Corona Virus Disease (COVID-19) and Other External Factors as Determinants of Accommodation and Restaurant Services in Kenya

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ABSTRACT

Aim: The aim of this study is to investigate the influence of corona virus disease and other external factors on growth of accommodation and restaurant services (ARS) in Kenya.
Study Design: The study employed quantitative research design involving quarterly time series data from quarter 1 of 2014 to quarter 1 of 2020. The data set was obtained from Kenya National Bureau of Statistics (KNBS).
Methodology: The study employed unrestricted vector autoregression to investigate the changes in the growth of accommodation and restaurant services.
Results: Results indicated that COVID-19, professional, administrative and support services, construction and past ARS growth at 1 to 3 lags influences growth of ARS in Kenya negatively. On the other hand, real estate growth, time trend, tax on products, other services, education, manufacturing, information and communication and past growth in ARS at lag 4 influences growth

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in ARS sector positively. It was also noted that growth in agriculture and transport and storage do not influence growth of ARS in Kenya.

Conclusion: In conclusion, COVID-19, professional, administrative and support services, construction and past ARS growth, real estate growth, time trend, tax on products, other services, education, manufacturing, information and communication are the main determinants for the growth of ARS in Kenya.

1. INTRODUCTION

1.1 Background of the Study

Tourism plays a pivotal role to several countries. It is a source of foreign exchange, employment, infrastructure development, investments, innovation and enterprise development therefore becoming a vital driver of socio-economic advancement and poverty reduction [1,2,3]. The dynamics of the global tourism is swayed by external factors (globalisation, new technology, modernisation in transport and communications systems) as well as internal factors (new tourist demands and more flexible management) [1]. Tourism is expected to play a pivotal role in ensuring the Kenyan economy grows at the projected rate of 10% per annum up to the year 2030 and it can be noted that factors that included political stability, improved security situation, growth in the aviation sector, investor confidence, withdrawal of travel advisories, visits by foreign dignitaries, open border policy, hosting of international conferences improved Kenya's tourism performance in 2018 [3,4].

1.2 Trend of Accommodation and Restaurant Services (ARS) in Kenya

Hotels, catering and restaurants are considered to belong to the tourism sector with the hotel and restaurant subsectors including information regarding accommodation and restaurant services [5]. Without these subsectors no destination could be competitive as tourists would travel through them or they would visit a place for a one-day trip only, which significantly lowers incomes possibility of employment for the regular residents [6]. As shown in a report by [7], the number of available rooms for accommodation in Kenya is projected to increase by 2.5% from 18,600 in 2016 to 21, 000 in 2021 resulting to an increased number of guest nights by 4.1% to an estimated 4.4 million in 2021 compared to 3.6 million in 2016. In the Fig. 1, it is evident that growth in ARS over years continues to record fluactuations that indicate non-stability in the sector. A steep decline is noted from quarter 4 of 2019 which might be attributed to the pandemic of Corona Virus Disease (COVID-19) the has engulfed the globe from November 2019. The projected growth in the hotel occupancy rate according to [7] of 57.4% in 2021 may be unrealized if the spread of COVID-19 continues to bite and there is lack of information regarding the factors determining growth of accommodation and restaurant services in Kenya [8,9]. This is likely to affect the growth of ARS. However, the impact of COVID-19 on ARS may be managed through the discovery of other factors that influence the growth of ARS in Kenya. This therefore called for a study to investigate the influence of corona virus disease and other external factors on growth of ARS in Kenya.
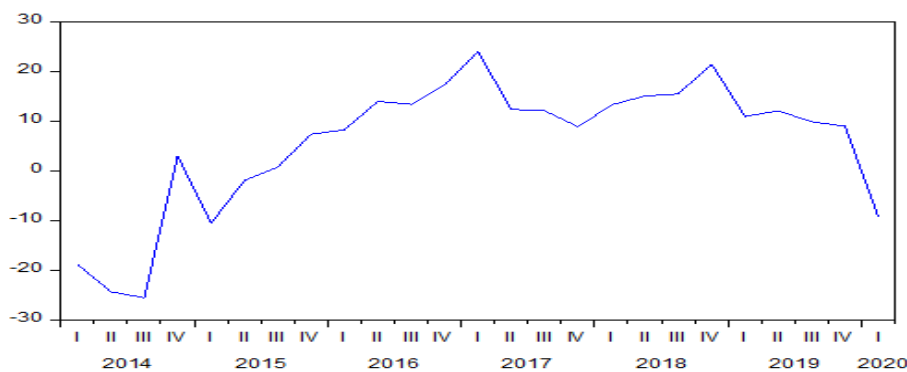

Fig. 1. Growth in accommodation and restaurant services in Kenya

1.3 Objectives

i. Determine influence of COVID-19 on the growth of ARS in Kenya.
ii. Examine external factors influencing the growth of ARS in Kenya.

1.4 Research Question

i. Does COVID-19 influence the growth of ARS in Kenya.
ii. What are the external factors influencing the growth of ARS in Kenya.

2. LITERATURE REVIEW

An investigation by [10] in Italy based on internal factos of hotels proved that out of the 450 sampled hotels, hotel category positively influenced performance of hotels while hotel size and diversity of services offered didn't influence performance. Similarly, examination of the Greek hospitality segment, [2] identified internal factors that encompassed excellent service, better skilled and motivated staff, modern management techniques, price setting strategies, adoption of new technology, organized activities to keep visitors within the hotel setting, use of sustainable practices, advertisement and collaboration with several tourism sector players as the drivers of growth in the hospitality industry.

Regression analysis by [11] involving 5 Turkish tourist firms in understanding how internal, external and macroeconomic factors affect led to the conclusion that internal factors of capital adequacy and firms size affect profitability while economic growth, taxation and efficiency in operations does not influence profitability. On another hand, [12] in their study in South-Western Poland indicated that economic growth, better transportation infrastructure, better services were the key determinants of hotel business.

An examination by [1] on the profitability of hotels in selected Mediterranean countries indicated that the cash flow adequacy impacts on profitability of hotels. Total assets turnover and solvency ratio ware determinants in the selected countries with the exception of Portugal and Greece respectively. Labour output was impactful in Spain. Size demonstrated significance for hotels in Spain and Portugal while duration since establishment showed varied effect for the various counties.

Antonio et al. [13] identified the key factors for success in the hotel sector in the Spanish economy based on a review of the literature. The study identified the key factors as longevity and location. [14] analyzed the relationship between select macroeconomic variables and hotel market performance indicators. Results of correlation analysis indicate that the macro-economic variables, Gross Domestic Product (GDP), Unemployment, and Consumer Price Index (CPI) were influential macroeconomic determinants affecting hotel performance.

Paiva and Lourenço [15] analyzed the influencing factors for incomes based on the sampling of hotels in 15 countries. The findings showed that leverage ratio, cash flow, investment prospects and the incidence of losses and star rating were the main determinants of incomes generated in the hotel industry.

3. RESEARCH METHODOLOGY

The study employed unrestricted vector autoregression involving quarterly time series data from quarter 1 of 2014 to quarter 1 of 2020 on to investigate the changes in the growth of accommodation and restaurant services (ARS) based on changes in manufacturing (M), information and communication (IC), other services (OS), professional, administration and support services (PAS), transport and storage (TS), tax on products (T), real estate (RE), agriculture (AF), past growth rates in accommodation and restaurant services (ARS), education (E), construction (CO), a time trend variable (Q) and a binary variable capturing the pandemic of COVID -19 (CR) as in model (1). Data on the variables was obtained from [8] and [9].

$$ARS_t = f\left(ARS_{t-i}, M_t, IC_t, OS_t, PAS_t, TS_t, T_t, RE_t, AF_t, E_t, CO_t, Q_t, CR_t\right) \tag{1}$$

Where;

$$CR_t = \begin{cases} 1 \\ 0 \end{cases} \text{1 if there is a pandemic e.g. COVID-19, 0 otherwise}$$

$$i = 1,2,...n$$

Models stability and reliability was established based on the inverse root of autoregressive polynomial characteristic, lag length techniques of Log Likelihood (LL), Akaike Information Criterion (AIC) and Bayesian Schartwz Criterion (SC) and diagnostic techniques of multicollinearity, serial correlation, heteroscedasticity and residuals normal distribution. The optimal lag length was selected based on lag length with the maximum log likelihood, minimum AIC and minimum SC. Multicollinearity was tested using variance inflation factors (VIF) where a value less than 10 as indicates absence of multicollinearity [16]. Heteroscedasticity, residual normality and serial correlation tests were by use of Breusch-Pagan-Godfrey, Jarque-Bera and VAR residual portmanteau tests.

4. RESULTS AND DISCUSSION

The unrestricted VAR results in Table 1 indicated that past growth rates in accommodation and restaurant services (ARS) at lags 1 to 3, professional, administrative and support services, corona virus and construction had a significant negative influence on ARS growth in Kenya. Specifically, coefficients and t-statistics of;- -0.51 (-11.748) on professional, administration and support services indicated that a 1% increase in professional, administration and support services reduces the growth in ARS by 0.51% and can be attributed to increased PAS

costs, -4.40 (-14.004) on COVID-19 indicated the pandemic reduced the growth in ARS by -4.40% which might be due to the imposition of lockdown, curfews and travel restrictions, -2.03 (-22.829) implied that a percentage increase in construction decreases growth in ARS by 2.03% This decline may be as a result of increased competition where several restaurants and hotels are built and for the sake of maintaining competitive advantage lower pricing strategy arises that reduces revenues slowing growth.

The growth in the variables of real estate growth, time factor, information and communication, other services, tax on products, manufacturing, education and ARS at lag 5 had a significant positive influence on ARS growth in Kenya. Coefficients and t-statistics of;- 2.09 (31.441) on real estate, 1.44 (16.644) on time factor, 2.23 (25.179) on tax on products, 8.85 (46.019) on other services, 0.94 (4.019) on education, 1.73 (8.710) on manufacturing, 0.45 (9.245) on information and communication and 0.71 (57.751) on ARS at lag 4 showed that a 1% growth in real estate increases ARS growth by 2.09%, from one quarter to the next ARS grows by 1.44%, increased taxation on products by 1% raises demand for ARS by 2.23%, expansion in other services by 1% raises growth of ARS by 8.85%, a 1% improvement in education enhances ARS growth by 0.94%, growth in manufacturing and information and communication improves growth in ARS by
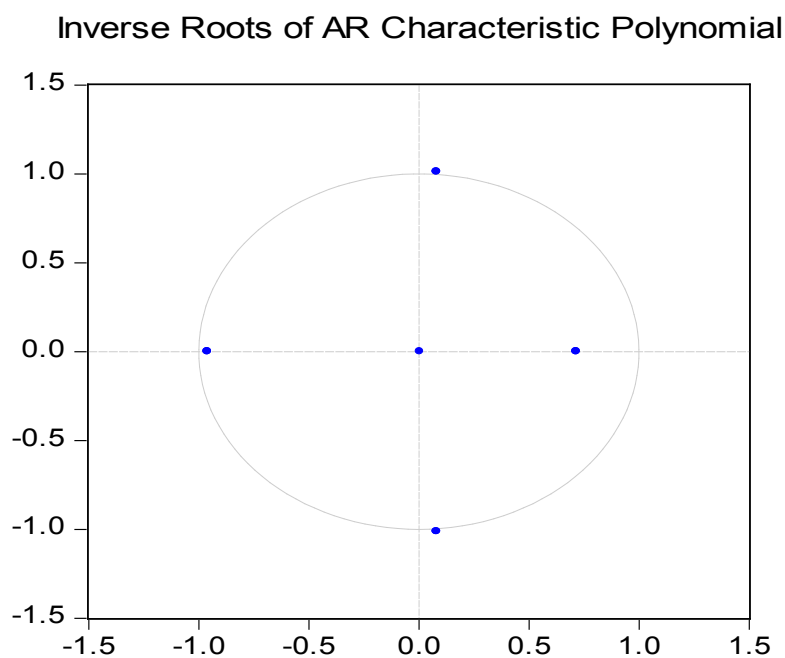

Fig. 2. VAR stability

Table 1. Unrestricted VAR test results

	ARS		ARS
ARS(-1)	-0.079186*	Q	1.444073*
	(0.01135)		(0.08676)
	[-6.97879]		[16.6440]
ARS(-2)	-0.305654*	T	2.227123*
	(0.00941)		(0.08845)
	[-32.4883]		[25.1792]
ARS(-3)	-0.363115*	OS	8.851813*
	(0.01859)		(0.19235)
	[-19.5356]		[46.0189]
ARS(-4)	0.710995*	E	0.943395*
	(0.01231)		(0.23472)
	[57.7506]		[4.01930]
ARS(-5)	-0.003122	CR	-4.396055*
	(0.01529)		(0.31390)
	[-0.20416]		[-14.0044]
C	-1.344721*	CO	-2.026629*
	(0.05878)		(0.08877)
	[-22.8768]		[-22.8289]
PAS	-0.506423*	AF	-0.069610
	(0.04311)		(0.11094)
	[-11.7477]		[-0.62747]
TS	-0.052526	M	1.725662*
	(0.11065)		(0.19812)
	[-0.47471]		[8.71008]
RE	2.094968*	IC	0.448945*
	(0.06663)		(0.04856)
	[31.4411]		[9.24489]
	R-squared	0.999976	
	Adj. R-squared	0.999575	
	Sum sq. resids	0.018816	
	S.E. equation	0.137171	
	F-statistic	2492.758	
	Log likelihood	38.75634	
	Akaike AIC	-2.184878	
	Schwarz SC	-1.290146	
	Mean dependent	-0.389474	
	S.D. dependent	.655732	

*Standard errors in ( ) & t-statistics in [ ], * indicates statistically significant at 5% level of significance*

1.73% and 0.45% respectively while expansion in ARS at lag 4 improves growth in the current quarter by 0.71%. Growth in agriculture, Transport and storage had no statistically significant influence on growth of ARS in Kenya.

The results conform to the findings of Antonio et al. [13], Sidorkiewicz and Puciato [12], Moaveni [11] who established that macroeconomic and other external factors influence growth of the hospitality sector.

Table 2. Lag length

	LL	AIC	SC
1	-75.58994	7.790429	8.481600
2	-70.62880	7.784437	8.528329
3	-54.58365	6.722252	7.518079
4	-18.87515	3.587515	4.433887
5	38.75634*	-2.184876*	-1.290146*

indicates optimal lag length

The goodness of fit analysis based on a coefficient of determination ($R^2 = 0.99$) and an F-statistic of 2492.758 indicate that the variables model (1) explained 99% of changes in the growth of ARS in Kenya. Fig. 2 shows that none of the inverse roots fall outside the circle an indication that the unrestricted VAR model is stable. Diagnostic test results in Tables 2, 3, 4 and 5 and 6 depicted that the optimal lag length was 5, no autocorrelation, residuals were normally distributed, no multicollinearity and there was no heteroscedasticity.

Table 3. VAR residual portmanteau tests for autocorrelations

Null Hypothesis: no residual autocorrelations up to lag h					
Lags	Q-Stat	Prob.	Adj Q-Stat	Prob.	df
1	4.46E-05	NA*	4.70E-05	NA*	NA*
2	0.109777	NA*	0.122689	NA*	NA*
3	0.109995	NA*	0.122949	NA*	NA*
4	0.359645	NA*	0.439171	NA*	NA*
5	1.491723	NA*	1.975562	NA*	NA*
6	1.551717	0.2129	2.063246	0.1509	1
7	1.890803	0.3885	2.600133	0.2725	2
8	2.258214	0.5206	3.234752	0.3568	3
9	2.266452	0.6869	3.250403	0.5168	4
10	3.046379	0.6928	4.896916	0.4286	5
11	3.126410	0.7928	5.086990	0.5327	6
12	3.189442	0.8669	5.258077	0.6285	7

The test is valid only for lags larger than the VAR lag order.
df is degrees of freedom for (approximate) chi-square distribution
df and Prob. may not be valid for models with exogenous variables

Table 4. VAR residual normality tests

Null Hypothesis: residuals are multivariate normal				
Component	Skewness	Chi-sq	df	Prob.
1	-0.511609	0.828855	1	0.3626
Joint		0.828855	1	0.3626
Component	Kurtosis	Chi-sq	df	Prob.
1	2.385791	0.298658	1	0.5847
Joint		0.298658	1	0.5847
Component	Jarque-Bera	df	Prob.	
1	1.127513	2	0.5691	
Joint	1.127513	2	0.5691	

Table 5. Variance inflation factors

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	4.079143	1.105710	NA
PAS	1.427495	1.635640	1.626444
TS	0.796045	1.832865	1.830333
RE	8.273879	1.672720	1.671318
Q	3.708902	3.016052	3.016052
T	1.360600	2.506987	2.505348
OS	6.317100	3.452506	3.441774
E	14.79847	4.036407	3.941068
CR	112.1055	1.266158	1.213401
CO	0.551484	2.980972	2.979599
AF	2.298105	6.522901	6.522371
M	6.178009	9.287960	9.275138
IC	2.357457	6.473297	6.460472

Table 6. Heteroskedasticity test: Breusch-Pagan-Godfrey

F-statistic	2.205061	Prob. F(12,11)	0.1005
Obs*R-squared	16.95262	Prob. Chi-Square(12)	0.1514
Scaled explained SS	3.740249	Prob. Chi-Square(12)	0.9877

5. CONCLUSION AND RECOMMENDA-TIONS

The aim of this study was to investigate the influence of corona virus disease (COVID-19) and other external factors on growth of ARS in Kenya. The results based on first objective of determining the influence of COVID-19 on the growth of ARS in Kenya led to the conclusion that COVID-19 has a negative influence on the growth of ARS in Kenya. In examining the external factors influencing the growth of ARS in Kenya it is concluded that professional, administrative and support services, construction and past ARS growth at 1 to 3 lags influences growth of ARS in Kenya negatively. On the other hand, real estate growth, time trend, tax on products, other services, education, manufacturing, information and communication and past growth in ARS at lag 4 influences growth in ARS sector positively. It was also noted that growth in agriculture and transport and storage do not influence ARS in Kenya. Therefore, COVID-19, professional, administrative and support services, construction and past ARS growth, real estate growth, time trend, tax on products, other services, education, manufacturing, information and communication are the main determinants for the growth of ARS in Kenya. The study therefore recommends that to realize the objective of improving growth of ARS that will raise revenues from the tourism sector it is necessary for investors, the government and other stakeholders to have a paradigm shift of considering the wider macroeconomic and other external factors rather than internal factors that influence hotel industry hence realize optimal growth based on the prevailing conditions. This will lead to the reaping of maximum benefits from ARS that will create employment, promote growth and reduce poverty.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Dimitrić M, Žiković IT, Blecich AA. Profitability determinants of hotel companies in selected Mediterranean countries. Economic Research-Ekonomska Istraživanja. 2019;32(1):1977-1993.
DOI: 10.1080/1331677X.2019.1642785

2. Kapiki ST. Factors enhancing economic performance in hospitality. The paradigm of Greek hotel companies. Journal of Tourism, Hospitality & Culinary Arts. 2012;4(2):7-18.

3. Republic of Kenya. Sector plan for tourism 2013-2017. Nairobi: Ministry of East African Affairs, Commerce and Tourism; 2013.

4. Republic of Kenya. Tourism sector performance report 2018. Nairobi: Ministry of Tourism and Wildlife; 2018.

5. ILO. Developments and challenges in the hospitality and tourism sector. Geneva: International Labour Organization; 2010. ISBN: 978-92-2-123947-5.

6. Attila AT. The impact of the hotel industry on the competitiveness of tourism destinations in Hungary. Journal of Competitiveness. 2016;4:85-104.

7. PWC. African insights- Hotels outlook: 2017–2021 (7th Ed.); 2017.

8. KNBS. Statistical release: Gross domestic product 1st quarter. Nairobi: Kenya National Bureau of Statistics; 2014.

9. KNBS. Statistical release: Gross domestic product report, 3rd quarter, 2019. Nairobi: KNBS; 2019.

10. Bresciani S, Thrassou A, Vrontis D. Determinants of performance in the hotel industry – An empirical analysis of Italy. Global Business and Economics Review. 2015;17(1):19-34.

11. Moaveni G. Determinants of profitability in tourism industry: Evidence from Turkey (Master's Thesis). Gazimağusa, North Cyprus: Eastern Mediterranean University; 2014.

12. Sidorkiewicz M, Puciato D. Location as a determinant of development of business hotels operating in the meeting industry. KNUV. 2017;4(54):186-197.

13. Antonio AF, Fernando CP, Juan PGB. Identification of the key factors for success in the hotel sector. Intangible Capital. 2018;14(1):74-98.

14. Singh AJ, Kim SJ, Johnson M, Mandelbaum R. Macroeconomic variables and hotel performance: Good and bad news. ICHRIE Research Report; 2016.

15. Paiva IS, Lourenço IC. Determinants of earnings management in the hotel industry: An international perspective. Corporate Ownership & Control. 2016;14(1):449-457.

16. Gujarati DN. Basic econometrics (4th Ed.). New York: McGraw-Hill Companies; 2004. ISBN 13: 9780070597938.

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