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# The roles of motivation and budgeting participation level in the relationship between favorable supervisory feedback environments and budget gaming

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## ABSTRACT

This study examines whether motivation and the budgeting participation level mediate the relationship between favorable supervisory feedback environments (FSFEs) and behavior of budget gaming. The model's adequacy was evaluated with structural modeling, and hypothesis testing was conducted using partial least squares. Data were collected through questionnaires via mail, personal facilities and hyperlinks. Out of 235 surveys from operational managers in the retail sector in the West Java province, Indonesia, 205 processable questionnaires were gathered, and the results indicated that FSFEs enhance intrinsic motivation and autonomous extrinsic motivation, which in turn increase the budgeting participation level and reduce budget gaming. The study's results also indicate that both types of motivation and the budgeting participation level mediate the influence of FSFEs on behavior of budget gaming. Furthermore, the results show that controlled extrinsic motivation does not decrease the budgeting participation level, thus, neither mediate the relationship between FSFEs and budget gaming behavior. This study implies the importance of strengthening supervision quality to motivate more positive employee behaviors related to budget management. Based on these findings, it is recommended that organizations implement policies to foster constructive supervisory feedback environments. Additionally, enhancing supervisor training programs to focus on providing supportive and autonomy-promoting feedback could further improve budgeting practices and reduce budget gaming behaviors.

54

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## SUBJECTS


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## 1. Introduction

Traditional budgeting is a prevalent practice in companies (Sanddalgaard & Bukh, 2014), encompassing budget planning, which involves resource negotiation and allocation (Libby & Lindsay, 2010), as well as financial target setting (Boumistrov & Kaarbøe, 2013; Henttu-Aho & Järvinen, 2012). Traditional budgeting practice is highly risky due to dysfunctional behavior known as budget gaming (Huang & Chen, 2010; Šiška et al., 2016). Budget gaming behavior remains an unresolved challenge in budget management, causing serious losses for organizations (Lidia, 2014), adversely affecting performance (Libby & Lindsay, 2010), inaccurately reflecting organizational needs, impacting resource allocation efficiency (Hopwood, 1972), and being linked to reputation challenges and ethical issues (Stevens, 2002). Therefore, organizations greatly need solutions to reduce budget gaming behavior (Libby & Lindsay, 2010; Setin et al., 2019).

Previous studies have explored the antecedents of budget gaming such as budgeting systems (e.g. Ogiedu & Odia, 2013) and information asymmetry (Dunk, 1993). However, the variables tested have not yielded conclusive results, thus not providing sufficient solutions regarding budget gaming behavior (Baerdemaeker & Bruggeman, 2015). Recent studies have linked it to performance evaluation systems (Setin et al., 2022), but the necessity to examine and identify the impact of other explanatory factors is

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still highly necessary. Daumoser et al. (2018) suggest that although the research topic of behavior of budget gaming is considered well-defined, particularly budget slack, further investigation through explanatory variable testing is still needed as this topic involves complex interactions between individual and organizational interests.

Expansion of testing in performance evaluation systems that not only assess employee performance but specifically focus on how organizations provide feedback on performance (Lau & Scully, 2015; Onsy, 1973; Setin et al., 2021). Current studies are concentrating on supervisory feedback environments and budget gaming behaviors. Supervisory feedback environments are one of the key aspects within organizations that play a role in changing individual behavior (Bak, 2020). Favorable supervisory feedback environments (FSFEs) arise when supervisors offer helpful, consistent and considerate feedback (Dalton et al., 2015), thus impacting significantly on behavior and job outcomes (Rosen et al., 2006; Whitaker et al., 2007) and closely associated with positive behavior (Favero et al., 2016). Since there is no empirical study on how FSFEs influence manager behavior, especially in the context of budget gaming behavior, this study aims to address this question. Due to a shortage of research on supervisory feedback environments in the context of budgeting where FSFEs impact behavior, this study provides novelty and fills a literature gap examining SFES in management accounting contexts.

This study examines managerial behavior (budget gaming) by considering recommendations from Covalleski et al. (2006), which suggest that understanding managerial behavior requires a perspective from psychological theory. Self-Determination Theory (SDT) and Leader-Member Exchange Theory (LMXT) serve as the framework for this study. SDT (Ryan & Deci, 2002) assumes that individuals' basic psychological needs, such as competence, autonomy and social relationships, can influence intrinsic and extrinsic motivation. LMXT (Dansereau et al., 1975) emphasizes that the standard of the relationship between supervisors and staff provides a foundation for enhancing motivation and encouraging positive employee behavior.

This study explores the role of FSFEs in motivation and the budgeting participation level as well as its impact on budget gaming. Motivation in budget participation and budgeting participation level become mediating variables to understand the relationship between FSFEs and budget gaming. Since motivation exists within every individual (Ryan & Deci, 2000) and motivation refers to the reasons for doing something (Gagné & Deci, 2005), it is significant to understand the reasons why individuals participate in budgeting as it leads to behavior. This study suspects that FSFEs influencing individuals' motivation to participate in budgeting have an impact on managerial behavior in budgeting. In addition to examining motivation in budget participation, this study also examines the budget participation level. Both variables are associated with the argument that individual motivation can influence the extent to which they participate in the process of budgeting. Since the budgeting participation level directly impacts responsibility, motivation and resource management efficiency, understanding and managing budgeting participation levels well can contribute to achieving overall company goals.

In the field of psychology, Williams et al. (2014) found that supervisors hold substantial importance in fulfilling intrinsic and extrinsic motivation needs. In the realm of management accounting, Wong et al. (2010) demonstrated that motivation is related to the budgeting participation level, and the budgeting participation level is linked to budget gaming behavior (Derfuss, 2012). Therefore, this research seeks to investigate the role of participative motivation in budgeting and the budgeting participation level as mediators in the association between FSFEs and behavior of budget gaming.

Based on the description above, this study aims to test whether budgeting motivation and level of participation can mediate the relationship between a favorable supervisory feedback environment (FSFE) and budget gaming behavior. This research also aims to understand how various types of motivation (intrinsic motivation, autonomous extrinsic motivation and controlled extrinsic motivation) influence participation in budget preparation and budget game behavior. Some important questions are, whether FSFE has a positive effect on intrinsic motivation, autonomous extrinsic motivation and controlled extrinsic motivation. Next, do these three forms of motivation increase the level of budgeting participation? In addition, this study also explores how these three motivations influence budget gaming behavior, and whether the level of budgeting participation is negatively related to budget gaming behavior. This study also questions whether motivation and level of budgeting participation mediate the relationship between FSFE and budget gaming behavior.

46

This study significantly contributes to science and practice in several ways: Firstly, it contributes to the enhancement of literature on management control systems by introducing the FSFEs variable in the context of budgeting. Secondly, this research represents the latest investigation systematically and empirically testing the role of FSFEs in motivation within management accounting, specifically examining the relationship between FSFEs and budgeting. Thirdly, it provides insight to practitioners that budgeting interacts with FSFEs, indicating that FSFEs impact budget gaming behavior. This contribution marks a step forward for practitioners and researchers in understanding the roles of FSFEs, motivation, budgeting participation and budget gaming in management accounting settings. With this understanding, organizations can consider designing beneficial feedback dynamic systems in the workplace environment. Fourthly, this study offers practical solutions to still relevant and highly important issues stemming from budgeting practices, particularly budget gaming. Fifthly, this study holds significant relevance, especially in the context of good corporate governance. By comprehending the relationship between FSFEs, motivation, budgeting participation and budget gaming behavior, organizations can develop improved management strategies, foster healthy work environments, enhance budgeting integrity and boost operational efficiency.

50

## 2. Literature review

### 2.1. Conceptual & theoretical review

#### 2.1.1. Supervisory feedback environments

Supervisory Feedback Environments (SFE) refer to the dynamics of feedback in the workplace, encompassing how superiors provide feedback, how feedback is understood, and applied in operations (Rosen et al., 2006). Beneficial feedback pertains to the perceived frequency of positive feedback that corresponds with subordinates' perceptions of their performance. Positive feedback factors gauge the degree to which employees perceive receiving favorable feedback from supervisors, indicating a better or higher quality feedback environment (Rosen et al., 2006). Favorable supervisory feedback environments (FSFEs) also include supervisor support in various employee needs such as acknowledging employee perspectives and considering accountability in decision-making, supporting employee ideas and decisions, providing clear rationale when requesting job tasks from employees, minimizing requirements and pressures when performing job (Williams et al., 2014). Supervisor support also involves relying on employee abilities, removing success barriers, creating opportunities and challenges for skill development, providing non-judgmental feedback and problem-solving abilities. Another form of supervisor support is creating a friendly atmosphere, showing empathy, and fostering close interpersonal relationships even if employees have not yet attained the desired performance levels (Parfyonova et al., 2019). Supervisor support also encompasses social contexts that can fulfill employee motivation needs (Williams et al., 2014).

The Leader-Member Exchange Theory (LMET) focuses on the association between supervisors and members of an organization (employees). It emphasizes that the standard of the relationship between members and leaders can forecast results at the individual level, group level and organizational levels (Dansereau et al., 1975). This relationship influences job outcomes and various work attitudes, including job satisfaction, performance, role clarity and organizational commitment (Gerstner & Day, 1997). For example, when supervisors support high-standard and timely feedback in a caring manner, it fosters high-standard member-leader relationships. LMET provides a foundation for increasing motivation and encouraging positive behaviors that impact employee productivity.

#### 2.1.2. Motivation

The work motivation theory that is widely agreed upon by many researchers is the Self-Determination Theory (Deci et al., 2017). This theory focuses on the different types of motivation individuals have in performing work activities and their consequences on performance and well-being levels. SDT suggests that motivation stems from the need for interpersonal relationships, thus it is important to provide support for these needs to motivate individuals. High motivation encourages more active and positive engagement, while low motivation can lead to dysfunctional behavior (Deci et al., 2017).

72

SDT distinguishes motivation into extrinsic motivation and intrinsic motivation (Deci & Ryan, 1987; Lepper & Greene, 1978). Intrinsic motivation pertains to motivation that arises from within the individual. One engages in an activity because it provides personal satisfaction, joy, or a sense of achievement without external pressure or material reward. Autonomous extrinsic motivation occurs when an individual performs an action out of their own volition, desire and choice. Although the action may stem from external motivation (such as reward or recognition), the individual will act voluntarily. Typically, autonomously regulated behavior serves as an inherent motivator for individuals (Deci et al., 2017). Controlled extrinsic motivation involves actions performed due to external pressure or influence (Deci et al., 2017). Individuals may feel compelled or regulated to perform an action with the goal of obtaining a reward, gaining approval and avoiding punishment or guilt. Motivation in budgeting participation refers to the reasons for participating in budgeting. Motivation scales refer to SDT, indicating that the reasons for an individual's activities are valid indicators of motivation (Ryan & Connell, 1989; Vallerand, 1997).

### 2.1.3. Budgeting participation level

Budgeting participation level refers to the degree of participation of managers in the budgeting process, and this involvement affects responsibilities, motivation and resource management (Milani, 1975). The level of involvement varies, ranging from full participation to very limited involvement. Managerial involvement in budgeting is not limited to approving or rejecting budgets, but also includes identifying and formulating business objectives consistent with corporate strategy, setting budget targets, assessing risks that may affect budget achievement, devising more effective plans to achieve budget targets, and evaluating budget performance.

### 2.1.4. Budget gaming

Budget gaming refers to planned manipulation actions and intentional by managers concerning costs, sales, profit estimates and other forms of manipulations within the budgeting process (Bart, 1988). Generally, budget gaming behavior is considered a form of dysfunctional behavior, wherein managers engage in dishonest behaviors to satisfy their interests through various means (Stevens, 2002). Budget gaming is commonly a habitual behavior adopted by managers during the budgeting process (Collins et al., 1987). For example, postponing necessary expenditures, spending unused budget at the end of the budget period, negotiating by proposing easily achievable budgets. Various terms are employed to describe budget gaming behaviors, such as cushion, hedge, slush fund, flexibility, back pocket, cookie jar, pad, secret reserve, kitty, contingency and war chest. (Bart, 1988). Additionally, terms like games play, budget gaming, devious games, budgeting manipulation and slack are terminologies describing managers' dysfunctional conduct toward budgets (e.g. Bart, 1988; Huang & Chen, 2010; Libby & Lindsay, 2010; Merchant, 1985).

## 2.2. Empirical review

### 2.2.1. Favorable supervisory feedback environments (FSFEs) and motivation for participation in budgeting

The perceived support from supervisors can fulfill employees' basic psychological needs (Sánchez-Oliva et al., 2017) and enhance both intrinsic and extrinsic motivation (Hardré & Reeve, 2009). Within the context of Self-Determination Theory (SDT), supervisors play a significant role in meeting employees' intrinsic and extrinsic motivational needs (Kaabomeir et al., 2023; Williams et al., 2014; Zhang et al., 2017). Supervisor feedback environment (SFE) is linked with motivation to use feedback, feedback-seeking behavior and satisfaction with feedback (Steelman et al., 2004). In conditions where SFE supports the fulfillment of motivational needs, it can provide incentives for employees to engage in positive behaviors (Peng et al., 2011; Reeve, 2018; Zia et al., 2021). When employees receive support and feedback from the surroundings, they become self-motivated, adapt more effectively and perform better to the work environment (Deci et al., 2017).

In the context of budgeting, supervisors who provide positive feedback regarding employees' budgeting participation can enhance intrinsic motivation. This means giving significance and increasing

personal satisfaction because their contribution to budgeting is recognized. Regarding external motivation, supervisors who offer positive feedback on employee participation by allowing them a flexibility in assuming roles according to their skills can enhance autonomous extrinsic motivation. Positive feedback from supervisors, involving control along with appreciation through rewards and penalties, can create controlled extrinsic motivation.

Within the context of the Leader-Member Exchange theory (LMET), a high-quality relationship between supervisors and their members can encourage positive behaviors (Dansereau et al., 1975) and boost their motivation (Gerstner & Day, 1997).

Thus, FSFEs that recognize efforts, provide choices to employees and create a supportive environment can positively influence intrinsic and extrinsic motivation in the context of budgeting participation.

**H1a.** Favorable supervisory feedback environments is positively related to intrinsic motivation in budgeting participation <sup>90</sup>

**H1b.** Favorable supervisory feedback environment is positively related to autonomous extrinsic motivation in budgeting participation <sup>37</sup>

**H1c.** Favorable supervisory feedback environments is positively related to controlled extrinsic motivation in budgeting participation <sup>37</sup>

### 2.2.2. Motivation in budgeting participation and budgeting participation level

When the psychological needs of individuals are supported and satisfied, they have the ability to engage in positive and beneficial behaviors across various domains (Reeve, 2018). Ryan and Deci (2000) and Gagné and Deci (2005) argue that the reasons stated for a behavior, such as budgeting participation, reflect individuals' motivation toward that behavior. Individuals might exhibit intrinsic motivation as they perceive participation to yield a sense of accomplishment and fulfillment, thus influencing them to increase their level of participation in budgeting.

Individuals may also be motivated extrinsically by viewing participation as a tool to achieve objective. Extrinsic motivation can be autonomous and associated with high-level effort (De Cooman et al., 2013) and job involvement (Slemp et al., 2018). Employees who possess autonomous extrinsic motivation have choices and control over involvement and roles in achieving budgetary goals. This serves as motivation for employees to set higher budgetary goals and targets, encouraging them to increase involvement in budget efficiency and outcomes.

Individuals with controlled extrinsic motivation can reduce employees' efforts to set short-term goals and have a negative impact on commitment and performance (Deci et al., 2017; Van den Broeck et al., 2013). Controlled external motivation negatively influences well-being and performance (Gagné et al., 2015), correlating with negative job outcomes such as low vitality and effort, job satisfaction, emotional commitment, dynamism, adjustment, high levels of emotional fatigue and intentions to leave (Gagné et al., 2015; Howard et al., 2016). Based on previous studies, it is suspected that employees with controlled extrinsic motivation are linked to low levels of budgeting participation.

**H2a.** Intrinsic motivation in budgeting participation is positively related to the level of budgeting participation <sup>76</sup>

**H2b.** Autonomous extrinsic motivation in budgeting participation is positively related to the level of budgeting participation <sup>80</sup>

**H2c.** Controlled extrinsic motivation in budgeting participation is negatively related to the level of budgeting participation <sup>71</sup>

### 2.2.3. Motivation in budgeting participation and budget gaming

Vallerand (1997) provided evidence that positive outcomes are observed for both intrinsic motivation and autonomous extrinsic motivation, as well as negative outcomes related to controlled extrinsic motivation. Autonomous motivation yields significant results for individuals and organizations, such as

high-level performance (De Cooman et al., 2013), persistence and resilience (Deci & Ryan, 2008), creativity (Kark et al., 2018), role performance (Moran et al., 2012), and lower intentions to leave (Williams et al., 2014). Autonomous extrinsic motivation is also associated with dimensions of well-being, such as job satisfaction (Gillet et al., 2013), effectiveness (Deci & Ryan, 2008) and reduced emotional exhaustion (Van den Broeck et al., 2013). Individuals with controlled extrinsic motivation decrease efforts to set short-term goals, which negatively impacts commitment and performance (Deci et al., 2017; Van den Broeck et al., 2013), affects well-being and performance negatively (Gagné et al., 2015) and correlates with negative job outcomes (Gagné et al., 2015; Howard et al., 2016).

In the context of budgeting, participatory budgeting enhances employee motivation and improves organizational effectiveness and efficiency, as well as being capable of preventing and avoiding budget gaming. Both intrinsic and extrinsic motivations can reduce budget gaps (Baerdemaeker & Bruggeman, 2015). Therefore, the higher the employee motivation in budget participation, the less likely employees are to engage in budget gaming. Employees with intrinsic motivation are driven by personal satisfaction, a sense of achievement and interest in their tasks, thus tending to focus more on the quality of work rather than budget manipulation. Similarly, employees with autonomous extrinsic motivation feel they have control over their extrinsic actions, such as receiving recognition or rewards commensurate with their contributions, thus tending to focus on tangible work outcomes rather than budget manipulation.

Gagné and Deci (2005) stated that concerning performance outcomes, intrinsic and autonomous extrinsic motivation are more favorable than controlled extrinsic motivation, particularly in tasks of moderate complexity such as budgeting. Therefore, this study suggests that employees with intrinsic motivation and autonomously extrinsic motivation may reduce budget gaming practices, while employees driven by controlled extrinsic motivation are more inclined to indulge in budget gaming.

**H3a.** Intrinsic motivation in budgeting participation is negatively related to behavior of budget gaming

**H3b.** Autonomous extrinsic motivation in budgeting participation is negatively related to behavior of budget gaming.

**H3c.** Controlled extrinsic motivation in budgeting participation is positively related to budget gaming

#### **2.2.4. Budgeting participation level and budget gaming**

From the perspective of motivation, participation enhances morale and job satisfaction, employees' trust and sense of control, sets higher goals and increases commitment (Locke & Schweiger, 1979). Budgeting participation serves as an effective means of exchanging information because managers possess the best information regarding revenues and costs (Anthony & Govindarajan, 2007). Participation offers benefits to management as managers disclose information, new ideas and data about how well they can perform tasks and help improve the budgeting process. Many research have confirmed the relationship between budgeting participation levels and behavior in budgeting, particularly budget gaming, where budgeting participation increases employees' commitment to achieving budget goals. There is a negative relationship between participation and managers' tendency to create slack (Dunk, 1993; Merchant, 1985; Onsy, 1973). Budgeting participation leads to information exchange mechanisms and decision-making related to budgeting, thereby reducing budgetary information bias and the occurrence of budget gaming.

**H4.** Budgeting participation level is negatively related to budget gaming

#### **2.2.5. Motivation and budgeting participation level as mediating effects**

SFEs significantly influence job outcomes and positive work attitudes (e.g. Rosen et al., 2006; Steelman et al., 2004; Whitaker et al., 2007), as well as being associated with behaviors supportive of the organization (Norris-Watts & Levy, 2004). Some evidence suggests that the relationship between Supervisory Feedback Environments (SFEs) and managerial behaviors is intricate and indirect, specifically through intervening variables, such as Otley (1978) and Hopwood (1972).



This research suggests that FSFEs are significantly associated with motivation; motivation is significantly associated with budgeting participation level, and budgeting participation level is significantly associated with budget gaming behavior. Therefore, the indirect impact through motivation and budgeting participation level on the connection between FSFEs and budget gaming is significant. This logical explanation of thinking is based on Self-Determination theory (SDT) and Leader-Member Exchange (LMX) theory. SDT theory states that a work environment that supports autonomy, competence and connectedness will increase intrinsic and autonomous motivation. A good FSFE can create this environment, thereby increasing employee intrinsic motivation and autonomy. High motivation then encourages active participation in budget preparation because employees feel more competent and involved. Additionally, LMX theory suggests that positive relationships between leaders and members strengthen engagement and participation in important tasks such as budget preparation. A high level of participation in budget preparation contributes to a reduction in manipulative behavior such as budget games, because employees feel more ownership and responsibility for the budget prepared. Based on previous research, this relationship indicates that budgeting motivation and participation act as significant mediators between FSFE and budget gaming behavior.

Based on hypotheses H1-H4, this study suggests that motivation and the budgeting participation level may mediate the relationship between FSFEs and budget gaming behaviors. This conjecture is further supported by statistical analysis. Hair et al. (2012) state that mediation is deemed significant when all path coefficients achieve statistical significance.

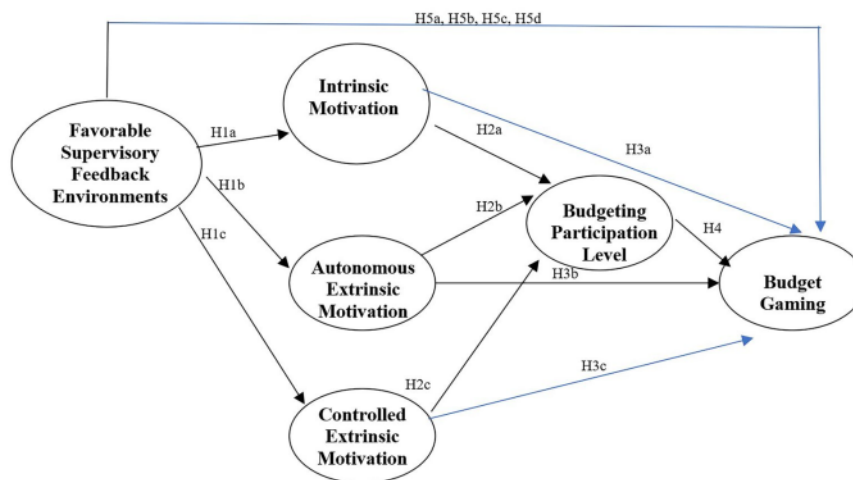
**H5a.** The relationship between FSFEs and the behavior of budget gaming is significantly mediated by intrinsic motivation

**H5b.** The relationship between FSFEs and the behavior of budget gaming is significantly mediated by autonomous extrinsic motivation

**H5c.** The relationship between FSFEs and the behavior of budget gaming is significantly mediated by controlled extrinsic motivation

**H5d.** The relationship between FSFEs and the behavior of budget gaming is significantly mediated by budgeting participation level

The overall hypothesis demonstrated by Figure 1 which displays a theoretical model of the relationship between a favorable supervisory feedback environment and budget gaming behavior as mediated by budgeting motivation and participation.



**Figure 1.** Theoretical model of favorable supervisory feedback environments, motivation, budgeting participation level and budget gaming.

### 3. Methods

#### 3.1. Sample dan data

This study involving survey methodology received ethical approval from the Research and Community Service Institute, Maranatha Christian University. The ethical approval reference number, is 503.A/LPPM/UKM/XI/2023. All procedures conducted in this study adhered to the ethical standards set by the institution's research committee. All participants provided consent to participate, indicated by their completion of the questionnaire. Consent was obtained verbally, and respondents were informed of the study's purpose, voluntary participation and confidentiality.

Data was collected through questionnaires via mail, personal means and hyperlinks. The sample was drawn from 235 operational managers in the retail sector of supermarkets in the West Java province, Indonesia. The time period for data collection is January–June 2023. A total of 205 questionnaires were analyzed. The choice of the retail sector and managers was due to budgeting being used across all operational areas within the organizational context (Kenno et al., 2018). Operational managers were selected as respondents because they regularly interact with employees, supervisors and employers (Noe et al., 2017). The retail industry was chosen for industry control purposes (He & Lau, 2012). The Partial Least Squares (PLS) measurement model was employed to test reliability, convergent and discriminant validity. The results meet the recommended value if the limit is  $\geq 0.7$  (Hair et al., 2012). The model's goodness of fit was assessed using a structural model. Hypothesis testing was conducted using partial least squares.

#### 3.2. Measurement of variables

##### 3.2.1. Favorable supervisory feedback environments (FSFEs)

The FSFEs were assessed utilizing an instrument crafted by Steelman et al. (2004). A total of 22 questionnaire items from 5 FSFEs factors were measured using a 7-point Likert scale, with 1 indicating 'strongly disagree' and 7 indicating 'strongly agree'. Questionnaire items for each factor include: (a) feedback quality (five items), example, 'Feedback from my superior helps me perform my job'; (b) feedback delivery (5 questionnaire items), for instance, 'When my superior provides me with performance feedback, they consider my feelings'; (c) promotes feedback seeking (4 questionnaire items), such as, 'My superior encourages me to seek feedback whenever I feel uncertain about my job performance'; (d) supportive feedback (4 questionnaire items), like, 'When I perform well, my superior praises my performance'; (e) corrective feedback (4 questionnaire items), such as, 'When I make a mistake at work, my superior informs me'. Previous studies have shown a Cronbach's alpha coefficient of 0.92 for the FSFEs scale, indicating acceptable reliability (Norris-Watts & Levy, 2004; Whitaker et al., 2007).

##### 3.2.2. Motivation in budgeting participation

Motivation in budgeting participation refers to the reasons for participating in budgeting. The motivation scale refers to Self-Determination Theory (SDT), which posits that the motivations behind an individual's engagement in an activity are valid indicators of motivation (Ryan & Connell, 1989; Vallerand, 1997). Participation motivation in budgeting is measured by seven statement items: three intrinsic motivation items (feelings of achievement, personal satisfaction and ownership) and four extrinsic motivation items (strategies pursued to achieve outcomes). Extrinsic motivation includes two items of autonomous extrinsic motivation and two items of controlled extrinsic motivation. The seven statements are 'I participate in budgeting because' it provides me with a feeling of accomplishment; it offers me a profound feeling of personal satisfaction; it gives me a sense of ownership and enhances identification with the organization; it is a means for me to set higher goals; it is a means for me to set desired goals for evaluation; it is a means for me to provide important information about my job; it is a means that allows supervisors to utilize information more effectively. Respondents are asked to respond on a 7-point Likert scale, with 1 indicating 'strongly disagree' and 7 indicating 'strongly agree'.

### 3.2.3. Budgeting participation level

Budgeting participation utilizes instruments from Milani (1975). Previous studies, such as Agung and SeTin (2021) and Chong and Strauss (2017), reported a satisfactory reliability for this scale. Respondents evaluate budgeting participation level by answering six questions using a seven-point Likert scale, with options ranging from 1 (strongly disagree) to 7 (strongly agree). Elevated scores reflect relatively higher participation, whereas lower scores indicate relatively lower participation. The six questions are: I am engaged in the budget-setting process; I understand the reasons for changes made to the budget; Colleagues often provide opinions on the budget; I have a significant influence on the ultimate budget determinations; I contribute significantly to budgeting; and My superiors often seek my opinion on the budget.

### 3.2.4. Budget gaming behavior

Budget gaming behavior was assessed using tools crafted by Libby and Lindsay (2010) and Onsy (1973). It consists of nine questions: five adapted from Libby and Lindsay (2010) and four from Onsy's (1973) measurement of slack attitudes. The Questions regarding behavior of budget gaming utilized a 7-point interval scale ranging from 1 (strongly disagree) to 7 (strongly agree). The nine question items included: spending unused budget at the end of the budgetary cycle; postponing essential expenditures to achieve budget objectives; accelerating sales at the end of the budgetary cycle to achieve budget targets; shifting future-period expenditures to the current period for ease of reaching next year's budget; negotiating budget targets for the purpose of facilitating target achievement and bonuses; proposing easily achievable budgets; establishing two levels of budget standards; compromising for a reasonable level of budget slack; and making budget concessions for unofficially approved purposes.

## 4. Results and discussion

### 4.1. Measurement model

The results of discriminant validity test show that 44 question items are valid and meet the criteria for further analysis, with outer loading values ranging between 0.715 and 0.968 and significance at p-value <0.001 (Table 1). Each construct demonstrates average variance extracted (AVE) spanning from 0.743 to 0.910. The values of Cronbach Alpha from the reliability test results for each variable construct spanning from 0.818 to 0.947. Meanwhile, the composite reliability values for each construct vary between 0.917 to 0.954, all meeting the recommended threshold values by Hair et al. (2012), which is  $\geq 0.7$ . Overall, internal consistency reliability, discriminant and convergent validity within the model of PLS measurement have been met.

### 4.2. Structural model

The evaluation of model adequacy was conducted through structural model. The results indicate an R square (R<sup>2</sup>) value of 49%, which, according to Ringle and Hansmann (2004), suggests a fairly high predictive strength. The Q square values for all endogenous constructs were found to range between 0.182 and 0.478. The predictive relevance of the structural model is supported by these findings, simultaneously indicating that the model demonstrated a satisfactory fit. Figure 2 illustrates that all path coefficients achieve statistical significance, except for the association between controlled extrinsic motivation and budgeting participation level.

### 4.3. Hypotheses testing

The importance of the relationship between the constructs is indicated by Table 2.

#### 4.3.1. Favorable supervisory feedback environments (FSFEs) - motivation in budgeting participation

Table 2 shows that FSFEs significantly and positively influence (1) intrinsic motivation, (2) autonomous extrinsic motivation and (3) controlled extrinsic motivation with path coefficients of 0.324, 0.421 and 0.315, respectively, and are significant at p-value <0.001 (supporting hypotheses 1a, hypotheses 1b,

**Table 1.** Discriminant validity test (*outer loadings*).

	FSFEs	IM	Cross		Loadings			p-value
			AEM	CEM	BPL	BG	SE	
FSFEs1	<b>0.760</b>	0.145	0.001	0.035	-0.069	0.058	0.055	<0.001
FSFEs2	<b>0.890</b>	-0.017	0.056	-0.017	0.046	-0.211	0.123	<0.001
FSFEs3	<b>0.893</b>	-0.041	-0.003	0.012	-0.212	0.123	0.072	<0.001
FSFEs4	<b>0.932</b>	-0.037	-0.025	-0.071	0.104	-0.013	0.109	<0.001
FSFEs5	<b>0.906</b>	-0.007	0.045	0.084	0.027	-0.026	0.129	<0.001
FSFEs6	<b>0.838</b>	0.038	-0.121	-0.017	0.088	0.033	0.086	<0.001
FSFEs7	<b>0.733</b>	0.150	0.004	0.039	-0.077	0.058	0.087	<0.001
FSFEs8	<b>0.889</b>	-0.008	0.087	-0.027	0.047	-0.207	0.149	<0.001
FSFEs9	<b>0.893</b>	-0.061	-0.005	0.045	-0.212	0.133	0.099	<0.001
FSFEs10	<b>0.932</b>	-0.066	-0.056	-0.071	0.113	-0.027	0.124	<0.001
FSFEs11	<b>0.906</b>	-0.018	0.068	0.084	0.023	-0.025	0.129	<0.001
FSFEs12	<b>0.838</b>	0.050	-0.124	-0.039	0.094	0.057	0.099	<0.001
FSFEs13	<b>0.833</b>	0.020	-0.101	-0.017	0.071	0.034	0.071	<0.001
FSFEs14	<b>0.733</b>	0.121	0.005	0.036	-0.079	0.088	0.055	<0.001
FSFEs15	<b>0.891</b>	-0.009	0.076	-0.028	0.076	-0.233	0.165	<0.001
FSFEs16	<b>0.893</b>	-0.066	-0.004	0.037	-0.219	0.131	0.095	<0.001
FSFEs17	<b>0.930</b>	-0.057	-0.034	-0.080	0.107	-0.015	0.109	<0.001
FSFEs18	<b>0.904</b>	-0.009	0.046	0.084	0.070	-0.019	0.126	<0.001
FSFEs19	<b>0.835</b>	0.050	-0.117	-0.056	0.081	0.034	0.071	<0.001
FSFEs20	<b>0.924</b>	-0.057	-0.065	-0.019	0.180	-0.075	0.121	<0.001
FSFEs21	<b>0.904</b>	-0.005	0.068	0.074	0.010	-0.032	0.172	<0.001
FSFEs22	<b>0.837</b>	0.050	-0.141	-0.073	0.093	0.058	0.099	<0.001
IM1	0.046	<b>0.866</b>	0.054	-0.010	0.012	0.003	0.056	<0.001
IM2	0.017	<b>0.932</b>	-0.034	0.017	-0.006	0.152	0.034	<0.001
IM3	0.013	<b>0.938</b>	0.122	-0.022	0.014	0.064	0.051	<0.001
AEM1	0.024	0.035	<b>0.926</b>	0.027	0.040	-0.066	0.068	<0.001
AEM2	-0.024	-0.035	<b>0.926</b>	-0.027	-0.040	0.066	0.068	<0.001
CEM1	0.005	-0.015	0.025	<b>0.931</b>	0.006	0.031	0.081	<0.001
CEM2	-0.077	-0.012	-0.051	<b>0.914</b>	0.073	-0.042	0.073	<0.001
BPL1	-0.027	0.082	0.029	0.017	<b>0.963</b>	-0.015	0.058	<0.001
BPL2	0.046	-0.005	0.097	-0.036	<b>0.968</b>	0.113	0.055	<0.001
BPL3	-0.022	-0.047	-0.131	0.023	<b>0.934</b>	-0.089	0.040	<0.001
BPL4	0.044	-0.005	0.066	-0.033	<b>0.957</b>	0.110	0.040	<0.001
BPL5	-0.014	-0.065	-0.119	0.011	<b>0.934</b>	-0.079	0.050	<0.001
BPL6	-0.023	-0.074	-0.128	0.020	<b>0.931</b>	-0.098	0.058	<0.001
BG1	0.023	-0.062	-0.072	-0.018	-0.107	<b>0.717</b>	0.071	<0.001
BG2	-0.031	0.063	-0.069	0.020	0.033	<b>0.884</b>	0.078	<0.001
BG3	-0.144	0.068	0.012	0.100	-0.013	<b>0.876</b>	0.050	<0.001
BG4	0.077	0.001	0.211	-0.007	-0.012	<b>0.906</b>	0.074	<0.001
BG5	-0.026	0.014	-0.006	0.023	-0.001	<b>0.932</b>	0.052	<0.001
BG6	0.140	-0.247	-0.139	-0.019	-0.014	<b>0.715</b>	0.078	<0.001
BG7	-0.001	0.102	0.033	-0.114	0.099	<b>0.908</b>	0.077	<0.001
BG8	-0.002	0.105	0.031	-0.107	0.069	<b>0.907</b>	0.068	<0.001
BG9	-0.004	0.106	0.036	-0.119	0.059	<b>0.905</b>	0.058	<0.001

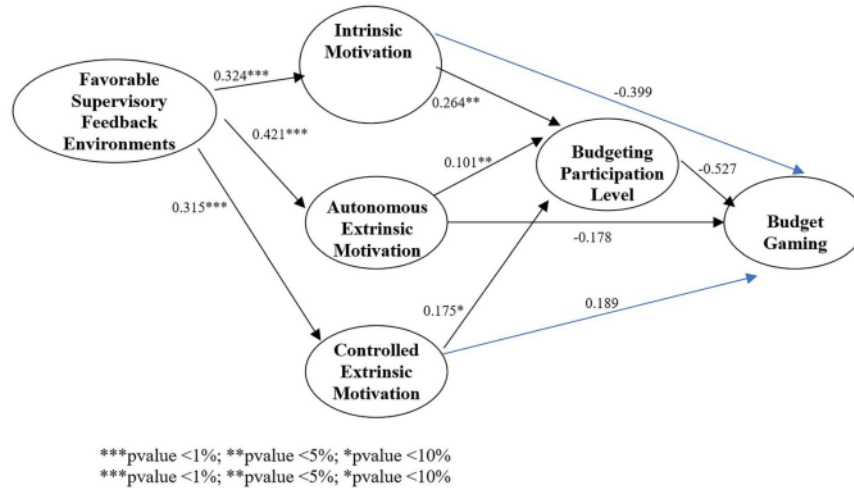
p-values < 5% are considered desirable for reflective indicator.

FSFEs: Favorable Supervisory Feedback Environments; CEM: Controlled Extrinsic Motivation; IM: Intrinsic Motivation; AEM: Autonomous Extrinsic Motivation; BPL: Budget Participation Level; BG: Budget Gaming.

The bolded values represent the loading factors of each item on its primary construct, demonstrating that the loading factor on its own construct is higher than the cross-loading values on other constructs. Therefore, this indicates that the discriminant validity is adequate.

hypotheses 1c). This means that FSFEs significantly motivate employees. These results support the findings of Hardré & Reeve (2009), Sánchez-Oliva et al. (2017) and Kaabomeir et al. (2023) indicating that FSFEs enhance both intrinsic and extrinsic motivation. The results also align with Self-Determination Theory (SDT), indicating that supervisors play a significant role in fulfilling employees' intrinsic and extrinsic motivational needs (Williams et al., 2014). Furthermore, the results support the Leader-Member Exchange theory, suggesting that high-quality relationships between supervisors and their subordinates can foster positive behaviors (Dansereau et al., 1975) and enhance their motivation (Gerstner & Day, 1997). When employees receive essential feedback and support from their surroundings, they become motivated (Deci et al., 2017; Peng et al., 2011). In the context of budgeting, supervisors providing positive feedback regarding employees' budgeting participation can enhance intrinsic motivation, autonomous extrinsic motivation and controlled extrinsic motivation. FSFEs that reward effort, provide choices to employees and create a supportive environment can enhance the motivation of intrinsic, autonomous extrinsic and controlled extrinsic in the context of budgeting participation.

Figure 2 shows the Path coefficient model which is represented by the path coefficient which describes how big and deep and the direction of the relationship between the independent variable (favorable



**Figure 2.** Path coefficients model.  
 \*\*\*p-value < 1%; \*\*p-value < 5%; \*p-value < 10%.

**Table 2.** Hypotheses test H1–H4.

Hypotheses	Path	Path coefficient value	Standard error value	t- statistic	p-value one-tailed	Conclusions
<b>FSFEs – Motivation</b>						
H1a (+)	FSFEs-IM	0.324	0.077	4.066	<0.001***	Significant, H1a is supported
H1b (+)	FSFEs-AEM	0.421	0.085	5.736	<0.001***	Significant, H1b is supported
H1c (+)	FSFEs-CEM	0.315	0.079	4.412	<0.001***	Significant, H1c is supported
<b>IM – BPL</b>						
H2a (+)	IM-BPL	0.264	0.129	2.064	0.023**	Significant, H2a is supported
H2b (+)	AEM-BPL	0.101	0.125	0.806	0.035**	Significant H2b is supported
H2c (-)	CEM-BPL	0.175	0.127	1.386	0.160	Insignificant, H2c is not supported
<b>M-BG</b>						
H3a (-)	IM-BG	-0.399	0.114	3.570	<0.001***	Significant, H3a is supported
H3b (-)	AEM-BG	-0.178	0.112	1.608	0.043*	Significant, H3b is supported
H3c (+)	CEM-BG	0.189	0.117	1.634	0.057*	Significant, H3c is supported
<b>BPL - BG</b>						
H4 (-)	BPL-BG	-0.527	0.123	4.223	<0.001***	Significant, H4 is supported
Control path	FSFEs-BG	-0.275	0.094	2.876	0.038**	Significant

\*\*\*p-value <0.01; \*\*p-value <0.05; \*p-value <0.1. 48  
 FSFEs: Favorable Supervisory Feedback Environments; IM: Intrinsic Motivation; AEM: Autonomous Extrinsic Motivation; CEM: Controlled Extrinsic Motivation; BPL: Budget Participation Level; BG: Budget Gaming.

supervisory feedback environment) and the dependent variable (budget gaming behavior), through mediating variables (motivation and budgeting participation level). 36

**4.3.2. Motivation in budgeting participation - budgeting participation level**

Table 2 shows that the relationship between (1) intrinsic motivation and budgeting participation level with a path coefficient = 0.264 and a p-value = 0.023; (2) Autonomous extrinsic motivation and budgeting participation level with a path coefficient= 0.101 and a p-value= 0.035 are positive and significant related (H2a, H2b supported). These findings align with Reeve (2018), indicating that when the psychological needs of individuals are supported and fulfilled, they have the ability to engage in positive and beneficial behaviors across various domains. Employees’ intrinsic motivation can enhance active participation levels in the budgeting process (De Cooman et al., 2013). 10

The motivation of autonomous is associated with high levels of effort (De Cooman et al., 2013) and job involvement (Slemp et al., 2018). Employees with autonomous extrinsic motivation have choices and control over their involvement and roles in achieving budgeting goals (Slemp et al., 2018). This serves as motivation for employees to set higher budgeting goals and targets, thereby encouraging them to further enhance their involvement in budgeting efficiency and outcomes.

Regarding hypothesis H2c, the results indicate that motivation of controlled extrinsic is not negatively associated with budgeting participation level (hypothesis rejected), with a path coefficient of 0.175 and a p-value of 0.160. This result contradicts the conclusions of prior studies, which suggested that individuals with controlled extrinsic motivation reduce employees' efforts to set short-term result and have a negative impact on commitment and performance (Deci et al., 2017; Van den Broeck et al., 2013). Numerous studies have demonstrated that controlled external motivation has adverse effects on both well-being and performance (Gagné et al., 2015), meaning that motivation correlated with negative work outcomes, examples low vitality and effort, adjustment, emotional commitment, high standards of emotional fatigue, job satisfaction, dynamism and intentions to leave (Gagné et al., 2015; Howard et al., 2016).

The discrepancy in H2 C results compared to previous studies may be due to superiors exerting pressure to ensure involvement in budgeting processes. Superiors view budgeting participation as a method for management to acquire information. The pressure to participate in budgeting may make employees feel compelled to do so and experience controlled extrinsic motivation. Thus, controlled extrinsic motivation provides incentives for employees to increase their budgeting participation level. Overly controlled and forced feedback arrangements can lead to controlled extrinsic motivation.

#### 4.3.3. Motivation in budgeting participation and budget gaming

Table 2 demonstrates that the relationship between (1) intrinsic motivation and budget gaming with a path coefficient of -0.399 and a p-value of <0.001; (2) autonomous extrinsic motivation and budget gaming with a path coefficient of -0.178; and a p-value 0.043 is a significant negative relationship (H3a and H3b are supported). The results also support hypothesis H3c, indicating that controlled extrinsic motivation is positively related with the behavior of budget gaming, with path coefficient of 0.189 and a p-value 0.057. These findings support previous studies by Vallerand (1997), Deci et al. (2017) and Van den Broeck et al. (2013), providing evidence of favorable outcomes for intrinsic motivation and autonomous extrinsic motivation. Additionally, the results are in accordance with the findings of Gagné et al. (2015), Howard et al. (2016) and Gagné and Deci (2005), suggesting that individuals with controlled extrinsic motivation negatively impact performance, well-being and commitment and are associated with negative job outcomes. Furthermore, the results reinforce Baerdemaeker and Bruggeman's (2015) assertion that both intrinsic and extrinsic motivation can reduce budgetary gaps. The higher the employees' motivation in budgeting participation, the less likely they are to engage in budget gaming.

#### 4.3.4. Budgeting participation level – behavior of budget gaming

Table 2 indicates a negative association between budgeting participation level and budget gaming, with a path coefficient of -0.527 and a p-value <0.001 (H4 is supported). The study's findings support Blocher et al. (2015), who argue that participation can help improve the budgeting process and enhance employees' commitment to achieving budgetary goals. The study's results also support Onsy (1973), Merchant (1985) and Dunk (1993), in suggesting that there exists an inverse correlation between active budgeting participation and managers' inclination to create slack.

#### 4.3.5. Mediating effect

The results of the role of motivation and budgeting participation level as mediators in the association between FSFEs and budget gaming behavior are shown in Table 3. Sobel Test was used for the mediation analysis (Hayes, 2013). The Sobel standard error for a path with one mediator is calculated by the formula = square root of  $[a_i^2 se_{b_i}^2 + b_i se_{a_i}^2]$ , where  $se_{a_i}^2$  dan  $se_{b_i}^2$  are the squares of the standard errors of  $a_i$  and  $b_i$ . For paths with two mediators, the Sobel standard error is calculated using the formula = square root of  $[a_1^2 d_{21}^2 se_{b_2}^2 + a_1^2 b_2^2 se_{d_{21}}^2 + d_{21}^2 b_2^2 se_{a_1}^2]$ , where  $se_{a_1}^2$ ,  $se_{b_2}^2$ , dan  $se_{d_{21}}^2$  are the squares of the standard errors of  $a_1$ ,  $b_2$ , dan  $d_{21}$ .

#### 4.3.6. Mediating roles of motivation

The findings indicate that there is a significant relationship between FSFEs and budget gaming behavior through intrinsic motivation with a path coefficient = 0.048 and a p-value = 0.078, autonomous extrinsic

**Table 3.** Hypothesis testing H5.

Hypotheses	Path	Standard error sobel	p-value	Results
<b>FSFEs – Motivation – Budget Gaming</b>				
H5a	FSFEs-IM-BG	0.048	0.078*	IM mediates
H5b	FSFEs-AEM-BG	0.053	0.093*	AEM mediate
H5c	FSFEs-CEM-BG	0.049	0.086*	CEM mediates
H5d	FSFEs-BPL-BG	0.069	0.010***	BPL mediates
	FSFEs-IM-BPL-BG	0.033	0.031**	IM and BPL mediate
	FSFEs-AEM-BPL-BG	0.021	0.044**	AEM and BPL mediate
	FSFEs-CEM-BPL-BG	0.028	0.140	CEM and BPL do not mediate

\*\*\*p-value <0.01; \*\*p-value <0.05; \*p-value <0.1.

FSFEs: Favorable Supervisory Feedback Environments; IM: Intrinsic Motivation; CEM: Controlled Extrinsic Motivation; AEM: Autonomous Extrinsic Motivation; BPL: Budget Participation Level; BG: Budget Gaming.

**Table 4.** Results of the Sobel test.

FSFEs	Intrinsic motivation	Autonomous extrinsic motivation	Controlled extrinsic motivation	Budgeting participation level	Budget gaming
Positive (+)	Positive (+)			Positive (+)	Negative (-)
Positive (+)		Positive (+)		Positive (+)	Negative (-)
Positive (+)			Positive (+)	Positive (+)	Positive (+)

motivation with a path coefficient = 0.053 and a p-value = 0.093 and controlled extrinsic motivation with a path coefficient = 0.049 and a p-value = 0.086. These findings support hypotheses H5a, H5b and H5c. They further support previous findings suggesting that FSFEs are positively associated with intrinsic motivation reasons, autonomous extrinsic motivation reasons and controlled extrinsic motivation reasons (H1a, H1b and H1c are supported), while motivation (intrinsic and autonomous extrinsic) negatively correlates with budget gaming behavior (H3a and H3b are supported). Thus, controlled extrinsic motivation positively correlates with budget gaming behavior (H3c is supported). These results are aligned with Hair et al. (2012) which stated that when path coefficients are significant, mediation is also significant.

#### 4.3.7. Mediating roles of budgeting participation level

The findings suggest a significant relationship between FSFEs and budget gaming behavior through budgeting participation level with a path coefficient = 0.069; and a p-value = 0.010. FSFEs can increase budgeting participation level with a path coefficient = 0.307; and a p-value = 0.001. The results are in accordance with the earlier studies that FSFEs are positively related to budgeting participation level and budgeting participation level is negatively related to behavior of budget gaming (H4 is supported).

#### 4.3.8. Mediating roles of motivations and budgeting participation level

The results of the Sobel Test for the two mediators are shown in Table 4, namely that motivation and budgeting participation level, mediate the relationship between FSFEs and behavior of budget gaming. However, different results were seen in the controlled dimensions of extrinsic motivation and budgeting participation level, where both were not mediators in the relationship between FSFEs and budget gaming behavior.

Higher FSFEs (positive) are related to higher intrinsic motivation and extrinsic autonomy (positive), which then increases the budget participation level (positive) and has an impact on reducing the gaming budget (negative). Therefore, organizations need to focus on increasing FSFEs throughout the organization, need to develop programs to increase intrinsic and autonomous extrinsic motivation and need to implement strategies to increase employee involvement in the budgeting process.

## 5. Conclusion, limitation, future research

This research findings suggest that: (1) FSFEs are proven to have a positive relation to intrinsic motivation, autonomous extrinsic motivation and controlled extrinsic motivation. (2) Intrinsic motivation and autonomous extrinsic motivation have been found to increase budgeting participation level. However,

11 this is not proven in controlled extrinsic motivation. (3) The motivation of intrinsic and autonomous extrinsic motivation were proven to decrease budget gaming and controlled extrinsic motivation is proven to increase budget gaming. (4) Budgeting participation level is proven to be negatively related to behavior of budget gaming. (5) Intrinsic motivation and autonomous extrinsic motivation substantially mediate the relationship between FSFEs and behavior of budget gaming, both directly and indirectly through budgeting participation level. (6) Budgeting participation level have been found to act as mediators in the connection between FSFEs and budget gaming.

This study lends support for the Self-Determination Theory (SDT). The support for the positive connection between FSFEs and intrinsic motivation, as well as extrinsic motivation, aligns with the principles of SDT. A supportive supervisory environment can strengthen the demand for autonomy and competence, thereby enhancing both intrinsic and extrinsic motivation. The result indicating that the motivation of autonomous intrinsic and extrinsic act as mediators in the connection between FSFEs and budget gaming supports the concept of mediation within SDT. This suggests that motivation, as a mediator, helps explain how FSFEs can influence budget gaming behavior through budgeting participation level. The results of this study also support the Leader-Member Exchange Theory through findings indicating the relationship between budgeting participation level and budget gaming, as well as the mediation between FSFEs and budget gaming through budgeting participation level. The negative relationship between budgeting participation level and budget gaming supports the idea that the standard of the relationship between supervisors and staff can influence budgeting behavior. The higher the participation level, the lower the likelihood of budget gaming. The fact that budgeting participation level can mediate the relationship between FSFEs and behavior of budget gaming supports the notion that the standard of the relationship between supervisors and staff can affect budgeting behavior through participation levels. Overall, the findings of this study offer empirical backing for SDT and LMX Theory by demonstrating the complex relationship between supervisory environment, motivation, budgeting participation and budget gaming behavior in an organizational context.

This study provides practical implications, namely providing certainty for organizations seeking to mitigate budget gaming behavior, suggesting that FSFEs may be beneficial particularly through increasing motivations and enhancing the budgeting participation level. Management can strengthen positive feedback from superiors to drive intrinsic motivation and extrinsic motivation in order to minimize budget gaming practices. Companies need to encourage active employee involvement in the budget preparation process and must be careful about providing incentives that are too controlled because this can increase budget gaming behavior.

55 The results of this study also provide theoretical implications, namely provides a fresh perspective on the relationship between supervisors and subordinates in the context of budgeting, integrating Self-Determination Theory (SDT) with budgeting. Theoretical implications are also concerning about autonomous intrinsic and extrinsic motivation which are important for increasing employee participation and reducing manipulative behavior. In addition, this research supports the Leader-Member Exchange (LMX) theory by showing that good relationships between leaders and members can mediate the relationship between FSFE and work behavior. Thus, this research emphasizes the importance of creating a work environment that supports employee autonomy and competence, as well as positive relationships between leaders and members, to achieve better work results and reduce negative behavior such as budget gaming. Theoretical implications also include the development of Leader-Member Exchange (LMX) theory and support for further research to explain the mediation mechanisms of motivational variables in the relationship between FSFEs and budgeting behavior.

Overall, this study contributes to both practitioners in managing employees' motivation and budgeting participation, as well as theory development in understanding the complex interaction between motivation and budgeting behavior. Given the scarcity of research literature concerning on FSFEs and budget gaming in the management accounting setting, future research might investigate these two variables to understand how FSFEs might influence behavior, particularly in budgeting control settings. Subsequent research can shed light on the sample of small-scale organizations, state-owned enterprises and non-manufacturing sectors. Associating FSFEs with organizational politics and performance evaluation systems to examine their impact on dysfunctional employee behavior could also be an agenda for



future research. The use of experimental methods could be an option for upcoming studies to ensure a cause-and-effect relationship between FSFEs and budget gaming behavior. Given the potential bias in data collection methods that could affect study outcomes because this study gathered data from the same respondents at single point in time. To minimize the risk of common method bias (CMB), future research may consider specific statistical methods or techniques or different research design setups to collect independent and dependent data.

### Author contributions

SeTin: Responsible for collecting literature and primary data relevant to the research topic, carrying out statistical analysis and processing of primary data required for research, write the methodology section in the article, explaining in detail the research process and data analysis, responsible for writing the research results section and the main findings obtained from data analysis, and write initial drafts of articles, focusing on the more technical and data-oriented parts. Maria Natalia: Responsible for searching and evaluating theoretical literature relevant to the research topic, writing the introduction to the article and formulating a conceptual or theoretical framework, write the discussion section, present the interpretation and implications of research findings, and write the conclusion, and responsible for article revisions and editing to ensure consistency and clarity.

### Disclosure statement

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### Data availability statement

The data underpinning the findings of this study are accessible upon request. These data will be provided to any qualified researcher for replication or verification purposes.

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PAGE 1

PAGE 2

PAGE 3

PAGE 4

PAGE 5

PAGE 6

PAGE 7

PAGE 8

PAGE 9

PAGE 10

PAGE 11

PAGE 12

PAGE 13

PAGE 14

PAGE 15

PAGE 16

PAGE 17

PAGE 18

PAGE 19