Journal of Sustainability Science and Management
Volume 19 Number 3, March 2024: 102-109
eISSN: 2672-7226
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SYCOPHANT CURVE MODEL AND PEARSON CORRELATION COEFFICIENT: AN APPLICATION TO BEHAVIORAL CHANGE IN NIGERIA

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http://doi.org/10.46754/jssm.2024.03.007
Submitted final draft: 29 October 2023 *Accepted: 117 November 2023* *Published: 15 March 2024*

Abstract: This study investigates the behavioural switch and relationship of people (associates) towards a transiting chief executive officer (CEO). During the tenure of a new CEO, the rate of patronage of different categories of people seeking political and economic relevance increases over time, but as the CEO's tenure wanes, the patronage behavioural pattern decreases. The sycophant curve model (SCM) was proposed to determine the behavioural pattern change of patronage at the onset and transitioning of the CEO tenure to a new CEO. The Pearson correlation coefficient (PCC) was also investigated. The results revealed that during the tenure of any CEO, the associate behaviour is increasingly positive, while during the transitioning period and beyond, the rate of the behavioural switch by associates decreases gradually. The PCC ($r_p = 0.9966$) affirmed a strong positive relationship between the CEO and associates for four years. Meanwhile, $r_p = –0.9966$, indicating a strong negative behavioural switch between the CEO and associates after four years of transition and beyond. This study demonstrated that during the tenure of any CEO, the behavioural switch of the associates towards the CEO is extremely minimal and gradually increases after the transition period and beyond.

Keywords: Sycophant Curve Model, Pearson correlation, behavioural change.

Introduction

The concept of change has been defined as one of the stable phenomena that no human can evade. Therefore, change is believed to occur and is constant. Behavioural change may be due to many factors, especially scientific and technological breakthroughs and sociocultural, socioeconomic, and sociopolitical situations. One such instance was the outbreak of Covid 19 in 2019, which necessitated global behavioural changes (Ahad *et al*., 2020; Okwonu *et al.,* 2020a; 2020b; 2021a; 2021b). In other words, people with political and economic affinity tend to change with slight perturbation to places of interest (Bertrand *et al*., 2016). Generally, people's behaviour is extremely difficult to change, especially when personal interest is considered a means to enhance sociopolitical and socioeconomic advancement (Rasak *et al*., 2017; Salon *et al*., 2021).

Socioeconomic interest tends to induce individual behavioural change. Certain factors often cause behavioural change, as the study by Tosun *et al*. (2020) revealed the transition from drinking bottled water to tap water in Europe. In general, patronage behavioural changes often occur due to personal interest and stability of social status. Before the 2023 general elections in Nigeria for instance, many people feared that their political relevance and socioeconomic status were threatened, and that led to pattern behavioural changes of people defecting from one political party to another to maintain their political and social affinity. Several studies on behavioural changes and patronage concerns abound (Zhang & Wang, 2014; Fesenfeld, 2021) in the literature.

Background

The chief executive officer (CEO) refers to an elected president, governors, senators, and appointed political office holders such as ministers, commissioners, director generals, and chairpersons of government establishments. This study looks at the loyalty these categories of people enjoy when in office and the degree of loyalty they want from associates when they exit the office or transmit power to new officials.

Just as the saying goes, time heals wounds. The data is based on the tenure of the CEO in office which is time-bound and unbounded when they exit office. For instance, an elected executive President of the United States of America and a Nigerian President are time-bound for a minimum of 4 years and a maximum of 8 years, after which another president would emerge. We look at the period they were in office, how people respected and attended to them, and how people respected and obeyed them when they exited the office. We observed that during the period of the presidents in office, many loyal associates tend to protect and respect the president in office, but as time goes on when they have left office, many of these associates may partway, and many associates may not accord much protection and respect over time. Therefore, the data set is time-bound when the president is in office and unbounded after they have exited or transited office to another president. Like former United States President Donald Trump crossing to President Joe Biden or President Muhammadu Buhari of Nigeria, who passed power to President Bola Ahmed Asiwaju. Within this period, we would observe the change in loyalty among staff, friends, party men and women, contractors, businessmen/women, and political associates (Shishima, 2022; Ekong & Essien, 2012). Therefore, the data set is time-bound and unbound.

Behavioural change often occurs when the new CEO assumes duties. This happens among people seeking undue favour from the new leadership to protect their interest in business and appointments. In many instances, associates of former leaders tend to transfer their loyalty to the new leader to retain their jobs, duty posts, businesses, contracts, and promotions. When this occurs, the former leader tends to lose most of their associates to the new leader and this trend continues unabated in human history (Islam, 2004; Drane, 2006; Chahal Jhatial *et al.,* 2012; Poonam, 2015). Therefore, behavioural change is mainly associated with personal interest, that is Qui Jang Qui Lee: Myself my benefit.

Literature review

Previous studies tried to determine if sociocultural factors and maternal mortality health behavioural changes affect maternal health (Yarney, 2019). In this study, we intend to investigate patronage behavioural changes between chief executive officers (CEO) and associates with political or personal affinity during the onset and transition period and beyond of a CEO. Therefore, the study tends to determine the strength of the relationship between associates and their CEO during the tenure, transition, and beyond patronage behavioural changes. To achieve the above, the sycophant curve model (SCM) was proposed, and the Pearson correlation coefficient (PCC) was applied to validate the outcome of the SCM. Therefore, the sycophant curve model could be described as an increasing patronage behaviour of people or associates that are relevant in the system during the tenure of the CEO and a decrease in patronage behaviour during the transition and beyond. Meanwhile, the PCC is well-studied to determine the relationship between two things. It is applied to determine how strong or weak the relationship or associations are positively or negatively correlated (Okwonu *et al*., 2021b). This study further focused on patterns of behavioural changes of a tenure and transition period of a system headed by a CEO over a long period. The SCM and the PCC were applied to determine behavioural pattern patronage switch towards the CEO during the tenure, transition, and beyond. The SCM relies on the duration of the CEO as an input to determine behavioural pattern migration. After the SCM has generated the data, the sycophant curve is obtained based on the period of the CEO under review. To

validate the output of the SCM, the PCC was invoked to determine the degree of behavioural pattern association between the CEO and the associates when in office, in transition, and beyond.

The rest of this article is arranged as follows. Section 2 describes the sycophant curve model and the Pearson correlation coefficient. Section 2 also contains the benchmark description of the PCC, together with data collection. The results based on the SCM and the PCC are presented in Section 3, followed by a conclusion in Section 4.

Materials and Methods

This section describes the sycophant curve model and the Pearson correlation coefficient to study behavioural pattern change toward CEOs during their tenure, transitioning, and beyond the relationship between former associates. The sycophant curve model was designed to determine the dimensions of behavioural changes or swing when a politically exposed person (PEP) is in office and when they have left office or any office holder's tenure expires. The degree of flattery which is more dangerous than biological warfare, has been extended to different facets of human existence. It's simply a silent destroyer in which the sycophant experts often peddle rumours about other people to curry favours from PEP. Therefore, to our knowledge, detailed mathematical descriptions and graphical analyses of the behavioural swing over time have not been discussed to expose the sycophant expert behavioural swing from person to person. Hence this model was designed to tell and to explain in general that with time, the sycophants would abandon the former PEP (their former boss) because he has left the position of authority (political office), thereby exposing them with time that the cordial relationship and frequent visitation and interaction was associated to the office which they occupy. The curve tells us about the decline in personal relationships over time when the PEP tenure has expired. Unfortunately, sycophancy has gained prominence in the educational sector in several higher institutions of learning, workplaces, hospital management positions, armed forces, police forces, customs, traditional institutions, political party administrations, and governance in general. Therefore, this model provides a novel mathematical and graphical analysis to study behavioural swing over time. In general, the sycophant's curve model was coined to investigate close associates' behavioural changes during their boss's incumbency and to determine the time unbounded loyalty to their former boss after exiting the office. This study will justify the operational behavioural swing of sycophants over time. Therefore, this model is original because such a model has not been found in the body of literature and is novel to determine the effectiveness of sycophancy globally. Succinctly, sycophancy is a self-cured cancer that dies with time. Cancer grows when the sweetness is abundant but gradually dies down when the sweetness turns sour.

Sycophants curve model

The SCM is a special model that describes behavioural changes concerning time and relevance. This phenomenon is a steady altitudinal order in third-world countries with Nigeria as a special case. The statistical concept of the SCM is to develop a model that could predict behavioural changes over time.

Let X_i, $i = 1,2,3, \ldots, k$ be the sequence of the period under review of the CEO (years, months, weeks, days), is defined as the probability of neutrality. Then, the SCM is described as follows,

$$\Delta_i = X_i\alpha + ln(X_i) - \left(\frac{X_i}{k}\right)\alpha = \nabla_i - \varphi_i \quad (1)$$

where Equation (1) describes the rate of patronage during the onset and tenure of the CEO and Equation (2) describes patronage behavioural changes at transitioning and beyond.

$$\pi_i = \nabla_{i+1} - \nabla_i. \quad (2)$$

Compactly, Equation (1) can be written as

$$\hat{\Delta} = \hat{\nabla}_i - \hat{\varphi}_i \quad (3)$$

where $\hat{\nabla}_i = X_i\alpha + ln(X_i), \hat{\varphi}_i = \left(\frac{X_i}{n}\right) ln(x_i)$.

The subsection below describes the Pearson correlation coefficient to affirm the behavioural relationship during the tenure of the CEO and the transitioning period and beyond the relationship between former associates or aides. The following subsection may reveal the degree of interpersonal relationship between the former Chief executive officer and former associates during the transition and beyond. The uniqueness of this model is that it is not susceptible to influential observations (Okwonu & Othman, 2013a; 2013b). This model could be applied to study politician's lifestyles and influential personalities in good and bad times. The model would expose the natural phenomenon governing human existence regarding wants and needs relationships.

Pearson Correlation Coefficient

From Equations 1 and 2 above, let ∇_i, i = 1,2, ..., k denotes the rate of patronage during the lifespan of the CEO's tenure and represent the rate of patronage at transitioning and beyond, then the Pearson correlation coefficient (r_p) is defined as

$$r_p = \frac{\sum_{i=1}^{k}(\Delta_i-\bar{\Delta})(\pi_i-\bar{\pi})}{\sqrt{\sum_{i=1}^{k}(\Delta_i-\bar{\Delta})^2 \sum_{i=1}^{k}(\pi_i-\bar{\pi})^2}}, -1 \le r_p \le 1 \quad (4)$$

where $\bar{\Delta}=\frac{\sum_{i=1}^{k}\Delta_i}{k}, \bar{\pi}=\frac{\sum_{i=1}^{k}\pi_i}{k}$ (Okwonu *et al*., 2020; Okwonu *et al*., 2021b) are the sample means respectively. Then $r_p \in [1,1]$ is the decision benchmark of the PCC, respectively. Sign directions play a significant role in discussing the personal and interpersonal relationship between the CEO and associates during and after transitioning. The numerical values associated with sign directions are vital to determine the degree of behavioural pattern changes related to a leadership position in third-world countries.

Data Collection

Very recently, in the political space in Nigeria, culminating in the general elections on February 25th and March 18th, 2023, the Nigerian political space witnessed several defections from one political party to another. The reasons are to outsmart others to maintain their political relevance and socioeconomic status among political peers over time. Therefore, the Nigerian political space recognises a maximum of two tenures of four-year term limits for the president and the governors. The probability of neutrality is 0.5 and the lifespan or tenure is represented by which is user-defined. Therefore, we shall apply the above information to investigate the degree of patronage behavioural changes and the relationship between the CEO and associates during the tenure, the transition period, and beyond.

Results and Discussion

In this section, we apply Equations 1 and 2 to determine the rate of patronage behavioural changes during the active lifespan of the CEO and the transitioning period. Figure 1 is a four-year tenure patronage behavioural change. In the first instance, the rate of patronage increases drastically, but after transitioning to a new CEO, we observed that the patronage behaviour towards the former CEO starts to decline at a similar rate. To affirm how strong the degree of patronage relationship was at the onset as shown in Figure 1, the Pearson correlation coefficient (Equation 4) was computed. The result showed a very strong positive relationship between behavioural patronage during the active lifespan of the CEO with r_p = 0.9939 and a very strong negative patronage relationship at transitioning and beyond with r_p = –0.9996. This affirmed that the high rate of patronage during the onset of the former CEO's tenure is associated with sociopolitical and economic gains of the office and also demonstrated that the declining rate of patronage is related to the transitioning of the CEO, who may have transferred the political and economic power to another CEO. Therefore, the declining behavioural trend after transitioning and beyond indicates a loss of power, relevance, affluence, and influence. This implies that the loyalty or patronage of the former associates would gradually be transferred to the new CEO. In

this case, some former associates may have transferred their loyalty to a new CEO to remain politically and economically relevant. A similar scenario is observed in Figure 2 and Figure 3, respectively, with strong positive and negative associations during and after transitioning and beyond. Therefore, a strong positive patronage behavioural switch is associated with the degree of influence and political and economic benefits that are enthroned in the CEO's office. A transitioning CEO may gradually lose grip of some of the associates over time. Hence, strong positive and negative patronage behavioural switches only imply the nature of humans, which is mystically controlled by gain or loss of influence, affluence, and power over time.

The correlation value for tenure patronage is $r_p = 0.9935$ for two terms of four years. We observed a strong positive relationship between the CEO and associates during the tenure. Meanwhile, at transitioning and beyond, the rate of patronage behavioural decline is strong with $r_p = -0.9993$.

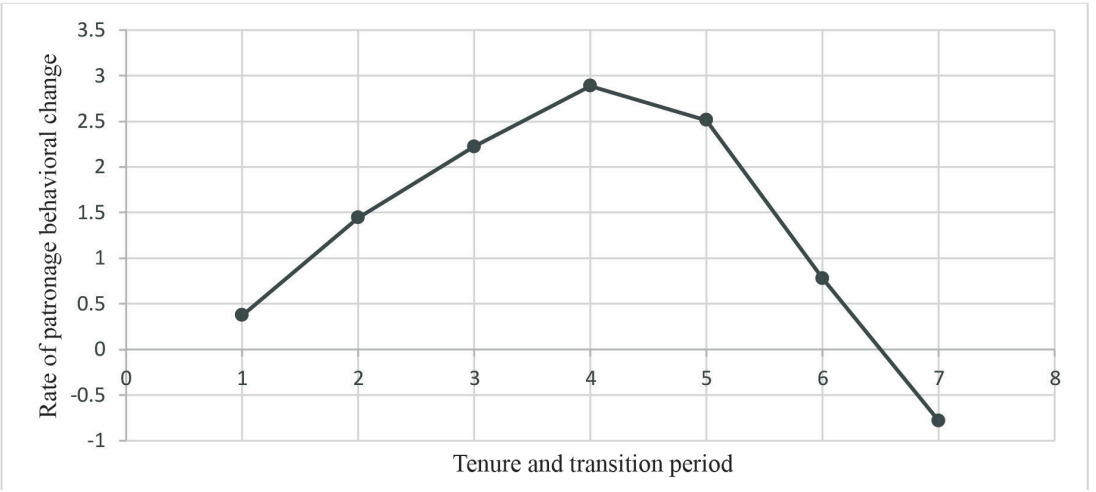


Figure 1: Sycophant curve for one term of four years patronage behavioural change for tenure and transition period

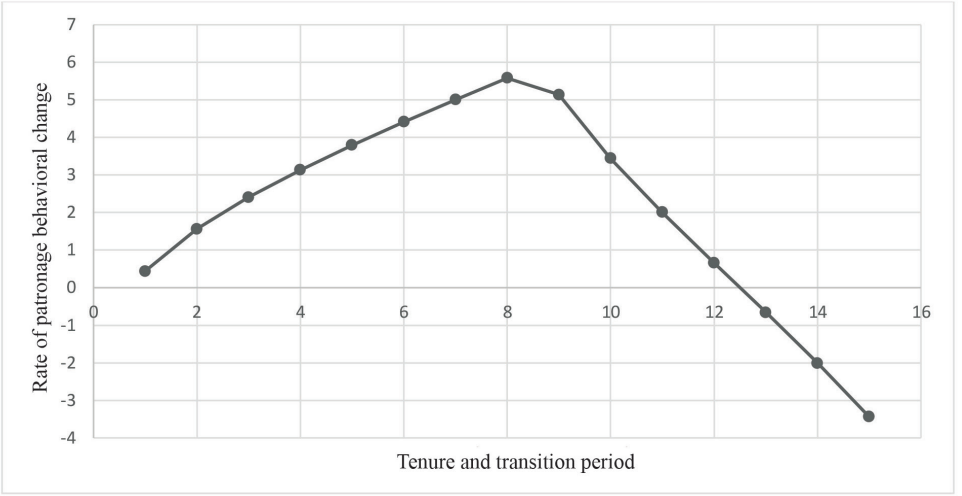


Figure 2: Sycophant curve for two terms of four-year patronage behavioural change for tenure and transition period

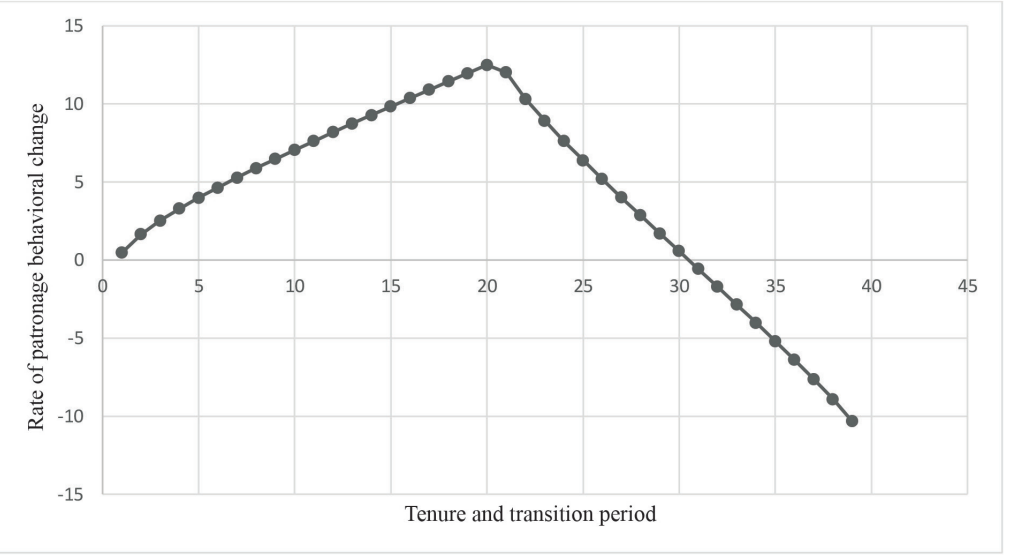


Figure 3: Sycophant curve for several years of patronage behavioural change for tenure and transition period

The behavioural relationship between the CEO and associates was strongly positive with r_p = 0.9966 at the onset. Meanwhile, at transitioning and beyond, the relationship between the CEO and associate declined rapidly with r_p = –0.9979. This implies that as the CEO's tenure waned, some former associates may have transferred their loyalty to a new CEO. Hence the PCC is strongly negatively correlated. This affirmed the results in Figure 3. The analysis demonstrated that most people associate with the office occupants because of their personal gain and social affinity. The PCC further affirmed that many associates would transfer their loyalty to the new office occupant and gradually decline associated with the former occupant. The analysis further indicated that most of these people may not communicate with their former boss over time. This study has shown that the relationship between friends in the office will continue to strengthen.

Conclusion

This study has shown that patronage behavioural change is associated with relevance, affluence, and time. The degree of association between associates and the CEO during the administration's lifespan is positively and negatively correlated after the transition and beyond. This implies that some people relate to the CEO of a public office because of the relevance and benefits of the office. This study affirmed that behavioural switch is a prelude to maintaining sociopolitical and socioeconomic status and relevance over time. The degree of relationship patronage is stronger when the CEO is in office and decreases similarly when the CEO's tenure wanes. While the relationship between the former CEO and former associate may become weak over time, the relationship between the office and the friends of the office will continue to be stronger and blossom as long as the office remains relevant and functional or active. Therefore, this study affirmed that tenured leadership behavioural patronage often switches, and the association will decline after the transition. On the other hand, the official business relationship with the office will continue to be very strong over time. Thus, the study affirmed from the SCM that the relationships between associates and former CEOs decline due to time-unboundedness.

Acknowledgements

This research was supported by the Ministry of Higher Education (MoHE) of Malaysia through the Fundamental Research Grant Scheme (FRGS/1/2020/STG06/UUM/02/3). We would like to express our gratitude to Universiti Utara Malaysia for supporting this research work.

Conflict of Interest Statement

The authors declare that they have no conflict of interest.

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