A COMMENTARY ON SOUTH AFRICA'S DEPENDENCE ON THE MOTOR CAR INDUSTRY

ORIGINAL ARTICLE

HEALD. A

Abstract

THIS ARTICLE IS ENTITLED, 'A COMMENTARY ON SOUTH AFRICA'S DEPENDENCE ON THE MOTOR CAR INDUSTRY'.

IT IS AN EXPLORATORY ARTICLE THAT EXAMINES THE SOUTH AFRICAN MOTOR CAR INDUSTRY FROM A QUALITATIVE PERSPECTIVE. ITS PURPOSE IS TO CRITICALLY EXAMINE AREAS THAT ARE RELEVANT TO UNDERSTANDING AUTOMOBILE DEPENDENCE IN SOUTH AFRICA AND THE VARIOUS IMPLICATIONS OF THIS DEPENDENCE. THIS ARTICLE HAS A DUAL FOCUS. FIRSTLY, IT AIMS TO DEMONSTRATE HOW MIDDLE TO UPPER CLASS SOUTH AFRICAN CITIZENS ARE DEPENDENT ON THE AUTOMOBILE SYSTEM. THIS WILL BE SHOWN THROUGH DISCUSSING VARIOUS MAJOR HISTORICAL DEVELOPMENTS THAT HAVE TAKEN PLACE IN THE AUTOMOBILE INDUSTRY. IT ALSO INCLUDES A SECTION REGARDING THE PRESENT STATUS OF THE AUTOMOBILE SYSTEM IN SOUTH AFRICA.

SECONDLY, THIS ARTICLE WILL ILLUSTRATE THE LIKELIHOOD, AND INDEED THE PROBABILITY, THAT OWNING A MOTOR VEHICLE WILL ALMOST CERTAINLY RESULT IN HAVING AN ACCIDENT THAT WILL REQUIRE SOME DEGREE OF ONGOING MAINTENANCE WORK AT SOME TIME OR OTHER. UNFORTUNATELY, AN ACCIDENT IS AN ENTIRELY FORESEEABLE CONSEQUENCE OF OWNING OR DRIVING A MOTOR VEHICLE IN SOUTH AFRICA. THE AREAS THAT ARE DISCUSSED ARE ASSESSED THROUGH THE LENS OF A PSYCHOLOGICAL FRAMEWORK.

INTRODUCTION

Traditionally, market researchers have been particularly interested in identifying factors that affect consumers' car buying behaviour to better predict the vehicle type that strata variation of consumers are drawn to purchase. To this end, various models of vehicle purchase-type choices have been developed. However, very often these vehicle purchasing behaviour models of consumers do not consider and/or reflect upon the following factors: consumers' travel patterns, personality, lifestyle and mobility. It is these factors that may potentially affect or alter vehicle purchase-type choice, or, alternatively whether an individual will make a vehicle purchase at all (Fornell & Wernerfelt,2007).

These issues are further complicated by the unique socio-political and economic landscapes characteristic of developing countries with developing economies (Cohen, 2005). Due to the fact that models of vehicle purchase-type choice are largely derived in first world countries, there is a tendency to generalize these first world purchasing frameworks to other regions in the world where they might be ill fitted. These models are viewed as the 'gold standard' for understanding certain behaviours. They set a queue of influence in developed countries that is then extrapolated to buying behaviour in developing countries. One of the many consequences of such an act is to misconstrue human purchasing needs with respect to automobiles.

Importantly, the assumptions that we have about a problem will determine the methods that we employ to understand it. These assumptions provide a frame of reference to address problems in living. Frameworks that are not cognisant of belief systems and human approaches towards solving practical vehicle related problems inexorably fall short of understanding the real market value of an item that is being transacted.

This failure to understand and research human needs, and a meaningful perspective on a vehicle purchasing problem sometimes comes at a great expense because the market is misunderstood. Purchasing Frameworks that are based on the buying habits and behaviour of consumers in other regions of the world cannot simply be generalised to countries like South Africa or Uganda, for example. South Africa, for instance, has a proliferation of four wheel vehicles that are not used for off-road purposes. A German vehicle that is designed for the Autobahn is entirely unsuitable for the urban road system in Kampala, Uganda, which is terribly potholed. Psychographic representations that are related to buying decisions from developed countries and are used as the accepted measuring stick in developing countries have often proven to be problematic in countries like South Africa where the general population is characterized by multiple modes of understanding the world, from extreme poverty to massive wealth. For example, many Africans subscribe to collectivist cosmological belief systems, in which all phenomena are viewed as being systemically interrelated. The polar opposite can be said about Western ideologies which are fundamentally individualistic in orientation (Mkhize, 2004). Purchasing decisions in Africa would therefore tend to be inclined towards consideration of the collectively, whilst purchasing decisions in the West would be inclined towards individualism. This means that vehicles that can carry large numbers of passengers in Africa would represent the emphasis on the collective,

whilst in European countries like Spain, Germany and Italy the vehicle purchasing decision would be inclined to be more individualistically based.

Another area that deserves attention pertains to the constant stream of information that consumers are bombarded with regarding the dangers that are associated with driving a motor vehicle (Edwards, Li & Lee, 2002; Tertoolen, Van Kreveld & Verstraten, 1997). These dangers are also not limited to road car accidents. To a large extent, they relate to the topic of how private car ownership and usage impacts the environment and/or how there is a desperate need to find alternate sources of energy that could act as substitutes for natural gas. Furthermore, the anxiety that often accompanies these issues of the search for alternative energy sources for vehicles cannot be ameliorated because of the true nature of this quest for clean and efficient substitute energy sources is quite opaque. This is because of vested financial interests who regard the search for alternate energy sources profoundly threatening to established business models.

This analysis attempts to achieve a clear picture of the automotive industry by incorporating various psychological constructs that better elucidate why consumers behave the way that they do and the factors that lead consumers to make buying decisions in the manner that they do. This article also attempts to illuminate contradictions in the way that we think about mitigating the potentially foreseeable risks in our purchasing decisions that relate to our dependency on automobiles. In this sense, one could argue that the mitigation of the risk is a choice based on the quality of life and is deeply entwined with our day-to-day approach with regards to the problems that we face as a third world country. In this instance, the construct under examination is automobile dependency. Due to the complexity of the areas of interest, they require the discussion and understanding of several other related areas.

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A Brief History and Overview of the Motor Car Industry: South Africa in Context

One of the major features of industrial change over the 20th century has been the globalisation of production. The term 'globalisation' itself is largely understood in terms of uniformity pertaining to international trade relating to provision of goods and services in the industrial, production, financial, services and agricultural markets of countries that trade with one another. Globalisation was enacted by the perception of comparative advantage that arises from international trade and is manifested in balancing between differentiating commercial opportunities and also in the standardisation of ever-improving means of production. At the basis of globalisation is therefore the concept of value. Globalisation has been accompanied by cultural, commercial, financial or legal and technological standardisation because of the mimicry of success (Pieterse, 1994).

Prior to globalisation, a motor vehicle was manufactured from start to finish in the same factory. This system was known as Fordism which was at the heart of the manufacturing system. Motor Vehicles are now manufactured in networks of firms across the world, with each country specialising in a different part of the production process, which makes up the whole of the vehicle. This is also referred to as post-Fordism. These networks or geographic chains do not necessarily require geographic proximity in order to function effectively. Different phases and processes of production are often distributed throughout the world.

Globalisation has had both positive and negative consequences - and it has had major consequences for the automotive industry in that it has made it highly mobile. It has accelerated efficiency and diminished operating costs, and it has opened up new markets within the developing markets in the developing world which would formally have been ignored. Other aspects of globalisation include its innovative modular construction in which an increasing part of the car is assembled by part-suppliers.

It is very interesting to note that there is increasing interest in switching to alternate energy powered energy cars in the form of hybrid vehicles. This innovation process is being driven by cost reductions that are associated with the carbon fuel economy, a spectacular improvement in engineering and design efficiency, and also a growing awareness that fossil fuels are environmentally unsustainable in the longer term because of the acceleration of global warming. There has also been growing concern about the economic and financial feasibility that is associated with the costly system of building cars for stock. Any vehicle that is produced and stored represents an accumulating, potentially deteriorating asset. These factors do not exist in isolation – instead, they exist within a complex chain of multidirectional relationships. According to Price Waterhouse Coopers (2005), the increased competition with regard to the price of motor vehicles, together with environmental quality of cars as illustrated by the improved offerings of Hyundai, for example, reflects the qualitative and financial benefit resulting from the

exploration of new geographical comparative advantages, innovation and the discovery of new technologies and applications to capture new market opportunities. Globalisation of the automotive industry is therefore growth by standardization, market differentiation, mimicry and innovation.

The major identifiable global automotive trends at present are mergers and acquisitions, global production overcapacity, outsourcing and sourcing strategies, environmental requirements, innovation and new technology. Financial margins on the sale of new vehicles are undergoing a process of intense restriction as profit margins diminish because of production and financial efficiencies that are impelled forth by globalisation.

The South African automobile sector has been identified as a success story for both South African industry and industrial policy. This success has been based primarily on the recent growth of exports of both assembled vehicles and components, and on substantial foreign investments that have been undertaken in South Africa. As a result, this sector has received considerable public attention. Market researchers have also invested considerable effort in trying to ascertain what has enabled this industry to excel in the way that it has. However, the automobile sector is far from unique in its recent export accomplishments as successful exports can be found in many other sectors including medical equipment, garments and electrical appliances (Flatters, 2002). What then are some of the more defining aspects of our local automotive industry?

The inception of our local automotive industry can simply be traced back to the 1920s when Ford and General Motors entered the market as manufacturers. Their entrance brought about revolutionary changes to the market and the following four decades after 1920 saw rapid expansion. Paying exception to the Great Depression and the Second World War, this time period was characterized by significant technological developments and sales advancements. It was also during this period that many new manufacturers began to enter the market. By 1960, a total of 87 000 automobiles were being produced annually by eight separate manufacturers in South Africa. This made South Africa the single largest vehicle manufacturer in the world amongst developing countries (Hartzenberg & Marudzikwa, 2002). After the mass production period of the 1920s and the lean production period of the 1980s, the automobile industry underwent yet another revolution which began during the 1990s. This process still continues to this day.

In spite of the significant growth of the South African automotive industry, as well as its relative importance within the country's manufacturing sector, the significant political developments that were taking place in the country during the Apartheid era effectively cut the country's access to other major economies. This led the South African government to introduce the first series of targeted industrial policies in 1961 (Barnes & Kaplinsky, 2000; Black & Bhanisi, 2007). Broadly speaking, these policies were aimed at substituting vehicle and component imports by artificially stimulating the local vehicle market, whilst protecting the market from imported products. This practice was replicated in several other economic sectors with varying degrees of success (Altman & Mayer, 2003).

Thus the development of new industrial policies was very much related to the fact that the South African automotive industry developed under massive economic restrictions. This is in keeping with Flatters and Netshitomboni (2006), who posit that the automotive industry was one of South Africa's most heavily protected industries prior to the trade liberalization program that was launched in the 1990s. Consequently, the first half of the 1990s generated vibrant debate regarding the efficacy of industrial policies in developing economies.

The South African automobile sector has undergone several significant changes over the past two decades. It possesses continuity in terms of output, profit and investment that is uncharacteristic of many other South African sectors. However, the points put forward so far do not clearly delineate the true driving forces behind this hugely complex system. In order to do this, it is helpful to look at some of the historical industrial policies put forward during the Apartheid era as they are central to understanding this sector's recent accomplishments.

The Motor Industry Development Program (MIDP)

Several authors agree that one of the central driving forces behind the South African automotive industry is the Motor Industry Development Program (MIDP) (Flatters & Netshitomboni, 2006; Lamprecht, 2006; Meyn, 2004). The MIDP was initiated with the intention to help the South African motor car industry reintegrate into the global economy. As has already been mentioned, the South African automobile sector was, like many other South African sectors, highly protected during the Apartheid era. As a result, the growth of this sector was severely inhibited (Humphrey & Memedovic, 2003).

The MIDP is a selective industrial plan which finds its roots in a group of selective policies that reach as far back as 1961. The fact that the MIDP is part of a long line of progressive industrial programs should be noted, as its goals and incentives were directly influenced by the preceding plan/s and the underlying economic climate in South Africa (Black and Mitchell, 2002). In fact, the MIDP was one of six local content programmes that were designed specifically for the purpose of saving foreign exchange rather than to enhance production within South Africa (Barnes, Kaplinsky & Morris, 2003). The apparent value of this programme is largely promotional in that its primary strength lies in its ability to trigger external (international) interest in the South African automotive industry, to generate business major stakeholders and to attract investments rather than to stimulate internal structural development. Thus Flatters (2002) posits that the MIDP has been particularly successful in contributing to the automotive sector's international competitiveness. It has acted as a critical promotional beacon for convincing foreign parent companies to consider South Africa as an investment destination. It is a truism that without the MIDP, the South Africa automotive industry would not be able to cope with global competition.

Interestingly, the MIDP was not originally predicated as such an important marketing tool. As a result, one of the MIDPs greatest strengths has also remained a source of great criticism for this programme. Thus major industry players and various other stakeholders have questioned whether it should be extended (Flatters, 2002). Despite such criticisms, the MIDP holds onto the current industrial plan for the South African Automotive industry. The plan was developed in 1994 between several significant stakeholders, including the South African Government, labor

representatives, the automotive industry, civil society and by the Motor industry Task Group (MITG) (Barnes, Kaplinsky & Morris, 2003). Together, the recommendations of the MITG, in conjunction with the goals of the preceding industrial plan for this sector, led to creation of the MIDP. The MIDP itself was implemented on the 1st of September 1994 (Daemonse & Simon, 2004; Black, 2002).

Two pertinent ideas have been put forward. The first pertains to the strength of the MIDP as a marketing tool. For reasons already outlined with regard to the automobile industry, South Africa requires a unique marketing strategy that is able to accommodate for a wide range of beliefs, ideas and values. The MIDP arose out of a need to preserve and develop the then dangerously uncompetitive motor industry in South Africa. It has been successful in this respect but has done so through a series of unforeseen benefits of primarily promotional value.

The second more general idea is related to the success of the motor car industry as a whole. The industrial plans related to the automobile industry make it clear that there has been significant and continued growth within the automobile sector. The automotive sector is also South Africa's leading manufacturing sector and, as such, continues to significantly contribute to the country's economy in the form of exports, foreign investment, employment and the overall gross domestic product (GDP) of the country. The once small and highly protected South African automotive industry has now been assimilated into the strategies of many global parent companies.

Current Developments: The Gap between the Public Transport System and the Automobile Industry

The South African automobile sector has received enormous government attention and a wide range of public support in adjusting to the new trading environment. For example, it has been estimated that by 2015 automotive suppliers will have taken over large parts of research and development (R&D) as well the production from original equipment manufacturers (OEMs). This is exemplified by exports and foreign investments in the South African motor car industry which have been growing rapidly. However, there are several peculiarities that emerge when comparing South Africa's automotive and public transport industry. In contrast to the automobile industry, the public transport system in South Africa appears to be at a significantly different level of development.

Outside of concerns for the structural feasibility of the implementation of an effective public transport system, there exists the perception that public transport has a significant role to play in enhancing urban mobility. Besides being consistently linked to notions of reducing road congestion, improving public transport is believed to be a key factor in reducing the impact that harmful emissions have on the environment. However, there are several practical realities that have acted as barriers and continue to actively inhibit these developments.

Of particular interest to this paper is whether, in light of the current South African landscape, alternate forms of transport are feasible options for the country because, presently, it is believed that nothing so much as sustainable public transport initiatives would quell the environmental impact of private motor car usage. Similarly, this section attempts to discuss how accessible

private motor vehicles are to the South African population. The degree of accessibility associated with private motor car use has implications for the actual use of motor vehicles. Finally, and perhaps of paramount importance to this article, are questions related to what the actual and perceived transport needs of South African citizens are. We now turn to the largest national household survey done in 2003 wherein over 50 000 households throughout South Africa were interviewed for the purposes of illuminating some of these important questions.

To begin, the survey found that there were several practical concerns related to public transport usage. Firstly, many people in the actual survey expressed that various sources of public transport were either not available or too far away. Therefore, not being able to access different forms of public transport continues to act as a barrier to more individuals using this form of public transport.

Secondly, and of great concern to the households interviewed in the study, many individuals perceived danger in using certain forms of public transport. For example, one third of the households said that safety from accidents and bad driver behavior was the most serious transport problem. These comments were made primarily in the context of taxi services. Thus mini-bus/taxi users were the most unsatisfied about safety from accidents (67%) (Key Results of the National Household Travel Survey, 2003).

In relation to the safety concerns associated with commuting via taxi, it is worth noting that one of the more defining aspects of our local public transport system is the abundance of low capacity vehicles - 16 seaters, primarily taxis - that exist in commuter services. Taxis have remained a dominant form of public transport in the South African public transport sphere. There are also a wide range of associated issues including vehicle maintenance, inter association rivalry, and industry sustainability (Key Results of the National Household Travel Survey 2003).

Moving forward, 71% of train users felt dissatisfied with crowding at stations, whilst 63% also felt dissatisfied with security at terminals and on route to stations. Furthermore, in comparison to bus and taxi services, rail services were found to be less accessible forms of public transport. This was explained specifically in terms of walking time to the various modes of transport that were available.

A third and final point is that 20% of the sample used in the survey explained that the cost of transport was also a serious problem. It cannot be disputed that the mini bus/taxi has also proven to be a valuable form of transport with roughly 25% of the sample utilizing this form of public transport. Taxis are responsible for the majority of the South African population arriving at work on a daily basis, without which the economy could not function. However, in comparison to public transport services, beyond being a more time effective form of travel, automobile travel is also the most preferred form of transport in South Africa.

Further compounding peoples' preference for private motor car use is the incredibly underrated fact that even at the lower end of household income, access to a motor car is possible. As a result of sustained economic growth, many frequent public transport users have been able to convert to private automobile use. This has further compounded the lack of progress that has

characterised the public transport system for a long time now. All factors taken into account including comfort, time efficiency, the cost of fuel for travel versus daily public transport use etc., there comes an understandable degree of ambivalence surrounding what form of transport is the most effective.

One of the primary barriers to the creation of an effective and sustainable transport system is related to the fact that South Africa is essentially faced with a '*Maslow's hierarchy of needs'* dilemma wherein fundamental needs are prioritised before needs that are considered to be non-essential. Logically, it follows that the very real demands created by affordable housing, education and health services are so great that the actual resources that can be placed aside for public transport development are limited. Furthermore, the South African economy is volatile in the sense that issues such as a lack of timeous capital investments to replace rolling stock, lack of integrated transport planning and the absence of a coherent and firm commitment to public transport development have the country lacking in this area.

Thus the affordability of motor car vehicles versus the increasing expense of the public transport system and issues related to accessibility, both in terms of accessing terminal points for collection as well as what one is able to access by using these forms of transport, act as major barriers to development in the public transport system. Security and safety related problems constitute some of the primary concerns for public transport users and deter potential citizens from utilising these forms of transport. One of the central aims for public transport in South Africa has been to increase system efficiency. The pace of this change, however, is not often even close to proportional to the energy that is invested in the project of developing public transport in South Africa. Public transport development is inhibited by financial constraints as well as labour and political issues. What the study illustrated was that South Africa has significant challenges related to the implementation of public transport.

These findings lie in contrast to the highly developed motor car industry. It appears that, at best, people have mixed views about utilising public transport services in South Africa. Issues such as overcrowding, problems in accessibility, the increasing cost of public transport services and dangers associated with public transport act as significant challenges to encouraging more people to make use of public transport services. More and more users are attempting to, and have already, switched to motor cars for their mobility needs. These concerns are further compounded by the increasing affordability of motor vehicles, even for those who earn at the lower end of the scale. If they are to be sustainable, people will need to utilise these services regularly. In order for this to be possible, many people using private motor car vehicles will need to convert or, at the very least, make use of dual forms of transport in order to support alternate transport solutions. Unless a different line of reason can be applied to consumers who are currently using private motor cars, the use of public transport will continue to be viewed as a digression rather than a step forward.

The Quest: Alternatives to Vehicle Dependency and the Risks Associated With Driving a Motor Vehicle

Concerns related to escalating petrol prices and greenhouse gas (GHG) emissions are driving research investments into alternate transportation technologies (Campell, Lobell & Field, 2009). Data from the domestic supply of petroleum products in South Africa indicates that there are several areas that have received a lot of attention and could potentially buffer the effect that motor car dependence has on consumers and on the environment. These innovations rest in three main areas including (1) the improvement of conventional fuels, (2) change in vehicle design, and (3) alternative propulsion motor technology development. These plans are advanced and ongoing. A full description of these alternatives is outside the scope of this paper and so only those options that are presently viewed as feasible options for South Africa will be discussed.

In light of increasing concerns regarding the environmental impact of private motor usage, several alternatives to crude oil dependence are being developed. Bio-fuels have received a considerable amount of attention (Campell, Lobell & Field, 2009; Ogden, Williams & Larson, 2004). Broadly speaking, bio-fuels can be used as blending products in both petrol and diesel production. For example, in petrol, bio-ethanol can substitute a number of octane boosters that are currently used by the oil industry and bio-diesel can be used by the synthetic fuels and other producers as blending stock (Vanderschuren, Jobanputra & Lane, 2008).

It is believed that improving conventional fuels should lead to less pollution. However, modifying these fuel types has proven to be a costly process and only has a minor effect on the actual fuel efficiency of vehicles using these fuel types. This is because refinery efficiency declines as attempts to reduce the sulphur content of fuel are increased. Shortcomings in modifying fuel types could actually result in a greater dependency on crude oil in order to produce the same volumes of fuel. Therefore, one of the primary issues regarding bio-fuels is the actual potency of the fuel being developed. There are also very real concerns associated with growing bio-fuels. Using landmass for bio-fuel has direct implications on food stock as they require space and fertile land that would otherwise be used for growing regular food crops. In comparison, natural gas possesses remarkable qualities. Results from several studies indicate that bio-fuels are promising substitutes, but like several other alternatives to natural gas, they will require time to perfect.

The second area that has received a lot of attention is the actual design of vehicles. Although South Africa has its own car manufacturing industry, research and design changes are mainly determined overseas. It has become common knowledge that the production and adoption of small vehicles with reduced air resistance can dramatically reduce fuel consumption. However, these advancements are counterbalanced by recent international trends of the demand for increased vehicle size, thus neutralizing these efforts. This is illustrated by the excessive number of heavy duty utility and 4x4 vehicles on the road. Many of these vehicles use an exorbitant amount of petroleum or diesel and have a much higher carbon emission rate.

Finally, research that has explored alternate propulsion motor technology is ongoing and the effects of changes in technology can therefore only be determined in the long term. Out of several advanced possibilities, diesel engines appear to be the most effective short term strategy for improving crude oil consumption. It is quite evident that diesel products are gaining market share at the expense of petroleum products. Although diesel engines are much larger in

comparison to petrol engines, their fuel consumption is typically 30-35% more effective than petroleum based vehicles. In 2006, the share of diesel cars exceeded that of petroleum vehicles in terms of new car registrations. If these trends are sustained, it could potentially result in a 17% reduction in petrol consumption by 2030 which equates to a 6% crude oil reduction (Vanderschuren, Jobanputra & Lane, 2008).

Since 2006, the share of diesel cars out of total new car registrations in Western Europe exceeded that of petrol cars. Since the South African vehicle market tends to mirror and lag behind the European vehicle market, it is expected that the local market share of local vehicles will continue to increase in the future. However, growth in this market share might not be sustained indefinitely due to the increased costs that are associated with producing diesel vehicles. There is also concern related to emerging global diesel shortages which have developed following the rise in demand for diesel in the USA, The European Union, India and China.

In South Africa, diesel substitution demands are exacerbated by open-cycle gas turbine generation plants, industrial and commercial use of backup generators and the expanding freight transportation industry - all of which are dependent on diesel. In conclusion, fossil fuels currently supply most of the world's energy needs. However unacceptable their long term consequences are, the supplies are likely to remain adequate for the next few generations (Vanderschuren, Jobanputra & Lane, 2008).

There are other reasons that alternative forms of propulsion should be a priority. Road traffic accidents have many different causes; however, car accidents represent one of the greatest causes of disability in motorised countries (Lam, 2002). South Africa has one of the highest road accident rates in the world, and this is largely due to poor driver behaviour. One of the greatest causes of these accidents is usually only a few millimeters away from you at any given moment. That is your cell phone, with the risk for accident close to quadrupling when making a cellular telephone call whilst driving. For example, researchers studying brain imaging have documented that listening to your phone alone reduces the amount of brain activity associated with driving by 37% whilst the average person is distracted while driving for an average of 52 seconds per trip (Redelmeier & Tibshirani, 1997). Other potential risks include epilepsy, diabetes mellitus, cardiovascular diseases, sleepiness, color blindness, as well as drug and alcohol use (Gislason, Tommasson, Reynisdottir,Bjornsson & Kristbjarnson,1997).

Issues related to alcohol and substance use before and/or during driving have also received a large amount of attention. Perhaps this is related to the fact that these factors are considered be somewhat controllable as opposed to an epileptic seizure for which the preventative measures that one can take are limited. In keeping with this assumption, several studies indicate that the people who are at the greatest risk of having an accident are young males who have a history of sleepiness whilst driving and suggestive alcoholism. Whether specific or non-specific, road traffic accidents appear to be very much related to disturbances in consciousness (Gislason, Tommasson, Reynisdottir,Bjornsson & Kristbjarnson,1997). Other areas, such as extended work shifts, have also received increasing attention with regard to the risk of accident after an extended work shift increases up to nearly 10 % (Barger et al, 2005).

Statistics in the International Transport Forum's 2013 Road Safety Annual Report show that the country experiences 32 accidents per 100 000 people per year, and that the fatality rate has increased by 64% over the past 10 years. The cost of this in human tragedy is incalculable, and the economic impact is a staggering R307 billion a year, representing between 8% and 10% of GDP. When looking at the statistics regarding the loss of income earners, it would equate to more than 212 000 families that will be facing unexpected financial hardship due to the life and disability insurance gap. Another 160 000 income earners are expected to die in the next year and roughly a further 52 000 income earners are expected to become disabled in the next year (Statistics from Stats SA and Arrive alive).

Average actual road accident fatalities(NOV 2011 to Jan 2012)	**1143(people per month)**
Percentage of people uninsured on Death	**62%**
Percentage of people underinsured on disability	**60%**
Death insurance gap	**R7.3 Trillion**
Disability insurance gap	**11.1 Trillion**

Besides providing a fairly shocking set of statistical realities related to the likelihood of being involved in some kind of accident whilst driving a motor vehicle, what the above clearly demonstrates is the importance of being insured correctly when and if an accident does occur. What contributes to the depressing effect of such statistics is really how vulnerable people are if they do get into an accident without insurance cover.

This section demonstrates that the implementation of alternate propulsion technologies in South Africa should be viewed as a long term goal. It is unfortunate to note that research into road transport energy indicates that demands for crude oil based forms of energy will continue to increase in the future despite attempts to provide alternate forms of sustainable energy. This is related to both the efficacy of certain alternate energy sources as well the cost of/and implementation of these alternate energy systems. The changes necessary for implementing zero emissions and a diversification process from dependence away from petroleum to bio-fuels are radical. South Africa can actively only influence this process if it adopts these new technologies early on. Furthermore, automobile dependence is responsible for the many fatalities that we see each year. Our dependence on motor vehicles, however, appears to be so great that incentives aimed at reducing this phenomenon have barely blemished the morbid influx of death and disability statistics.

The next sections look directly at the construct of automobile dependence, what it is and how it is perceived. This is necessary because the availability of information on climate change, the

lifecycle costs of private motor car use and the rate of fatality that accompanies private motor car use, all of which indicate a great need for a shift away from private motor car use, lie in stark contrast to the amount of people that are currently using private motor cars.

Evaluating Motor Car Dependence: In Search of a Definition

In summarising what has been discussed so far, it is clear that understanding the success of the South African automobile system is a complex task. The MIDP has been proposed as a tool with great strategic and marketing value. It has a played a significant role in the development of this industry and is responsible for much of its continued success. One of the reasons that this policy has been so successful is that it was designed out of a need to accommodate social and political factors that ordinarily are not accounted for. The fact that the MIDP had to account for a wider panoply of social and political factors has lent a certain adaptability to this programme and has resulted in its continued success. Secondly, both the implementation of effective transport measures, as well as that of alternate propulsion technology should be viewed as long terms goals for South Africa. In the case of public transport, valuable resources are invested in areas that are considered basic and fundamental to survival. Negative perceptions of public transport use, in conjunction with the increasing availability of private motor cars, have also delayed progress in this area. As a result, we are dependent on motor vehicles. This section aims to further explore the concept of motor car dependence and its various implications.

Automobile dependency can be defined in many ways. In keeping with the basic assumptions of this paper, automobile dependency is defined in terms of its most obvious manifestations - that is, “High levels of per capita automobile travel, orientated land use patterns and reduced transport alternatives” (Litmann & Laube, 2002, p.1). Such a definition conjures up images of increased expenses, polluted skies and honking horns. It creates a sense of desperation. The term automobile dependence itself carries many negative connotations. The focus of automobile dependence as a construct has been primarily orientated around the negative risks and consequences that are commonly associated with driving a motor vehicle. These risks include increased consumer costs and resource consumption, as well as significant requirements for land resources in terms of roads and parking facilities. There are also peripheral concerns generated from the notion of automobile dependency. For example, greater traffic congestion is associated with a greater demand for expansion in terms of roads and parking facilities; not to mention an increased risk of motor vehicle accidents.

The term itself is largely associated with a predicament that exists within most of the cities in developed countries, such as the United States, Canada, Australia, and to a lesser extent some of the smaller cities in Europe. Importantly, these countries are viewed as first world or developed countries. One of the common assumptions regarding automobile dependency is that if consumers are wealthier, automobile dependency will increase. However, if one is to carefully

scrutinise this concept, they will find that this is not necessarily true. This is because many wealthier regions are actually characterised by more developed and comprehensive forms of transport and the accompanying infrastructures that support these developments. Thus, less stable regions with lower GDPs are generally characterised by a higher level of motor vehicle dependence because they do not possess an infrastructure that supports public transport development. They also do not have the resources that are required to develop this type of infrastructure (Litmann & Laube, 2002).

It is clear that automobile dependency has implications for both the consumer and the economy. Etiologically speaking, the term 'automobile dependency' suggests an absence of choice. Interestingly, such an absence of freedom and/or lack of alternatives shares parallels with many frameworks used to define addictions. However, where automobile dependency is concerned, the object of dependence is actually a certain lifestyle. To illustrate, in addictions or substance dependence, the more an individual uses a certain substance, the less of the desired affect he or she is able to derive from the behaviour. Through habituation and/or constant exposure to the addiction of choice, the state originally perceived as desirable and pleasurable is now viewed as normative. Thus either greater quantities of the substance are needed and/or more potent substances are required to achieve the originally desired state of pleasure.

This may appear to be a fairly extreme example, but if you want to understand what automobile dependency is, all you really need to do is simply consider foregoing driving for a few weeks. What would the implications be on your lifestyle? How would not being able to drive to work every day affect your daily routine? For those readers who have children, how would you manage to get your children to and from school every day? Even the thought of one's personal independence being compromised in terms of physical movement is enough to provoke anxiety. These questions lead us to the next important consideration. Besides some of the more obvious benefits associated with driving a motor vehicle, such as increasing mobility and convenience to motorists, many of the positive benefits of driving an auto mobile have been overlooked. Understanding these benefits is important because it influences what aspects a product industry will focus on when marketing a product.

Traditional Marketing Strategy

Making sense of how the global economy is evolving is a formidable task. As has been previously mentioned, developing countries around the world demonstrate rapidly shifting socio-political and economic landscapes as well as dramatic advances in technology (Cohen, 2005). Consequently, there have been several distinct changes in consumer related behaviours. Essentially, this has pressed business owners and other major stakeholders to be more adaptable in the struggle to determine how best to market their products. The global automobile industry is no exception to these trends and is both subject to, and influenced by, the same driving forces that propel markets into either expansion or demise.

This section takes a look at some basic marketing components and looks at some of the assumptions that guide each of these strategies. Fornell and Wernerfelt (2007) maintain that successful marketing depends on a firm's ability to influence the flow of consumers into and out of the market. These changes are assessed along the following four criteria:

- Additional customer entry into the market;
- Brand shifting or change of patronage;
- Customer market exit;
- Changes in purchase frequency.

Literature that is orientated around the understanding of marketing strategies generally focuses on three main areas, including strategies that are designed to obtain additional customers, strategies that encourage brand switching, and strategies that increase purchasing frequency. These strategies can be broadly defined and/or classified as offensive marketing strategies. During economic booms, geographic areas where there is room for development, as well as the accompanying resources to support this development, these types of strategies make sense and become intuitive steps for businesses to follow.

However, as is the nature of any market, factors such as increasing competition, maturing industries or, alternatively, shrinking industries, will vacillate. In these types of environments, offensive marketing strategies become increasingly difficult to satisfy. There is therefore a need to re-orienteer priorities and business strategies as the cost of generating a new customer can often exceed the cost of retaining an existing client (Pauwels, Siver-Risso,Srinivasan & Hanssens,2004).

Similarly, for most firms, successful new products act as engines of growth. Several growth matrixes developed around the need to understand the way in which a product fares in the market indicate the need for new products that generate future profitability and prevent the obsolescence of a firm's product line (Pauwels, Siver-Risso,Srinivasan & Hanssens,2004).

Because low growth and highly competitive markets are increasingly common characteristics of many industries, including that of the automobile industry, strategies that are characteristically more defensive in nature have become more prominent. In comparison to offensive marketing, very little research has been done on defensive marketing. Prior to 2007, defensive marketing strategies were understood in terms of a firm simply adjusting its marketing expenditures to defend itself against the launch of new products and new competitive brands (Fornell and Wernerfelt, 2007).

According to Ti-Bei and Ching-Chiao, (2006) service quality, customer satisfaction and customer loyalty occupy a dominant position in the research about marketing service industries. There are many such variables that researchers use to predict the likelihood that a consumer will purchase a certain product. Like the concept of automobile dependence, variables such as customer loyalty are complex constructs that consist of many smaller variables. These variables are ideas, images or theories formed from simpler elements and constructs. It is true that one of the ways that a business retains clients and customers is to treat them well. However, it is just as true to

admit that a firm cannot treat all customers with best forms of service 100% of the time. Customer dissatisfaction is inevitable and has multiple causes. Customer complaints, provided that they are timeously addressed and improved upon, create a constant trajectory for improvement and can actually contribute to the improvement of the firm and/or franchise. Fornell and Wernerfelt (2007) simply define customer dissatisfaction as, ***"COGNITIVE/ AFFECTIVE DISCOMFORT CHARACTERISED BY AN INSUFFICIENT RETURN RELATIVE TO THE RESOURCES SPEND BY THE CUSTOMER AT ANY STAGE OF THE PROCESS/CONSUMPTION PROCESS"*** (p.338). Thus the basic objective of offensive marketing (non-growth markets) is to attract competitors' dissatisfied customers, whereas defensive marketing attempts to manage customer dissatisfaction, thereby reducing the level of risk to a particular firm.

Initially, market researchers utilised the '*dimensions and measurement of service quality indices*' to assess consumer related patterns of purchasing behaviour. Indexes such as this can be classified under the broad umbrella terms of a quantitative or a positivist approach towards problem solving (Stangor, 2010). Approaches like this are characterised by the measurement and identification of certain variables. Since as early as the 19th century, researchers across many academic disciplines including sociology, law and psychology have supported the notion of objective measurement which prioritises quantitative measures that fall under a positivist paradigm. These measures prioritise the use of statistics as a means to interpret and make deductions from a pre-formulated hypothesis, i.e.-*'does race and gender influence consumer buying choice'*. After data is collected from generally large samples, statistical analyses are run and comparisons are made between fairly large samples of participants. Conclusions are then drawn regarding the findings. Questions can be asked through the use of questionnaires for example, with questions that are often loaded. They push participants in a certain direction without allowing them to express their personal views towards the phenomenon of interest, and that is if the questions are answered at all.

These concerns are not new and researchers of every denomination have attempted to cater for spuriousness in their findings. Thus, after having established a firmer grip on issues related to measurement, researchers began to develop the ability to assess more complex phenomena and how these factors influence behavioural intention (Bei & Chiao, 2006). In contradistinction to quantitative methodology, qualitative methodologies take into account the subjective nature of experiences and cater for scenarios wherein spurious variables - that is variables that directly impact the cause and effect of a hypothesised relationship - are taken into account. Variables such as these are inexorably subject to a multiplicity of influences, many of which are not and cannot be accounted for in terms of statistical methodologies alone. For example, researcher X is interested in understanding the effect of using a cellphone whilst driving. X hypothesises that using a cell phone whilst driving a car significantly reduces the level of attention that driver Y can give to the road and the surrounding environment. If driver Y is an accident then, statistically, it would make sense to assert that using a cellphone whilst driving results in more road car accidents. However, researcher X did not account for variables such personal sense of responsibility, which may influence the times and areas that driver Y decides are safe to use a cell

phone, intellect that may determine the extent to which a driver can engage in multiple tasks more or less effectively or perceptiveness which could diminish or increase the amount of attention required to focus on the environment whilst driving and talking on a cellphone at the same time.

Examples such as this demonstrate why in the early 1900s, some researchers rejected positivism, the theoretical idea that there is an objective world which we can gather data from and verify this data through empiricism. Thus some researchers embraced a qualitative research paradigm, attempting to make qualitative research as rigorous as quantitative research and creating a wide range of methods for qualitative research. In the 1970s and 80s, the increasing ubiquity of computers aided in qualitative analyses and several journals with a qualitative focus emerged, resulting in the broad school of post-positivism gaining recognition. Throughout the 1990s, the concept of a passive observer/researcher was rejected, and qualitative research became more prevalent in conducting studies. This type of research was more participatory in the sense that participants now had the opportunity to express their personal views about the phenomenon of interest. Researchers also began to use mixed methods approaches, indicating a shift in thinking of qualitative and quantitative methods as intrinsically incompatible (Stangor, 2010). One of the primary objectives of this article is to assess why, in light of our existing knowledge of the detrimental effects of automobile dependence, so few people actively engage in the use of public transport? Understanding this requires understanding an alternate perspective.

An Alternate Perspective

There are many factors that determine the purchasing behaviour of consumers. Some of these have been discussed in the context of market research. It is clear that there are many external factors that determine the actual availability of a certain product. Factors that make a nation attractive to sell in include the basics of a sound domestic product, growing per capita levels, good road infrastructure, elasticity of demand, requirements for domestically adapted vehicles either from consumer or regulation demand, and the availability of financing instruments - as well as favorable tax and tariff structures which lead to inherent market stabilities (Mercer, 2004). Some of these factors have been discussed. There are also those factors that are specific to the individual, in terms of personal preference, that were also briefly touched on; although the majority of what has been discussed so far refers to significant systemic variables such as the MIDP and/or infrastructural challenges that exist within South Africa. These variables exist at the Macro-level, that is, the individual cannot and/or does not exert influence on them.

Historically, researchers have made use of demographic indexes which include such variables as socio-economic status (SES) as a means to determine the type of vehicle that a particular individual might be drawn to. Different vehicle types have been popular in different societies and during different time periods for a wide range of reasons. Henry Ford adapted the moving assembly line seen in slaughter houses and applied this system to automobile construction. It

was a significant event that marked the birth of what is colloquially referred to as 'mass production'. These techniques were applied to a vehicle that resembled a horse drawn carriage, with the body of the vehicle located on a separate chassis. Thus smaller, more compact vehicles were popular during the 1970s, whilst minivans became quite popular during the 1980s and, more recently, sports and utility vehicles during the 1990s (Choo & Mohktarian,2004).

In comparison, modern vehicles have eloquent steel bodies in which the strength is built into the steel floor, side doors and roof. Edward Budd was responsible for this technique and it has subsequently been taken up by both Citroen and Dodge. This process was later refined by Toyota during the 1960s through its lean manufacturing or *just in time* technique. General Motors revolutionised the then young car industry in the second half of the 20th century. The company was a leader in planned obsolescence, which involves frequent changes in design that tempt customers to frequently switch to a new model. In keeping with this strategy, current research indicates that each year in the U.S. there are nearly 200 new vehicle models produced by domestic and foreign producers.

The aim of many developed countries, such as the UK, is to reduce the reliance on private motor vehicle transport in order to promote public health and reduce environmental degradation. Despite the emphasis in these policies on the unhealthiness of private motor car use, epidemiological studies have consistently shown that car access is associated with longevity and better health. This presents itself as a paradox wherein on the one hand there are mounting concerns regarding the detrimental effects of motor car usage and then, alternatively, there are consistent reports, as illustrated by many studies, that owning a motor vehicle is beneficial to the user in ways that appear to negate these other factors.

Generally, those with private motor cars have access to, and gain more, psychosocial benefits. These benefits include a sense of mastery in one's life, self-esteem and feeling better about one's self, feelings of autonomy, prestige and protection as opposed to the feelings of public transport users. Being a car driver is associated with more benefits than being a passenger, except for self-esteem which is only associated with driving amongst men. Thus many of the policies that have been developed regarding the detrimental environmental effects of owning a vehicle are counterintuitive to the extent that they overtly neglect the massive benefits that are associated with private motor car usage (Ellaway, Macintyre, Hiscock & Kearns, 2003). In this way, the true value of the product - in this instance the motor vehicle - has been changed. The problem is that people possess some degree of awareness regarding the benefits of using a motor vehicle. What then is the effect of having this prior knowledge and then receiving contradictory knowledge that insinuates that driving a car is almost neglectful and careless considering the impact that it has on the environment? To explore this, we now look to a study carried out by Tertoolen, Van Kreveld & Verstraten. (1997) which sought to examine the effects produced by individually directing feedback to car drivers as a means to reduce private car usage. The researchers in the study also applied discussions related to the environmental and financial consequences of owning and using a motor car. Interestingly, it was found that this intervention did not result in any changes in transport behaviour. Tertoolen, Van Kreveld & Verstraten (1997) agreed that for private motor car users, the car is too strongly related to feelings of independence and

convenience for that to happen. In summary of the study, it was found that drivers hold several positive attitudes linked to the immediate advantages of private car ownership; whereas there are only limited negative attitudes that are linked to the later collective disadvantages of private car use.

Receiving information that contradicts people's current or previous information about a certain thing can result in a state of dissonance. The theory of cognitive dissonance holds that mental stress is created whilst holding two or more contradictory beliefs, ideas or values at the same time or when one is confronted by new information that conflicts with his or her previous beliefs. The theory was developed by Leon Festinger and is based on the premise that human beings strive for internal consistency. When inconsistency (dissonance) occurs, individuals tend to become psychologically uncomfortable and are motivated to attempt to reduce this discomfort, as well as to avoid information and situations that are likely to increase this discomfort. This can actually result in denial of the problem or radicalisation of the previous behaviour in order to deal with the uncomfortable state brought about by the new information. What then is to be done if direct insults to the problem of environmental degradation have no effect? How can we make attributions about an individual's vehicle type choice when faced with such confounding results?

There is much to be gained from psychological interpretations of behaviour. Freud's theories are one such example and have impacted not only psychology, but also the social sciences, literature and medicine. His theories go beyond individual disciplines and have directly impacted the way that we think about, analyze and critically evaluate things in our lives (Watts & Hook, 2009). A fundamental premise of Freud's theories was that behaviour is influenced by unconscious drives. Furthermore, he states that understanding the unconscious is the '*Rosetta stone'* to understanding the human psychic life. He therefore stressed the unconscious nature of the personality. In Freud's structural model of the mind, which consists of the Id, Ego and Superego, he explained that behaviour is an amalgamation of various conflicts between these psychic structures. Thus, understanding these unconscious conflicts allows for a greater clarity on the potential reasons as to why an individual chooses to act in a certain way. Importantly, Freud's theories are recognised as psychodynamic and inferential as opposed to more contemporary theories which are understood as descriptive in nature (Watts & Hook, 2009). There have been many theorists who have adopted Freud's psychodynamic paradigm as a means to understand human behaviour. The following is an example of one such theory.

Previously, a parallel was drawn between having an addiction and/or dependence on a substance and motor car dependence. What both of these constructs imply is an absence of choice. In this instance, people do not continue to drive motor vehicles because they don't care about the environment. They do so because they don't believe that they have any alternative. The fact that an addiction results in an absence of choice and forces an individual into a particular pattern of behaviour is something that psychodynamic theorists have placed considerable efforts in attempting to understand. Specifically, they are interested in the psychological vulnerabilities, disturbances and pain that predispose individuals to become chemically dependent (Khantzian, 1985). The psychology of such behavior is typically specific to context in which the addiction

develops. The overwhelming evidence from these studies points to the fact that the use of what a person is addicted to serves to temporarily ameliorate negative feelings. As different substances have different properties and therefore exhibit different effects on the individual, they may be used for different reasons. This line of reasoning is recognised as the self-medication hypothesis(SMH) which asserts that the individual's choice of a particular drug is not accidental or coincidental but, instead, a result of the individual's psychological deficits, as the drug of choice provides relief to the user specific to his or her condition (Khantzian,1985). Specifically, addiction is hypothesised to function as a compensatory means to modulate and treat distressful psychological states, whereby individuals choose the drug that will most appropriately manage their specific type of psychiatric distress and help them to achieve emotional stability.

Applying such a dislocated theory to vehicle type choice does, at first glance, seem far-fetched and even inappropriate. But if one is to consider the potential utility in being able to recognise and understand personality traits that contribute to certain behavioural decisions and ultimately to greater accuracy where predicting outcomes for vehicle type choice is concerned, the potential implications become quite radical. The idea of direct and/or aggressive strategies to try and get people to purchase a particular product, in this instance, is counterintuitive because people, at the most basic level, want to protect themselves from anxiety. Aggressive marketing strategies can therefore result in a greater level of anxiety as they run the risk of superimposing a value set on an individual at the expense of the individual experiencing the aforementioned dissonance. Alternatively, if marketing strategies took into account both the history of the problem which, in this case, is motor car dependence, then some of this dissonance could be circumvented by applying marketing strategies that reduce anxiety. Secondly, taking into account those dynamics of personality constructs in determining purchasing behaviour according to the SMH provides an interesting alternative to traditional marketing strategies. For example, people with depressive conflicts in their personality are more inclined to allow other people to make decisions for them based on an internal need to manage self-directed feelings of anger through delegating influence to significant others. What this may/may not translate to in terms of purchasing behaviour is a requirement to understand spousal purchasing decisions - as these might have more to do with the final decision than the individual in question. Alternatively, more narcissistically inclined individuals may sacrifice personal comfort to satisfy what they perceive others to be attracted to in terms of vehicle type choice. In this instance, it might be useful to look at the most consistent and/or collective vehicle selections made throughout each social economic status (SES) bracket as indicators of the most popular vehicle choice for each SES bracket. Thus, if applied appropriately, one can derive a number of self-motivated and purposeful product selections based on emotional and psychological needs rather than on a formula that is generalised from a geographically, culturally, politically, and economically distant region of the world. Essentially, what you may find is that people with different combinations of personality traits would be drawn towards certain product lines.

CONCLUDING THOUGHTS

Several ideas have been discussed in this article. It is clear that there is a lot to be learnt from the South African automobile system. The adaptability of this sector was highlighted and suggested as a rationale for its continued survival and excellence. In comparison, the South African transport system still has a long way to go. There are several structural limitations including limited resources that continue to be spent on projects that are considered to be more important. In conjunction, people's perceptions of public transport in South Africa continue to be negative. Instead of public transport use being viewed as indicative of a functional economy, it is associated with several anxieties relating to the cost and safety of these transport measures. The implementation of a comprehensive and cost effective public transport system, as well as alternate propulsion technologies which may reduce automobile dependence is largely contingent on South Africa adopting foreign technologies early on. Interestingly, it was found that private motor car use is one of the leading causes of death in the country. In spite of this fact, people continue to utilise this form of transport because of the immediate psychological benefits associated with driving a motor vehicle. Finally, it was argued that there is more than one way to answer a question. As was explained, marketing strategy exploring vehicle purchasing behaviour is constantly evolving.

However, the method by which an answer is sought must be correctly aligned to the question being asked. There are many ways to do this. The overriding point, however, was that it can be helpful to take into account people's individual psychology, lest a strategy run the risk of producing the opposite result than intended. This was demonstrated using the construct of cognitive dissonance. Furthermore, a better understanding of personality typologies and underlying motivations for product selection would be particularly helpful in making better predictions about consumer related behaviors. Besides the scientific appeal of such theories, they place the individual in context and look at that person's needs individually.

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