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## An investigation into the impact of e-tolls in the Gauteng province of South Africa: an SME perspective

### Abstract

While attitudes towards tolling/road-user charges have received much attention from researchers in a multitude of disciplines and geographic areas over the last few years, limited research has investigated the attitudes and the impact of e-tolls on SMEs within Gauteng, South Africa. Therefore, the aim of this paper was to describe SME owners' attitudes toward the implementation of the e-toll system and the perceived impact the system has on SME businesses in the Gauteng province of South Africa. In order to satisfy the objectives of the study, descriptive, quantitative research was undertaken by means of a self-administered questionnaire which was distributed to SME owners that reside in the Gauteng province of South Africa where e-tolls have been implemented. Data collected were analyzed by means of IBM SPSS Statistics V22, whereby frequency occurrence of items was identified. The main results stemming from the research indicate that 80% of SME owners have a very negative attitude towards the e-tolling system and that the system in itself has a negative impact on SME businesses within Gauteng. Given the small sample size, the results will give a general indication of the attitudes held by SME owners towards e-tolls and the impact it has on their businesses.

**Keywords:** small and medium enterprises (SMEs), South Africa, Gauteng, e-tolls.

**JEL Classification:** M10.

### Introduction

The introduction of the e-toll system has had a great impact on businesses, more specifically on the SME sector. With increasing municipal costs, fuel costs and taxes as well as the tyre disposal levy, small businesses and transport organizations are most at risk (Van der Groenendaal, 2014). While some organizations have scaled down their business models, others have transferred the additional costs to the customer and some have leaned towards retrenchment (Chance, 2014). Small businesses that fail to absorb the e-toll costs may cease to operate (Van der Groenendaal, 2014). It is therefore vital for such organizations to be aware of the impact of e-tolls on their business and to re-evaluate their strategies accordingly to accommodate such expenses. The aim of this paper was to investigate South African SMEs in terms of the impact of the e-tolling system on the business and owners' attitudes towards it.

### 1. Literature review

**1.1. Tolling and road-user charges.** Tolling/road-user charges have been around for many years and are seen as an excellent tool for transport planners and policy makers in order to achieve better transport management (Albert & Mahalel, 2006, p. 496) as it ensures quicker maintenance and fund infrastructure than would be possible with government revenues alone (Odeck & Kjekreit, 2010, p. 349; NRA, not indicated). Furthermore, with the ever-increasing popularity of passenger cars, this has resulted in an increased level of traffic on highways which in turn

leads to environmental deterioration and congestion, tolling/road-user charges being seen as a good means of reducing traffic and improving the local environment (Jou & Huang, 2014, p. 10; Odeck & Kjekreit, 2010, p. 349; Odeck & Bråthen, 2008, p. 77; Albert & Mahalel, 2006, p. 496).

### 2. The South African tolling system

The South African National Roads Agency Limited (SANRAL) was established in April 1998. It is an independent statutory company that is registered in terms of the companies Act of South Africa (NRA, not indicated). The directive of SANRAL is to improve, manage, maintain and finance the national roads of South Africa, whereby their two primary sources of income are allocations from of the National Treasury and revenue from tolled roads, which are funded from money and capital markets (NRA, not indicated).

In South Africa, there are in essence three tolling systems, namely (NRA, not indicated):

- ◆ Traditional toll collection – this is where tolling plazas are placed on open roads or highways and road users are required to stop to make a payment while en-route to their destinations.
- ◆ Electronic toll collection (ETC) – this system is a cashless system whereby road users can make payment for road use with card facilities or e-tags at toll plaza's or toll booms. The road user's vehicle is still required to slow down, once the user has paid via card or the e-tag device is detected the toll boom will open for the road user to pass.
- ◆ Open road tolling – this tolling system is similar to the electronic toll collection (ETC) method, however, it does not require that a road user stops. A structure known as a gantry is positioned over the highway or open road whereby a road user's

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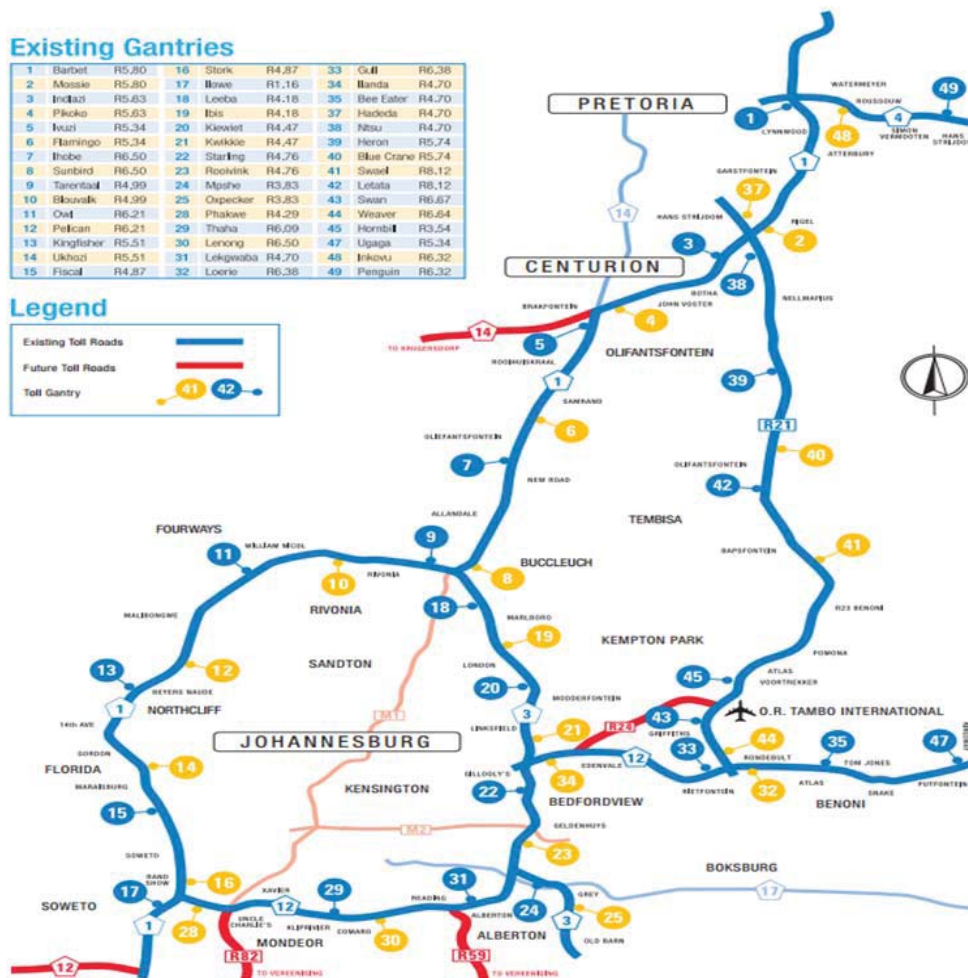
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usage is detected through technology connected to the gantry structure. Road users should have an e-tag by means of which fees are deducted. Should a road user not be in possession of an e-tag, photographs will be taken when the road user passes through the gantry and the vehicle will be identified by checking the number plate. The owner of the relevant vehicle will then be billed. An e-tag is a small electronic device that road users obtain from SANRAL at a minimal cost that must be preloaded and installed in their vehicles.

These devices can be preloaded with money or linked to the road user’s banking account and in this way money will be deducted after each gantry passed (TollfreeGP, 2011).

The open road tolling system, or better referred to as the e-tolling system by local South Africans, is a relatively new system implemented in South Africa. It started in the Gauteng province where 49 gantries have been placed on Gauteng highways (TollfreeGP, 2011). See Figure 1:



Source: The Automobile Association of South Africa (Not indicated)

Fig. 1. Gauteng e-tolling map

The e-tolling system was implemented on Gauteng roads in 2013 (IOL Motoring, 2014), with much controversy following. Many criticise the system as being very costly, too complex and therefore not correctly implementable, and as being a threat to the economic wellbeing of the province (TollfreeGP, 2011). SMEs specifically are not happy with its implementation and have been greatly affected by the e-tolling system. In fact, it has been stated that the e-tolls are killing small businesses (Chance, 2014; Matroos, 2014).

SMEs are crucial to the country’s economy as they account for approximately 91% of formal

businesses, contributing about 51-57% of the country’s gross domestic product (GDP) and providing about 60% of the country’s employment (Kongolo, 2010, p. 2288; Abor & Quartey, 2010, p. 219). However, the growth of SMEs and their ability to create jobs have been hindered relentlessly by the e-toll system (Matroos, 2014). With the National Development Plan’s objective to create 11 million jobs by 2030, the success of these SMEs is critical in the fight against unemployment (Chance, 2014). It is therefore of great importance that the impact of e-tolls on SMEs and their attitude towards it be investigated. While the subject of attitudes

towards tolling/road-user charges has over the last few years received some attention from researchers in a multitude of disciplines and geographic areas over the last few years, it still remains quite limited (Odeck & Bråthen, 2008, p. 77; Odeck & Kjekreit, 2010, p. 349). This study therefore seeks to expand on the knowledge base by providing insight into the attitudes of SME owners' in relation to the e-tolling system in South Africa. Attitudes of road users are an important aspect that needs to be taken into consideration when it comes to policy development or the planning of different projects for a country's transport sector (Odeck & Bråthen, 1997, p. 73; Odeck & Bråthen, 2008, p. 77; Odeck & Kjekreit, 2010, p. 349).

### 3. The impact of e-tolls on SMEs

The e-toll system has not only added to the spiralling cost of doing business in South Africa but also to the distresses of the small business sector (Van der Groenendaal, 2014). A recent survey conducted with a sample of 50 small businesses in Gauteng found that e-toll bills totalled to R850 000 for the year 2014, while the highest cumulative amount incurred by one organization was R101 761.83, equating to just over R10 000 a month (Chance, 2014; Mail & Guardian, 2014). As mentioned, some businesses have passed the burden onto the customer, some have been forced to retrench and others have scaled down their business models (Chance, 2014).

Chance (2014) mentioned some of the small businesses that took part in the survey on which the e-tolls have had a great impact on:

- ◆ Transporting company operating for over 50 years has indicated that the business spends R5 000 per month on e-tolls. Due to the cost of their transport services, this has led to a loss of customers in Pretoria.
- ◆ An electronics company had an e-toll bill of R32 000 which was unpaid for at the time. According to the owner, the number of vehicles on the road would have to be limited which further means that employees will have to be retrenched.
- ◆ A chemicals company indicated that they have to increase their total cost to customers by approximately 15%. Due to the large number of price-sensitive consumers, the business feels that fewer people will continue to use their products, which will in turn reduce their turnover. The owner further mentioned that they cannot afford paying their e-tolls account and most of the bills they receive are thrown away, resulting in a threat of prosecution.

Due to the high e-toll costs, many businesses have resorted to using non-tolled routes, however this has also posed a threat as these roads have deteriorated due to natural causes and are poorly maintained

(Lindeque, 2014; Van der Groenendaal, 2014). E-tolls are said to be lethal to the growth of small businesses (Lindeque, 2014). Chance (2014) indicates that "the effect is simple and straight forward – the growth prospects for business and their ability to create jobs is severely hampered".

### 4. The aim and research methodology

The aim of this research study was to describe SME owners' attitudes towards the implementation of the e-toll system and the perceived impact the system has on SMEs in the Gauteng province of South Africa.

In order to determine SME owners' attitudes towards the implementation of the e-toll system in the Gauteng province of South Africa, a self-administered questionnaire, consisting of quantitative questions was designed and administered to a sample of SME owners in Gauteng who registered their businesses at an official state institution for SMEs. The sampling methodology utilized was that of non-probability, convenience sampling, which enabled the researcher to collect data quickly and easily. A sufficient number of questionnaires were distributed to achieve a confidence level of 95% and an error margin of 10% at 50% response distribution. A total of 63 useful responses were received which is an error margin of 12.04%. The number of responses will only give a general indication as to attitudes held by SME owners towards e-tolls and the impact it has on their businesses. The data obtained were analyzed through the statistical software of IBM SPSS Statistics V22, whereby descriptive data in the form of frequency counts were obtained to describe responses received and an experience index (EI) was calculated.

### 5. Research findings

A total of 79% of the respondents were owners, followed by managers (19.7%) and staff (1.3%). Over half of the respondents were female (58.62%) with 56.9% older than 40. The SME sectors in which these businesses operate were mostly construction (20%), business services (10%), manufacturing (10%) and retail (7.1%). A large percentage of the respondents' businesses have existed for less than five years (60.8%) while one quarter has existed for six to ten years (25.7%). Almost half of the respondents (41.8%) reported that their annual turnover was lower than R100 000.

### 6. The attitudes of SME owners on the implementation of the e-toll system in Gauteng

In order to determine SME owners' attitudes towards the implementation of the e-toll system in Gauteng, respondents were asked to rate the degree to which they agree or disagree with nine predetermined statements. The scale was composed of five levels (1-5), where 1 was "Strongly disagree" and 5 was

“Strongly agree”. The rating scale was reduced to a three-point scale where “Strongly disagree and Disagree” and “Strongly agree and agree” were combined for ease of reporting. Table 1 reflects the results obtained for this question.

From Table 1 it can be seen the frequencies for all items are skewed from a normal distribution and can therefore be seen as non-normally distributed. Figure 1 below is indicative of the frequency occurrence received per statement.

Table 1. Descriptive statistics for the level of agreement or disagreement with the different statements regarding the attitude towards the e-toll system in Gauteng

Statement	N		Mean	Median	Std. deviation	Skewness	Std. error of skewness	Kurtosis	Std. error of kurtosis
	Valid	Missing							
The idea behind the e-toll system makes me feel happy	62	1	1.98	1.00	1.261	.995	.304	-.259	.599
The e-toll system is good for the economy	61	2	2.57	3.00	1.310	.064	.306	-1.341	.604
With e-tolls in place visiting foreigners will contribute to our road upkeep	61	2	2.70	3.00	1.202	-.116	.306	-1.176	.604
E-tolls may affect my business in a positive way	61	2	2.34	2.00	1.425	.577	.306	-1.097	.604
I think e-tolls are a waste of money	62	1	3.21	4.00	1.506	-.340	.304	-1.358	.599
I think government is just trying to earn extra money with e-tolls	62	1	3.42	4.00	1.374	-.649	.304	-.708	.599
SMEs should be exempt from paying e-tolls	62	1	3.71	4.00	1.311	-.702	.304	-.527	.599
I think that there are going to be a lot of mistakes made with the invoicing of e-tolls	62	1	3.66	4.00	1.402	-.730	.304	-.724	.599
E-tolls have made traffic less on the roads	57	6	2.72	3.00	1.320	.253	.316	-.842	.623

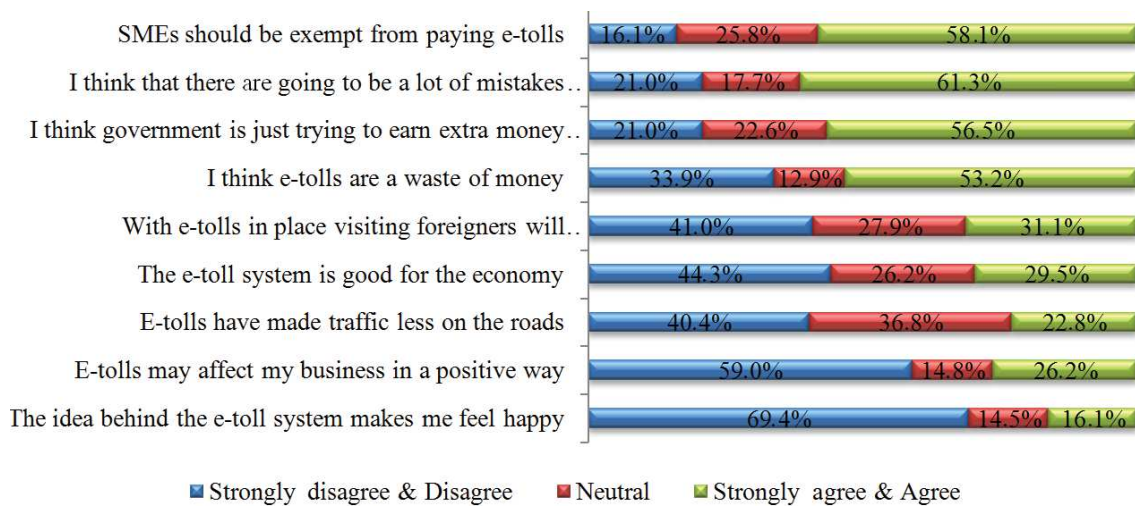


Fig. 2. Frequency analysis of the attitude of respondents towards the implementation of the e-toll system

From Figure 2 above it can be seen that SME owners tended to “Strongly agree & Agree” with the following statements, “I think e-tolls are a waste of money” (53.2%), “I think government is just trying to earn extra money with e-tolls” (56.5%), “SMEs should be exempt from paying e-tolls” (58.1%) and “I think that there are going to be a lot of mistakes made with the invoicing of e-tolls” (61.3%). While respondents tended to “Strongly disagree & Disagree” with the following statements “E-tolls have made traffic less on the roads” (40.4%), “With e-tolls in place visiting foreigners will contribute to our road upkeep” (41.0%), “The e-toll system is good for the economy” (44.3%), “E-tolls may affect my business in a positive way” (59.0%) and “The idea behind the e-toll system makes me feel happy” (69.4%). From the responses received it is clear that there is negative attitude among SME owners surrounding the

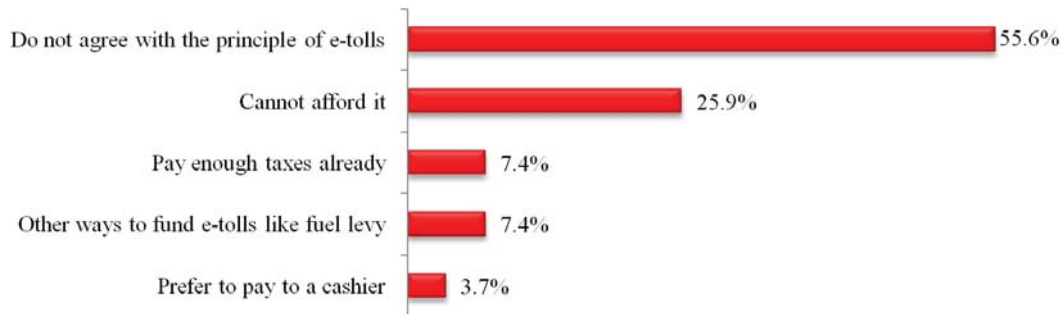
implementation of the e-toll system within Gauteng. However, it must be observed that while a negative attitude does exist, 36.8% of the respondents were impartial to the statement “E-tolls have made traffic less on the roads”, 26.2% were impartial to “The e-toll system is good for the economy” and 27.9% were impartial to “With e-tolls in place visiting foreigners will contribute to our road upkeep”. This indicated that while there is a negative attitude towards the implementation of the system some SME owners are uncertain as to whether or not the system could be of benefit to the country.

SME owners were asked if they would purchase an e-tag in order to abide by the implementation of the system should they make use of tolled roads. The following results were obtained (see Figure 3 below):



**Fig. 3. Frequency analysis of the attitude of the respondents towards buying an e-tag (N = 57)**

From the results obtained in Figure 3, it can be seen that SME owners hold a strong footing of not purchasing an e-tag (61.4%). The reasons given by respondents as to why they would not purchase an e-tag can be seen in Figure 4:



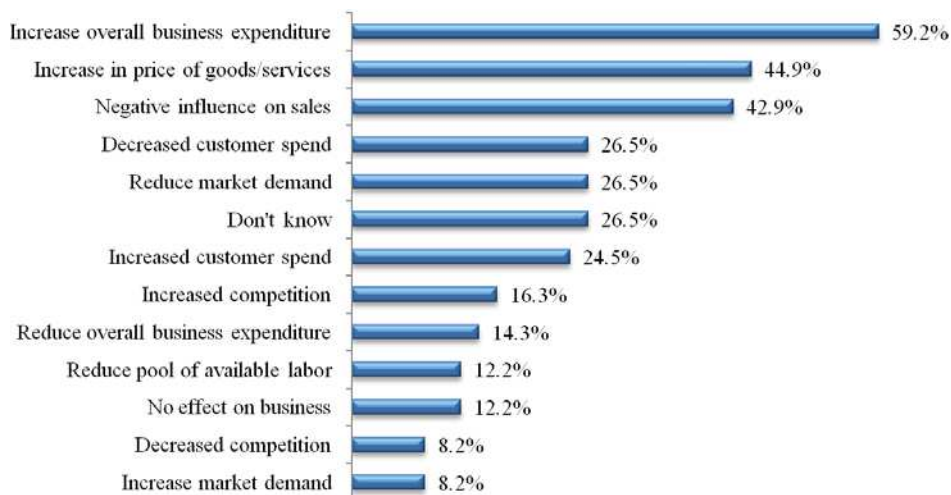
**Fig. 4. Frequency analysis of the reasons provided for not buying an e-tag (N = 27)**

The main reason for not intending to purchase an e-tag according to the majority of respondents (55.6%) is that they “Do not agree with the principles behind the setting up of the e-tolls”. Another main reason for not intending to purchase an e-tag is the fact that SME owners “Cannot afford it” (25.9%) on top of all the other travelling costs already endured by their businesses, like petrol and licensing fees. Respondents further indicated that they already paid enough taxes and that alternative ways of funding the maintenance and building of roads should be investigated. One respondent indicated that they would not want to buy an e-tag because they would feel more comfortable to pay a cashier directly.

### 7. The impact of e-tolls on SMEs in the Gauteng province of South Africa

In this section of the questionnaire, respondents were asked how the implementation of the e-tolls will affect their business by choosing various effects from 13 listed items (multiple choice – multiple response). Frequency analysis derived from this multiple-

response question indicates the percentage of respondents selecting each of the listed effects (see Figure 5). The top three most selected effects of the e-tolls on SMEs in South Africa were, “Increase overall business expenditure” (59.2%), “Increase in price of goods/services” (44.9%) and “Negative influence on sales” (42.9%). A total of 26.5% of the respondents did not know what the effects would be on their business, while more than 25% of the respondents selected “Decreased customer spend” and “Reduce market demand” as possible effects. Fewer than 20% of the respondents selected the following items as possible effects on their business: “Increased competition” (16.3%), “Reduce overall business expenditure” (14.3%) and “Reduce pool of available labor” (12.2%). The last three items indicate a positive effect on the business, however they were only selected by a few respondents. “No effect on business” (12.2%), “Decreased competition” (8.2%) and “Increase market demand” (8.2%).



\* Please note that the question posed to respondents was multiple choice, multiple response in nature.

**Fig. 5. Frequency analysis of the perceived effects of e-tolls on SMEs (N = 49)**

The following question was asked to respondents to rate the overall impact that e-tolls had on their business on a scale from 1 “Extremely negative” to 7 “Extremely positive”. However, as presented in

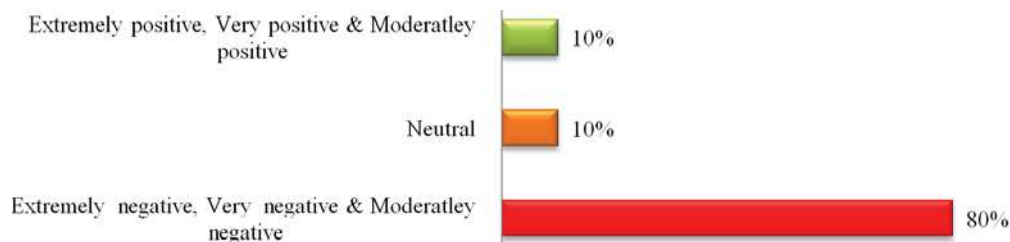


Fig. 6. Frequency analysis of the perceived overall impact of e-tolls on SMEs (N = 40)

## Conclusions and recommendations

With the implementation of e-tolls on Gauteng roads, many have criticised the system and its impact on individuals, businesses and the economic wellbeing of the province. The main purpose of this article was to determine the attitudes of SME owners and the impact the implementation of the e-toll system in the Gauteng province of South Africa had on their businesses. The study revealed that the overall attitude of the respondents towards the e-toll system is generally negative, while some statements of respondents were quite impartial too. While a negative attitude was reflected in the responses received, 61.4% of the respondents further indicated that they had no intention to purchase e-tags, a device that would assist with the implementation of the e-toll system. The reasons given by the respondents for not intending to purchase an e-tag device were that they did not agree with the principles behind the implementation of the e-tolls, they could not afford it due to all the other travelling costs they already had to pay, like petrol and licensing fees, they paid enough taxes already and they felt that alternative ways of funding the maintenance and building of roads should be investigated.

The investigation into the possible effects that the e-toll system could have on their businesses revealed that most respondents were of the opinion that the system would increase overall business expenditure, there would be an increase in the price of

Figure 6, the ratings were combined. From the 40 respondents that completed the question, the majority (80%) believe that the e-tolls had a negative impact on their business making it a liability.

goods/services and it would have a negative influence on sales. While more than a quarter of the respondents were of the opinion that the e-toll system would cause decreased customer spending and reduce market demand, fewer than 10% of respondents felt that the e-toll system would have a positive effect, indicating that it would have no effect on their businesses, and it might decrease competition and increase market demand.

In conclusion, it can be seen that 80% of the respondents rated the potential effect of the e-toll system as either moderately, very or extremely negative, with only 10% rating it as moderately, very or extremely positive. Overall, it can therefore be concluded that respondents have a very negative attitude towards the implementation of the e-toll system and that the perceived impact of the system on their businesses is very negative, making it a liability.

While the e-toll system has only been implemented within the Gauteng province in South Africa, it is recommended that further research be conducted into the impact experienced by SMEs as a result of the implementation of the system. Furthermore, SMEs need to revisit their business strategies and find innovative ways in which to do business and combat the e-toll costs if they wish to survive. It is further recommended that a comparative study be conducted with other international countries to determine best practice for e-toll system implementation.

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