which usually affect production, also proved disheartening to investors. In light of the above, it is evident that unless South Africa re-evaluates and enhances its investment protection strategy, it is unlikely to see FDI levels recuperate in the nearby future. Santander Trade Portal (2018), however, stated that the ANC government with President Ramaphosa at the helm is likely to be more reassuring to foreign investors than the former President Jacob Zuma was.

Table 2.1 below provides a summary of FDI for the years 2015 to 2017.

Table 2.1: Foreign Direct Investment in South Africa

Foreign Direct Investment	2015	2016	2017
FDI Inward Flow (million USD)	1 729	2 235	1 325
FDI Stock (million USD)	126 755	135 454	149 962
Number of Greenfield Investments	150	140	101
FDI Inwards (in % of GFCF*)	2.7	3.9	n/a
FDI Stock (in % of GDP)	40.3	46.5	n/a

* Gross Fixed Capital Formation (GFCF) measures the value of additions to fixed assets purchased by business, government and households, less disposals of fixed assets sold off or scrapped.

Source: Santander Trade Portal (2018)

2.2.3 Strengths and weaknesses of South Africa regarding FDI

As the country on the African continent with the most sophisticated and diversified economy, South Africa offers several attractive features for foreign corporations looking at investment prospects in Africa. The attractive features include robust economic management instruments, an established judicial system and clear legislative framework (AIEC, 2018:101). Santander Trade Portal (2018) stated that South Africa's strong points include that it has well established infrastructures, a reasonable competitive domestic economy and high market potential. The nation's democracy is also deep-rooted with transparent and challenged elections combined with an understanding for the rule of law (Santander Trade Portal, 2018). Santander Trade Portal (2018) further stated that South Africa has a good business climate and the State's financial management is competent. It also has a big and active stock exchange. Games (2012) said that compared to other African nations, South Africa has a large formal sector, a solid services sector, a sound legal system and a strong manufacturing base. South Africa also offers suitable health, education, housing and lifestyle options, not readily available elsewhere on the continent (Games, 2012).

Conversely, South Africa is also faced by a large number of challenges which may discourage investors. These include, among others, weakened economic stability due to the corruption scandals during the reign of former President Zuma; violent crime and corruption which do not seem to be abating; an increase in labour strikes which rating companies have cautioned might further lower South Africa's credit rating; challenges related to access to electricity; high-skilled labour which is in short-

supply; the import-export procedure which is cumbersome; and the general course of policy-making which is worrisome, in particular the economic policy and the structural reform issues (Santander Trade Portal, 2018). The question that arises is: At what point would the challenges outweigh the attractiveness in terms of locating a new automobile production facility in South Africa?

2.2.4 Government measures to influence FDI

Muradzikwa (2002) stated that enticements that occur all over the world, play an intricate role in attracting foreign investment. However, enticements are not always appropriate to attract the 'right' kind of sustainable investments. According to Muradzikwa (2002), there is immense competition between nations as they implement a variety of enticement packages to attract FDI. The incentives on offer include, corporate tax holidays, exclusions from import duties for equipment and inputs, enhanced depreciation allowances, and explicit tax deductions and grants connected to training, employment, and infrastructure development (Muradzikwa, 2002). Santander Trade Portal (2018) mentioned a few examples of these measures that are applicable to the automobile industry in South Africa:

- The Foreign Investment Grant, a cash grant, which provides up to 15% of the value of new machinery and equipment;
- The Skills Support Programme which provides up to 50% of training costs and 30% of employees' incomes; and
- The Strategic Industrial Project programme which offers a range of tax allowances.

Cost parity exercises are done by the OEM parent corporations to compare the cost of production in South Africa with that of the head office or sister subsidiaries. Without the MIDP/APDP or a similar incentive platform, South Africa would not be considered as a supply source by the OEM parent companies, especially if there are countries with more aggressive incentive opportunities closer to Europe and Asia (Lamprecht, 2009:417).

The competitive advantage of nations will be discussed next.

2.3 THE COMPETITIVE ADVANTAGE OF NATIONS THEORY

This section will discuss the Competitive Advantage of Nations Theory and its influence on the South African motor industry.

Hirsh, Jullens, Singh and Wilk (2016) stated that, “it’s not clear how cars will change in the coming years, but automakers and suppliers no longer have the luxury of sitting out the transformation that is occurring in the industry”. Furthermore, Gorton (2016) stated that more cars are being manufactured nowadays than at any other time in history. The top six nations in terms of global vehicle production by country for the 2016 to 2017 period are China, the USA, Japan, Germany, India and South Korea (AIEC, 2018:12).

Over the past ten years, automotive sales in emerging markets, such as China, India, and Brazil, have demonstrated robust growth but, until recently, it has been tougher than several specialists would have projected (McKinsey & Company, 2016). Hirsh *et al.* (2016) identified that over the next five years, the Middle East and Africa, a laggard, rather un-motorised area, will probable see robust and reliable automobile sales growth. The major advances are anticipated in Iran, Egypt, South Africa, and Nigeria. Along with this growth, automaker factory activities in the region will rise considerably (Hirsh *et al.*, 2016).

According to Ambe and Badenhorst-Weiss (2013), the automotive industry is the largest manufacturing sector in South Africa. Naudé (2013) stated that a successful automotive industry is frequently seen as a symbol of economic achievement and as a sign of mastering modern technologies. The automotive industry has developed to become the leading manufacturing sector in South Africa’s economy, and as an outcome of its growth, is established as a developed industry (Naudé, 2013). The global automotive component industry is a very competitive environment and South African automotive component manufacturers continue to seek sources of competitive advantage in order to survive and grow (Naudé & O’Neill, 2006). Naudé and O’Neill (2006) stated that even though the global automotive component industry is a very competitive industry, based on the fact that each vehicle contains thousands of components, it presents more scope for market entry than the market for completely built-up vehicles. The competitive nature of the automotive component industry still necessitates that corporations functioning in this industry need to

attempt to create and maintain a competitive advantage would they wish to survive and grow (Naudé & O'Neill, 2006).

2.3.1 Definition of competitive advantage

Amadeo (2016) defines competitive advantage as "an advantage that a company has over its competitors, allowing it to create greater sales or margins and/or hold more consumers than its opposition". The same applies to nations or countries. Porter (1990:25), in his seminal work about the competitive advantage of nations, defines this advantage as having "a competitive advantage relative to the best worldwide competitors", namely, other competing countries.

2.3.2 Competitiveness of the South African motor industry in the global context

According to Naudé (2013), the South African automotive industry compares positively with comparable industries in developing nations with regard to flexible production capability, government support, raw material accessibility, emerging-market cost advantages, and infrastructure. South Africa offers investors the vibrancy and opportunity of an emerging market, coupled with the advantages of a nation with first-world standards in business infrastructure, which is the perfect formula for growth and profitability (AIEC, 2017:5). Unfortunately, according to the Innovation Group (2016:7), an imminent scarcity is looming in terms of the correct kind of human skills that will allow the automotive industry to move forward to the next level.

Strikes in South Africa have a tendency to be commercially motivated, so that the cost of labour in the nation is no longer competitive, particularly in comparison with nations such as China, India and Thailand (Innovation Group, 2016:7). Econometrix (2018:126) stated that the rising frequency of strike action in South Africa was expected to impact the final decision by automotive conglomerates whether to invest in the country or not. At the same time, African nations such as Morocco, Kenya and Nigeria have been aggressively competing for new automotive investments (Econometrix, 2018:126; Black, Makundi & McLennan, 2017:1).

According to Econometrix (2018:42), one of the most significant trends that has occurred in the global automotive industry is the shift in automobile production to emerging markets. The global change of the centre of gravity to emerging markets poses new challenges to traditional OEMs based in established markets. They face

growing competition from fast-emerging OEMs based in China, India and Brazil, which is occurring in an industry already characterised by many competitors and low margins (Econometrix, 2018:43). Econometrix (2018:43), stated that these younger OEMs based in emerging markets are better placed to respond to local demands and new niches, such as the fast growing ultra-low cost automobile division, which is cannibalising sales from traditional cars. Moreover, many emerging market nations sustain tariffs or incentives to favour domestic vehicle production (Econometrix, 2018:43).

The AIEC (2016:6), however, stated that the South African automotive industry is properly placed geographically to gain from the development in Africa, and well situated to gain momentum as the world economy recuperates. According to Alfaro, Bizuneh, Moore, Ueno and Wang (2012:2), the automotive cluster faces powerful competition from a global industry gradually shifting its operations to emerging markets. Other emerging market auto clusters like those of Mexico and Thailand enjoy the advantages of lower cost and greater proximity to key export markets (Alfaro *et al.*, 2012:2). However, a key factor to consider is that if the company is not profitable, and cannot ensure the timely delivery of quality products at competitive international values, that will eventually force multi-national automotive companies to relocate their operations somewhere else (AIEC, 2016:23). Alfaro *et al.* (2012:2) stated that in order to contend, South Africa should address its competitive weaknesses.

2.3.3 Porter's theory of the competitive advantage of nations

Porter (1990) stated that a country's competitiveness rests on the ability of its industry to transform and upgrade. Corporations achieve advantage against the world's top competitors because of challenge and pressure (Porter, 1990). According to Amadeo (2016), before a competitive advantage can be realised, three determining factors must be researched. Firstly, what is manufactured? Determine whether it is merchandise or a service (Amadeo, 2016). Secondly, knowledge is needed regarding the target market. Who are the consumers? There must be information available regarding the clients and their preferences. Lastly, knowledge is needed about the competitors in the broadest sense of the word.

2.3.3.1 Porter's diamond of national competitive advantage

Porter published the outcomes of a focused research study in 1990 that determined why certain nations succeed and others fail in international competition (Hill, 2013:197). Porter maintains that four broad attributes of a nation shape the environment in which local companies compete, and these attributes endorse or obstruct the creation of competitive advantages (Hill, 2013:197). Porter (1990) and Hill (2013:197) identified the following four attributes of national competitive advantage, known as the Diamond of National Competitive Advantage:

- The first attribute is factor conditions which refers to the country's position in factors of production, such as trained labour or infrastructure that is required to compete in a certain industry (Porter, 1990; Hill, 2013:197).
- The second attribute is demand conditions which refers to the nature of the home-market demand for the business's product or service (Porter, 1990; Hill, 2013:197).
- The third attribute is related to supporting industries which refers to the presence or absence in the country of supplier industries and other related industries that are globally competitive (Porter, 1990; Hill, 2013:197).
- The last attribute, according to Porter (1990) and Hill (2013:197), is the company strategy, structure, and rivalry which refers to the conditions in the country governing how corporations are created, managed and organised, as well as the nature of local opposition.

Hill (2013:486) and Naudé (2013) further stated that a corporation deciding whether to expand into a foreign country must make three basic decisions, namely, which markets to enter, when to enter those markets and on what scale to enter the nation.

Naudé (2013) specified that the objective of the choice on where to locate a business is to reach a balance between:

(1) spatially variable costs,

(2) the service level the company is capable of offering its customers, and

(3) revenue potential.

2.3.4 Selection of a location

Naudé (2013) stated that “location, location and location” is a familiar phrase in marketing and has been acknowledged as one of the most significant factors of the value of a property. Making the correct decision about the location is fundamental for a new business venture or for present businesses that are examining extension opportunities (Naudé, 2013). Furthermore, according to Naudé (2013), inadequate attention to the selection of a business location can have an unfavourable impact on a company’s access to labour, suppliers and customers. The selection of an appropriate location can enhance the competitive advantage of a company. The advantage could include a saving in costs, a growth in production capacity, enhanced service delivery, an increase in shareholders’ wealth and additional profit (Naudé, 2013). Similarly, countries also have a competitive advantage regarding location. The questions to answer is: What competitive advantage makes South Africa attractive to foreign investors?

As stated previously, Naudé (2013) indicated that the aim of the decision on where to locate a business is to accomplish a balance amongst: (1) the spatially variable costs, (2) the service level the corporation is capable of offering to its customers, and (3) revenue potential. Entry to markets, the accessibility of raw materials, support and technical infrastructure, transport infrastructure, the accessibility of labour and skills, climatic conditions, and political and social constancy were identified by Naudé (2013) as factors that affect the physical creation of a business.

Innovation Group (2016:8) stated that South Africa, because of its geographic location, has long logistic pipelines, and the local automotive market is relatively small. The automotive industry in South Africa has grown over a number of years and is geographically spread out among three provinces, Gauteng, the Eastern Cape and KwaZulu-Natal (Naudé, 2013 & AIEC, 2016:14).

The section below will discuss the various options available through which to enter a foreign market.

2.3.4.1 Entry modes

Hill (2013:491), stated that once a company selects a foreign market to enter, the question rises as to the most suitable method of entry. Organisations can use six different means to enter foreign markets, namely, exporting, turnkey projects,

licensing, franchising, establishing joint ventures with a host-nation company, or setting up a wholly owned subsidiary in the host nation (Hill, 2013:491). Each of these entry modes will be briefly discussed in the section below.

Exporting, according to Hill (2013:491) and International Strategy Solutions (2014), is the simplest, most effective and most frequently used method of entering a new international market. Exporting evades the often considerable costs of establishing manufacturing operations in the host nation and it allows the corporation to concentrate their production in a single location, allowing for better economies of scale and quality control measures. However, high transport costs and tariff barriers can make exporting too expensive (Hill, 2013:491; International Strategy Solutions, 2014).

In a turnkey project, the contractor concurs to handle every single detail of the project for a foreign client; this is a less risky method than FDI with an attractive economic return from that asset (Hill, 2013:493-494).

Licensing, according to Jooste, Strydom, Berndt and du Plessis (2012:308), and Hill (2013:494), is an agreement whereby a licensor allows the rights to intangible property to another entity for a definite period, and in return, the licensor receives a royalty fee from the licensee. The international organisation employs licensing agreements to attain more control over the marketing of a product or service in a nation (Jooste *et al.*, 2012:308).

Franchising, according to Hill (2013:495-496) and International Strategy Solutions (2014), is essentially a specialised form of licensing in which the franchisor not only sells intangible property to the franchisee, but also stipulates that the franchisee agrees to abide by strict rules as to how it does business. Both licensing and franchising are straightforward and quick to execute and offer the advantage of minimal business costs, as well as access to some markets which might otherwise have been closed due to government policies. The disadvantage is that incomes are probably going to be considerably lower than other market entry modes, as well as a potential lack of control over production and marketing (Hill, 2013:496 & International Strategy Solutions, 2014).

Jooste *et al.* (2012:309), Hill (2013:497) and International Strategy Solutions (2014) stated that a joint venture involves establishing a company that is jointly owned by

two or more otherwise independent corporations. Joint ventures are generally an alternative to building a wholly owned manufacturing operation and they offer benefits such as shared capital spending, reduced risk, closer control over production, marketing and other business operations, and better market intelligence provided by the indigenous joint venture partner. The major disadvantage is that conflicts of interest might occur and there is the risk of giving control of technology to the partner (Hill, 2013:497; International Strategy Solutions, 2014).

Wholly-owned subsidiaries, according to Hill (2013:498) and International Strategy Solutions (2014), occur when a company holds 100% of the stock. A business can either set up a new operation in that nation (as is evident with vehicle and multinational automotive component manufacturers in South Africa), often referred to as a greenfield venture, or it can obtain an established company in that host country and use that company to endorse its products (Jooste *et al.*, 2012:310 & Hill, 2013:498). A wholly owned subsidiary offers a business the protection of technology, the capability to engage in global strategic direction, and the capability to achieve location and experience economies, however, it consists of high costs with vast risks (Hill, 2013:498-499). These are the main reasons why foreign automotive manufacturers prefer this method of entry in a country such as South Africa.

2.3.5 Five forces of competitive position analysis

Porter (1990) developed the Five Forces of Competitive Position Analysis as a simple framework for evaluating and assessing the competitive strength and position of a business organisation domestically. This theory is based on the notion that there are five forces that determine the competitive intensity and attractiveness of a market (Porter, 1990). This can be used to understand the strength of an association's existing competitive position as well as its future prospects in the industry.

Porter's (1990), five forces, as listed below, are graphically illustrated in Figure 2.1:

- The first force is supplier power. This refers to an evaluation of how easy it is for suppliers to increase prices, which is driven by the number of suppliers of each vital input, the individuality of their product or service, the relative size and strength of the supplier and the changing cost of moving from one supplier to another.

- The second force is buyer power, which is an evaluation of how easy it is for buyers to drive prices down. This is dependent on the number of buyers in the market, the significance of each individual buyer to the company and the cost to the buyer of moving from one supplier to another.
- The third force is competitive rivalry where the core driver is the number and ability of competitors in the market.
- The fourth force is the threat of substitution where, when a close substitute of a product exists in a market, it increases the probability of consumers changing to substitute products and services which will reduce market attractiveness.
- The last force is the threat of new entry participants which means that lucrative markets attract new entrants.

Porter's Five Forces Model will be utilised to evaluate and assess the competitive strength and position of the South African automotive industry.

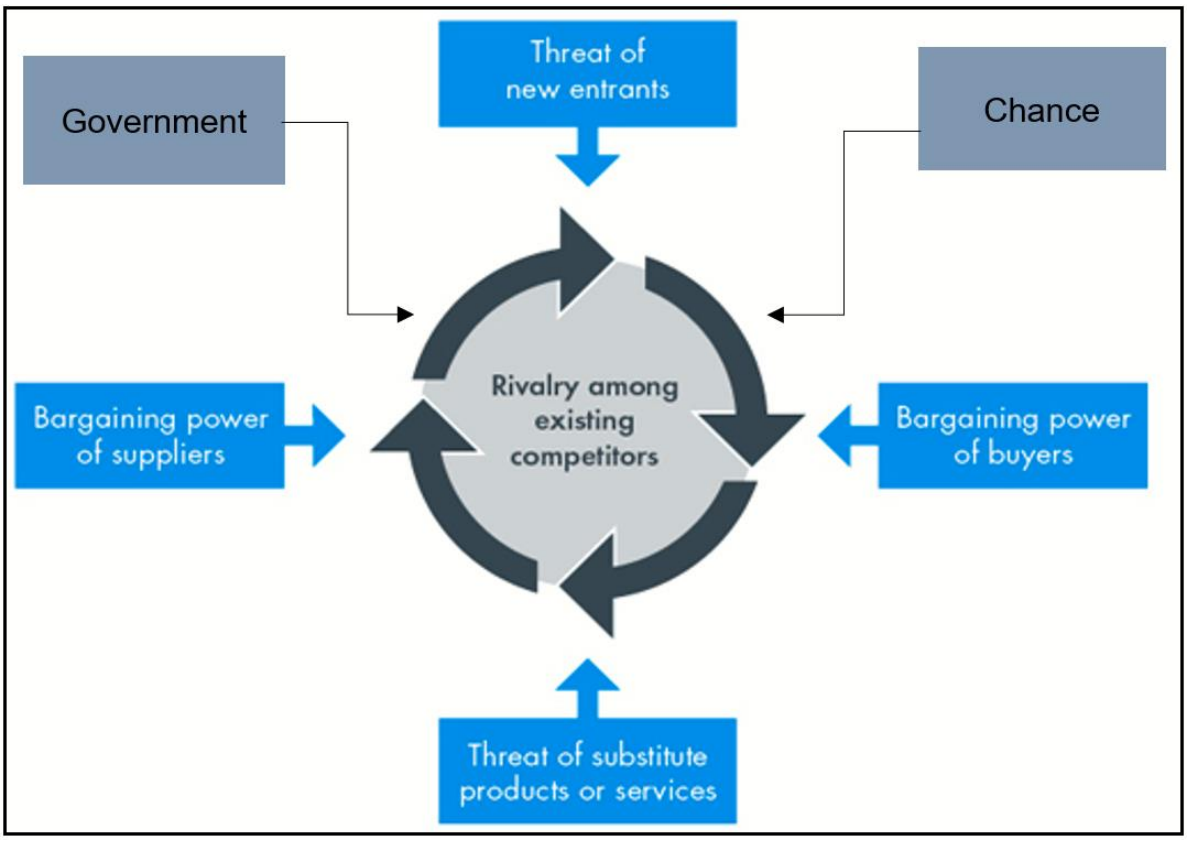


Figure 2.1: Adapted version of Porter's Five Forces Model

Source: Porter (1990)

While the diamond is the central focus, allowance is made for two other factors, namely chance and government. Chance includes unpredictable technological discontinuities, wars and other chance events. These are not part of the diamond itself, but they may alter the conditions within it. Similarly, according to Porter (1990:87), government has an indirect role to play as a catalyst and challenger, but only affects the corners of the diamond. Porter does not attribute a positive role to active industrial policy. He states that it often takes more than a decade for an industry to create a competitive advantage, as the process entails the upgrading of human skills, investment in products and processes, building of clusters and the penetration of foreign markets. Governments tend to favour policies that offer easily perceived short-term benefits, which might hamper innovation (Lamprecht, 2009:38).

The objective of the MIDP, according to a report by the United Nations (2014:2), was to increase volumes and employment opportunities by enhancing its competitiveness and strengthening its integration into the global value chain through increased exports of assembled automobiles and components. The success story of the South African automotive industry was made possible by the Motor Industry Development Plan, the government's policy introduced in 1995 (United Nations, 2014:2). BCS (2014:26) stated that the impact of the MIDP has been well recognised in a number of research papers, and it can be said that the MIDP primarily changed the structure of the automotive sector in South Africa, and resulted in a number of positive outcomes. The subsequent APDP is supported in a press statement by Deloitte (2016) that states that the intention of the APDP was to "position South Africa as an attractive vehicle manufacturing destination and to improve our competitiveness against other emerging automotive industries".

2.3.6 Competitive advantages of the South African automotive industry

Hisham (2012) stated that in business, everybody discusses their competitive advantage. In other words: What do they do best? How do they control it to ensure it is profitable? How do they progress and innovate to get ahead and stay ahead of the competition?

Competitive advantage is when a company is in a better position than its competitors. The purpose with competitive advantage, according to Hisham (2012), is to defeat the competition, obtain market share, and grasp a major portion of the profits. Jooste

et al. (2012:197) stated that one needs to ascertain the outcome of the competitive advantage. For example, the advantage can be absolute or relative, or it can be direct or indirect. Comparative advantage, on the other hand, refers to the ability to produce goods and services at a lower opportunity cost than another economy. Comparative advantage, according to Hisham (2012), takes into account two factors, namely, diverse productivity levels and scarce resources of land, labour and capital. When a company, according to Jooste *et al.* (2012:197), has an overpowering advantage over its competitors, it can be said that the company has an absolute advantage. Such a company has, for example, formed high barriers of entry, making it hard for a contestant to challenge its position. A direct advantage, according to Jooste *et al.* (2012:197), is completely traceable to a company and is typically tangible.

According to Naudé and O'Neill (2006), and the South African Embassy of the Netherlands (2013), the comparative advantages of the South African automotive industry include low tool costs, a competitive industrial base, availability of raw materials, suitable infrastructure, developing market cost benefits, flexible manufacturing volumes, government support, and first-class manufacturing tests. South Africa is also a nation of vast diversity, in terms of population, landscape and natural resources, all of which augment its comparative advantage (AIEC, 2018:5). Quantec (2016) stated that the complex export volume to Africa is due to the fact that South Africa enjoys a comparative advantage in manufacturing when compared to its trading partners in Africa.

South Africa's established infrastructure and its sophisticated accounting, legal, banking and medical environments leverage the nation as the ideal platform for foreign corporations to set up a presence and venture into the rest of Africa (AIEC, 2016:14). Quantec (2016) stated that even though South Africa lacks the financial might that the EU, USA, China and India have, it enjoys the advantage of cultural association, history and geographical closeness to African nations. According to Naudé and O'Neill (2006), organisational sources of competitive advantage include closer relationships with significant allies, fundamental capability, constant improvement and time compression.

Econometrix (2018:175) stated that South Africa's automotive industry has a substantial competitive advantage over international competitors, specifically regarding the accessibility of natural resources in the country. As previously stated,

the South African automotive industry is well positioned geographically to gain from growth in Africa, and well located to gain momentum as the world economy recuperates (AIEC, 2016:6). According to AIEC (2018:101), the South African nation, as a sub-contracting hub for global automotive manufacturing, is attractive for the following reasons:

- Quality private schools, sophisticated cosmopolitan cities and acknowledged quality of life;
- Favourable trade arrangements with the EU, European Free Trade Association (EFTA), the USA, and the SADC;
- European time zone;
- Long-term policy certainty and predictability;
- South Africa's ranking as number one in the cost-of-living index by the International Institute for Management Development (IMD) World Competitiveness Center 2017 competitiveness ranking (South Africa's ranking was 53rd in 2017);
- Ample and cost-competitive labour pool;
- First-world business sector;
- High-quality office and business park facilities;
- South Africa has world-class logistics which are suitable for import and export operations.

According to Naudé and O'Neill (2006), a company accomplishes sustainable competitive advantage when an adequate number of consumers favour its products and/or services over the competitors' product and/or services, and when there is a long-term basis for this attraction. In 1985 Porter wrote the definitive business school textbook on the subject of competitive advantage for a business. In it he outlined the three primary ways businesses accomplish sustainable advantage, namely, through cost leadership, differentiation, and focus strategies (Amadeo, 2016):

- **Cost leadership** means to deliver reasonable product value at a lower price. Corporations do this by constantly improving their operational productivity

- **Differentiation** means that a business owns a solid brand that clearly communicates how advantages will be delivered in a sustainable manner. A corporation can achieve differentiation by providing a distinctive or high-quality product, by distributing it more rapidly, or by marketing it in a way that truly reaches consumers better. Instead of being a cost leader, the corporation with a differentiation strategy can charge a premium price.
- **Focus** strategy means an understanding of how to service the company's target market better than anyone else. Although either a cost leadership or differentiation strategy can be used, the focus is on one specific target market.

Amadeo (2016) stated that a nation can also have a competitive advantage which is called the national competitive advantage, or comparative advantage.

2.3.7 A country's attractiveness to investors

This section focuses on the issues that cause a country to be attractive to investors under given economic circumstances.

Dunning (1993:67-68) stated that broadly speaking, there are four types of Multinational Enterprise (MNE) activity. They are:

- Natural resource seekers;
- Market seekers;
- Efficiency seekers; and
- Strategic asset or capability seekers.

The **natural resource seekers**, according to Dunning (1993:68), are organisations that are encouraged to invest abroad to obtain particular and specific resources of a higher quality, at a lower real cost, than might be obtained in their home nation. Dunning (1993:68-69) identified the three main types of resource seekers as those seeking physical resources, those seeking plentiful supplies of cheap and well-motivated unskilled or semi-skilled labour, and those that are encouraged by the need of companies to attain technological capability, management or marketing expertise or organisational skills.

The **market seekers**, according to Dunning (1993:69), are organisations that invest in a particular nation or region to supply goods or services to markets in these or neighbouring nations.

The motivation of **efficiency seekers**, according to Dunning (1993:71), is to justify the structure of established resource-based or market-seeking investment in such a way that the investing corporation can gain from the common governance of geographically dispersed activities.

The **strategic asset seekers**, according to Dunning (1993:72), are those MNEs that engage in FDI by obtaining the assets of foreign companies, to promote their long-term strategic objectives – particularly that of sustaining or advancing global competitiveness. Therefore, it can be stated that MNEs view South Africa as a strategic asset, since the country is a gateway into the rest of Africa.

AIEC (2016:14) stated that South African government policies seek, among others, to increase the nation's role in regional development and economic integration of the African continent through industrialisation and trade. According to Deloitte (2016:4), South Africa dominates automotive trade on the continent, accounting for three-quarters of Africa's automotive exports and 15% of imports in 2014. The South African Institute of International Affairs (SAIIA) (2016:4) stated that South Africa has by far the most developed automotive sector in the area, even though Zimbabwe and Botswana have both tried to build up their industries, and Mozambique is starting to obtain FDI into this sector. The nation's increasing manufacturing capabilities will increase the diverse export trade with the rest of Africa and the world (AIEC, 2016:14).

South Africa's proximity, compared to other emerging markets, and its understanding of business conditions and practices in other African nations, places it in the favourable position of being the perfect partner for support in establishing a vehicle assembly operation, in return for some kind of special treatment while the component sector is being established there (AIEC, 2016:39). Steyn (2013) stated that if South Africa wants to entice new investments and reinvestments, they must re-examine the investment environment for labour and energy and infrastructure, but even more vitally, focus on integrating with the SADC and countries, such as Kenya and Nigeria, in the rest of Africa. Molapo *et al.* (2016:32) stated that the South African government

and industry view regional integration into Africa as vital to raising intra-African trade and investment levels, while enhancing the prospects of aligning the South African economy with some of the world's fastest-growing economies.

According to Barnes *et al.* (2016:4), comparative advantage occurs as the result of three complex, interconnected forces: the global strategy of multinational organisations, host nation policy, and domestic market conditions. Econometrix (2018:201) stated that the aspects that need to be addressed in order to boost the competitiveness of the South African automotive industry compared to competing production facilities across the continent and abroad, comprise the following:

- Developing productivity;
- Reducing input costs;
- Specific support and production incentives for Tier 2 and 3 suppliers (Tier 2 suppliers, supply parts that end up in cars, even though these firms themselves do not sell directly to OEMs. Tier 3 suppliers refers to suppliers of raw, or close-to-raw, materials like metal or plastic);
- Preferential procurement;
- Continuation of stable automotive policy support by government;
- Increasing the average annual volumes per platform manufactured by OEMs;
- Encouraging the rationalisation of platforms so as to realise economies of scale in assembly;
- Local content levels to surge to 70% plus for high volume models, and 40-50% for low volume models;
- Improving electricity supply situation;
- Reducing energy consumption;
- Improving South African supplier competitiveness by aligning its cost structure to average European costs;
- Steady, more dependable labour force in terms of fewer strikes;
- Considerable improvement in logistics competitiveness;
- Massive investment in training and skills development at all levels;

- Growing the local component value through the beneficiation of raw materials in metal products manufactured for the automotive industry; and
- Reinforcing present trade agreements and developing a trade policy/new agreements that would expand the local industries' reach into emerging economies, specifically into Africa.

2.3.8 SWOT analysis of South African automotive industry

The SWOT analysis is a management tool that is used to analyse both the internal and external business environment and will be used to provide an in-depth look at the competitive situation in which the South African automobile industry finds itself (Strydom, 2018:46).

Econometrix (2018:188-200) identified the following strengths, weaknesses, opportunities and threats of the South African automotive industry, as summarised in Table 2.2 on the next page.

Table 2.2: SWOT analysis of the SA automotive industry

STRENGTHS	WEAKNESSES
✓ Geographical location – access to Africa ✓ South Africa is Africa's second-largest economy ✓ A growing share of urban households ✓ Solid business environment ✓ Sophisticated financial services sector ✓ Strong culture of developing proprietary technology ✓ Comparable levels of economic productivity ✓ Relatively low production costs ✓ Relatively well-developed logistics ✓ Relatively good infrastructure compared with the rest of Africa ✓ SA automotive industry is part of global sourcing networks ✓ First-world production testing ✓ Flexible production capability ✓ Excellent quality of locally produced vehicles ✓ Abundance of raw material (most valuable competitive advantage) ✓ Active stakeholder interaction ✓ Government support and policy certainty - MIDP and APDP represent some of most innovative and successful programmes to retain domestic vehicle and component manufacturing industry ✓ South Africa's free trade agreements ✓ Skills development support programmes - especially by OEMs	→ Difficulties automotive companies face in achieving economies of scale → General competitiveness gap with competing global manufacturing and assembly locations → Distance from major export markets → Limited investment by lower tier component manufacturers → Lack of manufacturing competitiveness of South African automotive component manufacturers → SMMEs in the component manufacturing sector have limited or no access to global markets → Limited access to accreditation and standards certification (ISO / SABS) → Inadequate leverage of high-quality automotive research facilities → Wage increases are not always matched by productivity improvements → Shortage of appropriately skilled people at local assembly plants and suppliers

OPPORTUNITIES	THREATS
⏩ Attracting new vehicle assembly opportunities through improved competitiveness and exports (APDP) ⏩ Increased localisation of manufacturing of automotive components ⏩ SA components manufacturing industry poised for investment opportunities ⏩ SA's participation in BRICS: build manufacturing base and trade and investment ⏩ Expand the exports of catalytic converters ⏩ Increased exports to Africa ⏩ Building partnerships with parastatals e.g. Transnet & Eskom to improve operational efficiencies and reduce costs ⏩ Establishment of more R&D, engineering & testing facilities ⏩ New trade agreements (particularly emerging markets and Africa) ⏩ Produce more 'affordable' cars ⏩ Growing SA middle class ⏩ Beneficiation of steel, aluminium, chrome & PGMs in metal products fabricated for automotive industry ⏩ Preferential procurement agreements ⏩ OEMs not yet invested in SA can learn from locally based OEMs that have developed relationships with workforce and rail and port haulage providers ⏩ SA's current automotive export markets: strong growth through to 2030 ⏩ Introducing more environment-friendly & fuel-efficient vehicles ⏩ Electric vehicles	⊘ Slowdown in global economic growth of export markets ⊘ Counterfeit parts pose challenge to component sector ⊘ Volatile currency movements ⊘ Delay in introducing cleaner fuels ⊘ Competition from the fast-growing automotive industries in some emerging markets ⊘ Development of other African automotive industries, specifically Nigeria ⊘ Rising cost of labour ⊘ Rising cost of electricity ⊘ High cost of logistics ⊘ Low efficiency of logistics (especially ports) ⊘ Security and stability of electricity supply ⊘ Unstable labour environment and strikes

Source: Econometrix (2018:188-200)

By means of the PESTEL/PESTLE analysis, Ferguson (2017), identified the following external factors that should be addressed by the South African automotive industry:

- Political factors, which include guaranteeing political stability in most key markets, to create more free trade agreements and to get government support for eco-friendly products.
- Economic factors, which include the steady growth of the U.S. economy, as well as rapid growth of developing nations.
- Social/Social cultural factors, which include to enhance the interest in hybrid cars, to increase the interest in electric cars, and to be aware of the widening wealth gap.
- Technological factors, which include the increasing use of e-commerce, the mobile technology trend, and the threat of cybercrime.
- Ecological/Environmental factors, which include climate change, the decline of global oil reserves, and the growing emphasis on business sustainability.
- Legal factors, which include improving intellectual property laws, and the complex nature of environmental and customer laws which need to be adhered to.

According to Crampton (2017), the following factors also affect South Africa's automotive sector:

- The weakening rand: since importers will be exposed to the full impact of the exchange rate weakness which will result in above-inflation new vehicle price increases.
- The political landscape: since the political and social instability of a country is taken into account before a manufacturing plant is developed.
- Political ratings downgrades: since low growth opportunities usually result in low foreign direct investment, if any.
- The USA presidency: since the AGOA (African Growth and Opportunity Act) trade agreement, which was already difficult to renegotiate under the Obama presidency, may possibly be even more challenging to navigate under President Trump.

Crampton (2017) stated that the South African automotive industry faces challenges related to materials, specifically the range, quality and cost of auto-grade materials. The volume of manufacturing can also create difficulties for the sector, as low volumes translate into automotive companies that are incapable of achieving economies of scale and result in inadequate competition amongst suppliers (Crampton, 2017). According to Crampton (2017), the labour market also causes an obstacle for this industry because of industrial action, which results in the high cost of labour which is also hindered by inflexible labour market legislation and often poor performance and management relationships. The shortage of skilled labour continues to be an obstacle too, resulting in high costs related to the employment of skilled workers (Crampton, 2017). Crampton (2017) further stated that high overhead costs such as electricity, petrol and rent, decrease the profitability of each operation.

Writer (2017) stated that the previous energy minister, Ms Tina Joemat-Pettersson, is placing South Africans' lives at risk by not meeting global standards for clean fuel which damages the countries car manufacturing industry's competitiveness as well as doing a disservice to everyday motorists. According to Writer (2017), NAAMSA is concerned about the postponement of the clean fuels programme in South Africa which would initially have been introduced in 2017. They are even more worried about the fact that the Department of Energy is contemplating the re-introduction of metal additives, currently banned in South Africa, since this will have an effect on the type of automobiles South Africa will be able to import (Writer, 2017).

Furlonger (2016:39) stated that the automotive sector as a whole was functioning in an always-changing, highly competitive and challenging environment, and that the component sector, represented by the National Association of Automotive Component and Allied Manufacturers (NAACAM) had to adopt and grow as a result. NAACAM (2017) stated that the association was founded 37 years ago to represent the interests of the automotive component manufacturers and is nationally and internationally known as the voice of the South African component industry. NAACAM's goal is to work towards a vision that makes the most of localisation opportunities linked with automotive manufacturing for its associates, while vigorously promoting and employing activities to support the government's push to increase broad-based black participation in the nation's industrial landscape (Furlonger, 2016:39). According to Furlonger (2016:39), "sustainable transformation

is an absolute imperative in South Africa's business environment. It is logical that the country's future economic and industrial policy results will, amongst others, be viewed through its ability to deliver an economic landscape that suits its demographic profile".

NAAMSA (2015) stated that while times might be difficult, as a nation, South Africa is gradually being accepted as a world-class manufacturer of automobiles, and government is working as a partner to push this potential forward. NAAMSA has built a positive working relationship that demonstrates that South Africans can do more together as completely committed parties working for the future growth and development of the South African vehicle and associated industries. This process includes developing worker abilities and improving supply-base abilities, which in turn supports the black economic empowerment goals (NAAMSA, 2015). Ferguson (2017) stated that the automotive manufacturing sector continues to be the strongest sector within South Africa's industrial complex. It is forecast to grow from strength to strength, as foreign direct investors continue to invest, in spite of the challenges faced by automakers, both on the local front and abroad (Ferguson, 2017).

Ambe and Badenhorst-Weiss (2013) stated that locally manufactured vehicles are faced with some of the most difficult and challenging circumstances in their supply chain. These include:

- OEMs are scrambling to cut production and decrease manufacturing costs;
- They are obliged to improve quality, expand styling, increase organisational competences and drive innovative features into their products in an effort to entice customers and expand into new markets;
- They are constantly putting pressure on their tiered suppliers to decrease costs, and increase output and quality;
- Automotive manufacturers need to be adaptable and open to customer demand in order to prosper;
- There is strong pressure for price and delivery-time reductions;
- Quality and complete customer service enhancements;
- Environmentally friendly products;
- A considerable reduction in product life cycles;

- The quick introduction of new products;
- A reduction in the time-to-market and product development costs;
- The pressure to supply new markets, both in geographical terms and in terms of new products;
- The intensification of relationships; and
- The strengthening of communication channels in supply chains in general.

All the above indicate that the South African automotive industry has some serious challenges that need to be addressed in a dynamic business environment.

2.3.9 Supply Chain Management

A supply chain can be described as follows (Khan, 2015:188):

- It starts with unprocessed raw materials, and terminates with the consumer utilising the finished goods;
- The supply chain connects a large number of companies together, and it also consists of different links, such as vendors, service providers and customers.
- The logistical process incorporates the acquisition of raw materials and the delivery of information related to completed products to the end user.

The theoretical discipline of supply chain management (SCM) provides various definitions for the term 'supply chain management'. A recent definition is that of Van Weele, in Badenhorst-Weiss, van Biljon and Ambe (2017:5), that describes SCM as: "The management of all activities and financial resources associated with the flow and transformation of goods and services up from raw materials suppliers, component suppliers and other suppliers in such a way that the expectations of the end-users of the company are met or surpassed". Badenhorst-Weiss, Cilliers, Dlamini and Ambe (2018:5) use a similar definition, stating that SCM "encompasses the planning and management of all activities involved in the sourcing and procurement, conversion and all logistics management activities".

Ambe and Badenhorst-Weiss (2013) stated that whilst the automotive industry is vital to the South African economy, it faces vast challenges in managing the supply chain.

The overall objectives of SCM, according to Khan (2015:229), are to improve profitability for supply chain firms, to add value for the customers and to provide a

competitive advantage. SCM covers the steps, flows, processes, organisations and relationships involved in transforming raw materials into finished products and supplying them to customers (Khan, 2015:229).

The global automotive industry can be differentiated into three broad segments (Khan, 2015:130):

- Original Equipment Manufacturers (OEMs) or vehicle assemblers – both passenger and commercial vehicle sales.
- Original Equipment Supplier (OES) – automotive parts and accessory sales through the vehicle assemblers' official dealerships.
- Independent aftermarket – automotive parts and accessory sales through independent retailers and repair shops.

The supply side of the global automotive industry is composed of the following broad segments with distinct requirements, as illustrated by Figure 2.2, and defined below (Lamprecht, 2009:137).

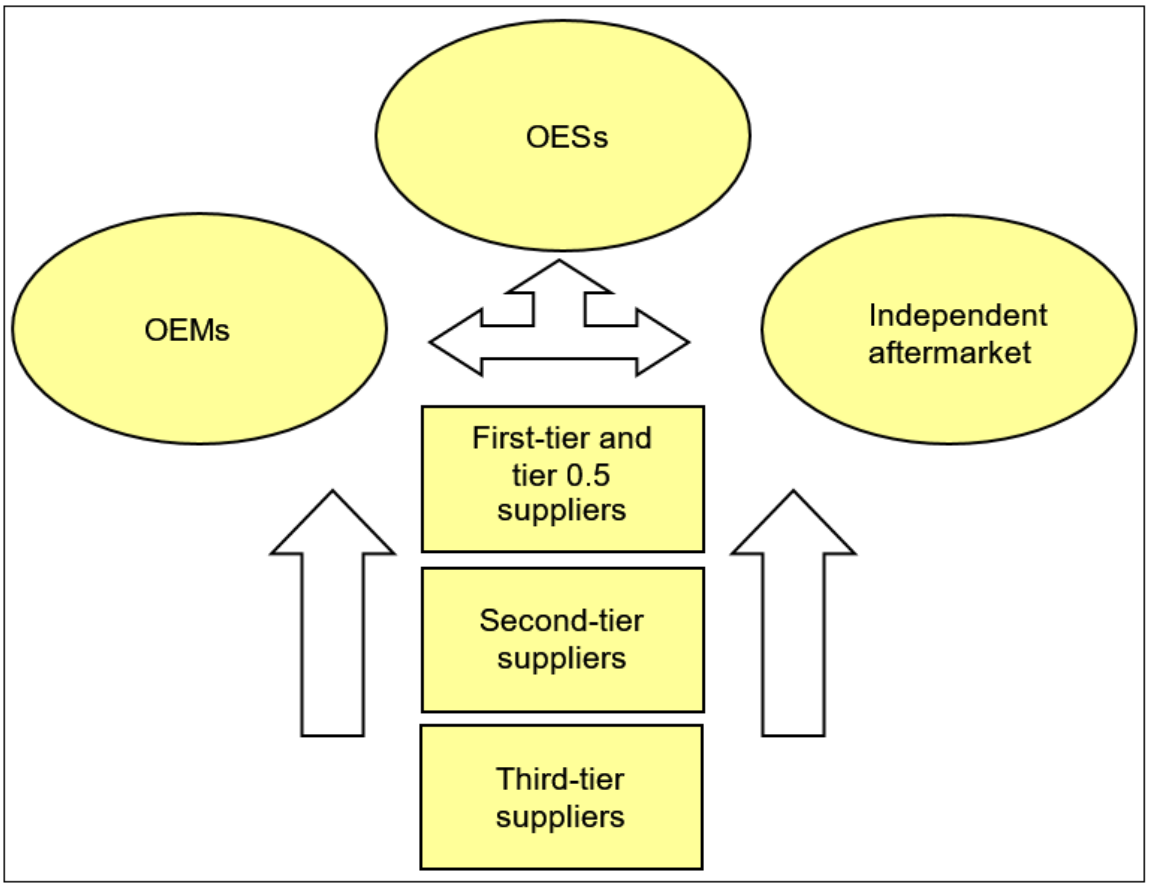


Figure 2.2: Segments of the automotive industry supply chain

Source: Lamprecht (2009:137)

- Original equipment manufacturers (OEMs) comprise passenger car, commercial vehicle and bus manufacturing, as well as sales, primarily through dealerships.
- Original equipment suppliers (OESs) manufacture and supply automotive parts and accessories directly to the OEMs for their service networks. In this way, the parts are endowed with the reliability associated with the brand of the vehicle, which is serviced for nine to ten years after production of the vehicle. OESs require global coverage and need to provide 'black box' solutions (namely, solutions created by suppliers using their own technology to meet the performance and interface requirements set by the OEMs).
- The independent aftermarket is responsible for the manufacture and sale of automotive replacement parts and accessories. The sales are made directly to the consumer through independent retailers and repair shops. The aftermarket also re-manufactures, distributes, retails and installs motor vehicle parts and products other than the original parts and accessories.
- First-, second- and third-tier automotive component manufacturers supply manufactured parts and accessories to OEMs, OESs and the independent aftermarket. The distinction between the different tiers of component suppliers is indicative of the automotive component manufacturer's role in the supply chain:
    - First-tier suppliers (also known as sub-assemblers) are responsible for manufacturing components that are supplied to the OEMs and the aftermarket. In some instances, they design certain assemblies and assemble modules, such as entire dashboards from different components, and are then referred to as tier 0.5 suppliers. They require design and innovation capabilities; however, in comparison to the OESs, their global reach may be limited.
    - Second- and third-tier suppliers provide parts and subcomponents for first-tier suppliers and also OEMs, depending on the product.
    - The third-tier suppliers supply mostly basic products, and generally only rudimentary engineering skills are required.

2.3.10 Automotive industry transformer considerations

PricewaterhouseCoopers (PwC) (2016) stated that the critical dimensions of global changes in the automotive industry that need to be considered and cleverly managed can be broken down into three categories:

- Macroeconomic forces – long product cycles and deep capital investments make planning in the auto industry a complex endeavour. Over the next five years, the Middle East and Africa, a laggard, relatively un-motorised region, will likely see strong and consistent automobile sales growth; the biggest improvements are expected in Iran, Egypt, South Africa and Nigeria. Along with this growth, activity in automotive manufacture in the region will increase significantly.
- New era of personal transportation – connected and intelligent cars are just beginning to make inroads in the auto industry, and already they have had a powerful impact on the way the automotive industry is adjusting organisationally.
- Stricter regulations – even as the automotive manufacturers must focus on upgrading the transportation and mobility features of their vehicles, stricter fuel economy regulations are closing in.

According to Miller (2015:3), the automotive retail sector will shift from a product-driven approach to a customer-centric approach in efforts to drive customer loyalty and to adapt to changing customer behaviour and expectations. The authors, Gao, Kaas, Mohr and Wee (2016) stated that technology-driven trends will revolutionise how industry players respond to changing consumer behaviour, develop partnerships, and drive transformational change. According to Gao *et al.* (2016), digitisation, increasing automation, and new business models have revolutionised other industries, and the automotive industry will be no exception. The forces are giving rise to four disruptive technology-driven trends in the automotive sector, namely, diverse mobility, autonomous driving, electrification and connectivity (Gao *et al*., 2016).

PWC (2016) recommends that the following steps be considered as the basis for the strategic plan to address the above considerations:

Step 1. Launch, learn and adapt faster than ever but not rashly. The organisation should determine whether new intelligent and connected vehicle features can be

developed in-house. Does the company have the capability to establish a skunkworks advanced research unit? (The term ‘skunkworks’ was coined to refer to a project aimed at radical innovation.) Do the customers expect that the brand will provide unique and distinctive proprietary solutions? If this route is not appropriate for the business, prepare an approach for partnering with companies from outside the traditional automotive sphere, which should include advantageous arrangements involving licensing, revenue sharing, and ownership of intellectual capital.

Step 2. The best way to approach this economic period which might lead the company into disaster, is to diligently focus on capacity management using sophisticated inventory and sales data systems to measure supply and demand. Companies that have the best market intelligence and analysis capabilities, and that use these skills on a daily basis to manage production output, will excel in emerging regions, as these countries will undoubtedly go through economic ups and downs in their development phase.

Step 3. Any strategy implemented in the future should aim to create value. The uncertainties and transformation that lie ahead for the automotive industry in the next decade are too potentially damaging to confront without a clear idea of real returns, if the strategy does go as planned. The most likely areas for value improvements include properly forecasting growth markets and trying to take up as big a share as possible in those regions; investing in new technologies and features that attract customers and word-of-mouth (rather than just another dashboard redesign); developing a rightsized and efficient factory footprint; cementing healthy collaborative relationships with suppliers; and creating a strong distribution base which places customer service at the centre.

At this point it is also necessary to consider the implications should the South African automobile industry be terminated.

2.3.11 Automotive industry’s international competitiveness

This section discusses the improvement of the automotive industry’s international competitiveness.

Econometrix (2015:184) stated that international competitiveness is the main challenge for automotive corporations that are operational in South Africa. According

to NAAMSA, the absence of international competitiveness in the automotive industry continues to be the main inhibitor to growth. Moreover, it is a growing fear, based on the shift towards vehicle manufacturing in low-cost nations (Econometrix, 2015:184). According to Econometrix (2015:184) and Hill (2016), continuous efforts to grow the South African automotive industry's export business is essential, particularly in view of the vision of doubling vehicle production in the nation to around one million units by 2020. The South African domestic market is just not large enough to create satisfactory economies of scale for world-class competitiveness/production; therefore exporting needs to be viewed as an essential step towards international competitiveness (Econometrix, 2015:184). Econometrix (2015:184) stated that the failure to attempt to discover new markets and products might result in a future slump in exports. This begs the question: What would happen to the South African automotive industry if it doesn't address these problem areas?

Davies (2016) stated that the fact is that South Africa continues to attract large investment, and that leading global multinational companies are investing billions of rands in the South African economy. Some of the most notable are investments in the automotive manufacturing sector (Davies, 2016). Vincent Cobee, the Global Head of Datsun, has described South Africa as the "logical choice" when it comes to the launch of vehicle manufacturing operations that target the African automotive market, but has alerted that the nation will first need to considerably overhaul its level of competitiveness (Econometrix, 2018:200). Econometrix (2018:200) further stated that Edgar Lourencon, president and managing director of General Motors (GM) in sub-Saharan Africa, reiterated this sentiment before GM decided to disinvest out of South Africa, by stating that even though South Africa continues to be a good place to do business, its competitive edge is under threat; "the cost of utilities, and especially electricity, used to be a comparative advantage. Now, it is becoming a disadvantage. Labour is available, but cost and skills are not at a level where we can go beyond what we have now. If utility and labour cost go up, we will become less competitive … already labour here is two to three times more [expensive] than in other African countries."

South Africa, like the rest of the globe, is still struggling in the aftermath of the global economic crises of 2008-2009 which caused a global collapse in demand, and lower

production volumes, which threatened the existence of some of the key automotive producers globally (Davies, 2016).

2.3.12 Competitiveness of the South African automotive industry

This section will discuss aspects that need to be considered to boost the competitiveness of the South African automotive industry.

The South African automotive sector, according to Biniza (2016:7), can be regarded as attractive because its growth has a strong positive multiplier effect, or spill-over effect, due to the sector's backward and forward linkages. Biniza (2016:7) stated that the automotive sector is thus a strong contender for, or target of, industrial policy because its growth also creates growth to upstream and downstream industries connected to the automotive value-chain. The aspects that need to be tackled in order to increase the international competitiveness of the South African automotive industry compared to rival production facilities across the continent and abroad, include the following (AIEC, 2015:89.90):

- Improve productivity. Steps need to be taken to expand productivity from 18 cars to 30 cars per worker per annum.
- Lower input costs. Decrease input costs, such as electricity and raw materials.
- Support production incentives. Explicit support and production incentives for Tier 2 and 3 suppliers are needed, which will accelerate their enhanced entry into the export market, and in turn increase employment. Supportive procurement policies for locally produced automotive products can play a role in accomplishing this objective.
- Stable support policy. Continuance of stable automotive policy support by government.
- Increase annual production capacity. Average annual volumes per platform produced by OEMs must be increased to globally competitive levels (minimum 80 000 units). Higher production volumes will boost efficiencies in production and help lower unit costs.
- Ensure economies of scale in the production process. Reassure the rationalisation of platforms so as to accomplish economies of scale in assembly. The focus on production maximisation by the APDP will inspire manufacturers to

rationalise platforms where possible, and to concentrate on the production and export of preferably a single high-volume platform to maximise the benefits available from the APDP.

- Improve local content. Local content levels to rise to 70% plus for high volume models, and 40-50% for low volume models.
- Ensure a consistent supply of electricity. Improve the precarious electricity supply situation.
- Lessen the environmental impact of the industry. The environmental impact of vehicle manufacturing must be reduced, as this will alleviate the risk posed by South Africa's unstable electricity supply and improve their competitiveness. Some corporations are also aiming to accomplish International Organisation for Standardisation (ISO) accreditation for their energy management, through the ISO 50001 standard, which has been adopted by South Africa as the national standard for creating, executing, preserving and refining an energy management system.
- Improve South African supplier competitiveness to be better aligned against the cost structures of average European manufacturing costs.
- Stable labour force, in terms of fewer strikes, thus negating the insecurity that the nation's recurring strikes create between foreign investors. When manufacturing plants in two different nations produce a similar-quality and cost product, factors such as labour stability could effortlessly sway an investment decision.
- Ensure the extensive improvement in logistic competitiveness, productivity and infrastructure (ports and rail).
- Invest in upskilling the work force. Enormous investment in training and skills development at all levels.
- Beneficiation of raw minerals in metal products manufactured for the automotive industry will increase the local component value.
- Improve and develop trade agreements. The strengthening of existing trade agreements, and developing a trade policy/new agreement is needed to develop the local industry's entry and growth into emerging economies, specifically Africa.

A graphical depiction of the above discussion is presented in Figure 2.3 below.

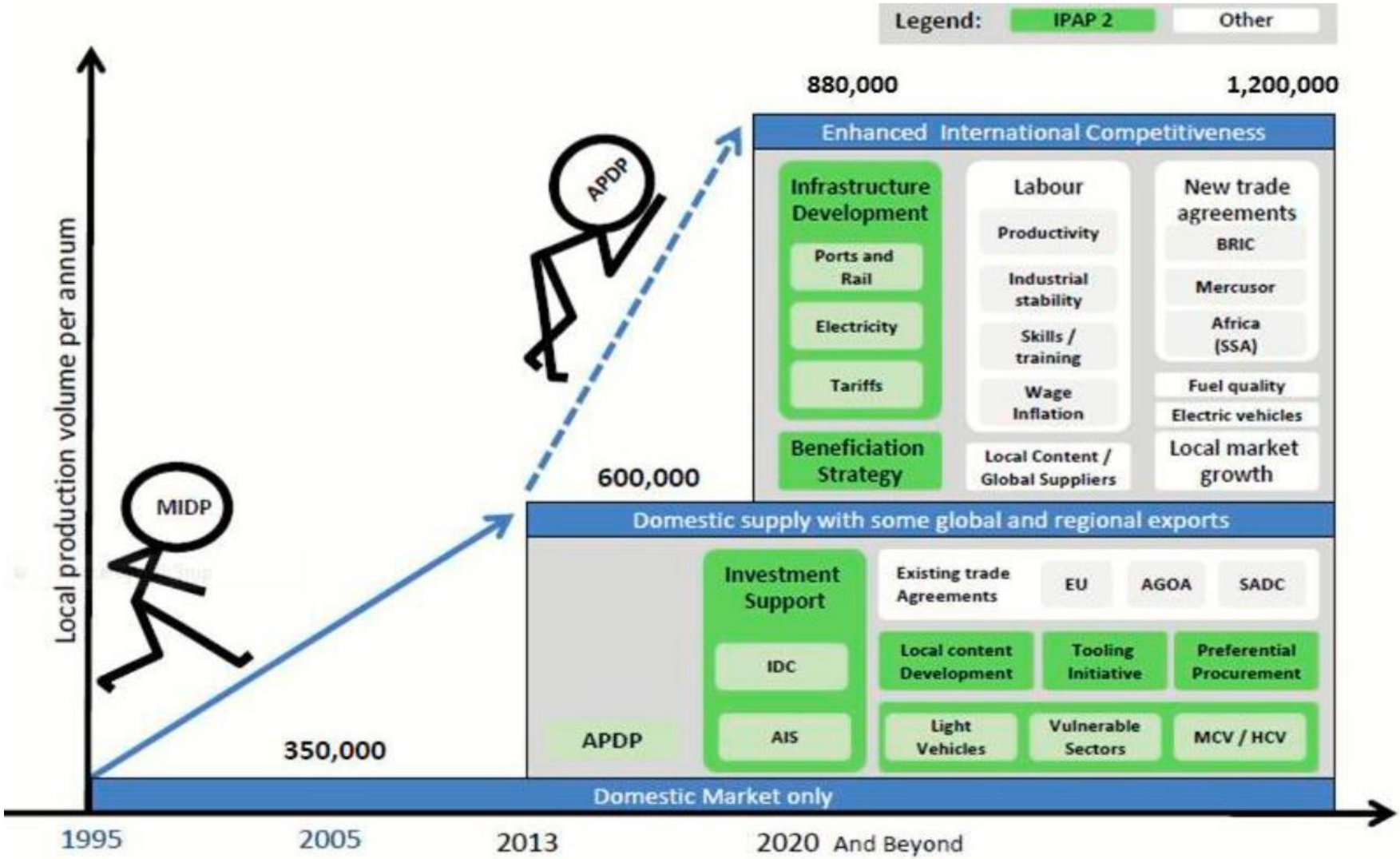


Figure 2.3: Roadmap to achieving global competitiveness and producing 1 million vehicles

Source: Econometrix (2018:202)

Econometrix (2018:200) stated that by developing its strengths and diminishing the threats to the industry, the South African automotive industry can enhance its international competitiveness, and as a result, create more employment. It is nevertheless necessary that South Africa follows a collaborative approach with all the role-players in the industry, namely, the OEMs, suppliers, unions and government in order to accomplish real effective improvements in the industry (Econometrix, 2018:201).

2.4 INTERNATIONAL BUSINESS MANAGEMENT & AUTOMOBILE MANUFACTURERS

This section discusses international business management and its impact on automobile manufacturers, as all the automobile manufacturers form part of the international business world. International business, according to Hill (2013:46), is much more complex than domestic business because nations differ in various ways, such as having different political, economic, and legal systems (Hill, 2013:46). Nations also vary considerably in their level of economic development and their future economic growth trajectory (Hill, 2013:46). Some of the common issues that need to be discussed regarding international business include globalisation, geographical perspectives and business ethics.

2.4.1 Globalisation

According to Naudé and O'Neill (2006), a key change in the global economy has taken place. Ambe and Badenhorst-Weiss (2013) stated that globalisation has added difficulties and costs to automobile manufacturers' abilities to capture and sustain market share. Historically, nationwide economies were comparatively inaccessible to each other. Time zones, distances, language, national variances in government guidelines, culture, and business systems also secluded national economies (Naudé & O'Neill, 2006 & Hill, 2013:4). Naudé and O'Neill (2006) and Hill (2013:4) state that there is presently a movement towards a world in which nationwide economies are merging into an equally dependent economic system, commonly referred to as globalisation. Globalisation, according to Naudé and O'Neill (2006), Hill (2013:6) and Zimmerman and Blythe (2018:395), refers to the transfer toward a more mutual and jointly dependent world economy. Paswan and Sinha (2015:1919) stated that the

term globalisation is used to define the growing interconnectedness that exists between nations as “states and societies become increasingly enmeshed in worldwide systems and networks of interaction”.

Globalisation, according to Paswan and Sinha (2015:1919), incorporates the areas of economics, politics, technology and culture, and even though all areas are important to industrialisation, the emphasis is on economic globalisation. Economic globalisation is defined by Paswan and Sinha (2015:1919-1920) as, “the increasing internationalisation of manufacture, circulation and promotion of goods and services”. Economic globalisation is motivated by the decrease of transport and communication costs, fewer policy barriers to trade and investment, and increased access to the transmission speed of information and technology (Paswan & Sinha, 2015:1920). The world of international business management is changing rapidly, and one key reason being that augmented foreign direct investment and trade bring executives from one country into constant contact with those in others (Naudé & O’Neill, 2006).

Hill (2013:6) identified the globalisation of markets and the globalisation of production as the components of globalisation. The globalisation of markets, according to Hill (2013:6), refers to the integration of historically diverse and separate national markets into one massive global marketplace. Falling barriers to cross-border trade have made it simpler to sell internationally (Hill, 2013:6). The globalisation of production, according to Hill (2013:7), refers to the obtainment of goods and services from locations around the world to take advantage of national differences in cost and quality of factors of production (such as land, energy, capital and labour). Through this, organisations hope to decrease their overall cost structure or enhance the quality or functionality of their product offering, thereby allowing them to compete more efficiently.

Although globalisation has been promoted as the *Sine Qua Non* for future prosperity of the world economy, there are indications that the pace of globalisation has slowed down (Zimmerman & Blythe, 2018:395). Emerging countries, of which South Africa is one, are asking for special dispensations in their dealings with the developed world. There are also the political influences of Brexit and the current President of the USA that are not promoting the globalisation agenda. Furthermore, Zimmerman

and Blythe (2018:395), reflect that global outsourcing has limitations which must be considered in the quest by OEMs to globalise their manufacturing capabilities.

According to Hill (2013:93), the overall attractiveness of a nation as a possible market or investment site for an international business, lies in balancing the risks, benefits and costs associated with doing business in that nation. Hill (2013:93) stated that the risks include political risks (for instance social unrest), economic risks (such as economic mismanagement) and legal risks (for instance failure to safeguard property rights). Hill (2013:93) stated that benefits include the size of the economy and probability of economic growth. According to Hill (2013:93), the costs include the level of corruption, legal costs and absence of infrastructure to do business in the nation. Typically, the costs and risks associated with doing business in foreign nations are usually lower in economically advanced, politically stable democratic countries, while they are greater in less advanced and politically unstable countries (Hill, 2013:93). South Africa's established infrastructure and its advanced medical, banking, legal, and accounting environments leverage the nation as a solid platform for foreign corporations to launch a presence and venture into the rest of Africa (AIEC, 2016:14). These advantages make the South African automotive industry attractive to foreign investors. It also simplifies the decision to relocate to South Africa.

Paswan and Sinha (2015:1927) stated that the contribution of the automotive and component industry to South Africa has improved meaningfully over a period of time. In a sense, globalisation has benefitted and improved employment (Paswan & Sinha, 2015:1927). Furthermore, the aforementioned authors stated that the South African automobile industry has accomplished the cost advantage of economies of scale, which is a significant factor for the production facilities, and has developed a globally competitive advantage in the improved successful pursuance of export opportunities (Paswan & Sinha, 2015:1927).

However, South African government should improve the infrastructure development and form associations with domestic organisations and universities, and they also need new technology in the automobile manufacturing productions, to enable the automotive and automobile industries to compete globally (Paswan & Sinha, 2015:1928). South Africa, as a country, also needs to generate strategies concentrating on innovation in the areas of science, technology and innovation

procedure. South Africa also has to increase research and development spending, making skills development, knowledge development and technology transfer from one nation to another nation possible, thereby enhancing manufacturing production and concentrating on quality, cost efficiency and safety (Paswan and Sinha, 2015:1928). The implementation of these changes may put South Africa ahead of the competition when foreign nations are looking for countries to invest in.

2.4.2 Geographical perspective relating to South Africa's gateway into Africa

Former President Zuma stated that "our geographical positions as regional business hubs and gateways into our respective regions provide us with the muscle to increase our economic and trade outcomes" (Draper & Scholvin, 2012:5). Draper and Scholvin (2012:3) argued that South Africa's role as an economic gateway mainly depends on natural opportunities and artificial structures in geographical space.

According to AIEC (2016:48), the bulk of the vehicles that are manufactured in South Africa are exported. AIEC (2016:26) stated that the focus of the domestic automotive industry is to build on current exports and to intensify the significance of exploring and exploiting new export opportunities. The South African automotive industry's conventional trading partners have been Europe, Japan and North America, which continue to be important as they are established relationships that have technology, knowledge transfer, and they offer markets that contain more possibilities (AIEC, 2016:26). AIEC (2016:26) further stated that Africa and Asia have become significant destinations for South African automotive products in recent years, as these economies have grown and trade ties have strengthened.

South Africa, according to Draper and Scholvin (2012:3), functions as an economic gateway for other African countries, however, there are rising challenges to the South African gateway. Being a 'gateway' to Africa is a highly significant feature of South Africa's economy and a closer look at economic dealings in sub-Saharan Africa verifies that South Africa's position is intertwined with its neighbouring nations (Draper & Scholvin, 2012:5; Odendaal, 2016:2). South Africa continues to seek beneficial trade arrangements with individual nations and trading blocs (AIEC, 2016:31).

According to AIEC (2016:31), regional integration is an African precedence and South Africa is well situated to exploit opportunities on the continent, as Africa is the

fastest-growing continent after Asia. Africa, nevertheless, is where most opportunities lie, due mainly to demographic pay-offs, technological innovations and energy developments (AIEC, 2016:31). Regional SADC and African integration, according to AIEC (2016:84), might improve opportunities for the automotive industry even though the industry can also be a driver of regional integration by placing pressure on governments to increase market access and enhance cross-border infrastructure.

Draper and Scholvin (2012:6) stated that South Africa's membership of BRICS (Brazil, Russia, India, China and South Africa) and its membership of the G20, shapes global economic governance more than any other African state. South Africa's admission into BRICS, according to AIEC (2017:35), has enhanced the nation's international stature, and trade and economic relations. Established nations, such as the USA and the UK, and newly emerging powers, such as China and Russia, consider South Africa a key political partner (Draper & Scholvin, 2012:6). AIEC (2016:31) nevertheless stated that there are still strategic barriers to improve the penetration of South African exporters into the rest of the continent, including infrastructure and trade barriers, however, these are expected to ease over time.

Andriamananjara (2011:111) stated that a customs union (CU) is a form of trade agreement in which some nations favourably allow tariff-free market access to each other's imports and there is consensus to employ a common set of external tariffs to imports from the rest of the world. Countries enter into a free trade agreement (FTA) and apply a common external tariff (CET) schedule to imports from non-members (Andriamananjara, 2011:111). A CU, according to Andriamananjara (2011:111), can be seen as a deeper form of integration than a FTA, usually needing more coordination and a greater loss of independence. CUs normally comprise a rather large number of geographically adjoining nations (Andriamananjara, 2011:111). Andriamananjara (2011:113) further stated that a CU can only be a practical device for evading trade deflection, while allowing more fluid trade flows between member states. In the simplest form of a FTA, member nations grant free trade to each other, while efficiently sustaining authority over the conduct of trade policy about the rest of the world (Andriamananjara, 2011:111).

According to AIEC (2016:35), the South African automotive industry is becoming increasingly involved in regional integration and the building of capacity in other

African nations. Both the USA and the nations involved under AGOA have the potential of creating substantial economic benefits from trade, especially as AGOA nations continue to grow, modernise and industrialise (AIEC, 2016:35). AIEC (2016:83) stated that the Tripartite Free Trade Area (TFTA), comprising of the SADC, the East African Community (EAC) and the Common Market for Eastern and Southern Africa (COMESA) was launched in Egypt on 10 June 2015. The TFTA consists of 26 nations with a joint GDP of US$1.3 trillion and intends to bring about a united and liberalised single market (AIEC, 2016:83). AIEC (2016:83) stated that the TFTA is a significant milestone in the implementation of the development integration agenda in Africa, and it is meant to promote market integration, based on industrial and infrastructure development.

Draper and Scholvin (2012:5) argued that the opportunities of a gateway rest primarily on physical and artificial geography. Furthermore, geography, according to the above-mentioned authors, provides opportunities and limitations that policy and private-sector policies developed by the public and private sector (the secondary factor of being a gateway) need to tackle. Geography can therefore be seen as the background that allows a nation to be regarded as a gateway, however, if the right decisions are not taken by its politicians and businessmen, such a role will not accomplish much in the long term (Draper & Scholvin, 2012:5).

South Africa's gateway role, according to Draper and Scholvin (2012:5), comprise three components. Firstly, location and physical geography offer opportunities and restrictions, particularly physical barriers that obstruct transport by rail and road. Secondly, the state of the gateway of Southern Africa rests on the South African transport infrastructure, varying from railway lines and roads to airports and harbours, as this connects them to world markets. Thirdly, Johannesburg (and to a lesser extent, Cape Town) is a crucial location for foreign corporations that set up regional head offices for their business in sub-Saharan Africa. Fortunately, South Africa is performing fairly well in terms of logistics (Draper & Scholvin, 2012:5). AIEC (2016:39) stated that South Africa's proximity compared to other emerging markets and its understanding of business surroundings and practices in other African nations places it in the beneficial position of being the perfect partner for assistance in creating a vehicle assembly operation. However, this is in return for some kind of

privileged treatment while the component sector is being established there (AIEC, 2016:39).

2.4.2.1 Why is South Africa seen as a gateway into Africa?

Draper and Scholvin (2012:7) concurred that the development of Africa is most likely to be successful around geopolitical centres, such as South Africa, since this is the gateway and good regional and global cohesion exist. Draper and Scholvin (2012:7) stated that South Africa will function as a gateway for other African nations:

- if South Africa's location and the regional physical geography support economic integration between South Africa and the other nations;
- if transport infrastructure connects the other nations closely to South Africa; and
- if there are well-matched economic activities between South Africa and the other nations.

South Africa is positioned at the southern edge of the African continent. Draper and Scholvin (2012:8) stated that South Africa's location is unfavourable since it lacks centrality, but it however, is the only African nation that has coasts on the Atlantic and Indian Oceans. Looking at South Africa's comparative advantage in relation to other African countries, it is apparent that South Africa borders with Namibia, Botswana, Swaziland, Zimbabwe and Mozambique. Draper and Scholvin (2012:9) stated that geography meaningfully restricts the influence that South Africa as a gateway ought to have on other African countries. Moreover, AIEC (2016:42) stated that South Africa's involvement in the SADC, compromising 15 sub-Saharan African nations allows access to a market of about 300 million people, and a projected regional GDP of US$600 billion.

The 15 SADC countries include: Angola, Botswana, Democratic Republic of Congo, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe (AIEC, 2016:42). AIEC (2016:42) stated that in improving the integration in both SACU (South African Customs Union, a customs union among five countries of Southern Africa: Botswana, Lesotho, Namibia, South Africa and Swaziland), and the SADC, it is clear that trade integration should be combined with determined efforts to build diversified production capacity in the region.

Alfaro *et al.* (2012:9) stated that neither China, India, nor Brazil would truly be South Africa's rivals in attracting auto cluster investment, as OEMs are placing production facilities in such countries mainly to tap into their huge domestic markets. South Africa exports a far greater proportion of its automobile production than China, India, or Brazil (Alfaro *et al.*, 2012:9). However, Alfaro *et al.* (2012:10) identified that the export-oriented clusters in these countries produce many of the same models as those produced in South Africa.

South Africa's location indicates that, at best, its direct neighbours are internationally intertwined by it (Draper & Scholvin, 2012:9). South Africa's economic gateway, according to Draper and Scholvin (2012:14), subsequently has much to do with the fact that South Africa is more developed economically than other African countries. The following questions therefore arise: What would happen if the economies of other African nations started to develop? Would South Africa still be attractive to foreign nations and the automotive sector in particular?

Draper and Scholvin (2012:15) stated that South Africa's main harbours of Durban, Richards Bay and Cape Town, act as substitutes for ports further northwards. Tables 2.4 and 2.5 and Figure 2.4 below disclose that South Africa is far more significant for marine transport than any other coastal nation from southern Africa.

Table 2.3: Per-country port traffic in East and Southern Africa

Country	Container port traffic in twenty-foot equivalent units (TEU's)
Angola	412 594
DRC	285 690
Kenya	618 816
Mozambique	214 701
Namibia	265 663
South Africa	3 726 313
Tanzania	370 401

Source: Draper and Scholvin (2012:15)

Table 2.4: Port traffic of major harbours in East and Southern Africa

Port	Container port traffic (TEUs)	Total port traffic (tonnes)	Operating capacity (%)
Beira	100 000	3 000 000	50
Cape Town	740 000	13 700 000	90
Dar es Salaam	250 000	7 400 000	100
Durban	2 000 000	45 000 000	100
Lobito	30 000	300 000	30
Luanda	90 000	2 100 000	100
Lüderitz	1 000	200 000	80
Maputo	100 000	10 000 000	60
Matadi	40 000	1 600 000	60
Mombasa	500 000	16 000 000	100
Nacala	45 000	700 000	100
Namibia	0	700 000	20
Port Elizabeth	370 000	8 100 000	70
Richards Bay	0	80 000 000	80
Walvis Bay	100 000	3 000 000	60

Source: Draper and Scholvin (2012:16)

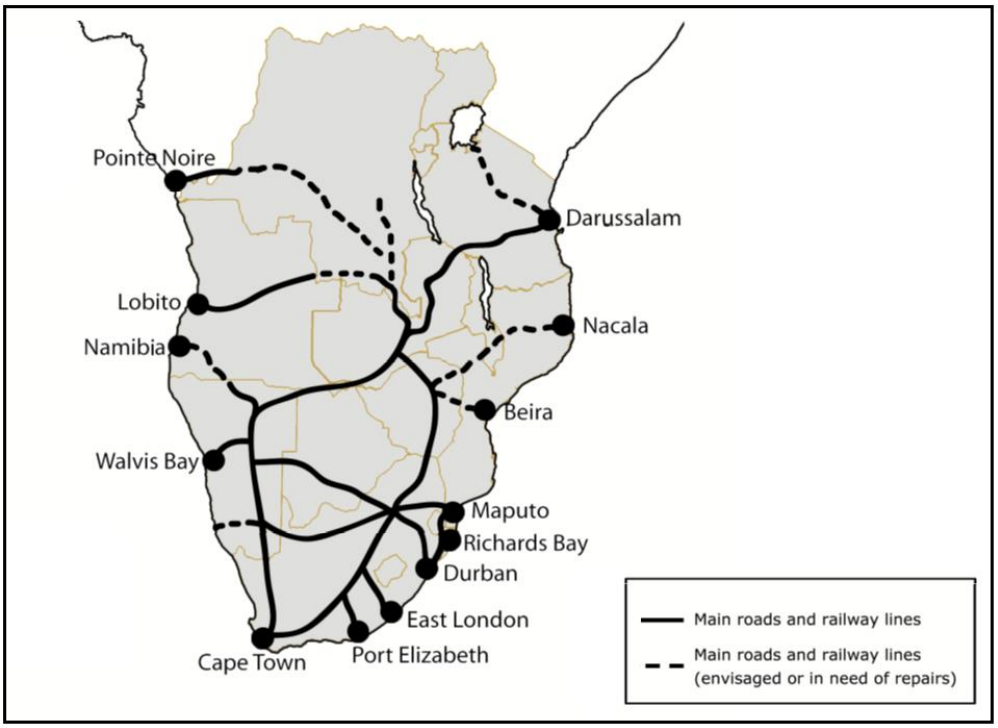


Figure 2.4: Transport infrastructure in Southern Africa

Source: Draper and Scholvin (2012:17)

That South Africa can achieve this role of regional transport hub does not only result from the transport geography of Southern Africa, it is also owing to the high level of economic development in South Africa, which has brought about an environment that enables business actions, including transport (Draper & Scholvin, 2012:17).

2.4.2.2 Commodity chains and patterns of investment as well as emerging challenges to South Africa's gateway position

According to Draper and Scholvin (2012:23), there are a number of probabilities as to how South Africa could serve as a gateway function for the trade in goods and services. Firstly, multinational corporations (MNCs) might utilise South Africa as a hub for their regional headquarters, taking advantage of the nation's relative superior infrastructure to co-ordinate and manage their regional activities. Even though this means that the MNCs manage their regional affairs from South Africa, South Africa's superior infrastructure also indicates that it could be used as a hub for logistics and distribution, which creates the second dimension. Thirdly, MNCs might use South Africa as a sourcing hub for goods intended for regional markets (Draper & Scholvin, 2012:23).

Draper and Scholvin (2012:33) stated that in spite of numerous opportunities for South Africa to act as a gateway, there are several challenges to South Africa as a gateway. Firstly, South Africa is not the only possible headquarters hub for MNCs that do business in sub-Saharan Africa. Secondly, with respect to South Africa as a hub for logistics and distribution, the Barloworld Logistics survey recognises numerous challenges facing business in South Africa, the core factors being the accessibility of skills, government institutional abilities and political uncertainty, labour relations, and currency variations. Thirdly, the sourcing opportunity related to global value chains is the most opportune for South Africa, as it includes adding value in the nation (Draper & Scholvin, 2012:33-35).

BCS Africa (2014:21) stated that South Africa is also at risk of losing ground in its position as a gateway to Africa as there are a range of East African harbours that are closer than South Africa to Asian manufacturing hubs, and certain manufacturers have established new production facilities in Nigeria.

Ethics and business ethics will be discussed next.

2.4.3 Business ethics

Corporate indiscretion, misconduct and corruption are regularly the subject of international media concentration, with unethical business practices causing unwanted and expensive problems for corporations (Lloyd, Mey & Ramalingum, 2014).

2.4.3.1 Definition of ethics and business ethics

Hill (2013:136) stated that ethics refers to "accepted principles of right and wrong that govern the conduct of a person, the members of a profession, or the actions of an organisation". Business ethics, according to Lloyd *et al.* (2014), is about "identifying and implementing values, rules and standards of conduct for guiding morally right behaviour in an organisation's interaction with its stakeholders". Business ethics also refers to the ability to distinguish right from wrong and to elect to do what is right in terms of actions and decisions (Lloyd *et al.*, 2014; Hill, 2013:136).

2.4.3.2 Ethical issues in international business

Several of the ethical issues in international business are entrenched in the fact that culture, political systems, economic development, and law differ considerably from country to country (Hill, 2013:136). Hill (2013:136) stated that in the international business setting, the most common ethical issues involve corruption, employment practices, environmental pollution, the moral obligation of multinational corporations and human rights. For example, employment practices asks the question related to when work conditions in a host country are evidently inferior to those in a multinational's home country, what standard should be applied? Those of the home country, those of the host country or something in between? (Hill, 2013:136).

BCS (2014:14) and Econometrix (2018:i) stated that the automotive manufacturing industry in South Africa signifies one of the nation's largest and most internationally competitive industries. As such, the industry is directly responsible for the employment of over 100 000 South Africans (BCS, 2014:14). Strike action, according to BCS (2014:23), has become conventional in South Africa's labour relations landscape, with the prolonged strike action in both the Platinum mining industry and the steel and engineering divisions in 2014. Tom Mkhwanazi, Secretary General of the Motor Industry Bargaining Council said "I am positive that we will get to a point

where they sit around a table and say, it is not to the benefit of both parties – it is not for the benefit of the employees, not for the benefit of the employers because they are going to lose production and they are going to lose income" (CNBC, 2016). BCS (2014:21) stated that if South Africa is to stay competitive, the sector will not only need to rival its international counterparts, but also find ways to deal more proficiently with crippling human resource issues, including strike action and lack of skills.

Questions of human rights can arise in international business (Hill, 2013:137). Basic human rights still are not respected in many countries. Rights taken for granted in developed nations, such as freedom of speech, freedom of association, freedom of assembly, freedom from political repression, freedom of movement, and so on, are by no means collectively recognised (Hill, 2013:137).

Ethical issues, according to Hill (2013:139), rise when environmental guidelines in host countries are inferior to those in the home country. Several developed countries have substantial guidelines governing the release of pollutants, the clearance of toxic chemicals, the use of toxic materials in the workplace, and so on (Hill, 2013:139-140). Those guidelines are often absent in developing countries, and according to critics, the result can be higher levels of pollution from the procedures of multinationals than would be tolerated at home (Hill, 2013:140). However, Lilleike (2015) stated that BMW is making an attempt to cut its environmental impact with what is believed to be the first commercially feasible biogas-electricity project in South Africa. BMW South Africa, according to Sikhakhane (2015), got the first green energy at its Rosslyn plant in Pretoria on 1 October 2015. BMW South Africa signed a power purchasing agreement with the foremost biogas waste-to-energy company, Bio2Watt, to provide biogas-electricity to the Rosslyn plant (Lilleike, 2015; Sikhakhane, 2015). Biogas, according to Lilleike (2015), is produced via the breakdown of organic matter being mixed with water and microorganisms in large biogas digesters, and the resultant by-product of this anaerobic digestion method is methane gas, which is then fed into gas engines to produce electricity.

Hill (2013:141) stated that corruption has been problematic in almost every society in history, and it remains a problem today. There have been and always will be corrupt government representatives (Hill, 2013:141). In terms of moral obligations, according to Hill (2013:143), multinational companies have power that comes from their control over resources and their capability to move their production to another

nation. Although that power is inhibited not only by laws and guidelines but also by the discipline of the market and the competitive procedure (Hill, 2013:143).

Hill (2013:143-144) stated that the notion of social responsibility refers to the idea that corporates must contemplate the social consequences of economic actions when making corporate decisions, and that there ought to be an assumption in favour of verdicts that have both good economic and social significance. A study done by Lloyd *et al.* (2014) found that corporations in the automotive industry are extremely ethical. This, according to the above-mentioned authors, may be attributed to the following policies and practices:

- Ethics-related standards, infrastructure and practices;
- High levels of corporate governance;
- Encouragement of the disclosure of unethical behaviour through training and communication;
- Ethics audits focused rewards; and
- Social and ethics committees.

2.5 CONCLUSION

This chapter focused on FDI, the competitive advantage of nations, international business management and supply chain management in order to establish what makes South Africa an attractive nation to invest in, even though it is perceived to be improbable for South Africa to succeed in the global automotive industry Some of these aspects will be covered in the next chapter.

With the analysis of FDI it became apparent that South Africa is seen by international organisations as the ideal entry point into Africa but South Africa needs to do a lot more to entice FDI. The new Protection of Investment Act is also making foreign investors cautious about investing in South Africa. South Africa has many attractive features for foreign organisations, such as government enticements, but it also faces a lot of challenges at home.

With the study into the competitive advantage of nations it was stated that the automotive industry has grown to become the leading manufacturing sector in South Africa’s economy. Although South Africa compares favourably with comparable

industries in developing nations, it remains necessary for companies to create and maintain competitive advantage if they want to survive and grow. With international business there is growing interconnectedness that exists between nations as the world moves towards globalisation.

South Africa can be seen as a gateway into the rest of Africa, even though South Africa's geographic location is unfavourable due to centrality. Despite the massive geographic disadvantage, Branquinho (2018) stated that SA's export-oriented vehicle manufacturing is well regarded globally and seemingly successful. With the investment and/or the additional investments made by BMW, Volkswagen, Ford and the new investment by Beijing Automotive Holdings, it becomes evident that South Africa does in fact have competitive advantages that interest global automotive manufacturers.

CHAPTER 3
GOVERNMENT INVOLVEMENT THROUGH THE MIDP AND APDP

3.1 INTRODUCTION

It is generally the norm for governments to propose both financial and non-financial backing to their automotive industries, with the majority of countries offering a variety of support measures to vehicle manufacturers (Venter, 2014; AIEC, 2017:25). The South African automotive manufacturing sector has been acknowledged as one of the industries with the greatest potential for accelerated export growth, which will bring about an upsurge in employment (Econometrix, 2018:185). This chapter focuses on government's involvement in the automotive industry by outlining the MIDP and the APDP programmes.

This chapter also focuses on the global and South African automotive industry through an in-depth analysis of the automotive industry to determine what factors make South Africa an attractive country to invest in, given the current worldwide economic situation. To conclude, this chapter will include a critical review of the impact on the South African economy should the automotive industry disappear.

3.2 EVOLUTION OF AUTOMOTIVE POLICY IN SOUTH AFRICA

The AIEC (2016:20) stated that the affiliation between government and the automotive sector in South Africa has an extensive and productive history.

According to Barnes, Black and Duxbury (2016:6), the first in a series of local content programmes was introduced in 1961, and it was followed by a number of alterations, which increased local content requirements over time. AIEC (2013:14) stated that between 1961 and 1989, five distinct phases of government support for the industry were identified and can be summarised as follows:

- Phase I (1961-1963) of the local content programme was introduced with the aim of increasing local content in mass from 15 to 40%.
- Phase II (1964-1969) of the local content programme was introduced to increase the nominal local content in mass from 45% in 1964 to 55% in 1969.

- At the beginning of 1971, Phase III (1971-1976) of the local content programme was introduced with a minimum net local content of 52%, which was set to increase to 66% on 1 January 1977.
- Phase IV (1977-1978) of the local content programme comprised a two-year “standstill” phase.
- Phase V (1980-1988) of the local content programme was introduced with a minimum net local content of 66% by mass, in respect of motor cars, and 50% by mass, in respect of light goods vehicles and minibuses.
- In 1989, Phase VI (1989-1995) of the local content programme was introduced and involved a radical change in the calculation of local content based on value, as opposed to mass.

Figure 3.1 reveals a visual historic timeline of government’s automotive policy intervention and industry actions in the domestic market.

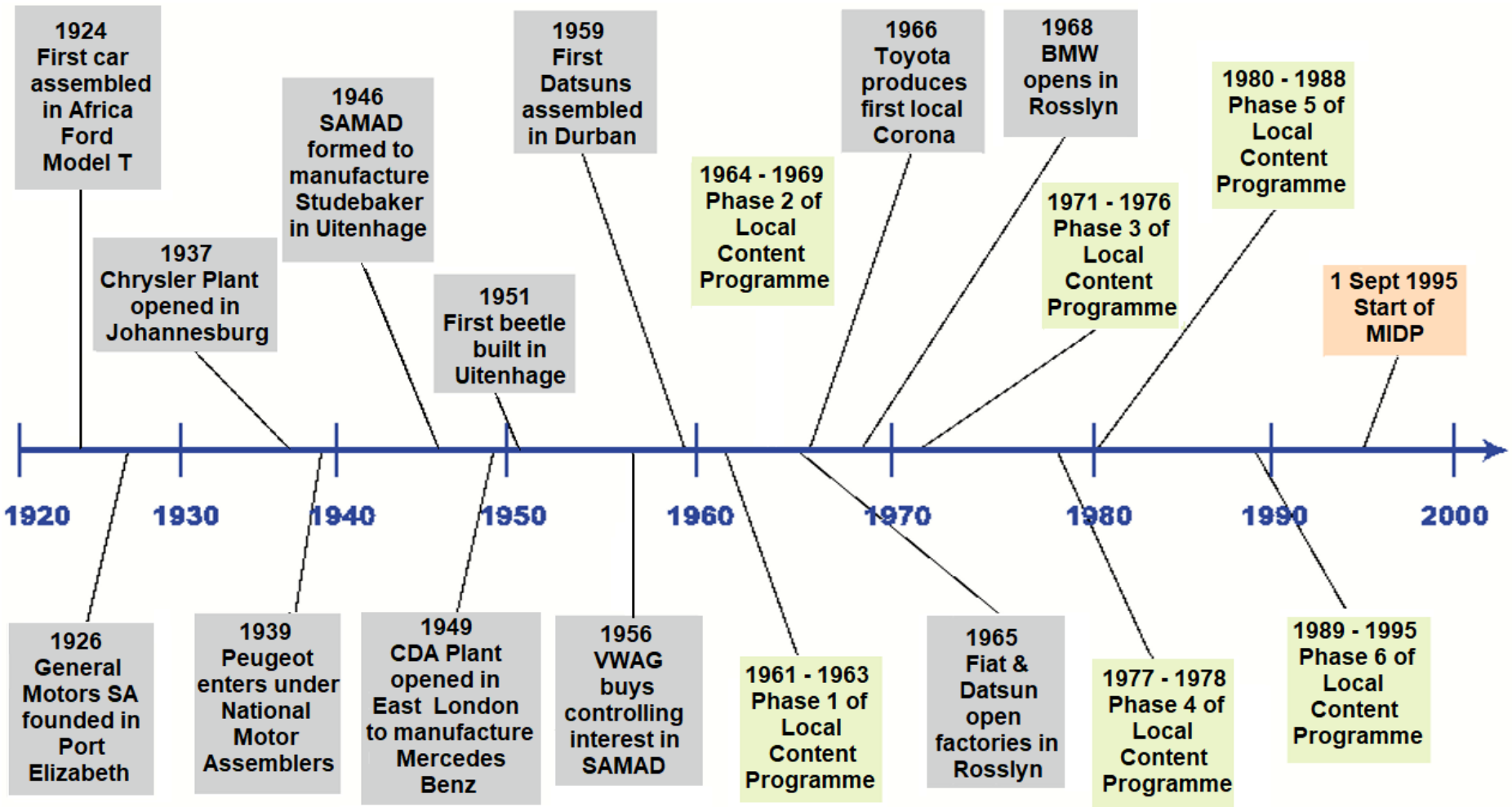


Figure 3.1: Historic timeline of government automotive policy intervention

Source: AIEC (2013:15)

Certainty and steadiness in the official policy regime, over the past 20 years, have added to a number of notable accomplishments by the vehicle manufacturing and allied industries as indicated by Figure 3.1 above.

The Motor Industry Development Programme will be discussed next.

3.3 MOTOR INDUSTRY DEVELOPMENT PROGRAMME (MIDP)

The South African Institute of International Affairs (SAIIA) (2016:7) stated that in South Africa, the automotive sector is thoroughly developed. The automotive industry, according to Barnes and Black (2013:3), is one of South Africa's major manufacturing sectors and has a long history of government support. Dating back to the 1920s, the South African government has implemented measures to build up and shield its automotive industry, with local content prescriptions dating back to the 1960s (SAIIA, 2016:7).

Black *et al.* (2017:9) state that automobiles were first manufactured in South Africa in the 1920s and, as was classically the case in emerging nations, the South African automotive industry grew under high levels of protection. From 1995 to 2012, it was subject to the Motor Industry Development Programme (MIDP) which has possibly been the most substantial industrial policy intervention in South Africa; both because of the powerful incentive structure it began and because of the size of the industry it influenced (Barnes & Black, 2013:3; SAIIA, 2016:7). Barnes and Black (2013:3) stated that in a procedure, which began in 1989 and was enhanced with the introduction of the MIDP in 1995, the automotive industry has become increasingly exposed to international competition as government has sought to make it more competitive. Lower tariffs were accompanied by import-export complementation arrangements, which allowed companies to rebate import duties by their exports (Barnes & Black, 2013:3).

Barnes and Black (2013:6) stated that in late 1992, a tripartite forum, the Motor Industry Task Group (MITG), was established to reconsider the programme and guide government as to the future development policy for the industry. The approach included government, business and labour in the development of the programme, and was a good example of constructive collaboration which has been a key characteristic of the industry over the past two decades.

The MIDP lowered tariffs and provided strong support for exports (Barnes & Black, 2013:2). The outcome, according to Barnes and Black (2013:2), was quick development, even though the sector remains susceptible to declining support. Even though the MIDP has made a positive impact on the development of the industry, its creation of easy access to import credits has resulted in a quick increase in imports, to potentially unmaintainable levels (Barnes & Black, 2013:2).

Barnes and Black (2013:4) maintain that the MIDP has received substantial positive media comment over a long period, and this has concentrated on what has been accomplished, for example, in terms of export expansion, new foreign investment and vehicle prices. South Africa's automotive exports have grown significantly on the back of the MIDP (Econometrix, 2018:58). However, Barnes and Black (2013:4) state that there have also been negative features, particularly in terms of the costs of the programme. However, Barnes *et al.* (2016:35) state that the level of support provided to the industry is regularly overstated, and the support was actually considerably reduced under the MIDP, if compared to the previous levels of support. It is essential to note that in the late 1980s tariffs and import surcharges amounted to 115% on imported cars; these tariffs and import duties are now down to 25% and are lower for vehicles imported from the EU (Barnes *et al.,* 2016:35). The afore-mentioned authors have further stated that import duties on vehicles and components can be rebated which further decreases the protection (Barnes *et al.,* 2016:35).

Government made it clear that tariffs had to be reduced in line with the nation's GATT responsibilities (Barnes & Black, 2013:6). According to Barnes and Black (2013:7), all shareholders (to the MIDP) agreed on the basic architecture of the MIDP which was based on the 1985 Australian Passenger Motor Vehicle Manufacturing Plan, more commonly known as the Button Plan, which entailed duty phase-downs, and a facility under which vehicles and component exporters could rebate import duties.

The key elements of the MIDP, according to Barnes and Black (2013:7), were the following:

- The excise duty-based local content system was dropped and traded for a tariff driven programme.
- Tariffs on light vehicles were to be phased down to 40% for light vehicles and 30% for components by 2002.

- Manufacturers of light vehicles for the domestic market were entitled to a duty free allowance (DFA). Components to the value of 27% of the wholesale price of the vehicle could be imported duty free.
- Import duties on components and vehicles could be offset by Import Rebate Credit Certificates (IRCCs) derived from the export of vehicles and components.

Barnes and Black (2013:8) stated that to evaluate the impact of the MIDP and to provide long-term policy certainty to the industry, the DTI conducted two policy reviews, one in 1999 and one in 2002. These extended the MIDP, first until 2007, and later until 2012, but on a phasing-down basis (Barnes & Black, 2013:8). According to Barnes and Black (2013:8), the preliminary objectives of the MIDP were to provide sustainable employment, provide high quality affordable vehicles, and through increased production, contribute to economic growth. More specifically, the MIDP was devised as a trade-facilitating measure with very particular industry policy objectives (Barnes & Black, 2013:8). The key factor, according to Barnes and Black (2013:11), was that the MIDP permitted companies to rebate import duties by exporting vehicles. An important part of the strategy of the vehicle manufacturers functioning in South Africa was to expand their market share via a combination of local production and vehicle imports (Barnes & Black, 2013:11).

A vital objective of the import-export complementation scheme, under the MIDP, was to support component suppliers to create high volumes which would make them more effective, and capable of competing in the domestic market against imports. The objective of higher component volumes was accomplished, at least in the sense that export development was commonly accompanied by higher volumes and specialisation (Barnes & Black, 2013:19).

Barnes and Black (2013:22), stated that while there have been reasonable inflows of FDI into the South African economy throughout the tenure of the MIDP, the automotive sector has been a significant receiver of FDI. Nonetheless, much of this FDI initially involved the purchase of partial or full ownership by Ford, Toyota Motor Corp., Nissan Motor Corp. and General Motors under the period of the MIDP (Barnes & Black, 2013:22).

The Automotive Production Development Programme (APDP) which replaced the MIDP from 1 January 2013 will be discussed next.

3.4 AUTOMOTIVE PRODUCTION DEVELOPMENT PROGRAMME (APDP)

NAAMSA (2015) and AIEC (2018:26) state that the APDP comprises four pillars that drive the programme:

- **Import Duty:** Import duties on vehicles and automotive components will stay at 2012 levels (25% on light vehicles and 20% on original equipment components through to 2020). Vehicles imported from the European Union will be liable for an import duty of 18% due to the preferential agreement in place. These tariffs are meant to provide protection to and rationalise continued domestic vehicle manufacturing.
- **Vehicle Assembly Allowance** (VAA) (rebate mechanism): This support is in the form of duty-free import credits dispensed to vehicle manufacturers based on 20% (2013) of the ex-factory vehicle price, dropping to 19% in 2014, and in 2015 to 18% for all light motor vehicles manufactured domestically. This support is efficiently providing a lower duty rate for domestic vehicle manufacturers' import requirements and ought to provide enough reassurance for high volume vehicle production in line with the target of doubling domestic production.
- **Production Incentive** (PI) (rebate mechanism): In 2013, this support started at 55% of the nominated local value addition, decreasing progressively by 1% annually to 50%, in the form of duty-free import credits. The comparable value will be the incentive multiplied by the component/vehicle duty rate, so this represents 11% (on components) of value-added in 2013, and will decrease to 10% by 2018.
- **Automotive Investment Scheme** (AIS) (cash grant): The AIS signifies the only industry support that is of physical cost to the fiscus in the form of a non-taxable cash grant. This investment scheme substituted the Productive Asset Allowance (PAA) in July 2009.

NAAMSA (2015) and AIEC (2017:25) stated that as a vital partner in the development and growth of this industry, government signalled the assurance of the medium- to long-term future commitment by announcing the broad framework of the Automotive Production and Development Programme (APDP) as early as September 2008. The

programme reinforces the vision that the long-term development of the sector will be best served through major increases in production volumes and the accelerated growth of the local components industry (NAAMSA, 2015). NAAMSA (2015) further stated that the APDP provides a clear, though ambitious vision for the South African automotive industry until 2020. The APDP was created on the basis of widespread consultation with industry stakeholders and has their full support (NAAMSA, 2015). According to Dr Johan Van Zyl, as the president of NAAMSA (2015), and AECI (2016:20), the APDP signifies a cautiously structured set of provisions to support the future growth and development of the industry by balancing the interest of the broader automotive industry, customers and government's objectives.

The APDP was entirely implemented by January 2013 with the aim of steering the automotive industry towards manufacturing in excess of one million vehicles per annum by 2020 with the attendant expansion of the domestic supplier base. According to Deloitte (2016), when the APDP superseded the MIDP in January 2013, there was the anticipation that the change to a production-based incentive programme would assist in increasing production to 1.2 million vehicles by 2020 and create further employment opportunities. However, the APDP's ambitious 2020 vision has subsequently been significantly adjusted downward due to the long-term effects of the global financial crises in 2008/2009 and innovative developments in the automobile industry, such as ride-sharing and Uber.

The AIEC (2016:20) stated that the APDP reinforces the vision that the long-term development of the sector will be best served through significant increases in production volumes and accelerated growth of the domestic component industry. At the same time, improving firm-level competitiveness needs to remain a vital objective (AIEC, 2016:20). According to Deloitte (2016), the intention of the APDP was not only to increase the number of vehicles produced, but also to extend the component manufacturers' supply chain and deepen localisation. The introduction of additional support mechanisms by the DTI, such as the incubation programme for Tier 2 to Tier 4 suppliers, mirrors the DTI's consciousness of the current weaknesses, and the vulnerability of this industry that might threaten further localisation of automotive components (Deloitte, 2016).

With regards to vulnerable products, the AIEC (2018:27) stated that these high material-content products received extra support to elude a sudden and substantial

loss of export business due to the changeover from the export-oriented MIDP. In this regard, 40% of the standard material(s) of Aluminium, Brass, Leather, Platinum Group Metals, Stainless steel and Steel, as applicable to the following list of products was initially regarded as local value-added:

- Steel jacks
- Alloy wheels
- Aluminium products (engine and transmission components, heat exchangers and tubes, suspension components and heat shields)
- Catalytic converters
- Cast iron components (engine/ axle/ brake/ transmission and related types of components)
- Leather interiors
- Flexible couplings
- Machined brass components

The 40% level was reduced by 5 percentage points per annum from 1 January 2015 to reach 25% from 1 January 2017 onwards (AIEC, 2018:27).

According to AIEC (2018:21), support in the South African automotive industry exists at two levels. National support, in the form of the APDP and the Automotive Supply Chain Competitiveness Initiative (ASCCI), which plays a vital role in addressing common industry challenges in the context of the national economy (AIEC, 2016:14). AIEC (2016:18) stated that the ASCCI, established in December 2013, has as its major objective to build a successful and maintainable domestic automotive industry by vigorously developing supply chain competitiveness at a national level. In other words, the purpose of the ASCCI is to support the development of a viable local value chain by increasing competitiveness and building greater levels of local value addition (AIEC, 2016:19).

The AIEC (2016:14) stated that focus and support to the industry are offered via mechanisms that are realised at national level, such as duties, national engagements, competitiveness issues and tax incentives, among others. Regional support mechanisms, by contrast, offer the chance to address the precise needs of the industry residing in specific geographic areas, and they have the advantage of

leveraging the benefits of geographical proximity (AIEC, 2016:14). According to AIEC (2016:19), the purpose of ASCCI is to support the development of a feasible local value chain by upgrading competitiveness and building greater levels of local value, whereas the APDP is meant to incentivise production and investment in the domestic automotive industry.

Since the development of the original APDP framework in 2008, there have been intense changes in the global and domestic economy, raising the concern that there could be restrictions in the programme that may lead to failure to realise the objectives set for the industry. An early review of the programme started in 2014, and the recommendations resulting from the outcome of the APDP Review were announced in November 2015 (AIEC, 2016:20). The most noteworthy changes to the programme involved that OEMs could qualify for enticements under the programme based on reduced volumes of 10 000 units per plant per annum, instead of the original 50 000 units per annum, as well as the freezing of catalytic converter enticements in 2017, instead of the continuing reduction.

Deloitte (2016) stated that the most substantial change was undeniably the lowering of the barriers of entry to the automotive industry for possible new investors through the reduction of the minimum volume of vehicles to be manufactured to 10 000 per annum in order to qualify for a reduced Volume Assembly Allowance (VAA) of 10%. Davies (2015) stated that since the establishment of the original APDP framework in 2008, the global and domestic economy had changed intensely, raising concerns that the programme might contain limitations that could lead to the failure to accomplish the set objectives of the industry. In an effort to endure and grow the industry, whilst steering it towards the APDP's vision of high volume vehicle production, the following proposals will be employed (Davies, 2015):

- A post-APDP support framework was established during the course of 2016, in order to offer certainty in the policy environment for automotive manufacturing in South Africa after 2020.
- The volume threshold for vehicle production will be reduced from 50 000 units to 10 000 units per annum in order to allow new entrants into the local industry from 2016.

- The Volume Assembly Allowance (VAA) will be offered on a sliding scale based on volume, beginning at 10% for 10 000 units to 18% at 50 000 units from January 2016.
- An appropriate capital incentive (AIS) level will be provided for new entrants at the less than 50 000 pa threshold (which is still under consideration by the DTI).
- The production incentive for catalytic converters will be stationary at the 2017 level of 65%, rather than continuing the phase down.
- The qualification for component suppliers to earn APDP benefits will be tightened to avoid these benefits being earned on non-core automotive products, therefore preference will be afforded to those products that add value in the value chain.

Davies (2015) stated that the DTI will lastly involve the National Treasury in an effort to secure improved investment support for tooling as a means of encouraging additional component localisation. As the DTI develops a post-APDP automotive master plan they will actively engage the industry in efforts that seek to endorse meaningful transformation of the industry through the inclusion of formerly excluded groups along the entire automotive value chain (Davies, 2015).

According to Davies (2015), AIEC (2016:22) and Econometrix (2018:171), the 2020 target of manufacturing 1,2 million vehicles per year is improbable due to a number of different reasons, such as the fact that the global economy is still recuperating from the effect of the 2008/9 financial crises. A more accurate target, based on present global realities, existing vehicle production plans, and the prospect of new entrants, is probably the production of approximately 900 000 vehicles by 2020 (NAAMSA, 2017:48). Secondly, it will also be very difficult to accomplish substantial expansion and deepening of the domestic supplier base under the usual conditions (AIEC, 2016:22). Econometrix (2018:35) stated that the realisation of the 2020 target will mostly depend on new greenfield investments, additional investments and expansions by OEMs, as well as capacity utilisation at their manufacturing facilities.

According to NAAMSA (2015), manufacturers will also receive value-added support to help encourage increased levels of local value addition alongside the automotive value chain, with positive spin-offs for employment creation. The unveiling of the Automotive Investment Scheme (AIS), the investment support element of the APDP, with a budget of R2.7 billion over three years, further embeds government's ongoing

commitment to the efficient implementation of World Trade Organisation (WTO) compatible support programmes to secure the future of the industry (NAAMSA, 2015). President of NAAMSA, Dr Johan Van Zyl (NAAMSA, 2015) stated that the importance of this type of support is that it primarily seeks to enhance productive investments in the manufacturing of new and replacement vehicle models and automotive components. In addition, the two-tier scale of benefits is anticipated to encourage greater local value addition and employment, and since most investors want to secure the maximum benefit, there are already signs of many manufacturers actively 'stretching' to meet higher local content and employment targets (NAAMSA, 2015).

AIEC (2018:27) stated that the AIS, effective from July 2009, substituted the Productive Asset Allowance (PAA) and will amount to a cash grant of 20% (taxable) of qualifying investment paid over to OEMs, and 25% to component manufacturers over a three-year period. The AIS is an enticement intended to grow and develop the automotive sector through investment in new and/or replacement models and components that will increase plant production volumes, continue employment and/or strengthen the automotive value chain. In addition, by accomplishing certain performance objectives, corporations will be able to earn an additional 5% or 10% (AIEC, 2018:27).

A summary outline of the MIDP and the APDP is presented in Table 3.1.

Table 3.1: Comparison between the MIDP vs APDP

	MIDP (1995 – 2012)	APDP (2013 – 2020)
Tariffs	The level of protection offered by tariffs reduced consistently from 65% and 49% for *CBUs and CKDs, respectively, in 1995, to 25% and 20% in 2012.	The level of protection offered by tariffs will remain constant at 25% and 20% for CBUs and CKDs, respectively, from 2013 to 2020.
Local OEMs Vehicle Allowance	DFA (Duty Free Allowance): 27% of the local assembled vehicle's wholesale price is rebated against the duty payable on imported components that are used in the production of vehicles for the domestic market.	VAA (Volume Assembly Allowance): 20-18% of local assembled vehicle's wholesale price is rebated against the duty payable on imported components that are used in the production of vehicles, irrespective of where the production is sold, as long as annual units per plant exceed 50 000.
Industry incentives	Export linked duty credits earned: Benefits calculated on local material used.	Market neutral PI (Production Incentive) in place: Benefits calculated on local production value. Vulnerable Industries higher benefits.
Investment assistance	**PAA (Productive Asset Allowance):** – Only benefits OEM and Tier 1 suppliers whose investment is linked to a local OEM – 20% benefit, payable over five years (4% per year)	**AIS (Automotive Investment Scheme):** – Benefits OEM and automotive component suppliers, as long as investment is automotive focused – 20-30% benefit to OEMs and 25-35% for component suppliers, payable over three years (6.67% per year)

Source: BMAIS (2015)

*Note: CBU: completely built-up vehicles; CKD: knock-down kit containing the parts needed to assemble a product

The drop of the threshold to 10 000 vehicles per annum demonstrated a strong commitment to the long-term growth of the automotive industry. This should assist in attracting new entrants into the vehicle manufacturing arena who might have been struggling to comply with the preceding threshold of 50 000 vehicles per annum (Deloitte, 2016). Deloitte (2016) stated that this will help in setting the industry growth back on course and increase investor confidence, despite the current economic

climate. This will also help to position South Africa as an attractive vehicle manufacturing destination and advance the competitiveness beside other emerging automotive industries such as Nigeria (Deloitte, 2016).

Econometrix (2018:70) stated that the imports of automotive products into South Africa continue to be a function of domestic market demand, the success of the APDP, and currency movements. Imports of vehicles (determined by domestic market demand), imports of original equipment components (to accommodate vehicle production), as well as imports of replacement parts (for the growing vehicle parc, namely, the total number of vehicles in a region or market) remain high (Econometrix, 2018:70). Venter (2014), however, stated that South Africa's support programmes, such as the APDP, have been criticised in the past for not permitting global market forces to play out as they ought to, leading to increased vehicle prices through import tariffs, and draining the public purse.

Positive automotive industry performance benchmarks and accomplishments to date, according to NAAMSA (2015), include:

- Enormous investment by multi-national vehicle manufacturers (and component suppliers) in manufacturing facilities and developments.
- Substantial model justification has resulted in a reduction from 42 platforms produced in South Africa twenty years ago to 13 platforms today.
- Employment in the vehicle and component manufacturing sectors has held up well.
- The industry's trade shortage has started to decline as a result of solid growth in vehicle exports.
- Official figures confirm continued and sustained growth in component supplier's sales to vehicle manufacturers. Furthermore, the level of domestic value creation has improved dramatically over the past two years due to additional localisation and higher production.

Econometrix (2018:100) stated that major capital expenditure projects by vehicle manufacturers and assemblers over the last few years include:

- Mercedes-Benz SA: R5.4 billion invested to surge capacity at its East London plant to build the new C-class.

- Toyota SA: R1 billion invested in its plant to allow manufacturing of the 2014 Corolla; R363 million in the new parts distribution centre in Gauteng in 2012.
- VWSA: R5.4 billion investment between 2006 and 2012; R500 million investment in 2013 in its Uitenhage production plant; VW announced plans to invest over R4.5 billion in its South African operations over the next two years, which includes over R3 billion in production facilities, and around R1.5 billion in local supplier capacity.
- Ford SA: R3.4 billion investment at its manufacturing and assembly plants in 2011.
- BMW: R2.2 billion in upgrading its local manufacturing facility in 2012.
- Iveco: R830 million investment in a truck and bus assembly plant in Rosslyn.
- IFAW: R600 million assembly plant in Coega, Eastern Cape
- Hino SA: R54 million investment in a new truck plant.

Econometrix (2018:36-40) indicated that the following developments or future capacity expansions have been undertaken or announced by OEMs:

- VWSA: investing over R4.5 billion in its South African operations. This investment would include over R3 billion in production facilities, and around R1.5 billion in local supplier capacity.
- BMW: investing R6 billion in its Rosslyn plant to produce the next generation X3 sport-utility vehicle (SUV) for the South African and export markets.
- Ford: invested R2.5 billion to expand its Silverton assembly plant in Pretoria.
- Nissan: Nissan SA is still in talks with its Japanese parent company regarding the assembly of the new Nissan Navara at its Rosslyn plant. Nissan SA is investing significantly in skills training and development to assist industry initiatives aimed at addressing the shortage of skilled engineers and operators.
- Toyota: invested R6.1 billion in two new production lines at its manufacturing plant in Prospecton, Durban, for the new Toyota Hilux and Fortuner models.
- Mercedes Benz: invested nearly R6 billion in its East London plant in recent years to allow for production of the new C-class and to improve productivity and

efficiency ahead of starting production of the C350e – a C-class plug-in hybrid model.

- GM: disinvesting from SA, as part of restructured global operations.

According to Venter (2016:6), the plans to manufacture new models in South Africa is a positive sign for the long-term growth of the automotive industry. Van Zyl (2015) stated that NAAMSA welcomes the recent investment assurances by a number of the OEMs as a positive step towards grasping the APDP's objective of achieving higher production volumes and higher levels of local content, which will lead to a deepening of the domestic component sector.

On 18 May 2017 it was announced that General Motors (GM) would exit South Africa before the end of the year (ENCA, 2017 & Venter, 2017:1). ENCA (2017) stated that it would mark the end of the US multinational's 13-year tenure in South Africa. GM said that the Japanese manufacturer Isuzu Motors would acquire GM's plant in Port Elizabeth, in the Eastern Cape, combining the operation with its existing Isuzu Trucks South Africa (ITSA) operations, in which it owned the majority stake, to form a single entity called Isuzu Motors South Africa (Venter, 2017:1). According to ENCA (2017) and Venter (2017:3-4), GM is restructuring in a number of different markets to drive stronger global financial performance and their decision had nothing to do with the state of South Africa's economy or political situation. Venter (2017:2) stated that the company also noted that it would continue to work with Peugeot, in France, which earlier this year acquired Opel from GM, to evaluate "future opportunities for the Opel brand in South Africa". Branquinho (2017) identified the six car brands which left South Africa in the most recent period as: Chevrolet, SEAT, Saab, Cadillac, Daihatsu and Citroen.

Government continues to be committed to the further development of the automotive industry in line with the NIPF and IPAP (Davies, 2015). As per the objectives, long-term development of the sector will be accomplished through high vehicle production volumes and related local value addition (AIEC, 2016:22). A post-APDP automotive master plan will be established and will also seek to endorse meaningful transformation of the industry through the inclusion of formerly excluded groups in the whole automotive value chain. According to Molapo, Lamprecht, Bodibe, Mkhungo, Logie, Moothilal and Ngoetjama (2016:30), the South African government

has for a long time, confirmed its desire to support automotive manufacturing through various sector specific policy instruments, of which the APDP is the most recent iteration. While the APDP should be continued as the basis of government support for the automotive manufacturing industry, it is critical that the entire state's supporting architecture and related policies are aligned to ensure industrial growth is realised through automotive manufacturing (Molapo *et al*., 2016:31).

This stability in support has been a major boost for investor confidence (Econometrix, 2018:185). Venter (2014) stated that government continues to be committed to supporting the automotive manufacturing industry, stating that the benefits are greater than the costs. The South African government has backed the local automotive industry since 1961 when Phase I of the Local Content Programme was presented (Venter, 2014). According to Venter (2014), government will remain supportive to the sector as long as it is evident that this is essential to sustain the important benefits the industry brings to the domestic economy. South Africa is no different to any other emerging nation in supporting its automotive sector. South Africa's APDP, in fact, according to Venter (2014), is simple, if compared with other jurisdictions. Furlonger (2016:24) stated that the APDP and the previous MIDP have provided long-term security and confidence for the South African automotive industry. Furlonger (2016:24) further stated that the government-driven programme is set to remain until 2035, which is an additional 19 years.

In portraying the latest version of government's overall industrial policy action plan, Davies said that his division was ready to start deliberations on a successor to the APDP, which will terminate in 2020 (Furlonger, 2016:24). Although the APDP and its forerunner, the MIDP have not enjoyed universal support by the motor industry, critics cannot deny that these strategies have provided long-term certainty, without which investors would have abandoned the South African motor industry (Furlonger, 2016:24).

The APDP has reinforced policy certainty and has led to some of the world's biggest vehicle manufacturers expanding production in South Africa. Le Guern (2016:1) stated that government should secure greater policy certainty, unity and programme alignment across departments and state-owned organisations, but that there is also a need for a considerably stronger collective effort with the private sector in terms of equally beneficial programmes. Moreover, government indicated its confidence in the

industry's long-term future through its assurance that policy support will continue beyond 2020 (AIEC, 2017:25). The South African Automotive Masterplan (SAAM) 2021-2035, according to AIEC (2017:25), will go beyond the APDP and will cover car and light commercial vehicle manufacturing, medium, heavy, extra-heavy truck and bus production, motorcycles and the South African component supplier industry.

The AIEC (2017:25) stated that the final policy provisions of the post-2020 through 2035 programme are expected to cover the following objectives:

- Grow South African vehicle production to 1% of global production;
- Increase local content in South African manufactured vehicles to 60%;
- Double automotive employment in the supply chain;
- Improve automotive industry competitiveness levels to that of leading international competitors;
- Transformation of the South African automotive value chain; and
- Deepen value addition within South African automotive value chains.

Government, according to Econometrix (2018: Appendix), needs to increase its efforts in negotiating trade agreements to support the manufacturing sector (and specifically, the automotive manufacturing industry) through trade policies that will facilitate increased exports. South Africa presently has fewer regional trade agreements than similar emerging markets, such as Brazil or Mexico, or than successful manufacturing exporters such as Germany (Econometrix, 2018:Appendix). An additional factor to contemplate, according to Deloitte (2016), is that lengthy strikes within the automotive industry have shaken investor confidence. Bhuckory (2013) stated that manufacturers, including Toyota, Volkswagen and General Motors, faced a loss in production revenue of about R20-billion after 30 000 workers put down tools for 15 days in 2013 after insisting on higher wages.

Black and McLennan (2015:4) stated that the automotive industry is one of the world's prime industrial sectors and over the past three decades, the centre of gravity in global production has been shifting towards emerging nations, most notably, China, but also to other parts of Asia and Latin America. In nations, such as Korea, Thailand, Brazil and Mexico, the automotive industry has played an imperative role in national development (Black & McLennan, 2015:4). According to AIEC (2017:15),

and Econometrix (2018:44), South Africa's true competitors are other medium-sized emerging market economies, such as Mexico, Egypt, and Thailand, which produce several of the same models as those produced in South Africa. They, however, enjoy the advantage of lower costs and greater proximity to major export markets (including South Africa's top automotive export market) (Econometrix, 2018:44). AIEC (2017:15) stated that South Africa's numerous trade agreements, the possibility of Africa as a future market for exports, and the security that the APDP provides to investors, all combine to offer an attractive proposal to global OEMs, to ensure that continuing investments in the nation's vehicle manufacturing base remain.

Black and McLennan (2015:5) identified three conditions for viable automotive production in emerging nations. The first is a feasible 'automotive space' which refers to a domestic or regional market of satisfactory size to allow production at scale. The second condition is improving manufacturing abilities and competitiveness, and the third condition is supportive policy arrangements which would contain some degree of protection, as well as privileged access to regional markets (Black & McLennan, 2015:5).

Houghton (2016:47) stated that it is strange but true that even though the local vehicle market is decreasing, the general economy is in a downturn, and in addition, the political environment is in chaos, the vehicle manufacturing and exporting business in South Africa is thriving. The driving force behind these endeavours, according to Houghton (2016:47), is undeniably the South African government's automotive industry incentive known as the Automotive Production and Development Programme (APDP).

The automotive industry's performance will be discussed next.

3.5 PERFORMANCE OF THE AUTOMOTIVE INDUSTRY

The AIEC (2018:1) indicated that global vehicle production in 2017 rose by 2.4% to reach a record of 97.30 million vehicles, up from the 95.06 million units produced in 2016. Twenty countries exceeded the one million vehicle production mark in 2017, which is regarded as the international benchmark. China topped the list, with vehicle production rising by 3.2%, or 896 640 units, from 28.1 million units in 2016 to 29.0 million units in 2017. This was followed by the USA with production of 11.2

million units, and Japan with production of 9.7 million units in 2017. Production declined in most of the world's largest vehicle producing economies, including the USA, Germany, South Korea, Spain and Canada, but major growth has been recorded in Mexico, Brazil, Turkey and Iran. Production increasingly focused on high growth markets, or economies adjacent to large developed markets.

The AIEC (2018:12) indicated that South Africa is regarded as a global second tier player, and forms part of the group of countries producing below one million vehicles per annum. The subsidiaries in the country are therefore not the lead manufacturers of specific models for the world market, such as the Toyota Hilux of which the lead manufacturer is Thailand (Bubear, 2018). Global component sourcing decisions are therefore not promoted in South Africa, and these generally impact on scale economies for new and existing component suppliers in the country.

3.5.1 South African vehicle production

South African vehicle production declined to 592 145 vehicles in 2017, down 1.3% from the 600 008 units produced in 2016. However, the country's global vehicle production ranking remained at 22nd in 2017, with a market share of 0.61%. In terms of global LCV (light commercial vehicles, such as delivery vans) production, South Africa was ranked 15th with a market share of 1.25%, while with regard to global passenger car production, the country was ranked 26th, with a market share of 0.44%. On the African continent, Morocco is starting to catch up to South Africa, and is conveniently positioned next to the EU market (AIEC, 2018:11).

Table 3.2 reveals the global vehicle production by country for 2016 and 2017.

Table 3.2: Global vehicle production by country – 2016 to 2017

Country	Total units produced 2016	Total units produced 2017	Passenger cars	Commercial vehicles
1. China	28 118 794	29 015 434	24 806 687	4 208 747
2. USA	12 180 301	11 189 985	3 033 216	8 156 769
3. Japan	9 204 813	9 693 746	8 347 836	1 345 910
4. Germany	5 746 808	5 645 581	5 645 581	-
5. India	4 519 341	4 782 896	3 952 550	830 346
6. South Korea	4 228 509	4 114 913	3 735 399	379 514
7. Mexico	3 600 365	4 068 415	1 900 029	2 168 386
8. Spain	2 885 922	2 848 335	2 291 492	556 843
9. Brazil	2 156 356	2 699 672	2 269 468	430 204
10. France	2 090 279	2 227 000	1 748 000	479 000
11. Canada	2 370 666	2 199 789	749 458	1 450 331
12. Thailand	1 944 417	1 988 823	818 440	1 170 383
13. UK	1 816 622	1 749 385	1 671 166	78 219
14. Turkey	1 485 927	1 695 731	1 142 906	552 825
15. Russia	1 303 544	1 551 293	1 348 029	203 264
16. Iran	1 282 172	1 515 396	1 418 550	96 846
17. Czech Republic	1 349 896	1 419 993	1 413 881	6 112
18. Indonesia	1 177 797	1 216 615	982 356	234 259
19. Italy	1 103 305	1 142 210	742 642	399 568
20. Slovakia	1 040 000	1 001 520	1 001 520	-
21. Poland	681 834	689 729	514 700	175 029
22. South Africa	600 008	592 145	322 275	269 870
Global	**95 057 929**	**97 302 534**	**73 456 531**	**23 846 003**

Source: AIEC (2018:12)

Total global new vehicle sales, as reported by the International Organisation of Motor Vehicle Manufacturers (OICA), increased by 3.1% to 96.80 million units in 2017, compared to the 93.91 million units sold in 2016. The global new vehicle market

performed well in 2017, with established economies maintaining growth, while developing markets, such as Russia and Brazil, returned to growth, following declines in 2016. India continued its rapid growth trajectory, with the country posting a new vehicle year-on-year sales increase of 9.5%, which allowed it to overtake Germany, which grew by a modest 4.8% in 2017, to become the fourth largest new vehicle market in the world. South Africa, with 557 701 vehicles sold in 2017, was ranked 23rd in the world in terms of global vehicle sales with a market share of 0.58% (AIEC, 2018:12).

Odendaal (2016:1) maintained that South Africa's automotive sector is a success story in an otherwise embattled manufacturing industry. According to Steyn (2013), governments around the world are rolling out the red carpet for the automotive industry in the form of investment enticements, such as lowered tariffs and rebates. However, although South Africa is no different, its enticements, which are considered very generous by some, are nowhere near good enough to earn it the title of the most favoured investment destination in the world (Steyn, 2013).

NAAMSA (2015) stated that the automotive industry continues to be the largest and leading manufacturing division in the domestic economy. The vehicle and component manufacturing industries accounted for 30.1% of South Africa's manufacturing output, while the broader automotive industry contributed 6.9% to the country's GDP in 2017 (AIEC, 2018:5). The automotive industry also has strong associations with other industries throughout the South African economic landscape, from raw-materials suppliers through to financial services, motor retail and advertising (NAAMSA, 2015). According to Econometrix (2018:163), substantial structural alterations have taken place in the South African automotive industry; it has grown in stature to become one of the largest and most internationally competitive manufacturing sectors in the nation's economy.

3.5.2 Key performance indicators under the MIDP and APDP

The automotive industry's accomplishments include higher levels of vehicle production and vehicle exports, substantial investments by multi-national automotive corporations in manufacturing facilities in South Africa, substantial model justification, employment steadiness, and an increasingly positive addition by the industry to South Africa's balance of payments. The automotive industry, according

to AIEC (2016:87), is vital to the South African government's efforts to industrialise and re-industrialise the nation's economy, as South Africa is increasingly being acknowledged as an integrated global manufacturing base for vehicles and automotive mechanisms. The automotive industry's performance is centred on a partnership approach between OEMs (as essential drivers of the automotive supply chain) and government (AIEC, 2016:87). Key performance indicators under the MIDP: 1995 vs 2012 are illustrated in Table 3.3.

Table 3.3: Key performance indicators under the MIDP: 1995 vs 2012

Activity	1995	2012
Capital expenditure by the OEMs	R847 million	R4.7 billion
Export value (vehicles and components)	R4.2 billion	R86.9 billion
Total vehicles exported (units)	15 764	277 893
Top vehicle export destinations	1. China 2. Zimbabwe 3. Malawi	1. USA 2. UK 3. Algeria
Top automotive components exported	1. Stitched leather seat parts 2. Catalytic converters 3. Tyres	1. Catalytic converters 2. Engine parts 3. Silencers / exhaust pipes
Top vehicle countries of origin: imports	1. Germany 2. Japan 3. UK	1. Germany 2. India 3. Japan
Productivity (Average number of vehicles produced per employee)	10.0	18.5
Automotive industry contribution to GDP	6.5%	7.0%
Number of passenger car model derivatives	356	2 159
Export destinations for vehicles and components	62	152
Total vehicles produced (units)	389 392	539 538
Total new vehicle sales (units)	399 967	624 035
Number of model platforms	41	13

Activity	1995	2012
Models with production volumes > 40 000 units	0	5

Source: AIEC (2013:20)

Other key performance data for the period 1995 to 2012 is summarised as follows (AIEC, 2013:29):

- Total nominal export value of vehicles and automotive components between 1995 and 2012 – R772,2 billion;
- Total number of vehicles exported between 1995 and 2012 – 2 411 277 units;
- Total nominal capital expenditure by the OEMs between 1995 and 2012 – R48.6 billion;
- Total nominal expenditure on training by the OEMs between 1995 and 2012 – R1.85 billion;
- A compounded annual growth rate of 19.5% in nominal rand value terms for completely built-up vehicles (CBUs) and automotive component exports has been achieved since 1995 through to 2012; and
- Total automotive industry exports (CBUs and components) in rand value terms increased more than twenty-fold from the R4.2 billion in 1995 to R86.9 billion in 2012.

The production of passenger car and LCVs for the period: 1995 to 2012 is depicted in Table 3.4. The impact of the global financial crisis of 2008/2009 is evident from the table.

Then the key performance indicators under the APDP from 2013 to 2017 are illustrated in Table 3.5 following that.

Table 3.4: Production of passenger car and LCVs – 1995 to 2012

	PASSENGER CARS				LIGHT COMMERCIAL VEHICLES			
	Market			Exports as a % of total	Market			Exports as a % of total
	Domestic	Exports	Total		Domestic	Export	Total	
1995	233 512	8 976	242 488	3.7	127 363	6 356	133 719	4.8
1996	231 616	3 743	235 359	1.6	128 516	7 125	135 641	5.3
1997	215 784	10 458	226 242	4.6	113 204	8 000	121 204	6.6
1998	174 870	18 342	193 212	9.5	98 056	6 806	104 862	6.5
1999	159 944	52 347	212 291	24.7	95 326	6 581	101 907	6.5
2000	172 373	58 204	230 577	25.2	104 121	9 148	113 269	8.1
2001	172 052	97 599	269 651	36.2	113 111	10 229	123 340	8.3
2002	163 474	113 025	276 499	40.9	101 956	11 699	113 655	10.3
2003	176 340	114 909	291 249	39.5	102 007	11 283	113 290	10.0
2004	200 264	100 699	300 963	33.5	123 467	9 360	132 827	7.0
2005	210 976	113 899	324 875	35.1	146 933	25 589	172 522	14.8
2006	215 311	119 171	334 482	35.6	159 469	60 149	219 618	27.4
2007	169 558	106 460	276 018	38.6	156 626	64 127	220 753	29.0
2008	125 454	195 670	321 124	60.9	118 641	87 314	205 955	42.4
2009	94 379	128 602	222 981	57.7	85 663	45 514	131 177	34.7
2010	113 740	181 654	295 394	61.5	96 823	56 950	153 773	37.0
2011	124 736	187 529	312 265	60.1	108 704	84 125	192 829	43.6
2012	121 677	153 196	274 873	55.7	112 118	123 623	235 741	52.4

Source: AIEC (2013:29)

Table 3.5: Production of passenger cars and light commercial vehicles – 2013 to 2017

	PASSENGER CARS				LIGHT COMMERCIAL VEHICLES			
	Market			Exports as a % of total	Market			Exports as a % of total
	Domestic	Exports	Total		Domestic	Export	Total	
2013	113 356	151 893	265 249	57.3	127 051	121 345	248 396	48.9
2014	122 610	154 920	277 530	55.8	137 044	118 585	255 629	46.4
2015	112 576	228 459	341 035	67.0	140 790	102 664	243 454	42.2
2016	97 824	237 715	335 539	70.8	130 364	104 987	235 351	44.6
2017	100 354	230 957	331 311	69.7	136 438	105 862	242 300	43.7

Source: AIEC (2018:17)

From the above table it becomes evident that the APDP's vision of doubling vehicle production in the country to around one million units per annum by 2020 will not be realised.

3.5.3 Contribution made by the domestic automotive industry

The following table highlights the significant social and economic contribution made by the domestic automotive industry in the context of the South African economy for the years 2016 and 2017.

Table 3.6: Key performance indicators – 2016 to 2017

Indicator	Performance	
	2016	**2017**
Population	55.91 million	56.52 million
Consumer Price Index (CPI)	6.3%	5.3%
South Africa's GDP (current prices)	R4 350.3 billion	R4 651.8 billion
Broader automotive industry contribution to GDP	7.4%	6.9%
Vehicle and component production as % of South Africa's manufacturing output	33.0%	30.1%
Average monthly employment by vehicle manufacturers	30 953	30 050
Automotive component sector employment	82 000	80 000
Capital expenditure – vehicle manufacturers	R6.4 billion	R8.2 billion
Capital expenditure – component sector	R2.6 billion	R4.0 billion
Total South African new vehicle sales	547 546 units	557 701 units
Total South African vehicle production	600 008 units	592 145 units
South Africa's vehicle production as % of Africa's vehicle production	58.5%	55.6%
South Africa's global vehicle production ranking	22nd	22nd
South Africa's global vehicle production market share	0.63%	0.61%
Vehicle ownership ratio per 1 000 persons	173	176
Number of registered vehicles	11.96 million	12.21 million
Total automotive export earnings	R171.1billion	R164.9 billion

Indicator	Performance	
	2016	2017
Automotive export value as % of total South African export value	15.6%	13.9%
Number of export destinations	154	149
Number of export destinations with export values more than doubling year-on-year	52	16
Top automotive country export destination in rand value terms	Germany	Germany
Total South African vehicle exports	344 821 units	329 060 units
Value of vehicle exports	R118.1 billion	R114.6 billion
Top vehicle export destination in volume terms	UK	UK
Value of automotive component exports	R53.0 billion	R50.3 billion
Top automotive export component category in rand value terms	Catalytic converters	Catalytic converters
Top automotive trading partner in rand value terms	Germany	Germany
Top automotive trading region in rand value terms	EU	EU
Top country of origin for total automotive imports in rand value terms	Germany	Germany
Top country of origin for vehicle imports	India	India

Source: AIEC (2018:6)

Total automotive revenue in the ambit of the automotive business sphere in South Africa amounted to over R500 billion in 2017. Exports of automotive products in 2017 accounted for R164.9 billion, equating to 13.9% of total South African exports. Although the automotive export revenue declined in 2017 due to a stronger rand exchange rate and the time effect of major new model introductions during the fourth quarter of 2017, the figure still represents the second highest level of export on record.

According to Econometrix (2018:v), approximately 470 000 people are directly employed by the formal and informal automotive sector supply chain, and through its linkages with various other sectors, the automotive industry supports 900 000 highly and semi-skilled employees throughout the South African formal sector employment.

The average earnings in automotive manufacturing, at R261 282 per annum in 2017, was higher than the average salary in South Africa at R257 970. When the direct, indirect and induced impact of the automotive industry's value chain are taken into consideration, the industry's contribution to the country's GDP comprised 7.7% in 2017 (Econometrix, 2018:v).

According to Barnes *et al.* (2016:33), the long-term performance indicators suggest a somewhat positive development picture, given the fact that the industry has been positioned in a disappointing economy. To date the costs of liberalisation have been moderately low (Barnes *et al*., 2016:33). Barnes *et al.* (2016:33) stated that although the share of imports has grown sharply, there has been a rapid increase in exports of both vehicles and components. While there has been some employment loss, the automotive sector has fared reasonably well in comparison to manufacturing as a whole (Barnes *et al.*, 2016:33).

Barnes *et al.* (2016:33) however, stated that policy has also produced misrepresentations, encouraged uneconomic investments and led to unexpected side effects. These impacts limit the improvements that have been made and have caused difficulties in the transition procedure to the APDP (Barnes *et al.*, 2016:33). Barnes *et al.* (2016:33) stated that one of the most noticeable changes has been the swift growth in exports and imports. The orientation of the industry shifted away from its focus on the small domestic market (Barnes *et al.*, 2016:33). Barnes *et al.* (2016:33) further stated that another important outcome of the swift export expansion was the rising ability to rebate import duties, which added significantly to import pressure on the industry.

Furlonger (2016:24) projects that the APDP alone has already enticed about R50 billion in investments – either spent or committed. Davies stated that "A post 2020 master-plan will create a framework to secure even higher levels of investment and production" (Furlonger, 2016:24). Deloitte (2016) stated that the DTI has to be careful, and apart from listening to all the contributors, it should also abstain from making fundamental changes that can erode investor confidence. One central weakness, according to Furlonger (2016:24), of government's incentives-based programmes of the last 20 years is that virtually all the enticements have gone to foreign corporations. South Africa's vehicle manufacturers are entirely foreign-

owned, as are practically all component suppliers that deliver parts straight to assembly lines (Furlonger, 2016:24).

Barnes and Black (2013:32) stated that in the early 1990s, the South African automotive sector was generally regarded as ineffective and uncompetitive, and ultimately dependent on heavy protection for its survival. The period 1995 to 2012 was a phase of rapid change (Barnes & Black, 2013:32). According to Barnes and Black (2013:32), the long-term performance indicators (presented in Table 3.4) suggest a fairly positive development picture, given the fact that the industry has been located in an underachieving economy. One of the most remarkable changes has been the quick growth in exports and imports (Barnes & Black, 2013:33). According to Molapo (2016:31), a long-term vision and masterplan for the sector, with clear roles and commitments allocated to key stakeholders, are essential to guaranteeing the long-term success and viability of the South African automotive sector.

3.5.4 Automotive investments

The AIEC (2016:18) stated that the SA government has instituted vigorous attempts to entice automotive investments through policy and support measures. This is primarily due to the vast investment necessary to set up a plant, as well as in recognition of the benefits that automotive investments generate in terms of economic growth, employment, monetary contributions, technology transfer and the multiplier effect on the larger economy. When the South African industry, according to Econometrix (2018:29), moved from assembly to manufacturing, essentially starting with the 1963 local content programme, the core motivation was strategic, with the South African government of the day identifying the need to provide employment, encourage investment, and secure the nation's vehicle supply in a world becoming more and more hostile to the nation's apartheid policies. The MIDP, effected in 1995, and its successor, the APDP, effected in 2013, signify some of the most innovative programmes to maintain a domestic vehicle and component manufacturing industry, which has continued to add positively to the South African economy and society (AIEC, 2016:18).

3.5.5 Reasons for government support of the automotive industry

As stated previously, as a crucial partner in the development and growth of the domestic automotive industry, government's loyalty to and assurance in the future of the industry is demonstrated in its development policy systems in the form of the MIDP and APDP, as well as their guarantee that policy support will carry on beyond 2020 (AIEC, 2016:87). However, Deloitte (2016) stated that South Africa first needs to entice vehicle manufacturers to settle locally.

According to AIEC (2016:87), the automotive manufacturing sector has a substantial impact on the economy and has been recognised as one of the industries with the highest potential for maintainable export growth, in addition to making a significant contribution to the socio-economic upliftment in the country (AIEC, 2016:87). Yet, for the most part, manufacturing, according to Barnes *et al.* (2016:3), is not a sector where growing employment is generated. The automotive industry is definitely not labour intensive and is not a key employer in its own right (Barnes *et al.*, 2016:15).

Jordaan and Jeffrey (2017:26) and Econometrix (2018:13) stated the following reasons as to why government support is essential for the automotive industry:

- Re-industrialisation is essential for the revival of economic growth and employment in the South African automotive industry, as it has been identified as one of the sectors that has the most potential to reach this goal.
- The automotive industry is a vital job driver in South Africa's economy via the multiplier effect.
- The automotive industry makes a substantial contribution to South Africa's economy as a whole (in terms of GDP, employment, compensation, government revenue, exports and capital investment). The industry is of vital importance to the domestic economy.
- Policy stability (continuation of government support programmes for the automotive industry) is crucial to attract new investment, and it is a motivating factor for OEMs to stay in the country and to make long-term investment decisions (despite challenges such as labour uncertainty).

- Loss of the automotive manufacturing industry (as a result of policy uncertainty) would result in huge losses to South Africa's GDP, employment and government revenue.
- Socio-economic contribution of the seven OEMs is essential in contributing to social upliftment of societies.
- The industry has substantial up- and downstream linkages to other sectors in primary, secondary and tertiary sectors. A possible closure of the automotive sector will have an acute negative impact on these sectors (many of whom are small & medium size corporations).
- Policy changes to improve localisation (by exploiting our main competitive advantage, namely our natural resources) will support in growth of SMMEs, and boost employment (particularly of unskilled & semi-skilled employees).

3.5.6 Why South Africa needs the automotive industry

Econometrix (2018) summarised the industry's economic contributions as to why South Africa needs the vehicle and component manufacturing industry as follows:

- Advanced, high technology new vehicle manufacturing and associated industrial activities have elevated SA's image and reputation, globally and regionally, as the foremost industrial economy in Africa.
- The industry supports and stimulates economic activity through the automotive value chain covering the primary, secondary and tertiary sectors of the economy.
- Upstream and downstream activities generate additional income and tax revenue which induce further economic benefits.
- Vast linkages across these raw material supplier, manufacturing and service result in a larger multiplier effect by the industry on the domestic economy.
- Vehicle manufacturing represents the largest contribution to the automotive industry's GDP impact, namely, 4.5%, with the retail and servicing segments accounting for 2.7%.
- Automotive manufacturing is a key contributor to the SA manufacturing output, and accounted for 30.1% of the total SA manufacturing output in 2017.

- The automotive industry's strong linkages to other sectors – taking into account direct and indirect impact of its value chain – resulted in a contribution of 7.1% to GDP in 2016, rising to 7.7% in 2017.
- Total direct employment in the industry amounted to 468 502 persons in 2017. Factoring in linkages with other industries, the automotive industry supports 900 000 employees throughout the formal sector.
- In 2017, total automotive industry average annual earnings amounted to R221 258.
- In 2015, the automotive industry contributed 6.6% or R73 billion of the total SA tax revenue. These figures would be higher for 2016 and 2017.
- For 2017, the total automotive exports, vehicles and components, at R165 billion, contributed 13.9% of SA's total exports.

The significant influence of the automotive industry on the economy, as well as its considerable contribution to socio-economic investments in the nation, strengthens the need for government support (Econometrix, 2018:185). The automotive industry is fundamental to the South African government's efforts to change and re-industrialise the nation's economy. As South Africa is gradually gaining a reputation as a world-class manufacturer of automobiles, government ought to work as a partner to push this potential forward (Econometrix, 2018:185). NAAMSA (2015) stated that the MIDP, implemented in 1995 and its successor the APDP, implemented in 2013, embody some of the most innovative and successful programmes to support the domestic vehicle and component manufacturing industry which has continued to add positively to the South African economy and society. Having said that, South Africa still remains a small player in the global context.

The critique and negative perceptions about the MIDP and the APDP will be discussed next.

3.6 CRITIQUE AND NEGATIVE PERCEPTIONS ABOUT MIDP AND APDP

According to Chipfupa (2016), government has a lot of confidence in vehicle manufacturers as the engine of the South African manufacturing division, and provide support to the industry to navigate its growth and exports, which helps to explain why

the bulk of government incentives to the industry currently goes to automobile manufacturers. Following objections about the failure of prices to respond as anticipated to the appreciation of the rand, the Competition Commission performed an investigation into domestic vehicle pricing (Flatters, 2005). According to Flatters (2005), the failure of policymakers to appreciate the costs of such an imperative programme raises serious questions about the government's ability to design and manage sector-specific policies, and about the accountability and transparency of procedures for monitoring and revising them.

Flatters (2005) further stated that the MIDP generates considerable incentives to investments and to production for export and the domestic market. Products for the domestic market benefit from tariff protection against imports and from the duty-free allowances, which offsets the cost-raising effect of import duties on components (Flatters, 2005). Flatters (2005) stated that customers pay for this through prices that are higher than they would be in the absence of the import duty on vehicles, and the Treasury pays by foregoing customs duties on components.

Chipfupa (2016) stated that there are still worries that the tens of billions of rands of government support paid out each year to the automotive sector could be better focused. The main concern which has been raised by automotive component suppliers, is that a lot of support is given to global vehicle manufacturers, without seeing adequate localisation and value addition (Chipfupa, 2016). Chipfupa (2016) stated that although automobiles might be manufactured in South Africa, a lot of the automotive units (cars) that are exported will have been assembled mainly by using imported components.

As previously stated in Section 1.2.2, it is a concern that companies in the automotive component sector, which by and large are SMEs, did not get the boost they required in the latest APDP evaluation (Chipfupa, 2016). Chipfupa (2016) stated that even though the component manufacturers were given sufficient opportunity to express their concerns, these concerns have still not been adequately addressed. It appears that the government is still not putting sufficient pressure on the manufacturers to import less components and to source more locally (Chipfupa, 2016).

Donnelly (2013) stated that critics of South Africa's industrial policy argue that the main concern for taxpayers and customers is that government is supporting and

sustaining an industry whose success has been determined by the level of government support rather than by its own competitiveness. According to Donnelly (2013), the problem is likely to continue under the APDP because a R9-billion surplus in these credits is still left over from the MIDP. The trade deficit was consistent with the analysis that the capability of the MIDP and other government policies to attract investment and promote exports do not reflect the industry's competitiveness but rather the value of government enticements (Donnelly, 2013).

Cokayne (2014) stated that some fine-tuning of the APDP elements is necessary but doubted that structural changes were needed, which means that the APDP can be seen as an extension of the MIDP. According to Cokayne (2014), it would be counterproductive to the intention of creating long-term industry steadiness and attracting global investment to South Africa if the government changed the automotive industry enticement programme considerably every two or three years.

Davies, the minister responsible for the DTI, signified the need for an early review of the APDP in 2012 because some automotive component manufacturers were facing complications in the transition from the MIDP to the APDP as the architecture of the APDP implied that some components might no longer receive the same level of enticements they qualified for under the MIDP (Cokayne, 2014). Cokayne (2014) further stated that some of the elements to reach the targets were present although some were still missing, including finding a way to make cars more affordable and drive up demand. The cumulative taxes on some vehicles were more than 40% of the retail price and some people question whether there is a way to restructure the taxes to improve consumer affordability and to grow the vehicle market, while also growing the gross revenue that the government obtained (Cokayne, 2014).

Donnelly (2013) stated that the APDP, much like its MIDP predecessor, comprises a productive asset allowance, a duty-free allowance and a tariff element. Variances between the programmes, comprise:

- An investment allowance under the APDP in the form of a cash grant;
- A duty-free allowance that is lower under the APDP but which is earned on all vehicles assembled locally. Only those assembled and sold in the local market qualified under the MIDP;

- Import rebates earned under the APDP are based on the local production of light motor vehicles and not on exports, as under the MIDP; and
- Import tariffs under the APDP are constant, but gradually declined under the MIDP.

According to Donnelly (2013), the latest reports about the size of the trade discrepancy have been used to inaccurately claim that South Africa would have been better off without automotive support programmes. The reality is that the nation would not have imported fewer cars, and instead of a R136 billion deficit, the trade deficit would have surpassed R200-billion, and the economy would be without a major non-commodity export industry in the face of falling commodity prices (Donnelly, 2013). Donnelly (2013) further stated that the costs of supporting the automotive industry are far outweighed by the economic benefits and multipliers to the economy, including employment retention and creation in the industry associated with up- and downstream divisions. According to Furlonger (2016:24), one factor critics of the APDP and its predecessor, the MIDP, cannot deny is that these initiatives have provided long-term confidence in South Africa's automotive industry – without which investors would have stayed away.

The critique and negative perceptions about the MIDP and the APDP should, however, be weighed up against the positive contribution of the automotive industry to the South African economy and the impact on the country's economy should the automotive sector disappear.

It should also be recognised that there are many external factors impacting on the automotive industry which government support programmes have no control over and which will be discussed next.

3.7 INTERVENTIONS OR BUILDING BLOCKS TO SUPPORT GOVERNMENT POLICIES

Econometrix (2018:162) stated that the following are some aspects related to policy support for the South African automotive industry:

- Due to its strong backward linkages through the broader economy and its capability as critical job driver in the nation's economy, the South African government identified the automotive industry as a crucial sector in its Industrial

Policy Action Plan (IPAP) – first launched in 2007 – and developed policy measures to support the industry.

- South Africa has offered support to its automotive industry since 1961. Government has acknowledged that the accomplishment of its economic objectives will mostly depend on the ongoing success of the domestic automotive sector as one of the priority sectors.
- The MIDP was planned to assist the industry to grow in spite of the new competitiveness challenges that arose in 1994. The predominant objective of the MIDP for light vehicles was to enhance the industry's competitiveness to such an extent that it would survive in the long-term under less protection.
- The government addressed various concerns in the APDP, with the programme being focused on local production enticements, rather than export enticements.
- One of the attractions of South Africa's automotive policy over the past two decades has been its long-term vision and stability. The APDP has reinforced policy confidence, which is critical for the industry to make long-term investment decisions, and as a result the competitiveness of South Africa's automotive industry has been considerably boosted by the APDP. The stability of the MIDP and APDP programmes (17 years and 3 years, respectively), as well as general government policy consistency, attracted global investment, and incentivised OEMs to stay in the country. The APDP has led some of the world's biggest car makers to grow production in South Africa – in Durban (Toyota), East London (Mercedes-Benz), Uitenhage (Volkswagen) and Port Elizabeth (General Motors). BMW, Nissan, Fiat and Ford all have plants in Tshwane, Gauteng.
- The review of the APDP in 2014 was directed at considering the effectiveness of current support measures for the industry, recognising shortcomings and recommending potential changes or improvements to the programme.

Ambe and Badenhorst-Weiss (2013) stated that the automotive industry is confronted with some of the most challenging and difficult situations, so OEMs are scrambling to cut production and cut manufacturing costs. They are obligated to improve quality, enhance styling, increase organisational efficiencies and drive innovative features into their products in an effort to entice customers and expand into new markets (Ambe & Badenhorst-Weiss, 2013). According to Ambe and

Badenhorst-Weiss (2013), the automotive industry has been faced with problems such as: a considerable reduction in product life cycles; environmentally friendly products; a reduction in the time-to-market and product development costs; the strengthening of communication channels in supply chains in general; quality and general customer service improvements; the pressure to supply new markets; strong pressure for price and delivery time reduction; the strengthening of relationships and the quick introduction of new products; both in geographical terms and in terms of new products. Government trade, safety and environmental principles are also prominent factors affecting the automotive industry (Ambe & Badenhorst-Weiss, 2013). Ambe and Badenhorst-Weiss (2013) stated that it is clear that supply chain challenges might stem from the external environment, the consumers, competition and the auto industry.

According to Price (2017:16), the recent downgrade of South Africa's credit rating to junk status has strong consequences for the nation's automotive industry. Any credit downgrade influences investor confidence and has a strong effect on the value of local currency as well as on debt settlement. Price (2017:16) stated that from an OEM viewpoint, an increase in the cost of imported components will have a negative impact, while local component manufacturers who feed into the value chain will be similarly affected. Obtaining foreign Tier 1 and Tier 2 component manufacturers into South Africa to invest in the local automotive value chain will turn out to be even more difficult (Price, 2017:16).

In view of the various factors impacting the automotive industry which fall outside of the control of the APDP, it is recognised that the APDP on its own will not be able to achieve its 2020 vision without the support and co-ordination of a number of distinct factors, including the alignment between all stakeholders. NAAMSA compiled a "Roadmap to automotive industry sustainability" which includes and outlines the following building blocks or key strategic interventions, amongst others, needed to complement and deliver on the APDP objectives (AIEC, 2017:29 & Econometrix, 2018:203):

- Stability in official automotive policy,
- The automotive industry is a vital job driver in South Africa's economy via the multiplier effect,

- Stable industrial relations environment,
- Progressive, sustained supplier competitiveness improvement,
- Effective beneficiation strategy,
- Reductions in infrastructure, logistics and other input costs,
- Market growth through a review of vehicle taxes,
- Introduction of Euro V fuel quality,
- Incentives for low/zero emission vehicles,
- Support for strategic sectors,
- Development finance at preferential rates,
- Preferential procurement

The impact on the South African economy should the automotive industry disappear will be discussed next.

3.8 DEATH OF THE AUTOMOTIVE INDUSTRY

This section will discuss the impact on the South African economy should the automotive industry disappear. This discussion refers to the Australian automotive industry as a case study.

According to Molapo *et al.* (2016:1), stakeholders in the South African automotive industry have used the Australian automotive industry as its benchmark for decades. Barnes *et al.* (2016:7) stated that all shareholders in South Africa were able to agree on the basic architecture which drew on the 1985 Australian Passenger Motor Vehicle Manufacturing Plan, more generally known as the 'Button Plan', that entailed duty phase-downs and a facility under which vehicles and component exporters might rebate import duties (see Section 3.3). Barnes *et al.* (2016:8) stated that a significant difference from the Australian plan was the fact that import credits might be earned on the full domestic content value of exports, including raw material content.

In the Button Plan, only value added within the automotive industry qualified. According to Barnes *et al.* (2016:8), the result of this difference was that the MIDP provided a strong export enticement, even on products with high raw material content

and consistently low ‘automotive value added’. Barnes *et al.* (2016:8) stated that very rapid growth, particularly of raw material intensive components, such as automotive leather and catalytic converters, led to a swift decline in protection for the component sector, and was a deterrent on the part of vehicle assemblers to increase their local content level.

According to Econometrix (2018:127), the death of the automotive manufacturing industry in Australia is an example of how rapidly production can be moved to other locations where an enabling policy environment exists. A closure (which will result in all vehicles having to be imported) will have a shattering effect on the rest of the economy, due to its effect on major adjacent industries linked to the automotive industry, for example, upstream and downstream supplies in the mining, manufacturing, trade industry and services sector will be impacted (Econometrix, 2018:xviii). Venter (2014) stated that estimates show that the termination of the three car plants in Australia will decrease the nation’s GDP by about A$25 billion.

According to Venter (2014), in 2008 Australia manufactured vehicles at a lower cost than the USA. Yet, the demand for raw materials in China saw the resource-rich Australian dollar increase in value by 40% in a very short period (Venter, 2014). According to Venter (2014), this, joined with a quick increase in energy and labour costs, saw vehicle production in Australia become 30% more expensive than the USA. An additional reason for the Australian assembly sector’s decease had been a pullback in government grants (Venter, 2014).

All remaining Australian-based automotive manufacturers, Holden, Ford and Toyota, announced that they aim to stop production in Australia, with the last closure by the end of 2017 (Lee, 2015). Venter (2014) stated that in 2017, manufacturing was duly stopped, with only truck assembly remaining. Mitsubishi had already closed down in 2008; Ford stopped in 2013, trailed by a similar announcement by General Motors’ Holden operation. Toyota said that it too would be closing down its plant, mentioning the strong Australian dollar, the cost of manufacturing and low economies of scale as reasons (Venter, 2014).

According to Venter (2014), two vehicle manufacturers would have remained if they had been able to renegotiate a minor change in the government support package.

Government, though, made it clear that it no longer wanted to host the assembly plants (Venter, 2014).

According to Venter (2014), the following motives were mentioned by OEMs for deciding to move:

- There are no economies of scale in Australia;
- Logistics costs for vehicles and components to reach key markets from the geographically distant Australia are high, while import costs are also expensive, compounded by high utility charges;
- Australia is a high-cost vehicle manufacturer by global standards, with small production volumes;
- The strong Australian dollar renders exports economically unrealistic, further curbing production scale;
- Low import tariffs allow for a number of imported vehicles to compete with locally manufactured models;
- Import duty went from 15% to 5% in seven or eight years (the tariffs reduced too much too quickly);
- The roughly A$500-million a year support offered by the Australian government to the automotive industry was also “small compared with what is provided in other competing countries”.

Is it possible for South Africa’s automotive sector to fall prey to the same fate as Australia? Venter (2014) stated that domestic production of vehicles in South Africa was around 550 000 vehicles in 2013. This is double the size of Australia’s, with seven car assemblers active in the country, compared with only three in Australia (Venter, 2014). According to Venter (2014), if South Africa wants to keep the vehicle manufacturing industry, they need:

- Adequate levels of government assistance and protection;
- Certainty and predictability in the automotive support regime;
- Despite strikes, South Africa’s automotive labour costs continue to be competitive, judged against Europe and Japan, but South Africa at present cannot compete with nations such as India;

- Although a weak rand helps exporters, it also enlarges cost pressure that will see inflation catch up with component and vehicle manufacturers;
- South Africa should control “excessively high and rising utility and logistics costs”.

What happened in Australia ought to send a strong message to policy-makers in all automotive manufacturing nations about “what not to do”. The question to ask is: How did an advanced economy such as in Australia lose its car manufacturing industry? And, can the same also happen in South Africa? If the South Africa automotive manufacturing industry should follow in the Australian footsteps, it will have devastating consequences for the domestic economy (Le Guern, 2016:3; Econometrix, 2018:126). According to Le Guern (2016:3), there would be no supplier development, no black empowerment, no supply chain, and no skills and technology spill-over effects without the existence of OEMs in South Africa. Venter (2014) stated that the following danger signs would indicate that South Africa’s automotive industry may just follow in the footsteps of Australia’s soon-to-be-obsolete vehicle assembly sector: a fast increase in costs, mainly in labour and energy; an incapability to produce goods competitively because of volumes issues; and the growth of a new regional market, such as in Nigeria.

Econometrix (2018:126) stated that if the motor manufacturing industry in South Africa does not obtain the necessary domestic and international support, with regards to the essential investment in infrastructure and skills and innovation that are required to increase profitability, productivity and economies of scale to grow the industry, other countries could just grab the opportunity to become more of a lucrative environment for motor manufacturers. According to Econometrix (2018:xvi), the loss of the automotive industry (as a result of policy uncertainty) would end with a colossal loss to the nation’s GDP, employment and government revenue.

Econometrix (2018:130) stated that due to the strong upstream and downstream linkages of the automotive industry through the primary, secondary and tertiary sectors of the economy, the termination of the industry will have an intensified economic impact (see Table 3.7):

Table 3.7 illustrates the estimated economy-wide impact (GDP, employment, compensation) of the closure of the automotive manufacturing industry.

Table 3.7: Estimated economy-wide impact of the closure of automotive manufacturing industry

	Impact of ceasing manufacturing of vehicles & parts	Impact of ceasing manufacturing of vehicles and parts and importing all vehicles
GDP/GVA impact (Rm)	-186 807	-218 613
% of GDP	-6.0%	-7.0%
Employment (Formal)	**-588 453**	**-588 453**
Highly skilled	-111 874	-111 874
Skilled	-274 792	-274 792
Semi-skilled and unskilled	-201 786	-201 786
Informal	**-81 953**	**-81 953**

Compensation of employees by education level	Compensation (R million)
Labour with primary school education (grades 1-7)	-5 209.0
Labour with middle school education (grades 8-11)	-17 384.5
Labour completed secondary school education (grade 12)	-27 330.9
Labour with tertiary education (certificates, diplomas or degrees)	-34 562.1
Total	**-84 486.5**

Source: Econometrix (2018:130)

Econometrix (2018) summarised the consequences of losing the automobile industry as follows:

- In Australia insufficient import duty protection, inadequate levels of support and incentives and duty free trade agreements with ASEAN nations led to the demise of the Australian vehicle and component manufacturing industries, with the last OEM withdrawing in October, 2017.
- In SA, General Motors SA terminated vehicle manufacturing effective mid-2017 (this was due to GM's global restructuring).
- Both events serve to underline that any reduction in government support and incentives might precipitate a decline in SA vehicle and component manufacturing activities.

- Closure of the industry, in the absence of official support and incentives, would result in a devastating effect on the SA economy and all sectors dependent on the automotive industry, and it would be impossible to sustain the SA components' supplier base.
- Econometrix quantified the impact of closure of the SA automotive industry and concluded that the economy-wide impact would result in a loss of R218.6 billion to the GDP, or -7% of GDP; loss of employee compensation of R84.5 billion; loss in formal sector jobs across all industries of 588 453; loss of informal jobs across all industries of 81 593; decrease in tax revenues of R43.6 billion; loss in the industry's growing contribution to transformation, and loss in the industry's corporate social investment, and it would have a massive negative impact on SA's balance of payments.
- The impact on regional economies would be devastating characterised by socio and economic implosion in the East London region, Uitenhage/Port Elizabeth region, the Durban-South region as well as Rosslyn and Silverton.
- Any decline in the auto sector would have negative implications in terms of transformation and corporate social investment.
- SA's reputation as a stable industrial economy and investment destination would be severely damaged.
- Any decline in, or the demise of, the industry will inevitably precipitate disinvestment in other sectors of the economy.
- The benefits of technology transfers and its diffusion into other sectors of the economy would disappear.

Venter (2014) maintains that in South Africa, the APDP is necessary to balance the high logistics expenditures between the local industry and its main markets. This situation must not change, which means the industry definitely needs an extension of the APDP in some form or other once it reaches its end-date of 2020 (Venter, 2014). According to Venter (2014), South Africa needs to ensure the APDP makes the country one of the most sought-after assembly locations in the world, and the industry needs the advantage the APDP offers to become and remain competitive (Venter, 2014). It is also essential, according to Venter (2014), to incentivise the global vehicle manufacturing industry to stay in South Africa, as it guarantees the

existence of the local component industry, which employs more people than the assembly sector, and which adds value to locally produced raw material.

Venter (2014) stated that one answer to guarantee South Africa does not follow in Australia's footsteps is to enlarge the percentage of local parts used in South African-made vehicles, as this reduces logistics costs and the impact of currency movements. The average local content on vehicles made locally is 41%, which needs to increase to between 60% and 65% (Venter, 2014). It is vital for South Africa to completely leverage its position in Africa because unlike Australia, a continent on its own, South Africa has several potential markets on its doorstep. South Africa needs to look after their traditional export markets, but they should also grow vehicle sales in Africa, as well as develop logistics costs, since augmented vehicle sales will lead to bigger component sales (Venter, 2014).

Venter (2014) stated that a widespread shortage of support will probably result in the termination of the local automotive manufacturing. Multinational vehicle manufacturers and the large multinational part manufacturers which supply them, will move production to regions manufacturing vehicles in higher volumes (Venter, 2014). According to Venter (2014), small and medium domestic corporations will, as a result, face the possibility of diminished or no demand and will, in turn, face the possibility of closing down. The impact on the Eastern Cape economy, which depends heavily on the automotive sector will be shattering. Venter (2014) further stated that the departure of the automotive manufacturing will result in billions of rands of foreign direct investment being lost annually.

Recent reports, according to Venter (2014), about the nation's trade discrepancy have been used to claim that South Africa would have been better off without automotive support programmes. But if no programme had been in place, the automotive sector would have gone the direction of the Australian automotive industry, which has in actual fact, failed (Venter, 2014). Venter (2014) stated that this nevertheless does not set aside the unease about the size of the automotive sector's trade discrepancy, which is one of the acute matters to be addressed under the APDP.

Odendaal (2016:1) stated that policy certainty had permitted South Africa's automotive industry to evade the same fate as Australia's automotive industry, where

all production was terminated in 2017. Venter (2014) stated that Australia is an established economy with a high rate of vehicle ownership. Car manufacturing was apparently considered as of secondary importance, as Australia progressively relied on commodity exports, the services sector and niche manufacturing sectors (Venter, 2014). According to Venter (2014), South Africa's position is very different. It has a population of around 50-million and a low per capita rate of vehicle ownership, which means sales can still raise (Venter, 2014). Venter (2014) further stated that the automotive industry remains of grave importance to our industrial prospects. The nation's small market restraint can be offset by the prospect of a possibly large and increasingly important regional market in sub-Saharan Africa, not like Australia (Venter, 2014).

Continued government support for the South African automotive industry will be discussed next.

3.9 CONTINUED GOVERNMENT SUPPORT FOR THE SOUTH AFRICAN AUTOMOTIVE INDUSTRY

The final policy provisions of the post-2020 through 2035 programme, according to AIEC (2018:25-26), aims to cover the following aspirational targets:

- Improve automotive industry competitiveness levels to that of leading international competitors;
- Grow South African vehicle production to 1% of global production;
- Double automotive employment in the supply chain;
- Deepen value addition within South African automotive value chains;
- Transformation of the South African automotive value chain; and
- Increase local content in South African manufactured vehicles to 60%.

Barnes, Black and Techakanont (2016:3) stated that it is vital for developing nations wanting to promote the automotive industry, to entice foreign investment, and the terms under which this takes place are vital factors of the resulting development impact. According to Molapo *et al.* (2016:4), the value of the automotive manufacturing sector is recognised worldwide, with many nations having extensive industry support mechanisms in place, which includes a range of investment

enticements to attract both local and foreign investment in automotive manufacturing. Barnes and Black (2013:35) stated that it is claimed that the MIDP has cost the South African government several billions of rands. The question arises why this support is further needed? Why not decrease protection further and transfer support to more deserving sectors? Vehicles have been manufactured in South Africa for closely a century and the sector is not an infant industry (Barnes & Black, 2013:35). According to Barnes and Black (2013:35), the level of financial support provided by the industry is often exaggerated as it was significantly reduced under the MIDP.

The MIDP was a major policy alteration, with its support levels and tariffs decreasing considerably from 1995 to 2012 (Barnes & Black, 2013:35). Barnes and Black (2013:35) stated that while the industry is not competitive when compared with the lowest cost manufacturing nations, it is a lot more proficiently structured and competitive than it was. Traditionally, the Achilles heel of the South African industry has been its distance from key markets (Barnes & Black, 2013:35). According to Barnes and Black (2013:35), South Africa has certainly not established a feasible 'automotive space'; which involves either a large domestic market, closeness to such a market or membership of a regional grouping that jointly institutes such a market.

Le Guern (2016:1) stated that government ought to secure greater policy confidence, consistency and programme configuration across departments and state-owned enterprises, but that there is also a need for a much stronger collective effort with the private sector in mutually beneficial programmes. The global commodity slump, the collapse in oil price, the steel crises, great volatility in financial markets and currencies, and weakened demand, according to Le Guern (2016:1), have impacted emerging economies, including South Africa.

The setting for the successful development of the automotive industry, according to Barnes and Black (2013:36), in developing nations stays the same as they always have been, namely, a feasible automotive space, continuing enhancements in competitiveness, and the capability to entice investment and suitable trade and other policies. The thriving market in the area, in combination with the considerable efforts to increase competitiveness and suitable policies to control competition, as well as SA's links to the region, give the South African automotive industry the prospect for unprecedented growth over the next few decades (Barnes & Black, 2013:36). Barnes and Black (2013:36) stated that all the aspects are in place, decent infrastructure,

established companies and production abilities, reasonably priced wages, and now the possibility of a thriving regional market. Government and industry stakeholders must work towards realising this goal (Barnes & Black, 2013:36). SAIIA (2016:8) stated that the current government support is vital for the survival of the industry.

Vermeulen (2017:58) stated that the track record and performance of the South African automotive industry to date has been impressive. Going forward, the industry will have to cope with a number of challenges, however, none of them are insurmountable (Vermeulen, 2017:58). Molapo *et al.* (2016:26) stated that the South African government has been consistent in providing a favourable environment and it is vital that this remains. According to Vermeulen (2017:58), the growth potential of the South African automotive industry remains above average and with the right policies, interventions and goodwill by all auto industry stakeholders, the industry can go from strength to strength and, in the process, realise the objective of higher vehicle production in South Africa.

The AIEC (2017:98) stated that it is vital that South Africa continues to follow a collaborative approach with OEMs, suppliers, unions and government in order to achieve real efficiency improvements in the industry. According to Le Guern (2016:3), about R7.9 billion in investment incentives had been agreed and, while government critics argued that the costs were high and inadequate localisation had been attained, the fate of the Australian automotive sector was an example of what would happen without government support. Furlonger (2016:24) stated that South Africa, as a series of motor industry executives have confirmed, has precious few investment advantages beyond the APDP. According to Furlonger (2016:24), “Take that carrot away and everyone will go home”.

As a crucial partner in the development and growth of the automotive industry, government has already indicated its continuous confidence in the industry’s long-term future through its assurance that policy support will continue beyond 2020. The DTI appointed technical teams in 2016 to help in the development of a post-2020 master plan that is intended to ensure the long-term sustainability of the sector in terms of policy and support mechanisms. The South African Automotive Masterplan (SAAM) 2021-2035 will go beyond the APDP and will cover car and LCV manufacturing, medium, heavy, extra heavy truck and bus production (potentially including off-highway vehicles, yellow metals), motorcycles, and the South African

component supplier industry. Vehicle importers and distributor operations will also be covered. The Masterplan will create a framework to secure even higher levels of investment and production. Barnes and Black (2017) stated that whatever the competitive pressures, South Africa's base vehicle ownership profile suggests major growth opportunities up to 2035, provided there is economic growth and the industry's base competitiveness recovers. However, the final policy provisions of the post 2020 to 2035 programme were still being finalised at the time of this study.

The question remains whether the South African automotive industry will be sustainable without government support in view of its unique challenges, as well as the benefits promised by competitor countries to attract the huge, economically beneficial automotive investments?

3.10 CONCLUSION

This chapter focused on government's long-standing involvement in the South African automotive industry by outlining the MIDP and the APDP programmes. This chapter also focused on the global and South African automotive industry through an in-depth analysis of the automotive industry related to what makes South Africa attractive as an automotive investment destination given the current worldwide economic situation. This chapter concluded with a critical review of the impact on the South African economy if the automotive industry should disappear.

In the early 1990s the South African automotive sector was regarded as ineffective and uncompetitive and dependent on heavy protection for survival. The MIDP lowered tariffs and provided strong support for exports, while the APDP, in its turn, reinforced the vision that the long-term development of the sector will best be served through considerable increases in production volumes and accelerated growth. The Government's loyalty and assurance to the future of the automotive industry is demonstrated through the MIDP and the APDP, as well as in their guarantee that policy support will continue beyond 2020 via the South African Automotive Masterplan 2021-2035.

In this chapter it became clear that South Africa dominates automotive trade on the African continent, since the country has the most developed automotive sector in the region. If South Africa wants to entice new investments and reinvestments, they must

re-examine the investment environment for labour and energy and infrastructure, but even more vitally, focus on regional integration and the pursuit of synergies and opportunities with other African vehicle manufacturing countries.

It also became evident that the Achilles heel of the South African industry is its distance from major markets. To have a viable automotive space, a country requires either a large domestic market, proximity to such a market or membership of a regional grouping that collectively constitutes such a market. Although South Africa has a number of aspects that still need to be addressed in order to boost the international competitiveness of the automotive industry, there has been major capital expenditure by vehicle manufacturers and component suppliers in the region.

This chapter included critiques and negative perceptions about the country's automotive policy regimes. Without the necessary involvement and assistance from government, it is perceived that the South African automotive industry would not attract and retain FDI and the industry could follow in Australia's footsteps, with severe consequences. The loss of the automotive industry due to potential policy uncertainty or lack of government support would result in a colossal loss to the nation's GDP, employment and government revenue. The research design and methodology will be discussed in chapter 4.

CHAPTER 4
RESEARCH DESIGN AND METHODOLOGY

4.1 INTRODUCTION

Chapters 2 and 3 established the theoretical foundation. Chapter 4 will focus on the primary research and measures to ensure reliability and validity of the data. The research objective is to investigate the relationship between government support and the sustainability of the South African automotive industry. The research process will focus on identifying the respondents that will provide the required information and answers to the research questions and to attain the stated research objectives. In this process, the research design, the data collection plans, including investigating the reliability and validity of the research instruments and the proposed analysis of the data will be discussed. The aim of this chapter is to explain, in a systematic manner, the research process followed that enabled the researcher to answer the key research question, namely, to determine the relationship between government support and the sustainability of the South African automotive industry.

4.2 RESEARCH AND METHODOLOGY

Research, according to Salkind (2012:2), is among other things, an intense activity that is founded on the work of others and creates new ideas to pursue questions to answer. Nicholson (2011) stated that research is typically an organised and structured method of finding answers to questions. It is structured because it is a procedure broken up into clear steps that lead to conclusions (Nicholson, 2011). Salkind (2012:3) stated the following characteristics of high-quality research, namely that it:

- is founded on the work of others,
- can be duplicated,
- is generalised to other settings,
- is founded on some logical basis and tied to theory,
- is attainable,
- creates new questions or is cyclical in nature,

- is incremental, and
- is an apolitical activity that ought to be undertaken for the improvement of society.

The researchers, 6 and Bellamy (2012:1) stated that methodology signifies the understanding of how to progress from the discoveries of empirical research to make interpretations about the truth, or at best, the appropriateness of theories. The methodology, according to Mouton (2012:123), records the design and method followed throughout the researcher's research. The purpose of methodology is that it ought to allow the researcher to design the research process to draw defendable conclusions about what could be causing the things being observed, including those reasons originating from the ways in which people think about the world (6 & Bellamy, 2012:1). 6 and Bellamy (2012:9) define methodology as the set of techniques accepted by most social scientists as being suitable for the creation, collecting, coding, organisation and analysis of data.

Salkind (2012:275) stated that the method section of the research document describes how the study was achieved. This information is conveyed in adequate detail so that anybody can refer to this section and replicate the study precisely as it was initially done (Salkind, 2012:275). According to Salkind (2012:275), the most common subheadings to the method section consist of Participants, Instruments, and Data Analysis. All these subheadings will now be discussed in the context of the specific research process that was followed in this study.

4.3 PARTICIPANTS AND THE SELECTION PROCEDURE

Sargeant (2012) stated that decisions about selection are based on the research questions, theoretical perspectives, and evidence gathered in the background study.

The research questions, as identified in Chapter 1 will be replicated here to guide the research methodology process, these are:

- What positive and/or negative impacts will the recommended changes to the APDP have on the South African vehicle manufacturers and listed vulnerable automotive component suppliers?

- What factors attract international vehicle manufacturers and component suppliers to invest in South Africa, given the current worldwide economic situation of low growth?
- How would new entrants into the vehicle manufacturing industry be sustained with lower levels of support under the APDP, as mentioned in the current policy changes?
- Would government continue with monetary and government sponsored incentives to sustain the automotive industry in South Africa, if the objectives of the automotive policy regime are not met in the long run?
- How would the OEMs, and subsequently, the automotive component suppliers be impacted if the South African government does not provide long-term policy support assurances beyond 2020?
- How would the country's economy be affected if the automotive industry is not adequately sustained by support from government?

Questionnaires were distributed to the seven OEMs (AIEC, 2018:20) as they are the primary manufacturers of motor vehicles in South Africa, and are directly implicated when changes to the motor industry are considered. Furthermore, all 110 first-tier suppliers (AIEC, 2018:20) form part of the target population. As stated previously, all these respondents are directly influenced by changes to the motor industry. The 110 first-tier suppliers will be split into two groups, namely, those who became vulnerable through the transition from the MIDP to the APDP policy, and those who did not. The vulnerable sectors are the high dependant raw material export-oriented suppliers and they include alloy wheels, aluminium products, cast iron components, catalytic converters, flexible couplings, leather interiors, machined brass components and steel jacks (AIEC, 2018:27). The non-vulnerable sectors are more domestically focussed and supply to alternative markets. The vulnerable group constitutes 49 of the 110 first-tier suppliers. The remaining 61 are not directly impacted and will be researched to provide a counterpoint to the 49 suppliers that are directly impacted. The questionnaire was sent to all the respondents and it was estimated that 30 to 40 respondents would answer the questionnaire. The questionnaire is attached as Annexure C.

4.4 RESEARCH DESIGN

Creswell (2009:3) defined research design as the plans and procedure for research that span the decisions from broad assumptions to thorough methods of data collection and analysis. The plan comprises numerous decisions, and they need to be taken in the order in which they make sense, as well as in the order of their presentation (Creswell, 2009:3). Mouton (2012:55) defines the research design as a plan or blueprint of how one intends doing the research. Put simply: What kind of a study will the researcher be doing? What type of study will best answer the question that was formulated? (Mouton, 2012:55). The authors, 6 and Bellamy (2012:20) stated that by 'design of a research project', social scientists generally mean: (1) the specification of the manner in which data will be created, collected, constructed, coded, analysed and interpreted, (2) to enable the researcher to draw justified descriptive, explanatory or interpretive interpretations, (3) where the merit is considered to strike a reasonable trade-off between competing virtues, and (4) where the standard of merit might vary somewhat, but are based on a central set of virtues for each type of interpretation.

A research design is generally set out in advance of undertaking a project, in a research plan or proposal (6 & Bellamy, 2012:20). According to Saunders *et al.* (2012:161-165), a research design characteristically comprises the following components:

- Research design method;
- Research design strategy;
- Data collection design;
- Sampling procedure;
- Development of research instrument; and
- Pilot testing.

Each of these components will be discussed in the following sections.

4.4.1 Research design method

Creswell (2009:4) stated that there are three types of research design, namely, qualitative research, quantitative research and mixed-method research. According to

Creswell (2009:4) and Salkind (2012:13), qualitative research is a method for exploring and grasping the meaning that individuals or groups assign to a social or human problem. Quantitative research, according to Creswell (2008:40) and Creswell (2009:4), is a method for testing objective theories by investigating relationships between variables. These variables, in turn, can be measured, typically on instruments, so that numbered data can be analysed using statistical procedures (Creswell, 2009:4). Salkind (2012:24) identified the different types of variables in research, as indicated by Table 4.1 below.

Table 4.1: Different types of variables

Type of Variable	Definition	Other terms one might see
Dependent	A variable that is measured to see whether the treatment or manipulation of the independent variable had an effect.	Outcome variable Results variable Criterion variable
Independent	A variable that is manipulated to examine its impact on a dependent variable.	Treatment variable Factor Predictor variable
Control	A variable that is related to the dependent variable, the influence of which needs to be removed.	Restricting variable
Extraneous	A variable that is related to the dependent variable or independent variable that is not part of the experiment.	Threatening variable
Moderator	A variable that is related to the dependent variable or independent variable and has an impact on the dependable variable.	Interacting variable

Source: Salkind (2012:24)

A quantitative research design in the form of survey research was selected for the study. Survey research, according to Creswell (2009:12), provides a quantitative or numeric description of trends, attitudes, or opinions of a population by examining a sample of that population. Salkind (2012:198) stated that survey research, which is also called sample surveys, studies the frequency and relationships between psychological and sociological variables and taps into constructs such as attitudes, beliefs, prejudices, preferences, and opinions.

Surveys, according to the National Oceanic and Atmospheric Administration (NAOAA) (2017), can gather information through different methods of observation. Most surveys, however, employ a questionnaire to measure specific characteristics of the population (NOAA, 2017). NOAA (2017) stated that there are two main ways to gather this information, either through a census survey or through a sample survey. A census survey, according to NOAA (2017), collects complete information from all participants in the population. The general criteria of a census survey include establishing and maintaining a complete list of the primary sampling unit components and that all members of the primary sampling unit must be included, validation must be used to correct missing and misreported data, and the survey should be enforceable and enforced (NOAA, 2017). Gbemisola (2013:3) stated that a survey that covers the entire population of interest is referred to as a census. A sample survey, according to NOAA (2017), uses a representative group of a given population to determine characteristics of the entire population. Quantitative research in the form of basic content analysis with a focus on census surveys were utilised in this study.

4.4.2 Research design strategy

Surbhi (2016) stated that the research design is outlined as a framework for carrying out research activities in different fields of study. According to Mehta (2013), the purpose of the research design is to warrant that the evidence attained allows the researcher to successfully direct the research problem rationally and as explicitly as possible. The research design, according to Surbhi (2016), is categorised into two imperative categories, namely, exploratory and conclusive research.

Exploratory research, according to Mehta (2016) and Surbhi (2016), intends to provide insights into and understanding of the problem faced by the researcher. The approaches used for conducting exploratory research include: surveys of the relevant literature, experience surveys and analyses of insights (Surbhi, 2016)

Conclusive research is categorised into descriptive and casual research (Surbhi, 2016). Descriptive research, according to Mehta (2013) and Surbhi (2016), intends to describe something, mostly functions and characteristics. Descriptive research uses approaches like quantitative analysis of secondary data, surveys, panels, observations, interviews, questionnaires, and so forth (Surbhi, 2016).

The differences between exploratory and descriptive research are indicated below in Table 4.2.

Table 4.2: Exploratory research vs Descriptive research

Basis for comparison	Exploratory research	Descriptive research
Meaning	Exploratory research refers to a research conducted for formulating a problem for more clear investigation.	Descriptive research is a research that explore and explain an individual, group or a situation.
Objective	Discovery of ideas and thoughts.	Describe characteristics and functions.
Overall design	Flexible	Rigid
Research process	Unstructured	Structured
Sampling	Non-probability sampling	Probability sampling
Statistical design	No pre-planned design for analysis	Pre-planned design for analysis

Source: Surbhi (2016)

A combination of exploratory research in the form of a literature study and descriptive research in the form of the survey were used in this study to complement each other.

4.4.3 Data collection design

Mouton (2012:69) distinguished between primary and secondary sources of data. Primary information sources, according to Mouton (2012:69), implies the researcher's own data; whether the researcher has to collect the data itself, or whether it already exists in one form or another. It is generally available in one of two forms: textual information or numeric information or data (Mouton, 2012:69). Some examples of each, according to Mouton (2012:71), are:

- Textual information or qualitative data: Documents, transcripts of interviews, autobiographies, diaries, letters, annual reports, mission statements, memoranda, musical scores, plays and novels.
- Numeric information or quantitative data: Questionnaire responses, scaled data, test scores, financial statistics, experimental observations, physical recordings and medical measures.

- Secondary information sources, according to Mouton (2012:71), imply written sources (including the Internet) which deliberate, comment, debate and interpret primary sources of information. Every time the researcher refers to a source (article, book, chapter or internet article) to get another (informed) opinion about a topic, the researcher accesses secondary sources (Mouton, 2012:71). Mouton (2012:71) stated that the prime objective of a literature review or study is to scan the secondary sources of information on the topic that the researcher is interested in.

For the purposes of this study, quantitative data in the form of questionnaires was gathered by means of primary and secondary data to form the basis of the literature review, since multiple sources were consulted to gather information relating to the field of research.

4.4.4 Sampling procedure

Executing a primary survey and focusing on obtaining information from survey respondents basically results in choosing between options. These are to interview every respondent that has been identified as part of the population (this is called a census) or to use some form of sampling. Salkind (2012:95) states that a population is a group of possible participants to whom a researcher wants to generalise the results of a study. A sample is a subset of that population (Salkind, 2012:95 & Chaturvedi, 2016:5). The sampling frame, according to Chaturvedi (2016:5), is the list from which the potential respondents are drawn. Chaturvedi (2016:7) stated that the three factors that influence the sample representativeness are the sampling process, the sample size and participation.

To understand sampling, according to Salkind (2012:96), a researcher first needs to differentiate between two general sampling approaches, namely probability and nonprobability sampling. With probability sampling, the probability of any one member of the population being chosen is known (Salkind, 2012:96). In nonprobability sampling, according to Salkind (2012:96), the probability of choosing any one member form the population is not known.

Probability sampling strategies, according to Salkind (2012:96-102) and Chaturvedi (2016:10), include:

- Systematic sampling – from the sampling frame (e.g. list of names), a starting point is chosen at random, and thereafter names are chosen at regular intervals, for example, every fifth name on the list is chosen.
- Simple random sampling – here each member of the population has an equal and independent chance of being chosen to be part of the sample.
- Cluster sampling – here units of individuals are chosen, not just individuals.
- Stratified sampling – is used when a researcher needs to guarantee that the profile of the sample matches the profile of the population.

Nonprobability sampling strategies, according to Salkind (2012:102-103) and Chaturvedi (2016:10), include:

- Proportional stratified sampling – selects people with the characteristics a researcher wants but they are selected randomly from the population.
- Purposive sampling – a series of strategic choices about with whom, where, and how the researcher does research.
- Convenience sampling –the members of the population are convenient to sample.
- Quota sampling – selects people with the characteristics a researcher wants but does not randomly select from the population, selects a subset of all.

As a census approach was followed in the study, a sampling procedure was not necessary.

Descriptive research via a census survey was used. Self-administered questionnaires, which were administered electronically using the Internet, were completed by the respondents. Questionnaires were distributed to the seven OEMs, as well as all 110 first-tier suppliers. The 110 first-tier suppliers consist of two broad groupings, namely, those who became vulnerable through the transition from the government incentive policy from the MIDP to the APDP, and those who did not. The vulnerable sectors include alloy wheels, aluminium products, cast iron components, catalytic converters, flexible couplings, leather interiors, machined brass components and steel jacks (AIEC, 201:27).

A self-administered questionnaire was e-mailed to the respondents. Open-ended, closed-ended, ranking, and rating questions were used in the questionnaire. An

informed consent form was attached to be read and signed by each participant to adhere to the ethical standards of the research. The informed consent included information about the purpose of the research, who the researcher is, what research the researcher is doing, how long the survey will take, an offer to withdraw from the survey at any time for any reason, potential benefits to the researcher and to society, potential harm or risks for discomfort for the participant, an assurance that the result will be kept in strictest confidence, how the participant can get a copy of the results, as well as how the researcher could be reached should the participant have a question (Salkind, 2012:87).

The questionnaire was sent to all the respondents to complete. Weekly follow-ups were done to ensure that the participants completed the survey and returned it back to the researcher.

4.4.5 Development of research instrument

A questionnaire was used as the instrument to collect the data for this study. Questionnaires, according to Salkind (2012:147), are (most often) a paper-and-pencil set of organised and focused questions. Questionnaires save time because individuals can complete them without any direct assistance or intervention from the researcher, since many are self-administered (Salkind, 2012:147). Zohrabi (2013:254) stated that the critical point when designing a questionnaire is to warrant that it is valid, reliable and unambiguous.

The format of the questionnaire should be presented in an attractive, professional, and easy-to-understand way; all questions and pages should be clearly numbered; the questionnaire should contain clear and explicit directions as to how it should be completed and how it should be returned; the questions should be objective; the questions should be ordered from easy to difficult and from easy to specific; transitions from one topic to the next should be used and examples need to be given where necessary (Salkind, 2012:149).

On the whole questionnaires, according to Zohrabi (2013:254), can appear in three types:

- Closed-ended (or structured) questionnaires
- Open-ended (or unstructured) questionnaires

- A mixture of closed-ended or open-ended questionnaires

For the purpose of this study, the questions (as per the attached Appendix C) can be summarised as follows in Table 4.3.

Table 4.3: Linking the research questions with the theory

No. in survey	Link in the theory	Research objective addressed	Research question answered	Comments
1		Residency of respondent		Background question
2		Classification of industry		Background question
2.1		Classification of industry		Background question
2.2		Market focus of respondent		Background question
3	Chapter 3 Section 3.7	To determine what competitive advantages South Africa has over other countries regarding the automotive industry in Africa.	What factors attract international vehicle manufacturers and component suppliers to invest in South Africa, given the current worldwide economic situation of low growth?	
4	Chapter 3 Section 3	To determine what competitive advantages South Africa has over other countries regarding the automotive industry in Africa.	What factors attract international vehicle manufacturers and component suppliers to invest in South Africa, given the current worldwide economic situation of low growth?	
5	Chapter 3 Section 3.11	To determine how the OEMs and subsequently the automotive component suppliers would be impacted if the South African government does not provide long-term policy certainty.	How would the OEMs, and subsequently the automotive component suppliers be impacted if the South African government does not provide long-term policy support assurances beyond 2020?	
6	Chapter 3 Section 3.3	To determine the effect of the APDP and the recommended APDP changes on the current OEMs in South Africa.	What positive and/or negative impacts will the recommended changes to the APDP have on the South African vehicle manufacturers and listed vulnerable automotive component suppliers?	

No. in survey	Link in the theory	Research objective addressed	Research question answered	Comments
7	Chapter 3 Section 3.4	To determine the effect of the APDP and the recommended APDP changes on the current OEMs in South Africa.	What positive and/or negative impacts will the recommended changes to the APDP have on the South African vehicle manufacturers and listed vulnerable automotive component suppliers?	
8	Chapter 3 Section 3.4	To determine the effect of the APDP and the recommended APDP changes on the current OEMs in South Africa.	What positive and/or negative impacts will the recommended changes to the APDP have on the South African vehicle manufacturers and listed vulnerable automotive component suppliers?	
9	Chapter 2 Section 2.3.6	To determine the effect of the APDP and the recommended APDP changes on the current OEMs in South Africa.	What positive and/or negative impacts will the recommended changes to the APDP have on the South African vehicle manufacturers and listed vulnerable automotive component suppliers?	
10	Chapter 3 Section 3.3	To determine how new entrants would be sustained into the vehicle manufacturing industry with lower thresholds but concurrent lower levels of support under the APDP.	How would new entrants into the vehicle manufacturing industry be sustained with lower levels of support under the APDP, as mentioned in the current policy changes?	
11	Chapter 3 Section 3.4	To determine the effect of the APDP and the recommended APDP changes on the current OEMs in South Africa.	What positive and/or negative impacts will the recommended changes to the APDP have on the South African vehicle manufacturers and listed vulnerable automotive component suppliers?	
12	Chapter 3 Section 3.3	To determine how new entrants would be sustained into the vehicle manufacturing	How would new entrants into the vehicle manufacturing industry be sustained with	

No. in survey	Link in the theory	Research objective addressed	Research question answered	Comments
		industry with lower thresholds but concurrent lower levels of support under the APDP.	lower levels of support under the APDP as mentioned in the current policy changes?	
13	Chapter 3 Section 3.4	To determine the effect of the APDP and the recommended APDP changes on the current OEMs in South Africa.	What positive and/or negative impacts will the recommended changes to the APDP have on the South African vehicle manufacturers and listed vulnerable automotive component suppliers?	
14	Chapter 3 Section 3.11	To determine how the country's economy would be affected if the automotive industry is not sustained based on continued government support.	How would the country's economy be affected if the automotive industry is not adequately sustained by government support?	
15	Chapter 3 Section 3.9	To determine how the OEMs and subsequently the automotive component suppliers would be impacted if the South African government does not provide long-term policy certainty.	How would the OEMs, and subsequently, the automotive component suppliers be impacted if the South African government does not provide long-term policy support assurances beyond 2020?	
16	Chapter 3 Section 3.7	To determine how new entrants would be sustained into the vehicle manufacturing industry with lower thresholds but concurrent lower levels of support under the APDP.	How would new entrants into the vehicle manufacturing industry be sustained with lower levels of support under the APDP, as mentioned in the current policy changes?	
17	Chapter 3 Section 3.4	To determine the effect of the APDP and the recommended APDP changes on the current OEMs in South Africa.	What positive and/or negative impacts will the recommended changes to the APDP have on the South African vehicle manufacturers and listed vulnerable automotive component suppliers?	

No. in survey	Link in the theory	Research objective addressed	Research question answered	Comments
18	Chapter 3 Section 3.3 & 3.4	To determine the effect of the APDP and the recommended APDP changes on the current OEMs in South Africa.	What positive and/or negative impacts will the recommended changes to the APDP have on the South African vehicle manufacturers and listed vulnerable automotive component suppliers?	
19	Chapter 3 Section 3.4	To determine the effect of the APDP and the recommended APDP changes on the current OEMs in South Africa.	What positive and/or negative impacts will the recommended changes to the APDP have on the South African vehicle manufacturers and listed vulnerable automotive component suppliers?	
20	Chapter 2 Section 2.3.2 & 2.3.6 and Chapter 3 Section 3.10	To determine the effect of the APDP and the recommended APDP changes on the current OEMs in South Africa.	What positive and/or negative impacts will the recommended changes to the APDP have on the South African vehicle manufacturers and listed vulnerable automotive component suppliers?	
21	Chapter 3 Section 3.7	To determine how the country's economy would be affected if the automotive industry is not sustained, based on continued government support.	How would the country's economy be affected if the automotive industry is not adequately sustained by government support?	
22	Chapter 3 Section 3.5	To determine how the OEMs and subsequently the automotive component suppliers would be impacted if the South African government does not provide long-term policy certainty.	How would the OEMs, and subsequently the automotive component suppliers be impacted if the South African government does not provide long-term policy support assurances beyond 2020?	
23	Chapter 3 Section 3.9	To determine how the OEMs, and subsequently the automotive component	How would the OEMs, and subsequently the automotive component suppliers be	

No. in survey	Link in the theory	Research objective addressed	Research question answered	Comments
		suppliers, would be impacted if the South African government does not provide long-term policy certainty.	impacted if the South African government does not provide long-term policy support assurances beyond 2020?	
24	Chapter 3 Section 3.11	To determine how the country's economy would be affected if the automotive industry is not sustained, based on continued government support.	How would the country's economy be affected if the automotive industry is not adequately sustained by government support?	

According to Zohrabi (2013:254), close-ended questionnaires provide the enquirer with quantitative or numerical data, and open-ended questionnaires with qualitative or text information. Questionnaires can be divided into seven basic questions types: quantity or information, category, list or multiple-choice, scale, ranking, complex grid or table, and open-ended (Zohrabi, 2013:254). Zohrabi (2013:254) stated that generally, a questionnaire can make use of one or numerous types of these question forms. In terms of the current study, Question 1 to 2.2 were information questions, question 3 to 19 were category questions, question 20 to 22 were scale questions and question 23 to 24 were open-ended questions.

Zohrabi (2013:255) stated that there are two methods for administering questionnaires. The first method, according to Zohrabi (2013:255), is the self-administered questionnaire which is generally mailed out to the intended respondents. The weaknesses include that hardly any respondents return the questionnaire, the researcher is not available when a misunderstanding or an unclear question arises, and the researcher has no idea how the questions were answered (Zohrabi, 2013:255). The second method, according to Zohrabi (2013:255), is the group administered questionnaire where the questionnaire is administered to groups of individuals all at one time and place. This method of administering questionnaires is superior to self-administered questionnaires, since the return rate is high, the researcher is present to explain any vague questions, and the researcher knows the circumstances under which the questionnaires were filled out (Zohrabi, 2013:255).

Self-administered questionnaires, which were completed by the respondents and administered electronically using the Internet, were used in the quantitative research process. The total population of seven OEMs and 110 first-tier suppliers were asked to participate in the study (Saunders *et al*., 2007:356; Maylor & Blackmon, 2005:185).

4.4.6 Pilot testing

DeVault (2016) stated that regardless of how meticulously researchers approach the design and development of questionnaires, mistakes are unavoidable. Due to market researchers often being too close to the survey work, it becomes problematic to spot an unclear question, a statement that people do not actually understand, or wording that suggests prejudice (DeVault, 2016). Pre-testing the survey instrument needs to be done to reduce the possibility of errors. Schade (2015) stated that pilot testing (a

session or two before the real test) helps perfect usability studies, leading to more dependable results. It provides the opportunity to authenticate the wording of the tasks, understand the time needed for the session, and, if all goes well, could even supply an additional data point for the study (Schade, 2015). Gbemisola (2013:22) stated that the intent of pretesting the questionnaire is to ascertain whether the questions as they are worded will reach the desired results, whether the questions have been placed in the best order, whether the questions are understood by all classes of respondents, whether further or specifying questions are needed, or whether some questions ought to be removed, and whether the instructions to interviewers are adequate.

A pilot test was performed where the researcher conducted a pilot test on three respondents who did not form part of the target population but were knowledgeable about the automotive industry. This was done to uncover any weakness within the survey instrument and changes were made to eliminate these weaknesses in order to complete the survey research.

4.5 DATA COLLECTION PLANS

Management Study Guide (2017) stated that a data collection plan is an all-inclusive document that describes the exact steps and the order that needs to be followed in gathering the data. Mouton (2012:104-105) stated that data can be collected by a variety of data collection methods as indicated by Table 4.4 below.

Table 4.4: Classification of data collection methods

Data collection method	Specific types
Observation	Experimental (controlled) recordings Systematic field observations Participant observations
Interviewing	Structured self-administered questionnaires Structured telephone interviewing Semi-structured focus group interviewing Free attitude interviewing methods
Testing	Psychological or psychometric testing
Selecting and analysing texts	Textual analysis (content analysis, textual criticism, textual exegesis) Discourse analysis, conversation analysis, semiotic analysis and ethnomethodology Historical or narrative analyses

Source: Mouton (2012:105)

The data collection method selected for the purpose of this study, was participant observation through structured self-administered questionnaires.

4.6 RELIABILITY AND VALIDITY OF INSTRUMENTS

Reliability, according to Salkind (2012:115), occurs when a test measures the same thing more than once and results in the same outcomes. 6 and Bellamy (2012:21) stated that a dependable system of measurement or coding is constant in that, each time it is used on the same data, it yields the same measure or code. Reliability comprises both an observed and a true score component (Salkind, 2012:115). Salkind (2012:119) identified several types of reliability as:

- Test-Retest reliability is a measure of how stable a test is over time. The same test is given to the same group of people at two different points in time.
- Parallel-Forms reliability, as in this study, means that different forms of the same test are given to the same groups of participants and then the two sets of scores are correlated with each other.

- Inter-rater reliability is a measure of the consistency from rater to rater, rather than from time to time, or even from test to test.
- Internal consistency examines how unified the items are in a test or assessment.

Validity, according to 6 and Bellamy (2012:21), is the degree to which the researcher's statements estimate the truth. Honesty, correctness, genuineness, authenticity, and soundness are words used to define what validity is all about (Salkind, 2012:123). According to Salkind (2012:123), validity is all about the test or instrument the researcher uses that really measures what the researcher needs to have measured. 6 and Bellamy (2012:21-22) and Salkind (2012:124-126) stated that it is imperative to distinguish between construct and conclusion validity, and between internal and external validity:

- External validity concerns the warrant the researcher has for inferring that the findings would hold in other situations or studies that were similar in relevant ways.
- Content validity is a measure of how well the items represent the entire universe of items.
- Conclusion validity concerns the warrant the researcher has for making inferences from the conclusions.
- Construct validity is the degree to which the measures or codes used to operationalise a concept really capture what the researcher intends to capture.
- Measurement validity is a subtype of construct validity and it captures the extent to which any given measure or code allows the researcher to attribute values without importing systematic bias.
- Internal validity applies within a study, regardless of whether the researcher wants to generalise to others.

Content validity was used as a measure of validity for this study, since an expert opinion was used to establish the content validity of the questionnaire.

4.7 PROPOSED ANALYSIS OF THE DATA

4.7.1 Descriptive statistics

Salkind (2012:161) stated that getting ready for data analysis encompasses the use of descriptive statistics and inferential statistics. As the name proposes, descriptive statistics is one which describes the population (Surbhi, 2016). Descriptive statistics, according to Salkind (2012:161) and Surbhi (2016), is used to describe some of the characteristics of the distribution of scores the researcher collected, such as the average score on one variable, or the degree that one score varies from another. Bluman (2013:6) stated that descriptive statistics comprises the collection, organisation, summarisation, and presentation of data. Surbhi (2016) stated that the data is summarised by the researcher in a useful way, with the help of numerical and graphical tools such as charts, tables, and graphs, to signify data in a precise manner. Once the data is structured in such a way that it can be thoroughly examined, the researcher will apply the set of tools called inferential statistics to help make decisions about how the data that was collected relates to the original hypotheses, and how they might be generalisable to a larger number of subjects than those that were tested (Salkind, 2012:161).

The first step in the analysis of data is to describe the data (Salkind, 2012:162). Describing data, according to Salkind (2012:162), generally means computing a set of descriptive statistics, since they describe the general characteristics of a set or distribution of scores. Salkind (2012:163) stated that one of the most useful things researchers can do is to compare different distributions of scores, including measures of central tendency, measures of dispersion or variability, and comparing standard scores. Each of these will now be discussed.

4.7.1.1 Measures of Central Tendency

One property of a distribution of scores, according to Salkind (2012:163), is an average, or an individual value that is most representative of that distribution or set of scores. Salkind (2012:163-164) stated that there are three types of averages or measures of central tendency:

- The mean is the sum of a set of scores divided by the number of scores.

- The median is the score or the point in a distribution above which one-half of the scores lie.
- The mode is the score that occurs most frequently.

4.7.1.2 Measures of variability

Variability, according to Salkind (2012:166), is the degree of spread or dispersion that characterises a group of scores, and it is the degree to which a set of scores varies from some measure of central tendency, most often the mean. Salkind (2012:166) identified several measures of variability as:

- The range – which is the difference between the highest and the lowest scores in a distribution.
- The standard deviation – which is the average amount that each individual score varies from the mean of the set of scores and abbreviated as s.

4.7.1.3 Understanding distributions

Salkind (2012:168) stated that with the above-mentioned descriptive statistics, the researcher can fully understand the distribution and what it means.

4.7.2 Inferential statistics

Inferential statistics, according to Surbhi (2016), is used to make generalisations about the population based on the samples. Surbhi (2016) stated that it is a suitable way to draw conclusions about the population when it is not possible to query each and every member of the universe. The sample chosen is representative of the whole population; hence, it ought to contain important features of the population (Surbhi, 2016). Whereas descriptive statistics are used to describe a sample's characteristics, inferential statistics are used to infer something about the population from which the sample was drawn based on the characteristics of the sample (Salkind, 2012:177). Bluman (2013:6) stated that inferential statistics involves generalising from samples to populations, performing estimations and hypothesis tests, determining relationships between variables, and making predictions. The main inferential statistics, according to Surbhi (2016), are based on the statistical models such as analysis of variance, chi-square test, student's t distribution and regression analysis.

4.7.3 Difference between descriptive and inferential statistics

The main differences between descriptive and inferential statistics, according to Surbhi (2016), are summarised in Table 4.5 below, and can be drawn clearly on the following grounds:

- Descriptive statistics is a discipline which is concerned with describing the population under study. Inferential statistics is a type of statistics that focuses on drawing conclusions about the population, on the basis of sample analysis and observation.
- Descriptive statistics collects, organises, analyses and presents data in a meaningful way. On the contrary, inferential statistics compares data, tests hypotheses and makes predictions of the future outcomes.
- There is a diagrammatic or tabular representation of the final result in descriptive statistics, whereas the final result of inferential statistics is displayed in the form of probability.
- Descriptive statistics describes a situation while inferential statistics explains the likelihood of the occurrence of an event.
- Descriptive statistics explains the data, which is already known, to summarise the sample. Conversely, inferential statistics attempts to reach the conclusion to learn about the population that extends beyond the data available.

Table 4.5: Key differences between descriptive and inferential statistics

Basis for comparison	Descriptive statistics	Inferential statistics
Meaning	Descriptive statistics is that branch of statistics which is concerned with describing the population under study.	Inferential statistics is a type of statistics which focuses on drawing conclusions about the population, on the basis of sample analysis and observation.
What it does?	Organise, analyse and present data in a meaningful way.	Compares, tests and predicts data.
Form of final result	Charts, Graphs and Tables	Probability
Usage	To describe a situation.	To explain the chances of occurrence of an event.
Function	It explains the data, which is already known, to summarise the sample.	It attempts to reach the conclusion to learn about the population, which extends beyond the data available.

Source: Surbhi (2016)

Once all the gathered data has been examined and analysed through descriptive and inferential statistics, the researcher will be able to draw conclusions from the data obtained in this study.

4.8 CONCLUSION

Chapter 4 focused on stages 2 and 3 of the research study, namely the research methodology in order to determine the relationship between government support and the sustainability of the South African automotive industry. The participants (including a description and selection procedures), the research design, the data collection plans (the reliability and validity of instruments) and the proposed analysis of the data were addressed and explained. In the following chapter, the data analysis and its interpretation will be discussed.

CHAPTER 5
DATA ANALYSIS

5.1 INTRODUCTION

This chapter presents the results obtained from the survey on the relationship between government support and sustainability of the South African automotive industry. Quantitative research using a survey was implemented to collect the data. Questionnaires were distributed electronically via e-mail to the seven OEMs and all 110 first-tier suppliers. As stated previously, all these respondents are directly affected by changes to the motor industry policy regimes.

The research objectives of the study will be briefly repeated to obtain a holistic view of the results of the study. These objectives are:

The primary objective of this study was to investigate the relationship between government support and the sustainability of the South African automotive industry. The secondary objectives of this study were to determine the effect of the previous policies, that is the MIDP, current APDP, the recommended APDP changes and the new South African Automotive Masterplan 2021-2035 on the current OEMs in South Africa; to determine what if any competitive advantage South Africa has over other countries; to determine how new entrants could be sustainable in the vehicle manufacturing industry with lower thresholds but concurrent lower levels of support under the APDP; to determine how the OEMs and subsequently the automotive component suppliers would be impacted if the South African government does not provide long-term policy certainty; as well as to determine how the country's economy would be affected if the automotive industry is not sustained based on continued government support.

The 110 first-tier suppliers that formed the one focus areas of the study are split into two groups, namely, those who became vulnerable through the transition from the MIDP to the APDP policy programme, and those who did not. It is important to point out that for this study out of the possible 110 First-tier Suppliers, 49 companies are classifiable under the vulnerable sector (44.5%). AIEC (2017:26) stated that with regards to vulnerable products, these high raw-material content producers received

additional support to avoid a sudden and significant loss of export business due to the transition from the export-oriented MIDP to the APDP as discussed in Chapter 3.

Seven OEMs exist in South Africa, namely Ford, Nissan, BMW, Toyota, Volkswagen, General Motors and Mercedes-Benz. Ford, Nissan and BMW are located in Gauteng; Toyota is located in Durban; Volkswagen and General Motors (taken over by Isuzu) are located in Port Elizabeth and Mercedes-Benz is located in East London (AIEC, 2018:20).

After four months of follow-ups, 37 completed questionnaires were received and analysed. The 37 responses can be divided between four OEMs and 33 first-tier suppliers completing the survey. The overall response rate for the OEMs is 57%, and for the first-tier suppliers 30%. Fryrear (2015) stated that internal surveys (surveys distributed internally to employees) will generally receive a 30-40% response rate (or more) on average, compared to an average of 10-15% response rate for external surveys (surveys distributed to external audience, namely, customers). Four of the seven OEMs responded (three of the OEMs that responded fall within the top 10 vehicle brands in South Africa that sold 80.5% of the new vehicles, with two OEMs being first (16.8% of market share) and second (15.4% of market share) (South African Market Insight, 2017)).

From the 33 first-tier supplier respondents, 10 respondents (30.3%) fall under the vulnerable sector category as follows: three fall under the Catalytic converters sector, four under the Aluminium product sector and three under the Cast iron component sector. These three sectors, out of the possible eight sectors, are the most important sectors since they have the biggest Rand value turnover and exports. The Catalytic converter sector accounted for R21 891.5 million of exports, the Aluminium product for R7 553.0 million of exports and the Cast iron component for R6 669.8 million exports (AIEC, 2016:76-79). These three sectors alone accounted for a total of R36 024.3 million of exports, whereas the remaining five sectors accounted for only R1 343.0 million of exports (AIEC, 2016:76-82). The remaining 23 respondents were from the non-vulnerable sector.

Descriptive and inferential statistical analysis were performed on the data. Although the sample size was small, the use of the chi-square test of independence was appropriate, as the maximum product of numbers of rows and columns were six and,

using the rule of at least five observations per cell, at least 30 observation is necessary. The process of data collection, as well as the intended analysis thereof, was discussed in Chapter 4. The survey questionnaire is attached as Annexure C for further reference. The research results will now be analysed and discussed.

5.2 DESCRIPTION OF THE RESPONDENTS

Question 1 to 22 required the respondent to answer the survey by using dichotomous, Likert-type response scales and multiple-choice question formats.

5.2.1 Question 1 (ownership)

Question 1 was used to determine whether the respondents' company was either a South African-owned company or a foreign-owned company. Figure 5.1 reveals the ownership of the 37 respondents' companies.

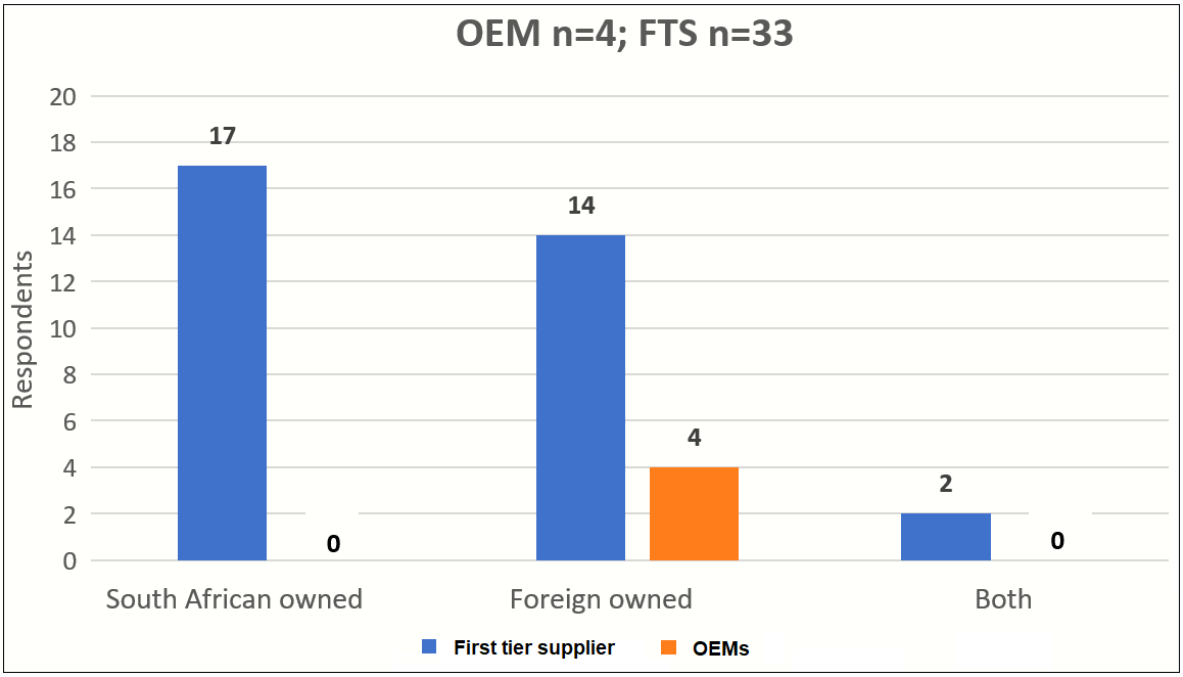


Figure 5.1: Ownership of the respondents companies

Figure 5.1 revealed that 17 (52%) of the first-tier supplier companies are South African-owned, 14 (42%) of the first-tier supplier companies are foreign-owned and two (6%) of the first-tier supplier companies are 50% South African-owned and 50% foreign-owned. Figure 5.1 further revealed that none of the OEM companies are South African-owned.

5.2.2 Question 2 (Industry classification)

Question 2 was used to determine whether the company is an OEM or first-tier supplier. Figure 5.2 reveals how many respondents are OEMs and how many are first-tier suppliers.

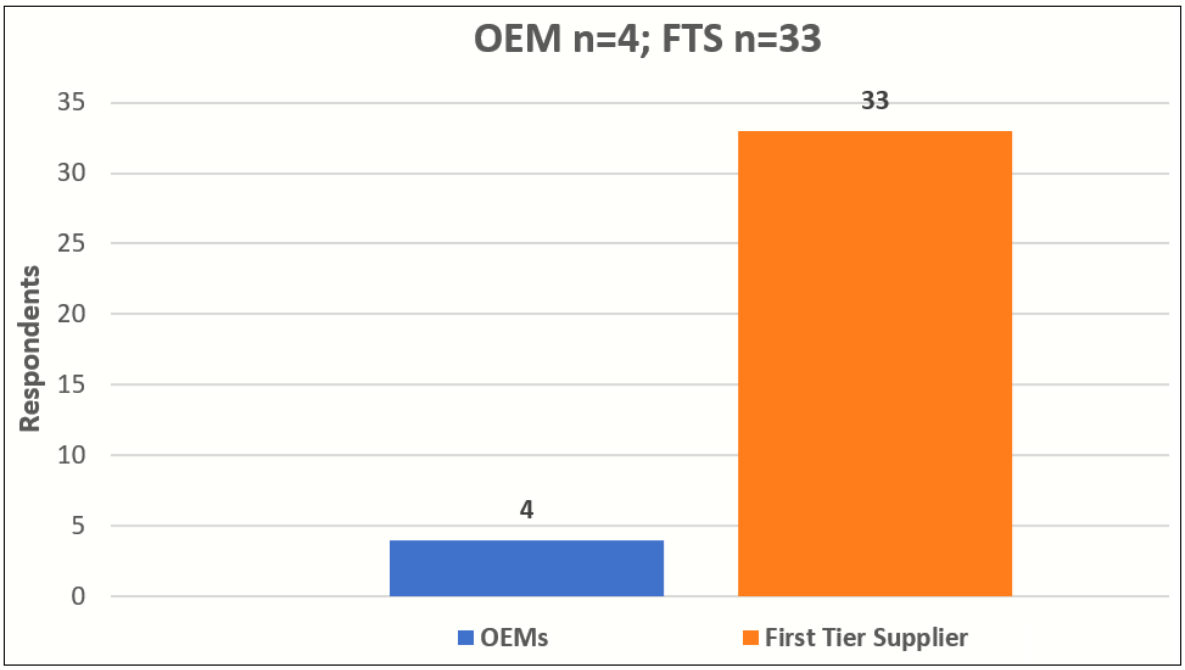


Figure 5.2: OEMs vs first-tier supplier

Figure 5.2 revealed that four respondents are OEMs (57% of the total population of OEMs) and 33 respondents (out of a possible 110) are first-tier suppliers (30% of the total population).

5.2.3 Question 2.1 (FTS production split)

Question 2.1 was only required to be answered by the first-tier suppliers to determine whether their volume product is manufactured for OEMs, the aftermarket, or for both.

Figure 5.3 reveals the results.

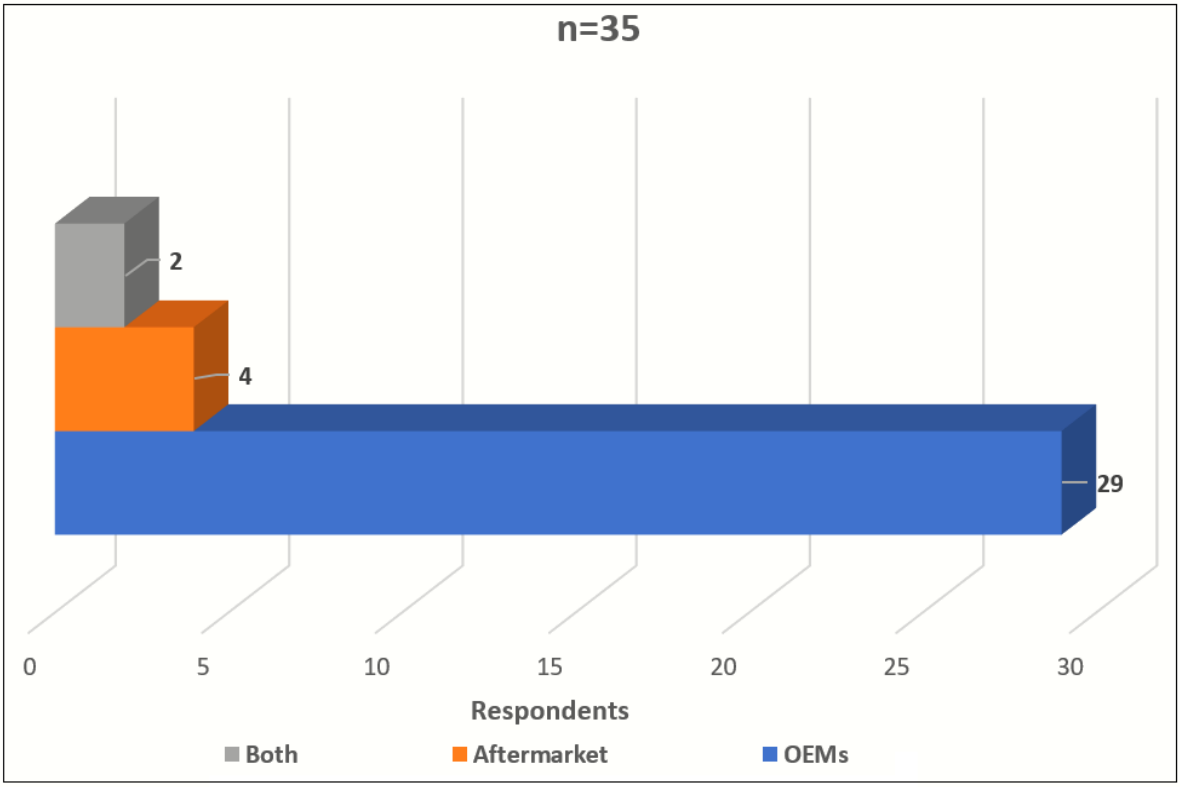


Figure 5.3: Aftermarket or OEMs

Figure 5.3 revealed that the majority, 29 (83%), of the volume products manufactured by first-tier suppliers are for OEMs exclusively, with the minority, four (11%), manufacturing for the aftermarket. Two first-tier suppliers (6%), indicated that they supply both the OEMs and the aftermarket. Investments in new generation models, exports by the OEMs to achieve higher volumes and economies of scale benefits, as well as linkages with the OEMs' international supply chains, are important reasons for the existence of the first-tier suppliers in the country.

5.2.4 Question 2.2 (FTS end-market split)

Question 2.2 was only required to be answered by the first-tier suppliers to determine whether their company's volume product is manufactured for the export market, the domestic market or for both.

Figure 5.4 reveals the results.

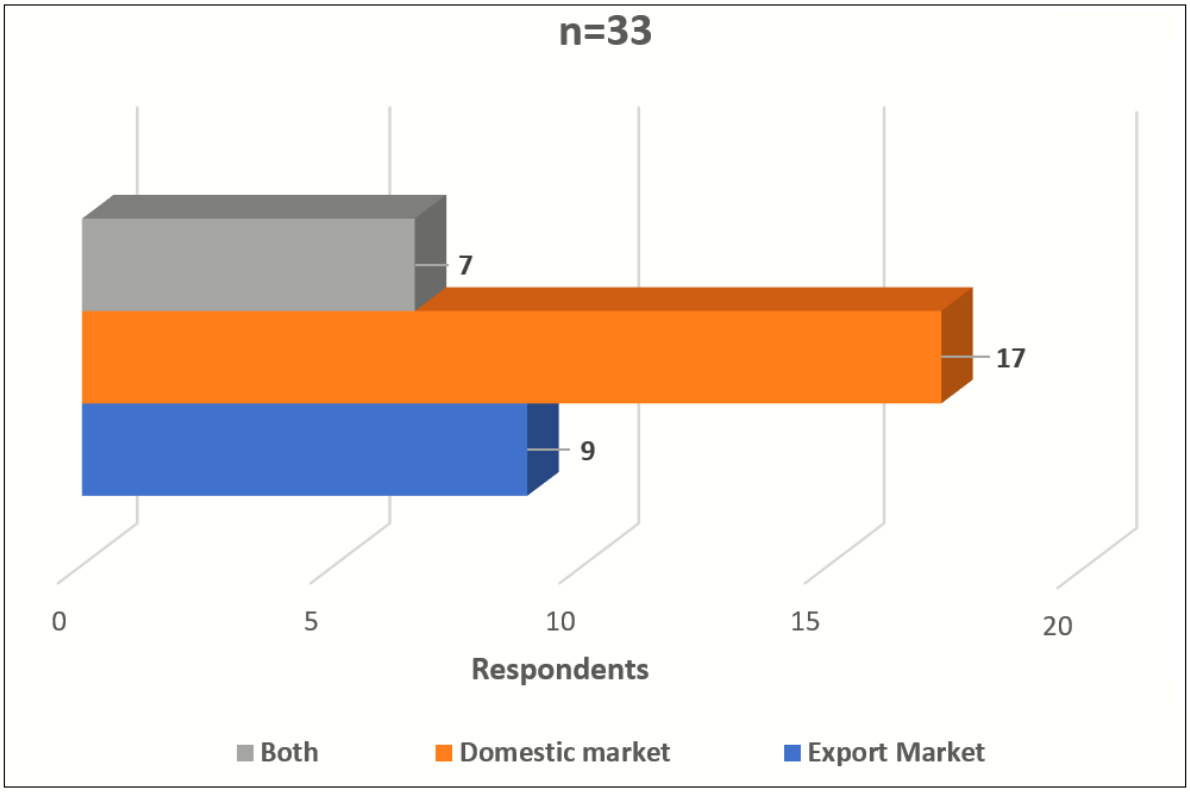


Figure 5.4: Domestic market vs export market

Figure 5.4 reveals that 17 (52%) of the first-tier suppliers' volume products are manufactured for the domestic market, nine (27%) are manufactured for the export market exclusively, and seven (21%) of the first-tier suppliers' products are manufactured for both the domestic and export market. Higher vehicle production volumes, assisted by a growing domestic new vehicle market and increased vehicle exports, are important building blocks to realise the APDP vision of doubling vehicle production in the country to around one million units per annum by 2020. The aim of the APDP furthermore is to also assist in deepening and broadening the domestic component supply base as well.

5.2.5 Question 3 (perception on government support)

Question 3 was used to determine how the respondents regard governmental support for the South African automotive industry, in general, in comparison with automotive support in competitor countries that they have information on.

Figure 5.5 reveals the perceived views regarding the South African automotive government support *vis-à-vis* automotive support in competitor countries.

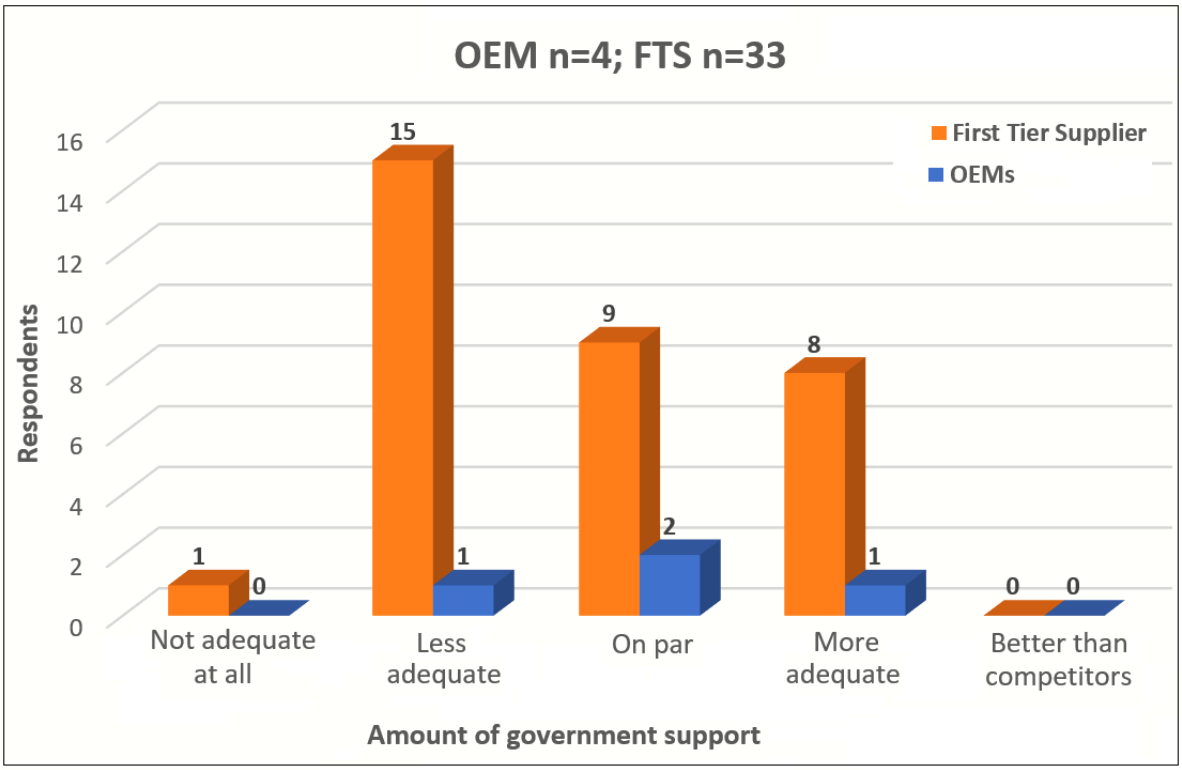


Figure 5.5: SA government support compared to automotive support in competitor countries

Figure 5.5 reveals that 15 (45%) of the first-tier supplier respondents view South African automotive government support as less than adequate when comparing it to automotive support in competitor countries, whereas only one (25%) of OEMs view the support as more than adequate when comparing it to automotive support in competitor countries. Figure 5.5 also reveals that nine (27%) of the first-tier supplier respondents viewed South African automotive support as being on par when comparing it to competitor countries.

The findings from the OEMs responses must be viewed in the light of the findings in Chapter 2 by Naudé (2013) that states that the South African automotive industry compares positively with comparable industries in developing nations regarding flexible production capability, government support, raw material accessibility, emerging-market cost advantages, and infrastructure.

5.2.6 Question 4 (coping without government support)

Question 4 was used to determine whether the respondents think the automotive industry in South Africa is capable of coping with global competition without government support. Figure 5.6 reveals the responses.

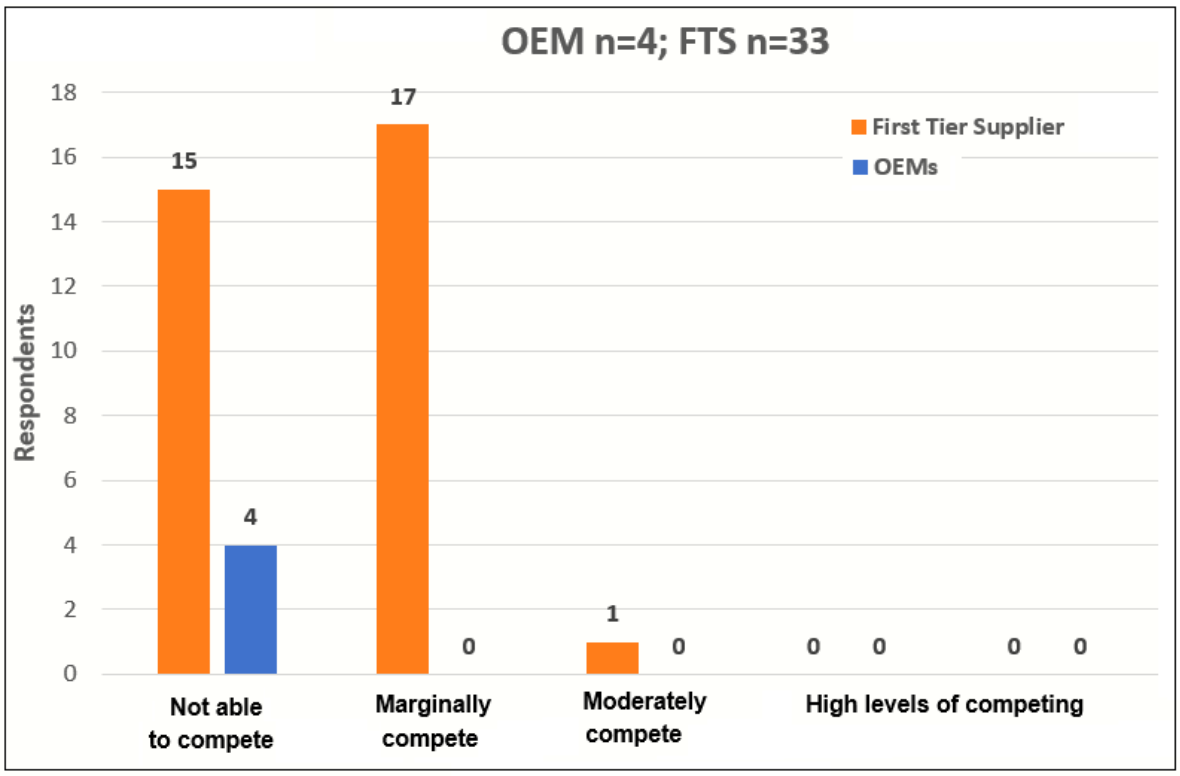


Figure 5.6: Coping with global competition without government support

Figure 5.6 reveals that 15 (45%) of the first-tier supplier respondents (with eight (80%) of these vulnerable first-tier suppliers) and all, 100%, of the OEM respondents indicated that the South African automotive industry would not be able to compete at all with global competition without government support. Conversely, 17 (52%) of the first-tier suppliers and none of the OEMs indicated that the South African automotive industry can marginally compete with global competition without government support. Figure 5.6 also reveals that only one (3%) of the first-tier suppliers and none of the OEMs can moderately compete with global competition without government support. Figure 5.6 lastly indicated that not a single first-tier supplier nor OEM indicated that the South African automotive industry has a high chance of competing without any government support or can successfully compete without any government support. The respondents therefore confirm that, in the intensely competitive global environment where governments aim to attract OEMs' investments to their countries, governmental automotive support is imperative to guarantee the continued existence of the sector in the South African economy.

5.2.7 Question 5 (impact of the MIDP)

Question 5 was used to determine if the MIDP, as government policy, impacted the respondents' companies positively, negatively or not at all and, if they did, in what form. Figure 5.7 reveals the results.

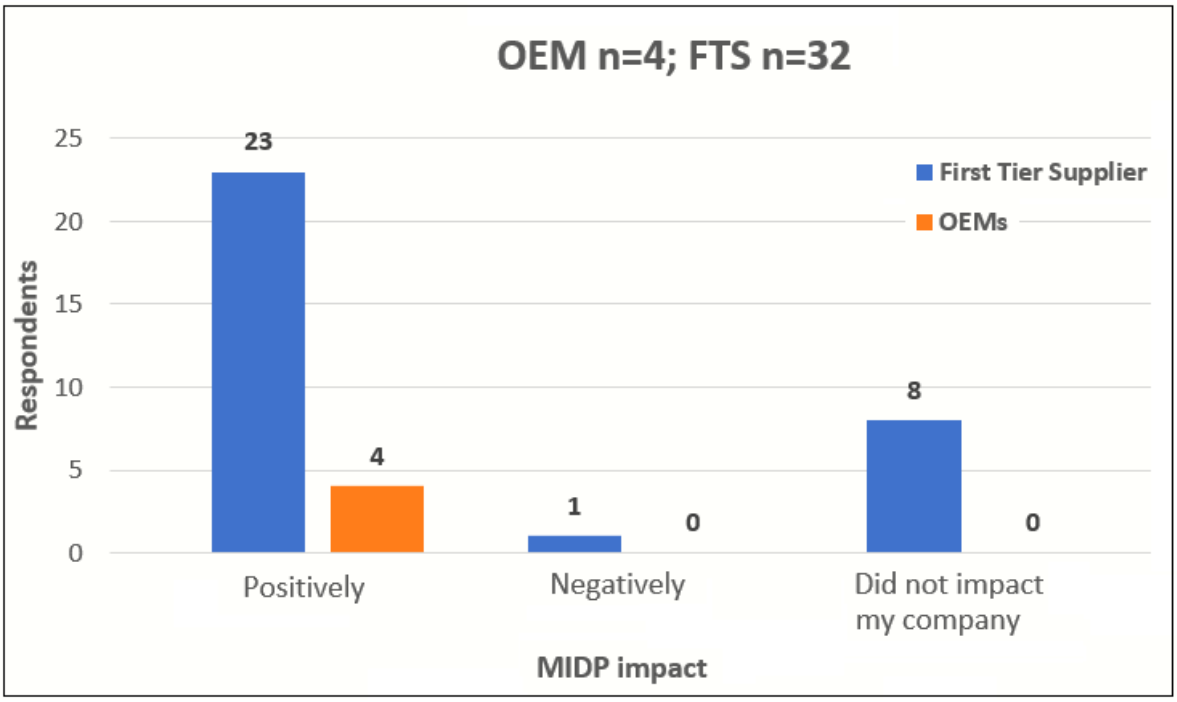


Figure 5.7: Impact of the MIDP on the company

Figure 5.7 reveals that the majority, 23 (72%) of the first-tier supplier respondents' companies, and all, 100%, of the OEMs benefitted positively from the implementation of the MIDP by government. Figure 5.7 further shows that one (3%) of the first-tier supplier respondents' companies was negatively impacted by the implementation of the MIDP, and that eight (25%) of the first-tier supplier respondents' companies were not impacted at all by the implementation of the MIDP. One respondent did not answer this question or any question until question 13.

All four OEMs and all 10 vulnerable sector respondents indicated that the MIDP impacted their company positively. The reasons provided by the respondents as to why the MIDP positively impacted on their company were as follows:

- the MIDP supported their exports to the EU by offsetting the cost of working capital and freight charges,
- the MIDP export incentives assisted their company,

- their company could offset most of the logistic costs to get their products to foreign shores,
- the companies' export volume increased due to a viable business case,
- the MIDP allowed the company to ensure that pricing was competitive in global markets,
- the MIDP covered the logistic cost between South Africa and foreign customers, thus putting the companies' product at the doorstep of Europe, and thus obviating the inherent geographical disadvantage, and
- the MIDP increased companies' export volumes.

The reasons provided by the respondents as to why the MIDP did not impact positively on their companies included that some companies did not see an increase on the normal demand that they already had, or their company was not yet in existence at that time. The reason the respondents indicated that the MIDP impacted their company negatively was because their companies only supply to the domestic market and not the export market.

From the above explanations it becomes clear that the MIDP by-and-large assisted companies to increase their export volume and to offset logistic distance to markets. The MIDP therefore made it easier for companies to explore and access foreign markets with an attractive product offer based on the government support provided through the MIDP.

5.2.8 Question 6 (Impact of changeover from MIDP to APDP)

Question 6 was used to determine whether the shift from the MIDP to the APDP (changeover period) impacted the respondents' companies positively, negatively or not at all, and if it did impact, in what form.

Figure 5.8 reveals how the shift from the MIDP to the APDP affected the companies.

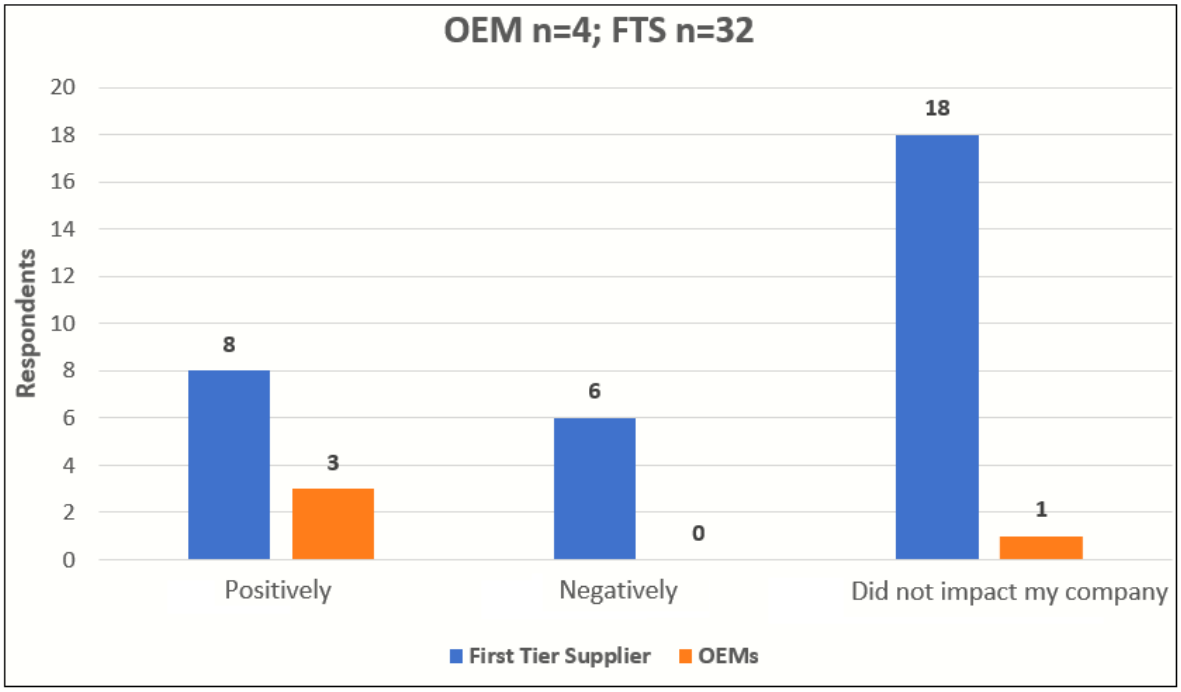


Figure 5.8: Impact of the shift from the MIDP to the APDP

Figure 5.8 reveals that eight (25%) of the first-tier supplier respondents and three (75%) of the OEMs indicated that the shift from the MIDP to the APDP impacted their company positively. Six (19%) of the first-tier supplier respondents, and none of the OEMs, indicated that the shift from the MIDP to the APDP impacted their company negatively. Figure 5.8 also illustrates that 18 (56%) of the first-tier supplier respondents and one (25%) of the OEMs indicated no impact on their companies at all.

All four OEMs and nine out of the possible 10 vulnerable sector respondents indicated that the shift from the MIDP to the APDP affected their company positively. The balance of the respondents are made up of the first-tier suppliers. Respondents explained why the shift from the MIDP to the APDP impacted their company positively for the following reasons:

- the shift supported all local production and not only exports,
- the shift ensured a huge increase in export volumes,
- the shift assisted with investment funding,
- the shift increased export volume and resulted in an increase in local content,
- the shift improved capacity requirements and administrative systems,

- the shift allowed companies to supply their products to other countries (broaden the target market), and
- the shift created a bigger drive for localisation that allowed companies to take advantage of a bigger group of claimable products in the manufacturing supply chain.

The respondents (19% of first-tier suppliers) explained why the shift from the MIDP to the APDP impacted their company negatively as follows:

- the APDP resulted in a lower incentive value relative to the MIDP and the shift reduced credits substantially.

Respondents (56% of the first-tier suppliers and 25% of the OEMs) explained why the shift from the MIDP to the APDP did not impact their company at all:

- the changes were not significant, or changes resulted in a similar situation as before, and
- all the companies' products are exported in any case.

From the above explanations it becomes clear that even though the shift from the MIDP to the APDP helped companies with their export volumes, especially the OEMs and the vulnerable high raw-material export product group, some respondents still indicated that the policy support measures were not significant enough or too similar to the previous incentives to make an impact on their company. Higher vehicle production volumes, as well as accommodating the vulnerable component groups with higher benefits under the APDP, assisted the industry with the transition from the MIDP to the APDP, but for a minority of component suppliers this was still not a sufficient gain.

5.2.9 Question 7 (Impact of the APDP)

Question 7 investigated to what extent the APDP impacted respondents companies, and if change occurred in what format it was.

Figure 5.9 reveals the results.

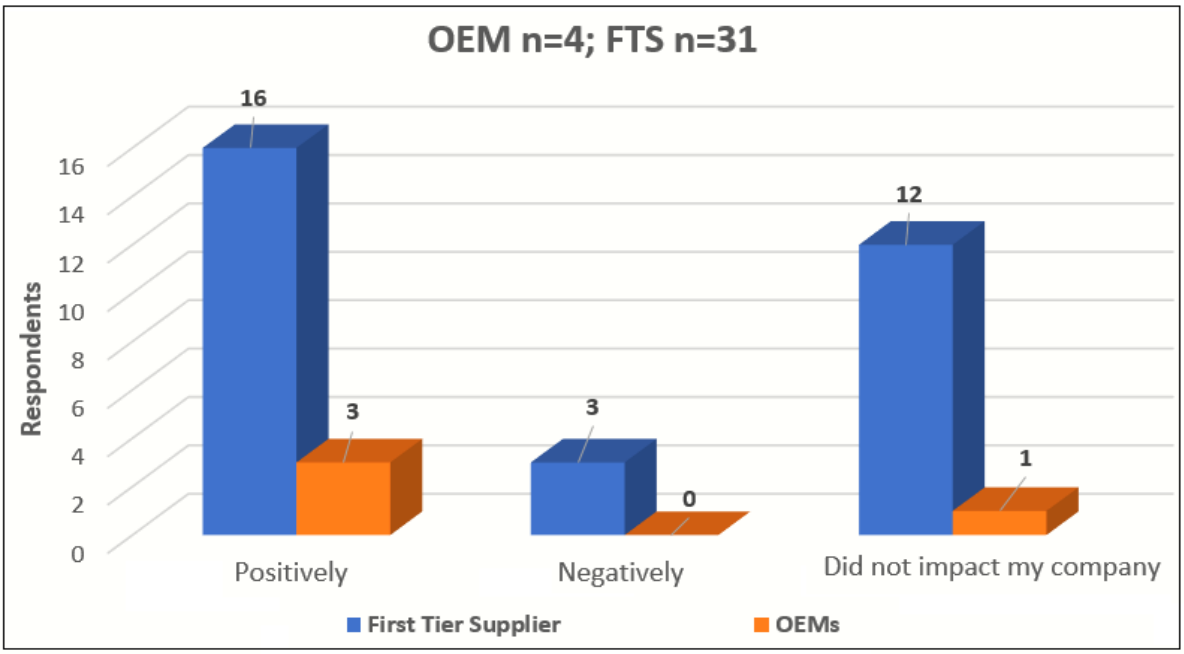


Figure 5.9: Impact of the APDP on the company

Figure 5.9 reveals that 16 (52%) of the first-tier supplier respondents and 3 (75%) of OEMs were positively impacted by the APDP and that three (9%) of the first-tier supplier respondents and none of the OEMs were negatively impacted by the APDP. 12 (39%) of the first-tier supplier's respondents and one (25%) of the OEMs were not impacted by the APDP. Another first-tier supplier, along with the one mentioned previously, thus 2 first-tier suppliers, did not complete this question.

Three of the four OEMs and seven out of the possible 10 vulnerable sector respondents indicated that the shift from the MIDP to the APDP impacted positively on their companies. The balance of the respondents is made up of the first-tier suppliers and one OEM. In total, 19 (54%) of the respondents explained the positive reasons as follows:

- companies received production rebate credit certificates on all local supply of aftermarket parts,
- companies started to get more exposure which they could leverage effectively to grow the market,
- companies received an increase in sales as well as an enhancement of their product volume,
- companies received AIS support for capital investment,

- the APDP increased the incentives on local value addition,
- increased investments as well as the discontinuation of duties,
- the level of support for the industry was slightly improved,
- the assistance with investment funding resulted in the company's factory becoming competitive,
- the APDP assisted with growth in total volume and allowed companies to export, based on credits through logistics.

All three of the respondents who indicated that the APDP impacted negatively did so because they supply their product to the export market exclusively. The FTS group explained that the APDP had a positive effect on OEMs but less so for first-tier suppliers.

Respondents that reported no impact (39% of the first-tier suppliers and 25% of the OEMs) explained their viewpoint as follows:

- there was no measurable change from the MIDP to the APDP with the main changes made to the sliding scale of VAA from 50 000 units upwards.

From the above explanations it is clear that the APDP had a positive impact on companies by assisting with growth in total volume production and by increasing the incentives on local value addition in line with the APDP's vision of doubling vehicle production to around one million units per annum, as well as the deepening and broadening of the component supply base.

This corroborates with the findings of Khan (2015:27, 30) that focused on the FTS. The AIS was also now accessible to all automotive component suppliers and improved under the APDP compared to the MIDP, where the investment incentive in the form of the PAA was very restrictive. The APDP is perceived to be negative for all material-intensive suppliers, such as the leather and catalytic converters industries, amongst others. This is the reason for the perception that the APDP does not provide the same level of support that the MIDP had given to the industry, thus making the material-intensive products less competitive (Khan, 2015:27,30).

Venter (2014), as mentioned in Chapter 2, also stated that South Africa's support programmes, such as the APDP, have been criticised for not permitting global market

forces to play out as they ought to, leading to increased vehicle prices through import tariffs, and draining the public purse.

5.2.10 Question 8 (Benefits due to government's support)

Question 8 was used to determine which benefits the companies received from government support. The possible benefit options included higher levels of local production, higher levels of direct/indirect exports, higher levels of investment in local manufacturing facilities and tooling, conveyed a positive influence to their global head office to increase exports/investment decisions and higher levels of local content. Respondents were asked to indicate all the options that apply to their company and to add any additional benefits.

Figure 5.10 reveals which benefits the company achieved because of government support.

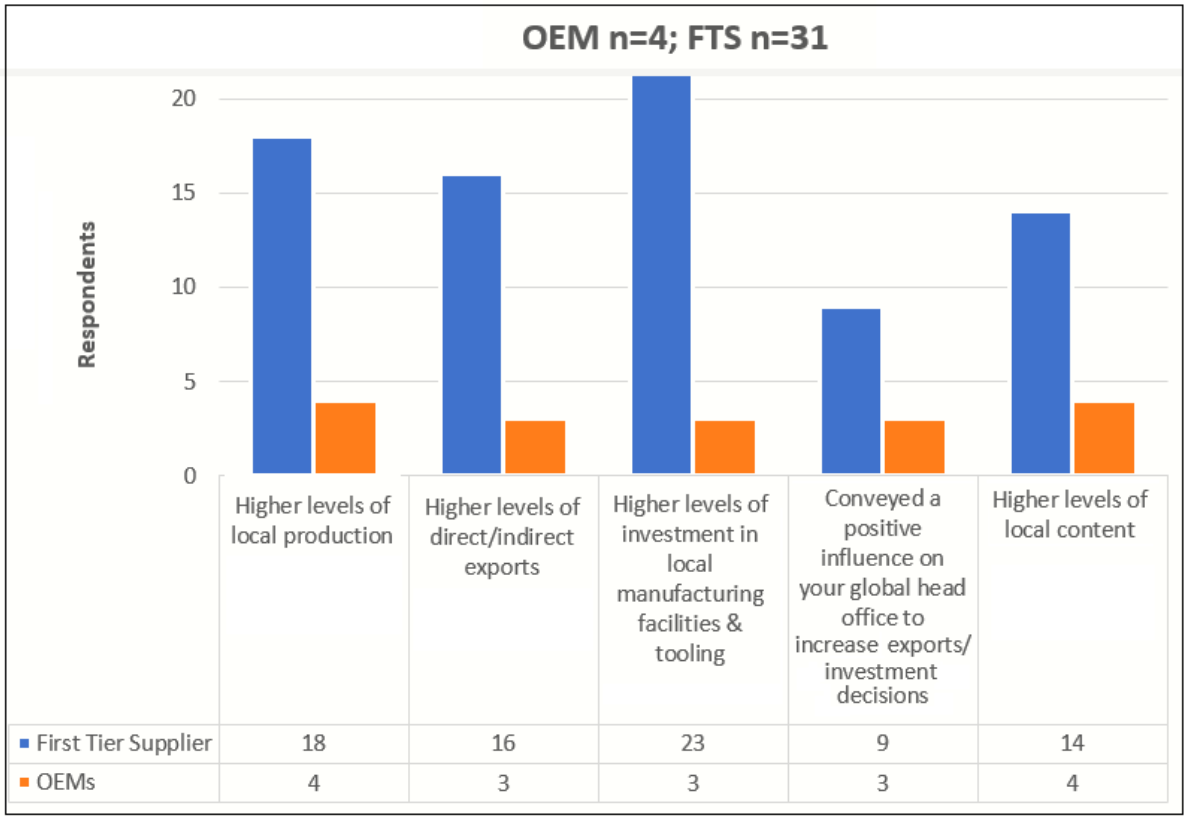


Figure 5.10: Benefits to the company because of government support

Respondents could mark all the options that apply, thus percentages across the benefits will not add up to 100%. The benefit cited by the most respondents (23 (74%) of first-tier suppliers companies and three (75%) of OEMs) were higher levels of

investment in local manufacturing facilities and tooling. This was followed by higher levels of local production noted by 18 (58%) of first-tier supplier companies and 4 (100%) of OEMs. Figure 5.10 further revealed that 16 (52%) of the first-tier supplier companies and three (75%) of the OEMs achieved higher levels of direct/indirect exports. Furthermore nine (29%) of the first-tier supplier companies and three (75%) of OEMs conveyed a positive influence to their global head office to encourage exports/investment decisions. Figure 5.10 lastly revealed that 14 (45%) of first-tier supplier companies and four (100%) of OEMs achieved higher levels of local content. One respondent added that they achieved business viability because of government support.

As highlighted in Chapter 3 of the study, the MIDP assisted the relatively small domestic automotive industry to become fully integrated into the global automotive supply chain environment and significant increases in all areas of vehicle and component production, exports, investments and international competitiveness have been achieved. The APDP was designed to enhance the industry to the next level in respect of higher vehicle production and increased localisation. The impact of government automotive policy support has generally been viewed as positive, however, different results have been achieved by the different role-players.

5.2.11 Question 9 (Impact of the 2015 APDP review)

Question 9 determined to what extent, recommendations following the 2015 APDP Review (such as the lowering of the threshold of producing 50 000 vehicles to 10 000 vehicles, and the freezing of catalytic converter incentives in 2017, instead of continuing reduction up to 2020, amongst others), make South Africa more attractive as an investment destination.

Figure 5.11 reveals the result.

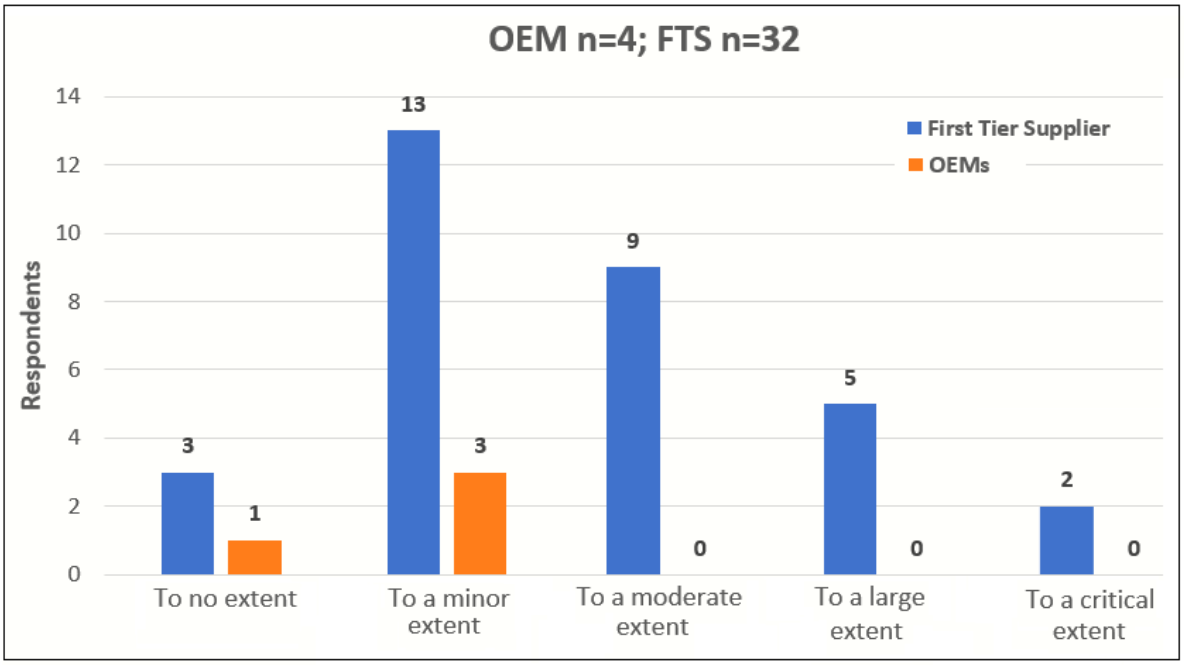


Figure 5.11: Impact of the 2015 APDP review

Figure 5.11 reveals that three (9%) of the first-tier supplier respondents and one (25%) of the OEMs opined that the recommendations following the APDP Review will not make South Africa more attractive as an investment destination. Figure 5.11 further states that 13 (41%), the modal category of the first-tier supplier respondents and three (75%) of the OEMs, indicated that the recommendations following the APDP Review will to a minor extent make South Africa more attractive as an investment destination. Figure 5.11 also shows that nine (28%) of the first-tier supplier respondents and none of the OEMs indicated that the recommendations following the APDP Review will to a moderate extent make South Africa more attractive as an investment destination. Figure 5.11 further shows that five (16%) of the first-tier supplier respondents and none of the OEMs indicated that the recommendations following the APDP Review will to a large extent make South Africa more attractive as an investment destination. Figure 5.11 lastly revealed that two (6%) of the first-tier supplier respondents and none of the OEMs indicated that the recommendations following the APDP Review will make South Africa in total more attractive as an investment destination.

The majority, 69%, of the first-tier supplier respondents and 75% the OEMs indicated that the recommendations following the APDP Review will to a minor or moderate extent make South Africa more attractive as an investment destination. The

responses contradict government's claims made in Chapter 3 of the study, that stated that the APDP Review ought to help to attract new entrants into the vehicle manufacturing arena who were struggling to comply with the preceding threshold of 50 000 vehicles per annum (Deloitte, 2016). Deloitte (2016) further stated that this review will assist in setting the industry growth back on course and increase investor confidence in spite of the present economic climate. It was also stated that this will position South Africa as an attractive vehicle manufacturing destination and advance the country's competitiveness against other emerging automotive industries such as Nigeria (Deloitte, 2016).

The views of the respondents confirmed the minor changes, as mentioned in Chapter 1 and Chapter 3, relating to the APDP Review and confirmed the long-term policy certainty by government in not making any structural changes to the programme while consolidating the catalytic converter challenges in freezing the benefits at a higher level. As far as the lowering of the threshold for vehicle production under the APDP from 50 000 units per annum to 10 000 units per annum, the declining new vehicle domestic market sales over recent years, as well as the decision not to provide AIS to investments below 50 000 units to new entrants by the DTI, could be seen as reasons for not taking up this opportunity. The announcement of the BAIC R11 billion and 100 000 unit investment in Port Elizabeth, as well as the investments by other companies as mentioned in Chapter 2 (Section 2.3.8) must be seen as a prime examples of the vote of confidence in the country and its automotive support regime.

5.2.12 Question 10 (MIDP and long-term security and confidence)

Question 10 was used to ascertain the extent to which the MIDP provided long-term security and confidence to the respondents' companies.

Figure 5.12 indicates the results.

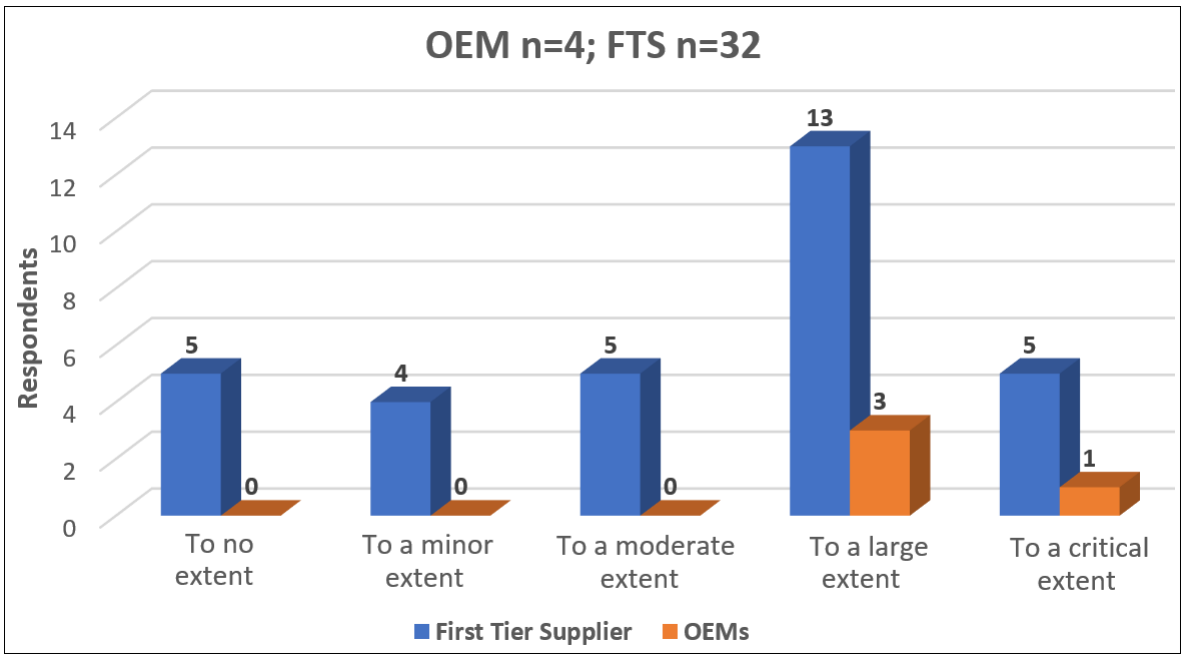


Figure 5.12: The extent to which the MIDP provides long-term security and confidence

Figure 5.12 reveals that five (16%) of the first-tier supplier respondents and none of the OEMs viewed that the MIDP did not provide long-term security and confidence to their company. Four (13%) (two from the vulnerable sector) of the first-tier supplier respondents and none of the OEMs indicated that the MIDP to a minor extent provides long-term security and confidence to their company. Five (16%) of the first-tier supplier respondents and none of the OEMs indicated that the MIDP to a moderate extent provides long-term security and confidence to their company. However, more positive was that 13 (41%) of the first-tier supplier respondents (with four (40%) from the vulnerable sector) and three (75%) of the OEMs indicating that the MIDP to a large extent provides long-term security and confidence to their company. Lastly, five (16%) of the first-tier supplier respondents (with four from the vulnerable sector) and one (25%) of the OEMs indicated that the MIDP to a critical extent provides long-term security and confidence to their company.

The majority (56%) of the first-tier supplier respondents and all the OEMs indicated that the MIDP to a large or critical extent provided long-term security and confidence to their company. The objective of the MIDP, as mentioned in Chapter 3, was to increase volumes and employment opportunities by enhancing the competitiveness and strengthening the integration into the global value chain through increased exports of assembled automobiles and components. The success story of the South

African automotive industry was made possible by the MIDP, the government's policy introduced in 1995 (United Nations, 204:2). BCS (2014:26) stated that the impact of the MIDP has been well recognised in a number of research papers and it can be said that the MIDP primarily changed the structure of the automotive sector in South Africa, with a number of positive results.

In summary, it is clear that the OEMs were all positive about MIDP implementation, while there were more of the FTS group that had misgivings about the MIDP. However, even the vulnerable group of FTSs were positive towards the MIDP.

5.2.13 Question 11 (APDP and long-term security and confidence)

In an effort to juxtapose the MIDP against the APDP, question 11 was used to determine the extent to which the APDP provided long-term security and confidence to the respondents' companies.

Figure 5.13 reveals to what extent the APDP was providing long-term security and confidence to the companies.

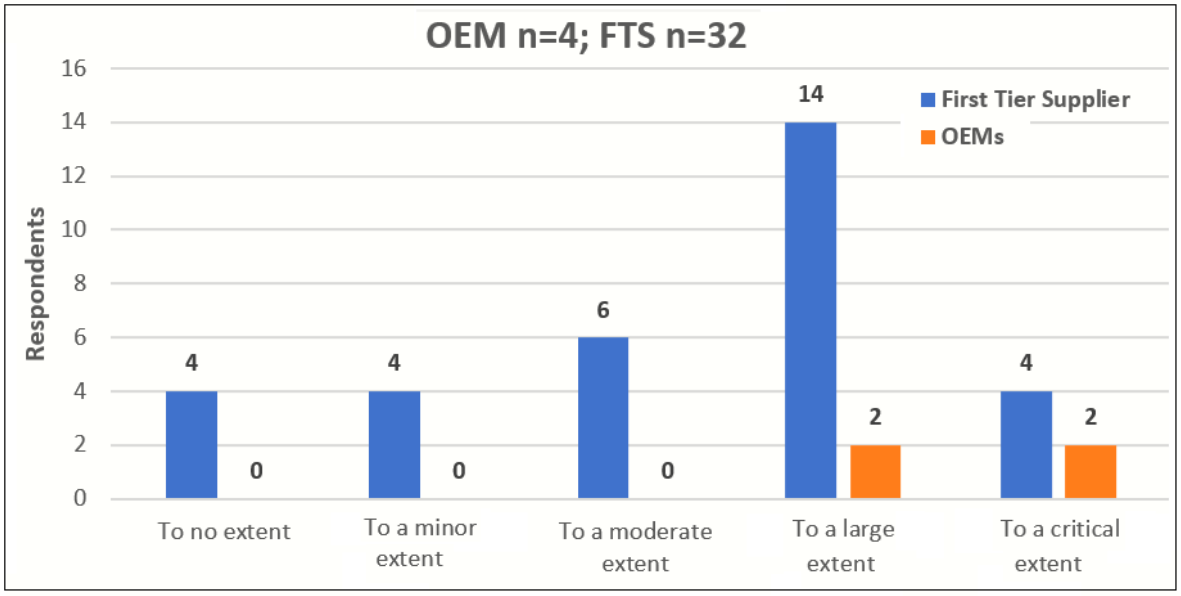


Figure 5.13: The extent to which the APDP provides long-term security and confidence

Figure 5.13 reveals that four (13%) of the first-tier supplier respondents and none of the OEMs indicated that the APDP provided long-term security and confidence to their companies. Four (13%) of the first-tier supplier respondents and none of the OEMs indicated that the APDP to a minor extent provides long-term security and

confidence to their company. Six (19%) of the first-tier supplier respondents and none of the OEMs indicated that the APDP to a moderate extent provides long-term security and confidence to their company. Furthermore, 14 (44%) of the first-tier supplier respondents and half (50%) of the OEMs indicated that the APDP to a large extent provides long-term security and confidence to their company. Lastly, being very positive, four (13%) of the first-tier supplier respondents and half, 50%, of the OEMs indicated that the APDP to a critical extent provides long-term security and confidence to their company.

When comparing Figure 5.12 with Figure 5.13, it becomes clear that both the MIDP and the APDP provided long-term security and confidence to a large and critical extent, to both the first-tier suppliers (included here are the vulnerable group of FTSs) as well as to the OEMs. The respondents reiterated therefore not just the importance of government support, but importantly long-term policy security in order to invest with confidence, considering that the average passenger car model lifecycle is seven years and for light commercial vehicles 10 years.

5.2.14 Question 12 (MIDP and sustainability of SA motor industry)

Question 12 was used to determine the extent to which the MIDP made producing vehicles in South Africa sustainable. Figure 5.14 reveals the results.

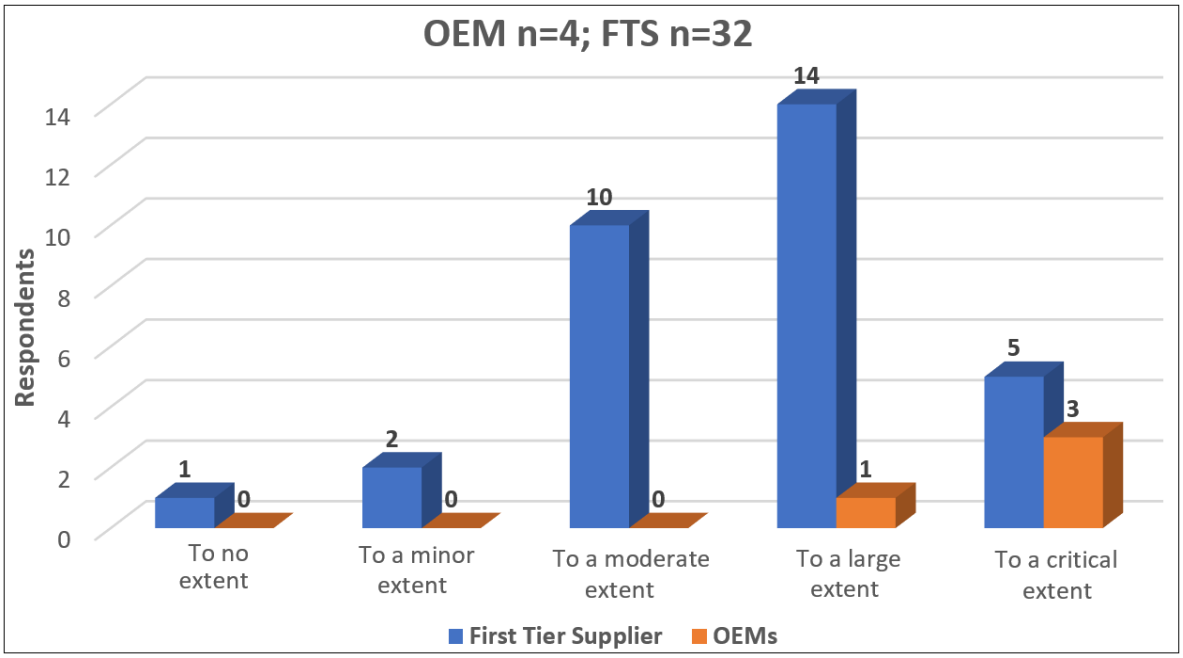


Figure 5.14: The extent to which the MIDP makes producing vehicles in South Africa sustainable

Figure 5.14 reveals a positive reply towards the influence of the MIDP with only one (3%) of first-tier supplier respondents and none of the OEMs indicating that the MIDP made producing vehicles in South Africa sustainable. Two (6%) of the first-tier supplier respondents and none of the OEMs indicated that the MIDP to a minor extent makes producing vehicles in South Africa sustainable. Ten (31%) first-tier supplier respondents and none of the OEMs indicated that the MIDP to a moderate extent makes producing vehicles in South Africa sustainable. Furthermore, 14 (44%) of first-tier supplier respondents and one (25%) of the OEMs indicated that the MIDP to a large extent makes producing vehicles in South Africa sustainable. Lastly, five (17%) of first-tier supplier respondents and three (75%) of the OEMs indicated that the MIDP to a critical extent makes producing vehicles in South Africa sustainable.

The majority (59%) of the first-tier supplier respondents and all the OEMs, thus indicated that the MIDP to a large and critical extent made producing vehicles in South Africa sustainable.

The outcome of the above question confirms the objective of the MIDP, as stated in Chapter 2, which was to increase volumes and employment opportunities by enhancing competitiveness and strengthening integration into the global value chain through increased exports of assembled automobiles and components. The result also supports the notion put forward in Chapter 3 that the MIDP lowered tariffs and provided strong support for exports (Barnes & Black, 2013:2). The key factor, according to Barnes and Black (2013:11), was that the MIDP enabled firms to rebate import duties by exporting products.

In summary, it is clear that the OEMs, the FTSs and the vulnerable group of FTS were all very positive that the MIDP made vehicle production in SA sustainable.

5.2.15 Question 13 (APDP and sustainability of SA motor industry)

Question 13 determined the extent to which the APDP makes producing vehicles in South Africa sustainable.

Figure 5.15 reveals the results.

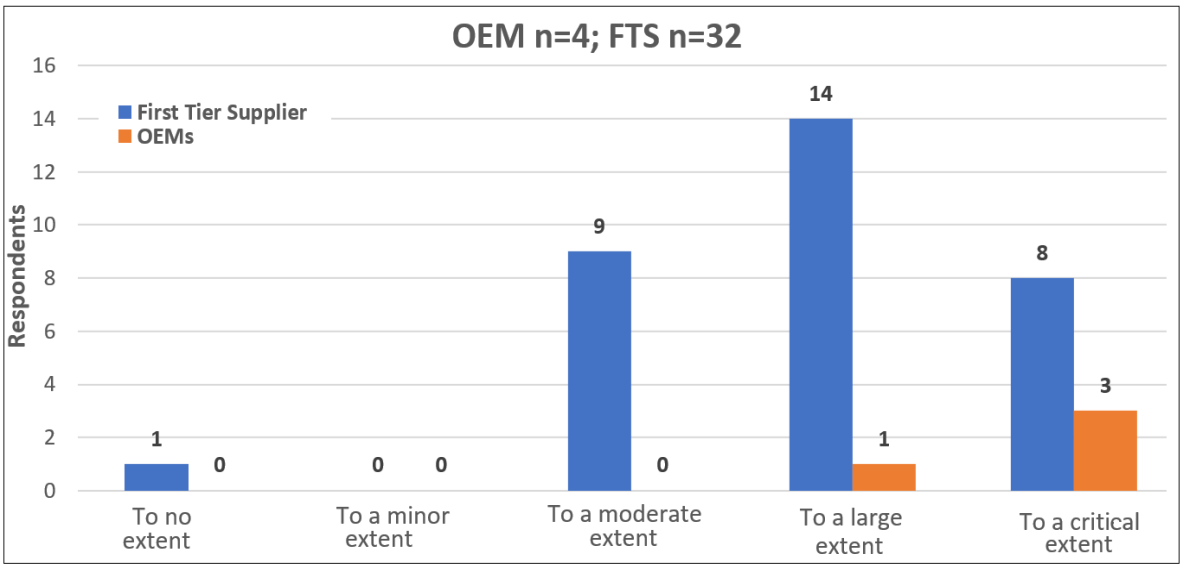


Figure 5.15: The extent to which the APDP made producing vehicles in South Africa sustainable

Figure 5.15 reveals a positive picture, with only one (3%) of the FTS respondents indicating that the APDP to no extent makes producing vehicles in South Africa sustainable. Figure 5.15 also reveals that nine (28%) of the FTS respondents and none of the OEMs indicated that the APDP to a moderate extent makes producing vehicles in South Africa sustainable. Furthermore, 14 (44%) of first-tier supplier respondents and one (25%) of the OEMs indicated that the APDP to a large extent makes producing vehicles in South Africa sustainable. Lastly, eight (25%) FTS respondents and three (75%) of the OEMs indicated that the APDP to a critical extent makes producing vehicles in South Africa sustainable.

Most (69%) of the FTS, and all the OEM respondents indicated that the APDP made producing vehicles in South Africa sustainable to a large or critical extent. This corroborates the sentiment mentioned in Chapter 2, relating to the APDP Review recommendations, and the DTI (2015) that opined that government remains devoted to further development of the automotive industry post-2020 in line with the National Industrial Policy Framework (NIPF) and the Industrial Policy Action Plan (IPAP). The DTI (2015) stated that the long-term development of the sector will be accomplished through high vehicle manufacture volumes and allied local value addition.

Econometrix (2018:178) stated that the government's support policies for the automotive sector (the MIDP and APDP) have effectively positioned South Africa as a global participant in automotive production. Since the introduction of these two

policies, exports and capital investments in the industry have risen (Econometrix, 2018:178).

A comparison of Figure 5.14 and Figure 5.15 confirms that which was stated in Chapter 2, that it is widely recognised that both the MIDP and APDP have contributed to a substantial inflow of foreign direct investment (FDI), as well as technology transfers, spurring growth in the South African motor industry, since the majority of the FTSs and OEMs indicated that both the MIDP and the APDP made producing vehicles in South Africa sustainable.

5.2.16 Question 14 (Continued presence in SA should government stop support)

Question 14 ascertained whether or not the respondents and the companies that they represent would remain in South Africa should government stop their support to the automotive industry. Respondents were also asked to provide reasons to their answers.

Figure 5.16 shows the results.

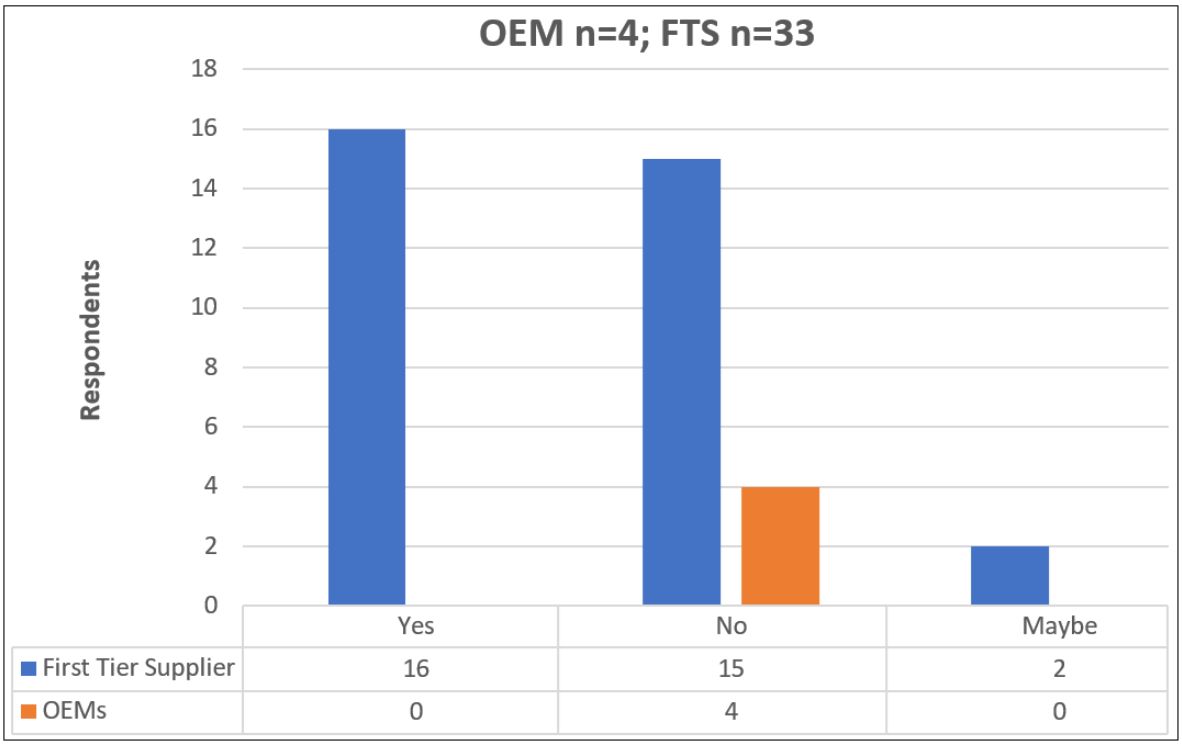


Figure 5.16: Remaining in SA should government stop support to the industry

Figure 5.16 shows an even split between the FTSs but a clear no from the OEMs. Of the FTSs, 15 (45%) would not remain in South Africa should government stop their support to the industry. Conversely, 16 (49%) of the FTS and none of the OEM companies would remain in South Africa should government stop their support of the industry. Two (6%) of the FTSs are not sure whether they would remain or leave South Africa should government stop their support to the industry.

Respondents (49% of FTSs) explained why they would remain in South Africa should government stop their support to the industry as follows:

- their companies are only located in South Africa but they would lose major supply contracts that would result in plant closure and job losses,
- their company is involved in other OEM markets, but should those markets cease operations their business would not survive,
- their company sells different products for different markets,
- their companies are locally owned and South African,
- their company is globally competitive for reasons other than price,
- their company does not rely on the motor industry as a sole source of income, and
- their company already has interests outside the country.

Respondents (45% of FTSs and all of the OEMs) explained why they would not remain in South Africa should government stop their support to the industry as follows:

- government support is a critical enabler to attract investment,
- companies will not be as competitive as for example Asian countries,
- the government incentives make the business case viable and sustainable,
- companies would lose their bottom line profits which would make them less attractive than competing countries such as Mexico,
- the automotive industry would not be sustainable due to the high cost of manufacturing in South Africa,
- local manufacturing will not be competitive without the incentives,

- South Africa will not be able to compete globally,
- domestic production costs, logistics and productivity are not globally competitive,
- support is critical since their company does not have economies of scale, and
- their market is too small and they are too far away from large markets.

Six percent of FTS respondents explained that they might remain in South Africa but it would solely depend on the presence of the OEMs, and that if they go, their company also goes. This shows the inter-dependency between some of the FTSs and the OEMs.

From the above explanations, it becomes clear (even from the respondents who answered yes) that there were reservations about the continued sustainability. As key drivers of the supply chain, it is important to note that should the OEMs leave the country, there would be no supply chain, no supplier development, no black empowerment and no skills and technology spill-over effects. The whole supply chain would be significantly affected with huge implications for, and impact on vehicle manufacturing in the economic heartland regions of the Eastern Cape, Gauteng and Kwazulu-Natal.

In summary, it is clear that the OEMs would not remain in SA should government stop their support to the industry. In total 7 (70%) of the 10 vulnerable group of FTSs indicated that they would not remain in SA.

5.2.17 Question 15 (Importance of government support)

Question 15 investigated how important government automotive support is to the respondent companies to continue with sustainable business operations in South Africa.

Figure 5.17 reveals the results.

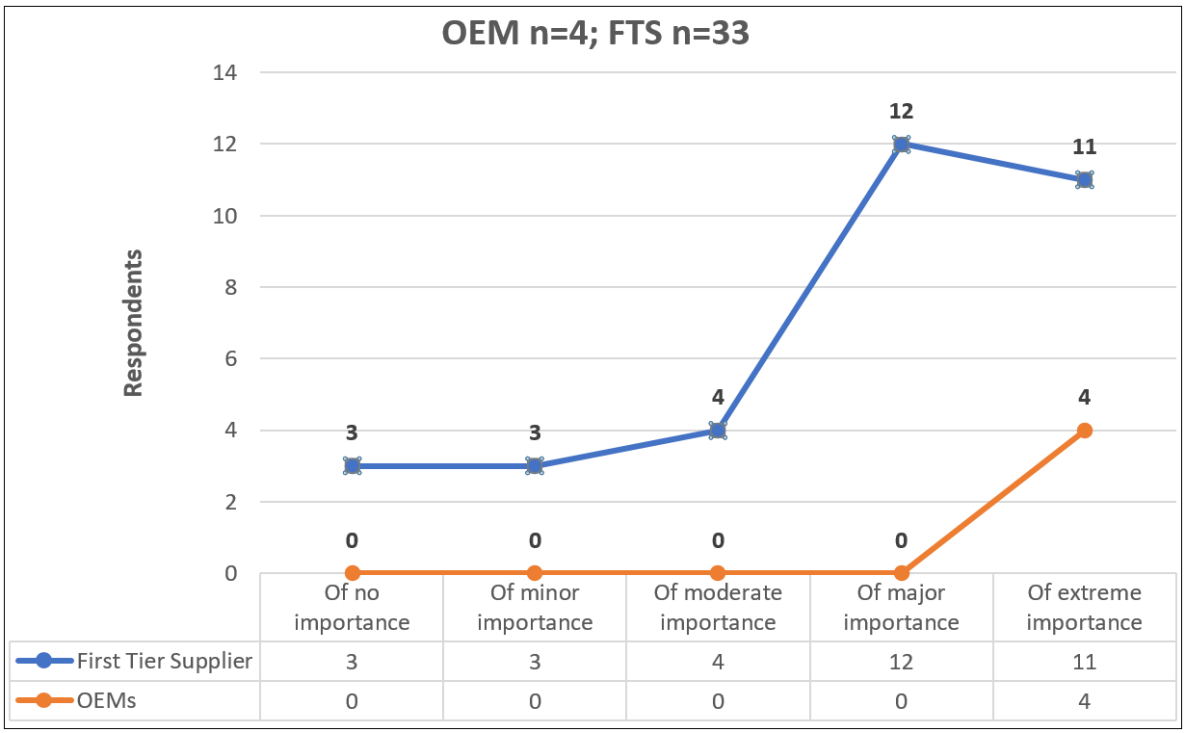


Figure 5.17: Importance of government automotive support

Figure 5.17 reveals that three (9%) of the FTS respondents and none of the OEMs indicated that government automotive support is of no importance to their companies' sustainable business operations in South Africa. Three (9%) of the FTS respondents and none of the OEMs indicated minor importance to their companies' sustainable business operations in South Africa. Four (12%) of the FTS respondents and none of the OEMs indicated that government automotive support is of moderate importance to their companies. A sizeable 12 (36%) of the FTS respondents and none of the OEMs indicated that government automotive support is of major importance to their companies. Lastly, 11 (33%) of the FTS respondents and all, 100%, of the OEMs indicated that government automotive support is of extreme importance to their companies' sustainable business operations in South Africa.

All four of the OEMs and nine out of the 10 vulnerable sector respondents indicated that government automotive support is of extreme importance for their company's sustainable business operations in South Africa. OEMs rely on government support to sustain their business operations and the vulnerable sectors, in turn, rely on the OEMs to support their business operations. There is thus a symbiotic relationship between the OEMs and these FTSs. Aders (2013) stated that an important

partnership is a symbiotic relationship in business, where each partner provides and extracts value from the other partner, which is the case in this industry.

5.2.18 Question 16 (Importance of consulting role-players)

Question 16 was used to determine how important it is for the respondents that government consults with all the relevant role-players (OEMs, suppliers, unions) when making changes to the automotive policy regime.

Figure 5.18 reveals the results.

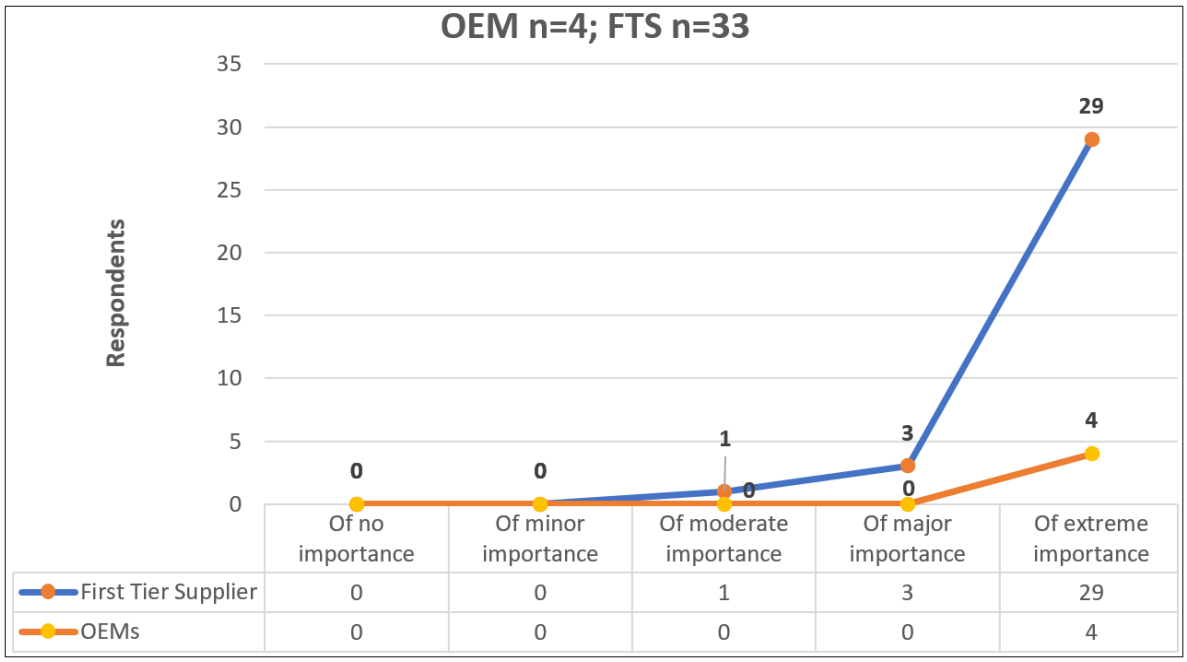


Figure 5.18: Importance of government consultation with industry

Figure 5.18 reveals that none of the FTS respondents or the OEMs indicated that it is of no or minor importance for government to consult with all the relevant role-players when reviewing and making changes to the automotive policy regime. One (3%) of the FTS respondents and none of the OEMs indicated that it is of moderate importance. Furthermore, three (9%) of the FTS respondents and none of the OEMs indicated that it is of major importance for government to consult with all the relevant role-players when reviewing and making changes to the automotive policy regime. The majority 29 (88%) of the FTS respondents, and all, 100%, of the OEMs indicated that it is of extreme importance for government to consult with all the relevant role-players when reviewing and making changes to the automotive policy regime.

Almost all (97%) of the FTSs and all the OEMs indicated that government consultation with the industry is of major or extreme importance.

Constructive collaboration and commitment from all role-players are what makes the industry successful and which could achieve real efficiency improvements in the industry.

5.2.19 Question 17 (The impact of the move from MIDP to APDP)

Question 17 was used to ascertain what the impact of moving from the MIDP to the APDP was to the respondents' companies.

Figure 5.19 reveals the results.

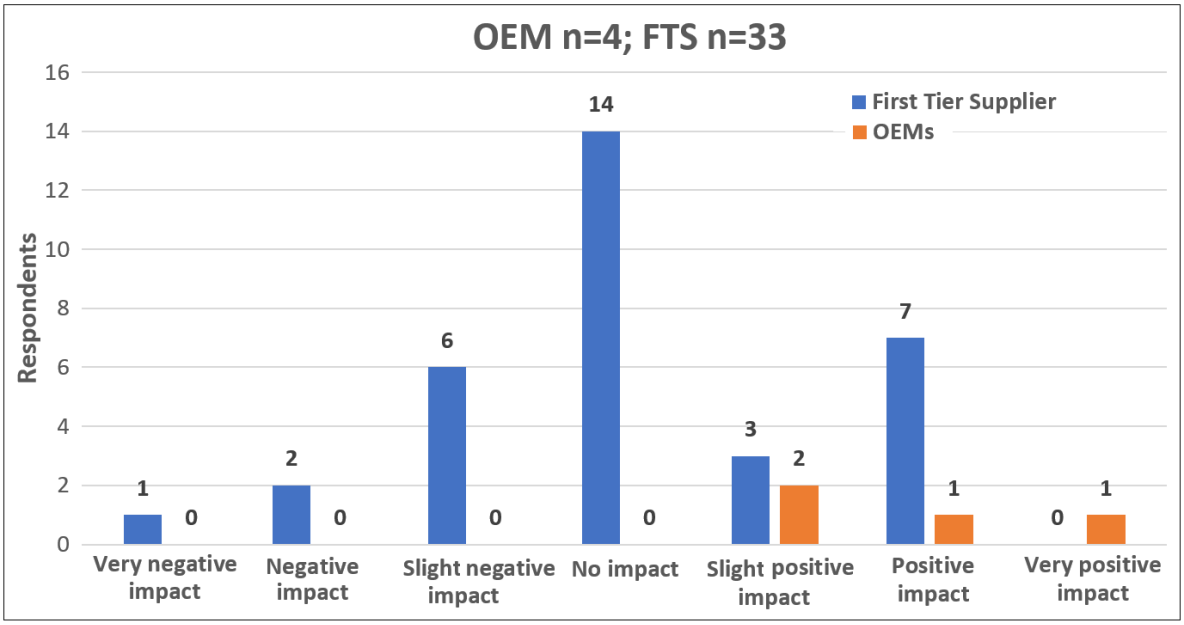


Figure 5.19: Impact of the shift from the MIDP to the APDP

Figure 5.19 shows that one (3%) of the FTS respondents and none of the OEMs indicated that the shift from the MIDP to the APDP had a very negative impact on their company. Two (6%) of the FTS respondents and none of the OEMs indicated that the shift from the MIDP to the APDP had a negative impact. Six (18%) of the FTS respondents and none of the OEMs indicated that the shift from the MIDP to the APDP had a slightly negative impact on their company. Furthermore, 14 (42%) of the FTS respondents and none of the OEMs indicated that the shift from the MIDP to the APDP had no impact on their company. Three (9%) of the FTS respondents and two (50%) of the OEMs opined that the shift from the MIDP to the APDP had a slightly positive impact on their company. Seven (21%) of the FTS respondents and one

(25%) of the OEMs indicated that the shift from the MIDP to the APDP had a positive impact on their company. Lastly, none of the FTS respondents and one (25%) of the OEMs indicated that the shift from the MIDP to the APDP had a very positive impact on their company.

The majority (70%) of the FTSs indicated that the shift from the MIDP to the APDP had either no impact or more of a negative impact on their companies. This relates back to Chapter 3 where Khan (2015:27,30) stated that the APDP is perceived to be negative for all material-intensive industries, such as the leather and catalytic converters industries, amongst others. The reason for this is that the APDP does not provide the same level of support that the MIDP had given to the industry, thus making the material-intensive products less competitive (Khan, 2015:27, 30). Hence, higher levels of support under the APDP were provided to the vulnerable product groups in order to assist with the transition from the MIDP to the APDP. The qualification for component suppliers to earn APDP benefits resulting from the APDP Review will also be tightened in future in order to avoid these benefits being earned on non-core automotive products, and therefore preference will be afforded to those products that add value in the value chain.

All of the OEMs, in contrast to the FTSs, indicated that the shift from the MIDP to the APDP impacted them slightly positively to very positively. This relates to the theory of Chapter 3, where AIEC (2016:25), stated that the APDP was implemented with a view to elevate the automotive industry to the next level in accommodating OEMs in producing around one million vehicles per annum by 2020. In summary, there is a difference of opinion between the FTSs and the OEMs on the benefits of the move from the MIDP to the APDP.

5.2.20 Question 18 (Trade support mechanisms used by respondents)

Question 18 determined which mechanisms (Tariffs, AIS, VAA, PA) provided support to the companies. The respondents were asked to mark all the support mechanisms applicable to them.

Figure 5.20 reveals the result.

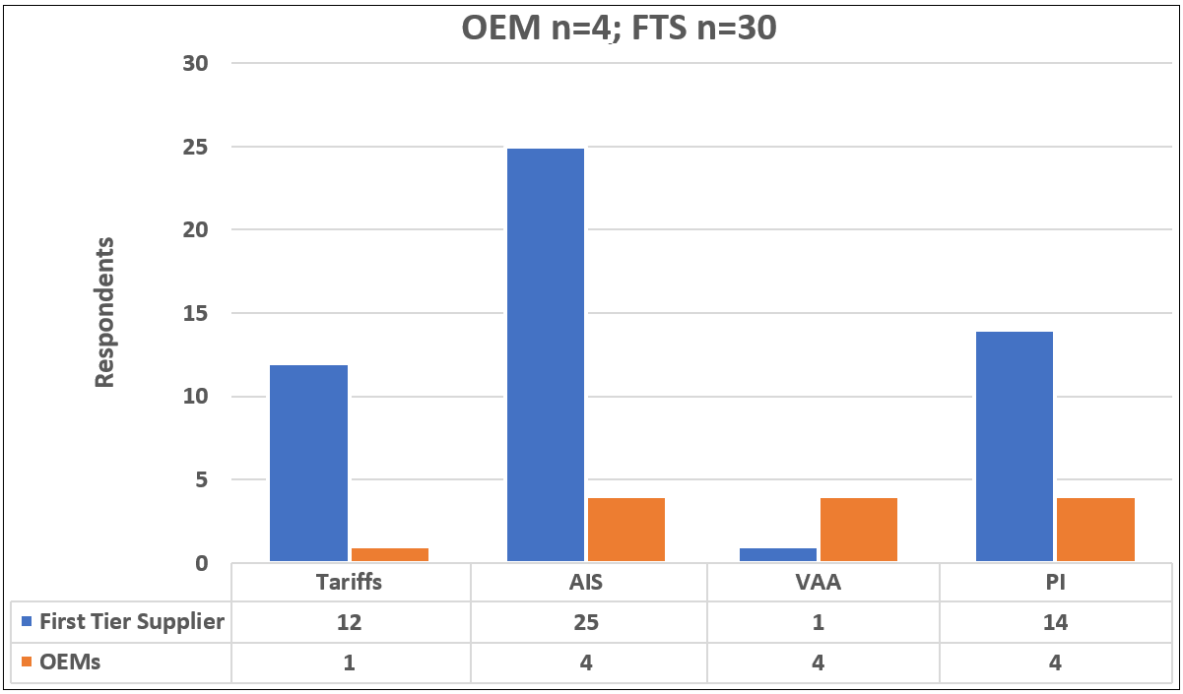


Figure 5.20: Mechanisms that provided support

The respondents could mark all that applied, thus percentages across the support mechanisms will not add up to 100%. The mechanism cited by the most respondents, namely, 25 (83%) of FTS companies and four (100%) of OEMs are AIS: Investment incentive. This was followed by PI: Productive incentive which was noted by 14 (47%) of FTS respondents and four (100%) of the OEMs. Furthermore, 12 (40%) of FTS respondents and one (25%) OEM indicated that they are supported by Tariffs: Import duty protection. One (3%) FTS respondent and four (100%) OEMs indicated that they are supported by VAA: Volume Assembly Allowance.

A large majority (83%) of the FTSs indicated that AIS provided the most support to their company. This is due to the fact that the AIS replaced the PAA (Productive Asset Allowance) under the APDP, which now benefits all automotive component suppliers, with higher levels (of 25-35%) of the incentive going to the component suppliers. All the OEMs indicated that they have received support in the form of AIS, VAA and PI, which was discussed in Chapter 3, Section 3.4. The AIS benefitted OEMs and 20-30% of the incentive goes to the OEMs. Only the OEMs benefit from VAA since 18-20% of local assembled vehicle's wholesale price is rebated against the duty payable on imported components that are used in the production of vehicles, irrespective of where the production is sold, as long as annual units per plant exceed 50 000. OEMs also benefitted from PI, since the benefits are calculated on local

production value**.** All three of these benefits are critical to the OEMs, since these are important aspects of the APDP that keep them in South Africa.

5.2.21 Question 19 (Who benefits the most: OEMs or FTSs)

Question 19 was used to determine who benefits most from government support programmes. The respondents were asked to choose only one option.

Figure 5.21 reveals who benefits most.

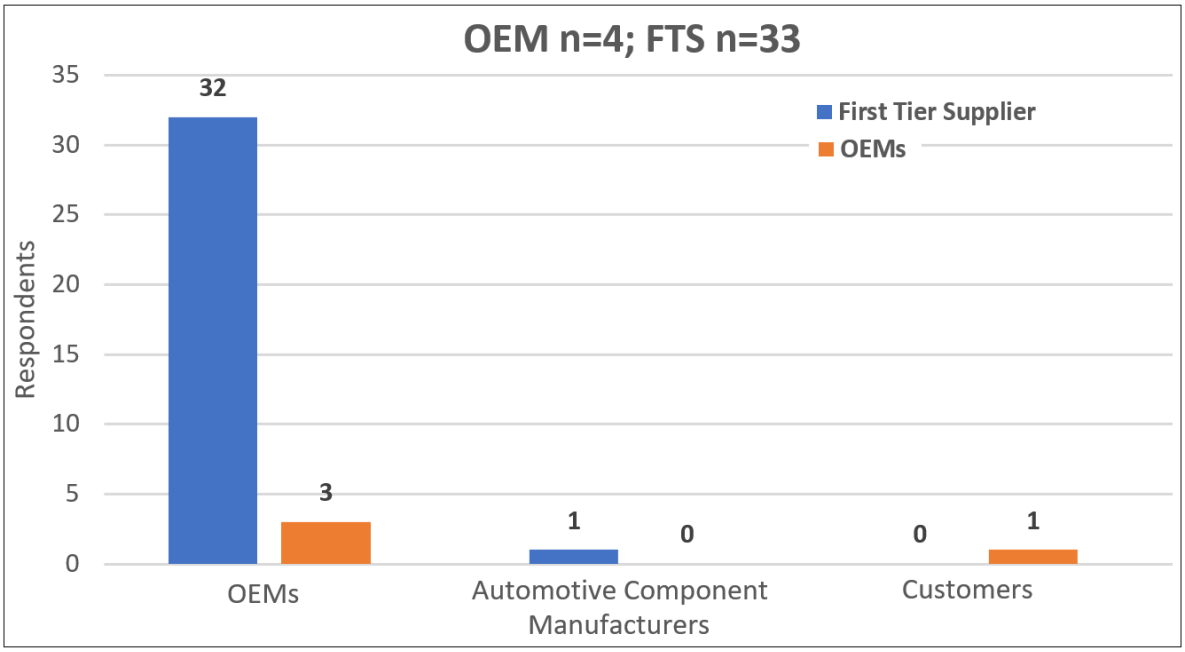


Figure 5.21: Who benefits most from government support programmes?

Figure 5.21 reveals that almost all, 32 (97%) of the FTS respondents and three (75%) of the OEMs indicated that OEMs benefit the most from government support programmes. One (3%) FTS respondent and none of the OEMs indicated that automotive component manufacturers benefit second most from government support programmes. None of the FTS respondents and one (25%) OEM indicated that customers benefit from government support programmes.

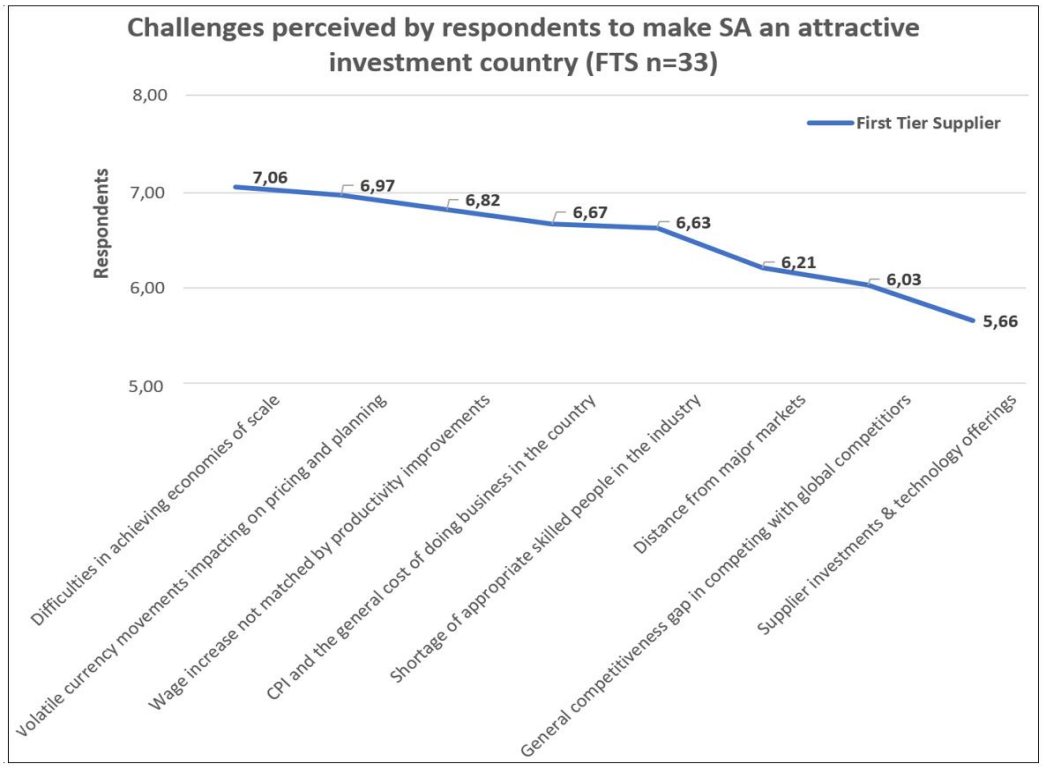
All the APDP benefits apply to the OEMs but they are duty liable and normally generate the export contracts for the component suppliers. The component suppliers will not have any national and international business if it was not for the OEMs (derived demand). The base-level AIS for the component suppliers is also higher than for the OEMs, namely, 25% vs 20%. Consumers also benefit from the government support programmes via the most choices of brands and model

derivatives in the world, as well as vehicle price reductions in real terms due to the intensely competitive domestic new vehicle market environment, as highlighted in Chapter 3.

5.2.22 Question 20 (Challenges of an attractive investment destination)

Question 20 used a ten-point Likert-type response-scale question to determine the extent to which each of the respondents perceive a list of the following challenges in making South Africa an attractive country for their company to invest and operate in. One indicates no challenge at all and 10 indicates an extreme challenge. The challenges included the difficulties in achieving economies of scale, general competitiveness gap in competing with global competitors, distance from major markets, supplier investments and technology offerings, wage increase not matched by productivity improvements, shortage of appropriate skilled people in the industry, volatile currency movements impacting on pricing and planning and CPI and the general cost of doing business in the country.

Figure 5.22 reveals the extent to which the respondents perceive the challenges to make South Africa an attractive investment country by indicating a mean value for FTSs and OEMs respectively.



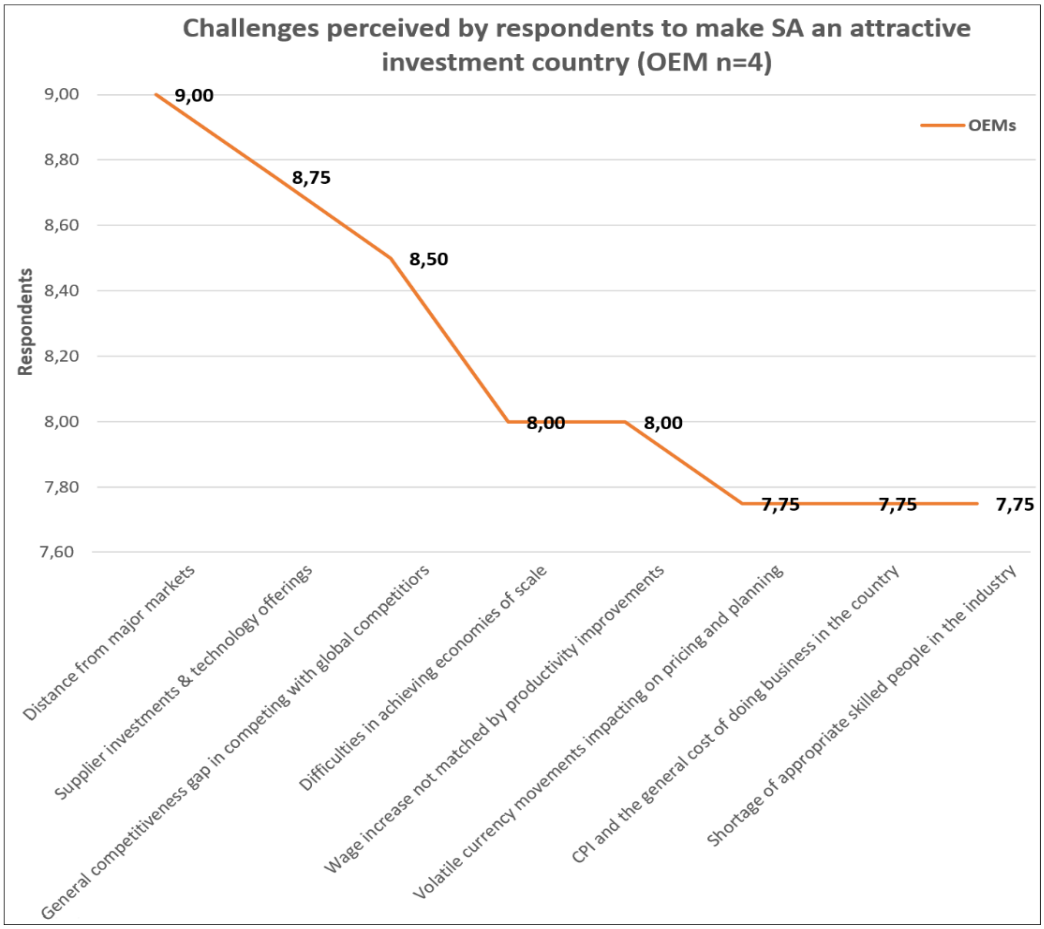


Figure 5.22: Challenges perceived to making SA an attractive investment country

Figure 5.22 reveals that the FTSs perceived the challenges related to making South Africa an attractive country to invest in, on average range from 5.66 to 7.06 out of a possible ten:

- Difficulties in achieving economies of scale was perceived as the greatest challenge with an average of 7.06 out of a possible 10, and
- Supplier investments & technology offerings were seen as the smallest challenge (5.66).

Figure 5.22 further revealed that the OEMs perceived the challenges, on average, to range from 7.75 to 9.00 out of a possible 10, related to making South Africa an attractive country to invest in:

- Geographical distance from major markets was perceived as the greatest challenge with an average of 9.00 out of a possible 10, and
- Shortage of appropriately skilled people in the industry was seen as the smallest challenge (7.75).

Figure 5.22 also revealed that, in general, all the challenges in making South Africa an attractive country were perceived as less critical for the FTS companies when compared to the OEMs.

The three biggest challenges in making South Africa an attractive country to invest and operate in for **FTSs** are:

- Difficulties in achieving economies of scale
- Volatile currency movements impacting on pricing and planning
- Wage increases not matched by productivity improvements

The three biggest challenges in making South Africa an attractive country to invest and operate in for **OEMs** are:

- Distance from major markets
- Supplier investments & technology offerings
- The general cost of doing business in the country

The three biggest challenges do not correspond between the FTSs and the OEMs, thus indicating the divergent viewpoints of these two groups. OEMs, in general, perceived the challenges more critical, which can be seen in the fact that their averages were much higher than the FTSs.

Supplier investments and technology offerings are the lowest ranked challenges in making South Africa an attractive country to invest and operate in, according to FTSs. OEMs, conversely, perceived shortage of appropriately skilled people in the industry as the lowest challenge. Respondents also added that electricity costs, political uncertainty, and direct and indirect support from overseas competitors by their respective countries, as challenges that make South Africa as a country less attractive to invest in. Supply chains compete against supply chains and international competitiveness is therefore critical in all aspects of the supply chain, while the cost of doing business and a stable operating environment are also imperative.

5.2.23 Question 21 (Building blocks needed to further SA auto industry)

Question 21 was used to determine the importance of the building blocks/interventions that the government automotive policy regime is using (APDP and SA Automotive Masterplan 2021-2035). The focus was on how to ascertain how

this will sustain and grow the South African automotive manufacturing industry, using a rating scale of 1 to 10, where 1 is of no importance and 10 is of extreme importance.

The mean value of the building blocks/interventions are indicated in Figure 5.23 from the viewpoint of the FTSs and the OEMs and will be further discussed below.

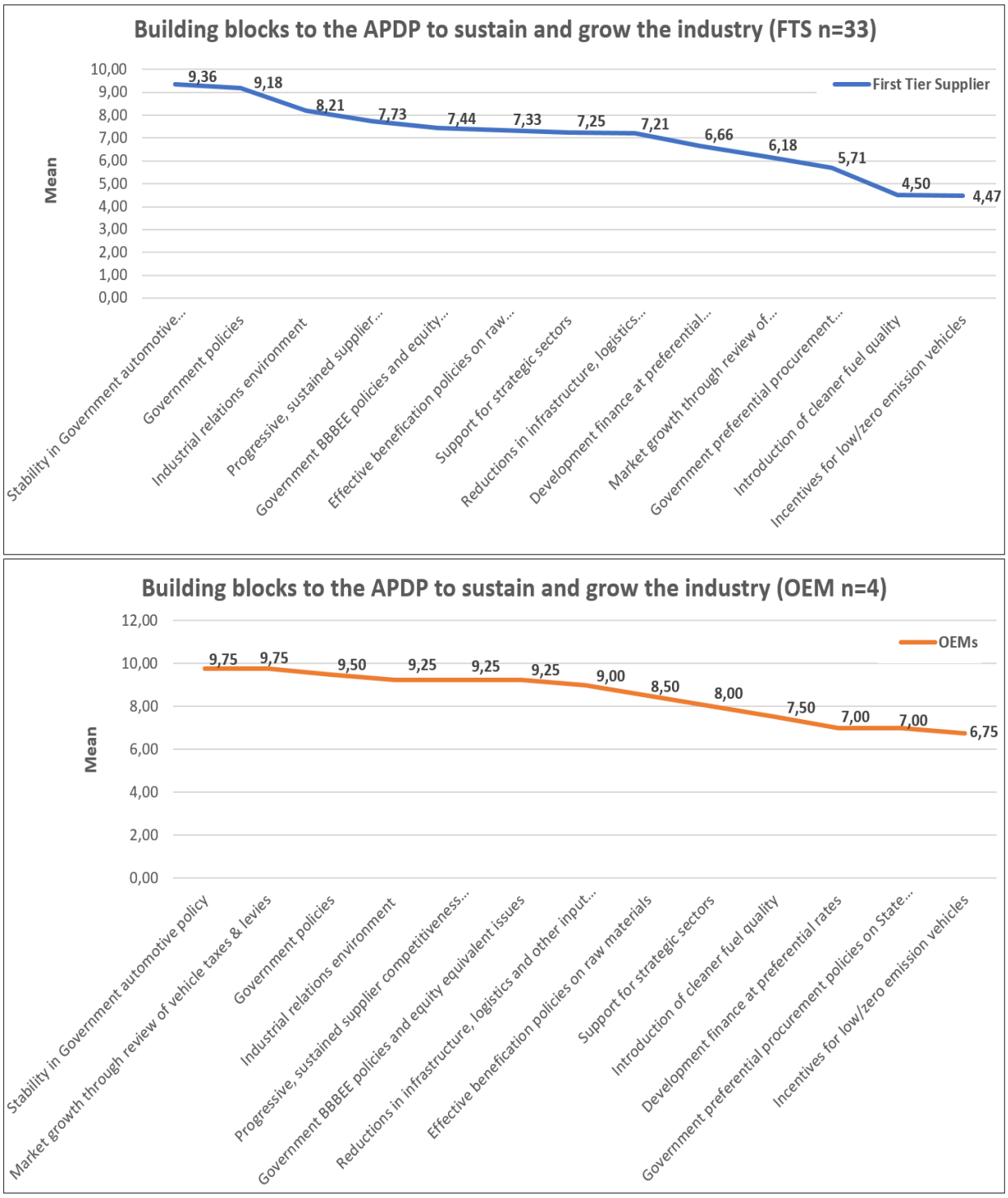


Figure 5.23: Building blocks to the APDP to sustain and grow the industry

Figure 5.23 shows that the FTSs rated the building blocks/ interventions the APDP in the range from 4.47 to 9.36 out of a possible ten, as follows:

- At the highest ratings, stability in government's automotive policy was seen as the most important building block/intervention, with an average of 9.36 out of a possible 10;
- At the lowest ratings, the incentives for low/zero emission vehicles was perceived as the least important building block/intervention (4.47).

Figure 5.23 also shows the OEM viewpoint has a ranking ranging between 6.75 to 9.75 out of a possible 10, as follows:

- At the highest ratings, stability in government automotive policy was perceived as the most important building block/intervention with an average of 9.75 out of a possible 10;
- At the lowest ratings, the incentives for low/zero emission vehicles was perceived as the least important building block/intervention with an average of 6.75.

From the above, it is evident that there is consensus between the FTSs and the OEMs with regards to the highest and lowest building block/intervention.

The three most important building blocks/interventions the government automotive policy regime implemented to sustain and grow the South African automotive manufacturing industry, according to the **FTSs** are, firstly, stability in government automotive policy. Secondly, government policies and thirdly, industrial relations environment.

The three most important building blocks/interventions the government automotive policy regime implemented to sustain and grow the South African automotive manufacturing industry, according to the **OEMs** are, firstly, stability in government automotive policy. Secondly, market growth through review of vehicle taxes and levies and thirdly, government policies.

From the above, it is evident that there is to a major extent some consistency between the FTSs and the OEMs with regards to the three most important building block/intervention.

Incentives for low/zero emission vehicles were seen as the least important building block/intervention the government automotive policy regime implemented to sustain and grow the South African automotive manufacturing industry by both the FTSs and the OEMs. This again highlights the perceptions of all the respondents in the supply chain, irrespective of volumes, supplying domestic or export market, amongst others, of the critical importance of the automotive policy regime to sustain the automotive industry in South Africa.

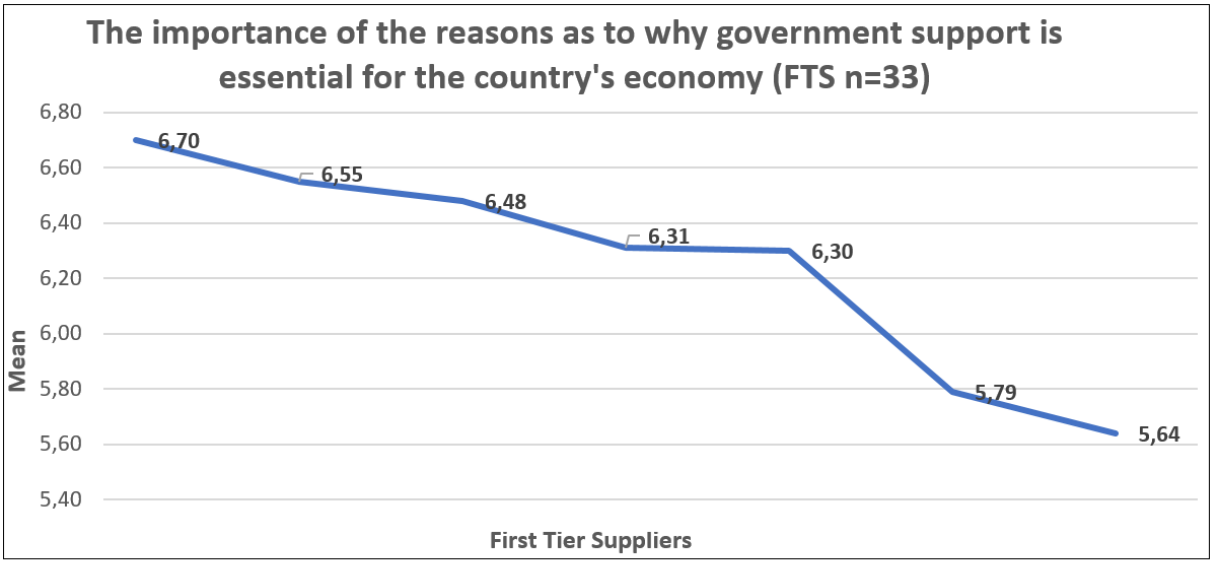
5.2.24 Question 22 (Reasons for government support of the auto industry)

Question 22 is a Likert-type rating scale rating question used to determine the importance of the reasons as to why government support is essential for the country's economy. A scale of 1 to 7 was used (where 1 is not at all important, 2 is of low importance, 3 is slightly important, 4 is neutral, 5 is moderately important, 6 is very important and 7 is extremely important). As stated in Chapter 3, Section 3.5, the main reasons for government support are that:

- Re-industrialisation of the manufacturing sector is essential for the revival of economic growth in South Africa (of which the automotive industry has been identified as one of the sectors for accelerated growth);
- The automotive industry is a vital job driver in South Africa's economy via the multiplier effect;
- The automotive industry makes a substantial contribution to South Africa's economy as a whole (in terms of GDP, compensation, government revenue, exports (BOP) and capital investment);
- Policy stability and certainty (continuation of government support programmes for automotive industry) are crucial to attract new investment, and it is a motivating factor for OEMs and multinational component suppliers to stay in the country and to make long-term investment decisions;
- The socio-economic contribution of the automotive industry is essential in contributing to the social upliftment of societies in the three regional clusters;
- The industry has substantial up- and downstream linkages to other sectors in primary, secondary and tertiary sectors, and developments in the automotive industry impact (positively or negatively) on these sectors; and

- Policy to improve localisation and beneficiation of the country's natural resources which will support in the growth of SMMEs and boost employment.

Figure 5.24 reveals the mean value of importance of each of the reasons as to why government support is essential for the country's economy, from the FTSs and the OEM viewpoint.



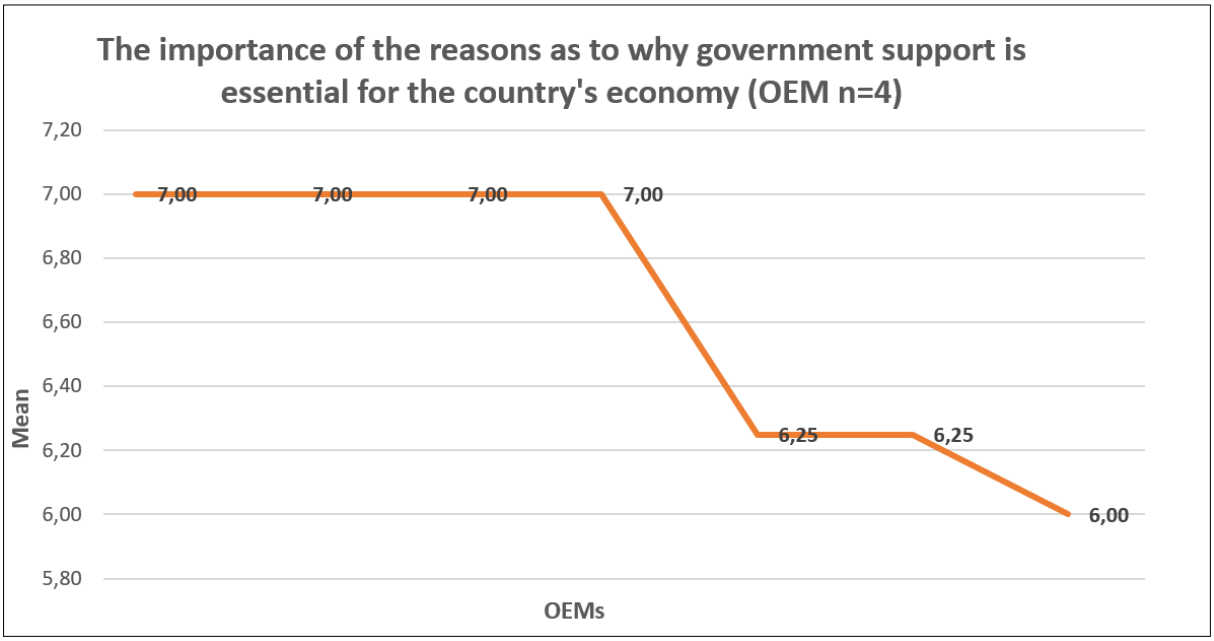


Figure 5.24: Importance of reasons why government support is essential for the economy

Figure 5.24 shows that the **FTSs** see the top three reasons as to why government support is essential for the country's economy, as:

- Policy stability and certainty (continuation of government support programmes for automotive industry) are crucial to attract new investment, and it is a motivating factor for OEMs and multinational component suppliers to stay in the country and to make long-term investment decisions, and as such it received an average of 6.70 out of a possible 7;
- Re-industrialisation of the manufacturing sector is essential for the revival of economic growth in South Africa (of which the automotive industry has been identified as one of the sectors for accelerated growth) and it received an average of 6.55 out of a possible 7; and
- The automotive industry is a vital job driver in South Africa's economy via the multiplier effect received and received an average of 6.48 out of a possible 7.

Figure 5.24 shows that the **OEMs** see the top three reasons as to why government support is essential for the country's economy, as:

- Re-industrialisation of the manufacturing sector is essential for the revival of economic growth in South Africa (of which the automotive industry has been identified as one of the sectors for accelerated growth) and it received an average of 7.00 out of a possible 7;
- The automotive industry is a vital job driver in South Africa's economy via the multiplier effect received, and it received an average of 7.00 out of a possible 7; and
- The automotive industry makes a substantial contribution to South Africa's economy as a whole (in terms of GDP, compensation, government revenue, exports (BOP) and capital investment) and it received an average of 7.00 out of a possible 7.

One respondent added that OEMs benefit the most from government support, not FTSs or the country as a whole, and that more jobs will be created should government allow second-hand imports. Another respondent added that localisation requires economies of scale and that by imposing strict BBBEE policy on foreign-owned exporters that use imported raw material and components, would never be economically viable.

5.3 BROADER VIEWPOINTS OF THE AUTOMOTIVE INDUSTRY

Question 23 and 24 required the respondents' views and opinions on some related issues.

5.3.1 Question 23 (South Africa versus the Australia set-up)

Question 23 was an open-ended question to determine whether the South African automotive industry could replicate what happened in Australia.

Figure 5.25 reveals whether the respondents believe that the South African automotive industry could follow in Australia's footsteps, where the OEMs, and consequently, the FTS industry ceased operations.

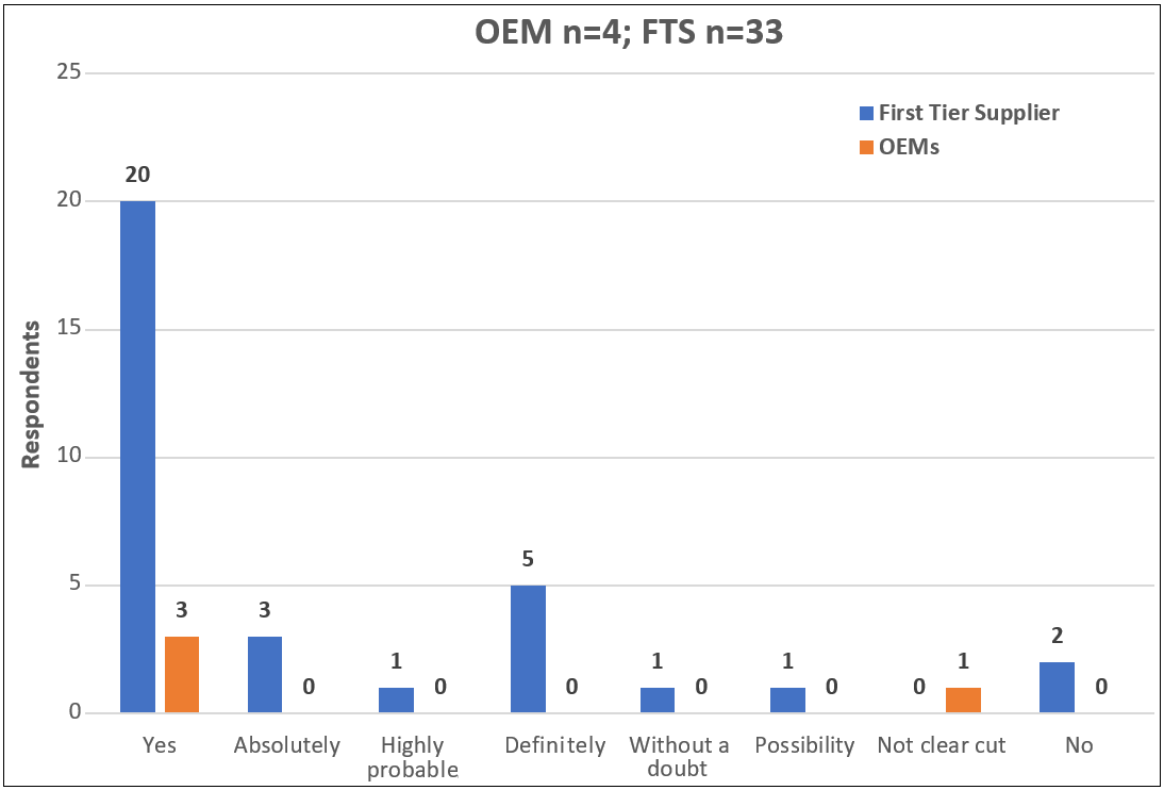


Figure 5.25: Could SA follow in Australia's footsteps should government discontinue or lower their support?

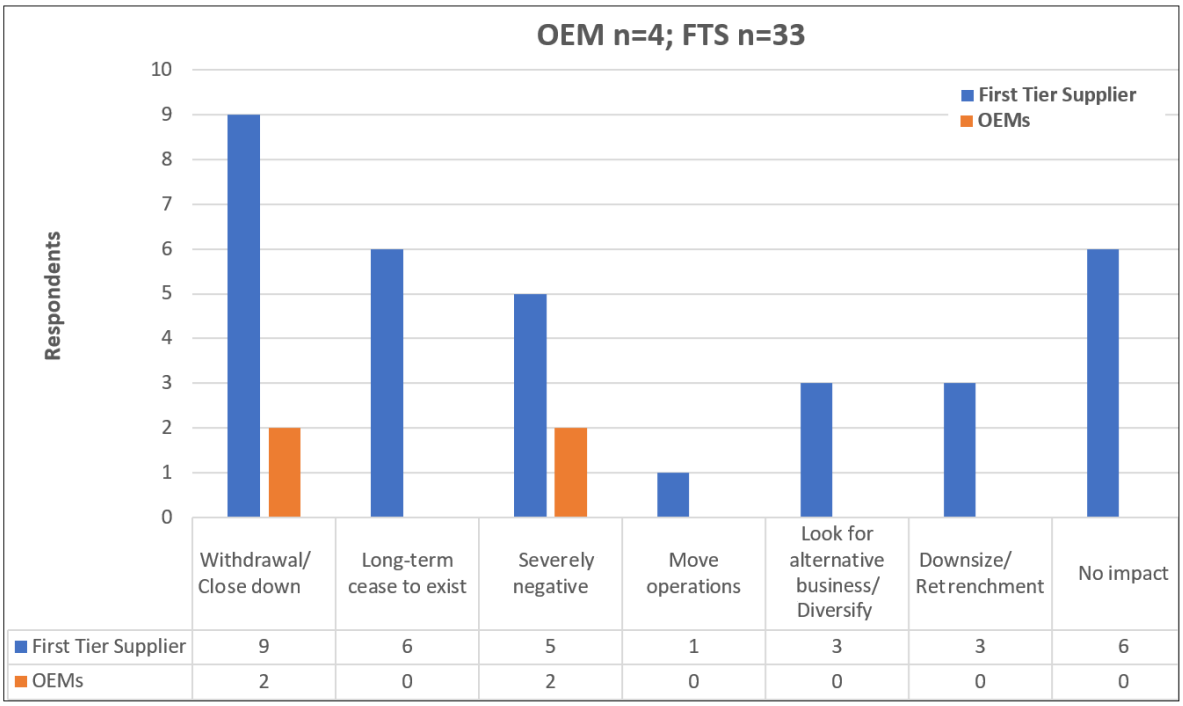
Figure 5.25 shows that the majority, 20 (61%) of the FTS respondents and three (75%) of the OEMs, stated that the South African automotive industry could follow in Australia's footsteps should government decide to discontinue or lower their levels of support to the industry. Furthermore, three (9%) of the FTS respondents and none of the OEMs used the word absolutely to state that the South African automotive

industry could follow in Australia's footsteps. One (3%) FTS respondent and none of the OEMs used the word highly probable. Five (15%) of the FTS respondents and none of the OEMs used the word definitely. One (3%) FTS respondent used the word without a doubt. One (3%) FTS respondent and none of the OEMs used the word possibility. None of the FTS respondents and one (25%) of the OEMs used the word not clear cut. Two (6%) of the FTS respondents and none of the OEMs used the word no to state that the South African automotive industry could follow in Australia's footsteps, where the OEMs, and consequently, the component supplier industry would cease operations should government decide to discontinue or lower their levels of support.

In summary, Figure 5.25 reveals that 31 (94%) (yes to possibility) of the FTS respondents and three (75%) of the OEMs indicated that should government decide to discontinue or lower their levels of support to the South African automotive industry, the same would happen as in Australia. The views emphasise the importance of constructive collaboration between government and industry, and also highlight the importance of updated and accurate information to be able to demonstrate the significant contribution by the automotive industry to the South African economy.

5.3.2 Question 24 (Impact of discontinuation of support by government)

Question 24 was used to determine how the respondents' companies would be impacted should government discontinue its long-term policy support of the industry through policy instruments. Figure 5.26 shows the results.



	Withdrawal/ Close down	Long-term cease to exist	Severely negative	Move operations	Look for alternative business/ Diversify	Downsize/ Retrenchment	No impact
First Tier Supplier	9	6	5	1	3	3	6
OEMs	2	0	2	0	0	0	0

Figure 5.26: Impact should government discontinue its long-term support

Figure 5.26 shows that nine (27%) of the FTSs and two (50%) of the OEMs would withdraw or close down should government discontinue its long-term policy support of the industry through policy instruments. Six (18%) of the FTSs and none of the OEMs would cease to exist over the long term, while five (15%) of the FTSs and two (50%) of the OEMs would be severely negatively impacted. Figure 5.26 reveals that one (3%) of the FTSs and none of the OEMs would move their operations elsewhere. Furthermore, three (9%) of the FTSs and none of the OEMs would look for alternative business should government discontinue its long-term policy support of the industry through policy instruments. Figure 5.26 also reveals that three (9%) of the FTSs and none of the OEMs would need to downsize or retrench staff should government discontinue its long-term policy support of the industry through policy instruments. Lastly, six (18%) of the FTSs and none of the OEMs would not be impacted should government discontinue its long-term policy support of the industry through policy instruments.

One respondent indicated that their business would withdraw from South Africa, since the incentives that are provided by government are incorporated into their decision-making. Another respondent said that their company would move their operations to a more manufacturing-friendly country, since long-term support measures for issues like regulation, protection of IP, tariff structures, legal

frameworks, infrastructure, labour stability, amongst others, are crucial to the operational success of most companies even in the most advanced countries, and especially, for the automotive industry. One respondent said that their company, over the long term, would cease to exist and they would have to retrench staff. A couple of the respondents indicated that it would have no impact on their business, since their business is diversified and does not rely on the motor industry as the contributing factor to their turnover.

In summary, it can be stated that the majority of the respondents, 66% of the FTSs and all four OEMs would either need to centralise their operations, re-locate their plant, close down or leave the country, since South Africa would then not be an attractive manufacturing destination. In view of the significant contribution of the automotive industry to South Africa regarding investment, employment, exports, contribution to the GDP, accounting for a third of manufacturing output which is essential to industrialise and re-industrialise the country's economy, it is crucial for the automotive industry to have a conductive environment for future sustainability and growth.

5.4 INFERENTIAL STATISTICAL ANALYSIS

The data was further analysed by using inferential statistical analysis. The purpose of the inferential analysis is to test hypotheses that are derived from the primary and secondary objectives of the study. The non-parametric Mann-Whitney test, the Pearson Chi-Square test for independence, and non-parametric correlation analysis were utilised to test the hypotheses.

From the descriptive statistics, it became clear that the FTSs, as a group, are divided regarding the impact of government support on the specific industry in which they operate. From the analysis, it is evident that there are two groups of FTSs. There are the vulnerable group that feels more threatened by any changes to government policies, while the other group can be described as non-vulnerable and they are not so intimidated by possible changes to government policies. The two groupings were therefore used in the inferential analysis to contrast their respective viewpoints.

Part 1 contains an analysis, firstly to determine whether statistical significant differences exist between the vulnerable group of FTSs and the non-vulnerable

group of FTSs. Thereafter, an analysis is performed to determine whether statistical significant relationships exist between the types of FTS (vulnerable and non-vulnerable).

Part 2 analyses the statistical significant difference between FTSs manufacturing the volume of their product for the export market, and FTSs manufacturing the volume of their product for the domestic market.

Part 3 consists of the correlation analysis using the Spearman rank order correlation coefficient.

The inferential supporting statistics are attached as Appendix D.

5.4.1 Part 1: Vulnerable vs non-vulnerable FTSs

This section analyses, firstly, whether statistical significant differences exist between the vulnerable group of FTSs and the non-vulnerable group of FTSs with regard to:

- the issue if the automotive industry in South Africa is capable of coping with global competition without government support.
- The importance of each of the building blocks/interventions through the government automotive policy regime (APDP and SA Automotive Masterplan 2021-2035).
- The extent to which respondents perceive each of the challenges in making South Africa an attractive country for their company to invest and operate in.
- The importance of each of the reasons that indicated government support is essential for the country's economy.

Part 1 thereafter analyses whether statistical significant relationships exist between the types of FTS (vulnerable and non-vulnerable) and determines:

- Each of the accomplishments achieved mainly due to government support in South Africa, and.
- Whether they would remain in South Africa without government support.

5.4.1.1 Section 1: Issues of global competition without government support

Firstly, the differences between vulnerable and non-vulnerable FTSs on the issue whether the automotive industry in South Africa is capable of coping with global competition without government support were investigated.

The following hypothesis was formulated:

H_o: There is no difference between the two groups (vulnerable FTSs and non-vulnerable FTSs) with regards to whether they think the automotive industry in SA is capable of coping with global competition without government support.

H_1: There is a difference between the two groups (vulnerable FTSs and non-vulnerable FTSs) with regards to whether they think the automotive industry in SA is capable of coping with global competition without government support.

The Mann-Whitney test was used to test the hypothesis and the results are revealed in the following table.

Table 5.1: Mann-Whitney test results

Mann-Whitney U	57.000
Wilcoxon W	112.000
Z	-2.589
Asymp. Sig. (2-tailed)	.010
Exact Sig. [2*(1-tailed Sig.)]	.022[b]

Table 5.1 reveals that there is a statistical significant difference, at the 5% level of significance, between the vulnerable and the non-vulnerable FTSs regarding the automotive industry coping with global competition without government support. The null hypotheses can thus be rejected (p=0.022).

Furthermore, using mean ranks it is shown that non-vulnerable FTSs tend to think the automotive industry can successfully compete without government support (mean rank = 19.52) more than vulnerable FTSs (mean rank = 11.20). This indicates that vulnerable FTSs do not think the automotive industry in South Africa is able to compete without government support, whereas the non-vulnerable FTSs do think the automotive industry in South Africa is able to marginally compete without government support. This corresponds with the fact that the majority of the non-vulnerable FTSs

supply the domestic market alone, whereas the vulnerable FTSs supply both the domestic and international market. The conclusion is that the non-vulnerable FTS businesses will not be affected as much as the vulnerable FTSs, should government stop their support to the industry due to the fact that they have alternative markets.

Secondly, the differences in opinion between vulnerable and non-vulnerable FTSs regarding the importance of each of the 13 building blocks/interventions of the government automotive policy regime (APDP and SA Automotive Masterplan 2021-2035) were investigated.

The following hypotheses was formulated:

H_o: There is no difference between the vulnerable FTSs and non-vulnerable FTSs regarding the importance of each of the 13 building blocks/interventions to complement the vision of the government automotive policy regime (APDP and SA Automotive Masterplan 2021-2035).

H_1: There is a difference between the vulnerable FTSs and non-vulnerable FTSs regarding to the importance of each of the 13 building blocks/interventions to complement the vision of the government automotive policy regime (APDP and SA Automotive Masterplan 2021-2035).

The Mann-Whitney test was used to test the hypotheses and the results are revealed in the following table. Each building block was tested separately.

Table 5.2: Results per criterion (Mann-Whitney test results)

Criteria	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig. (2 tailed)	Exact Sig. [2* (1-tailed Sig.)]
1. Stability in Government automotive policy	109.000	385.000	-.289	.772	.832[b]
2. Industrial relations environment	82.000	358.000	-1.344	.179	.207[b]
3. Government policies	97.500	373.500	-.769	.442	.499[b]
4. Progressive, sustained supplier competitiveness improvement	79.500	355.500	-1.423	.155	.167[b]
5. Effective beneficiation policies on raw materials	109.500	385.500	-.219	.826	.832[b]
6. Reductions in infrastructure, logistics and other input costs	86.000	362.000	-1.169	.242	.269[b]
7. Government preferential procurement policies on State contracts	96.000	151.000	-.574	.566	.589[b]
8. Market growth through review of vehicle taxes & levies	105.000	381.000	-.399	.690	.714[b]
9. Introduction of cleaner fuel quality	77.000	330.000	-1.359	.175	.190[b]
10. Incentives for low/zero emission vehicles	73.500	326.500	-1.498	.134	.140[b]
11. Support for strategic sectors	50.500	303.500	-2.459	.014	.014[b]
12. Development finance at preferential rates	93.000	346.000	-.697	.486	.509[b]
13. Government BBBEE policies and equity equivalent issues	98.000	153.000	-.502	.615	.646[b]

Table 5.2 reveals that there is only a statistically significant difference for one criteria, at the 5% level of significance, between the vulnerable and the non-vulnerable FTSs regarding the importance of the building blocks/interventions the government automotive policy regime (APDP and SA Automotive Masterplan 2021-2035). The null hypotheses cannot be rejected for all the criteria, except for criteria 11, "support for strategic sectors" (p=0.014) where the null hypothesis can be rejected. This implies, from the mean ranks, that the vulnerable FTSs tend to rate "support for strategic sectors" of higher importance (mean rank = 22.45) than the non-vulnerable FTSs (mean rank = 13.8). This is again in line with the fact that the vulnerable FTSs are more dependent on government support due to their market position.

Subsequently, even though there were no statistical differences with regards to the rest of the building blocks, between the vulnerable and non-vulnerable FTSs, potentially due to the small sample size that limits the power of the tests, the mean ranks for both groups were plotted using a radar graph and it displayed the following trends as indicated by Figure 5.27 below.

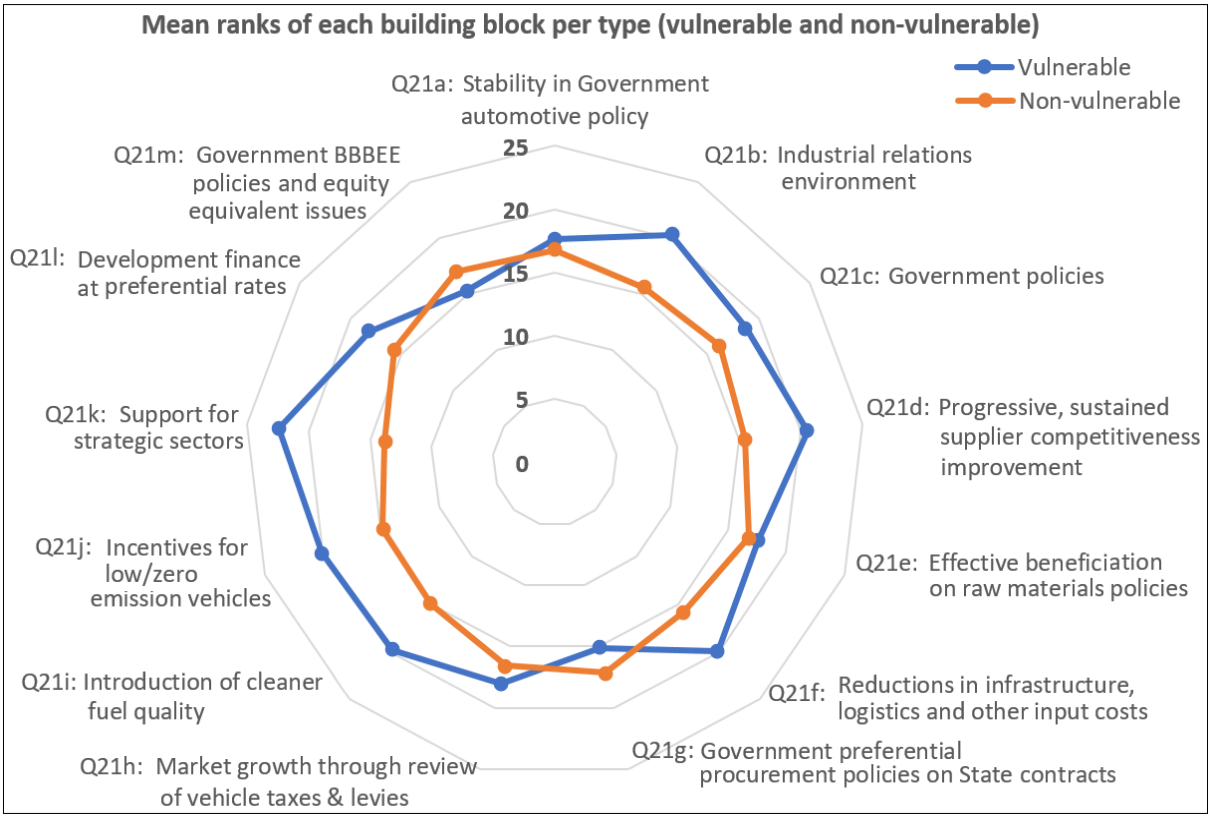


Figure 5.27: Importance of building blocks/interventions to complement the vision of the automotive policy regime

Figure 5.27 above and Table 5.3 below show differences of more than 4 in the mean ranks between the vulnerable and non-vulnerable FTSs regarding:

Table 5.3: Building blocks' mean ranks

Building Block	Vulnerable FTS mean rank	Non-vulnerable FTS mean rank
Q21b: Industrial relations environment	20.30	15.57
Q21d: Progressive, sustained supplier competitiveness improvement	20.55	15.46
Q21f: Reductions in infrastructure, logistics and other input costs	19.90	15.74
Q21i: Introduction of cleaner fuel quality	19.80	15.00
Q21j: Incentives for low/zero emission vehicles	20.15	14.84
Q21k: Support for strategic sectors	22.45	13.80

A difference of 4 was selected to identify building blocks that differ enough to highlight as building blocks where potential statistical significant differences could exist if a large enough sample was realised. The results indicate that the vulnerable group appears to consider all these building blocks as more important than the non-vulnerable group, and thus it is clear that they see their competitive position in the market as not as secure as the non-vulnerable group. This is also shows their lack of international competitiveness to sustain their business operations in the future.

Thirdly, the difference between the extent to which the vulnerable and non-vulnerable FTSs perceive each of the eight challenges in making SA an attractive country to invest and operate in were investigated.

The following hypotheses was formulated:

H_o: There is no difference between the extent to which the vulnerable and non-vulnerable FTSs perceive each of the eight challenges in making South Africa an attractive country for their company to invest and operate in.

H_1: There is a difference between the extent to which the vulnerable and non-vulnerable FTSs perceive each of the eight challenges in making South Africa an attractive country for their company to invest and operate in.

The Mann-Whitney test was used to test the hypotheses and the results are revealed in the following table.

Table 5.4: Results per criterion (Mann-Whitney test results)

Criteria	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig. (2 tailed)	Exact Sig. [2* (1-tailed Sig.)]
1. Difficulties in achieving economies of scale	95.000	150.000	-.803	.422	.451[b]
2. General competitiveness gap in competing with global competitors	95.500	150.500	-.772	.440	.451[b]
3. Distance from major markets	95.000	371.000	-.793	.428	.451[b]
4. Supplier investments & technology offerings	100.000	353.000	-.412	.680	.704[b]
5. Wage increase not matched by productivity improvements	102.500	378.500	-.494	.621	.630[b]
6. Shortage of appropriate skilled people in the industry	80.500	333.500	-1.213	.225	.235[b]
7. Volatile currency movements impacting on pricing and planning	108.500	384.500	-.258	.796	.802[b]
8. CPI and the general cost of doing business in the country	114.500	390.500	-.020	.984	.985[b]

Table 5.4 reveals that there is no statistically significant difference for any of the criteria, at the 5% level of significance, between the extent to which the vulnerable and non-vulnerable FTSs perceive each of the challenges in making South Africa an attractive country for their company to invest and operate in.

Subsequently, even though there were no statistical differences, with regards to all eight challenges occurred, the mean ranks for both groups were plotted using a radar graph and displayed the following trends as indicated by Figure 5.28 below.

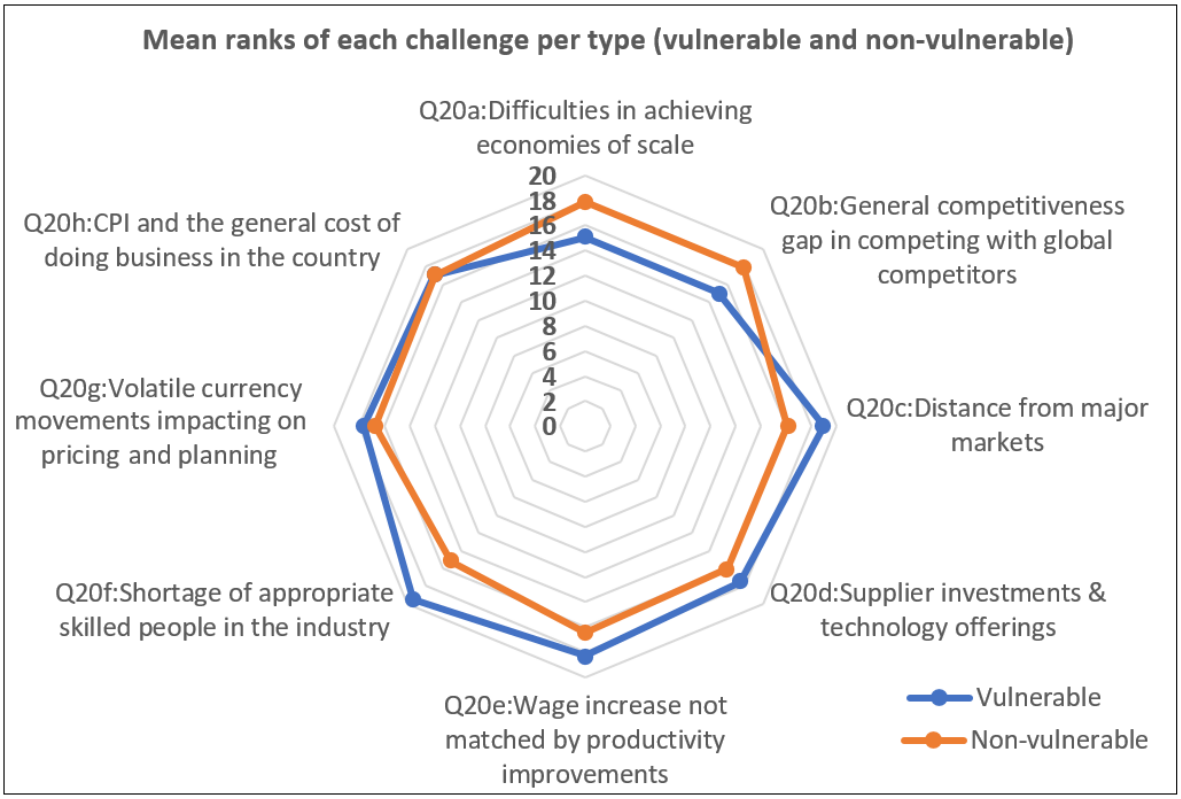


Figure 5.28: The challenges in making South Africa an attractive country for company to invest and operate in

Figure 5.28 shows differences of more than 4 in the mean ranks between the vulnerable and non-vulnerable FTSs regarding Q20f: Shortage of appropriate skilled people in the industry (vulnerable FTSs (mean rank = 19.45) and non-vulnerable FTSs (mean rank = 15.16)).

These differences with regards to the shortage of skilled people can be explained looking at the basic lack of specialised skills that are developed and nurtured in the secondary, and especially, tertiary levels of Higher Education in South Africa. In most instances the FTSs, as a cohort, needs workers that have certain specialised skills

that are also in short supply in other parts of the world. Furthermore, the export orientation, as well as the position of the vulnerable FTSs in the automobile supply chain is more tenuous to comply with international standards than non-vulnerable FTSs that mainly focus on the domestic market and has the luxury of international skilled people to act as mentors for the domestic FTSs.

Fourthly, the differences between the importance of each of the seven reasons as to why vulnerable and non-vulnerable FTSs indicated government support is essential for the country's economy were investigated.

The following hypotheses was formulated:

H_o: There is no difference between the importance of each of the seven reasons as to why vulnerable and non-vulnerable FTSs indicated government support is essential for the country's economy.

H_1: There is a difference between the importance of each of the seven reasons as to why vulnerable and non-vulnerable FTSs indicated government support is essential for the country's economy.

The Mann-Whitney test was used to test the hypotheses and the results are revealed in the following table.

Table 5.5: Results per criterion (Mann-Whitney test results)

Criteria	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig (2-tailed)	Exact Sig. [2* (1-tailed Sig.)]
1. Re-industrialisation of the manufacturing sector is essential for the revival of economic growth in South Africa (of which the automotive industry has been identified as one of the sectors for accelerated growth).	110.500	165.500	-.218	.828	.862[b]
2. The automotive industry is a vital job driver in South Africa's economy via the multiplier effect.	86.500	141.500	-1.350	.177	.269[b]
3. The automotive industry makes a substantial contribution to South Africa's economy as a whole (in terms of GDP, compensation, government revenue, exports (BOP) and capital investment).	75.500	130.500	-1.570	.116	.163[b]
4. Policy stability and certainty (continuation of government support programmes for automotive industry) are crucial to attract new investment, and it is a motivating factor for OEMs and multinational component suppliers to stay in the country and to make long-term investment decisions.	111.000	387.000	-.220	.826	.893[b]
5. Socio-economic contribution of the automotive industry is essential in contributing to social upliftment of societies in the three regional clusters.	99.000	375.000	-.657	.511	.550[b]
6. The industry has substantial up- and downstream linkages to other sectors in primary, secondary and tertiary sectors and developments in the automotive industry impact (positively or negatively) on these sectors.	82.000	358.000	-1.345	.179	.207[b]
7. Policy to improve localisation and beneficiation of the country's natural resources which will support in the growth of SMMEs and boost employment.	103.500	379.500	-.489	.625	.658[b]

Table 5.5 reveals that there is no statistically significant difference for any of the criteria, at the 5% level of significance, between the importance of each of the reasons as to why vulnerable and non-vulnerable FTSs indicated government support is essential for the country's economy.

Subsequently, even though there were no statistical differences with regards to all seven of the reasons, the mean ranks for both groups were plotted using a radar graph and it displays the following trends as indicated by Figure 5.29 below.

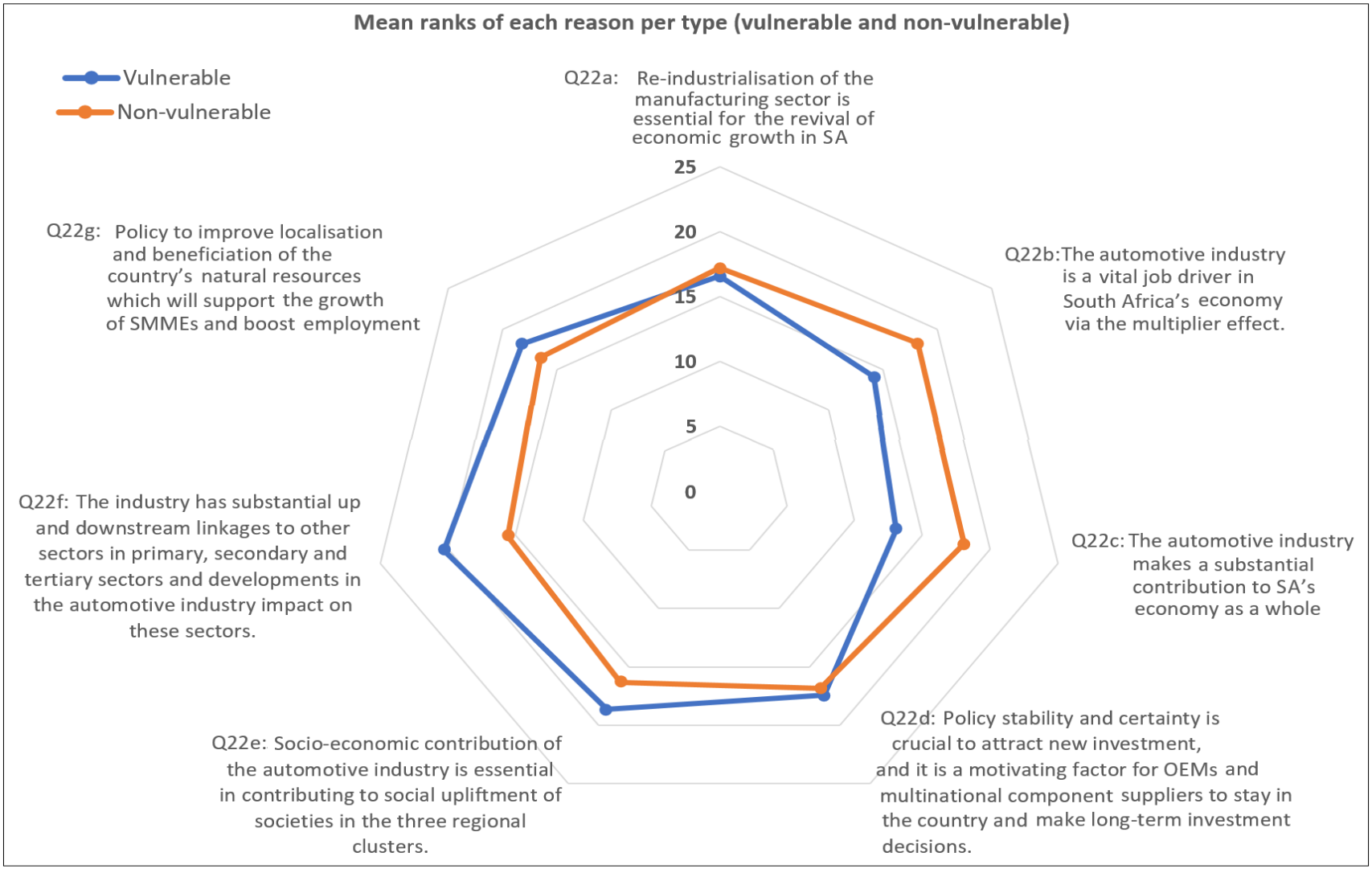


Figure 5.29: Importance of each reason why vulnerable and non-vulnerable FTSs indicated government support is essential for the economy

Figure 5.29 above and Table 5.6 below show differences of more than 4 in the mean ranks between the vulnerable and non-vulnerable FTSs regarding:

Table 5.6: Reasons mean ranks

Reason	Vulnerable FTS mean rank	Non-vulnerable FTS mean rank
Q22b: The automotive industry is a vital job driver in South Africa's economy via the multiplier effect	14.15	18.24
Q22c: The automotive industry makes a substantial contribution to South Africa's economy as a whole	13.05	18.07
Q22f: The industry has substantial up- and downstream linkages to other sectors in primary, secondary and tertiary sectors and developments in the automotive industry impact on these sectors	20.30	15.57

From the above section the conclusion may be made that the transition from the MIDP to the APDP resulted in the international competitiveness of the vulnerable high raw-material content suppliers being more negatively affected than the non-vulnerable suppliers. This must be seen in the context of the relevant building blocks to complement the support and vision under the policy regime which is more focused on cost reductions and improved international competitiveness. As previously mentioned, the non-vulnerable FTSs are domestically bound and cannot access cost reductions due to their inability to effect economies of scale.

5.4.1.2 Section 2: Relationship analysis

Firstly, the relationship between type of FTS (vulnerable and non-vulnerable) and each of the five accomplishments achieved mainly due to government support in South Africa was investigated.

The following hypotheses was formulated:

H_o: There is no relationship between type of FTS (vulnerable and non-vulnerable) and each of the five accomplishments achieved mainly due to government support in South Africa.

H_1: There is a relationship between type of FTS (vulnerable and non-vulnerable) and each of the five accomplishments achieved mainly due to government support in South Africa.

Since both variables in the cross-tabulation are nominal, the Pearson Chi-square test for independence was used. In cases where the Pearson Chi-square test could not be used (in cases where more than 20% of the cells had an expected frequency of less than 5), the Fischer Exact test was used. See Table 5.7 below for a summary of the test results.

Table 5.7: Chi-Square/Fisher test results

Cross-tabulation variables	Fisher test (Exact Sig. (2-sided))
1. Type of FTS and Higher levels of local production	.722
2. Type of FTS and Higher levels of direct/indirect exports	.465
3. Type of FTS and Higher levels of investment in local manufacturing facilities & tooling	.109
4. Type of FTS and Conveyed a positive influence on your global head office to increase exports/investment decisions	1.000
5. Type of FTS and Higher levels of local content	1.000

The results showed that no statistical significant relationship exists between the type of FTS (p=0.722, p=0.465, p=0.109, p=1.000 & p=1.000) and the five possible accomplishments they achieved mainly because of government support in South Africa.

Vulnerable and non-vulnerable FTSs, thus displayed similar response patterns regarding the accomplishments they achieved. The percentage of respondents were:

- Higher levels of local production: 60.0% of vulnerable FTSs and 52.2% of non-vulnerable FTSs;
- Higher levels of direct/indirect exports: 60.0% of vulnerable FTSs and 43.5% of non-vulnerable FTSs (the only accomplishment where the pattern is in the opposite direction but not enough to show statistical significance);
- Higher levels of investment in local manufacturing facilities & tooling: 90.0% of vulnerable FTSs and 56.6% of non-vulnerable FTSs;

- Positive influence on your global head office to increase exports/investment decisions: 30% of vulnerable FTSs and 26.1% of non-vulnerable FTSs; and
- Higher levels of local content: 43.5% of vulnerable FTSs and 42.4% of non-vulnerable FTSs.

There is no statistical significant difference between the two groups of FTSs regarding the accomplishments that they have attained. This negates the argument by the non-vulnerable FTS group that they are disadvantaged due to their specific position in the supply chain. Government support, thus, assists both the vulnerable and non-vulnerable FTSs to achieve the required accomplishments in South Africa, as the APDP is a volume-based programme and the incentive is linked to value addition, irrespective if the products are for the domestic or export markets.

Secondly, the relationship between type of FTS (vulnerable and non-vulnerable) and whether they would remain in South Africa without government support was investigated.

The following hypotheses was formulated:

H_o: There is no relationship between type of FTS (vulnerable and non-vulnerable) and if they would remain in South Africa without government support.

H_1: There is a relationship between type of FTS (vulnerable and non-vulnerable) and if they would remain in South Africa without government support.

See Table 5.8 below for a summary of the Pearson Chi-square/Fisher test results.

Table 5.8: Chi-Square/Fisher test results

Cross-tabulation variables	Fisher (Exact Sig. (2-sided))
Type of FTS and whether they would remain in SA should government stop their support	.199

The results showed that no statistical significant relationship exists between the type of FTS (p=0.199) and whether they would remain in SA, should government stop their support to the automotive industry.

Using the response patterns in the cross-tabulation, whether they would remain in South Africa should government stop their support the results, shows that 30.0% of

vulnerable FTSs and 56.5% of non-vulnerable FTSs indicated yes. Conversely, 70.0% of vulnerable FTSs and 34.8% of non-vulnerable FTSs indicated no, and 8.7% of non-vulnerable FTSs and 0% of vulnerable FTSs indicated maybe.

It is clear that for the vulnerable FTSs, government support is imperative to remain viable and internationally competitive in export markets, while not so much for the non-vulnerable FTSs who focus more on the domestic market.

5.4.2 Part 2: Export vs domestic activities

Part 2 analyses the statistical significant difference between FTSs manufacturing the volume of their product for the export market, and FTSs manufacturing the volume of their product for the domestic market, with regard to:

- How important government automotive support is for their company's sustainable business operations in South Africa.
- The importance of each of the building blocks/interventions the government automotive policy regime implemented to sustain and grow the South African automotive industry.
- The reasons as to why government support is essential for the country's economy.
- The extent to which respondents perceive each of the challenges in making South Africa an attractive country for their company to invest and operate in.

It will also test for statistical significant relationships between the types of FTS (export and domestic) and each of the accomplishments achieved mainly because of government support in South Africa.

5.4.2.1 Section 1: Differences between export and domestic FTSs related to government support

Firstly, the difference between export and domestic FTSs with regard to how important government support is for sustainable business operations in South Africa was tested.

The following hypothesis was formulated:

H_o: There is no difference between export FTSs and domestic FTSs regarding the importance of government automotive support for their company's sustainable business operations in SA.

H_1: There is a difference between export FTSs and domestic FTSs regarding the importance of government automotive support for their company's sustainable business operations in SA.

The Mann-Whitney test was used to test the hypothesis and the results are revealed in the following table.

Table 5.9: Results per criterion (Mann-Whitney test results)

Mann-Whitney U	28.000
Wilcoxon W	164.000
Z	-2.283
Asymp. Sig. (2-tailed)	.022
Exact Sig. [2*(1-tailed Sig.)]	.027[b]

Table 5.9 reveals that there is a statistical significant difference, at the 5% level of significance, between the export and the domestic FTSs with regard to the importance of government automotive support for their company's sustainable business operations in South Africa. The null hypotheses can thus be rejected (p=0.027). The difference relates to the importance of government support in making South Africa attractive to foreign direct investment and to win export contracts in obtaining higher volume production and economies of scale benefits to compete internationally on a sustainable basis.

Furthermore, the mean ranks indicate that the export FTSs (mean rank = 17.00) tend to regard government automotive support for their company's sustainable business operations in South Africa more important than domestic FTSs (mean rank = 10.25).

Secondly, the difference between export FTSs and domestic FTSs regarding the importance of each of the 13 building blocks/interventions to sustain and grow the SA automotive manufacturing industry was tested.

The following hypothesis was formulated:

H_o: There is no difference between export FTSs and domestic FTSs regarding the importance of each of the 13 building blocks/interventions the government automotive policy regime implemented to sustain and grow the SA automotive industry.

H_1: There is a difference between export FTSs and domestic FTSs regarding the importance of each of the 13 building blocks/interventions the government automotive policy regime implemented to sustain and grow the SA automotive industry.

The Mann-Whitney test was used to test each hypothesis and the results are revealed in the following table.

Table 5.10: Results per criterion (Mann-Whitney test results)

Criteria	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig (2-tailed)	Exact Sig. [2* (1-tailed Sig.)]
1. Stability in Government automotive policy	40.000	176.000	-1.694	.090	.153[b]
2. Industrial relations environment	64.000	200.000	.000	1.000	1.000[b]
3. Government policies	62.000	98.000	-.133	.894	.928[b]
4. Progressive, sustained supplier competitiveness improvement	57.500	93.500	-.109	.683	.697[b]
5. Effective beneficiation policies on raw materials	31.000	167.000	-2.058	.040	.045[b]
6. Reductions in infrastructure, logistics and other input costs	54.000	190.000	-.632	.528	.569[b]
7. Government preferential procurement policies on State contracts	56.000	176.000	-.261	.794	.825[b]
8. Market growth through review of vehicle taxes & levies	52.000	88.000	-.744	.457	.490[b]
9. Introduction of cleaner fuel quality	42.000	78.000	-1.364	.172	.192[b]
10. Incentives for low/zero emission vehicles	45.500	81.500	-1.144	.253	.264[b]
11. Support for strategic sectors	24.000	160.000	-2.491	.013	.013[b]
12. Development finance at preferential rates	39.000	75.000	-1.368	.171	.190[b]
13. Government BBBEE policies and equity equivalent issues	43.500	163.500	-1.100	.271	.294[b]

Table 5.10 reveals that there is only a statistically significant difference for two criteria at the 5% level of significance between the export FTSs and the domestic FTSs. Thus, the null hypotheses cannot be rejected for all the building block/interventions, except for building block/intervention 5, “effective beneficiation policies on raw materials” (p=0.045) and building block/intervention 11, “support for strategic sectors” (p=0.013) where these two building blocks can be rejected as listed in Table 5.10.

The mean ranks indicate that:

- Export FTSs believe that effective beneficiation policies on raw materials tend to have a greater impact on their company to sustain and grow their business (mean rank = 16.63) than domestic FTSs (mean rank = 10.44).
- Export FTSs believe that support for strategic sectors tend to have a greater impact on their company to sustain and grow their business (mean rank = 17.50) than domestic FTSs (mean rank = 10.00).

This is in line with the fact that the export FTSs represent the vulnerable FTSs who are raw-material intensive and who required additional assistance during the transition from the MIDP to the APDP to remain internationally competitive in respect of their exports.

Subsequently, even though there were no statistical differences with regards to the rest of the building blocks, the mean ranks for both groups for all building blocks were plotted using a radar graph and it displayed the following trends as indicated by Figure 5.30 below.

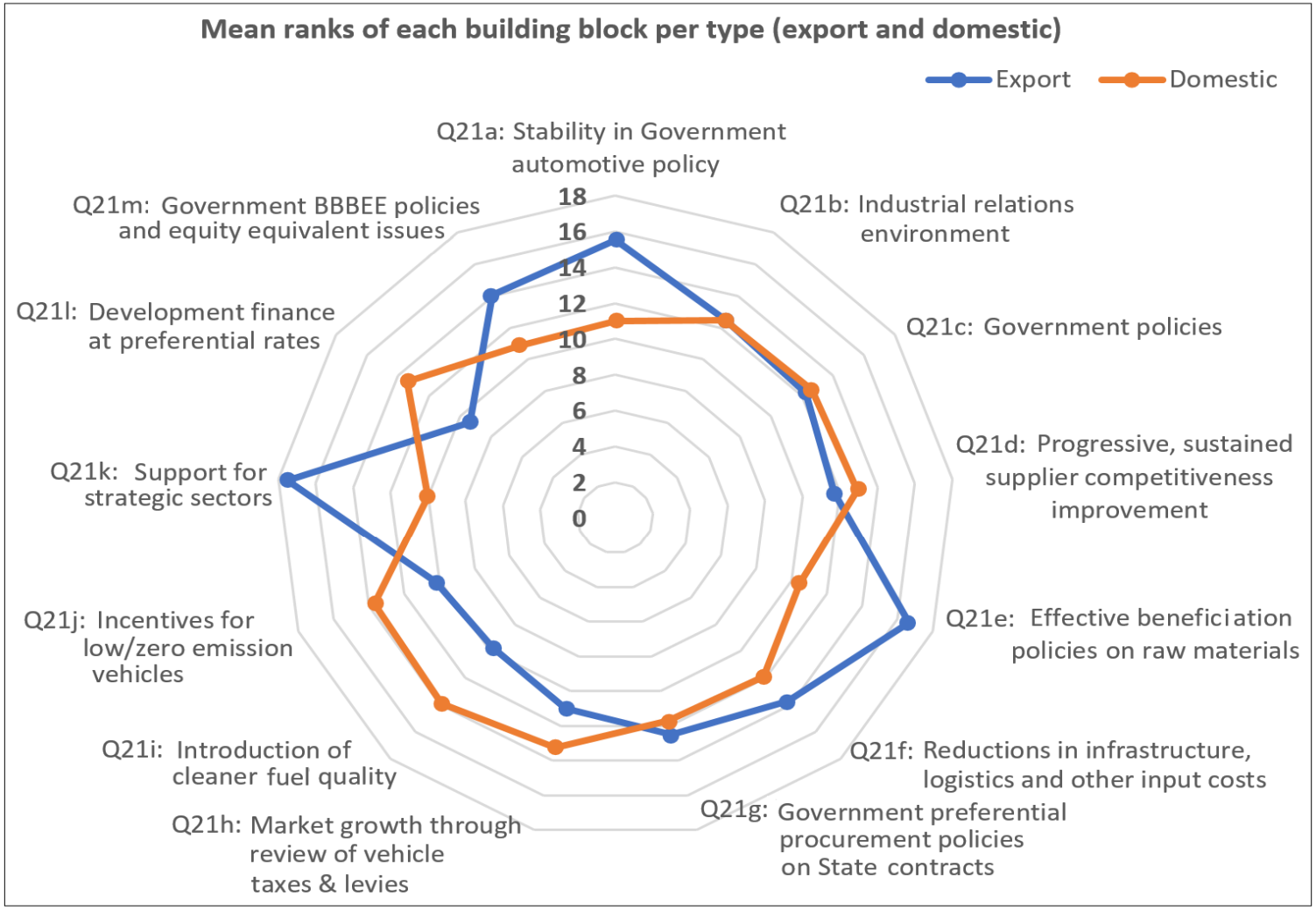


Figure 5.30: Importance of building blocks/interventions implemented to sustain and grow the South African automotive manufacturing industry

Figure 5.30 above and Table 5.11 below show differences of more than 4 in the mean ranks between export and domestic FTSs regarding:

Table 5.11: Building blocks mean ranks

Building block	Export FTS mean rank	Domestic FTS mean rank
Q21a: Stability in Government automotive policy	15.50	11.00
Q21e: Effective beneficiation policies on raw materials	16.63	10.44
Q21i: Introduction of cleaner fuel quality	9.75	13.88
Q21k: Support for strategic sectors	17.50	10.00
Q21l: Development finance at preferential rates	9.38	13.40

The results indicate that the export group appears to consider all these building blocks as more important than the domestic group, and thus the export FTSs, which are also the more vulnerable FTSs, perceive interventions relating to international competitiveness in international markets as more important, while the domestic FTSs perceive interventions in the domestic market as more important.

Both export and domestic FTSs are concerned about industrial relations, government policy, in general, as well as government preferential procurement contracts. Non-vulnerable FTSs, however, are more concerned about finance at preferential rates, incentives to produce low emission cars, cleaner fuel and growth in the market by reviewing taxes and levies. These are issues that indicate the narrow self-interest for survival of this group. An issue, such as low-emission and cleaner fuel, are of concern for them as they are excluded from the primary source, namely the improved fuel. This means that they could be side-lined. Whereas, the vulnerable FTSs are not so concerned as they are part of an international/global group which would mean that they are more insulated from the fall-out of this problem as they operate in more than one market. Regarding the non-vulnerable FTSs, they are more interested in support for strategic sectors, BBBEE policies, stability, beneficiation policies and infrastructure than logistic issues. These concerns serve their specific interest from a strategic point of view.

In the absence of cleaner fuels, in future, the domestic OEMs might have to manufacture new technology vehicles for the export market and older technology

vehicles for the domestic market which could impact negatively on costs and volume requirements for domestic FTSs.

Thirdly, the difference between export FTSs and domestic FTSs regarding the importance of each of the reasons as to why government support is essential for the country's economy is investigated.

The following hypothesis was formulated:

H_o: There is no difference between export FTSs and domestic FTSs regarding each of the reasons as to why government support is essential for the country's economy.

H_1: There is a difference between export FTSs and domestic FTSs regarding each of the reasons as to why government support is essential for the country's economy.

The Mann-Whitney test was used to test the hypothesis and the results are revealed in the following table.

Table 5.12: Mann-Whitney test results

Criteria	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig (2-tailed)	Exact Sig. [2* (1-tailed Sig.)]
1. Re-industrialisation of the manufacturing sector is essential for the revival of economic growth in South Africa (of which the automotive industry has been identified as one of the sectors for accelerated growth).	58.500	94.500	-.406	.685	.742[b]
2. The automotive industry is a vital job driver in South Africa's economy via the multiplier effect.	43.500	179.500	-1.522	.128	.214[b]
3. The automotive industry makes a substantial contribution to South Africa's economy as a whole (in terms of GDP, compensation, government revenue, exports (BOP) and capital investment).	57.000	177.000	-.2.19	.826	.875[b]
4. Policy stability and certainty (i.e. continuation of government support programmes for automotive industry) is crucial to attract new investment, and it is a motivating factor for OEMs and multinational component suppliers to stay in the country and to make long-term investment decisions.	51.000	187.000	-1.050	.294	.452[b]
5. Socio-economic contribution of the automotive industry is essential in contributing to social upliftment of societies in the three regional clusters.	33.000	169.000	-2.001	.044	.061[b]
6. The industry has substantial up- and downstream linkages to other sectors in primary, secondary and tertiary sectors and developments in the automotive industry impact (positively or negatively) on these sectors.	39.000	175.000	-1.604	.109	.136[b]
7. Policy to improve localisation and beneficiation of the country's natural resources which will support in the growth of SMMEs and boost employment.	49.000	185.000	-.981	.327	.383[b]

Table 5.12 reveals that there is only a statistically significant difference for one criteria at the 10% level of statistical significance between the export FTSs and the domestic FTSs regarding reasons as to why government support is essential for the country's economy. Thus the null hypotheses cannot be rejected for all the reasons, except for reason 5, "socio-economic contribution of the automotive industry is essential in contributing to social upliftment of societies in the three regional clusters" (p=0.061). The difference relates to the higher contribution of the export FTSs in line with their higher production volumes and economies of scale benefits generated via export, compared to the lower contribution of the domestic FTSs due to volume limitations in the domestic market with regard to the social upliftment of societies in the three regional clusters.

Furthermore, the mean ranks indicate that the export FTSs (mean rank = 16.38) tend to indicate that the socio-economic contribution of the automotive industry is more essential in contributing to the social upliftment of societies in the three regional clusters than for domestic FTSs (mean rank = 10.56).

Subsequently, even though there are no statistical differences between the export and domestic FTSs with regards to the rest of the reasons, potentially due to the small sample size that limits the power of the tests, the mean ranks for both groups for all reasons were plotted using a radar graph and it displays the following trends as indicated by Figure 5.31 below.

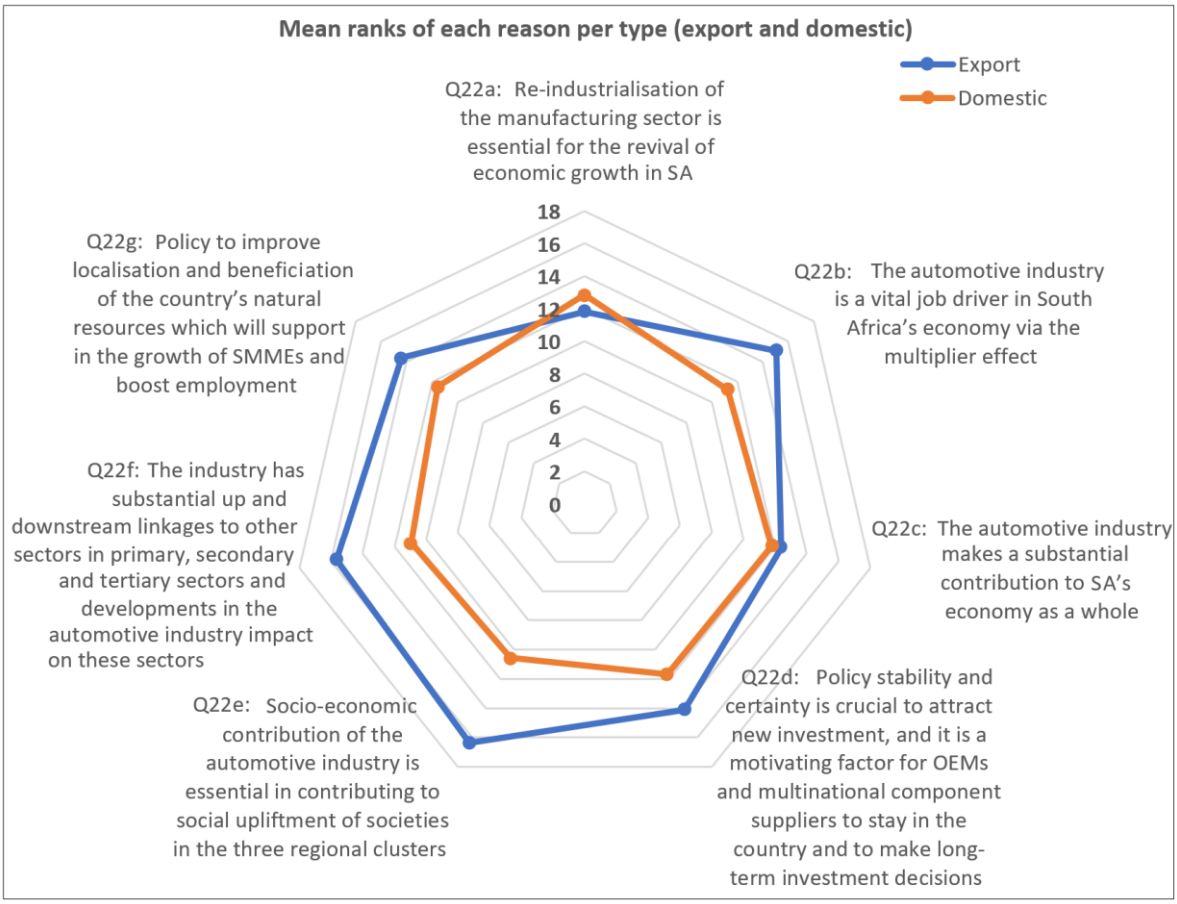


Figure 5.31: Importance of reasons why export and domestic FTSs indicated government support is essential for the economy

Figure 5.31 above and Table 5.13 below show differences of more than 4 in the mean ranks between export and domestic FTSs regarding:

Table 5.13: Reasons mean ranks

Reason	Export FTS mean rank	Domestic FTS mean rank
Q22e: Socio-economic contribution of the automotive industry is essential in contributing to social upliftment of societies in the three regional clusters.	16.38	10.56
Q22f: The industry has substantial up- and downstream linkages to other sectors in primary, secondary and tertiary sectors and developments in the automotive industry impact on these sectors clusters.	15.63	10.94

The differences between the export and domestic FTSs relates to the higher impact of government support on the country's economy for the export FTSs in generating

higher production volumes, employment creation and skills development in the regional clusters and beneficiation of raw material, amongst others.

Fourthly, the difference between the extent to which the export and domestic FTSs perceive each of the challenges in making SA an attractive country to invest and operate in was investigated

The following hypotheses was formulated:

H_o: There is no difference between the extent to which the export and domestic FTSs perceive each of the challenges in making South Africa an attractive country for their company to invest and operate in.

H_1: There is a difference between the extent to which the export and domestic FTSs perceive each of the challenges in making South Africa an attractive country for their company to invest and operate in.

The Mann-Whitney test was used to test the hypotheses and the results are revealed in the following table.

Table 5.14: Mann-Whitney test results

Criteria	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig. (2 tailed)	Exact Sig. [2* (1-tailed Sig.)]
1. Difficulties in achieving economies of scale	55.500	91.500	-.532	.595	.610[b]
2. General competitiveness gap in competing with global competitors	42.000	78.000	-1.361	.173	.192[b]
3. Distance from major markets	40.500	176.500	-1.456	.145	.153[b]
4. Supplier investments & technology offerings	57.000	93.000	-.434	.664	.697[b]
5. Wage increase not matched by productivity improvements	55.500	191.500	-.525	.599	.610[b]
6. Shortage of appropriate skilled people in the industry	45.500	165.500	-.946	.344	.357[b]
7. Volatile currency movements impacting on pricing and planning	49.500	185.500	-.909	.363	.383[b]
8. CPI and the general cost of doing business in the country	38.000	174.000	-1.607	.108	.120[b]

Table 5.14 reveals that there is no statistically significant difference at the 5% level of significance, between the extent to which the export and domestic FTSs perceive each of the challenges in making South Africa an attractive country for their company to invest and operate in.

Subsequently, even though there were no statistical differences, the mean ranks for both groups for all challenges were plotted using a radar graph and it displays the following trends as indicated by Figure 5.32 below.

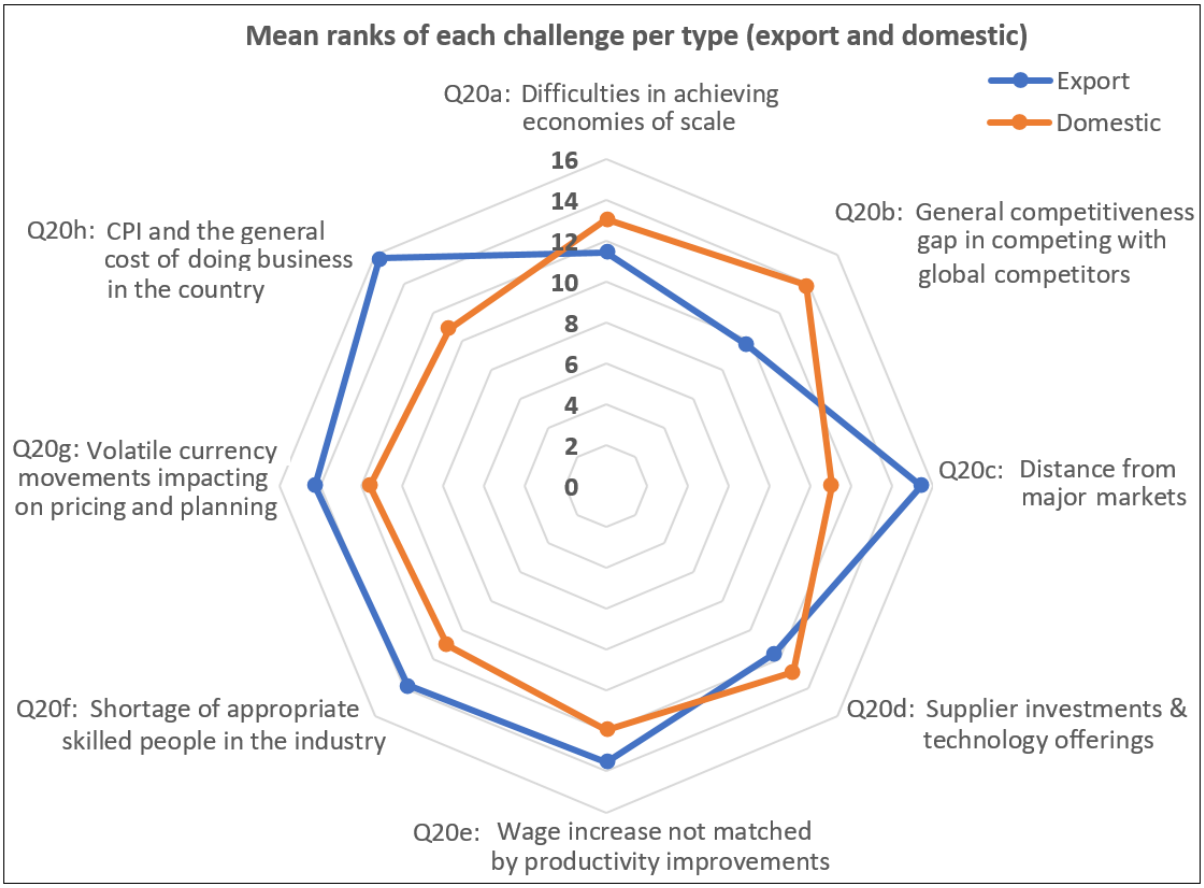


Figure 5.32: Perception regarding each of the challenges in making South Africa an attractive country to invest and operate in

Figure 5.32 above and Table 5.15 below show differences of more than 4 in the mean ranks between export and domestic FTSs regarding:

Table 5.15: Challenges mean ranks

Challenge	Export FTS mean rank	Domestic FTS mean rank
Q20b: General competitiveness gap in competing with global competitors	9.75	13.88
Q20c: Distance from major markets	15.44	11.03
Q20h: CPI and the general cost of doing business in the country	15.75	10.88

The differences between the export and domestic FTSs mainly relate to issues of international competitiveness to successfully invest and operate in the domestic market against imports and in export markets against competitor countries.

5.4.2.2 Section 2: Relationship analysis

Firstly, the relationship between type of FTSs (export and domestic) and the accomplishments achieved mainly because of government support in South Africa was investigated.

The following hypotheses was formulated:

H_o: There is no relationship between type of FTS (export and domestic) and the accomplishments achieved mainly because of government support in South Africa.

H_1: There is a relationship between type of FTS (export and domestic) and the accomplishments achieved mainly because of government support in South Africa.

Table 5.16: Chi-Square/Fisher test results

Cross-tabulation variables	Fisher test (Exact Sig. (2-sided))
1. Type of FTS and Higher levels of local production	.211
2. Type of FTS and Higher levels of direct/indirect exports	.008
3. Type of FTS and Higher levels of investment in local manufacturing facilities & tooling	.667
4. Type of FTS and Conveyed a positive influence on your global head office to increase exports/investment decisions	.021
5. Type of FTS and Higher levels of local content	1.000

The results show that no statistical significant relationship exists between type of FTS for criteria 1 (p=0.211), criteria 3 (p=0.667) and criteria 5 (p=1.000), but a statistical significant relationship does exist for criteria 2 (p=0.008) and criteria 4 (p=0.021), at the 1% and 5% respectively, regarding the accomplishments achieved mainly because of government support in South Africa.

The export FTSs reported much higher levels of direct/indirect exports than the domestic FTSs (opposite behaviour) and conveyed a positive report to global head office to encourage exports/investment decisions in South Africa. The percentage of respondents were:

- Higher levels of direct/indirect exports: 87.5% of export FTSs vs 25.0% of domestic FTSs; and
- Positive influence on their global head office to increase exports/investment decisions: 62.5% of export FTSs vs 12.5% of domestic FTSs.

The results indicate that government support is imperative for the export-oriented domestic automotive industry to compete globally for investments and export contracts.

5.4.3 Part 3: Correlations

Part 3 consists of the correlation analysis using the Spearman rank order correlation coefficient and its associated statistical significance between all possible combinations of:

- The 13 different building blocks/interventions to complement the vision of the government automotive policy regime implemented to sustain and grow the South African automotive industry.
- The seven reasons as to why government support is essential for the country's economy.

5.4.3.1 Building blocks/intervention correlations

Inferential statistics were also conducted to determine the statistical significance and strength of the relationships between the 13 different building blocks/interventions to complement the vision of the government automotive policy regime implemented to sustain and grow the South African automotive industry. Spearman's rank order correlation coefficients were used to evaluate the strength and statistical significance of the relationship between the different combinations of the building blocks/interventions and the results are summarised in Table 5.17 below. Only statistical significant relationships will be reported.

The following hypothesis was formulated:

H_o: There is no relationship between the building blocks/interventions.

H_1: There is a relationship between the building blocks/interventions.

Each combination of building blocks was tested separately.

Table 5.17: Building blocks/interventions

Cross-tabulation variables	Correlation Coefficient	Conclusion
Development finance at preferential rates & Industrial relations environment	0.372***	Weak positive correlation
Reductions in infrastructure, logistics and other input costs & Government preferential procurement policies on State contracts	0.330***	Weak positive correlation
Government preferential procurement policies on State contracts & Reductions in infrastructure, logistics and other input costs	0.330***	Weak positive correlation
Government preferential procurement policies on State contracts & Market growth through review of vehicle taxes & levies	0.399***	Weak positive correlation
Market growth through review of vehicle taxes & levies & Government preferential procurement policies on State contracts	0.399***	Weak positive correlation
Market growth through review of vehicle taxes & levies & Government BBBEE policies and equity equivalent issues	0.348***	Weak positive correlation
Incentives for low/zero emission vehicles & Government BBBEE policies and equity equivalent issues	0.371***	Weak positive correlation
Development finance at preferential rates & Industrial relations environment	0.372***	Weak positive correlation
Government BBBEE policies and equity equivalent issues & Market growth through review of vehicle taxes & levies	0.348***	Weak positive correlation
Government BBBEE policies and equity equivalent issues & Incentives for low/zero emission vehicles	0.371***	Weak positive correlation
Stability in Government automotive policy & Government policies	0.509***	Moderate positive correlation
Stability in Government & Effective beneficiation policies on raw materials	0.430***	Moderate positive correlation

Cross-tabulation variables	Correlation Coefficient	Conclusion
Industrial relations environment & Government policies	0.427***	Moderate positive correlation
Industrial relations environment & Progressive, sustained supplier competitiveness improvement	0.521***	Moderate positive correlation
Industrial relations environment & Reductions in infrastructure, logistics and other input costs	0.405***	Moderate positive correlation
Industrial relations environment & Incentives for low/zero emission vehicles	0.444***	Moderate positive correlation
Government policies & Stability in Government	0.509***	Moderate positive correlation
Government policies & Industrial relations environment	0.427***	Moderate positive correlation
Progressive, sustained supplier competitiveness improvement & Industrial relations environment	0.521***	Moderate positive correlation
Progressive, sustained supplier competitiveness improvement & Effective beneficiation policies on raw materials	0.492***	Moderate positive correlation
Progressive, sustained supplier competitiveness improvement & Reductions in infrastructure, logistics and other input costs	0.417***	Moderate positive correlation
Progressive, sustained supplier competitiveness improvement & Incentives for low/zero emission vehicles	0.452***	Moderate positive correlation
Progressive, sustained supplier competitiveness improvement & Development finance at preferential rates	0.477***	Moderate positive correlation
Effective beneficiation policies on raw materials & Stability in Government	0.430***	Moderate positive correlation
Effective beneficiation policies on raw materials & Progressive, sustained supplier competitiveness improvement	0.492***	Moderate positive correlation
Effective beneficiation policies on raw materials & Reductions in infrastructure, logistics and other input costs	0.412***	Moderate positive correlation

Cross-tabulation variables	Correlation Coefficient	Conclusion
Reductions in infrastructure, logistics and other input costs & Industrial relations environment	0.405***	Moderate positive correlation
Reductions in infrastructure, logistics and other input costs & Progressive, sustained supplier competitiveness improvement	0.417***	Moderate positive correlation
Reductions in infrastructure, logistics and other input costs & Effective beneficiation policies on raw materials	0.412***	Moderate positive correlation
Reductions in infrastructure, logistics and other input costs & Market growth through review of vehicle taxes & levies	0.580***	Moderate positive correlation
Reductions in infrastructure, logistics and other input costs & Introduction of cleaner fuel quality	0.540***	Moderate positive correlation
Reductions in infrastructure, logistics and other input costs & Incentives for low/zero emission vehicles	0.495***	Moderate positive correlation
Reductions in infrastructure, logistics and other input costs & Development finance at preferential rates	0.486***	Moderate positive correlation
Government preferential procurement policies on State contracts & Introduction of cleaner fuel quality	0.441***	Moderate positive correlation
Market growth through review of vehicle taxes & levies & Reductions in infrastructure, logistics and other input costs	0.580***	Moderate positive correlation
Market growth through review of vehicle taxes & levies & Introduction of cleaner fuel quality	0.529***	Moderate positive correlation
Market growth through review of vehicle taxes & levies & Incentives for low/zero emission vehicles	0.425***	Moderate positive correlation
Market growth through review of vehicle taxes & levies & Development finance at preferential rates	0.470***	Moderate positive correlation

Cross-tabulation variables	Correlation Coefficient	Conclusion
Introduction of cleaner fuel quality & Reductions in infrastructure, logistics and other input costs	0.540***	Moderate positive correlation
Introduction of cleaner fuel quality & Government preferential procurement policies on State contracts	0.441***	Moderate positive correlation
Introduction of cleaner fuel quality & Market growth through review of vehicle taxes & levies	0.529***	Moderate positive correlation
Introduction of cleaner fuel quality & Development finance at preferential rates	0.426***	Moderate positive correlation
Incentives for low/zero emission vehicles & Industrial relations environment	0.444***	Moderate positive correlation
Incentives for low/zero emission vehicles & Progressive, sustained supplier competitiveness improvement	0.452***	Moderate positive correlation
Incentives for low/zero emission vehicles & Reductions in infrastructure, logistics and other input costs	0.495***	Moderate positive correlation
Incentives for low/zero emission vehicles & Market growth through review of vehicle taxes & levies	0.425***	Moderate positive correlation
Incentives for low/zero emission vehicles & Support for strategic sectors	0.400***	Moderate positive correlation
Incentives for low/zero emission vehicles & Development finance at preferential rates	0.576***	Moderate positive correlation
Support for strategic sectors & Incentives for low/zero emission vehicles	0.400***	Moderate positive correlation
Development finance at preferential rates & Industrial relations environment	0.477***	Moderate positive correlation
Development finance at preferential rates & Industrial relations environment	0.486***	Moderate positive correlation
Development finance at preferential rates & Industrial relations environment	0.470***	Moderate positive correlation
Development finance at preferential rates & Industrial relations environment	0.426***	Moderate positive correlation

Cross-tabulation variables	Correlation Coefficient	Conclusion
Development finance at preferential rates & Industrial relations environment	0.576***	Moderate positive correlation
Progressive, sustained supplier competitiveness improvement & Market growth through review of vehicle taxes & levies	0.601***	Strong positive correlation
Government preferential procurement policies on State contracts & Government BBBEE policies and equity equivalent issues	0.624***	Strong positive correlation
Market growth through review of vehicle taxes & levies & Progressive, sustained supplier competitiveness improvement	0.601***	Strong positive correlation
Introduction of cleaner fuel quality & Incentives for low/zero emission vehicles	0.670***	Strong positive correlation
Incentives for low/zero emission vehicles & Introduction of cleaner fuel quality	0.670***	Strong positive correlation
Government BBBEE policies and equity equivalent issues & Government preferential procurement policies on State contracts	0.624***	Strong positive correlation

* significant at the 10% level of significance

** significant at the 5% level of significance

*** significant at the 1% level of significance

The above results suggest that although all the building blocks/interventions as a combination play a role, the relationship between the building blocks/ interventions that focus on the domestic market growth or compliance with related government policies are stronger than the relationship between the building blocks/interventions that focus on cost items and unrelated government policies.

The relevance of the statistical significance and strength of the relationships will inform which interventions would need to be prioritised to complement the automotive policy regime best to realise the vision of the programmes going forward. This must be seen as the fine-tuning that must be done by government policy to serve the interest of the divergent group of role-players. Government wants a bigger return on investment for the support provided to the non-vulnerable FTSs that have their global interest at hand and the non-vulnerable FTSs that are narrowly interested in their own survival. The burning issues must be addressed to put the motor industry and the FTS group on the road to growth.

5.4.3.2 Reasons and building blocks/intervention correlations

Inferential statistics were implemented to determine the statistical significance and strength of the relationship between the seven reasons as to why government support is essential for the country's economy and the 13 different building blocks/interventions the government automotive policy regime implemented to sustain and grow the South African automotive industry. Spearman's rank order correlation coefficients were used to evaluate the strength and statistical significance of the relationship between the different combinations of the reasons and the building blocks/interventions and the results are summarised in Table 5.18 below. Only statistical significant relationships will be reported.

The following hypothesis was formulated:

H_o: There is no relationship between the reasons and the building blocks/interventions.

H_1: There is a relationship between the reasons and the building blocks/interventions.

Each combination of building blocks and reasons was tested separately.

Table 5.18: Reasons & Building blocks/interventions

Cross-tabulation variables	Correlation Coefficient	Conclusion
Policy to improve localisation and beneficiation of the country's natural resources which will support in the growth of SMMEs and boost employment & Government preferential procurement policies on State contracts	-0.410***	Moderate negative correlation (The moderate negative correlation relates to the beneficiation of raw materials used by the vulnerable and export-oriented products not linked to preferential procurement policies in the domestic market.)
The automotive industry is a vital job driver in South Africa's economy via the multiplier effect & Government BBBEE policies and equity equivalent issues	0.385***	Weak positive correlation
Policy stability and certainty are crucial to attract new investment, and it is a motivating factor for OEMs and multinational component suppliers to stay in the country and to make long-term investment decisions & Stability in Government	0.329***	Weak positive correlation
Policy stability and certainty are crucial to attract new investment, and it is a motivating factor for OEMs and multinational component suppliers to stay in the country and to make long-term investment decisions & Government policies	0.329***	Weak positive correlation
Socio-economic contribution of the automotive industry is essential in contributing to social upliftment of societies in the three regional clusters & Industrial relations environment	0.336***	Weak positive correlation
The industry has substantial up- and downstream linkages to other sectors in primary, secondary and tertiary sectors and developments in the automotive industry impact on these sectors & Support for strategic sectors	0.341***	Weak positive correlation

Policy to improve localisation and beneficiation of the country's natural resources which will support in the growth of SMMEs and boost employment & Progressive, sustained supplier competitiveness improvement	0.394***	Weak positive correlation
Policy to improve localisation and beneficiation of the country's natural resources which will support in the growth of SMMEs and boost employment & Support for strategic sectors	0.351***	Weak positive correlation
The automotive industry makes a substantial contribution to South Africa's economy as a whole & Government preferential procurement policy on State contracts	0.514***	Moderate positive correlation
Policy to improve localisation and beneficiation of the country's natural resources which will support in the growth of SMMEs and boost employment & Effective beneficiation policies on raw materials	0.402***	Moderate positive correlation

* significant at the 10% level of significance

** significant at the 5% level of significance

*** significant at the 1% level of significance

The above results also tend to indicate that the relationship between the building blocks/interventions and the reasons that complement each other, and focus on the automotive industry growth, are stronger than the relationship between the building blocks/interventions that focus on more generic policies. There should thus be more of a focus on specific growth issues that are of concern for the specific interest groups in the motor industry.

5.4.3.3 Reason correlations

Inferential statistics were performed to determine the statistical significance and strength of the relationship between the seven reasons as to why government support is essential for the country's economy. Pearson correlation coefficients were used to evaluate the strength and statistical significance of the relationship between the different combinations of the reasons. The results are summarised in Table 5.19 below. Only statistical relationships will be reported.

The following hypothesis was formulated:

H_o: There is no relationship between the reasons why government support is needed.

H_1: There is a relationship between the reasons why government support is needed.

Each combination of reasons were tested separately.

Table 5.19: Reasons

Cross-tabulation variables	Correlation Coefficient	Conclusion
Re-industrialisation of the manufacturing sector is essential for the revival of economic growth in South Africa & Socio-economic contribution of the automotive industry is essential in contributing to social upliftment of societies in the three regional clusters	0.352***	Weak positive correlation
Re-industrialisation of the manufacturing sector is essential for the revival of economic growth in South Africa & The industry has substantial up- and downstream linkages to other sectors in primary, secondary and tertiary sectors and developments in the automotive industry impact on these sectors	0.337***	Weak positive correlation
Re-industrialisation of the manufacturing sector is essential for the revival of economic growth in South Africa & Policy to improve localisation and beneficiation of the country's natural resources which will support in the growth of SMMEs and boost employment	0.389***	Weak positive correlation
The automotive industry is a vital job driver in South Africa's economy via the multiplier effect & Socio-economic contribution of the automotive industry is essential in contributing to social upliftment of societies in the three regional clusters	0.349***	Weak positive correlation
Socio-economic contribution of the automotive industry is essential in contributing to social upliftment of societies in the three regional clusters & Re-industrialisation of the manufacturing sector is essential for the revival of economic growth in South Africa	0.352***	Weak positive correlation
Socio-economic contribution of the automotive industry is essential in contributing to social upliftment of societies in the three regional clusters & The automotive industry is a vital job driver in South Africa's economy via the multiplier effect	0.349***	Weak positive correlation
The industry has substantial up- and downstream linkages to other sectors in primary, secondary and tertiary sectors and developments in the automotive industry impact on these sectors & Re-industrialisation of the manufacturing sector is essential for the revival of economic growth in South Africa	0.337***	Weak positive correlation

Policy to improve localisation and beneficiation of the country's natural resources which will support in the growth of SMMEs and boost employment & Re-industrialisation of the manufacturing sector is essential for the revival of economic growth in South Africa	0.389***	Weak positive correlation
The automotive industry is a vital job driver in South Africa's economy via the multiplier effect & The automotive industry makes a substantial contribution to South Africa's economy as a whole	0.527***	Moderate positive correlation
The automotive industry makes a substantial contribution to South Africa's economy as a whole & The automotive industry is a vital job driver in South Africa's economy via the multiplier effect	0.527***	Moderate positive correlation
Socio-economic contribution of the automotive industry is essential in contributing to social upliftment of societies in the three regional clusters & The industry has substantial up- and downstream linkages to other sectors in primary, secondary and tertiary sectors and developments in the automotive industry impact on these sectors	0.439***	Moderate positive correlation
Socio-economic contribution of the automotive industry is essential in contributing to social upliftment of societies in the three regional clusters & Policy to improve localisation and beneficiation of the country's natural resources which will support in the growth of SMMEs and boost employment	0.445***	Moderate positive correlation
The industry has substantial up- and downstream linkages to other sectors in primary, secondary and tertiary sectors and developments in the automotive industry impact on these sectors & Socio-economic contributions of the automotive industry is essential in contributing to social upliftment of societies in the three regional clusters	0.439***	Moderate positive correlation
Policy to improve localisation and beneficiation of the country's natural resources which will support in the growth of SMMEs and boost employment & Socio-economic contribution of the automotive industry is essential in contributing to social upliftment of societies in the three regional clusters	0.445***	Moderate positive correlation

* significant at the 10% level of significance

** significant at the 5% level of significance

*** significant at the 1% level of significance

The above results suggest that the relationship between government support and the automotive industry is vital to the South African economy, since it is a vital job driver via its multiplier effect. This positive effect will grow domestic SMMEs, it will improve localisation and beneficiation of the country's natural resources, and it has linkages up- and downstream with various other sectors of the economy, contributing to social upliftment of the country, especially regarding the creation of sustainable jobs.

5.5 CONCLUSION

Chapter 5 focused on the analysis and presentation of the research results for the empirical study to determine the relationship between government support and the sustainability of the South African automotive industry. The final chapter, Chapter 6, will deal with the main findings, conclusions and recommendations relating to the results of the research.

CHAPTER 6
CONCLUSIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

The purpose of this study was to determine the relationship between government support and the sustainability of the South African automotive industry. The research results were presented in Chapter 5. Chapter 6 provides the findings, conclusions and recommendations based on the various research objectives. The research objectives will first be stated and then the conclusions of the study will be presented. The research objectives are thereafter synchronised with the findings of the study. The limitations of the study are discussed and recommendations for future research relating to the automotive industry study field will be provided. The findings and conclusions presented below will follow the same sequence as discussed and analysed in Chapter 5.

6.2 OBJECTIVES OF THE STUDY

The primary objective of the study was:

To investigate the relationship between government support and the sustainability of the South African automotive industry.

The secondary objectives of the study were:

- To determine the effect of the previous policies, namely, the MIDP, current APDP, the recommended APDP changes, and the new South African Automotive Masterplan 2021-2035 on the current OEMs in South Africa.
- To determine what, if any, competitive advantage South Africa has over other countries.
- To determine how new entrants could be sustainable in the vehicle manufacturing industry with lower thresholds, but concurrent lower levels of support under the APDP.
- To determine how the OEMs, and subsequently the automotive component suppliers, would be impacted if the South African government does not provide long-term policy certainty.

- To determine how the country's economy would be affected if the automotive industry is not sustained based on continued government support.

6.3 FINDINGS OF THE STUDY

The findings of Chapter 5 will be summarised in the sections that follow.

6.3.1 Ownership

It was found that 17 (52%) of the FTS companies are South African-owned, 14 (42%) of them are foreign-owned and two (6%) of the FTS companies are 50% South African-owned and 50% foreign-owned. It was further found that none of the OEM companies are South African-owned and that all four of the OEM companies are subsidiaries of foreign-owned global multinational corporations.

6.3.2 Industry classification

It was found that four respondents (out of a possible seven respondents that could have replied) are OEMs (57% of the total OEM population) and 33 respondents (out of a possible 110) are first-tier suppliers (30% of the total population). Out of the possible 110 FTSs, 49 companies are classifiable under the vulnerable sector. From the 33 FTS respondents, 10 respondents (30.3%) reside under the vulnerable sector category as follows: three fall under the Catalytic converters sector, four under the Aluminium product sector, and three fall under the Cast iron component sector.

6.3.3 First tier supplier production and end-market split

It was found that regarding the volume products manufactured by FTSs, the majority, 29 (85.7%), of FTSs manufacture for OEMs, with the minority, four (14.3%), being focused on the aftermarket. Investments in new generation models, exports by the OEMs in achieving higher volumes, and economies of scale benefits, as well as linkages with the OEMs' international supply chains in generating business for the South African component suppliers are seen as important for the FTSs in the country.

It was further found that 17 (52%) of the FTSs' volume products are manufactured for the domestic market, nine (27%) of the volume products are manufactured for the export market, and seven (21%) of the FTSs' products are manufactured for both the domestic and export market.

Higher vehicle production volumes by growing the domestic new vehicle market and increased vehicle exports are seen as important building blocks to realise the APDP vision of doubling vehicle production in the country to around one million units per annum by 2020, and importantly, to deepen and broaden the component supplier base in the country as well.

6.3.4 OEM and FTS perception on government support and coping without this support

It was found that 15 (45%) of the FTS respondents view South African automotive government support as less than adequate when comparing it to automotive support in competitor countries, whereas only one (25%) of the OEMs view the support as more than adequate when comparing it to automotive support in competitor countries. It was also found that nine (27%) of the FTS respondents viewed South African automotive support as being on par when comparing it to competitor countries. The majority of FTSs thus view the support from government as less than adequate.

It was also found that 15 (45%) of the FTS respondents (with 80% being vulnerable FTSs) and all, 100%, of the OEM respondents indicated that the South African automotive industry would not be able to compete at all with global competition without government support, while 17 (52%) of the FTSs indicated that the South African automotive industry can marginally compete with global competition without government support. It was further found that one (3%) of the FTSs indicated that the South African automotive industry can moderately compete with global competition without government support. None of the FTSs or OEMs indicated that the South African automotive industry has a high level chance of competing without any government support.

The findings indicated that, in an intensely competitive global environment where governments in general aim to attract OEM investments to their countries, government automotive support is imperative in South Africa to guarantee the continued existence of the sector in the economy.

6.3.5 OEM and FTS viewpoints on the MIDP, APDP and amendments to the APDP

It was found that the majority, 23 (72%), of the FTS respondents companies and all, 100%, of the OEMs were positively impacted by the implementation of the MIDP by government. It was also found that one (3%) of the FTS respondent companies and none of the OEMs were negatively impacted, and that eight (25%) of the FTS respondents companies were not impacted at all by the implementation of the MIDP.

It was found that 16 (52%) of the FTS respondents and three (75%) of OEMs indicated that their company was positively impacted by the APDP, and that three (9%) of the FTS respondents and none of the OEMs were negatively impacted by the APDP. It was further found that 12 (39%) of the FTS respondents and one (25%) of the OEMs indicated that their company was not impacted at all by the APDP.

Eight (25%) of the FTS respondents and three (75%) of the OEMs indicated that the shift from the MIDP to the APDP impacted their company positively. Six (19%) of the FTS respondents and none of the OEMs indicated that the shift from the MIDP to the APDP impacted their company negatively. It was also found that 18 (56%) of the FTS respondents and one (25%) of the OEMs indicated that the shift from the MIDP to the APDP did not impact their company at all.

It has become clear that the MIDP mainly assisted companies to increase their export volume and to offset logistics costs to export markets. The MIDP therefore made it easier for companies to explore foreign markets and be competitive, based on the government support provided by the MIDP. The shift from the MIDP to the APDP assisted companies with their higher production volumes, especially the OEMs, and the non-vulnerable FTSs also benefitted from the APDP. Some respondents only benefitted indirectly due to their position in the supply chain, which indicated that the policy support measures were not significant enough to make an impact on their company. Higher vehicle production volumes, as well as accommodating the vulnerable component groups with higher benefits under the APDP, assisted the industry with the transition from the MIDP to the APDP, but some component suppliers, in particular the vulnerable, high raw material export group were not satisfied that this policy intervention was sufficient.

6.3.6 Benefits due to government support

Most respondents (23 (74%) of the FTS companies and three (75%) of OEMs) indicated that higher levels of investment in local manufacturing facilities & tooling was the biggest benefit of government support. This was followed by higher levels of local production noted by 18 (58%) of FTS companies and four (100%) of OEMs. It was also found that 16 (52%) of FTS companies and three (75%) of OEMs achieved higher levels of direct/indirect exports. Furthermore, nine (29%) of FTS companies and three (75%) of OEMs stated that this support conveyed a positive influence to their global head office to encourage exports/investment decisions. Lastly, it was found that 14 (45%) of the FTS companies and four (all) of the OEMs achieved higher levels of local content as a result of government support.

The MIDP assisted the relatively small domestic automotive industry to become fully integrated into the global automotive supply chain environment with significant increases in all areas of vehicle and component production, exports, investments and international competitiveness. The APDP was designed to enhance the industry to attain higher vehicle production levels and increased localisation. The impact of government automotive policy support has generally been viewed as positive, but different results were achieved by the different respondents depending on their position in the supply chain.

6.3.7 The effect of the MIDP and the APDP on long-term security and confidence in the sector

The extent to which the MIDP provided long-term security and confidence to the respondent companies, and the extent to which the APDP provided long-term security and confidence to the respondents' companies are summarised in Tables 6.1 and 6.2 below.

Table 6.1: The effects of the MIDP

MIPD	OEMs	FTS
To No Extent / Minor Extent	0%	28%
To a Moderate Extent	0%	16%
To a Large Extent / Critical Extent	100%	56%

Table 6.2: The effects of the APDP

APDP	OEMs	FTS
To No Extent / Minor Extent	0%	25%
To a Moderate Extent	0%	19%
To a Large Extent / Critical Extent	100%	56%

In summary, it is clear that the OEMs were all positive about the MIDP and APDP implementation regarding the provision of long-term security and confidence to their companies' operations in the country. The responses by the FTS group were mixed and related to their respective roles in the supply chain, either as focusing on the domestic or export market or either as being classified as vulnerable or non-vulnerable, the latter due to the impact on their business operations by the transition from the MIDP to the APDP.

6.3.8 MIDP and APDP and the sustainability of SA automotive industry

The effect of the MIDP on long-term security and confidence, as well the effect of the APDP on long-term security and confidence to the respondents' companies, is summarised in Tables 6.3 and 6.4 below.

Table 6.3: MIDP and sustainability of SA motor industry

MIPD	OEMs	FTS
To No Extent / Minor Extent	0%	9%
To a Moderate Extent	0%	31%
To a Large Extent / Critical Extent	100%	59%

Table 6.4: APDP and sustainability of SA motor industry

APDP	OEM's	FTS
To No Extent / Minor Extent	0%	3%
To a Moderate Extent	0%	28%
To a Large Extent / Critical Extent	100%	69%

It is widely recognised (see section 1.2.2) that the MIDP and APDP have contributed to a substantial inflow of foreign direct investment (FDI), as well as technology transfers, spurring growth and much higher vehicle volume production in the South African motor industry. The majority of the FTSs and OEMs therefore indicated that both the MIDP and the APDP made the production of motor vehicles in South Africa sustainable to a large and critical extent.

6.3.9 Continued presence in SA should government stop support as well as the importance of government support

The responses regarding whether or not the respondents and the companies that they represent would remain in South Africa should government stop their support to the automotive industry are summarised in Table 6.5 below.

Table 6.5: Continued presence in SA should government stop support

	OEM's	FTS
Yes	0%	48%
No	100%	45%
Maybe	0%	6%

The FTSs indicated that the top three reasons as to why government support is essential for the country's economy are:

- Policy stability and certainty (i.e. continuation of government support programmes for automotive industry) is crucial to attract new investment, and it is a motivating factor for OEMs and multinational component suppliers to stay in the country and to make long-term investment decisions (average rating of 6.70);
- Re-industrialisation of the manufacturing sector is essential for the revival of economic growth in South Africa (of which the automotive industry has been identified as one of the sectors for accelerated growth) with an average rating of 6.55; and
- The automotive industry is a vital job driver in South Africa's economy via the multiplier effect (average rating of 6.48).

It was also found that the OEMs' top three reasons, with equal average ratings, as to why government support is essential for the country's economy, are as follows:

- Re-industrialisation of the manufacturing sector is essential for the revival of economic growth in South Africa (of which the automotive industry has been identified as one of the sectors for accelerated growth), with an average rating of 7.00;
- The automotive industry is a vital job driver in South Africa's economy via the multiplier effect with an average rating of 7.00; and
- The automotive industry makes a substantial contribution to South Africa's economy as a whole (in terms of GDP, compensation, government revenue, exports (BOP) and capital investment) with an average rating of 7.00.

The results indicate that the majority of respondents would not remain in South Africa should government stop their support to the industry. OEMs rely on government support to sustain their business operations, and the vulnerable sectors, in turn, rely on the OEMs to support their business operations and to generate the export contracts for them. It can thus be concluded that there is a symbiotic relationship between the OEMs and FTSs. As key drivers of the supply chain, it is important to understand that should the OEMs leave the country, there would be no OEM supply chain, no supplier development, no black empowerment and no skills and technology spill-over effects, with huge losses of employment in the automotive and related sectors. The whole supply chain would be significantly affected with huge

implications for, and impact on the vehicle manufacturing regions of the Eastern Cape, Gauteng and Kwazulu-Natal.

6.3.10 Challenges for South Africa to be an attractive investment destination

The three biggest challenges in making South Africa an attractive country to invest and operate in for FTSs are:

- firstly, difficulties in achieving economies of scale (average rating of 7.06);
- secondly, volatile currency movements impacting on pricing and planning (average rating of 6.97); and
- thirdly, wage increases not matched by productivity improvements (average rating of 6.82).

The three biggest challenges in making South Africa an attractive country to invest and operate in for OEMs are:

- firstly, distance from major markets (average rating of 9.00);
- secondly, supplier investments & technology offerings (average rating of 8.75); and
- thirdly, the general cost of doing business in the country (average rating of 8.50).

'Supplier investments and technology offerings' is the lowest rated challenge in making South Africa an attractive country to invest and operate in, according to FTSs. OEMs, conversely, perceived the shortage of appropriate skilled people in the industry as the lowest challenge. Respondents also added that electricity costs, political uncertainty, and direct and indirect support from overseas competitors by their respective countries as challenges that makes South Africa as a country less attractive to invest in.

The OEMs and multinational component suppliers, as fully integrated into the networks of parent companies abroad, recognised that supply chains compete against supply chains and international competitiveness is therefore critical in all aspects of the supply chain, while the cost of doing business and a conductive operating environment are also important.

6.3.11 Building blocks needed to further SA auto industry

The FTSs rated the building blocks/ interventions to support the vision of the APDP, on average, in the range from 4.47 to 9.36, as follows:

- Stability in Government automotive policy was seen as the most important building block/intervention with an average of 9.36;
- The incentives for low/zero emission vehicles was perceived as the least important building block/intervention (average of 4.47).

It was further found that the OEM viewpoint rated, on average, in the range from 6.75 to 9.75, as follows;

- Stability in Government automotive policy was perceived as the most important building block/intervention with an average of 9.75;
- The incentives for low/zero emission vehicles was perceived as the least important building block/intervention with an average rating of 6.75.

It is evident that there is consensus between the FTS and the OEMs regarding the importance of highest and lowest building block/intervention, although the OEMs regarded the importance of both these building blocks higher than the FTSs.

The three most important building blocks/interventions the government automotive policy regime implemented to sustain and grow the South African automotive manufacturing industry, according to the FTSs are:

- Firstly, stability in government automotive policy (average rating of 9.36),
- Secondly, government policies (average rating of 9.18), and
- Thirdly, industrial relations environment (average rating of 8.21).

The three most important building blocks/interventions the government automotive policy regime implemented to sustain and grow the South African automotive manufacturing industry, according to the OEMs are:

- Firstly, stability in government automotive policy (average rating of 9.75),
- Secondly, market growth through a review of vehicle taxes and levies (average rating of 9.75), and
- Thirdly, government policies (average rating of 9.50).

It is evident from the above that there is to a major extent some consistency between the FTSs and the OEMs with regards to the three most important building blocks/interventions.

Incentives for low/zero emission vehicles was seen as the least important building block/intervention to support the vision of the APDP by both the FTSs and the OEMs due to the current low volume of sales in the domestic market. The responses again highlight the perceptions of all the respondents in the supply chain, irrespective of volumes, supplying the domestic or export market, about the most critical important aspects of the automotive policy regime to sustain the automotive industry in South Africa.

6.3.12 Reasons why government support is crucial for the automotive industry

It was found that the FTSs see the top three reasons as to why government support is essential for the country's economy, as discussed in section 6.3.9

It was further found that the OEMs see the top three reasons as to why government support is essential for the country's economy, as;

- Re-industrialisation of the manufacturing sector is essential for the revival of economic growth in South Africa (the automotive industry has been identified as one of the sectors for accelerated growth), with an average rating of 7.00;
- The automotive industry is a vital job driver in South Africa's economy via the multiplier effect, with an average rating of 7.00; and
- The automotive industry makes a substantial contribution to South Africa's economy as a whole (in terms of GDP, compensation, government revenue, exports (BOP) and capital investment), with an average rating of 7.00.

Once more it is clear that there is general consensus regarding the most important reasons why government support is needed in the South African automotive industry. In general, it can be stated that there is a unity of thought between the OEMs and the FTS in general regarding the government's interventions in the domestic automotive industry.

6.3.13 SA vs the Australian scenario

It was found that the majority, 20 (61%) of the FTS respondents and three (75%) of the OEMs stated that the South African automotive industry could follow in Australia's footsteps should government decide to discontinue or lower their levels of support to the industry. The following was also found:

- three (9%) of the FTS respondents and none of the OEMs used the word 'absolutely' to state that the South African automotive industry could follow in Australia's footsteps should government decide to discontinue or lower their levels of support,
- one (3%) FTS respondent and none of the OEMs used the words 'highly probable' to state that the South African automotive industry could follow in Australia's footsteps should government decide to discontinue or lower their levels of support,
- five (15%) of the FTS respondents and none of the OEMs used the word 'definitely' to state that the South African automotive industry could follow in Australia's footsteps should government decide to discontinue or lower their levels of support,
- one (3%) FTS respondent used the words 'without a doubt' to state that the South African automotive industry could follow in Australia's footsteps should government decide to discontinue or lower their levels of support,
- one (3%) FTS respondent and none of the OEMs used the word 'possibility' to state that the South African automotive industry could follow in Australia's footsteps should government decide to discontinue or lower their levels of support,
- none of the FTS respondents and one (25%) of the OEMs used the words 'not clear cut' to state that the South African automotive industry could follow in Australia's footsteps should government decide to discontinue or lower their levels of support,
- two (6%) of the FTS respondents and none of the OEMs used the word 'no' to state that the South African automotive industry could follow in Australia's

footsteps should government decide to discontinue or lower their levels of support.

What happened in Australia with the demise of its automotive industry could also happen in South Africa if the South African government discontinues or lowers its support of the domestic automotive industry. The views emphasise the importance of constructive collaboration between government and industry to formulate policy and to achieve a win-win situation. It also highlights the importance of updated and accurate information to be able to demonstrate the significant contribution by the automotive industry to the South African economy.

6.3.14 Impact of discontinuation on OEMs and FTS

How the respondents companies would be impacted should government discontinue its long-term policy support of the industry through policy instruments is summarised in Table 6.6 below.

Table 6.6: Impact of discontinuation of support by government

Discontinuation	OEMs	FTS
Withdrawal / Close down	27%	50%
Long-term cease to exist	18%	0%
Severely negative	15%	50%
Move operations	3%	0%
Look for alternative business / Diversify	9%	0%
Downsize / Retrenchment	9%	0%
No impact	18%	0%

The majority (66%) of the respondents indicated that should government discontinue its long-term policy support, their companies would either need to centralise their operations, re-locate their plant, close down or leave the country, since South Africa would then not be regarded as an attractive manufacturing destination for vehicles and automotive components in the intensely competitive global automotive environment.

6.4 HYPOTHESES AND FINDINGS

The hypotheses and their findings, as discussed in the inferential statistical analysis part of Chapter 5, are summarised in Table 6.7 below.

Table 6.7: Hypotheses and findings

HYPOTHESIS H_o	HYPOTHESIS H_1	FINDING
There is no difference between the two groups (vulnerable FTSs and non-vulnerable FTSs) with regards to whether they think the automotive industry in SA is capable of coping with global competition without government support.	There is a difference between the two groups (vulnerable FTSs and non-vulnerable FTSs) with regards to whether they think the automotive industry in SA is capable of coping with global competition without government support.	The null hypothesis can be rejected as the export-oriented vulnerable FTSs do not think the automotive industry in South Africa is able to compete without government support, whereas the non-vulnerable FTS focusing on the domestic market, do think the automotive industry in South Africa is able to marginally compete without government support.
There is no difference between the vulnerable FTSs and non-vulnerable FTSs regarding the importance of each of the 13 building blocks/interventions to complement the vision of the government automotive policy regime (APDP and SA Automotive Masterplan 2021-2035).	There is a difference between the vulnerable FTSs and non-vulnerable FTSs regarding to the importance of each of the 13 building blocks/interventions to complement the vision of the government automotive policy regime (APDP and SA Automotive Masterplan 2021-2035).	The null hypothesis can only be rejected for one of the 13 building blocks. Vulnerable FTS tend to rate 'support for strategic sectors' of higher importance than the non-vulnerable FTSs. The vulnerable group appears to consider all these building blocks as more important than the non-vulnerable group, and thus it is clear that they see their competitive position in the market as less secure than the non-vulnerable group does.
There is no difference between the extent to which the vulnerable and non-vulnerable FTSs perceive each of the eight challenges in making South Africa an attractive country for their company to invest and operate in.	There is a difference between the extent to which the vulnerable and non-vulnerable FTSs perceive each of the eight challenges in making South Africa an attractive country for their company to invest and operate in.	The null hypothesis can be accepted as there is no difference in how the two groups perceived the eight challenges. However, the mean ranks reflected that the vulnerable and non-vulnerable FTSs differed in opinion regarding Q20f: 'Shortage of appropriate skilled people in the industry'. This difference can be explained by looking at the basic lack of specialised skills that are developed and nurtured in the secondary, and especially, tertiary levels of Higher Education in South Africa.

HYPOTHESIS H_o	HYPOTHESIS H_1	FINDING
There is no difference between the importance of each of the seven reasons as to why vulnerable and non-vulnerable FTSs indicated government support is essential for the country's economy.	There is a difference between the importance of each of the seven reasons as to why vulnerable and non-vulnerable FTSs indicated government support is essential for the country's economy.	The null hypothesis can be accepted. The mean ranks, however, reflected differences which relate to the transition from the MIDP to the APDP, resulting in the international competitiveness of the vulnerable high raw-material content suppliers being more negatively affected than the non-vulnerable suppliers. The non-vulnerable FTSs are domestically bound and cannot access cost reductions due to the inability to effect economies of scale.
There is no relationship between type of FTS (vulnerable and non-vulnerable) and each of the five accomplishments achieved mainly due to government support in South Africa.	There is a relationship between type of FTS (vulnerable and non-vulnerable) and each of the five accomplishments achieved mainly due to government support in South Africa.	The null hypothesis can be accepted. Vulnerable and non-vulnerable FTSs displayed similar response patterns regarding the accomplishments they achieved. Government support assists both the vulnerable and non-vulnerable FTSs to achieve the required accomplishments in South Africa, as the APDP is a volume-based programme, and the incentive is linked to value addition, irrespective if the products are for the domestic or export markets.
There is no relationship between type of FTS (vulnerable and non-vulnerable) and if they would remain in South Africa without government support.	There is a relationship between type of FTS (vulnerable and non-vulnerable) and if they would remain in South Africa without government support.	The null hypothesis can be accepted. For vulnerable FTSs government support is imperative for them to remain viable and internationally competitive in export markets, while it doesn't apply to the same degree to the non-vulnerable FTSs who focus more on the domestic market.

HYPOTHESIS H_o	HYPOTHESIS H_1	FINDING
There is no difference between export FTSs and domestic FTSs regarding the importance of government automotive support for their company's sustainable	There is a difference between export FTSs and domestic FTSs regarding the importance of government automotive support for their company's	The null hypothesis can be rejected, as the export FTSs tend to regard government automotive support for their company's sustainable business operations in South Africa as more important than domestic FTSs do.

HYPOTHESIS H_o	HYPOTHESIS H_1	FINDING
business operations in SA.	sustainable business operations in SA.	
There is no difference between export FTSs and domestic FTSs regarding the importance of each of the 13 building blocks/interventions the government automotive policy regime has implemented to sustain and grow the SA automotive industry.	There is a difference between export FTSs and domestic FTSs regarding the importance of each of the 13 building blocks/interventions the government automotive policy regime has implemented to sustain and grow the SA automotive industry.	The null hypothesis can be rejected for two of the building blocks. Export FTSs believe that effective beneficiation policies on raw materials tend to have a greater impact on their company to sustain and grow their business than domestic FTSs. Export FTSs also believe that support for strategic sectors tend to have a greater impact on their company to sustain and grow their business than domestic FTSs do. The export group appears to consider all these building blocks as more important than the domestic group and thus the export FTSs, which are also more the vulnerable FTSs, perceive interventions relating to international competitiveness in international markets more important, while the domestic FTSs perceive interventions in the domestic market as more important.
There is no difference between export FTSs and domestic FTSs regarding each of the reasons as to why government support is essential for the country's economy.	There is a difference between export FTSs and domestic FTSs regarding each of the reasons as to why government support is essential for the country's economy.	The null hypothesis can be rejected in the case of one of the reasons. The export FTSs tend to indicate that the socio-economic contribution of the automotive industry is more essential in contributing to social upliftment of societies in the three regional clusters than for domestic FTSs. Differences between the export and domestic FTSs relate to the higher impact of government support on the country's economy for the export FTSs in generating higher production volumes, employment creation and skills development in the regional clusters and the beneficiation of raw material, amongst others.
There is no difference between the extent to which the export and domestic FTSs	There is a difference between the extent to which the export and domestic FTSs perceive	The null hypothesis can be accepted. The mean ranks, however, reflected differences between the export and domestic

HYPOTHESIS H_o	HYPOTHESIS H_1	FINDING
perceive each of the challenges in making South Africa an attractive country for their company to invest and operate in.	each of the challenges in making South Africa an attractive country for their company to invest and operate in.	FTSs which are mainly related to issues of international competitiveness to successfully invest and operate in the domestic market against imports and in export markets against competitor countries.
There is no relationship between type of FTS (export and domestic) and the accomplishments achieved mainly because of government support in South Africa.	There is a relationship between type of FTS (export and domestic) and the accomplishments achieved, mainly because of government support in South Africa.	The null hypothesis can be rejected. Export FTSs reported much higher levels of direct/indirect exports than the domestic FTSs (opposite behaviour) and conveyed a positive report to global head office to encourage exports/investment decisions in South Africa. Government support is imperative for the export-oriented domestic automotive industry to compete globally for investments and export contracts.
There is no relationship between the building blocks/interventions.	There is a relationship between the building blocks/interventions.	The null hypothesis can be accepted. Although all the building blocks/interventions, as a combination, play a role, the relationship between the building blocks/ interventions that focus on the domestic market growth or compliance with related government policies, are stronger than the relationship between the building blocks/ interventions that focus on cost items and unrelated government policies.
There is no relationship between the reasons and the building blocks/interventions.	There is a relationship between the reasons and the building blocks/interventions.	The null hypothesis can be accepted. The relationship between the building blocks/ interventions and the reasons they complement each other and focus on the automotive industry growth are stronger than the relationship between the building blocks/ interventions that focus on more generic policies.
There is no relationship between the reasons why government support is needed.	There is a relationship between the reasons why government support is needed.	The null hypothesis can be accepted. The relationship between government support and the automotive industry is imperative to the South African

HYPOTHESIS H_o	HYPOTHESIS H_1	FINDING
		economy, since it is a vital job driver via its multiplier effect.

6.5 SUMMARY OF THE MAIN FINDINGS OF THE STUDY

The main findings of the study that were revealed through the descriptive and inferential statistical analysis are thematically broken down and discussed in the section below.

6.5.1 General business operations

The main findings of the study include that investments in new generation models, exports by the OEMs to achieve higher volumes and economies of scale benefits, as well as linkages with the OEMs' international supply chains are all crucial factors to sustain and grow the FTSs in the country. Higher vehicle production volumes assisted by growing the domestic new vehicle market and increased vehicle exports are important building blocks to realise the APDP vision of doubling vehicle production in the country to around one million units per annum by 2020.

It was also revealed that the South African automotive industry compares positively with comparable industries in developing nations regarding flexible production capability, government support, raw material accessibility, emerging-market cost advantages, and infrastructure. It, however, has unique problems due to its geographic location far away from its export markets. Due to the intensely competitive global environment, where governments aim to attract OEMs' investments to their countries, government automotive support is vital to guarantee the continued existence, sustainability and growth of the sector in the South African economy.

6.5.2 Quantitative and qualitative perceptions of MIDP/APDP

The main findings of the study include that the MIDP by-and-large assisted companies to increase their export volumes, offset logistic costs due to distance to markets, while it opened the door for opportunities to enter the export market for certain FTSs. The MIDP therefore made it easier for companies to explore and access foreign markets with an attractive product offering, based on the government

support provided through the MIDP. Higher vehicle production volumes, as well as accommodating the vulnerable component groups with higher benefits under the APDP, assisted the industry with the transition from the MIDP to the APDP, but for the vulnerable, high raw-material export component suppliers this was still not a sufficient gain.

It was also found that the APDP had a positive impact on companies by assisting with growth in total volume production and by increasing the incentives on local value addition in line with the APDP's vision of doubling vehicle production to around one million units per annum, as well as the deepening and broadening of the component supply base.

The OEMs were all positive about the MIDP implementation, while there were more of the FTS group that had misgivings about the MIDP due to their position in the supply chain. The OEMs, the FTSs, and the vulnerable group of FTS were all positive that the MIDP made producing vehicles in SA sustainable. It is widely recognised that both the MIDP and APDP contributed to a substantial inflow of foreign direct investment (FDI), as well as technology transfers, that have spurred growth in South Africa's motor industry. This is confirmed, since the majority of the FTSs and the OEMs indicated that both the MIDP and the APDP made producing vehicles in South Africa sustainable.

The transition from the MIDP to the APDP resulted in the international competitiveness of the vulnerable high raw-material content suppliers being more negatively affected than the non-vulnerable suppliers, despite the higher benefits under the APDP for the vulnerable products suppliers.

6.5.3 The automotive industry

The main findings of the study include that should the OEMs leave the country, there would by-and-large be no supply chain, no supplier development, no black empowerment and no skills and technology spill-over effects in this industry. Constructive collaboration and commitment from all role-players are what makes the industry successful and which could achieve real efficiency improvements in the industry. The component suppliers will not have any national and international business if not for the OEMs (derived demand).

It was also found that supply chains compete against supply chains, and international competitiveness is therefore critical in all aspects of the supply chain, while the cost of doing business and a conducive operating environment are also imperative. The perceptions of all the respondents in the supply chain, irrespective of volumes, supplying domestic or export market, amongst others agree, with the critical importance of the automotive policy regime to sustain the automotive industry in South Africa.

6.5.4 Government support

Should government decide to discontinue or lower their levels of support to the South African automotive industry, the same outcome as that which happened in Australia can be anticipated. The non-vulnerable FTS businesses will not be as affected as the vulnerable FTS, should government stop their support to the industry due to the fact that they have alternative markets. Vulnerable FTSs are more dependent on government support than non-vulnerable FTSs. Vulnerable FTSs experience more uncertainty because of their position in the automotive supply chain which is more tenuous than that of the non-vulnerable FTSs, since they have diverse markets and OEM support on the international stage.

Government support assists both the vulnerable and non-vulnerable FTSs in achieving their required objectives in South Africa. For vulnerable FTSs, government support is imperative to enable them to remain viable and internationally competitive in exports markets, while this does not apply as much to the non-vulnerable FTSs who focus more on the domestic market. Export FTSs regard government support for sustainable business operations in South Africa as more important than domestic FTSs do. Export FTSs represent the vulnerable FTSs that are raw-material intensive and that required additional assistance during the transition from the MIDP to the APDP to enable them to remain internationally competitive in respect of exports.

Export FTSs indicated that CPI and the general cost of doing business in the country make South Africa less attractive for them to operate in than domestic FTSs do. Domestic FTSs indicated that the introduction of cleaner fuel quality is more important to sustain and grow South Africa, since in future they might have to manufacture new technology vehicles for the export market and older technology

vehicles for the domestic market which could impact on costs and volume requirements.

Government support is imperative for the export-oriented domestic automotive industry to compete globally for investments and export contracts.

The significant contribution of the automotive industry to South Africa regarding investment, employment, exports, contribution to the GDP (which accounts for a third of manufacturing output) cannot be ignored. As the South African automotive industry is essential to industrialise and re-industrialise the country's economy, it is therefore crucial for the automotive industry to have a conductive environment for future sustainability and growth.

6.6 RESEARCH OBJECTIVES SYNCHRONISED WITH THE FINDINGS OF THE STUDY

The primary and secondary objectives of this research study were achieved and are revealed in Table 6.8, where they are synchronised with the main findings.

Table 6.8: Objectives synchronised with the findings

OBJECTIVES	MAIN FINDINGS
Primary objective: To determine the relationship between government support and the sustainability of the South African automotive industry.	Some of the main findings regarding the relationship and sustainability includes: – That the South African automotive industry compares positively to competitor countries regarding government support, although component suppliers indicated that they receive less support than OEMs (see Figure 5.5). – Government support is of extreme importance for sustainable business operations in South Africa (see Section 5.2.17). – OEMs rely on government support for their business operations and vulnerable FTS sectors rely on OEMs to support their business operations (see Section 5.2.17). – Government consultation with the industry is extremely important since collaboration and commitment is what makes the industry successful (see Figure 5.18). – Should government discontinue its support to the industry, the South African automotive industry would

OBJECTIVES	MAIN FINDINGS
	go the same route as the Australian automotive industry (see Figure 5.26). – It is crucial for the government to keep investing in the automotive industry, since it contributes to the employment, exports, and manufacturing output which is essential to industrialise the country's economy (see Section 5.2.3).
Secondary objective 1: To determine the effect of the previous policies, namely, the MIDP, current APDP, the recommended APDP changes and the new South African Automotive Masterplan 2021-2035 on the current OEMs in South Africa.	Some of the main findings were: – That the APDP had a positive impact on OEM companies by assisting with growth and increasing incentives (see Figure 5.9). – That the APDP has been criticised for not permitting global market forces to play out, leading to increased vehicle prices through import tariffs (see Section 5.2.9). – There is a perception among OEMs and FTSs that the APDP has not made a big difference to make South Africa more attractive as an investment destination. This raises the question as to whether recent investments made by OEMs in the country will result in the necessary outcomes that were foreseen by government (see Figure 5.11). – That the APDP provided long-term security and confidence in the sector (see Figure 5.13). – That OEMs, as a sector, differ from FTSs in that the shift from the MIDP to the APDP impacted OEMs more positively but had no visible impact on FTSs (see Figure 5.19).
Secondary objective 2: To determine what, if any, competitive advantage the South African automobile market has over other countries.	Some of the main findings include: – 'Supplier investments & technology offerings' is the lowest ranked challenge in making South Africa an attractive country to invest and operate in, according to FTSs, since the SA FTSs can compete on equal terms (see Figure 5.22). – Supply chains compete against supply chains, therefore international competitiveness is critical in all aspects of the supply chain, while the cost of doing business and a stable operating environment are also imperative (see Section 5.2.22). – It can be stated that the South African motor industry does not have any clear-cut competitive advantage, other than the government incentives provided to the industry.

OBJECTIVES	MAIN FINDINGS
Secondary objective 3: To determine how new entrants could be sustainable in the vehicle manufacturing industry with lower thresholds, but with concurrent lower levels of support under the APDP.	Some of the main findings indicates: – The AIS is also now accessible to all automotive component suppliers and has improved under the APDP when compared to the MIDP, where the investment incentive in the form of the PAA was restrictive (see Section 5.2.9). – It would therefore seem that new automotive component entrants have wider access to the automotive investment incentive scheme, while APDP support would also be available to vehicle manufacturers at a threshold of 10 000 units manufactured per annum under the current regime.
Secondary objective 4: To determine how the OEMs, and subsequently, the automotive component suppliers would be impacted if the South African government does not provide long-term policy certainty.	Some of the main findings were: – That the OEMs were positive about the implementation of the MIDP with some of the FTSs having some misgiving (see Figure 5.12). – That both the MIDP and the APDP provide long-term security and confidence to OEMs and FTSs (see Figure 5.13). – That the MIDP and the APDP contributed to substantial inflow of FDI, as well as technology transfers (see Section 5.2.15). – That should government stop their support, OEMs would leave, which in turn means there would be significant implications on the supply chain (see Figure 5.16). – That the South African automotive industry could follow in Australia's footsteps of closing down the vehicle manufacturing plants, should government decide to discontinue or lower their levels of support (see Figure 5.25).
Secondary objective 5: To determine the effect on the country's economy if the automotive industry is not sustained, based on continued government support.	Some of the main findings include: – That government automotive support is vital to guarantee the continued existence of the automotive sector in the South African economy (see Section 5.2.6). – That the OEMs indicated that should government decide to discontinue or lower their levels of support to the South African automotive industry, the same would happen as that which occurred in Australia (see Figure 5.26), together with a significant impact on the country's economy, as highlighted in Chapter 3. – The views emphasise the importance of constructive collaboration and good communication that is needed between government to assist the industry and to grow the economy. It also highlights the importance of

OBJECTIVES	MAIN FINDINGS
	updated and accurate information to be able to demonstrate the significant contribution by the automotive industry to the South African economy (see Section 5.3.2).

6.7 RECOMMENDATIONS

From the above findings it is clear that the South African motor industry has been extremely successful in manufacturing motor vehicles in South Africa. The support of the South African policy regimes have played a major role in creating this success story.

The following recommendations can be made to further assist the industry in its endeavours and improve its sustainability:

1. Government, as a key partner in the development and growth of the domestic automotive industry, must continue to provide long-term automotive policy security, enhanced with regular reviews to ensure that the policy regime remains on track to achieve its vision and objectives.
2. That policy cohesion with the DTI and between different government departments needs to be improved (see section 2.2.2).
3. That the DTI must champion the building blocks/interventions within its domain that impact on the cost of doing business in the country, and hence, impacts the international competitiveness of the OEMs and FTSs to compete globally for investments and export contracts.
4. That the South African automotive industry increases its focus on research and development (R&D), and actively pursue the localisation of opportunities in new technologies (see section 2.4.2).
5. That incremental localisation and local value addition opportunities be pursued by the development of current, and the creation of new, black-owned manufacturing suppliers via industry and government initiatives.
6. That government recognises the differences in opinion of the vulnerable and non-vulnerable groups of FTS in South Africa. As it stands, the policy support with the transition from the APDP to the SAAM 2021-2035 should take cognisance of the different concerns of these two supplier-based groups.

7. That the DTI and National Treasury focus on optimising support measures and incentives to attract new entrants and achieve higher levels of investment in the domestic automotive industry.
8. That government and industry continue to take cognisance of disruptive global developments impacting on trade patterns, and hence, domestic production.
9. That the constructive collaboration between government and all industry role-players receive the utmost attention to ensure the successful outcome of policy deliberations, and thus, the future growth and sustainability of the domestic automotive industry.
10. That accurate and updated information is provided to spread the positive message of the success of this industry and to convince government and the broader stakeholder community of the return on investment, the significance and the contribution of the domestic automotive industry to the country's economy.

6.8 LIMITATIONS OF THE STUDY

There are a few limitations to this study that need to be taken into account when reading this dissertation. These limitations include:

- The questionnaire was self-administered and a number of participants declined to participate, resulting in a low response rate.
- Only four of the seven OEMs responded to the questionnaire, although there were some extenuating circumstances, for example, Mercedes-Benz is known not to partake in research and GM was busy leaving the country at the time that the research was undertaken.
- Only 33 of the 110 (30%) FTSs participated in the study. However, as stated in Chapter 5, external surveys generally have a response rate of 10-15%, which makes this low response rate acceptable.
- The small sample size limited the power of the inferential statistical tests, however, the appropriate statistical tests were used, and specifically, the use of the chi-square test of independence was appropriate, as the maximum product of numbers of rows and columns were 6, and using the rule of at least 5 observations per cell, at least 30 observations were necessary, therefore the sample size was also adequate in this case.

- The South African Automotive Masterplan 2021-2035 was not finalised yet at the time of the study.

6.9 AREAS FOR FUTURE RESEARCH

Areas for future research include:

- To determine the international competitiveness concerns that vulnerable South African FTSs have, and how these can be addressed post-2020 when the APDP expires.
- To determine the impact of the transition from the APDP to the SAAM 2021-2035 on the different role-players in the South African automotive industry supply chain.
- How to increase value addition and localisation in the South African automotive value chain via the transformation process.
- The impact on the South Africa automotive industry, should other African countries' governments offer support to establish an automotive industry.
- The trend of moving to new technology vehicles, such as electric vehicles in South Africa's main export destination, the European Union, and the impact thereof on the country's future vehicle and automotive component manufacturing.
- To investigate whether a situation can develop where optimum automotive industry growth can be achieved without the over-dependency on government support.
- To compare conditions in other emerging economies as well as to compare this with the South African automotive industry.

6.10 CONCLUSION

This study aimed to determine the relationship between government support and the sustainability of the South African automotive industry. To achieve this goal, the primary objective, as well as several secondary objectives, were set.

The literature chapters discussed the issues of FDI, the competitive advantage of nations, international business, and supply chain management practices. It furthermore, provided an analysis of government's involvement in the automotive industry by outlining the MIDP and the APDP programmes. It also focused on the

global and South African automotive industry through an in depth analysis of the automotive industry in terms of factors that make South Africa attractive as a country to invest in, given the current worldwide economic situation and intensely competitive environment in competing for such investments.

The automotive industry in South Africa makes a significant contribution in respect of investment, employment, exports and contribution to the GDP. It accounts for a third of the manufacturing output of SA which is essential to industrialise and re-industrialise the country's economy as highlighted in all government growth policies, such as IPAP and NDP. The relationship between government support and the automotive industry is an imperative of the South African economy, since it is a vital job driver and contributes to the social upliftment of the country. The automotive industry is furthermore crucial for the South African economy, and it requires a conductive environment to enable future sustainability and growth in order to achieve the high expectations placed on this industry.

South Africa's automotive industry is one of the largest and most globally competitive manufacturing industries in the country (Econometrix, 2018:i). Econometrix (2018:iv) stated that South Africa's automotive industry exports grew substantially on the back of the MIDP and the APDP, that South Africa has an excellent track record as a reliable manufacturer and supplier of high quality vehicles and automotive industry components to world markets, that the advantage of trading from South Africa is a strong network of trade agreements with a number of regions and blocs, both within Africa and globally, and that auto exports are destined for 149 international markets.

The automotive industry has made a contribution of 8.6% to South Africa's total formal employment, as well as a 7.7% to the GDP (Econometrix, 2018:vi,ix).

However, the domestic automotive industry still remains relatively small in the global context, with a market share of global vehicle production of only 0.62% in 2017. The target under the SAAM 2021-2035 is to increase vehicles produced to 1% of global vehicle production per annum by 2035, or the production of 1.4 million vehicles per annum.

There are various challenges that the South African automotive industry currently face, such as difficulties in achieving economies of scale, the general competitiveness gap, the distance from major markets, limited technology

investment by lower tier suppliers, the lack of manufacturing competitiveness, remuneration not matched by productivity improvements, shortage of appropriately skilled people, lack of regional markets to support plant volumes, and the size of the domestic market.

All these challenges point to the fact that South Africa, for the immediate future, will not be able to support the broad growth of the economy and increases in the employment levels without the continued high levels of government support and incentive programmes as currently used in this industry.

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APPENDIX A: ETHICAL CLEARANCE CERTIFICATE

UNISA university of south africa

UNISA DEPARTMENT OF BUSINESS MANAGEMENT RESEARCH ETHICS REVIEW COMMITTEE

29 September 2017

ERC Reference #: 2017_CEMS_BM_060
Name: Ms Melanie Lingenfelder
Student #: 50042718
Staff #: 1944290 & 52202097

Dear Ms Melanie Lingenfelder,

Decision: Ethics Approval from 29 September 2017 to 28 September 2020

Researcher(s): Ms Melanie Lingenfelder
E-mail address: 50042708@mylife.unisa.ac.za
Telephone #: 082405 2309

Supervisor (s): Prof Johan Wilhelm Strydom & Dr Norman Lamprecht
E-mail address: strydjw@unisa.ac.za & norman@naamsa.co.za
Telephone #: 012 429 4455 & 082 829 1692

Working title of research:

The relationship between government support and the sustainability of the South African automotive industry

Qualification: MCom Degree

Thank you for the application for research ethics clearance by the UNISA Department of Business Management Ethics Review Committee for the above mentioned research. Ethics approval is granted for 3 years, from 29 September 2017 to 28 September 2020.

*The **low risk application** was **reviewed** by the Department of Business Management Ethics Review Committee on 29 September 2017 in compliance with the Unisa Policy on Research Ethics and the Standard Operating Procedure on Research Ethics Risk Assessment.*

The proposed research may now commence with the provisions that:

1. The researcher(s) will ensure that the research project adheres to the values and principles expressed in the UNISA Policy on Research Ethics.
2. Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study should be communicated in writing to the

University of South Africa
Preller Street, Muckleneuk Ridge, City of Tshwane
PO Box 392 UNISA 0003 South Africa
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150

Department of Business Management Ethics Review Committee.

3. The researcher(s) will conduct the study according to the methods and procedures set out in the approved application.
4. Any changes that can affect the study-related risks for the research participants, particularly in terms of assurances made with regards to the protection of participants' privacy and the confidentiality of the data, should be reported to the Committee in writing, accompanied by a progress report.
5. The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study. Adherence to the following South African legislation is important, if applicable: Protection of Personal Information Act, no 4 of 2013; Children's act no 38 of 2005 and the National Health Act, no 61 of 2003.
6. Only de-identified research data may be used for secondary research purposes in future on condition that the research objectives are similar to those of the original research. Secondary use of identifiable human research data requires additional ethics clearance.
7. No field work activities may continue after the expiry date (28 September 2020). Submission of a completed research ethics progress report will constitute an application for renewal of Ethics Research Committee approval.

Note:

*The reference number **2017_CEMS_BM_060** should be clearly indicated on all forms of communication with the intended research participants, as well as with the Committee.*

Yours sincerely,

Chair: Prof Sharon Rudansky-Kloppers
Department of Business Management
E-mail: radans@unisa.ac.za
Tel: (012) 429-4370

Executive Dean: Prof Thomas Mogale
Economic and Management Sciences
E-mail: mogalmt@unisa.ac.za
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APPENDIX B: COVER LETTER FOR SURVEY RESEARCH

Title of study: The relationship between government support and the sustainability of the South African automotive industry

Dear Participant,

I invite you to participate in a research study entitled: The relationship between government support and the sustainability of the South African automotive industry. I am currently enrolled in the Master's programme at UNISA and am in the process of writing my Master's dissertation.

The purpose of this study is to determine the extent of the relationship between South African government automotive support in making the domestic automotive industry sustainable. The Motor Industry Development Programme (MIDP) commenced in 1995 until the end of 2012 and was replaced by the Automotive Production Development Programme (APDP) in 2013 to run until the end of 2020. The development of the South African Automotive Masterplan (SAAM) 2021-2035 has already started and aims to ensure the long-term sustainability of the sector in terms of continued policy and support mechanisms. The automotive policy regimes in South Africa have been regarded as the foundation for the industry's growth and development over the past two decades.

Your participation in this research project is completely voluntary. You may decline altogether or leave blank any questions you do not wish to answer. Your response will remain confidential and anonymous. No one other than the researcher will know your individual answers to this questionnaire.

If you agree to participate in this project, please answer the questions on the questionnaire as best as you can. It should take approximately 10 minutes to complete. Please return the questionnaire to melanie@mccormick-property.co.za at your earliest convenience.

If you have any questions about this project, feel free to contact my supervisor, Prof J.W. Strydom on 012 429 4455 or Strydjw@unisa.ac.za.

Thank you for taking time to assist me in my educational endeavours.

Sincerely,

Melanie Lingenfelder

082 405 2309

APPENDIX C: EMPIRICAL SURVEY

Survey Questionnaire

The influence of government support and the sustainability of the South African automotive industry

Dear Respondent,

Thank you for your willingness to complete this survey on the influence of government support and the sustainability of the South African automotive industry. The purpose of this study is to focus more specifically on the contribution that the government incentive programmes (MIDP & APDP), is making to encourage FDI in South Africa and to make the domestic automotive manufacturing sustainable.

Question 1 to 22 requires you to make an X in the appropriate block.

1. Is your company:

South African owned	1
Foreign owned	2

2. Which option describes the company you work for?

OEM	1
First tier supplier	2

Only if you are a first-tier supplier, please answer question 2.1 and 2.2. If you are an OEM, please proceed to question 3.

2.1 Please indicate whether your **volume product** is for OEM or the aftermarket?

OEM	1
Aftermarket	2

2.2 Please indicate whether your company's **volume product** is for the export or the domestic market?

Export market	1
Domestic market	2

3. How would you regard South African automotive government support, in general, compared to automotive support in competitor countries that you have information on?

Not adequate at all	Less adequate	On par	More adequate	Better than all competitors
1	2	3	4	5

4. Please indicate whether you think the automotive industry in SA is capable of coping with global competition without government support.

Not able to compete at all 1	Can marginally compete 2	Can moderately compete 3	High level of competing is possible 4	Can successfully compete without any government support 5

5. Did the MIDP impact your company? Please explain why and in what form for the option you choose – i.e. reduction of platforms, increased export volumes etc.

Positively 1	Negatively 2	Did not impact my company 3

Explanation:_____

_____

_____

_____

6. Did the shift from the MIDP to the APDP (changeover period) impact your company? Please explain why and in what form for the option you choose – i.e. change in local business model, change in products to be manufactured locally, change in products to be exported etc.

Positively 1	Negatively 2	Did not impact my company 3

Explanation:_____
_____
_____
_____
_____
_____

7. Did the APDP (Post Jan 2013) impact your company? Please explain why and in what form for the option you choose – i.e. enhanced export volumes, assistance with CBU importation (duty credits) to balance the marketing mix etc.

Positively 1	Negatively 2	Did not impact my company 3

Explanation:_____
_____
_____
_____

8. Which of the following accomplishments have your company achieved mainly because of government support in South Africa? Please mark all that apply:

Higher levels of local production	a
Higher levels of direct/indirect exports	b
Higher levels of investment in local manufacturing facilities & tooling	c
Conveyed a positive influence on your global head office to increase exports/ investment decisions	d
Higher levels of local content	e

Other: _____

_____

_____

9. In your opinion, to what extent, will any of the recommendations following the 2015 APDP Review (such as the lowering of the threshold of producing 50 000 vehicles to 10 000 vehicles, as well as the freezing of catalytic converter incentives in 2017, instead of a continuing reduction up to 2020, amongst others), make South Africa more attractive as an investment destination?

To no extent 1	To a minor extent 2	To a moderate extent 3	To a large extent 4	To a critical extent 5

10. To what extent did the MIDP provide long-term security and confidence to your company?

To no extent 1	To a minor extent 2	To a moderate extent 3	To a large extent 4	To a critical extent 5

11. To what extent will the APDP provide long-term security and confidence to your company?

To no extent 1	To a minor extent 2	To a moderate extent 3	To a large extent 4	To a critical extent 5

12. To what extent did the MIDP make producing vehicles in South Africa sustainable?

To no extent 1	To a minor extent 2	To a moderate extent 3	To a large extent 4	To a critical extent 5

13. To what extent has the APDP made producing vehicles in South Africa sustainable?

To no extent 1	To a minor extent 2	To a moderate extent 3	To a large extent 4	To a critical extent 5

14. Would your company remain in South Africa should government stop their support to the automotive industry? Please explain the option you choose.

Yes	1	No	2

Why?

_____

_____

_____

15. How important is government automotive support for your company's sustainable business operations in South Africa?

Of no importance	Of minor importance	Of moderate importance	Of major importance	Of extreme importance
1	2	3	4	5

16. How important is it for government to consult with all relevant role-players (e.g. OEMs, suppliers, unions etc.) when reviewing and making changes to the automotive policy regime?

Of no importance	Of minor importance	Of moderate importance	Of major importance	Of extreme importance
1	2	3	4	5

17. How negatively or positively did the shift from the MIDP to the APDP impact your company?

Very negative impact 1	Negative impact 2	Slightly negative impact 3	No impact 4	Slightly positive impact 5	Positive impact 6	Very positive impact 7

18. Which of the following mechanisms have provided support for your company? Please mark all that apply:

Tariffs: Import duty protection	1
AIS: Investment incentive	2
VAA: Volume assembly allowance	3
PI: Production incentive	4

19. Who, in your opinion, benefits the **most** from the government support programmes? Choose only **one** option:

OEMs	1
Automotive Component Manufacturers	2
Customers	3

20. Please indicate the extent to which you perceive **each of the** following challenges in making South Africa an attractive country for your company to invest and operate in where 1 indicates no challenge at all and 10 indicates an extreme challenge, e.g. distance from major markets = 7.

	1 - 10
Difficulties in achieving economies of scale	a
General competitiveness gap in competing with global competitors	b
Distance from major markets	c
Supplier investments & technology offerings	d
Wage increase not matched by productivity improvements	e
Shortage of appropriate skilled people in the industry	f
Volatile currency movements impacting on pricing and planning	g
CPI and the general cost of doing business in the country	h

Other, please specify:

_____

_____

_____

21. Please indicate the importance of **each of the following** building blocks/interventions the government automotive policy regime (APDP and SA Automotive Masterplan 2021-2035) implemented to sustain and grow the South African automotive manufacturing industry on a scale of 1 to 10 where 1 is of no importance and 10 is of extreme importance, e.g. Support for strategic sectors = 8.

	1 - 10
Stability in Government automotive policy	a
Industrial relations environment	b
Government policies	c
Progressive, sustained supplier competitiveness improvement	d
Effective benefication policies on raw materials	e
Reductions in infrastructure, logistics and other input costs	f
Government preferential procurement policies on State contracts	g
Market growth through review of vehicle taxes & levies	h
Introduction of cleaner fuel quality	i
Incentives for low/zero emission vehicles	j
Support for strategic sectors	k
Development finance at preferential rates	l
Government BBBEE policies and equity equivalent issues	m

Other, please specify:

_____

_____

_____

22. Please indicate the importance of **each of the following** reasons as to why government support is essential for the country's economy on a scale of 1 to 7 where 1 is not at all important, 2 is of low importance, 3 is slightly important, 4 is neutral, 5 is moderately important, 6 is very important and 7 is extremely important.

	1 - 7
Re-industrialisation of the manufacturing sector is essential for the revival of economic growth in South Africa (of which the automotive industry has been identified as one of the sectors for accellerated growth).	a
The automotive industry is a vital job driver in South Africa's economy via the multiplier effect.	b
The automotive industry makes a substantial contribution to South Africa's economy as a whole (in terms of GDP, compensation, government revenue, exports (BOP) and capital investment).	c
Policy stability and certainty (i.e. continuation of government support programmes for automotive industry) is crucial to attract new investment, and it is a motivating factor for OEMs and multinational component suppliers to stay in the country and to make long-term investment decisions.	d
Socio-economic contribution of the automotive industry is essential in contributing to social upliftment of societies in the three regional clusters.	e

The industry has substantial up- and downstream linkages to other sectors in primary, secondary and tertiary sectors and developments in the automotive industry impact (positively or negatively) on these sectors.	f
Policy to improve localisation and benefication of the country's natural resources which will support in the growth of SMMEs and boost employment.	g

Other, please specify:

_____

_____

_____

Question 23 and 24 requires your views and opinion.

23. In your opinion, could the South African automotive industry follow in Australia's footsteps where the OEMs and consequently, the component supplier industry cease operations should government decide to discontinue or lower their levels of support?

_____

_____

_____

_____

_____

_____

_____

24. How would your company be impacted should government discontinue its long-term policy support of the industry through policy instruments?

_____
_____
_____
_____
_____
_____
_____

APPENDIX D: INFERENTIAL STATISTICS

NPar Tests

Notes

Output Created		18-APR-2018 23:47:11
Comments		
Input	Data	C:\Users\drmpo\Documents\cems unisa contract\Melani L\melanie raw data.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	37
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /M-W= Q3 Q4 q7rec Q15 Q16 Q20a Q20b Q20c Q20d Q20e Q20f Q20g Q20h Q21a Q21b Q21c Q21d Q21e Q21f Q21g Q21h Q21i Q21j Q21k Q21l Q21m Q22a Q22b Q22c Q22d Q22e Q22f Q22g BY vulnerable(1 2) /MISSING ANALYSIS.
Resources	Processor Time	00:00:00,02
	Elapsed Time	00:00:00,02
	Number of Cases Allowed[a]	80659

a. Based on availability of workspace memory.

[DataSet1] C:\Users\drmpo\Documents\cems unisa contract\Melani L\melanie raw data.sav

Mann-Whitney Test

Ranks

	vulnerable	N	Mean Rank	Sum of Ranks
Q3	1.00	10	18.75	187.50
	2.00	23	16.24	373.50
	Total	33		
Q4	1.00	10	11.20	112.00
	2.00	23	19.52	449.00

	Total	33		
q7rec	1.00	10	16.70	167.00
	2.00	22	16.41	361.00
	Total	32		
Q15	1.00	10	21.10	211.00
	2.00	23	15.22	350.00
	Total	33		
Q16	1.00	10	19.00	190.00
	2.00	23	16.13	371.00
	Total	33		
Q20a	1.00	10	15.00	150.00
	2.00	23	17.87	411.00
	Total	33		
Q20b	1.00	10	15.05	150.50
	2.00	23	17.85	410.50
	Total	33		
Q20c	1.00	10	19.00	190.00
	2.00	23	16.13	371.00
	Total	33		
Q20d	1.00	10	17.50	175.00
	2.00	22	16.05	353.00
	Total	32		
Q20e	1.00	10	18.25	182.50
	2.00	23	16.46	378.50
	Total	33		
Q20f	1.00	10	19.45	194.50
	2.00	22	15.16	333.50
	Total	32		
Q20g	1.00	10	17.65	176.50
	2.00	23	16.72	384.50
	Total	33		
Q20h	1.00	10	17.05	170.50
	2.00	23	16.98	390.50
	Total	33		
Q21a	1.00	10	17.60	176.00
	2.00	23	16.74	385.00
	Total	33		
Q21b	1.00	10	20.30	203.00
	2.00	23	15.57	358.00
	Total	33		
Q21c	1.00	10	18.75	187.50
	2.00	23	16.24	373.50

	Total	33		
Q21d	1.00	10	20.55	205.50
	2.00	23	15.46	355.50
	Total	33		
Q21e	1.00	10	17.55	175.50
	2.00	23	16.76	385.50
	Total	33		
Q21f	1.00	10	19.90	199.00
	2.00	23	15.74	362.00
	Total	33		
Q21g	1.00	10	15.10	151.00
	2.00	22	17.14	377.00
	Total	32		
Q21h	1.00	10	18.00	180.00
	2.00	23	16.57	381.00
	Total	33		
Q21i	1.00	10	19.80	198.00
	2.00	22	15.00	330.00
	Total	32		
Q21j	1.00	10	20.15	201.50
	2.00	22	14.84	326.50
	Total	32		
Q21k	1.00	10	22.45	224.50
	2.00	22	13.80	303.50
	Total	32		
Q21l	1.00	10	18.20	182.00
	2.00	22	15.73	346.00
	Total	32		
Q21m	1.00	10	15.30	153.00
	2.00	22	17.05	375.00
	Total	32		
Q22a	1.00	10	16.55	165.50
	2.00	23	17.20	395.50
	Total	33		
Q22b	1.00	10	14.15	141.50
	2.00	23	18.24	419.50
	Total	33		
Q22c	1.00	10	13.05	130.50
	2.00	22	18.07	397.50
	Total	32		
Q22d	1.00	10	17.40	174.00
	2.00	23	16.83	387.00

	Total	33		
Q22e	1.00	10	18.60	186.00
	2.00	23	16.30	375.00
	Total	33		
Q22f	1.00	10	20.30	203.00
	2.00	23	15.57	358.00
	Total	33		
Q22g	1.00	10	18.15	181.50
	2.00	23	16.50	379.50
	Total	33		

Test Statistics[a]

	Q3	Q4	q7rec	Q15	Q16	Q20a
Mann-Whitney U	97.500	57.000	108.000	74.000	95.000	95.000
Wilcoxon W	373.500	112.000	361.000	350.000	371.000	150.000
Z	-.734	-2.589	-.091	-1.681	-1.383	-.803
Asymp. Sig. (2-tailed)	.463	.010	.927	.093	.167	.422
Exact Sig. [2*(1-tailed Sig.)]	.499[b]	.022[b]	.952[b]	.114[b]	.451[b]	.451[b]

Test Statistics[a]

	Q20b	Q20c	Q20d	Q20e	Q20f	Q20g
Mann-Whitney U	95.500	95.000	100.000	102.500	80.500	108.500
Wilcoxon W	150.500	371.000	353.000	378.500	333.500	384.500
Z	-.772	-.793	-.412	-.494	-1.213	-.258
Asymp. Sig. (2-tailed)	.440	.428	.680	.621	.225	.796
Exact Sig. [2*(1-tailed Sig.)]	.451[b]	.451[b]	.704[b]	.630[b]	.235[b]	.802[b]

Test Statistics[a]

	Q20h	Q21a	Q21b	Q21c	Q21d	Q21e
Mann-Whitney U	114.500	109.000	82.000	97.500	79.500	109.500
Wilcoxon W	390.500	385.000	358.000	373.500	355.500	385.500
Z	-.020	-.289	-1.344	-.769	-1.423	-.219
Asymp. Sig. (2-tailed)	.984	.772	.179	.442	.155	.826
Exact Sig. [2*(1-tailed Sig.)]	.985[b]	.832[b]	.207[b]	.499[b]	.167[b]	.832[b]

Test Statistics[a]

	Q21f	Q21g	Q21h	Q21i	Q21j	Q21k
Mann-Whitney U	86.000	96.000	105.000	77.000	73.500	50.500
Wilcoxon W	362.000	151.000	381.000	330.000	326.500	303.500
Z	-1.169	-.574	-.399	-1.356	-1.498	-2.459
Asymp. Sig. (2-tailed)	.242	.566	.690	.175	.134	.014
Exact Sig. [2*(1-tailed Sig.)]	.269[b]	.589[b]	.714[b]	.190[b]	.140[b]	.014[b]

Test Statistics[a]

	Q21l	Q21m	Q22a	Q22b	Q22c	Q22d
Mann-Whitney U	93.000	98.000	110.500	86.500	75.500	111.000
Wilcoxon W	346.000	153.000	165.500	141.500	130.500	387.000
Z	-.697	-.502	-.218	-1.350	-1.570	-.220
Asymp. Sig. (2-tailed)	.486	.615	.828	.177	.116	.826
Exact Sig. [2*(1-tailed Sig.)]	.509[b]	.646[b]	.862[b]	.269[b]	.163[b]	.893[b]

Test Statistics[a]

	Q22e	Q22f	Q22g
Mann-Whitney U	99.000	82.000	103.500
Wilcoxon W	375.000	358.000	379.500
Z	-.657	-1.345	-.489
Asymp. Sig. (2-tailed)	.511	.179	.625
Exact Sig. [2*(1-tailed Sig.)]	.550[b]	.207[b]	.658[b]

a. Grouping Variable: vulnerable

b. Not corrected for ties.

```
CROSSTABS
 /TABLES=vulnerable BY Q8a Q8b Q8c Q8d Q8e Q14
 /FORMAT=AVALUE TABLES
 /STATISTICS=CHISQ PHI
 /CELLS=COUNT EXPECTED ROW COLUMN
 /COUNT ROUND CELL
 /METHOD=EXACT TIMER(5).
```

Crosstabs

Notes

Output Created		18-APR-2018 23:49:44
Comments		
Input	Data	C:\Users\drmpo\Documents\cems unisa contract\Melani L\melanie raw data.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	37
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each table are based on all the cases with valid data in the specified range(s) for all variables in each table.

Syntax		CROSSTABS /TABLES=vulnerable BY Q8a Q8b Q8c Q8d Q8e Q14 /FORMAT=AVALUE TABLES /STATISTICS=CHISQ PHI /CELLS=COUNT EXPECTED ROW COLUMN /COUNT ROUND CELL /METHOD=EXACT TIMER(5).
Resources	Processor Time	00:00:00,05
	Elapsed Time	00:00:00,19
	Dimensions Requested	2
	Cells Available	524245
	Time for Exact Statistics	0:00:00,11

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
vulnerable * Q8a	33	89.2%	4	10.8%	37	100.0%
vulnerable * Q8b	33	89.2%	4	10.8%	37	100.0%
vulnerable * Q8c	33	89.2%	4	10.8%	37	100.0%
vulnerable * Q8d	33	89.2%	4	10.8%	37	100.0%
vulnerable * Q8e	33	89.2%	4	10.8%	37	100.0%
vulnerable * Q14	33	89.2%	4	10.8%	37	100.0%

vulnerable * Q8a

Crosstab

			Q8a		
			0	1	Total
vulnerable	1.00	Count	4	6	10
		Expected Count	4.5	5.5	10.0
		% within vulnerable	40.0%	60.0%	100.0%
		% within Q8a	26.7%	33.3%	30.3%
	2.00	Count	11	12	23
		Expected Count	10.5	12.5	23.0
		% within vulnerable	47.8%	52.2%	100.0%
		% within Q8a	73.3%	66.7%	69.7%
Total		Count	15	18	33
		Expected Count	15.0	18.0	33.0
		% within vulnerable	45.5%	54.5%	100.0%
		% within Q8a	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.172[a]	1	.678	.722	.488
Continuity Correction[b]	.001	1	.972		
Likelihood Ratio	.173	1	.677	.722	.488
Fisher's Exact Test				.722	.488
Linear-by-Linear Association	.167[c]	1	.683	.722	.488
N of Valid Cases	33				

Chi-Square Tests

	Point Probability
Pearson Chi-Square	
Continuity Correction[b]	
Likelihood Ratio	
Fisher's Exact Test	
Linear-by-Linear Association	.274
N of Valid Cases	

a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 4.55.

b. Computed only for a 2x2 table

c. The standardised statistic is -.409.

Symmetric Measures

		Value	Approximate Significance	Exact Significance
Nominal by Nominal	Phi	-.072	.678	.722
	Cramer's V	.072	.678	.722
N of Valid Cases		33		

vulnerable * Q8b

Crosstab

			Q8b		
			0	1	Total
vulnerable	1.00	Count	4	6	10
		Expected Count	5.2	4.8	10.0
		% within vulnerable	40.0%	60.0%	100.0%
		% within Q8b	23.5%	37.5%	30.3%
	2.00	Count	13	10	23

	Expected Count	11.8	11.2	23.0
	% within vulnerable	56.5%	43.5%	100.0%
	% within Q8b	76.5%	62.5%	69.7%
Total	Count	17	16	33
	Expected Count	17.0	16.0	33.0
	% within vulnerable	51.5%	48.5%	100.0%
	% within Q8b	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.762[a]	1	.383	.465	.311
Continuity Correction[b]	.244	1	.621		
Likelihood Ratio	.765	1	.382	.465	.311
Fisher's Exact Test				.465	.311
Linear-by-Linear Association	.739[c]	1	.390	.465	.311
N of Valid Cases	33				

Chi-Square Tests

	Point Probability
Pearson Chi-Square	
Continuity Correction[b]	
Likelihood Ratio	
Fisher's Exact Test	
Linear-by-Linear Association	.206
N of Valid Cases	

a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 4.85.

b. Computed only for a 2x2 table

c. The standardised statistic is -.859.

Symmetric Measures

		Value	Approximate Significance	Exact Significance
Nominal by Nominal	Phi	-.152	.383	.465
	Cramer's V	.152	.383	.465
N of Valid Cases		33		

vulnerable * Q8c

Crosstab

			Q8c		
			0	1	Total
vulnerable	1.00	Count	1	9	10
		Expected Count	3.3	6.7	10.0
		% within vulnerable	10.0%	90.0%	100.0%
		% within Q8c	9.1%	40.9%	30.3%
	2.00	Count	10	13	23
		Expected Count	7.7	15.3	23.0
		% within vulnerable	43.5%	56.5%	100.0%
		% within Q8c	90.9%	59.1%	69.7%
Total		Count	11	22	33
		Expected Count	11.0	22.0	33.0
		% within vulnerable	33.3%	66.7%	100.0%
		% within Q8c	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.515[a]	1	.061	.109	.066
Continuity Correction[b]	2.170	1	.141		
Likelihood Ratio	4.016	1	.045	.109	.066
Fisher's Exact Test				.109	.066
Linear-by-Linear Association	3.409[c]	1	.065	.109	.066
N of Valid Cases	33				

Chi-Square Tests

	Point Probability
Pearson Chi-Square	
Continuity Correction[b]	
Likelihood Ratio	
Fisher's Exact Test	
Linear-by-Linear Association	.059
N of Valid Cases	

a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 3.33.

b. Computed only for a 2x2 table

c. The standardised statistic is -1.846.

Symmetric Measures

		Value	Approximate Significance	Exact Significance
Nominal by Nominal	Phi	-.326	.061	.109
	Cramer's V	.326	.061	.109
N of Valid Cases		33		

vulnerable * Q8d

Crosstab

			Q8d		
			0	1	Total
vulnerable	1.00	Count	7	3	10
		Expected Count	7.3	2.7	10.0
		% within vulnerable	70.0%	30.0%	100.0%
		% within Q8d	29.2%	33.3%	30.3%
	2.00	Count	17	6	23
		Expected Count	16.7	6.3	23.0
		% within vulnerable	73.9%	26.1%	100.0%
		% within Q8d	70.8%	66.7%	69.7%
Total		Count	24	9	33
		Expected Count	24.0	9.0	33.0
		% within vulnerable	72.7%	27.3%	100.0%
		% within Q8d	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.054[a]	1	.817	1.000	.566
Continuity Correction[b]	.000	1	1.000		
Likelihood Ratio	.053	1	.818	1.000	.566
Fisher's Exact Test				1.000	.566
Linear-by-Linear Association	.052[c]	1	.819	1.000	.566
N of Valid Cases	33				

Chi-Square Tests

	Point Probability
Pearson Chi-Square	
Continuity Correction[b]	
Likelihood Ratio	
Fisher's Exact Test	
Linear-by-Linear Association	.314

N of Valid Cases	

a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 2.73.
b. Computed only for a 2x2 table
c. The standardised statistic is -.228.

Symmetric Measures

		Value	Approximate Significance	Exact Significance
Nominal by Nominal	Phi	-.040	.817	1.000
	Cramer's V	.040	.817	1.000
N of Valid Cases		33		

vulnerable * Q8e

Crosstab

			Q8e		
			0	1	Total
vulnerable	1.00	Count	6	4	10
		Expected Count	5.8	4.2	10.0
		% within vulnerable	60.0%	40.0%	100.0%
		% within Q8e	31.6%	28.6%	30.3%
	2.00	Count	13	10	23
		Expected Count	13.2	9.8	23.0
		% within vulnerable	56.5%	43.5%	100.0%
		% within Q8e	68.4%	71.4%	69.7%
Total		Count	19	14	33
		Expected Count	19.0	14.0	33.0
		% within vulnerable	57.6%	42.4%	100.0%
		% within Q8e	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.035[a]	1	.853	1.000	.581
Continuity Correction[b]	.000	1	1.000		
Likelihood Ratio	.035	1	.852	1.000	.581
Fisher's Exact Test				1.000	.581
Linear-by-Linear Association	.033[c]	1	.855	1.000	.581

N of Valid Cases	33				

Chi-Square Tests

	Point Probability
Pearson Chi-Square	
Continuity Correction[b]	
Likelihood Ratio	
Fisher's Exact Test	
Linear-by-Linear Association	.293
N of Valid Cases	

a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 4.24.
b. Computed only for a 2x2 table
c. The standardised statistic is .183.

Symmetric Measures

		Value	Approximate Significance	Exact Significance
Nominal by Nominal	Phi	.032	.853	1.000
	Cramer's V	.032	.853	1.000
N of Valid Cases		33		

vulnerable * Q14

Crosstab

			Q14			
			1	2	3	Total
vulnerable	1.00	Count	3	7	0	10
		Expected Count	4.8	4.5	.6	10.0
		% within vulnerable	30.0%	70.0%	0.0%	100.0%
		% within Q14	18.8%	46.7%	0.0%	30.3%
	2.00	Count	13	8	2	23
		Expected Count	11.2	10.5	1.4	23.0
		% within vulnerable	56.5%	34.8%	8.7%	100.0%
		% within Q14	81.3%	53.3%	100.0%	69.7%
Total		Count	16	15	2	33
		Expected Count	16.0	15.0	2.0	33.0
		% within vulnerable	48.5%	45.5%	6.1%	100.0%
		% within Q14	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.782[a]	2	.151	.199	
Likelihood Ratio	4.315	2	.116	.173	
Fisher's Exact Test	3.249			.199	
Linear-by-Linear Association	.588[b]	1	.443	.541	.320
N of Valid Cases	33				

Chi-Square Tests

	Point Probability
Pearson Chi-Square	
Likelihood Ratio	
Fisher's Exact Test	
Linear-by-Linear Association	.178
N of Valid Cases	

a. 4 cells (66.7%) have expected count less than 5. The minimum expected count is .61.

b. The standardised statistic is -.767.

Symmetric Measures

		Value	Approximate Significance	Exact Significance
Nominal by Nominal	Phi	.339	.151	.199
	Cramer's V	.339	.151	.199
N of Valid Cases		33		

GET

NPar Tests

Notes

Output Created		18-APR-2018 23:29:01
Comments		
Input	Data	C:\Users\drmpo\Documents\cems unisa contract\Melani L\melanie raw data.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>

	N of Rows in Working Data File	37
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /M-W= Q3 Q4 q7rec BY q2.2adj(1 2) /MISSING ANALYSIS.
Resources	Processor Time	00:00:00,00
	Elapsed Time	00:00:00,01
	Number of Cases Allowed[a]	349525

a. Based on availability of workspace memory.

Mann-Whitney Test

Ranks

	q2.2adj	N	Mean Rank	Sum of Ranks
Q3	1.00	8	14.56	116.50
	2.00	16	11.47	183.50
	Total	24		
Q4	1.00	8	12.69	101.50
	2.00	16	12.41	198.50
	Total	24		
q7rec	1.00	8	9.56	76.50
	2.00	15	13.30	199.50
	Total	23		

Test Statistics[a]

	Q3	Q4	q7rec
Mann-Whitney U	47.500	62.500	40.500
Wilcoxon W	183.500	198.500	76.500
Z	-1.081	-.105	-1.408
Asymp. Sig. (2-tailed)	.280	.917	.159
Exact Sig. [2*(1-tailed Sig.)]	.320[b]	.928[b]	.213[b]

a. Grouping Variable: q2.2adj

b. Not corrected for ties.

```
NPAR TESTS
 /M-W= Q15 Q16 BY q2.2adj(1 2)
 /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		18-APR-2018 23:31:49
Comments		
Input	Data	C:\Users\drmpo\Documents\cems unisa contract\Melani L\melanie raw data.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	37
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /M-W= Q15 Q16 BY q2.2adj(1 2) /MISSING ANALYSIS.
Resources	Processor Time	00:00:00,02
	Elapsed Time	00:00:00,01
	Number of Cases Allowed[a]	393216

a. Based on availability of workspace memory.

Mann-Whitney Test

Ranks

	q2.2adj	N	Mean Rank	Sum of Ranks
Q15	1.00	8	17.00	136.00
	2.00	16	10.25	164.00
	Total	24		
Q16	1.00	8	14.50	116.00
	2.00	16	11.50	184.00
	Total	24		

Test Statistics[a]

	Q15	Q16
Mann-Whitney U	28.000	48.000
Wilcoxon W	164.000	184.000
Z	-2.283	-1.512
Asymp. Sig. (2-tailed)	.022	.131
Exact Sig. [2*(1-tailed Sig.)]	.027[b]	.350[b]

a. Grouping Variable: q2.2adj

b. Not corrected for ties.

```
NPAR TESTS
 /M-W= Q20a Q20b Q20c Q20d Q20e Q20f Q20g Q20h Q21a Q21b Q21c Q21d Q21e Q21f Q21g Q21h Q21i Q21j
 Q21k Q21l Q21m Q22a Q22b Q22c Q22d Q22e Q22f Q22g BY q2.2adj(1 2)
 /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		18-APR-2018 23:33:06
Comments		
Input	Data	C:\Users\drmpo\Documents\cems unisa contract\Melani L\melanie raw data.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	37
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /M-W= Q20a Q20b Q20c Q20d Q20e Q20f Q20g Q20h Q21a Q21b Q21c Q21d Q21e Q21f Q21g Q21h Q21i Q21j Q21k Q21l Q21m Q22a Q22b Q22c Q22d Q22e Q22f Q22g BY q2.2adj(1 2) /MISSING ANALYSIS.
Resources	Processor Time	00:00:00,02
	Elapsed Time	00:00:00,01
	Number of Cases Allowed[a]	92521

a. Based on availability of workspace memory.

Mann-Whitney Test

Ranks

	q2.2adj	N	Mean Rank	Sum of Ranks
Q20a	1.00	8	11.44	91.50
	2.00	16	13.03	208.50
	Total	24		
Q20b	1.00	8	9.75	78.00
	2.00	16	13.88	222.00
	Total	24		
Q20c	1.00	8	15.44	123.50
	2.00	16	11.03	176.50
	Total	24		
Q20d	1.00	8	11.63	93.00
	2.00	16	12.94	207.00
	Total	24		
Q20e	1.00	8	13.56	108.50
	2.00	16	11.97	191.50
	Total	24		
Q20f	1.00	8	13.81	110.50
	2.00	15	11.03	165.50
	Total	23		
Q20g	1.00	8	14.31	114.50
	2.00	16	11.59	185.50
	Total	24		
Q20h	1.00	8	15.75	126.00
	2.00	16	10.88	174.00
	Total	24		
Q21a	1.00	8	15.50	124.00
	2.00	16	11.00	176.00
	Total	24		
Q21b	1.00	8	12.50	100.00
	2.00	16	12.50	200.00
	Total	24		
Q21c	1.00	8	12.25	98.00
	2.00	16	12.63	202.00
	Total	24		
Q21d	1.00	8	11.69	93.50
	2.00	16	12.91	206.50
	Total	24		
Q21e	1.00	8	16.63	133.00
	2.00	16	10.44	167.00
	Total	24		
Q21f	1.00	8	13.75	110.00

	2.00	16	11.88	190.00
	Total	24		
Q21g	1.00	8	12.50	100.00
	2.00	15	11.73	176.00
	Total	23		
Q21h	1.00	8	11.00	88.00
	2.00	16	13.25	212.00
	Total	24		
Q21i	1.00	8	9.75	78.00
	2.00	16	13.88	222.00
	Total	24		
Q21j	1.00	8	10.19	81.50
	2.00	16	13.66	218.50
	Total	24		
Q21k	1.00	8	17.50	140.00
	2.00	16	10.00	160.00
	Total	24		
Q21l	1.00	8	9.38	75.00
	2.00	15	13.40	201.00
	Total	23		
Q21m	1.00	8	14.06	112.50
	2.00	15	10.90	163.50
	Total	23		
Q22a	1.00	8	11.81	94.50
	2.00	16	12.84	205.50
	Total	24		
Q22b	1.00	8	15.06	120.50
	2.00	16	11.22	179.50
	Total	24		
Q22c	1.00	8	12.38	99.00
	2.00	15	11.80	177.00
	Total	23		
Q22d	1.00	8	14.13	113.00
	2.00	16	11.69	187.00
	Total	24		
Q22e	1.00	8	16.38	131.00
	2.00	16	10.56	169.00
	Total	24		
Q22f	1.00	8	15.63	125.00
	2.00	16	10.94	175.00
	Total	24		
Q22g	1.00	8	14.38	115.00
	2.00	16	11.56	185.00
	Total	24		

Test Statistics[a]

	Q20a	Q20b	Q20c	Q20d	Q20e	Q20f
Mann-Whitney U	55.500	42.000	40.500	57.000	55.500	45.500
Wilcoxon W	91.500	78.000	176.500	93.000	191.500	165.500
Z	-.532	-1.361	-1.456	-.434	-.525	-.946
Asymp. Sig. (2-tailed)	.595	.173	.145	.664	.599	.344
Exact Sig. [2*(1-tailed Sig.)]	.610[b]	.192[b]	.153[b]	.697[b]	.610[b]	.357[b]

Test Statistics[a]

	Q20g	Q20h	Q21a	Q21b	Q21c	Q21d
Mann-Whitney U	49.500	38.000	40.000	64.000	62.000	57.500
Wilcoxon W	185.500	174.000	176.000	200.000	98.000	93.500
Z	-.909	-1.607	-1.694	.000	-.133	-.409
Asymp. Sig. (2-tailed)	.363	.108	.090	1.000	.894	.683
Exact Sig. [2*(1-tailed Sig.)]	.383[b]	.120[b]	.153[b]	1.000[b]	.928[b]	.697[b]

Test Statistics[a]

	Q21e	Q21f	Q21g	Q21h	Q21i	Q21j
Mann-Whitney U	31.000	54.000	56.000	52.000	42.000	45.500
Wilcoxon W	167.000	190.000	176.000	88.000	78.000	81.500
Z	-2.058	-.632	-.261	-.744	-1.364	-1.144
Asymp. Sig. (2-tailed)	.040	.528	.794	.457	.172	.253
Exact Sig. [2*(1-tailed Sig.)]	.045[b]	.569[b]	.825[b]	.490[b]	.192[b]	.264[b]

Test Statistics[a]

	Q21k	Q21l	Q21m	Q22a	Q22b	Q22c
Mann-Whitney U	24.000	39.000	43.500	58.500	43.500	57.000
Wilcoxon W	160.000	75.000	163.500	94.500	179.500	177.000
Z	-2.491	-1.368	-1.100	-.406	-1.522	-.219
Asymp. Sig. (2-tailed)	.013	.171	.271	.685	.128	.826
Exact Sig. [2*(1-tailed Sig.)]	.013[b]	.190[b]	.294[b]	.742[b]	.214[b]	.875[b]

Test Statistics[a]

	Q22d	Q22e	Q22f	Q22g
Mann-Whitney U	51.000	33.000	39.000	49.000
Wilcoxon W	187.000	169.000	175.000	185.000
Z	-1.050	-2.001	-1.604	-.981
Asymp. Sig. (2-tailed)	.294	.045	.109	.327
Exact Sig. [2*(1-tailed Sig.)]	.452[b]	.061[b]	.136[b]	.383[b]

a. Grouping Variable: q2.2adj

b. Not corrected for ties.

```
CROSSTABS
 /TABLES=q2.2adj BY Q8a Q8b Q8c Q8d Q8e Q14
 /FORMAT=AVALUE TABLES
 /STATISTICS=CHISQ PHI
 /CELLS=COUNT EXPECTED ROW COLUMN
 /COUNT ROUND CELL
 /METHOD=EXACT TIMER(5).
```

Crosstabs

Notes

Output Created		18-APR-2018 23:34:37
Comments		
Input	Data	C:\Users\drmpo\Documents\cems unisa contract\Melani L\melanie raw data.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	37
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each table are based on all the cases with valid data in the specified range(s) for all variables in each table.
Syntax		CROSSTABS /TABLES=q2.2adj BY Q8a Q8b Q8c Q8d Q8e Q14 /FORMAT=AVALUE TABLES /STATISTICS=CHISQ PHI /CELLS=COUNT EXPECTED ROW COLUMN /COUNT ROUND CELL /METHOD=EXACT TIMER(5).
Resources	Processor Time	00:00:00,08
	Elapsed Time	00:00:00,21
	Dimensions Requested	2
	Cells Available	524245
	Time for Exact Statistics	0:00:00,12

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
q2.2adj * Q8a	24	64.9%	13	35.1%	37	100.0%
q2.2adj * Q8b	24	64.9%	13	35.1%	37	100.0%
q2.2adj * Q8c	24	64.9%	13	35.1%	37	100.0%
q2.2adj * Q8d	24	64.9%	13	35.1%	37	100.0%

q2.2adj * Q8e	24	64.9%	13	35.1%	37	100.0%
q2.2adj * Q14	24	64.9%	13	35.1%	37	100.0%

q2.2adj * Q8a

Crosstab

			Q8a		
			0	1	Total
q2.2adj	1.00	Count	2	6	8
		Expected Count	3.7	4.3	8.0
		% within q2.2adj	25.0%	75.0%	100.0%
		% within Q8a	18.2%	46.2%	33.3%
	2.00	Count	9	7	16
		Expected Count	7.3	8.7	16.0
		% within q2.2adj	56.3%	43.8%	100.0%
		% within Q8a	81.8%	53.8%	66.7%
Total		Count	11	13	24
		Expected Count	11.0	13.0	24.0
		% within q2.2adj	45.8%	54.2%	100.0%
		% within Q8a	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.098[a]	1	.148	.211	.156
Continuity Correction[b]	1.028	1	.311		
Likelihood Ratio	2.177	1	.140	.211	.156
Fisher's Exact Test				.211	.156
Linear-by-Linear Association	2.010[c]	1	.156	.211	.156
N of Valid Cases	24				

Chi-Square Tests

	Point Probability
Pearson Chi-Square	
Continuity Correction[b]	
Likelihood Ratio	
Fisher's Exact Test	
Linear-by-Linear Association	.128
N of Valid Cases	

a. 2 cells (50,0%) have expected count less than 5. The minimum expected count is 3,67.

b. Computed only for a 2x2 table

c. The standardised statistic is -1,418.

Symmetric Measures

		Value	Approximate Significance	Exact Significance
Nominal by Nominal	Phi	-.296	.148	.211
	Cramer's V	.296	.148	.211
N of Valid Cases		24		

q2.2adj * Q8b

Crosstab

			Q8b		
			0	1	Total
q2.2adj	1.00	Count	1	7	8
		Expected Count	4.3	3.7	8.0
		% within q2.2adj	12.5%	87.5%	100.0%
		% within Q8b	7.7%	63.6%	33.3%
	2.00	Count	12	4	16
		Expected Count	8.7	7.3	16.0
		% within q2.2adj	75.0%	25.0%	100.0%
		% within Q8b	92.3%	36.4%	66.7%
Total		Count	13	11	24
		Expected Count	13.0	11.0	24.0
		% within q2.2adj	54.2%	45.8%	100.0%
		% within Q8b	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	8.392[a]	1	.004	.008	.006
Continuity Correction[b]	6.063	1	.014		
Likelihood Ratio	9.081	1	.003	.008	.006
Fisher's Exact Test				.008	.006
Linear-by-Linear Association	8.042[c]	1	.005	.008	.006
N of Valid Cases	24				

Chi-Square Tests

	Point Probability
Pearson Chi-Square	
Continuity Correction[b]	
Likelihood Ratio	
Fisher's Exact Test	
Linear-by-Linear Association	.006
N of Valid Cases	

a. 2 cells (50,0%) have expected count less than 5. The minimum expected count is 3,67.
b. Computed only for a 2x2 table
c. The standardised statistic is -2,836.

Symmetric Measures

		Value	Approximate Significance	Exact Significance
Nominal by Nominal	Phi	-.591	.004	.008
	Cramer's V	.591	.004	.008
N of Valid Cases		24		

q2.2adj * Q8c

Crosstab

			Q8c		
			0	1	Total
q2.2adj	1.00	Count	2	6	8
		Expected Count	2.7	5.3	8.0
		% within q2.2adj	25.0%	75.0%	100.0%
		% within Q8c	25.0%	37.5%	33.3%
	2.00	Count	6	10	16
		Expected Count	5.3	10.7	16.0
		% within q2.2adj	37.5%	62.5%	100.0%
		% within Q8c	75.0%	62.5%	66.7%
Total		Count	8	16	24
		Expected Count	8.0	16.0	24.0
		% within q2.2adj	33.3%	66.7%	100.0%
		% within Q8c	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.375[a]	1	.540	.667	.447
Continuity Correction[b]	.023	1	.878		
Likelihood Ratio	.385	1	.535	.667	.447
Fisher's Exact Test				.667	.447
Linear-by-Linear Association	.359[c]	1	.549	.667	.447
N of Valid Cases	24				

Chi-Square Tests

	Point Probability
Pearson Chi-Square	
Continuity Correction[b]	
Likelihood Ratio	
Fisher's Exact Test	
Linear-by-Linear Association	.305
N of Valid Cases	

a. 1 cells (25,0%) have expected count less than 5. The minimum expected count is 2,67.

b. Computed only for a 2x2 table

c. The standardised statistic is -,599.

Symmetric Measures

		Value	Approximate Significance	Exact Significance
Nominal by Nominal	Phi	-.125	.540	.667
	Cramer's V	.125	.540	.667
N of Valid Cases		24		

q2.2adj * Q8d

Crosstab

			Q8d		
			0	1	Total
q2.2adj	1.00	Count	3	5	8
		Expected Count	5.7	2.3	8.0
		% within q2.2adj	37.5%	62.5%	100.0%
		% within Q8d	17.6%	71.4%	33.3%
	2.00	Count	14	2	16
		Expected Count	11.3	4.7	16.0
		% within q2.2adj	87.5%	12.5%	100.0%
		% within Q8d	82.4%	28.6%	66.7%
Total		Count	17	7	24
		Expected Count	17.0	7.0	24.0
		% within q2.2adj	70.8%	29.2%	100.0%
		% within Q8d	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	6.454[a]	1	.011	.021	.021
Continuity Correction[b]	4.261	1	.039		
Likelihood Ratio	6.333	1	.012	.054	.021
Fisher's Exact Test				.021	.021
Linear-by-Linear Association	6.185[c]	1	.013	.021	.021
N of Valid Cases	24				

Chi-Square Tests

	Point Probability
Pearson Chi-Square	
Continuity Correction[b]	
Likelihood Ratio	
Fisher's Exact Test	
Linear-by-Linear Association	.019
N of Valid Cases	

a. 2 cells (50,0%) have expected count less than 5. The minimum expected count is 2,33.

b. Computed only for a 2x2 table

c. The standardised statistic is -2,487.

Symmetric Measures

		Value	Approximate Significance	Exact Significance
Nominal by Nominal	Phi	-.519	.011	.021
	Cramer's V	.519	.011	.021
N of Valid Cases		24		

q2.2adj * Q8e

Crosstab

			Q8e		
			0	1	Total
q2.2adj	1.00	Count	5	3	8
		Expected Count	5.0	3.0	8.0
		% within q2.2adj	62.5%	37.5%	100.0%
		% within Q8e	33.3%	33.3%	33.3%
	2.00	Count	10	6	16
		Expected Count	10.0	6.0	16.0
		% within q2.2adj	62.5%	37.5%	100.0%
		% within Q8e	66.7%	66.7%	66.7%
Total		Count	15	9	24
		Expected Count	15.0	9.0	24.0
		% within q2.2adj	62.5%	37.5%	100.0%
		% within Q8e	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.000[a]	1	1.000	1.000	.668
Continuity Correction[b]	.000	1	1.000		
Likelihood Ratio	.000	1	1.000	1.000	.668
Fisher's Exact Test				1.000	.668
Linear-by-Linear Association	.000[c]	1	1.000	1.000	.668
N of Valid Cases	24				

Chi-Square Tests

	Point Probability
Pearson Chi-Square	
Continuity Correction[b]	
Likelihood Ratio	
Fisher's Exact Test	
Linear-by-Linear Association	.343
N of Valid Cases	

a. 1 cells (25,0%) have expected count less than 5. The minimum expected count is 3,00.
b. Computed only for a 2x2 table
c. The standardised statistic is ,000.

Symmetric Measures

		Value	Approximate Significance	Exact Significance
Nominal by Nominal	Phi	.000	1.000	1.000
	Cramer's V	.000	1.000	1.000
N of Valid Cases		24		

q2.2adj * Q14

Crosstab

			Q14			
			1	2	3	Total
q2.2adj	1.00	Count	3	4	1	8
		Expected Count	4.7	2.7	.7	8.0
		% within q2.2adj	37.5%	50.0%	12.5%	100.0%
		% within Q14	21.4%	50.0%	50.0%	33.3%
	2.00	Count	11	4	1	16
		Expected Count	9.3	5.3	1.3	16.0
		% within q2.2adj	68.8%	25.0%	6.3%	100.0%
		% within Q14	78.6%	50.0%	50.0%	66.7%
Total		Count	14	8	2	24
		Expected Count	14.0	8.0	2.0	24.0
		% within q2.2adj	58.3%	33.3%	8.3%	100.0%
		% within Q14	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.143[a]	2	.343	.428	
Likelihood Ratio	2.142	2	.343	.543	
Fisher's Exact Test	2.438			.333	
Linear-by-Linear Association	1.725[b]	1	.189	.329	.163
N of Valid Cases	24				

Chi-Square Tests

	Point Probability
Pearson Chi-Square	
Likelihood Ratio	
Fisher's Exact Test	
Linear-by-Linear Association	.111
N of Valid Cases	

a. 4 cells (66,7%) have expected count less than 5. The minimum expected count is ,67.

b. The standardised statistic is -1,313.

Symmetric Measures

		Value	Approximate Significance	Exact Significance
Nominal by Nominal	Phi	.299	.343	.428
	Cramer's V	.299	.343	.428
N of Valid Cases		24		

```
NONPAR CORR
 /VARIABLES=Q21a Q21b Q21c Q21d Q21e Q21f Q21g Q21h Q21i Q21j Q21k Q21l
Q21m Q22a Q22b Q22c Q22d
 Q22e Q22f Q22g
 /PRINT=SPEARMAN TWOTAIL NOSIG
 /MISSING=PAIRWISE.
```

Nonparametric Correlations

Notes

Output Created		18-APR-2018 23:35:55
Comments		
Input	Data	C:\Users\drmpo\Documents\cems unisa contract\Melani L\melanie raw data.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	37
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each pair of variables are based on all the cases with valid data for that pair.
Syntax		NONPAR CORR /VARIABLES=Q21a Q21b Q21c Q21d Q21e Q21f Q21g Q21h Q21i Q21j Q21k Q21l Q21m Q22a Q22b Q22c Q22d Q22e Q22f Q22g /PRINT=SPEARMAN TWOTAIL NOSIG /MISSING=PAIRWISE.
Resources	Processor Time	00:00:00,02
	Elapsed Time	00:00:00,01
	Number of Cases Allowed	136770 cases[a]

a. Based on availability of workspace memory

Correlations

			Q21a	Q21b	Q21c	Q21d	Q21e	Q21f	Q21g	Q21h	Q21i	Q21j	Q21k	Q21l
Spearman's rho	Q21a	Correlation Coefficient	1.000	.308	.509**	.223	.430**	.288	.034	.237	.135	.150	.290	.099
		Sig. (2-tailed)	.	.063	.001	.184	.008	.083	.843	.157	.434	.382	.086	.565
		N	37	37	37	37	37	37	36	37	36	36	36	36
	Q21b	Correlation Coefficient	.308	1.000	.427**	.521**	.204	.405*	.043	.310	.192	.444**	.318	.372*
		Sig. (2-tailed)	.063	.	.008	.001	.226	.013	.802	.062	.263	.007	.059	.025
		N	37	37	37	37	37	37	36	37	36	36	36	36
	Q21c	Correlation Coefficient	.509**	.427**	1.000	.229	.276	.088	.198	.271	.122	.185	.299	.025
		Sig. (2-tailed)	.001	.008	.	.173	.098	.603	.247	.105	.477	.281	.077	.886
		N	37	37	37	37	37	37	36	37	36	36	36	36
	Q21d	Correlation Coefficient	.223	.521**	.229	1.000	.492**	.417*	.014	.601**	.264	.452**	.256	.477**
		Sig. (2-tailed)	.184	.001	.173	.	.002	.010	.934	.000	.120	.006	.131	.003
		N	37	37	37	37	37	37	36	37	36	36	36	36
	Q21e	Correlation Coefficient	.430**	.204	.276	.492**	1.000	.412*	-.036	.303	.057	.251	.254	.286
		Sig. (2-tailed)	.008	.226	.098	.002	.	.011	.834	.068	.740	.140	.136	.091
		N	37	37	37	37	37	37	36	37	36	36	36	36
	Q21f	Correlation Coefficient	.288	.405*	.088	.417*	.412*	1.000	.330*	.580**	.540**	.495**	.169	.486**
		Sig. (2-tailed)	.083	.013	.603	.010	.011	.	.050	.000	.001	.002	.325	.003
		N	37	37	37	37	37	37	36	37	36	36	36	36
	Q21g	Correlation Coefficient	.034	.043	.198	.014	-.036	.330*	1.000	.399*	.441**	.312	.077	.316
		Sig. (2-tailed)	.843	.802	.247	.934	.834	.050	.	.016	.008	.068	.660	.061
		N	36	36	36	36	36	36	36	36	35	35	35	36
	Q21h	Correlation Coefficient	.237	.310	.271	.601**	.303	.580**	.399*	1.000	.529**	.425**	.084	.470**
		Sig. (2-tailed)	.157	.062	.105	.000	.068	.000	.016	.	.001	.010	.625	.004
		N	37	37	37	37	37	37	36	37	36	36	36	36
	Q21i	Correlation Coefficient	.135	.192	.122	.264	.057	.540**	.441**	.529**	1.000	.670**	.156	.426*

	Sig. (2-tailed)	.434	.263	.477	.120	.740	.001	.008	.001	.	.000	.364	.011
	N	36	36	36	36	36	36	35	36	36	36	36	35
Q21j	Correlation Coefficient	.150	.444**	.185	.452**	.251	.495**	.312	.425**	.670**	1.000	.400*	.576**
	Sig. (2-tailed)	.382	.007	.281	.006	.140	.002	.068	.010	.000	.	.016	.000
	N	36	36	36	36	36	36	35	36	36	36	36	35
Q21k	Correlation Coefficient	.290	.318	.299	.256	.254	.169	.077	.084	.156	.400*	1.000	.146
	Sig. (2-tailed)	.086	.059	.077	.131	.136	.325	.660	.625	.364	.016	.	.402
	N	36	36	36	36	36	36	35	36	36	36	36	35
Q21l	Correlation Coefficient	.099	.372*	.025	.477**	.286	.486**	.316	.470**	.426*	.576**	.146	1.000
	Sig. (2-tailed)	.565	.025	.886	.003	.091	.003	.061	.004	.011	.000	.402	.
	N	36	36	36	36	36	36	36	36	35	35	35	36
Q21m	Correlation Coefficient	.263	.164	.118	.088	.051	.134	.624**	.348*	.231	.371*	.170	.277
	Sig. (2-tailed)	.122	.339	.494	.609	.769	.436	.000	.037	.182	.028	.330	.102
	N	36	36	36	36	36	36	36	36	35	35	35	36
Q22a	Correlation Coefficient	.134	.134	.218	.284	.278	.030	.005	.101	.060	-.085	.096	.006
	Sig. (2-tailed)	.428	.429	.195	.088	.096	.862	.979	.551	.726	.624	.576	.974
	N	37	37	37	37	37	37	36	37	36	36	36	36
Q22b	Correlation Coefficient	.013	.086	-.163	.199	.304	.149	.221	.119	-.061	.006	-.058	.145
	Sig. (2-tailed)	.938	.611	.335	.239	.067	.378	.195	.481	.722	.973	.737	.400
	N	37	37	37	37	37	37	36	37	36	36	36	36
Q22c	Correlation Coefficient	.087	-.077	.169	.102	.223	.080	.514**	.169	.041	.045	.066	.022
	Sig. (2-tailed)	.616	.655	.326	.555	.191	.642	.001	.326	.815	.795	.705	.901
	N	36	36	36	36	36	36	36	36	35	35	35	36
Q22d	Correlation Coefficient	.329*	.294	.329*	.122	.118	-.070	-.129	.063	-.091	-.188	.070	.099
	Sig. (2-tailed)	.047	.078	.047	.472	.486	.680	.452	.711	.599	.273	.687	.565
	N	37	37	37	37	37	37	36	37	36	36	36	36
Q22e	Correlation Coefficient	.252	.336*	.092	.279	.135	.009	-.217	-.021	-.160	-.132	.240	-.047
	Sig. (2-tailed)	.133	.042	.587	.094	.425	.958	.205	.902	.351	.444	.158	.786

		N	37	37	37	37	37	37	36	37	36	36	36	36
	Q22f	Correlation Coefficient	.140	.279	.026	.291	.316	.129	.169	.201	.058	.080	.341*	.171
		Sig. (2-tailed)	.409	.094	.879	.081	.056	.447	.325	.234	.739	.644	.042	.319
		N	37	37	37	37	37	37	36	37	36	36	36	36
	Q22g	Correlation Coefficient	.265	.078	.046	.394*	.402*	.017	-.410*	.124	-.003	.052	.351*	.079
		Sig. (2-tailed)	.113	.646	.785	.016	.014	.919	.013	.465	.987	.762	.036	.646
		N	37	37	37	37	37	37	36	37	36	36	36	36

Correlations

			Q21m	Q22a	Q22b	Q22c	Q22d	Q22e	Q22f	Q22g
Spearman's rho	Q21a	Correlation Coefficient	.263	.134	.013	.087	.329*	.252	.140	.265
		Sig. (2-tailed)	.122	.428	.938	.616	.047	.133	.409	.113
		N	36	37	37	36	37	37	37	37
	Q21b	Correlation Coefficient	.164	.134	.086	-.077	.294	.336*	.279	.078
		Sig. (2-tailed)	.339	.429	.611	.655	.078	.042	.094	.646
		N	36	37	37	36	37	37	37	37
	Q21c	Correlation Coefficient	.118	.218	-.163	.169	.329*	.092	.026	.046
		Sig. (2-tailed)	.494	.195	.335	.326	.047	.587	.879	.785
		N	36	37	37	36	37	37	37	37
	Q21d	Correlation Coefficient	.088	.284	.199	.102	.122	.279	.291	.394*
		Sig. (2-tailed)	.609	.088	.239	.555	.472	.094	.081	.016
		N	36	37	37	36	37	37	37	37
	Q21e	Correlation Coefficient	.051	.278	.304	.223	.118	.135	.316	.402*
		Sig. (2-tailed)	.769	.096	.067	.191	.486	.425	.056	.014
		N	36	37	37	36	37	37	37	37
	Q21f	Correlation Coefficient	.134	.030	.149	.080	-.070	.009	.129	.017
		Sig. (2-tailed)	.436	.862	.378	.642	.680	.958	.447	.919

	N	36	37	37	36	37	37	37	37
Q21g	Correlation Coefficient	.624**	.005	.221	.514**	-.129	-.217	.169	-.410*
	Sig. (2-tailed)	.000	.979	.195	.001	.452	.205	.325	.013
	N	36	36	36	36	36	36	36	36
Q21h	Correlation Coefficient	.348*	.101	.119	.169	.063	-.021	.201	.124
	Sig. (2-tailed)	.037	.551	.481	.326	.711	.902	.234	.465
	N	36	37	37	36	37	37	37	37
Q21i	Correlation Coefficient	.231	.060	-.061	.041	-.091	-.160	.058	-.003
	Sig. (2-tailed)	.182	.726	.722	.815	.599	.351	.739	.987
	N	35	36	36	35	36	36	36	36
Q21j	Correlation Coefficient	.371*	-.085	.006	.045	-.188	-.132	.080	.052
	Sig. (2-tailed)	.028	.624	.973	.795	.273	.444	.644	.762
	N	35	36	36	35	36	36	36	36
Q21k	Correlation Coefficient	.170	.096	-.058	.066	.070	.240	.341*	.351*
	Sig. (2-tailed)	.330	.576	.737	.705	.687	.158	.042	.036
	N	35	36	36	35	36	36	36	36
Q21l	Correlation Coefficient	.277	.006	.145	.022	.099	-.047	.171	.079
	Sig. (2-tailed)	.102	.974	.400	.901	.565	.786	.319	.646
	N	36	36	36	36	36	36	36	36
Q21m	Correlation Coefficient	1.000	-.216	.385*	.221	.074	-.135	.009	-.225
	Sig. (2-tailed)	.	.207	.020	.195	.668	.432	.957	.187
	N	36	36	36	36	36	36	36	36
Q22a	Correlation Coefficient	-.216	1.000	.222	.317	.042	.352*	.337*	.389*
	Sig. (2-tailed)	.207	.	.186	.059	.807	.033	.041	.017
	N	36	37	37	36	37	37	37	37
Q22b	Correlation Coefficient	.385*	.222	1.000	.527**	.034	.349*	.181	.110
	Sig. (2-tailed)	.020	.186	.	.001	.842	.034	.285	.517
	N	36	37	37	36	37	37	37	37

	Q22c	Correlation Coefficient	.221	.317	.527**	1.000	-.110	-.037	.173	.004
		Sig. (2-tailed)	.195	.059	.001	.	.525	.832	.312	.982
		N	36	36	36	36	36	36	36	36
	Q22d	Correlation Coefficient	.074	.042	.034	-.110	1.000	.207	-.014	.009
		Sig. (2-tailed)	.668	.807	.842	.525	.	.218	.934	.959
		N	36	37	37	36	37	37	37	37
	Q22e	Correlation Coefficient	-.135	.352*	.349*	-.037	.207	1.000	.439**	.445**
		Sig. (2-tailed)	.432	.033	.034	.832	.218	.	.007	.006
		N	36	37	37	36	37	37	37	37
	Q22f	Correlation Coefficient	.009	.337*	.181	.173	-.014	.439**	1.000	.236
		Sig. (2-tailed)	.957	.041	.285	.312	.934	.007	.	.159
		N	36	37	37	36	37	37	37	37
	Q22g	Correlation Coefficient	-.225	.389*	.110	.004	.009	.445**	.236	1.000
		Sig. (2-tailed)	.187	.017	.517	.982	.959	.006	.159	.
		N	36	37	37	36	37	37	37	37

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

APPENDIX E: DECLARATION OF PROFESSIONAL EDIT

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Independent Skills Development Facilitator

Dear Ms Lingenfelder

This letter is to record that I have completed a language edit of your dissertation entitled "The relationship between government support and the sustainability of the South African automotive industry".

The edit that I carried out included the following:

-Spelling
-Vocabulary
-Pronoun matches
-Sentence structure
-Formatting
-Grammar
-Punctuation
-Word usage
-Correct acronyms (matching your supplied list)
-Captions and labels for figures and tables
-Spot checking of ten in-text references

The edit that I carried out excluded the following:

-Content
-Correctness or truth of information (unless obvious)
-Correctness/spelling of specific technical terms and words (unless obvious)
-Correctness/spelling of unfamiliar names and proper nouns (unless obvious)
-Correctness of specific formulae or symbols, or illustrations.

Yours sincerely

Retha Burger

16 December 2018