Investigating accountant's perception on public servants' budget-slack fraud behaviour in developing economies using fraud triangle analysis

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Abstract: This quantitative study investigates the perceptions of accountants in explaining budget-related fraud behaviour of public servants in developing economies using the elements of the fraud triangle theory. Fraud triangle elements constitute the Pressure, opportunity and rationalization dimensions that cause fraud. This study seeks to extend this theory to budget slack fraud investigation in the public sector to fill an existing gap. It therefore aims to test if indications of fraud based on the concept of fraud triangle can be used to detect public servants' budget slack fraud behaviour in developing countries like The Gambia. The population in this study constituted all accountants in the public and private sector. Convenience sampling technique was used to collect primary data via an online questionnaire instrument containing Likert-style questions with 51% response rate. The Likert-style questions drawn on the concept of fraud triangle analysis helped to realize the study's objectives. The result showed that components of Fraud Triangle analysis, Pressure, Opportunity and Rationalization variables have significant combined linear/predictive effect on BSFB, with the greatest influence coming from Opportunity variable. Moreover, the predictors in a multiple regression model generated 73% variance/prediction strength in budget-related fraud behaviour of which 27% are accounted for by residuals. These findings align with literature and have implication for policy and further research.

Keywords: Budget Slack Fraud, Fraud Triangle Theory, Accountants, public servants

**JEL*:* M42, M48, H83

DOI: https://doi.org/10.24818/amp/2024.42-07

Introduction

The Association of Certified Fraud Examiners (ACFE,2016) asserts that fraud poses a significant and hidden threat globally. The consequences of fraud are extensive, affecting various aspects such as profitability, industries, consumer surplus,

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economic growth, and social welfare. Notable cases of fraud, including those involving well-known corporations like Enron, Adelphia, WorldCom, and others, have had severe repercussions on financial markets and the global economy. ACFE highlights that if organizations worldwide experience a 5% loss of their annual income, the total loss due to fraudulent activities amounts to nearly $4 trillion, based on the estimated gross world product of $76.9 trillion. This demonstrates the substantial economic impact of fraud on a global scale. In the public sector, this is mostly implemented through budgets as budget slacks by overstating expenditure and understating revenue.

Hall (2015) describes the state budget as representing the financial system that governs the economic relationships between the state, businesses, and the population. It shows the distribution and redistribution of the overall social product and national income as well as forms a centralized national fund. The essence of the state budget encompasses the fundamental functions of finance and reflects the financial management policy of a specific country (Simionescu, 2016). Sytnyk et al. (2019) argue that it is crucial to prioritize and address managerial issues related to enhancing financial management processes used in budget execution management, monitoring, and control. This study identifies public servants' budget-related fraud behaviour as one of such critical issues which mitigation could help to improve these financial management processes in the public sector's budget execution process.

Fraud in developing economies is quite endemic and cancerous explaining the wide margin between trillions of annual government budgets and tangible developments on the ground (Abdullahi & Mansor, 2015). The Global Economic Crime Survey conducted across 36 countries revealed that public sector organizations face a higher risk of fraud perpetrated by their own employees and suppliers (Mansfield-Devine, 2012). Mansfield-Devine (2012) further holds that this risk is intensified by the budget cuts implemented in many countries within the public sector.

Budget slack fraud is a deliberate overstatement of budget expenditure and/or understatement of budgeted income for mostly ulterior reasons. In the case of expenditure being our focus, budget slack reduces available public funds for developmental programs of government. Budget slack fraud behaviour research dominates budgeting literature (Briers and Hirst, 1990) under different themes as a typical Google search will reveal in 0.07s about 270,000 results. However, this study focuses on two interconnected debates and understanding of their relationships. First, is that budget slack and related frauds although extensively researched is still unresolved (Defuss, 2013:1; Covaleski et al, 2006). Second, understanding the factors that contribute to fraud is crucial in preventing and mitigating fraudulent practices.

Previous studies, such as those by Dellaportas (2013) and Kassem (2012), have identified that fraud perpetrators are influenced by factors outlined in the Fraud Triangle Theory proposed by Cressey (1953). The theory highlights three conditions that commonly lead to fraudulent behaviour: opportunities, pressure, and rationalization. Research conducted by Hanim et al. (2017) has further supported the relationship between these fraud triangle elements and the occurrence of fraud. The

objective of this study therefore is to assess the impact of the fraud triangle elements (pressure, opportunity, and rationalization) on the occurrence of budget-related fraud activities in the developing economies in The Gambia context where data is possible. The central question addressed in this study is whether the fraud triangle elements alone are sufficient in preventing and reducing budget-related fraud in developing economies. This question is of significant interest including for further research as it can inform the development of policies and programs aimed at combating fraud generally and budget slack /related frauds particularly. This study in seeking to answer this question therefore contributes to literature by extending the Theory of Fraud Triangle specifically to investigate budget slack fraud behaviour of public servants in developing countries.

This paper is structured in the following order. Section 1 presents the theoretical background under literature review. Research methodology is presented in section 2, while results and discussion is presented in section 3. Section 4 presents the conclusion.

1. Literature review

1.1. Fraud Triangle Theory

The fraud triangle theory attributed to Cressey (1953) is commonly utilized by psychologists and sociologists to explain criminal behaviour within organizations (Simbolon et al.,2019). Cressey conducted interviews with over 120 individuals imprisoned for white-collar crimes, specifically embezzlement. He identified the elements of the fraud triangle as significant factors contributing to the commission of financial crimes, emphasizing that motivation extends beyond financial gain alone. Cressey's empirical data from the 1950s forms the foundation of the theory, which identifies pressure, opportunity, and rationalization as predictive factors for fraudulent behaviour. Despite earlier studies' mixed results on the theory's correlation with fraud and fraud mitigation, it still provides insights into the mindsets of criminals.

Figure 1. Fraud Triangle
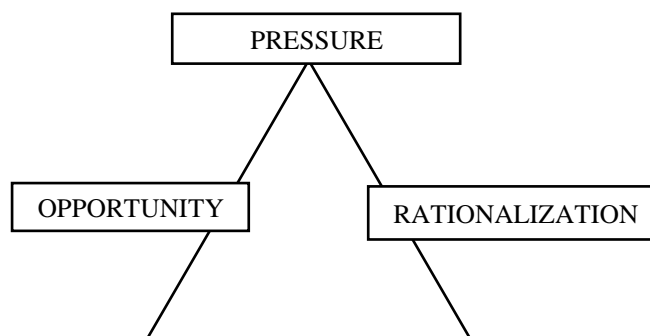
Source: Cressey, 1953

Figure 1 depicts Cressey's (1953) Fraud Triangle diagram showing the three elements that influence fraud behaviour: pressure, opportunity and rationalization.

A. Pressure

Cressey (1953) stated that the pressure element represents the financial demands that arise because of different challenges which Dorminey et al. (2010) list as gambling addiction, alcoholism, or pressure from family and friends. Omar et al. (2017) identify financial pressures and a luxurious lifestyle as fraud motivations. Omar et al. (2017) also confirm that pressure induces dysfunctional behavior and motivates negative actions. Zou et al. (2018) found that pressure contributes positively to the occurrence of fraud. The study also found that CEOs and CFOs with relatively lower fees tended to commit fraud. In addition, some auditors do not carry out sufficient testing under budget and time pressure, thereby reducing audit quality and their ability to detect fraud (Verwey et al., 2017). Pressure can come from the individual himself, internal and external strength of the CFO that will trigger manipulation of financial performance (Bishop et al., 2017). Such manipulation in the case of the public sector is affected by budgets. Against this background, the hypothesis below is proposed.

H1: Pressure has a positive effect on budget slack fraud behavior.

B. Opportunities

Opportunities for fraud are observable factors that can be identified by auditors (Dorminey et al.,2010), as they are related to the internal controls within an organization. These opportunities arise from weaknesses in control systems, such as inadequate supervision or the lack of separation of duties, which allow fraudsters to believe they can commit fraud without being detected (Omar et al.,2017). Fraud becomes more efficient and effective when internal control mechanisms and regulatory compliance are compromised (Imoniana et al., 2016).
According to a survey by ACFE (2018), the main cause of fraud is attributed to the lack of internal control. Long (2009) concurs that a robust internal control system can mitigate or make it difficult to carry out financial crimes or fraud. Morales (2014) suggests that implementing a whistle-blower policy can also reduce non-compliance with policies and procedures. External audits serve as an important indicator of internal control for stakeholders, enabling them to monitor the integrity of financial reporting quality and mitigate earnings management. In public sector budgeting the role of monitoring and ensuring internal control effectiveness rests with the internal auditors. But the challenge is that controls can be compromised by collusion. Based on the foregoing analysis, the hypothesis below is proposed.

H2: Opportunity has a positive effect on budget slack fraud behavior.

C. Rationalization

Rationalization is an unobservable element in the fraud triangle that refers to the moral justifications and beliefs fraudsters use to justify their illegal actions. It involves creating explanations such as "I'm just borrowing funds," "everyone else is doing it," or "I was deceived by the leader financially." This component is challenging to measure as it relates to an individual's behavior and character (Skousen,2009), making it difficult for auditors to observe the mindset of fraud perpetrators (Dorminey,2010).

Fraud perpetrators often rationalize their actions either before or after committing fraud, attempting to justify their behavior (Dellaportas,2013). The practice of fraud can lead management to view it as something that is common or expected (Dellaportas,2013). Minimizing or eliminating rationalization is an important strategy in fraud prevention efforts (Slezak,2013). Fraudsters may acknowledge the dishonesty of their actions but rationalize them based on contextual factors (Ramamoorti,2008).

Additionally, another form of rationalization occurs when fraud perpetrators lack empathy for their victims and view their actions as a form of revenge due to a perceived injustice (Harrison,2017). This highlights the complex psychological processes that contribute to fraud-related rationalization. Therefore, we proposed the third hypothesis as follows:

H3: Rationalization has a positive effect on budget slack fraud behaviour.

2. Research methodology

This quantitative research employed a cross-sectional design and was conducted in The Gambia public sector. G*Power analysis (Table 1) was used to derive a 79-sample size from a population of university graduates with financial knowledge based on an a priori 0.35 effect size (Figure 2 and Table 1).

Figure 2. Distributions plot for a priori sample size
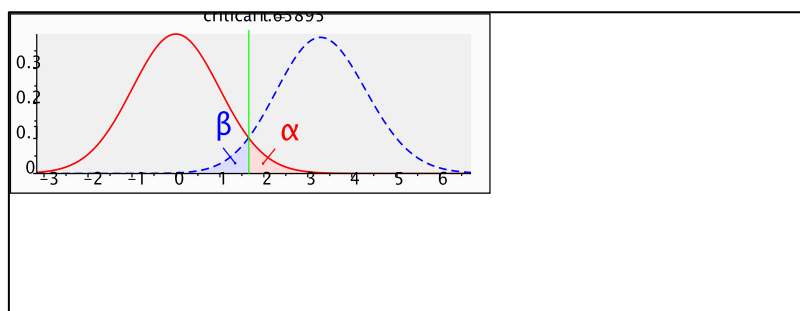
Source*:* Udoh and Popesko, 2023

Table 1. A priori computed required sample size

| Input Parameters		Output Parameters	
Tail	One	Non-centrality parameters δ	3.32.
Effect size |Þ|	0.35	Critical t	1.66
α err prob	0.05	Df	77
Power (1-β prob)	0.95	Total sample size	79
		Actual power	0.95

Source: Authors' contribution

The sample was then drawn by snowball sampling strategy from the authors' network in social media platforms as well as former students and faculty colleagues at the University of The Gambia. This convenient purpose sampling technique was explored for ease of data collection. In addition, telephone calls were made along with follow-up text messaging for respondents' email addresses which were then used for a web-based questionnaire using a Likert-style questionnaire to collect primary data. Data was thereafter analyzed with multiple regressions and descriptive statistics. Moreover, respondents of this research had the authority to use the budget, as managers and departmental heads in The Gambia public sector. The entire data collection process took two months to complete from the 6th of May to the 30th of June,2023.

3. Results and discussions

3.1. Demographic distributions.

Respondents' demographic profiles are related to their gender, education, sector, and department. Most respondents were female (55%). Further, all the respondents had a university education, with even 10 respondents (25%) having a graduate degree. Sectoral distributions are shown in Figure 3 below.

**Figure 3. Identified sectoral allocation of respondents**
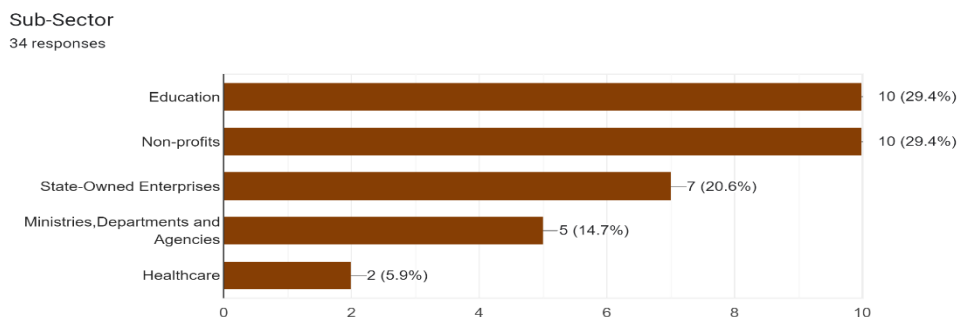
Source: Udoh and Popesko, 2023

Responses data obtained from 40/79 (>50%) respondents comprised Academics, Public Accountants, Internal Auditors and National Auditors. Respondents were spread across non-profits, state-owned enterprises, healthcare institutions, educational institutions, and the Civil Service or Ministries, Departments, and Agencies (MDAs) as shown below for respondents who identified their sectors. Finally, departmental distributions are presented also below.

**Figure 4. Identified departmental allocation of respondents.**
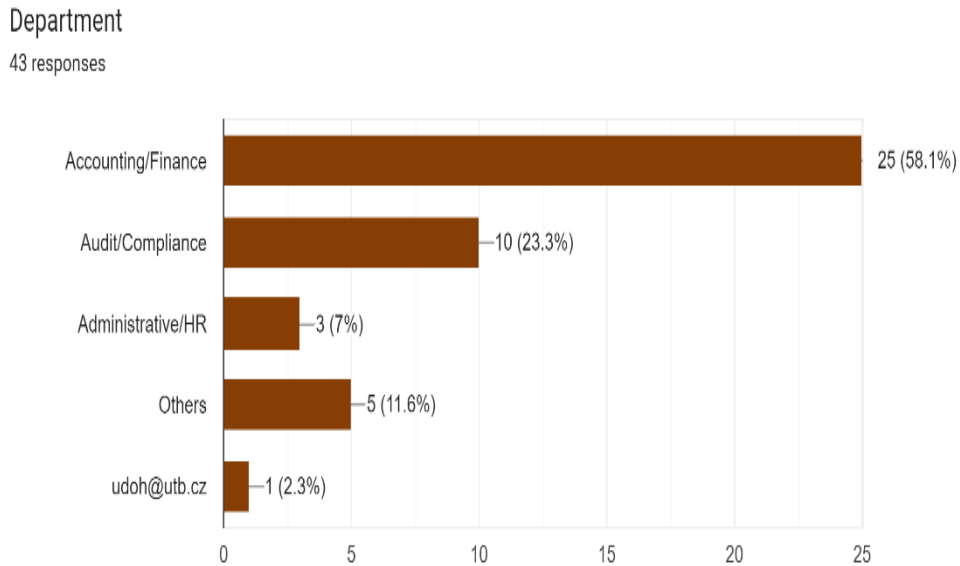
Source: Udoh and Popesko, 2023

Moreover, the results are reported under descriptive statistics and inferential statistics. In the descriptive statistics we first consider the normality test for the normal distribution of data, measures of central tendencies and variability given in Figure 5 and Table 2 respectively below. Inferential statistics was compared against benchmarks for the reliability and variability of the measurement instrument as well as hypotheses testing.

3.2. Normality test

The normality test aims to test whether, in the regression model, the intruder or residual variable has a normal distribution. To test whether the residual is normally distributed or not we used the standard two ways that is by graph analysis and statistical test per Figure 5 and Table 2 below.

Figure 5. Normality Test Measure
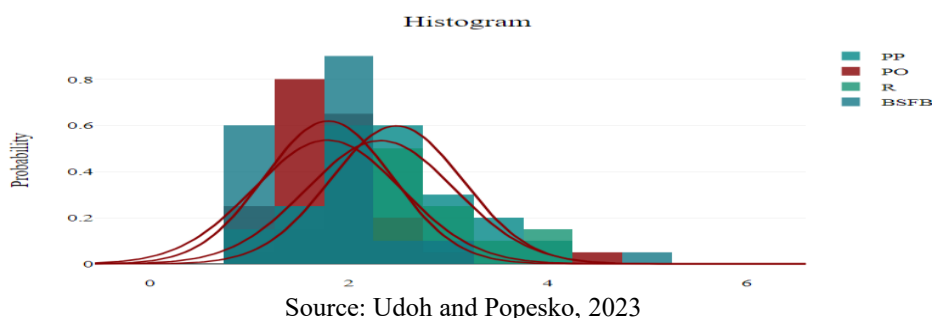
Source: Udoh and Popesko, 2023

Table 2. Descriptive statistics (Numerical data description)

	PP	PO	R	BSFB
Mean	2.48	1.8	2.32	1.79
Std. Deviation	0.68	0.65	0.76	0.75
Minimum	1	1	1	1
Maximum	4	4.67	4	5
Skew	0.33	2.28	0.42	2.05
Kurtosis	-0.02	8.8	-0.04	7.45

Source: Authors' contribution

3.3 Multicollinearity Test

Table 3. Collinearity Statistics

Model	Collinearity Statistics	
	Tolerance	Variance Inflation Factor (VIF)
Constant		
Perceived Pressure (PP)	0.50	1.99
Perceived Opportunity (PO)	0.47	2.13
Rationality	0.36	2.81

Source: Authors' contribution

Problematic if Tolerance < 0.10 or VIF > 10

Table 3 above shows that all independent variables have a tolerance value greater than 0.10 which means there is no correlation among independent variables whose value is more than 95%. The result of the calculation of the Variance Inflation Factor (VIF) value also shows the same thing that all independent variables have a VIF value smaller than 10. Then it can be concluded that the regression model in this research has been free from multicollinearity problems.

3.4. Hypothesis Testing

A multiple linear regression analysis was performed to identify the linear relationship if any between fraud triangle elements Perceived Pressure (PP), Perceived Opportunity (PO), and Rationalization (R) and the criterion variable Budget Slack Fraud Behaviour (BSFB) or budget-related fraud behavior of public servants in developing countries. The following regression model is obtained: BSFB = -0.04+0.2PP+0.6PO+0.11R. It was found that fraud triangle elements together did affect budget slack fraud behavior, where the p-value was significant at 5 percent (0.001). Thus, there is a high 73% linearity (R) among the variables which also represents the effect size (Table 4 and Table 5 respectively below).

Table 4. Model Summary   Table 5. ANOVA

R	R^2	Adjusted R^2	Standard error of estimate	Model	df	F	P
0.73	0.53	0.49	0.54	Regression	3	13.52	<0.001

Source: Author's contribution

a. Predictors: (Constant), Rationalization, Opportunity, Pressure
b. Dependent Variable: Budget Slack Fraud Behaviour

Furthermore, the regression model showed that the variables PP, PO, and R explained 53.0% of the 73% variance from the variable BSFB while the residuals account for the remaining 47% and 0.27 of R is a measure of the predictive accuracy/strength of the model (benchmark >0.10). This indicates a significant ability of independent variables (Effect Size (f^2): PP=1.0; PO=1.0; R=1.0) to explain the dependent variable. Moreover, a 73% correlation is very material to validate FTT and the regression model's fitness.

Moreover, an ANOVA (Table 5) was used to test whether this value was significantly different from zero (Ho =0). Using the present sample, it was found that the effect was significantly different from zero (F=13.52, $p = <.001$, $R^2 = 0.53$). This indicates that the regression model can be used to test the effect of independent variables: Pressure Opportunity, and Rationalization, on Budget-Related fraud behaviour of public servants' universe since the significance value is less than 0.05 (p <0.001).

So, it can be concluded that the predictors Pressure, Rationalization, and Opportunity are significantly influential together with other factors on Budget-Related Fraud Behaviour of public servants in developing economies particularly.

The hypotheses were further tested using correlation (r) (Table 6) together with standardized regression coefficients (Table 7) below.

Table 6. Correlation (*r*) size

	r	P(2-tailed)		R	P (2-tailed)		r	P (2-tailed)
PP and BSFB	0.55	<.001	PO and BSFB	0.7	<.001	R and BSFB	0.61	<.001

Source: Authors' contribution

Table 6 indicates significant associations between the elements of the fraud triangle as predictors and the criterion variable, budget slack fraud behavior (BSFB) with perceived opportunity having the highest observed effect size of 0.7.

Furthermore, the contribution of the predictor to explain the measured variable or degree of its relevance to the multiple regression model was tested using the standardized regression coefficients shown below in Table 7).

Table 7. Standardized regression coefficients

Model	B	Beta	Standard error	T	p	95% confidence interval for B	
						Lower bound	Upper bound
(Constant)	-0.04		0.34	-0.12	.907	-0.72	0.64
PP	0.2	0.18	0.18	1.11	.274	-0.17	0.56
PO	0.6	0.52	0.19	3.12	.004	0.21	0.99
R	0.11	0.11	0.19	0.57	.571	-0.28	0.5

Source: Authors' contribution

The standardized coefficients betas are independent of the measured variable and are always between -1 and 1. The larger the amount of beta, the greater the contribution of the respective independent variable to explain the dependent variable BSFB. In this model, the variable PO has the greatest influence of 0.52 on the variable BSFB (Table 7).

The first objective of the study was to investigate the impact of perceived pressure as a component of the fraud triangle on budget slack fraud behavior. Hypothesis H1 suggested a positive relationship between perceived pressure and budget slack/related fraud behavior. A Pearson correlation was then performed to determine a correlation presence between variables PP, PO, R, and BSFB. The result of the Pearson correlation in Table 6 above showed that there was a high, positive significant correlation between PP and BSFB, r (38) = 0.55, p = <.001). However, based on the results presented in Table 7, the coefficient for perceived pressure is 0.18 with a t-value of 1.11 and a p-value of 0.274. Since the p-value is more than 0.05, it indicates that perceived pressure does not have a significant influence on budget-related fraud behavior of public servants despite the positive relationship. This finding contrasts with the study by Simbolon et al. (2018) on public sector

executives but supports the positive effect findings of Dellaportas et al. (2013) and Hanim et al. (2018).

Another purpose was to investigate the impact of perceived opportunity on fraud. Hypothesis H2 suggested a positive relationship between opportunity and fraud. A Pearson correlation was conducted to verify or falsify any correlation between variables PO and BSFB; the result in Table 6 above showed that there was a very high, positive significant correlation between PO and BSFB, r (38) = 0.7, p = <.001). However, in our specific context of budget slack fraud behaviour among public servants in developing economies, the results presented in Table 7 show a high coefficient of 0.52 for opportunity, with a t-value of 3.12 and a p-value of 0.004. Since the p-value is less than 0.05, it indicates that perceived opportunity has a significant influence on budget-related fraud and can increase the behaviour because of the positive sign. These findings align with the results reported by Dellaportas et al. (2013) and Hanim et al. (2018) who found a positive effect of opportunity on the occurrence of fraud.

The final objective was to examine the influence of the third element of the fraud triangle, namely the rationalization of fraud. H3 proposes that there is a positive influence between rationalization and public servants' budget slack fraud behaviour in developing economies. The result of the Pearson correlation in Table 6 above showed that there was a high, positive significant correlation between R and BSFB, r (38) = 0.61, p = <.001). Furthermore, based on Table 7, the coefficient for rationalization is 0.11, t = 0.57, p = 0.571. In this sample, because the p-value is >0.05, rationalization has an insignificant effect on budget-related fraud behaviour of public servants in developing economies. The result of this study aligns with Simbolon et al. (2018) but contradicts Dellaportas et al. (2013) and Hanim et al. (2017), who found that rationalization had a positive effect on the occurrence of fraud.

In regression analysis, p-values assess whether the coefficients are significantly different from zero in the population. A null hypothesis (H0=0) is tested for each coefficient, with H0 being maintained if p ≥ 0.05, indicating that the coefficient in the population is not different from zero. If p < 0.05, the null hypothesis is rejected, suggesting a significant difference from zero in the population. In this analysis, the coefficients for PP and R are not significantly different from zero (p = .274 and .571, respectively), while the coefficient for PO is significantly different from zero (p = .004). Consequently, only Perceived Opportunity has a significant effect on budget slack/related fraud behavior of public servants in developing countries. This position agrees partially with extant literature. For instance, Simbolon et al. (2019) found that the three elements have no significant effect on fraud while Said et al. (2017) found that Opportunity has a significant effect and provides positive signals to auditors for detecting fraudulent signals. Whereas Simbolon et al. study was conducted on public sector executives, Said et al. (2017) was conducted on accountants and current study on graduates with financial knowledge who have taken auditing courses.

3.5. Measurement model for instrument analysis

The instrument's reliability and validity were also tested, and the results are given below in Table 8 and Table 9 respectively.

Table 8. Internal Reliability Statistics

				Corrected Item-Total Correlation	Cronbach's Alpha if item deleted
			PP	0.69	0.86
			PO	0.77	0.83
Cronbach's Alpha	Number of Items		R	0.78	0.82
0.88	4		BSFB	0.7	0.86

Source: Author's contribution

Cronbach's Alpha of 0.88 was greater than the 0.70 threshold suggested by Hair et al. (2019) indicating strong internal reliability. Moreover, the results of Cronbach's Alpha if an item was deleted ranged between 0.82 and 0.86 which is well below 0.88, therefore, suggesting the necessity of a unified effect.

Table 9. Correlation and significance statistics-validity test for the instrument

		PP	PO	R	BSFB
PP	Correlation	1	0.57	0.7	0.55
	P(2-tailed)		<.001	<.001	<.001
PO	Correlation	0.57	1	0.72	0.7
	P(2-tailed)	<.001		<.001	<.001
R	Correlation	0.7	0.72	1	.61
	P(2-tailed)	<.001	<.001		<.001
BSFB	Correlation	0.55	0.7	0.61	1
	P(2-tailed)	<.001	<.001	<.001	

Source: Author's contribution

Furthermore, Table 9 indicates that both the Average Variance Extracted (AVE) for convergent validity as well as Discriminant validity were below the 0.90 threshold. Moreover, the variables discriminated well vertically and horizontally in descending order as well as demonstrated a significant and strong correlation among themselves.

3.6. Discussions

This study aimed to investigate the influence of the fraud triangle elements (pressure, opportunity, and rationalization) on the occurrence of budget slack fraud behavior among public servants in developing economies. However, findings indicate that these elements have a combined effect (Table 8) on budget-related fraud behavior of

public servants in developing economies given the R of 0.73. This contradicts a previous study by Simbolon et al. (2019) who found no significant relationship between fraud and the fraud triangle components. Nonetheless, the study aligns somewhat with previous studies by Dellaportas et al. (2013) and Hanin et al. (2017) who found a positive relationship between pressure and fraud. However, current and previous studies do agree that the fraud triangle elements alone are insufficient although significant to explain fraud behavior as revealed in this study. This study shows that the residuals account for the remaining 27% of the 0.73 observed variance (R) in the regression model. Simbolon et al. (2019) identified the importance of integrity of government leadership and law enforcement. But we argue that based on our findings that perceived opportunity is the dominant predictor of the behaviour although all have positive relative impact on budget slack fraud behaviour and thus provides direction for policy formulation and further research incentive.

4. Conclusions

This study examines whether the fraud triangle components are sufficient to prevent and reduce budget-related fraud in developing economies. The regression model reveals as high as 73% strong linear relationship among the variables and impact of the predictors on public servants' budget slack fraud behavior, of which 53% is explained by predictors and 47% by residuals not accounted for. Although the model is robust, the variance is limited to the structure of the predictors. Therefore, it is model-dependent and may not fully represent the population since 27% of the population is still unaccounted for. Since all the predictors have a positive impact on budget slack fraud behavior (BSFB), they are obvious problem areas and implications for policy interventions. Further, based on the Fraud Triangle Theory (FTT), the removal of opportunity and pressure and reorientation of public servants will significantly reduce budget slack/related fraud behavior. These results further validate the FTT by providing a space for its expression in the specific context of public servants' budget-related fraud behavior in developing countries. This study provides a rich area for further research on residuals and model development within the same or other contexts in light of the findings.

Conflict of Interest Statement

The authors declare that the research was conducted without any commercial or financial relationships that could be construed as a potential conflict of interest.

Acknowledgment

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