EXAMINING THE IMPACT OF SHARING ACCOMMODATION ON HOTEL OCCUPANCY RATE IN THE KINGDOM OF SWAZILAND

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ABSTRACT

This dissertation examines the relationship entailed in, and the impact of, sharing accommodation on the hotel occupancy rate in the Kingdom of Swaziland. The entrance of sharing accommodation platforms onto the hospitality marketplace has been characterised by concerns of potential declines in demand for hotel rooms and discrepancies in hotel regulatory controls. Despite considerable research having already been undertaken in this area in the developed countries, a gap remains in the literature regarding the impact of the phenomenon on hotel performance in the Kingdom of Swaziland. Using panel data on the hotel monthly occupancy rate and on the number of Airbnb listings for the periods 2012 to 2016 and 2015 to 2016, respectively, the study applies a hierarchical regression model to respond to the research questions asked.

The Pearson Correlation test reveals a strong positive relationship between hotel occupancy rate and Airbnb listings, thus indicating that an increase in the hotel occupancy rate moves along with a rise in the number of Airbnb listings in Swaziland. The results of the F-test show a p-value less than the significance level of 0.05, thus leading to the drawing of the conclusion that the null hypothesis should be rejected. These findings suggest that the Airbnb platform in Swaziland appeals to a different tourist market profile than do hotels, so that the two products might be viewed as non-competitors. However, qualitative findings confirm the existence of inconsistencies in the regulatory provisions in terms of which hotels are required to abide by various legal dictates. The study recommends that the Swaziland Government should undertake stakeholder consultations aimed at developing regulations to manage and monitor sharing accommodation platform participants that will incorporate their innovative and diverse dimensions.

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List of Abbreviations and Acronyms

ACF	autocorrelation function
ADF	augmented Dickey–Fuller
ExpPPN	expenditure per person per night
GDP	gross domestic product
MTEA	Ministry of Tourism and Environmental Affairs
SD	standard deviation
STA	Swaziland Tourism Authority
UNWTO	United Nations World Tourism Organization
USD	United States Dollar

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Finally, I am grateful to Mbukiso and my daughters Luyandza, Lwenkhosi and Lwanelekitsi for their patience and understanding throughout the period of this study.

DEDICATION

To my beloved daughters Luyandza, Lwenkhosi and Lwanelekitsi, whose presence in this world has made life fuller and richer for me.

DECLARATION

I, Sebenzile Simelane-Ginindza, hereby declare that this study is my own work, that it is a true reflection of my research, and that this work, or any part thereof, has not been submitted for a degree at any other institution.

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Name of Student	Signature	Date

CHAPTER ONE
BACKGROUND TO THE STUDY

1.1 Introduction

The purpose of this first chapter is to introduce the current research study, and to present the research background against which a brief analysis of the sharing accommodation phenomenon is provided. The chapter further provides a definition of terms, the research problem statement, and the objectives, the hypothesis, the significance, the limitations and the delimitation of the study. Finally, the chapter provides an overview of the structure of the study.

1.2 Background to the study

The traditional hospitality sector includes all businesses that provide food, beverages, and/or accommodation services. Such businesses include restaurants, pubs, bars and clubs, hotels, contract catering, and hospitality services. However, in recent years sharing accommodation has been added to the definition. The sharing accommodation phenomenon entails the short-term rental of rooms, or entire homes, by home owners on an online platform (Belk, 2014; Guttentag, 2015). Guttentag (2015) explains that the sharing accommodation sector stems from the age-old concept of sharing goods and services, which has evolved through the use of transacting online, thus enabling the sector to grow exponentially. Sharing accommodation operators, therefore, benefit from the technology economies of scale, and from the relatively low transaction costs, involved.

While the sharing accommodation concept has been recognised as presenting a distinct advantage over the traditional concept of brick-and-mortar accommodation establishments, Markides (2006, p. 21) points out that "over time, these new business models improve to such an extent that they are able to deliver performance that is sufficient in the old attributes of established competitors and superior in the new attributes". Consequently, the offer of an affordable alternative to hotels (Tussyadiah, 2015), and an opportunity to develop relations with the community (Bostman & Rogers, 2010, as cited in Tussyadiah, 2015) has been noted to result in the phenomenal success of the existing sharing accommodation platforms. To demonstrate the above, Brescia (2016, p. 88) states that, in 2015, "Airbnb, was valued at $26 billion, more than the hotel chain Marriott and its competitor, Hilton".

However, behind the success of this phenomenon lies a regulatory challenge emanating from its diversity and scope. Traditional hotels are generally required to operate in adherence to existing legal frameworks (Kassan & Orsi, 2012; Miller, 2016), yet the same requirement seems not to be the case for the majority of sharing accommodation platforms, as a result of the dynamics of sharing and/or collaborative enterprises (Kassan & Orsi, 2012). Consequently, world governments have tended to display a sluggish response in terms of understanding the relationship between sharing accommodation platforms and the hotel sector, including the impacts that result from the violation of existing laws by the former (Miller, 2016).

In 2015, the hospitality sector in Swaziland saw the entrance of the sharing accommodation platform Airbnb onto the national market, with its listings having increased by 35 hosts to its current listing in 2017. The operation of this platform has been characterised by the absence of regulatory controls, whereas the hotel sector is required to adhere to licensing and taxation imperatives. Hotels in Swaziland are

required to make annual payments for trading licences, certification of minimum accommodation standards, and tax submissions. Additionally, guests staying in hotels are required to pay a bed levy of the total bill (Swaziland. MTEA, 2008), which is earmarked for tourism marketing purposes. Ultimately, sharing accommodation platform hosts are seen as 'free-riders', who are regarded as competing unfairly and, further, as benefiting from destination marketing efforts.

In Swaziland, tourism is a significant contributor to the economy, with, at its core, the hotel and restaurant industry, which contributes 1.6% to the gross domestic product (GDP) (Swaziland. Central Statistical Office, 2015). Additionally, in 2014 a total of 25 180 people were directly employed in the hotel and restaurant industry (Swaziland. Ministry of Labour and Social Welfare, 2016). Against the above background, the current study was undertaken to ascertain the impact of sharing accommodation platforms on the hotel occupancy rate, and on receipts and loss of jobs in the hotel sector, which is considered to be crippling the Swazi economy.

The present study, therefore, is an attempt to provide empirical evidence of the performance of the hotel occupancy rate as a result of the entrance of sharing accommodation platforms onto the hospitality industry in Swaziland. In addition, the study is an effort to investigate, and to provide recommendations on, the repercussions resultant from the fluid regulation of the above-mentioned phenomenon.

1.3 Definition of terms

The following terms that are applicable to the study are defined below: hotel; hospitality industry; sharing accommodation; and occupancy rate.

A hotel is regarded as “an accommodation establishment that comprises at least 10 ensuite bedrooms for accommodation of guests and offers full meal services” (Swaziland. MTEA, 2008, p. 13).

The hospitality industry is seen as being “comprised of commercial organizations that specialize in providing accommodation and/or food, and/or drink” (Hemmington, 2007, p. 3).

Sharing accommodation “is a concept where ordinary people rent out their spaces as accommodation for tourists through an online accommodation platform” (Guttentag, 2015, p. 1193).

Occupancy rate “is the relationship between existing capacity to provide accommodation services to visitors and the extent to which it is used” (UNWTO, 2010, p. 15).

1.4 Statement of the problem

The hospitality industry, in general, has been dominated by hotels in terms of providing accommodation for guests. Swaziland, like all other destinations, is no exception in this regard. The entrance of the sharing accommodation platforms into the hotel sphere has been seen to threaten the sustainability of traditional hotels, as a result of its unique feature of technological optimisation and regulatory challenges (Guttentag, 2015; Kassan & Orsi, 2012; Miller, 2016). While there is a considerable amount of literature on the negative impact of the sharing accommodation phenomenon on the consumer demand for hotel rooms, and, consequently, on direct hotel revenues (Belk, 2014; Brescia, 2016; Byeong, 2004), the studies concerned have predominantly focused on occurrences in the global north. Consequently,

exploration of the impact of the shared accommodation sector on developing economies like Swaziland has still to be undertaken. The current study is intended to fill the prevailing gap in this regard. The need to research the area from an empirical perspective was, therefore, found to be particularly important, given the fact that the hotel sector plays an important role in employment generation and in strengthening both the backward and the forward linkages (Cai, Leung & Mak, 2006). Hence, the purpose of the current research was to examine the impact of the operation of sharing accommodation platforms on the hotel occupancy rate of the existing traditional hotel sector.

1.5 Objectives of the study

The overall aim of the present study was to determine the impact that the phenomenon of sharing accommodation has had on the hotel occupancy rate in Swaziland. The specific objectives of the study were:

- to examine the relationship between the sharing accommodation presence and the hotel occupancy rate;
- to examine the impact of the sharing accommodation presence on the hotel occupancy rate; and
- to identify the regulatory and compliance discrepancies between the sharing accommodation and hotel sectors.

1.6 Hypothesis of the study

The study was developed based on the following proposed hypothesis:

H_o: Sharing accommodation platforms have a statistically significant negative impact on the hotel occupancy rate.

H_a: Sharing accommodation platforms do not have a statistically significant negative impact on the hotel occupancy rate.

1.7 Significance of the study

The research undertaken for the current study can be seen as distinctive, in that it is useful in the context of the country of Swaziland, where there has, as yet, been no research focused on the effects of sharing accommodation on hotel room demand within the developing economies. Therefore, the insights that are granted through the present dissertation will contribute towards the body of knowledge that is generally available in the field, especially with relevance to Swaziland. Furthermore, the study should prove to be particularly useful in the context of the Ministry of Tourism and Environmental Affairs (MTEA) agenda, in terms of informing any developments in national tourism policy and strategy frameworks, as well as in regulatory and compliance interventions moving forward to create an enabling environment within the hospitality sector.

1.8 Limitations of the study

The researcher anticipated that data on the hotel occupancy rate and unemployment rate covering the entire period might have missing values, potentially leading to biases and inaccurate inferences. To mitigate the above, he employed the imputation

algorithm method that generates random numbers and that, further, captures the covariance structure of the data, thus improving the accuracy of the parameter estimates involved (De Smith, 2014).

1.9 Delimitations of the study

The current study was limited to the Airbnb platform, which, at the time of the study, was the only sharing accommodation platform operating in Swaziland. As listings of the Airbnb hosts were, at that stage, only present for the Mbabane, Ezulwini, Matsapha, and Manzini sites, the research involved focused on the hotels and Airbnb listings operating within the above-mentioned radius.

1.10 Structure of the study

The current study consists of five chapters, with Chapter One presenting a preliminary overview of the research undertaken. The first chapter has given a background on the topic, a definition of terms, a statement of the problem, and the objectives, the hypothesis, the significance, the limitations, and the delimitations of the study.

Chapter Two provides a review of the literature available on the subject. The chapter presents an overview of the tourism landscape and of the accommodation sector, as well as reviewing the empirical and academic literature on the concept of sharing accommodation and its impact on the hotel sector.

Chapter Three focuses on the methodological framework of the study, including the research design, the data collection and analysis procedures, and the consideration of ethical issues.

Chapter Four details the findings of the study, as well as discussing the implications of the findings. Chapter Five provides the conclusion of the dissertation, and, further, makes recommendations considering further potential research areas.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

A comprehensive review of the literature relating to sharing accommodation and its impact on the hotel occupancy rate was conducted. Theoretical, empirical and academic studies were reviewed with the intention of supporting the hypothesis that sharing accommodation platforms have a statistically significant negative impact on the hotel occupancy rate. The current chapter is organised into six different sections, covering an overview of the tourism sector in Swaziland; key factors affecting the performance of tourism in Swaziland; Swaziland's accommodation sector; key figures in the Swaziland accommodation sector; the concept of sharing accommodation; the regulating and competitiveness of sharing accommodation; and the impact of sharing accommodation on hotel performance.

2.2 Overview of the tourism sector in Swaziland

According to the United Nations World Tourism Organization (UNWTO) (2010, p. 1), tourism is defined as "a social, cultural and economic phenomenon related to the movement of people to places outside their usual place of residence, pleasure being the usual motivation". Globally, tourism has been identified as being a significant contributor to global economies, with it, consequently, being recognised as a potential driver for economic growth and development (UNWTO, 2010). The MTEA is responsible for national tourism development and regulation in Swaziland. Tourism is a relatively new phenomenon in the country, as the MTEA was only established in 1996. The government of Swaziland has identified tourism as one of the top five priority sectors in the country in terms of boosting the prospects of reducing poverty, creating employment, and generating foreign currency (Swaziland.

MTEA, 2010).

Categorised as having a developing economy (Swaziland. Ministry of Economic Planning and Development, 2013), Swaziland has a relatively underdeveloped tourism market that is characterised by the offering of a limited tourism product range that is largely attributed to the slow pace that has been set by the government and industry in terms of the diversifying of the tourism offering to match travellers' needs (STA, 2013a). Despite the above-mentioned shortcoming, tourism has continued to play a significant role in the economic development of the country. In 2015, the hotel and restaurant industry, which is currently used as a proxy for tourism receipts, contributed 1.6% to the GDP (Swaziland. Central Statistical Office, 2017).

Tourism demand in the country was, at the stage of the current study, predominantly driven by inbound tourists (STA, 2017). According to the Swaziland Tourism Authority (STA), in 2016 the number of international visitor arrivals in Swaziland totalled 1.2 million foreign visitors, equating to the country's entire population at the time (Swaziland. Central Statistical Office, 2015). However, the annual average growth of foreign arrivals has remained somewhat stagnant, remaining at 8.2% for 2005 and 2016, with a plunge being noted during 2012, as a result of the global financial crisis that was experienced in 2010. However, with tourism being a resilient sector (Crotti & Misrahi, 2015), a rebound in the number of inbound visitors was noted in 2013. Since then, the number of international visitor arrivals has been on an upward trend, with the exception of a decline in 2015, resulting from the implementation of new South African immigration regulations regarding visa applications and travel with minors.

A large part of the inbound tourism in Swaziland can be attributed to intraregional travel, with travellers from the Africa region accounting for the largest share of foreign visitations over the past 10 years (STA, 2013b). In the *Annual Report on Tourism Statistics 2016*, the STA reports that, in 2016, Africa accounted for 86.9% of international visitor arrivals in Swaziland, Asia and the Pacific for 2.3%, the Americas for 1.9%, Europe for 8.8%, and the Middle East for 0.1% of inbound travellers. The above-mentioned report further indicates that the leading source markets concerned remained South Africa and Mozambique, with a total of 814 220 and 202 042 visitor arrivals, reflecting a share of 63.7% and 15.8%, respectively. The report also reveals that, during the same period, other major visitor-generating markets comprised Germany, with a 1.8% share, France, with a share of 1.7%, Netherlands, with a 1.6% share, the United Kingdom, with a 1.2% share, and the USA, with a share of 1.4% (STA, 2017).

2.3 Key factors affecting the performance of tourism in Swaziland

According to Dwyer, Edwards, Mistilis, Roman and Scott (2009, p. 63), "tourism is essentially integrated with other sectors in the economy", making it susceptible to external factors (Crotti & Misrahi, 2015). The performance of tourism in the country has been marked by a heavy reliance on the South African market, both in terms of visitor numbers and in terms of air connectivity, particularly in relation to long-haul travellers. Dwyer et al. (2009) advance that the performance of a country's tourism sector tends to replicate changes and trends within the macro environment, with the changes and trends consisting of economic, political and social developments in any country on which the former country depends economically. Confirming such a view, the implementation of the new Immigration Regulations in South Africa in the fourth quarter of 2014, calling for the provision of biometric data relating to visa

applications, resulted in South Africa reporting an annual decline in foreign visitor arrivals of 6.8% (South Africa Tourism, 2016). By extension, the number of inbound tourist arrivals in Swaziland fell sharply by 5.2% during the same period.

Similarly, in June 2015, South Africa introduced new travel regulations for minors that stipulated that, in addition to a passport and visa, children below 18 years of age travelling to and from South Africa should be in possession of an abridged birth certificate (South Africa. Ministry of Home Affairs, 2014). According to the STA, foreign visitor arrivals in Swaziland fell by 6.1% between April and August 2015.

Swaziland's relatively small physical area of 17 364 km, combined with its limited product range, has resulted in overseas visitors combining their trips to the country with visitations to two or more countries within sub-Saharan Africa, with 28.8% of overseas tourists having travelled to Swaziland in this way in 2016 (STA, 2017). Long-haul visitors tend to travel to a few different countries along their way (Crotti & Misrahi, 2015), and, in the case of Swaziland, the propensity to conform to this pattern is likely to be still further negatively impacted on by the new immigration regulations.

Another factor that impacts on tourism performance is the erratic travel pattern of South African tourists to Swaziland. Historically, the seasonal pattern of travellers' movements has been noted to emulate the fluctuations in trips made by South Africans to Swaziland (STA, 2013b). According to the *Swaziland Tourism Authority Marketing Strategy,* the typical seasonal pattern of visitors from South Africa peaks during the country's school holiday periods of January, April/May, June, October, and December. The influence of South African visitor arrivals has been observed in terms of the overall number of annual inbound arrivals, as is shown in Figure 2.1,

which reflects foreign visitor peaks in the aforementioned months. From this perspective, the turbulent fluctuations can be seen as tending to have adverse effects on the efficient use of capacity within the hospitality sector, particularly in terms of product pricing, revenues and employment (Olsen & Zhao, 2008).

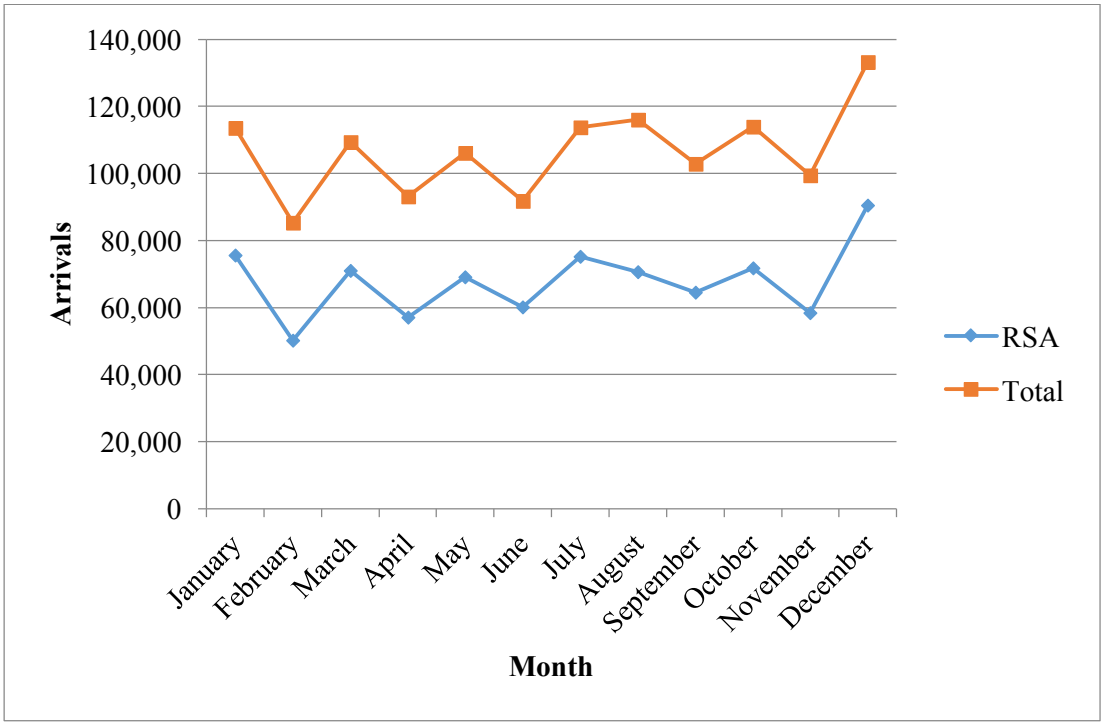

Figure 2.1: Foreign tourist arrivals, total arrivals and South African arrivals, 2016

2.4 Swaziland's accommodation sector

The accommodation sector forms an integral part of the tourism sector, with it being noted as contributing 1.6% to the GDP in terms of the hotel and restaurant industry in 2015 (Swaziland. Central Statistical Office, 2015). According to the Swaziland MTEA (2008), formal accommodation services consist of backpacker hostels, bed and breakfast establishments, campsites, camping and caravan parks, guest houses, hotels, rest camps, and self-catering establishments.

Over the past three years, Swaziland has seen the construction of two large-scale hotels, the Garden Court, which is a subsidiary of the Hilton Hotels Group, and a five-star resort that comprises 500 rooms, conference facilities for 4 500 delegates, a banqueting hall capable of accommodating 3 500 diners, and a selection of restaurants. The developments concerned may be viewed as indicating investor confidence in the tourism potential of the country as a whole, and they are anticipated to enhance the diversity of the tourism product. However, the prevailing situation is that the accommodation sector in Swaziland is dominated by small-scale accommodation facilities (STA, 2013a), with the 101 listed in 2016 consisting of guest houses, bed and breakfast establishments, and self-catering units.

2.4.1 Key figures in the Swaziland accommodation sector

Key figures in the Swaziland accommodation sector are accommodation supply and demand, which are discussed below.

2.4.1.1 Accommodation supply

In 2016, a total of 138 accommodation establishments were registered, providing, in total, a national capacity of 2 724 rooms and 5 303 beds (STA, 2017). While over 74% of the formal accommodation suppliers consisted of small facilities, averaging under 10 rooms per establishment, hotel facilities accounted for the largest supply of rooms and beds in 2016, constituting a share of 45% of the total room supply in the country (STA, 2017). Table 2.1 below illustrates the supply of accommodation by type of establishment.

Table 2.1: The number of rooms and beds in Swaziland, 2016

Type	Number of rooms	Number of beds
Hotels	1 224	2 129
Lodges	129	236
Guest houses	305	532
Bed and breakfasts	514	1 172
Self-catering cottages	321	765
Backpacker hostels	86	245

2.4.1.2 Accommodation demand

According to the Central Statistical Office, the monthly accommodation statistics in 2016 demonstrated a relatively stable seasonal pattern, with peaks in March, and during the festive months of November and December. A breakdown by type of tourist reveals that foreign tourists appeared to be the main contributors to the monthly fluctuations in terms of overnight stays, when compared to domestic tourists during the period concerned. Furthermore, the number of overnight stays by foreign tourists demonstrated an upward trend, with the most stays being registered in December, as is shown below in Figure 2.2.

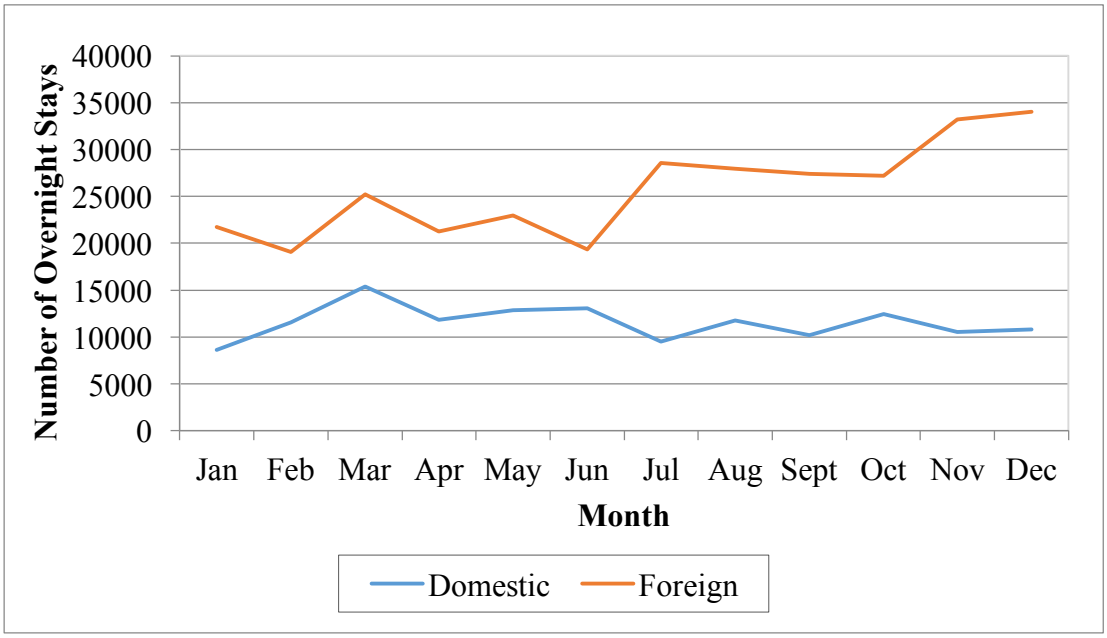

Figure 2.2: Foreign tourist overnight stays, 2016

The distribution of foreign tourist overnight stays broadly followed a similar pattern as the foreign visitor arrivals, with South Africa accounting for the largest share, with 56.6% in 2016 (Swaziland. Central Statistical Office, 2017). Figure 2.3 below shows the top ten foreign tourist source markets in terms of overnight stays in 2016, with the majority of such markets being European.

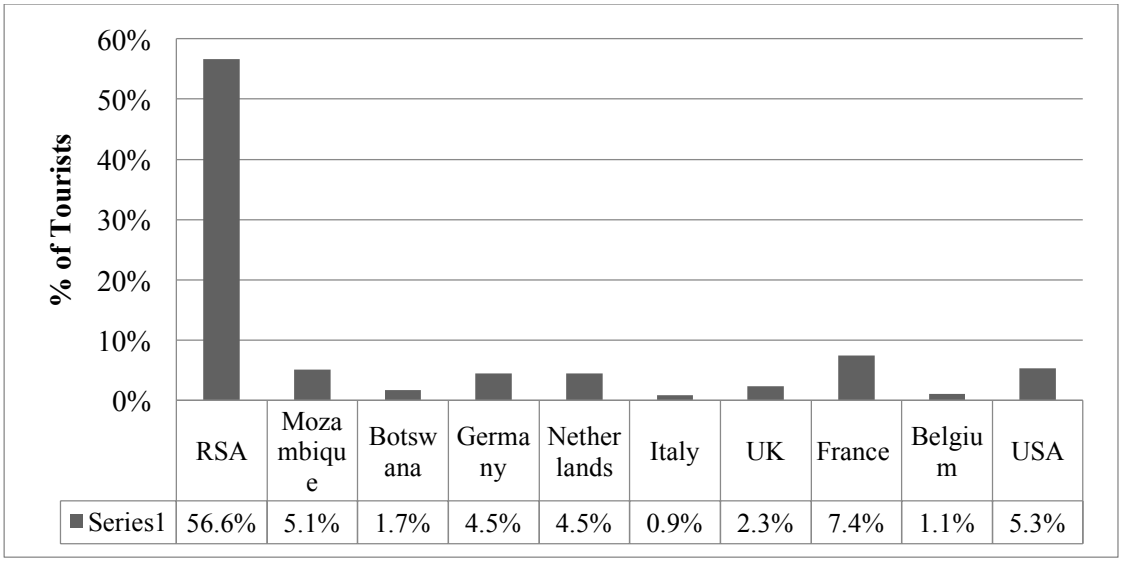

Figure 2.3: The top ten overnight stays by country of residence, 2016

The Swaziland accommodation market registered a total revenue of over E365 million in 2016. Figure 2.4 below shows that the total accommodation revenue in the country has increased over the last six years, with the exception of a plunge occurring in 2011, as a result of the financial crisis of 2009. Likewise, the expenditure per person per night (ExpPPN) registered an average growth of 2.0% during the period 2010 to 2016. The proportion of total revenue and ExpPPN varied among the country's different tourist regions, with the Ezulwini region accounting for a relatively high total revenue of 71.2% in 2016 compared to the other regions in Swaziland (Swaziland. Central Statistical Office, 2017). The variation in the ExpPPN in the country's four tourist regions is also shown in Figure 2.4.

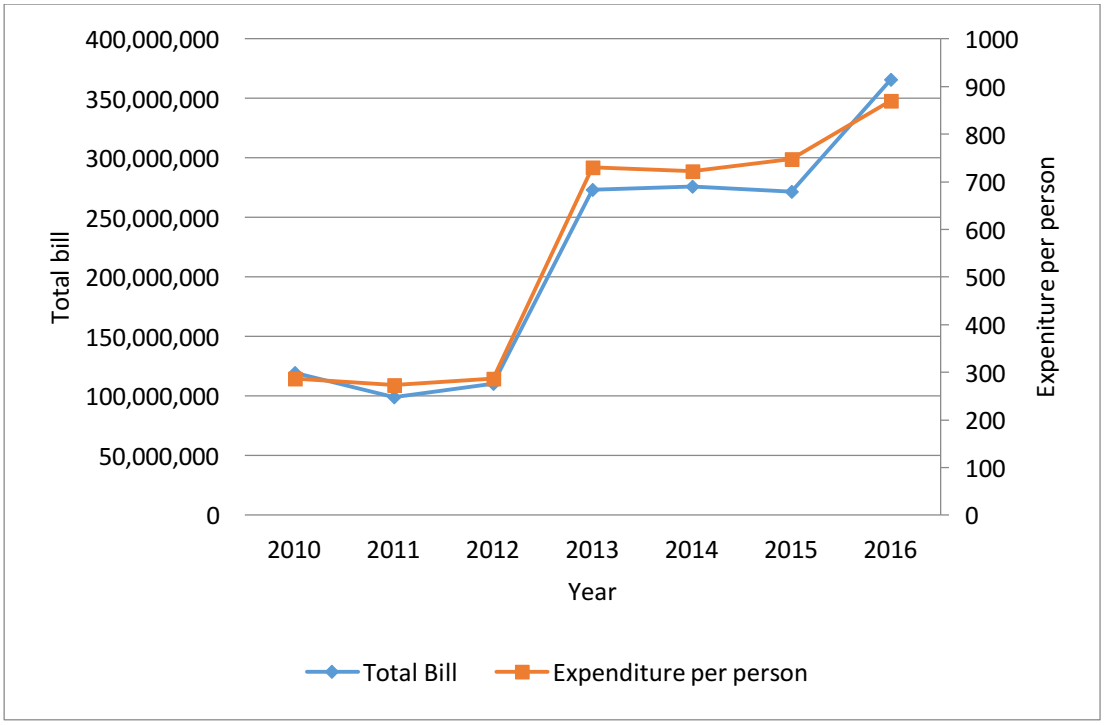

Figure 2.4: Accommodation revenue (total revenue and expenditure per person per day), 2010 to 2016

2.5 The concept of sharing accommodation

The advent of sharing accommodation came about in late 2007, when Brain Chesky and Nathan Blecharczyk rented out their apartment to conference delegates in San

Francisco through advertising on their site website 'AirBed & Breakfast' (Miller, 2016). In 2008, the pair partnered with a friend, Joe Gebbia, to enlarge the site listings to individuals seeking to rent out their rooms. Since then, the company has extended its presence to 192 countries, with over a million listings (Airbnb, 2015).

Brescia (2016) explains sharing accommodation as an online virtual business model that offers convenience and low cost to the consumer, while creating wealth for its founders. Belk (2014, p. 1595) further clarifies that sharing accommodation is a "phenomenon born of the Internet age". Sharing accommodation, which is sometimes referred to as 'peer-to-peer platforms' or 'collaborative economy', has, in recent years, seen a dramatic expansion (Cohen & Sundararajan, 2015). The goal of sharing accommodation platforms is to match individuals wanting to list or book accommodation efficiently (Brescia, 2016), while minimising the transaction costs involved (Henten & Windekilde, 2016).

The functioning of sharing accommodation platforms requires accessibility to the internet for both the host and travellers. Listing of a property is done in two phases; registration to become a member, and the listing of the property. The first phase requires the interested member to register their personal details. The process of registration typically requires uploading the following: a profile photo of the host; their contact details, comprising an email address, telephone number and physical address; and a description of the member, including their first name, as well as the date of joining the platform.

The second step entails providing the following information on the property: mandatory details on the property's physical address; the type of property to be listed (e.g. room or apartment); the room type (if applicable); the price per night; a brief

description and photograph of the property; and the cancellation policy. To ensure uniformity in the posting of information on the respective websites, sharing accommodation platforms normally provide a step-by-step template to guide their members. Booking requests and payments are made through the respective platform websites.

The concept of sharing accommodation is based on the transaction cost theory. According to Henten and Windekilde (2016), Coase developed the theory on the premise that the existence of large firms may be attributed to transaction costs. Such costs pertain to search and information costs, bargaining and decision costs, and policy and enforcement costs. Based on the theory, the authors advance that the profitability of a firm rests on the removal of an intermediary, thus enabling the enterprises concerned to control and reduce the transactions costs incurred in conducting business. Hence, Botsman and Rogers (2010, as cited in Henten & Windekilde, 2016, p. 3) describe sharing platforms as "enabling people to realize the enormous benefits of access to products and services over ownership, and at the same time save money, space, and time; make new friends; and become active citizens again". According to Guttentag (2015), selection of the type of accommodation involved is essentially guided by the sale price of a room. Airbnb is a classic example of a site with relatively low costs attached.

2.6 The regulating of sharing accommodation

Sharing accommodation has presented a number of challenges with regards to regulatory interventions (Miller, 2016), and, consequently, regulators and businesses tend to have to wrestle their way forward (Kassan & Orsi, 2012). Regulation, according to Cohen and Sundararajan (2015, p. 119), refers to the "use of legal instruments to implement social and economic policy objectives". Concerning the

regulation of sharing accommodation platforms, Tussyadiah & Pesonen (2016, p.1024) state that

> sharing platforms continue to evolve in legal grey areas, where laws concerning zoning, taxes, insurance, health and public safety, and employment that regulate commercial hotels are not fully considered as barriers in peer-to-peer sharing systems.

Not surprisingly, the operations of such platforms have been met with disgruntlement from traditional hotels, owing to the fact that sharing platforms tend to be seen as free-riders that threaten the hotels' business profitability (Brescia, 2016).

A number of scholars have proposed various modalities as to how the phenomenon can be regulated. In defining regulation, Cohen and Sundararajan (2015, p. 119) refer to "taxes and subsidies of all sorts as well as to explicit legislative and administrative controls over rates, entry, and other facets of economic activity". In some instances, regulators have responded by imposing stringent laws, and even by banning the operation of such platforms (Miller, 2016). Miller cites the example of the state of Louisiana in the USA, which, in 2015, imposed a ban on Airbnb, declaring the platform to be illegal. Miller (2016, p. 159) defines illegal short-term rental according to the provisions of the city of New Orleans as

> any rental for a period of fewer than thirty days (sixty days in the Vieux Carré) for which there is no license or permit; notes that advertising and solicitation for illegal short-term rentals is a violation; and states that periodicals advertising such rentals, and those who rent such properties from the owners, are not in violation.

Miller (2016) also asserts that the dynamics of technology-based transacting within the ambit of collaborative consumption tend to present an oversight challenge, and further cautions that imposing a ban on such transacting may prove to be effective only in the short term.

In contrast, a different view exists that the solution to regulating this sector going forward lies with the role of oversight best being assigned to membership associations, whose punitive measures, such as the expulsion of erring members, are likely to encourage compliance. Self-regulation, according to Cohen & Sundararajan (2015, p.116), is defined as the "reallocation of regulatory responsibility to parties other than the government". These two scholars advocate for reliance on homeowner associations and platform owners like Airbnb as a means of enforcing compliance, particularly because the entities concerned have the ability to exact expulsion in the event of non-compliance. The researchers further explain that the function of the government, in this respect, should lie in it providing the required oversight, particularly because the interests of sharing accommodation platforms might not be aligned with the interests of the greater society. Cohen and Sundararajan (2015) further motivate for collaborative engagement between the government and the respective platforms. In support, Omarova (2011, p. 430) postulates that

> in an increasingly complex marketplace, dependence on fast-changing technology, and the rapid pace of product innovation render obsolete the unquestioning reliance on the state as the monopolistic source of regulatory and supervisory power in the financial sector.

The need for balancing the role of oversight and innovation has led some scholars to liken the sharing economy to the legal profession. To a great extent, the American legal profession has been noted to exhibit similar characteristics to those of the sharing economy. A proponent of inclusive and adaptive regulation, Brescia (2016, p. 91) proposes considering the new governance theory of regulatory oversight, which is based on models that are designed to respond to effective and efficient regulatory approaches by way of stakeholder engagement. The researcher advances that emulation of this self-regulatory approach is likely to encourage technology-based creativity and innovation within the confines of the law. Substantiating the

view further, Omarova (2011) advances that the possibility of evading government regulations tends to be higher for a firm that possesses advanced technological resources and market knowledge. The researcher in question proposes that the efficient regulation of this phenomenon rests in the regulating agent's willingness to leverage the capabilities of industry players who tend to possess advanced understanding of the market. However, Barnett and King (2008) caution that the views that are currently expressed on the self-regulation of sharing platforms tend to be uncertain and conflicting. Kassan and Orsi (2012, p. 13) also observe that "the relationships, transactions, and organizations of the new economy are sometimes so unique that they cannot be classified within existing legal frameworks".

To resolve the ineffective regulation of the sharing economy phenomenon, Miller (2016) proposes the advancing of an ideology to regulate possible legal violation by the short-term rental businesses concerned. In his article 'First principles for regulating the sharing economy', the researcher presents ten 'first principles' that describe and attempt to address the unique, complex and potentially disruptive features of sharing accommodation platforms from a legal perspective. He acknowledges that the form and shape that the firms concerned take is unprecedented, with it having rendered the existing legal structures ill-prepared to deal with the existing situation in this respect, resulting in the hostility towards the existence of such platforms that has been noted from some governments. Given the overall value of sharing accommodation to the economy as a whole, Miller (2016) challenges the current governing bodies to exercise meticulous interrogation during the formulation and implementation of any related regulations.

2.7 The competitiveness of sharing accommodation

The success of shared accommodation platforms can be understood by reviewing the 'superstar phenomenon' (Franck & Nüesch, 2012). Rosen (1982, as cited in Franck & Nüesch, 2012, p. 202) explains the phenomenon in terms of the ability of the superstar to access large economies of scale, and to attract high demand for the commodity. He advances that, unlike with the traditional hotel, internet-based platforms do not scale up by adding physical infrastructure, but, instead, platform growth is driven by the network effects rebounding between the consumers and the producers involved (Franck & Nüesch, 2012). The researchers, consequently, conclude that the growth in use of connected technology can propel platform businesses to create more value, and eventually to dominate the market.

The current study also leverages the framework 'Porter's five forces', developed by competitiveness theorist Porter (2008) to analyse the nature of competition within an industry. The model identifies five forces that 'shape' competition: the bargaining power of buyers and suppliers; the threat of new entrants and substitute products; and the service competition and rivalry that exists among present competitors. Porter (2008) suggests that his framework can be applied to explain the unparalleled success of the sharing accommodation platform, Airbnb. The internet-based model of Airbnb has meant that individuals cannot only enter the hospitality market with minimal requirements for capital investment, but they can also further benefit from technology economies of scale. Consequently, small players are able to compete successfully against mainstream hotels (Zervas, Proserpio, & Byers, 2015). Porter (2008) puts forward that the structure of sharing accommodation reveals the foundation of the platforms profitability and concludes by advocating for development of a strategic positioning as a prerequisite to attain sustainable

competitive advantage. Therefore, to retain market share, brick and mortar businesses need to review their business strategies with the intent to penetrate this new virtual market (Miller, 2016; Teece, 2010) or else face closure (Tellis, 2006).

In the context of competitiveness within the hospitality industry, Orfila-Sintes and Mattsson (2009) present 'innovation' as an imperative to competing successfully in business. The scholars argue that adoption of innovative is likely to result in increased hotel average occupancy rate. The business model of sharing accommodation Airbnb is founded on use internet technology. The company's exponential growth has mainly been attributed to the use of technology that eliminates reliance on an intermediary in accommodation transactions between the host and traveller (Guttentag, 2015). Baregheh, Rowley and Sambrook (2009, p. 1334) refer to innovation as "the multi-stage process whereby organizations transform ideas into new/improved products, service or processes, in order to advance, compete and differentiate themselves successfully in their marketplace". In a similar tone, the scholars affirm that innovation plays a significant role in product differentiation thus giving a firm leverage over its competitors and conclude that the success of a firm rests on its ability to sustain a competitive advantage.

2.8 The impact of sharing accommodation on hotel performance

A minimal amount of empirical research has yet been undertaken into the impact of sharing accommodation on hotel occupancy rates. The exception has been academic research that has been done on Airbnb, probably owing to the phenomenal success of the sharing accommodation platform (Cohen & Sundararajan, 2015). Several academics have undertaken studies to measure the impact of the platform on the traditional accommodation sector (Guttentag, 2015; Henten & Windekilde, 2016;

Zervas et al., 2015). In their research for their academic paper titled "The rise of the sharing economy: Estimating the impact of Airbnb on the hotel industry", Henten and Windekilde (2016) investigated the extent to which the operation of the platform has displaced hotels in Texas, USA. The scholars collated data from over 22 000 overnight stays at Airbnb-listed establishments over a period of five years. According to the researchers, the survey results revealed the negative correlation existing between short-term room and/or home rentals and hotel revenue, with the former significantly impacting the revenue gleaned by 'lower-end' hotels. Henten and Windekilde (2016, p. 3) conclude that "in Texas, an additional 1% increase in the size of the Airbnb market will result in a 0.05% decrease in total hotel revenue".

The impact of sharing accommodation can also be understood in terms of the disruptive innovation theory conceived of by Christensen, in terms of which "products that lack … traditionally favoured attributes but offer alternative benefits can, over time, transform a market and capture mainstream consumers" (Guttentag, 2015, p. 1194). The theory is founded on the premise that disruptive products encroach on the marketplace, displacing existing traditional businesses (Christensen, 2005, as cited in Schmidt & Druehl, 2008). In terms of their narrative views on the subject, Tussyadiah & Pesonen (2016) advance the above-mentioned theory, and cite Airbnb as being an example of an 'innovative force' that has altered both the consumption and the supply of hotel rooms. The latter scholars further reveal that, in 2014, Airbnb hosts sold 75 million rooms to 18 million travellers, reflecting an increase of 100% in comparison to the turnover in the previous year. Similarly, Zervas et al. (2015) submit that "a few years ago nobody expected that the Airbnb platform would threaten the traditional hotel industry … hotels have failed to predict the growing scale of Airbnb's activities". Christensen (2005, as cited in Schmidt &

Druehl, 2008, p. 360) warns that “disruptive innovations either create new markets by bringing new features to non-consumers or offer more convenience or lower prices to customers at the low end of an existing market”. Consequently, it is likely that they will grow to dominate the market (Christensen, Horn & Johnson, 2008). Due to such effects, existing businesses are often forced to close by the new players concerned (Danneels, 2004).

Tussyadiah (2015) reveals that the distinct advantage that sharing accommodation platforms offer is low-cost accommodation. Consequently, the imminent success of such platforms tends to attract a similar market segment to that of low-cost hotels. Indeed, according to Zervas et al. (2015), the success of sharing accommodation platform Airbnb is likely to negatively impact on the profitability of budget hotels. Their findings on the advent of Airbnb in Texas revealed that an increase in the number of listings on Airbnb would be likely to lead to a decline in hotel revenue. Specifically, the academics concerned assert that the growth of Airbnb contributes to the lowering of hotel prices, with such an effect being more prominent in the low-cost hotel segment.

CHAPTER THREE
RESEARCH METHODS

3.1 Introduction

The main aim of the current chapter, which discusses the study's research design and method, is to outline the processes and procedures that were followed in collecting and analysing the relevant data. The first part of the chapter details the research questions that the researcher aimed to answer through his undertaking of the study. Secondly, the researcher discusses and substantiates his use of the chosen research method, including in terms of such aspects as the target population and the data collection procedures employed. The validity and reliability of the data sources and research instruments are also revealed. The last section in the chapter highlights the measures taken to ensure compliance with the prevailing ethical considerations.

3.2 Research questions

With due acknowledgement of the present study's aims and objectives, the following questions were used to develop the research:

- What relationship exists between sharing accommodation and the hotel occupancy rate?
- How does sharing accommodation impact on the hotel occupancy rate?
- What are the regulatory and compliance discrepancies between the sharing accommodation and hotel sectors?

3.3 Research design

According to Kumar (2011), a research design entails detailing the processes to be utilised in examining the study and techniques that will ensure the production of valid and reliable answers to the research questions asked. Saunders, Lewis and Thornhill (2009) support the viewpoint that the research design specifies and explains the techniques that are identified in a study. The research design employed in the current study was the mixed methods approach, which focuses on exploring the data obtained using both quantitative and qualitative techniques, and applications of separate analysis techniques for each data type (Saunders et al., 2009).

The mixed methods research methodology employed in the present study involved taking a deductive research approach towards developing the hypothesis that sharing accommodation platforms have a statistically significant negative impact on the hotel occupancy rate, which included identifying the population size for the study, and selecting the required statistical analysis techniques. According to Saunders et al. (2009), the deductive approach is scientifically rigorous and advantageous in terms of interpreting the relationship between two variables. The qualitative research design that was developed for the current study entailed use of content analysis, in terms of which the researcher triangulated the quantitative findings with the existing business legislation and policy documents.

3.4 Population and sampling

The target population and the sample employed in the current study are discussed below.

3.4.1 The target population

The current study investigated the population of 46 hotels and 35 Airbnb listings located within the Mbabane, Ezulwini, Matsapha and Manzini radius, with the former accounting for 74% of the total room supply in Swaziland (STA, 2017). Kumar (2011) defines a population as the total number of objects or subjects exhibiting similar characteristics.

3.4.2 The sample

As the population size of the 46 hotels was relatively small, the current study examined all the available population data to increase the degree of accuracy of the true population mean (Kumar, 2011).

3.5 Research instruments

The current researcher utilised questionnaire schedules to capture secondary data on hotel occupancy from the Monthly Accommodation Survey and the Airbnb listings that were available from AirDNA online analytics. A document review was undertaken to collect the qualitative evidence from the existing regulatory sources in the hospitality sector.

3.6 The data procedure and data collection

3.6.1 Data procedure

The Swaziland Central Statistical Office was engaged to acquire the data set on hotel statistics for the period 2012 to 2016, with the Airbnb data on Swaziland for the period 2015 to 2016 being procured from AirDNA, which compiles online analytics data on Airbnb. Data on the unemployment rate for the period 2012 to 2016 was

sourced from the Central Statistical Office, while data on the exchange rate of the Swaziland Lilangeni to the USD was sourced from the Central Bank of Swaziland. Qualitative data recordings on hotel regulation and policy were sourced from the Swaziland Government website, as well as from other relevant national institutions.

3.6.2 Data collection

The current study used secondary panel data on the monthly hotel statistics from the Central Statistical Office, and the monthly Airbnb data from AirDNA. The use of panel data allowed the researcher to describe changes in the data over time and superior estimate trends that can be used to inform policy (Huck, 2012). The quantitative data available on the hotel occupancy rates included: the monthly data on the number of rooms available and sold; the number of overnight guests; the room and bed occupancy rate; and the total bill and ExpPPN. The panel data on Airbnb featured the monthly number of listings. The study also incorporated the variables that were available on unemployment and the currency exchange rate.

Table 3.1 below presents a summary of the quantitative data used in the study.

Table 3.1: Summary of quantitative data and sources

	Indicator	**Measurement**	**Sources**
HOR	Hotel occupancy rate	Percentage	Central Statistical Office
AL	Airbnb listings	Number	AirDNA
UR	Unemployment rate	Percentage	Central Statistical Office
USD	United States Dollar exchange rate	Percentage	Central Bank of Swaziland

3.7 Reliability and validity

Kumar (2011) suggests that the validity of a study is increased with the use of

triangulation, in terms of which several different types of data collection are used and compared. In the current study, the researcher used two research instruments; a questionnaire schedule to record the quantitative data obtained, and a document review for gleaning legislative information on accommodation business operations in Swaziland. Validity and reliability were also assessed by means of the literature review, which served to evaluate the accuracy of the research instruments in responding to the research questions asked. The hotel occupancy data were gathered from the Central Statistical Office, a government department. Researchers Saunders et al. (2009) suggest that the secondary data gathered from government sources tends to be available in large data sets, with it usually being of superior quality.

3.8 Data analysis

The data analysis included: regression analysis; trend and descriptive analysis; and content analysis. The different types of analysis are discussed below.

3.8.1 Regression analysis

To analyse the quantitative data, the researcher used the Statistical Package for Social Science (SPSS), which allows for descriptive analysis and for the use of inferential statistics (Huck, 2012). Hierarchical regression analysis was used to measure the relationship between the Airbnb listings, the hotel occupancy rate, the control variables of unemployment, and the currency exchange rate. According to Huck (2012), hierarchical regression enables the researcher to estimate the relationship of each explanatory variable to the dependent variable, while controlling for the effects of the other explanatory variables in the model.

The hierarchical regression equation is computed as:

$$Y = \beta_0 + \beta_i X_i + u_i \text{ [Eq. 1]}$$

where:

– the dependent variable, Y, is the hotel room occupancy rate,

– the independent variable, X_1, is the number of Airbnb listings,

– the independent variable unemployment rate is X_2,

– the independent variable United States Dollar (USD) exchange rate is X_3, and

– u_i is the population error term.

The tourism industry tends to be susceptible to fluctuations in tourism demand and hotel supply, which ultimately influence the room occupancy of the businesses concerned, and therefore the regression equation, including the control variables, unemployment and the currency exchange rate. The assumption of the researcher is that a negative linear relationship exists between the hotel occupancy rate and the number of Airbnb listings. In using the hierarchical regression analysis, the main variable Airbnb listings were entered in the last step. Huck (2102) further explains that hierarchical regression is particularly useful in measuring the differences between the independent variable and each of the dependent variables in relation to the attainment of the research objective.

3.8.1.1 Model specification

The current study used fixed effects to analyse the panel data obtained. The multiple regression model was, therefore, computed as follows:

HOR = f (AL, UR, USD) [Eq. 2]

where:

HOR = the hotel occupancy rate,

AL = the number of Airbnb listings,

UR = the unemployment rate, and

USD = the United States Dollar, as a proxy for the currency exchange rate.

The model is converted into a linear form as:

$HOR_{it} = \beta_0 + \beta_1 AL_{it} + \beta_2 UR_t + \beta_3 USD_t + u_{it}$ [Eq. 3]

where:

- β_0 is the constant,
- β_1, β_2, and β_3 are the coefficients for the Airbnb listings, the unemployment rate, and the USD, respectively,
- i is the location,
- t is the time period involved: January 2012 to December 2016 for the hotel occupancy rate and the unemployment rate; and January 2015 to December 2016 for the Airbnb listing and the USD,
- with u_{it} being the error term.

The study adopted linear regression assumptions from Casson and Farmer (2014), including the following:

- Both time-series were used for building the regression model, and the residual had to be stationary.
- The final model's residual followed the white noise assumption.
- The coefficients of each exogenous variable in the final model had to be statistically significant.
- There could only be a one-way causal relationship from an exogenous variable to a dependent variable, but not one from a dependent variable to an exogenous variable.
- The regression coefficients in the final model had to display the same relationship (sign) with the correlation coefficients of the exogenous variables and the dependent variable (original time-series).
- No multicollinearity was found between the exogenous variables in the final model.

3.8.1.2 Estimation techniques

Various inferential tests were applied in the hierarchical multiple regression analysis. The Pearson correlation coefficient r was used to test the relationship between the dependent variable and each independent variable in terms of strength, direction and form (Anderson, Sweeney & Williams, 2011).

According to De Smith (2014), a correlation coefficient is a value measure of the strength of association between two variables of interest. The Pearson's correlation coefficient (r) is a value that measures the strength of the linear relationship between two variables. It is a parametric test value that assumes that both variables of interest are:

- continuous;
- measured on an interval or ratio scale; and
- normally distributed.

The value of the person correlation coefficient ranged from -1 to +1, where +1 could be thought to represent a perfect positive association (in terms of direct proportional increases in one variable being experienced by the other variable). The -1 can be thought to represent a perfect negative relationship (with a decrease in one variable leading to a direct and proportional decrease to the other variable).The current study used the Pearson correlation coefficient given by De Smith (2014), which was of the form:

$$r = \frac{\sum XY - \frac{\sum X \sum Y}{N}}{\sqrt{\left(\sum X^2 - \frac{(\sum X)^2}{N}\right) * \left(\sum Y^2 - \frac{(\sum Y)^2}{N}\right)}} \quad \text{[Eq. 4]}$$

The study also utilized the coefficient of determination, as given by De Smith (2014), to test for the closeness of the data from both models of the hierarchical regression to the regression line, with the variability of the dependent variable being explained by the main independent variable and by each control variable (Huck, 2012).

The null hypothesis was evaluated using the F-test, which is most appropriate for testing multiple coefficients in a regression equation (Anderson et al., 2011). The regression coefficients were tested for statistical significance using the ρ-value approach where the significance level of 0.05 was used. If a regression coefficient exhibited a ρ-value less than 0.05, it was accepted; otherwise it was rejected.

3.8.2 Trend and descriptive analysis

The researcher used trend analysis to demonstrate the pattern of the distribution of the data obtained. The data were summarised using descriptive statistics, including the mean, the mode, the median, the data range, and the graphical presentations. The standard deviation (SD) was used to determine the dispersion of the data from the mean (Huck, 2012).

3.8.3 Content analysis

The qualitative data utilised in the study were analysed using content analysis. Information in the business, legislative and policy documents that was relevant to accommodation business operations was analysed in relation to the research questions asked. The qualitative findings were coded and presented thematically.

3.9 Research ethics

The Central Statistical Office in Swaziland, after having been informed of the purpose and the nature of the current study, provided the researcher with accommodation data developed for public use. In consideration of the ethical issues involved, the researcher adhered to principles of accuracy and integrity in presentation of the findings. The data will be stored in the researcher's workplace for a period of five years, after which they were to be destroyed.

CHAPTER FOUR
RESULTS AND DISCUSSION

4.1 Introduction

The current chapter empirically examines the impact of Airbnb on the hotel occupancy rate in the Kingdom of Swaziland, covering the period 2012 to 2015. The chapter analyses the relationship between Airbnb and the hotel occupancy rate, as well as the impact of the former on the latter. The study used a hierarchical regression analysis in an attempt to satisfy the study objectives outlined in Chapter One.

To ensure that the present study accomplished its objectives, the procedure for running the regression model was divided up into three stages: (i) a test for correlation of the variables; (ii) running of the model in two stages, with stage 1 consisting of the two control variables, unemployment and the foreign exchange rate, and stage 2 consisting of Airbnb; and (iii) model regression assumption tests of normality, multicollinearity and autocorrelation to determine the nature, strength and impact of Airbnb on hotel occupancy. The current chapter is presented in three main sections: findings; discussions linked to the literature; and key implications of the findings.

4.2 Findings of the study

The findings of the study are discussed below in terms of: the data set; data trends; the normality test for data (the unit root test); the Pearson correlation test; hierarchical regression analysis; the F-test; and regulatory and compliance discrepancies.

4.2.1 The data set

The data set that was available to the present researcher consisted of data on establishments registered on Airbnb through AirDNA for the period January 2015 to November 2016. The Airbnb establishments considered were used as a measure of the Airbnb market in Swaziland, with trends in the markets in Swaziland being considered over a two-year period. The unemployment rate for Swaziland for the period January 2015 to December 2016 was considered as an indicator of the financial capacity and the motivation of starting up an Airbnb business for a Swazi citizen, with the economic activity in the country being used as a control variable. The USD exchange rate that formed part of the data set represented the purchasing power of foreign tourists, and, therefore, had the potential to influence the demand for travel and the demand for accommodation, in the form of rooms, in Swaziland. All the data set variables contained 60 time series observations, except for the variable of Airbnb, which contained only 23 time series observations.

4.2.2 Data trends

The current study used descriptive statistics to present a summary of the variable features in the study for the period 2012 to 2016. A total of 60 hotel occupancy rate entries and 23 Airbnb listings entries were included in the final analysis. The hotel occupancy rate had a range of 36.25% to 70.48%, a mean of 50.513, and an SD of 8.1030. The distribution was normal, with it being skewed to the right (skewness = 0.644, kurtosis = 0.330). No outliers were present in the data. Similarly, the Airbnb listings data had a range of 3 to 52, a mean of 25.7826, and an SD of 14.4189. The distribution was normal, with it being skewed to the left (skewness = 0.500, kurtosis = 0.806).

The study used trend analysis to present a summary of the variable features in the

study for the period 2012 to 2016. Figure 4.1 below presents the average hotel room occupancy rate for the period 2012 to 2016. The occupancy trend reveals the relatively high average monthly room occupancy rates in 2012, followed by a distinct dip beginning in January 2013. The depiction of the data shows that the room occupancy rate exhibited a relatively consistent seasonal pattern between 2013 and 2014, with peaks being noted during the last quarter of both years. A further decline was observed in 2015, which coincided with the entrance of Airbnb onto the local market. Despite the slowdown in the performance of the hotel room occupancy rate in the first half of 2015, the results show that the room occupancy rate was stable at between 47.3 % and 51.8% during the second half of 2015 and 2016.

Figure 4.1 below illustrates the performance of the hotels concerned in terms of the number of overnight tourists and the room occupancy before and after the introduction of the Airbnb platform in Swaziland. The monthly hotel room occupancy mostly resembles the pattern exhibited in the overnight figures, with both data sets revealing a slight dip in performance following the entrance of the Airbnb platform. The trend of overnight tourists in hotels seems to display a consistent pattern, with peaks being noted during the midyear months.

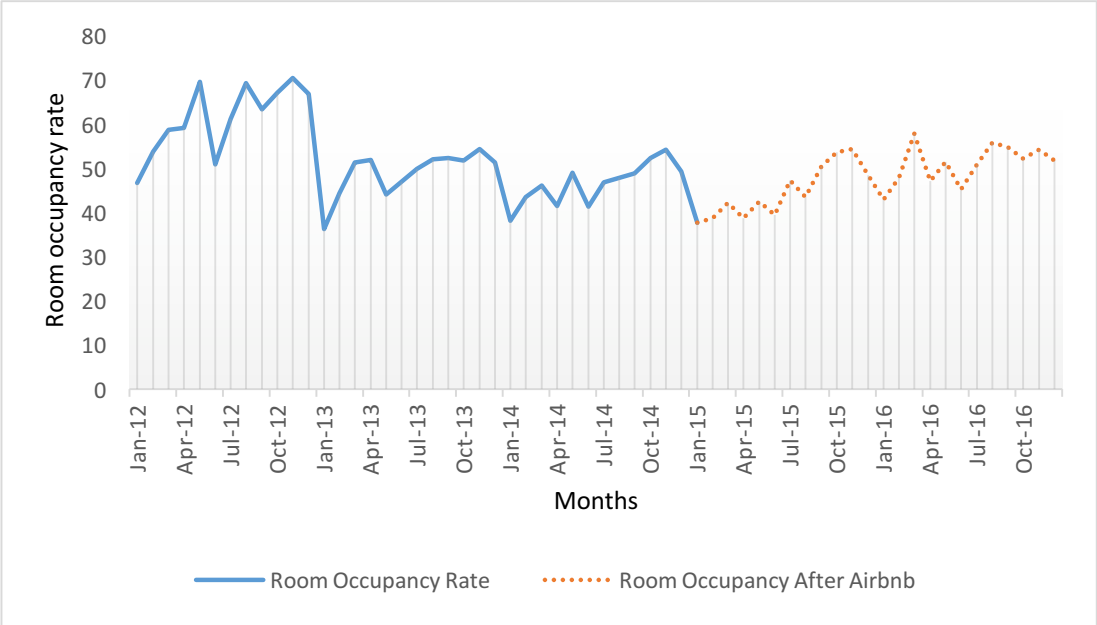

Figure 4.1: Trend in the hotel room occupancy rate

Figure 4.2 below presents the total bill and the average ExpPPN from 2012 to 2016 at the relevant hotels, with a distinction being drawn between the period before and after the entrance of the Airbnb presence onto the Swaziland hospitality marketplace. The total bill and the ExpPPN demonstrate a continuously increasing trend, even after the introduction of the Airbnb, with both variables following the same pattern over the period 2012 to 2016.

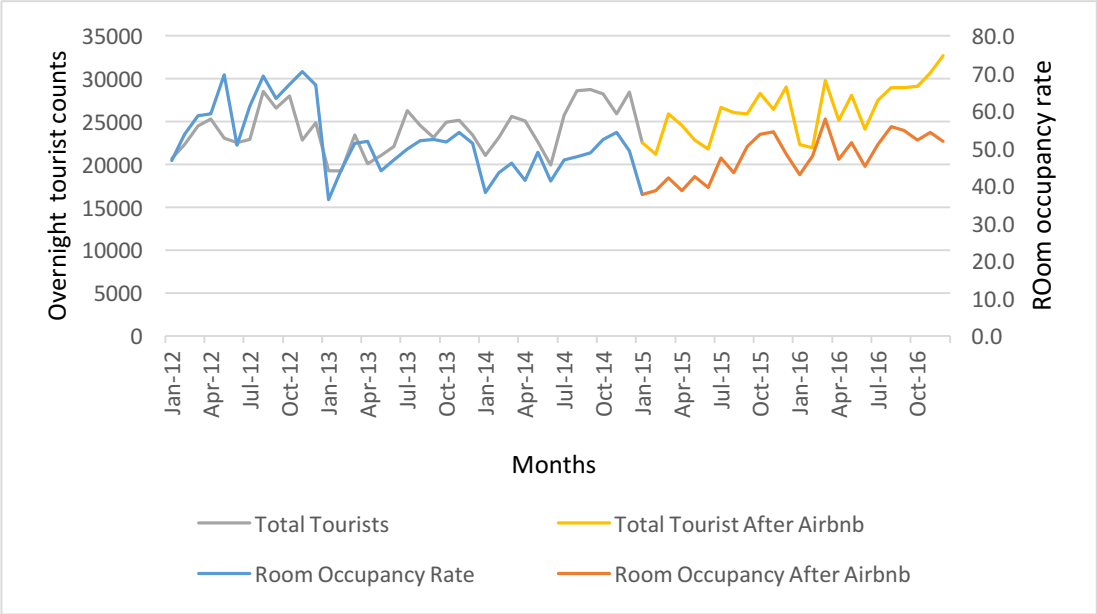

Figure 4.2: Hotel overnight tourists and the room occupancy rate

Figure 4.3 below demonstrates the performance of the four variables concerned after the launch of Airbnb, from 2015 to 2016, with the monthly room occupancy rate reflecting a slight upward trend, and with an average annual growth of 13.97 in 2016. The room occupancy rate pattern can be seen to be characterised by peaks in November and dips in January, which may largely be explained by the general travel pattern of foreign tourists into Swaziland. Similarly, the Airbnb listings display the platform's growth from 3 listings, in January 2015, to a total of 52 listings, in December 2016. The Swaziland currency is noted as having experienced erratic fluctuations during the period involved, with a low of E11.08 and a high of E16.39 against the control variable, USD. Conversely, the unemployment rate is observed to have held steady at 28.1% over the two years, 2015 and 2016.

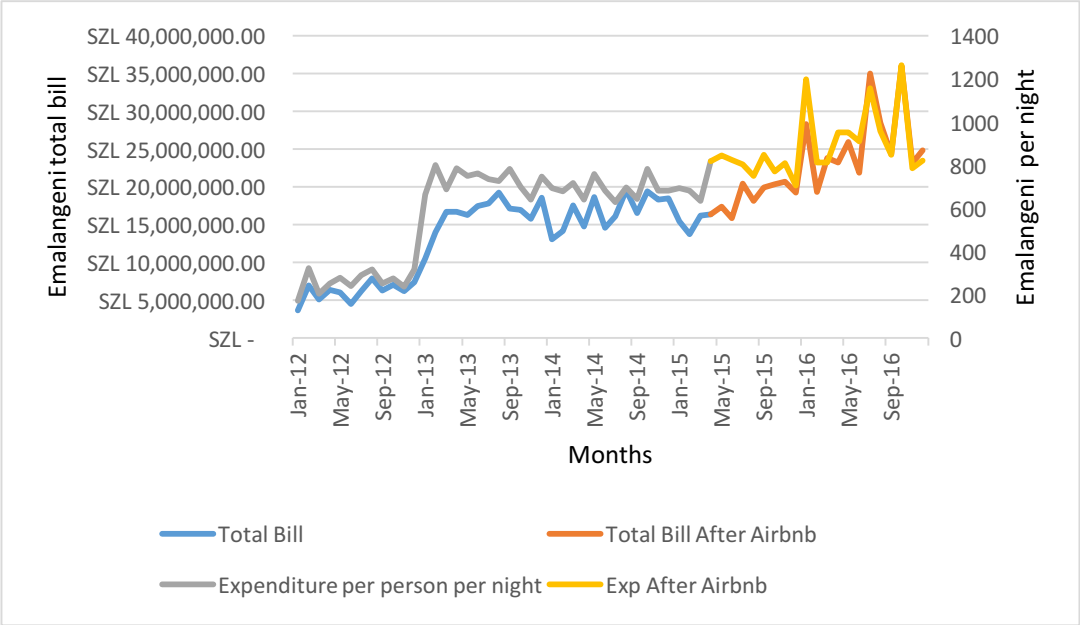

Figure 4.3: The hotel total bill and the expenditure per person per night

Examination of the Airbnb data in Figure 4.4 below shows that, between January 2015 and November 2016, the platform demonstrated phenomenal growth. During 2015, the percentage of foreign tourists to Swaziland declined by 7.4%, as a result of South Africa implementing new visa application and travel regulations for minors. During this period, the annual average hotel room occupancy rate in Swaziland was recorded at 43.41%, reflecting a decline of 1.28% from 44.69% in 2014. The negative effects of the South African immigration regulations on the hotel occupancy rate in Swaziland seem to have been ameliorated by an increase of 4.8% in the domestic tourists overnight stays in hotels in 2015.

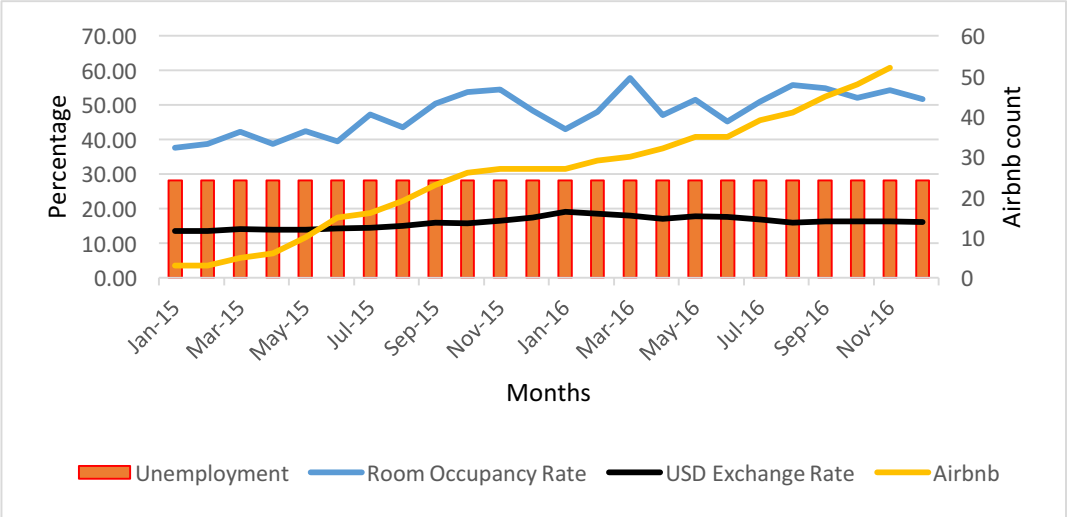

Figure 4.4: Data trends for the variables

Figure 4.5 below shows the data trend for the hotel room occupancy rate and the USD exchange rate for the period 2012 to 2016. The data illustrate the movement of both variables both before and after the entrance of Airbnb onto the Swaziland marketplace in 2015. Although the USD exchange demonstrated an upward progression in general, it remained relatively stable between 2012 and mid-2015. However, in the first quarter of 2016, significant depreciation in the value of the Lilangeni against the USD exchange was noted. The depreciation was probably influenced by the economic turmoil experienced by South Africa at the time, which saw the value of the Rand depreciate to R16.39 against the USD in January 2016. Since 1974, the value of the Swaziland Lilangeni has remained pegged to the South African Rand, with it, therefore, being subjected to similar depreciation.

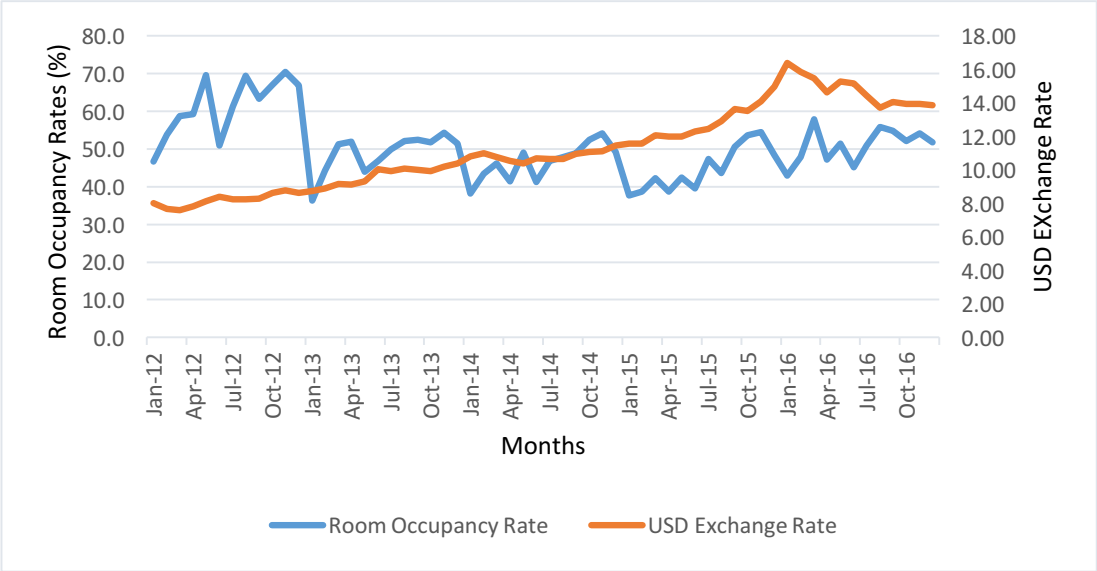

Figure 4.5: Data trend for the hotel room occupancy rate and the USD exchange rate

Despite the aforementioned depreciation, the performance of the hotel room occupancy rate was comparable to that of earlier periods, with it, therefore, seeming to be unaffected by the changes involved. The result may be explained by the heavy reliance of the hotel sector on South African travellers, and by the notion that global currency fluctuations do not tend to impact on the relationship between the two pegged currencies. Consequently, the data contained in Figure 4.5 above reveal that, from 2012 to 2016, South Africa accounted for the largest share of hotel overnight stays in Swaziland, with the percentage of registered hotel guests in 2016 coming from the aforementioned source market amounting to 56.0% of the total.

4.2.3 The normality test of data (the unit root test)

Prior to the correlation analysis, the researcher tested all variables for stationarity (normality), using the augmented Dickey–Fuller (ADF) test. The test was undertaken to assess the assumption of normality required for both the regression and the correlation analyses. The results of the test of each variable included in the study are

discussed below. The first variable that was tested was Airbnb, for which the detailed results are shown in Table 4.1 below.

Table 4.1: Unit root test results in respect of the Airbnb data

Variable	ADF stat	Lags	ρ-value
Airbnb	-3.284	1	0.09389

All series were tested for the quality of being stationary at a 10% significance level. Table 4.1 above shows that the ρ-value of 0.09389 of the ADF statistic is less than the significance level of 0.10. Therefore, the null hypothesis of the existence of a unit root (in terms of a non-stationary data set) was rejected, and the researcher was able to conclude that the data set for Airbnb was stationary at first difference.

Secondly, the unemployment data set was tested for stationarity, though it was a control variable. The test was undergone because the variable's need to be incorporated into the regression model meant that it should be stationary. The results of the test for normality of the unemployment rate are shown in Table 4.2 below.

Table 4.2: Unit root test results in respect of the unemployment rate data

Variable	ADF stat	Lags	ρ-value
Unemployment	-3.7127	1	0.03141

Table 4.2 above shows that the ρ-value for the unemployment rate at first difference is less than the significance level chosen by the researcher to be 10%. The above implies that the null hypothesis of a non-stationary unemployment data set could be rejected. As such, it can be concluded that the unemployment rate was stationary at first difference.

Thirdly, in terms of the USD exchange rate data set, the ADF test was also used to test for the normality assumption. The results of the test are shown in Table 4.3 below.

Table 4.3: Unit root test results in respect of the USD exchange rate

Variable	ADF stat	Lags	ρ-value
USD exchange rate	-6.479	1	0.01

Table 4.3 shows the results of the test for normality of the USD exchange rate, in terms of which the ρ-value of the ADF test statistic for the USD exchange rate was less than the significance level of 10%. Therefore, the results obtained imply that the null hypothesis of a non-stationary data set for the USD exchange rate could be rejected. As such, it can be concluded that, at first difference, the USD exchange rate was normally distributed.

The room occupancy rate was also tested for normality, with the results being illustrated in Table 4.4 below.

Table 4.4: The unit root test in respect of the hotel room occupancy rate

Variable	ADF stat	Lags	ρ-value
Room occupancy rate	-5.3387	1	0.01

Table 4.4 above shows that the dependent variable, hotel room occupancy rate, was stationary, as is implied by the ρ-value, which was found to be 0.01, and which was noted to be under the significance level of 10%. Based on the results obtained, the null hypothesis, stating that the room occupancy was non-stationary, could be rejected. Such rejection qualified the conclusion that the room occupancy rate was stationary at first difference.

On testing all the variables for normality, the researcher discovered that they were all stationary at first difference. The findings suggest that all four variables used in the study had a constant mean and variance at first difference. The researcher, therefore, could conclude that the data were appropriate for performing regression and correlation analyses.

4.2.4 The Pearson correlation test

The bivariate relationship between the independent predictors and the dependent variable was analysed using Pearson's correlation coefficient. The Pearson correlation analysis results, as given in Table 4.5 below, display a coefficient of 0.796 for the room occupancy rate and the Airbnb listing. This suggested the existence of a strong positive relationship between the Airbnb listings and the room occupancy rate. The implication of this positive relationship is that a 1% increase in the room occupancy rate was accompanied by an increase in the number of Airbnb listings. The finding, therefore, implies that both variables moved simultaneously in a positive direction. Similarly, the control variable, the USD exchange rate, seemed to have a moderately positive relationship with the room occupancy rate, reflecting a coefficient of 0.546. However, the estimate for the USD exchange rate also reflected a coefficient of 0.673, indicating a strong positive correlation with that of Airbnb. As the result signalled the existence of multicollinearity between the two variables, there was a need to use the multicollinearity test. However, the unemployment rate registered a coefficient of 0, indicating that the control variable did not have a statistically significant relationship with the room occupancy rate. As regression analysis works efficiently if all the independent variables are weakly correlated with the dependent variables, the regression model of the study was estimated using two

independent variables, the USD exchange rate, which was used as a control variable, and the Airbnb, which was treated as the variable of interest.

Table 4.5: The correlation matrix

Variables	Room occupancy rate	Unemployment	USD exchange rate	Airbnb
Room occupancy rate	1	0	0.546	0.796
Unemployment	0	0	0	0
USD exchange rate	0.546	0	1	0.673
Airbnb	0.796	0	0.673	1

4.2.4.1 The coefficient of multiple determination test

The study also tested the closeness of the data in both models to the regression line. Table 4.6 below reflects the fact that the coefficient of determination (R^2) in model 1 explains the 30% variation in room occupancy rate, while the R^2 in model 2, consisting of both the USD exchange rate and the Airbnb listings, explains the 63.4% total variation in room occupancy. This, therefore, implies that 33.4% of the total variation in the room occupancy rate could be explained by the Airbnb listings.

Table 4.6: The results of R-square test for models 1 and 2

Model	R	R square	Adjusted R square	Std error of the estimate	Sig. F change	Durbin–Watson
1	.548[a]	0.3	0.267	5.2502	0.007	
2	.796[b]	0.634	0.597	3.8927	0	1.909

a. Predictors: (constant), USD exchange rate
b. Predictors: (constant), USD exchange rate, Airbnb

4.2.5 Hierarchical regression analysis

Furthermore, the hierarchical regression model, in terms of which model 1 entails estimation of the control variable, and model 2 incorporates both the control variable and the variable of interest, considers the Airbnb listings. The results of application of the model are shown in Table 4.7 below. The analysis reveals that, in model 1, the constant term is not significant, whereas, in model 2, the constant term is significant. Such results are displayed by the significance value of the constant term being 0.182, which exceeds the common alpha level of 0.05. The control variable USD exchange rate, in contrast, is significant, with the t statistic showing a significance value of 0.007.

When Airbnb is introduced into model 2 in Table 4.7, the constant term is noted to be significant, with a ρ-value of 0.001, whereas the exchange rate becomes insignificant, with a significance value of 0.906. The finding suggests the existence of multicollinearity between the two independent variables, Airbnb and the USD exchange rate.

Table 4.7: Results of the hierarchical regression model

Model		Unstandardised coefficients		Standardised coefficients	t	Sig.
		B	Std error	Beta		
1	(Constant)	15.080	10.921		1.380795	0.181862
	USD exchange rate	2.376	.792	.548	3.001	.007
2	(Constant)	37.822	9.694		3.901417	0.000886
	USD exchange rate	.095	.794	.022	.119	.906
	Airbnb	.332	.078	.781	4.266	.000

The current study used the variance inflation factor (VIF) to test for multicollinearity, with it testing for the null hypothesis of no multicollinearity. The results are as is shown in Table 4.8. Based on the results of the multicollinearity test, the conclusion could be drawn that there was insufficient evidence against the null hypothesis of no multicollinearity. Therefore, the study opted for reliance on the correlation analysis to assess and qualify the results of the VIF test. The correlation analysis, as presented in Table 4.5 above, reflected a correlation coefficient of 0.673 between Airbnb and the USD exchange rate, implying that the two variables were highly correlated.

Table 4.8: The multicollinearity test, using the variance inflation factor (VIF)

Model		Correlations			Collinearity statistics	
		Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)					
	USD exchange rate	0.548	0.548	0.548	1	1
2	(Constant)					
	USD exchange rate	0.548	0.027	0.016	0.547	1.83
	Airbnb	0.796	0.69	0.577	0.547	1.83

4.2.5.1 The serial autocorrelation tests

Testing of the residuals for autocorrelation using the Durbin–Watson (DW) test and the Ljung–Box test was undertaken. The former test tested the following hypothesis:

H_0 = No first-order autocorrelation exists.
H_1 = First-order correlation exists.

If the DW was:

- ✓ 2, there was no autocorrelation.
- ✓ 0 to <2, the autocorrelation was positive (common in time series data).
- ✓ >2 to 4, the autocorrelation was negative (which is less common in time series data).

The test statistic is as follows:

$$DW = \frac{\sum_{t=2}^{T}(e_t - e_{t-1})^2}{\sum_{t=1}^{T} e_t^2} \text{ [Eq. 5]}$$

The result of the Durbin–Watson statistic in Table 4.9 below indicates an estimate of 1.912, which was rounded to 2, showing there was no autocorrelation in the residuals of the regression model. Hence, the assumption of regression was not violated.

Table 4.9: The Durbin–Watson statistic

Model Summary

Model	R	R square	Adjusted R square	Std error of the estimate	Durbin–Watson
1	.552[a]	.305	.272	5.2354980	
2	.795[b]	.632	.596	3.9009511	1.912

a. Predictors: (constant), USD exchange rate

b. Predictors: (constant), USD exchange rate, Airbnb

c. Dependent variable: occupancy rate

According to Tsay (2012), the Ljung–Box test is sensitive to the erroneous specification of a fitted model. The test is based on residual partial autocorrelation. Ljung–Box test states that a series that has a data set containing y_t, and is stationary, letting a_t be the white noise, then the residuals denoted $\hat{a}_t$, ..., $\hat{a}_n$ can be tested for normality using the following test statistic:

$$Q(m) = N(N+2)\sum_{k=1}^{m} \frac{\hat{\rho}_k^2 \hat{r}_n^2}{N-i} \hat{r}_k^2 \text{ [Eq. 6]}$$

where k = (1, 2, … m), N is the sample size, m is the chosen number of autocorrelations used in the test, r_n is the residual series of the hotel room occupancy rate, and $\widehat{\rho_k}(\hat{r}_n^2)$ is the lag-I autocorrelation function (ACF) of $\hat{r}_n^2$. If the linear model

passes the test, the Q (m) is asymptotically a chi-squared random variable, with (m-p-k) degrees of freedom. The hypothesis is:

$H_0 = \beta_1 = \cdots = \beta_m = 0$ (no autocorrelation)

$H_1 = \beta_1 = \cdots = \beta_m \neq 0$ (autocorrelation exists)

where β_i is the coefficient of $\hat{r}_n^2$ in the linear regression of the expression:

$\hat{r}_n^2 = \beta_0 + \beta_1 r_{n-1}^2 + \cdots + \beta_m r_{n-m}^2 + e_n, n = m+1, \ldots, N$ [Eq. 7]

The decision rule for the test was that the null hypothesis should be rejected if the ρ-value of the Ljung–Box test statistic was less than the significance level of 5%. The results of the test are shown in Table 4.10 below.

Table 4.10: Ljung–Box test results for residuals

	Ljung–Box test statistic	**ρ-value**
Residuals	0.01921	0.8898

Table 4.10 shows that the ρ-value of the Ljung–Box test statistic is greater than the significance value of 5%, implying that there is insufficient evidence against the null hypothesis of no autocorrelation in the residuals. Therefore, the conclusion can be drawn that the residuals, in respect of the model, have no autocorrelation, and that the hierarchical regression model was correctly specified.

The current study also called for a test for normality using the P-P plot, which is displayed in Figure 4.6 below. The diagram illustrates that the residuals are relatively close to the diagonal line, implying their normal distribution.

4.2.5.2 Test for the normality of residuals

The study also called for a test for normality to be conducted using the P-P plot and the ADF test. Results of the P-P plot are displayed in Figure 4.6 below. The diagram illustrates that the residuals were found to be closer to others on top of the diagonal line of expected values of normal probabilities, implying that the residuals were normally distributed.

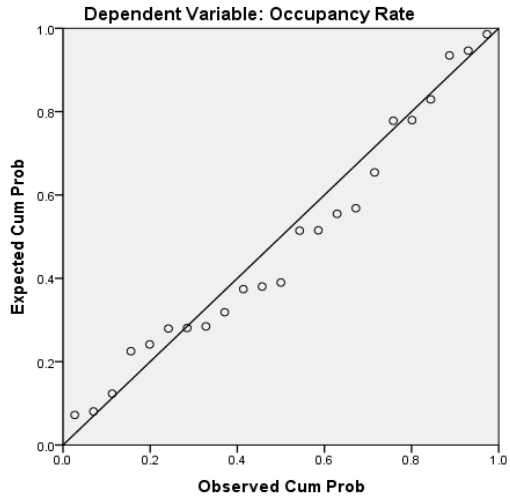

Figure 4.6: The P-P plot for the normality of residuals

Further diagnostics of the residuals' normality were done using the ADF test, as stated in the methodology. The null hypothesis was tested to determine that the residuals from the hierarchical model were non-stationary (normally distributed). The results of the test are shown in Table 4.11 below.

Table 4.11: **The unit root test results for the hierarchical regression model's residuals**

	ADF stat	**Lags**	**ρ-value**
Residuals	-3.3643	Level	0.08273

Table 4.11 above shows a ρ-value of 0.08273, which is less than the significance level of 10% chosen by the researcher. This implies that the null hypothesis relating to the residuals of the hierarchical models exhibiting non-stationary behaviour could be rejected. The researcher was, thus, provided with sufficient evidence to conclude that the residuals from the hierarchical regression model were stationary, and, as

such, the assumption of the normality of the residuals in terms of a linear model was not violated. Based on the above-mentioned results, the researcher was qualified to undertake a test for heteroscedasticity.

4.2.5.3 The heteroscedasticity test

The Glejser test was used to test whether the model was free from heteroscedasticity. The test was conducted by means of regressing the absolute residual values with the independent variables, resulting in the following regression equation:

$UT = X_1 + BX_t + Vi$ [Eq. 8]

where Vi is the residuals, and X is the independent variable. The following hypothesis was tested:

H_0 = No problem of heteroscedasticity exists in the residuals of the model.

H_1 = A problem of heteroscedasticity exists in the residuals of the model.

The null hypothesis was to be rejected if the significance level of the significance values of the independent variable exceeded the 5% level of significance. The test results reflect that Airbnb had a value of significance of 0.655, which was greater than 0.05, and, therefore, there was insufficient evidence against the null hypothesis. As such, it could be concluded that the model had no problem of heteroscedasticity (see Table 4.12). The implication of the results was that the variance in terms of the residuals (errors) was constant, with it not varying over time. As such, the regression assumption of homoscedasticity was not violated by the model.

Table 4.12: Heteroscedasticity test statistics

	Unstandardised coefficients		**Standardised coefficients**		
Model	**B**	**Std error**	**Beta**	**t**	**Sig.**

1	(Constant)	2.521	.986		2.557	.018
	Airbnb	.015	.034	.099	.454	.655

4.2.6 The F-test

Having tested all the assumptions, the study used the F-test, with a null hypothesis of all independent variable effects being equal to zero being tested against the alternative: that at least one independent variable had an effect. The hypotheses were as follows:

$\mathbf{H_o}$ = Airbnb, the USD exchange rate and unemployment have no effect on the room occupancy rate.

$\boldsymbol{H_o}$ = Airbnb, the USD exchange rate and unemployment have an effect on the room occupancy rate.

The decision rule states that, if the ρ-value of the F-statistic is less than the 5% significance level, the null hypothesis should be rejected in favour of the alternative hypothesis. Table 4.13 below shows a ρ-value of 0.007 for model 1, and a ρ-value of 0.000 for model 2. Therefore, since the ρ-value estimates of the F-statistic were found to be less than the significance level of 5%, the null hypothesis for both tests, model 1 and model 2, was rejected in favour of the alternative hypothesis of independent variables showing a significant effect on the independent variable concerned. It could, therefore, be concluded that the independent variable, Airbnb, had a significant effect in the case of both models, in terms of which model 1 consisted of the control variables and model 2 consisted of the control variables and

Airbnb data. Table 4.13 shows the results of the models, and the analysis of the impact of Airbnb on the hotel room occupancy rate.

Table 4.13: The ANOVA table for the F-statistics

Model		Sum of squares	df	Mean square	F	Sig.
1	Regression	248.218	1	248.218	9.005	.007[b]
	Residual	578.848	21	27.564		
	Total	827.066	22			
2	Regression	524.011	2	262.006	17.291	.000[c]
	Residual	303.055	20	15.153		
	Total	827.066	22			

4.2.7 Regulatory and compliance discrepancies

An objective of the current research was to identify the regulatory and compliance discrepancies between the sharing accommodation and hotel sector. Several regulatory documents were reviewed to obtain the information on the requirements stipulated for operating a business within the hospitality sector. The secondary data were gathered from Government Gazettes (the Income Tax Order, No. 21 of 1975, and the Registration of Accommodation Establishments Regulation, 2008) and the following Acts of Parliament: the Companies Act, No. 8 of 2009; the Trading Licenses Amendment Act, No. 9 of 2011; the Shop Hours Act No. 9 of 2011; the Insurance Act, No. 7 of 2005; and the Value Added Tax Act, No. 12 of 2011. The data gleaned from the above-mentioned sources indicated that the procedures for starting a new business entail: reserving the business name; registering the company; acquiring a trading licence; registering employees for the required provident fund and insurance; and acquiring a certificate for minimum registration. All of the above have to be obtained at a fee. Table 4.14 below shows the minimal fees imposed on a

formal business, and especially on those in the hospitality sector, on their starting up in business.

Table 4.14: Minimal fees imposed at the start-up of a hotel business

Procedure	Frequency	Amount of time required to complete procedure	Costs entailed
Acquisition of a unique company name	Once	1 day	SZL 20
Drawing up a memorandum and articles of association (lawyer's fees)	Once	2 days	SZL 1 500–3 000
Company registration	Once	10 days	SZL 360
Purchase of a trading licence	Annually	12 days	SZL 3 000–5 000
Implementation and maintenance of an employees' provident fund	Monthly	1 day	SZL 120–240 per employee
Implementation and maintenance of employees' compensation insurance	Monthly	1 day	0.46% of gross salaries
Site inspection and certification for the implementation and maintenance of minimum standards for accommodation	Annually	5 days	SZL 300–3 000
Payment of a bed levy	Monthly	1 day	SZL 7.50 per bed sold
Payment of value-added tax	Monthly	1 day	14% of sales
Payment of corporate income tax	Biannually	1 day	27.5% of taxable profit

Based on the above discussion, hotel operations could be seen to be subjected to legal hurdles involving both time and costs, whereas Airbnb hosts were noted to be unaffected by such issues. The consequence of the associated findings is that the sharing accommodation platform Airbnb appear to be free-riders, and seem to benefit

unfairly from marketing efforts funded through the bed levy payment imposed on hotels.

4.3 Linking findings to the relevant literature

The quantitative analysis of the results revealed the existence of a positive linear relationship between the room occupancy rate and Airbnb listings. Recent studies related to the impact of Airbnb on the hotel occupancy rate allowed for the use of varying estimation techniques. However, all the studies considered in the above regard provided valuable insights into the varying methodologies used to determine the impact of Airbnb on the hotel occupancy rate. This research also reviewed other studies that have rejected the notion that sharing accommodation platforms negatively impact on hotel performance in terms of occupancy rates and revenue.

Although studies related to the subject were unavailable in relation to the hospitality industry in Swaziland, empirical research has been undertaken into the impact of the sharing accommodation platform Airbnb on the hotel occupancy rate in other developed economies (Goree, 2016; Zervas et al., 2015). The following subsections provide an overview of studies that suggest that the sharing accommodation platform Airbnb impacts on the hotel occupancy rate and of studies that purport that sharing accommodation does not relate to the hotel occupancy rate.

4.3.1 The impact of sharing accommodation on the hotel occupancy rate

The estimation technique that was used in the current study used four variables to examine the relationship between Airbnb listings and the hotel occupancy rate. The variables considered consisted of: the hotel room occupancy rate; Airbnb listings; the unemployment rate; and the USD exchange rate. Several researchers argue that a negative relationship exists between sharing accommodation and hotel performance,

the latter of which tends to be represented by the hotel occupancy rate (Guttentag, 2015; Zervas et al., 2015).

In a related study focusing on the impact of Airbnb on the hotel revenue in the Netherlands, Hooijer (2016) utilised a hierarchical regression model consisting of three models to estimate the platform's effect. The results of the first model, which estimated the impact of the number of Airbnb listings on hotel revenue, revealed that the number of Airbnb listings was positively correlated to hotel revenue. However, the second and third models, which incorporated the control variable unemployment in the second model, and population in the third and final model, revealed a significantly negative impact from Airbnb listings on hotel revenue.

The above-mentioned view was strengthened by the outlook expressed by Zervas et al. (2015), who focused on determining the extent to which Airbnb was impacting on hotel overnight stays in the state of Texas. The results of the analysis concerned suggested that a 1% increase in the provision of additional rooms in Texas was associated with a 0.29% fall in hotel revenues, thus implying that the continued expansion of Airbnb listings in the state posed a potential threat to the performance of the hotel sector located there.

Ytreberg (2016), in his study 'Competitive effects of Airbnb on the Norwegian hotel market', revealed that Airbnb had a significant impact on the hotel industry, in relation to a decline in prices. A negligible decrease in the hotel occupancy rate was also observed under such impact. Variables used in the study consisted of: monthly hotel data; Airbnb data; the number of airline passengers; and population and unemployment data. The data pertained to a target population of Norway's five largest cities, namely: Oslo; Bergen; Stavanger; Trondheim; and Tromso. The results

of the study revealed variation in the impact of Airbnb across the above-mentioned five cities of Norway, with the effect being more evident in the most populated cities. Further to the above, the effect of the Airbnb supply varied between the different hotel segments, with budget hotels being more affected than were the others. According to Ytreberg (2016), Airbnb in Norway was noted as offering relatively competitive room prices through the setting of a low price structure, which served to drive hotel prices down.

The current research also strove to identify inconsistencies in the application of regulatory provisions between hotels and the Airbnb platform in Swaziland. Closely related to the study is the research undertaken by Guttentag (2015), who explored the disruptive nature of sharing accommodation platforms. The researcher's findings are relevant to the present study in terms of the 'illegal' accommodation rentals that are supplied by Airbnb hosts. The author revealed that the technology-based model of Airbnb had generally outpaced the regulatory provisions, enabling the platform's hosts to evade registering as a formal business and paying the concomitant taxes. The impact of the exponential growth of Airbnb was also seen in terms of the platform's sale of room nights exceeding that of such internationally renowned hotel brands as the Holiday Inn and Marriot International chains.

In agreement with Guttentag's (2015) analysis, Interian (2016) demonstrates that the blurring line, or evasion, of the regulatory provisions imposed on formal accommodation providers has had disruptive effects on the hotel sector. The researcher reveals that Airbnb was valuated at US$25.5 billion in 2014, while reputable hotels, including the Hyatt Hotel and Wyndham, were worth US$9.2 billion and US$9.4 billion respectively, during the same year. The impact of Airbnb

presence has also been seen to be more visible in terms of budget and low-priced hotels than in relation to more exclusive hotels and resorts.

4.3.2 The lack of impact of sharing accommodation on the hotel occupancy rate

In contrast to the studies described in the preceding section, other studies have rejected the notion that sharing accommodation platforms negatively impact on the hotel occupancy rate, and, consequently, on hotel performance (Choi, Jung, Kim & Yoon, 2015; Goree, 2016; Neeser, Peitz & Stuhler, 2015). The current study used a hierarchical regression procedure to test the hypothesis that sharing accommodation platforms have a statistically negative impact on the hotel occupancy rate. The results of the study revealed that the ρ-value was insignificant, thus implying that the sharing accommodation platform Airbnb did not have an impact on the hotel occupancy rate. Further to the above, the utilisation of Pearson's correlation test showed the existence of a positive relationship between the hotel room occupancy rate and Airbnb listings in Swaziland. A similar study undertaken by Goree (2016) tested the hypothesis that Airbnb had a statistically significant negative relationship with the hotel occupancy rate in San Francisco, USA. The findings of the study contrasted with the above-mentioned hypothesis, revealing that Airbnb listings did not have a significant impact on the hotel occupancy rate in the aforementioned city.

Choi et al. (2015) used a regression model to investigate the impact of Airbnb on hotel revenue, in terms of which the independent variable was Airbnb listings, the control variables were the unemployment and exchange rates, and a dummy variable was the vacation season. The results of the study revealed that all the coefficients of the variables were statistically insignificant. The authors thus concluded that the Airbnb listings had no effect on hotel revenue. The existence of a negative

relationship between the unemployment rate and hotel revenue was also discovered, while a positive relationship was established between the exchange rate and hotel revenue, and between the vacation season and hotel revenue. The findings of a positive correlation between the exchange rate and hotel revenue are consistent with the findings of the current study in terms of the relationship between the exchange rate and hotel occupancy, with the latter variable being a key determinant of the performance of the hotel revenue concerned.

Although using a different estimation technique, Neeser et al. (2015), in their study of the impact of Airbnb on hotel revenue in Norway, Finland and Sweden, revealed that Airbnb did not significantly affect hotel revenues per available room, which were defined as the product of the price of a room and the room occupancy rate of the room. In their study, the authors suggested that the variables, number of Airbnb listings, unemployment rate, population, and GDP per capita, contributed to the impact of Airbnb on hotel revenue.

4.4 Key implications of the findings made in the current study

The aim of the present study was to examine the impact of sharing accommodation on the hotel occupancy rate in Swaziland. The study adopted the Pearson's correlation coefficient procedure to respond to questions regarding the nature of the relationship existing between the sharing of accommodation and the hotel occupancy rate, and the extent of the impact of sharing accommodation on the hotel occupancy rate. Responses to the questions set in respect of the above concerns entailed analysing the behaviour of variables consisting of: the hotel occupancy rate; the number of Airbnb listings; the unemployment rate; and the USD–Lilangeni exchange rate. Pearson's correlation coefficient was used to test the bivariate relationship

amongst each of the variables concerned. The results revealed that all explanatory variables, with the exception of the unemployment rate, had a statistically significant positive relationship with the hotel occupancy rate. An upward linear trend between the hotel occupancy rate and the number of Airbnb listings was discovered, suggesting a significantly positive relationship between the two variables. The finding implies that an increase in the hotel occupancy rate has coincided with a rise in the number of Airbnb listings in Swaziland.

Furthermore, the correlation analysis results revealed the existence of multicollinearity between the number of Airbnb listings and the control variable, the USD exchange rate. Tests for diagnosis and stability were applied to the model to determine whether the model was a good fit, with the results confirming that the model was normal, and that it suffered neither from multicollinearity, nor from heteroscedasticity.

The study also used hierarchical regression analysis to estimate the amount of statistical significance of each of the independent variables involved (Huck, 2012). The technique used entailed a two-step estimation of the variables concerned, in terms of which model 1 involved estimation of the USD exchange rate, and model 2 entailed estimation of both the control variable and the number of Airbnb listings concerned. The study was aimed at determining whether model 2 explained the dependent variable better than did model 1. The results of the regression indicated that the difference between model 1 and model 2 was statistically significant, with the number of Airbnb listings explaining an additional 33.4% of variation in the hotel occupancy rate.

The study was developed on the hypothesis that sharing accommodation had a

statistically significant impact on the hotel occupancy rate concerned. As the research consisted of three independent variables, the F-test was used to test the overall significance of the multiple coefficients in the regression model simultaneously (Saunders et al., 2009). The results of the F-test revealed a ρ-value that was less than the significance level of 0.05. Based on the above results, the current researcher rejected the null hypothesis, and was able to conclude that the sharing accommodation platform considered did not have a statistically significant negative impact on the hotel occupancy rate in Swaziland. As the results serve as evidence against the null hypothesis of the current study, they might indicate that the Airbnb platform appeals to a different tourist market profile than do hotels, and that, therefore, the two products may be viewed as non-competitors.

The estimation technique used in the present study made use of four variables to examine the relationship between Airbnb listings and the hotel occupancy rate. The variables consisted of: the hotel room occupancy rate; the Airbnb listings; the unemployment rate; and the USD exchange rate. According to the research findings of Zervas et al. (2015) and Guttentag (2015), a negative relationship exists between sharing accommodation and hotel performance, with the relationship in question tending to be represented by the hotel occupancy rate. In a related study by Hooijer (2016), focusing on the impact of Airbnb on the hotel revenue in the Netherlands, a hierarchical regression model, consisting of three models, was used to estimate the platform's effect. The results of the first model, which estimated the impact of the number of Airbnb listings on hotel revenue, revealed that the number of Airbnb listings was positively correlated to hotel revenue. However, the later models, incorporating the control variable of unemployment in the second model, and of population in the final model, revealed a significantly negative impact of Airbnb

listings on hotel revenue. The view was strengthened by a study conducted by Zervas et al. (2015), which focused on determining the extent to which Airbnb had impacted on overnight stays at hotels in the state of Texas. The results of the aforementioned analysis suggested that a 1% increase in the provision of additional rooms in Texas was associated with a 0.29% fall in hotel revenues in the area, thus implying that the continued expansion of Airbnb listings in the location concerned posed a potential threat to the performance of the hotel sector there.

Other studies have rejected the notion that sharing accommodation platforms negatively impacts on the hotel occupancy rate, and, consequently, on hotel performance (Choi et al., 2015; Goree, 2016; Neeser et al., 2015). The study used a hierarchical regression procedure to test the hypothesis that sharing accommodation platforms have a statistically negative impact on the hotel occupancy rate. The results of the current study revealed that the ρ-value was insignificant, thus implying that the performance of the sharing accommodation platform, Airbnb, did not impact on the hotel occupancy rate. Additionally, the utilisation of the Pearson's correlation test showed the existence of a positive relationship between the hotel room occupancy rate and the Airbnb listings in Swaziland. A similar study, undertaken by Goree (2016), tested a hypothesis that Airbnb had a statistically significant negative relationship with the hotel occupancy rate in San Francisco. The findings of the study conflicted with the hypothesis concerned, revealing that Airbnb listings did not have a significant impact on the hotel occupancy rate in the city.

Choi et al. (2015) used a regression model to investigate the impact of Airbnb on hotel revenue, in terms of which the independent variable was Airbnb listings, and the control variables were the unemployment and exchange rates, with a dummy variable being used to represent the vacation season. The results of the study

revealed that all the coefficients of the variables were statistically insignificant, leading to the authors concerned concluding that the performance of the Airbnb listings had no effect on hotel revenue. The results also revealed the existence of a negative relationship between the unemployment rate and hotel revenue, while a positive relationship was established between the exchange rate and hotel revenue, and between the vacation season and hotel revenue. The findings of a positive correlation between the exchange rate and hotel revenue are consistent with the findings of the current study, in terms of the relationship between the exchange rate and hotel occupancy, with the latter variable being a key determinant of the performance of hotel revenue.

Although using a different estimation technique, a study by Neeser et al. (2015), on the impact of Airbnb on hotel revenue in Norway, Finland and Sweden, revealed that Airbnb did not significantly affect hotel revenues per available room, which was defined as the product of the price of a room and the room occupancy rate concerned. In the current dissertation, the author suggests that the variables, number of Airbnb listings, unemployment rate, population, and GDP per capita, contributed to the impact of Airbnb performance on hotel revenue.

The findings of the study also reveal that, between 2015 and 2016, the sharing accommodation platform Airbnb experienced exponential growth from 3 listings to 52 listings. Porter (2008) explains this success as emanating from internet technology. The researcher advances the idea that use of the internet presents a firm with unprecedented opportunities to establish a distinctive strategic positioning. The author indicates that effective use of the internet in business has the effect of enlarging the market size of a firm relative to 'traditional substitutes'. Zvolska (2015) cautions that the ease of entry into the sharing accommodation marketplace,

coupled with relatively low transactions costs, is likely to perpetuate the phenomenon. In his research paper titled 'Sustaining potentials of the sharing economy', the academic signals that the phenomenal expansion of such platforms has the potential to become unmanageable. He, therefore, urges governing agents to engage on establishing relevant regulations proactively.

Following a review of documents on the regulatory requirements for the Airbnb platform, similar platforms in Swaziland were perceived as not being subjected to regulatory oversight, as is the case with hotels, which have to pay government levies in support of the development and promotional agendas that are linked to tourism in the country. The finding, which represents inconsistencies in conforming to regulatory provisions between hotels and the Airbnb platform in Swaziland, adds to the existing debates currently taking place on the legality of such operations. For example, Guttentag (2015), in exploring the disruptive nature of sharing accommodation platforms, concluded that the technology-based model of Airbnb has generally outpaced the regulatory provisions concerned. As a result, the platform's hosts are able to evade both registering as a formal business, and abiding by the associated tax obligations.

In agreement with Guttentag's (2015) analysis, Interian (2016) demonstrates that the evasion of regulatory provisions imposed on formal accommodation providers has had disruptive effects on the hotel sector, revealing that Airbnb was valuated at USD 25.5 billion in 2014, while reputable hotels, including the Hyatt Hotel and Wyndham, were worth USD 9.2 billion and USD 9.4 billion, respectively, during the same year. Within the above context, the operations of hotels are subjected to legal hurdles involving both time and costs, whereas Airbnb hosts have been noted to be unaffected by such issues. The consequence of the above-mentioned findings is that

the sharing accommodation platform Airbnb appears to consist of free-riders, who are able to benefit from the marketing efforts that are funded through the bed levy payment with which the hotels are compelled to comply.

4.5 Conclusion

The findings of the current research indicate that, from 2012 to 2016, the hotel occupancy rate maintained a steady growth rate, despite the entrance of the Airbnb sharing accommodation platform onto the Swaziland marketplace in 2015. Further findings indicate that a positive relationship exists between the hotel occupancy rate and Airbnb listings, with both variables growing simultaneously. The qualitative findings of the study revealed the existence of inconsistencies in the application and enforcement of regulatory and taxation stipulations for both the hotel sector and the sharing accommodation platform, with the hotels being required to adhere to various legal and taxation provisions, while the latter is not subjected to the same. The following chapter provides the general and specific conclusions regarding the nature of the relationship between the hotel occupancy rate and Airbnb listings, the implications of the fluid regulation of the sharing accommodation platform in the Swaziland hospitality marketplace. The chapter ends with recommendations for further research.

CHAPTER FIVE
CONCLUSIONS AND RECOMMENDATIONS

5.1 General conclusion

Empirical research has generally demonstrated that the sharing accommodation platform Airbnb adversely affects demand for hotel rooms, and, consequently, for hotel revenues and profits. However, the findings of this research suggest that the presence of Airbnb may not be as detrimental to the hotel sector in the developing economy of Swaziland as was thought.

The purpose of the present study was to examine the impact of sharing accommodation on the hotel occupancy rate in Swaziland. The findings of the current research study indicate that, from 2012 to 2016, the hotel occupancy rate maintained a steady growth rate, despite the entrance of the Airbnb sharing accommodation platform into the Swaziland marketplace in 2015. The hotel room occupancy rate pattern was characterised by peaks in November and dips in January, which may largely be explained by the general travel pattern of foreign tourists into Swaziland. Therefore, based on the research results obtained, the researcher concludes that the hotel room occupancy rate in Swaziland remained unaffected by the existence of Airbnb, despite the lack of regulatory oversight of the latter from 2015 to 2016.

5.2 Specific conclusions

The current research assumed a model to study the impact of sharing accommodation on the hotel occupancy rate in Swaziland. The results revealed the existence of a positive correlation between the hotel occupancy rate and both Airbnb listings and the control variable, USD exchange rate, while the control variable, unemployment rate, did not have a statistically significant relationship with the dependant variable

concerned.

The first objective of the current study was to examine the relationship between the sharing accommodation presence and the hotel occupancy rate in Swaziland. The examination was carried out by means of testing the direction and strength of the relationship between the Airbnb listings and the hotel occupancy rates in the Mbabane, Ezulwini, Matsapha, and Manzini areas. The findings indicate that a positive relationship existed between the room occupancy rate and the Airbnb listings. The above finding therefore implies that an increase in the room occupancy rate is accompanied by an increase in the number of Airbnb listings, with both variables growing simultaneously.

Another objective of the research was to examine the impact of sharing accommodation on the hotel occupancy rate, by means of analysing the performance of the room occupancy rate after the entrance of Airbnb onto the accommodation marketplace. The results of the study revealed that the sharing accommodation platform, Airbnb, has not had a significantly negative impact on the hotel room occupancy rate in Swaziland. One possible conclusion to result from such a finding is that the Airbnb appeals to a different tourist market profile than do hotels, so that the two tourism products may be viewed as non-competitors.

The final objective of the current study was to identify the regulatory and compliance discrepancies existing between the sharing accommodation platforms and the hotel sector in Swaziland, by means of reviewing the business legislative and policy documents relevant to accommodation business operations. The content analysis revealed the existence of inconsistencies in the application and enforcement of regulatory and taxation stipulations for both the hotel sector and the sharing

accommodation platform, in terms of which hotels are required to adhere to various legal and taxation provisions, while the establishments that are listed on the latter are not subjected to the same regulations. The present study, based on the aforementioned results, confirms that Airbnb platform hosts are allowed to compete unfairly and, further, to benefit from destination marketing efforts, at the expense of the local hoteliers. The implications of such findings are that the Swaziland government seems, so far, to have been flaccid with regards to establishing equitable market conditions within the accommodation sector.

Worth noting is that the study has a few limitations. The first limitation was that the hotel data provided by the Central Statistical Office was comprised of imputed values that were used as substitutes for missing values. Another limitation relates to the unavailability of monthly estimates of unemployment rate as the Department of Labour currently only produces annual estimates.

5.3 Recommendations

The current study contributes to the discussions that are presently being held on the effects and regulation of the sharing accommodation platform, Airbnb, in relation to the hotel sector. The majority of the existing research on the impact of Airbnb reflects that the platform has had a significant negative impact on the room occupancy rate and on hotel revenues. According to the above-mentioned studies, the effect concerned is mainly attributable to the advantage granted by the technology economies of scale, and by the relatively low transaction costs presented by the business model of transacting online (Belk, 2014; Guttentag, 2015; Markides, 2006). While the findings of the current study reveal that the Airbnb platform has not adversely impacted on the hotel occupancy rate in Swaziland, the literature concerned suggests that the effects of Airbnb, in the long term, remain uncertain. It

is, therefore, imperative that the Swaziland government leverage the capabilities of industry players to address the unique features of the phenomenon, as has been suggested by Kassan and Orsi (2012), and Omarova (2011).

5.3.1 Specific recommendations

The findings of the current study reveal the existing discrepancies in the imposition of regulations. The researcher, therefore, recommends that the Swaziland government should undertake stakeholder consultations to explore policy options relating to a conceptual framework that should adapt the existing regulations to the innovative and diverse dimensions of the sharing accommodation platform. Such policy recommendations should possibly focus on establishing a level playing field for competition.

5.3.2 Scope for further research

The motivation for undertaking the current study was to contribute empirically to the current worldwide debate on the effects of sharing accommodation on the hotel sector. Overall, the study runs parallel with those that were previously conducted from the developed global north, thus contributing to the conducting of research into the impact of external shocks on tourism and hosts, while adding an extra dimension from sub-Saharan Africa. However, further research is still required, with a much larger sample than the present one, to be able to determine and unpack, in a holistic manner, the impact of sharing accommodation that is being experienced in Swaziland.

The present study has revealed opportunities for future studies that can be explored on the researched topic. Certainly, from the Swazi perspective, the researcher recommends doing the following:

- extending the scope of the study to incorporate the opinions and perceptions of hoteliers on the effects of sharing accommodation, so as to increase the validity of the current research results;
- examining the profiles and travel behaviours of the tourists to whom Airbnb appeals;
- investigating whether there is a need to regulate sharing accommodation platforms; and
- exploring how Airbnb impacts on the local economy.

The outcomes of such studies will likely shed more light on the impact of sharing accommodation, and they should help to determine the pathways forward towards economic development for all the citizenry involved.

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APPENDIX A: HOTEL STATISTICS

Month	Rooms Available	Rooms Sold	Beds Available	Beds Sold	Domestic Tourists	Foreign Tourists	Total Tourists	Room Occupancy Rate (%)	Bed Occupancy Rate (%)	Expenditure per person per night (E)	Total Bill (E)
Jan-12	30113	14066	54785	21418	15927	4725	20652	46.7	39.1	173.7170361	3720671.48
Feb-12	27749	14917	49389	21555	16932	5377	22309	53.8	43.6	323.6410944	6976083.79
Mar-12	30202	17727	55560	24988	18255	6179	24434	58.7	45.0	206.1449032	5151148.84
Apr-12	29095	17225	52151	25414	19547	5730	25277	59.2	48.7	252.0074172	6404516.5
May-12	30052	20913	54328	21470	17138	5888	23026	69.6	39.5	281.3904164	6041452.24
Jun-12	29080	14794	52834	18650	16644	5897	22541	50.9	35.3	241.2757319	4499792.4
Jul-12	30050	18384	55386	21183	18740	4199	22939	61.2	38.2	293.071378	6208131
Aug-12	30051	20835	55370	24932	24396	4098	28494	69.3	45.0	317.542636	7916973
Sep-12	29108	18431	53631	24963	21458	5075	26533	63.3	46.5	254.3460321	6349240
Oct-12	30040	20157	55392	25577	23472	4533	28005	67.1	46.2	275.8745357	7056043
Nov-12	29085	20500	53603	26156	18224	4581	22805	70.5	48.8	238.7185732	6243923
Dec-12	30049	20084	55400	23102	20465	4350	24815	66.8	41.7	319.3587568	7377826
Jan-13	35154	12743	57767	15845	5495	15391	19221	36.2	27.4	665.7292496	10548479.96
Feb-13	32400	14350	51159	17522	5804	14789	19225	44.3	34.3	800.380355	14024264.58

Mar-13	35154	18024	57823	24290	6324	18337	23446	51.3	42.0	687.5570992	16700761.94
Apr-13	34020	17653	56046	21268	5548	15757	20054	51.9	37.9	787.8762418	16756551.91
May-13	35154	15465	58022	21751	6216	16016	21053	44.0	37.5	750.4175583	16322332.31
Jun-13	34020	15954	56759	22915	7161	16455	22113	46.9	40.4	763.2407345	17489661.43
Jul-13	35154	17509	58635	24257	10383	17001	26241	49.8	41.4	736.3511696	17861670.32
Aug-13	37091	19307	58661	26519	7664	18364	24552	52.1	45.2	727.742881	19299013.46
Sep-13	34036	17828	56376	21930	7638	17104	23149	52.4	38.9	782.6244555	17162954.31
Oct-13	35154	18192	58229	24184	6753	19161	24888	51.7	41.5	701.5615237	16966563.89
Nov-13	34020	18472	56389	24607	7427	19437	25109	54.3	43.6	641.8705051	15794507.52
Dec-13	34958	17950	57951	24832	6862	17554	23462	51.3	42.8	748.9754953	18598559.5
Jan-14	37353	14237	57846	18775	4083	16979	21062	38.1	32.5	695.147813	13051400.19
Feb-14	34692	15090	51775	20877	4678	18464	23142	43.5	40.3	678.9760339	14174982.66
Mar-14	37348	17219	57846	24367	5355	20273	25628	46.1	42.1	720.0034448	17544323.94
Apr-14	36247	15010	59580	22961	4523	20570	25093	41.4	38.5	641.6914494	14733877.37
May-14	37350	18304	57846	24538	5277	17310	22587	49.0	42.4	759.4032179	18634236.16
Jun-14	36257	14964	59684	21309	5944	13985	19929	41.3	35.7	684.0173565	14575725.85
Jul-14	37351	17494	57982	25713	8597	17122	25719	46.8	44.3	628.2591716	16154428.08
Aug-14	39302	18785	57962	28070	6487	22057	28544	47.8	48.4	698.7062864	19612685.46

Sep-14	36264	17707	56104	25593	6351	22353	28704	48.8	45.6	645.7354284	16526306.82
Oct-14	37351	19563	57982	24785	5973	22242	28215	52.4	42.7	785.2142905	19461536.19
Nov-14	36258	19639	56084	26824	5982	19904	25886	54.2	47.8	682.3670333	18303813.3
Dec-14	37164	18307	57579	27072	6150	22311	28461	49.3	47.0	683.230041	18496403.67
Jan-15	37367	14067	57846	22278	5843	22532	22532	37.6	38.5	694.3726802	15469234.57
Feb-15	34650	13423	51775	20099	5665	21162	21162	38.7	38.8	684.4906796	13757578.17
Mar-15	37361	15761	57846	25522	7424	25923	25923	42.2	44.1	636.1408573	16235586.96
Apr-15	36231	14021	59580	19997	6736	24559	24559	38.7	33.6	819.1181787	16379906.22
May-15	37363	15855	57846	20579	5931	22844	22844	42.4	35.6	845.9083459	17407947.85
Jun-15	36244	14301	59684	19204	5533	21817	21817	39.5	32.2	825.785024	15858375.6
Jul-15	37365	17678	57982	25429	6030	26659	26659	47.3	43.9	803.3291754	20427857.6
Aug-15	39315	17112	57962	24213	6420	26060	26060	43.5	41.8	750.6803593	18176223.54
Sep-15	36254	18300	56104	23487	6421	25856	25856	50.5	41.9	848.702343	19933471.93
Oct-15	37365	20046	57982	26424	6685	28286	28286	53.6	45.6	772.0113828	20399628.78
Nov-15	36246	19727	56084	25534	6715	26429	26429	54.4	45.5	809.4171685	20667657.98
Dec-15	37180	17983	57579	27270	7368	29020	29020	48.4	47.4	705.4615955	19237937.71
Jan-16	38409	16480	66898	24636	4132	18200	22332	42.9	36.8	1199.679478	28316398.46
Feb-16	35814	17151	62006	25451	6898	15032	21930	47.9	41.0	814.2751149	19359717.57

Mar-16	38409	22214	66898	30688	10512	19284	29796	57.8	45.9	813.4414703	23808714.57
Apr-16	37395	17618	65090	25555	7327	17818	25145	47.1	39.3	953.3188182	23283574.59
May-16	37959	19529	66198	28499	7903	20131	28034	51.4	43.1	954.0737482	25953861.35
Jun-16	37395	16903	65090	25174	7343	16750	24093	45.2	38.7	910.187781	21925950.55
Jul-16	38409	19550	66898	31378	5307	22184	27491	50.9	46.9	1157.292806	35047194.16
Aug-16	37959	21162	66198	31081	6950	22008	28958	55.7	47.0	959.1653731	28479953.84
Sep-16	37313	20437	64967	30941	5719	23271	28990	54.8	47.6	848.2420578	24379346.68
Oct-16	38380	20011	66852	30056	5951	23139	29090	52.1	45.0	1263.358655	36064105.32
Nov-16	37012	20056	64512	31678	5524	25122	30646	54.2	49.1	785.621753	23168605.94
Dec-16	38371	19865	66822	32025	5270	27385	32655	51.8	47.9	822.6250345	24854143.79

APPENDIX B: UNEMPLOYMENT RATE, USD EXCHANGE RATE

Month	Unemployment Rate (%)	USD Exchange Rate (E)
Jan-12	28.5	8.03210
Feb-12	28.5	7.65420
Mar-12	28.5	7.59490
Apr-12	28.5	7.82820
May-12	28.5	8.13440
Jun-12	28.5	8.38560
Jul-12	28.5	8.24100
Aug-12	28.5	8.26320
Sep-12	28.5	8.27060
Oct-12	28.5	8.64030
Nov-12	28.5	8.79420
Dec-12	28.5	8.63010
Jan-13	28.5	8.74520
Feb-13	28.5	8.88520
Mar-13	28.5	9.17500
Apr-13	28.5	9.11090
May-13	28.5	9.31200
Jun-13	28.5	10.05120
Jul-13	28.5	9.91100
Aug-13	28.5	10.08740
Sep-13	28.5	9.98450
Oct-13	28.5	9.91320
Nov-13	28.5	10.20300
Dec-13	28.5	10.37730
Jan-14	28.1	10.80650
Feb-14	28.1	10.98340

Mar-14	28.1	10.76840
Apr-14	28.1	10.55450
May-14	28.1	10.39750
Jun-14	28.1	10.67800
Jul-14	28.1	10.66300
Aug-14	28.1	10.66710
Sep-14	28.1	10.96410
Oct-14	28.1	11.08300
Nov-14	28.1	11.09750
Dec-14	28.1	11.45680
Jan-15	28.1	11.57050
Feb-15	28.1	11.58280
Mar-15	28.1	12.06610
Apr-15	28.1	11.99820
May-15	28.1	11.97000
Jun-15	28.1	12.29900
Jul-15	28.1	12.44950
Aug-15	28.1	12.90740
Sep-15	28.1	13.63200
Oct-15	28.1	13.51080
Nov-15	28.1	14.10440
Dec-15	28.1	14.96170
Jan-16	28.1	16.39400
Feb-16	28.1	15.83280
Mar-16	28.1	15.44850
Apr-16	28.1	14.62580
May-16	28.1	15.27320
Jun-16	28.1	15.14100
Jul-16	28.1	14.43840

Aug-16	28.1	13.72230
Sep-16	28.1	14.05730
Oct-16	28.1	13.94760
Nov-16	28.1	13.93480
Dec-16	28.1	13.86720

APPENDIX C: AIRBNB LISTINGS

Month	Airbnb **L**istings
Jan-15	3
Feb-15	3
Mar-15	5
Apr-15	6
May-15	10
Jun-15	15
Jul-15	16
Aug-15	19
Sep-15	23
Oct-15	26
Nov-15	27
Dec-15	27
Jan-16	27
Feb-16	29
Mar-16	30
Apr-16	32
May-16	35
Jun-16	35
Jul-16	39
Aug-16	41
Sep-16	45
Oct-16	48
Nov-16	52