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# The contingent roles of perceived budget fairness, budget goal commitment and vertical information sharing in driving work performance

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## Abstract

**Purpose** – Drawing on equity theory, social exchange theory and goal setting theory, the purpose of this paper is to investigate the contingencies on the link between employees' budgetary participation and their work performance. Specifically, this study addresses the research questions: whether vertical information sharing and budget goal commitment mediate the relationship between employees' budgetary participation and their work performance; and whether employees' perceived budget fairness can strengthen the positive effects of budgetary participation on vertical information sharing and budget goal commitment.

**Design/methodology/approach** – Survey data were collected from a sample of 556 low to middle level managers of business organizations in Vietnam. The research model and its hypotheses were tested using PLS-SEM. The standardized root mean squared residual value of the composite model was employed to assess model fit. Common method bias was also checked using the marker-variable approach.

**Findings** – This study has two key findings: both vertical information sharing and budget goal commitment partially mediate the positive effects of budgetary participation on work performance; and both dimensions of perceived budget fairness (distributive and procedural) elevate the positive relationships of budgetary participation – vertical information sharing and budgetary participation – budget goal commitment.

**Practical implications** – The findings could benefit businesses in Vietnam and similar market contexts. Specifically, top management needs to select a proper level of budgetary participation that can facilitate information sharing vertically within the organization and motivate their employees to be more committed to achieve budget goals. Besides, the top management also needs to ensure that their employees perceive the fairness in the budgeting process.

**Originality/value** – The study contributes a greater understanding as regards the mediating roles of vertical information sharing and budget goal commitment as well as the moderating role of perceived budget fairness on the relationship between employees' participation in the budgetary process and their work performance, especially in the context of an emerging market – Vietnam. Overall, this study contributes to the management and accounting literature with insights concerning a more complex process explaining employees' work performance and triggered by their budgetary participation.

**Keywords** Emerging markets, Budget fairness, Budget goal commitment, Budgetary participation, Vertical information sharing

**Paper type** Research paper



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## 1. Introduction

Over the past three decades, researchers have extensively examined whether employees' involvement in and influence on their budgeting targets make them work more effectively. Despite numerous research, there is lack of consensus theoretically and empirically on the link between budgetary participation and work performance. There is empirical support for the positive relationship between employees' participation in budgeting and their work performance in previous behavioral accounting studies (e.g. Brownell and McInnes, 1986; Chong and Johnson, 2007; Dunk, 1989; Kren, 1992). Based on three meta-analyses, Bonache *et al.* (2012) stated that, on the whole, the direct link between one's participation in the determining budgetary resources and their work performance is not significant. These findings of meta-analyses did not mean to discount the importance of involving employee's involvement in budget decisions, but instead suggested that the link between budgetary participation and work performance are contingent on intervening variables. Some researchers drew on expectancy theory to argue that the relationship between budgetary participation and work performance can be predicted through employees' motivation factors (Brownell and McInnes, 1986). Higher levels of budgetary participation are found to be associated with more budget-based compensation, which in turn leads to higher firm performance (Shields and Young, 1993). Another research stream has focused on the intervening path through the cognitive benefits of the budget process in terms of information sharing (Chong and Chong, 2002; Chong and Johnson, 2007). More recent studies have examined the indirect effects of budgetary participation on work performance, operating through psychological capital (Venkatesh and Blaskovich, 2012), job satisfaction and relevant job information (Leach-López *et al.*, 2007, 2009) and role ambiguity (Parker and Kyj, 2006).

While it appears that budgetary participation may generate a positive effect on work performance when the proper mechanisms are employed, researchers have so far disagreed on the intervening variables (Cheng, 2012). Therefore, this study attempts to contribute an improved understanding on interventions that could be designed to explain or influence the meaningful relationship between budgetary participation and work performance. More specifically, this study extends the existent literature by examining vertical information sharing and budget goal commitment as concurrently potential mediators that connect budgetary participation to enhanced work performance. These two mediators, respectively, capture cognitive-informational and motivational paths that were mostly examined separately and independently in prior research. In integrating the two mediators in one framework, the study provides insights into the relative roles of vertical information sharing and budget goal commitment in impacting employees' work performance. Furthermore, this study also argues that employees' perceived budget fairness may elevate the positive effects of budgetary participation on vertical information sharing and budget goal commitment. While some prior research into organizational justice or fairness examines perceived fairness as a mediating invention (Cohen-Charash and Spector, 2001; Lau and Tan, 2006), this study considers fairness could be *ex post* consequence that can modify the relationship between employees' budgetary participation and their behaviors. In this regard, using equity theory and social exchange theory – where organizational justice theory is also traced to – as empirical guide (Adams, 1965; Blau, 1964; Greenberg, 1987), this study proposes that the interaction between employees' budgetary participation and their perceived budget fairness relates to enhanced work performance through enhanced vertical information sharing and budget goal commitment. In this sense, the higher employees perceive the level of budget fairness, the more budgetary participation is related to vertical information sharing and budget goal commitment. Drawing upon the goal setting theory (Locke and Latham, 1990, 2002, 2006), this study also conjectures that a higher level of budget goal commitment can result in better work performance. Moreover, this study adds to currently limited research on how budgetary participation can enhance work

performance in the emerging markets. Many modern management theories have been rooted from the West and subjected to criticism of limited relevance in developing markets (Blunt and Jones, 1997). Much research into budgetary participation and perceived fairness has been done in the context of Western markets (e.g. De Baerdemaeker and Bruggeman, 2015; Sholihin *et al.*, 2011). Therefore, it has been argued that research is needed to explore the application of theories in emerging market contexts (Blunt and Jones, 1997; Sheth, 2011). Therefore, while the concepts used in this study may not be novel, an important implication for this study lies with its insights from an emerging market context to maintain theoretical and practice relevance of extant theories as well as prior findings in extant literature. Vietnam was selected as the context of the study, but this is not a convenience choice. Vietnam is a sizable, fast-growing market in Asia, once a centrally planned economy and in the past decades has attracted considerable attention of foreign investment (World Bank, 2017). Therefore, Vietnam can be a meaningful context for examining the application of modern management practices in driving employees' performance.

Overall, this study research contributes to the accounting and management literature by providing insights of the roles of budgetary participation as well as contingency factors such as information sharing, budget goal commitment and perceived budget fairness in inducing employee's work performance, particularly with evidence from the context of an emerging market – Vietnam.

## 2. Hypothesis development

### 2.1 *Budgetary participation and work performance – the mediating role of vertical information sharing*

Budgetary participation is the degree to which managers influence over and engage in setting the budgets of their subunits (Ezzamel, 1990; Kenis, 1979). It also refers to the frequency and perceived influence of budget-related consultations between superiors and subordinates (O'Connor *et al.*, 2001). Budget participation is argued to serve an informational function in that it drives employees to gather, exchange, disseminate and communicate information that is relevant to the decision-making process to other stakeholders in the organization (Nouri and Parker, 1998). The communications of information between subordinates and superiors could be either upward or downward, making up vertical information sharing (Parker and Kyj, 2006). Regarding upward communication, some studies in the accounting discipline relied upon the agency theory (Lambert, 2007) to suggest that employees often have more knowledge of their operational areas than their superiors and their participation in budget decisions will enable them to share those "private" knowledge with their superiors to negotiate realistic budget plans and goals (Nouri and Parker, 1998; Parker and Kyj, 2006). High budgetary participation also involves high frequency and broad scope of discussions between superiors and subordinates about their budget issues (Milani, 1975; Murray, 1990). The frequency and scope of such discussions allow more opportunities for subordinates to share their insights with superiors. With respect to downward communication, budgetary participation enables the sharing of information from the superiors to subordinates, in which superiors can cascade the organization's goals and expectations of subordinates, and at the same time subordinates may obtain information regarding their own tasks and responsibilities. Hence, it is expected that budgetary participation can enhance vertical information sharing, including both upward and downward communications.

On the other hand, information sharing across members of the organizational hierarchy involving in budget decisions is also argued to be beneficial to both employees and organization (Parker and Kyj, 2006). At the individual level, both types of vertical information sharing (upward and downward) can increase employees' work performance in a number of ways such as enabling the superiors to help develop better strategies for their

subordinates (Murray, 1990) and ensuring that subordinates receive adequate budget support (Nouri and Parker, 1998). Indeed, when employees participate in the determination of budget resources, they will use their operational knowledge and insights to negotiate budgetary goals and resources with their superiors, resulting in realistic budget plans with better informed actions. The budgetary participation also gives the employees the chances to understand the company's strategies and expectations of them, so that they can perform their tasks more effectively. As such, it can also be posited that vertical information sharing can help enhance the employees' work performance. Following prior meta-analyses in the literature that the direct link between employee's budgetary participation and their work performance is not significant (Bonache *et al.*, 2012), it can be expected that the employee's budgetary participation influences their work performance through the operation of vertical information sharing across different organizational hierarchies. In this regard, budgetary participation can foster vertical information sharing, which in turn enhances employees' work performance. Thus, it can be hypothesized that:

- H1. Vertical (upward and downward) information sharing positively mediates the relationship between budgetary participation and work performance.

## 2.2 Budget participation and work performance – the mediating role of budget goal commitment

Similarly, another mechanism intervening the budgetary participation – work performance relationship is budget goal commitment. Budget goal commitment refers to the determination to strive for a budget goal and the perseverance in pursuing the goal over time (Locke *et al.*, 1988). Regarding the participation – commitment relationship, previous studies in management and organizational behavior (e.g. Locke *et al.*, 1988; Rhodes and Steers, 1981) have drawn on goal setting theory to propose that employees' participation in decision making increases their goal commitment. An important notion of the goal setting theory is that goals, which are human conscious intentions, regulate their subsequent behaviors or actions (Locke and Latham, 2006). In this sense, when employees get involved in the budgeting process, they could feel a sense of ownership of the budget and that feelings of control can enhance their commitment to achieving budget goals. A statistically significant association between budgetary participation and budget goal commitment is also found in some accounting studies (e.g. Jermias and Yigit, 2012; Nouri and Parker, 1998; Quirin *et al.*, 2000). Moreover, within the context of Vietnam with a collectivist culture (i.e. low individualism index) (Hofstede, 2017), employees tend to react positively to a high budgetary participative environment because “decision making is shared among all members of the society and subordinates are viewed as equal partners by the superiors” (Jermias and Yigit, 2012, p. 36). Shields and Shields (1998) argued that the participation of employees in the decision-making process can result in less resistance to changes and more commitment to organizational decisions. Therefore, a positive relationship between budgetary participation and budget goal commitment is expected.

The relationship between organizational commitment and employees' work performance is well established in previous studies in the areas of human resource management and organizational behavior (Jaramillo *et al.*, 2005; Riketta, 2002). These studies theorize that a higher level of employees' commitment can result in higher motivation, which in turn, leads to higher work performance. In the budget setting context, the relationship between budget goal commitment and work performance can also be drawn upon the goal setting theory (Locke and Latham, 1990, 2002, 2006). In accordance with this theory, once employees are committed to budget goals, they will increase their efforts required to achieve those goals. This means employees who are committed to their budget goals will try harder and persist over time, resulting in being more effective than less committed employees (Chong and Johnson, 2007).

Hence, the positive relationship between budget goal commitment and work performance is expected. Some studies in the accounting discipline also provide empirical evidence that budget goal commitment is positively linked to work performance (e.g. Chong and Chong, 2002; Kren, 1990; Marginson and Ogden, 2005; Nouri and Parker, 1998). Taking a similar line of reasoning in Section 2.1, it can be expected that budgetary participation enhances budget goal commitment, which in turn, enhances work performance. Thus, it can be hypothesized that:

- H2. Budget goal commitment positively mediates the relationship between budgetary participation and work performance.

### *2.3 From budgetary participation to vertical information sharing and budget goal commitment – the moderating role of perceived budget fairness*

While budgetary participation can be used as a motivational and informational measure to enhance staff performance, the sharing of information or commitment to budget goals can also be preceded by the perceptions of fairness of budget decisions made by their superiors (Arnold, 2015). The organizational justice theory suggests that employees' perceptions of fairness of organizational behaviors impact their attitudes and behaviors within the organization (Greenberg, 1987). Drawing on this theory, some researchers adopt the concept of perceptions of budget fairness, which comprises two dimensions: distributive and procedural fairness (Lau and Tan, 2006). The former concerns with the distribution of final outcomes, while the latter taps into the processes that are used to deliver the outcomes (Greenberg, 1987). The meta-analysis of Cohen-Charash and Spector (2001) suggests perceived justice serves as mediating intervention in the relationship between perceptions of organizational outcomes/practices and outcomes such as job performance (Cohen-Charash and Spector, 2001). In the same vein, the study of Lau and Tan (2006) also examines procedural fairness as a mediator of the impact of budgetary participation on job tension (Lau and Tan, 2006). In this sense, perceived fairness has been deemed as a mechanism explaining the relationship between budgetary participation and outcomes.

On the other hand, it is worth noting that the concept of justice is grounded in the equity theory, which that is rooted from Adams (1965) and Blau's (1964) social exchange theory. In the budget setting literature, distributive fairness relates to the perceived fairness of the resource allocation that an employee receives in relation to what others receive, while procedural fairness concerns with the perceptions of fair enactment of budgeting procedures (Maiga and Jacobs, 2007). In accordance with the equity theory and the social exchange theory, employees may evaluate the exchange fairness of the relationship with the organization by comparing the efforts they contributed (time, thinking, emotions, energy [...]) and the rewards they got (pay, support, respect, entitlements [...]) (Hur *et al.*, 2014). Such comparison is indeed the source of motivation for employees to adapt themselves in order to equalize the differences (Elamin, 2012). For example, when the employees believe that they receive unfair compensation, they can engage in harmful working behaviors (Hopkins and Weathington, 2006). It is the aim of procedural justice to minimize conflicts by facilitating the positive relationships between employees (Hur *et al.*, 2014). Research has suggested that employees are not only concerned with organizational inequality, but also the procedures for achieving outcomes (Leventhal, 1980). Thibaut and Walker's (1975) study found that the employees' participation in the decision-making processes would give them a sense of control. As a result, if they perceive that they are treated fairly and that the evaluation process is satisfactory, they will believe in proper and trustworthy final results. In this regard, even the concepts of justice and fairness have been used interchangeably, they are *ex ante* provision and *ex post* consequence aspects (Cugueró-Escofet and Rosanas, 2013). Therefore, it could be deemed that the organization's act of providing employees with the chance to participate in budgeting *per se* triggers their initial perceptions of fairness that led to initial information

sharing and performance; and then the perceived fairness varied through the ongoing interactions with the structure could modify the employees' attitude and behavior.

As such, this study draws upon Blau's (1964) equity theory and social exchange theory in arguing that when employees believe that the budgeting procedures are fair and the targets are fairly distributed, they are more likely to share information during the budgeting process and put more effort to commit to budget goals. On the other hand, employees who believe that the budgeting process is unfair are less likely to disclose information (Parker *et al.*, 2014) and have lower commitment to budget goals. In this regard, when employees believe that budgeting procedures are fair with a high level of procedure and distributive justice, they will believe that the budget decisions are aligned with their rights and interests; consequently, they are more likely to share their private information in the budgeting process and more committed to set budget goals (Wentzel, 2002). In addition, a fair budgeting environment can enhance interpersonal trust and reduce job tension (Lau and Tan, 2006), creating a favorable condition for information sharing. Conversely, when the budgeting system is unfair, employees feel disrespected and are inclined not to share information (Parker *et al.*, 2014) and they tend to express a low level of budget goal commitment. As theorized in this study, a fair budgeting process signals respect for the interests of the employees which encourage information sharing as well as their budget goal commitment. On the other hand, an unfair budgeting process, such as a budgeting process with favoritism, triggers negative behaviors (Hopkins and Weathington, 2006), demotivates employees to share information and weakens their budget goal commitment (Parker *et al.*, 2014). Methodologically, mediation and moderation are not mutually exclusive, or in other words, the consideration of an intervening variable as a mediator does not mean that variable can never be examined as a moderator, provided that there is no multicollinearity issue (Jose, 2013). In light of these above reasoning, this study hypothesizes that when employees perceive a higher level of budget fairness, the positive influences of budgetary participation on vertical information sharing and budget goal commitment can be strengthened. Thus, it can be hypothesized that:

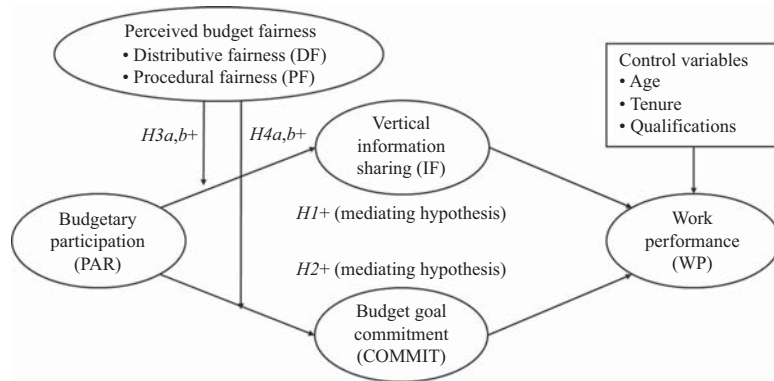
- H3a.* Perceived budget distributive fairness positively moderates the relationship between budgetary participation and vertical information sharing.
- H3b.* Perceived budget procedural fairness positively moderates the relationship between budgetary participation and vertical information sharing.
- H4a.* Perceived budget distributive fairness positively moderates the relationship between budgetary participation and budget goal commitment.
- H4b.* Perceived budget procedural fairness positively moderates the relationship between budgetary participation and budget goal commitment.

Figure 1 illustrates the proposed model that integrates the above discussed hypotheses.

### 3. Research methods

#### 3.1 Sampling and data collection

This study was conducted in Vietnam – an emerging economy – with a data set of 556 mid- and low-level managers in business firms. To include these specific informants in the sample, a convenience-sampling approach was used to identify potential informants, and qualifying questions were asked at the commencement of the survey to identify relevant informants. The selection criteria included: being a mid- or low-level manager; having organizational tenure of at least two years, and having at least two-year budgetary experience/responsibilities. The informants represented various functional areas that are usually involved in budget practices, including sales, marketing, finance/accounting and manufacturing/production



**Figure 1.**  
Proposed model

(e.g. human resources, information technology). These selection criteria ensured that the chosen informants were knowledgeable about the budgeting issues in their respective organizations.

The authors distributed both e-mail and paper surveys to the target informants. The sampling frame includes contacts from the authors' LinkedIn connections. The initial list included 15,363 potential e-mail contacts. The authors contacted the potential informants via emails asking for their participation and then created a link to the survey on Survey Monkey and the informants' completion of the survey was considered as their consent of participation. Following the procedure suggested by Brislin (1970), the original survey items in English were translated into Vietnamese and back-translated by two academics who were competent in both English and Vietnamese. To further ensure the face validity, the translated Vietnamese questionnaire was also checked by managers and academics with respect of items wording, relevancy and comprehensions. The final version of the survey questionnaire was circulated to the potential informants via Survey Monkey, which is an online survey administration tool. From May to December 2017, 1,435 responses were received. After eliminating 360 that had no budget experience, 268 incomplete responses, 217 top-level managers and employees, and 34 responses that were done within less than five minutes for completing the survey, the final sample included 556 responses.

LinkedIn is the most successful and comprehensive professional network (Mintz and Currim, 2013). The use of LinkedIn to obtain the source of the target informants' emails has been applied in previous studies (e.g. Mintz and Currim, 2013; Ouakouak and Ouedraogo, 2017; Michalena and Hills, 2016). To test the legitimacy of the sample, information on the profiles of the 556 surveyed informants were examined. For the 115 LinkedIn members who used company emails indicating affiliations, we found that there is no legitimacy problem. For the 441 remaining LinkedIn members who used personal emails (e.g. Gmail or Yahoo), we randomly selected 20 (5 percent of them) then used internet and telephone to check various information on their profiles (e-mail, address, name, telephone number, company name, department and job title) in term of existence. We found that no exception noted, indicating no serious legitimacy issue of the final sample.

Table I shows the demographics of the participating firms and informants. The final sample comprised 79.7 percent mid-level managers and 20.3 percent low-level managers. All informants had a bachelor degree, and 29.1 percent had a master's degree or above. The informants' average tenure (5.35 years) and budget experience (4.81 years) indicated that they had adequate experience to respond to the survey and were knowledgeable about budgeting issues. In relation to age, 81.7 percent of the informants were aged between 25 and 39. The informants worked in sales and marketing (43.2 percent), research and development (16.4 percent), manufacturing (16.7 percent), finance/accounting (12.1 percent),

Demographics	Frequency ( <i>n</i> = 556)	Percent	Demographics	Frequency ( <i>n</i> = 556)	Percent
Gender			Department/ Responsibility		
Male	364	65.5	Marketing	67	12.1
Female	192	34.5	Finance/accounting	67	12.1
Job position			Research and development	91	16.4
Mid-level managers	443	79.7	Sales	173	31.1
Low-level managers	113	20.3	Manufacturing	93	16.7
Age			Others	65	11.6
< 25	14	2.5	Ownership structure		
25–29	128	23.0	With foreign capital	393	70.7
30–34	160	28.8	Without foreign capital	163	29.3
35–39	166	29.9	Industry type		
40–44	64	11.5	Manufacturing	155	27.9
> 45	24	4.3	Trading	118	21.2
Academic qualifications			Services	283	50.9
Undergraduate	394	70.9	Firm size (assets) in VND billion		
Post-graduate	162	29.1	≤ 100	137	24.7
Organizational tenure			101–200	83	14.9
2–5 years	403	72.5	201–500	79	14.2
6–10 years	81	14.6	501–1,000	68	12.2
> 10 years	72	12.9	> 1,000	189	34.0
Budget experience			Firm size (full time equivalent employees)		
2–5 years	396	71.2	≤ 100	136	24.5
6–10 years	137	24.6	101–300	105	18.9
> 10 years	23	4.2	301–1,000	118	21.2
			1,001–5,000	103	18.5
			5,001–10,000	58	10.4
			> 10,000	36	6.5

**Table I.**  
Demographics of the participating firms and informants

and other departments such as purchasing, human resource management, and information technology (11.6 percent). In terms of firm characteristics, 50.9 percent of informants worked in the service industry, 27.9 percent worked in manufacturing and 21.2 percent worked in the trade industry. The sample well reflects the industrial structure of Vietnam in which the services industry accounts for approximately 50 percent of GDP of Vietnam in 2015 followed by manufacturing at 33 percent (PwC, 2016).

The informants worked for foreign companies (70.7 percent) and local companies (29.3 percent). In terms of firm size, 75.3 percent of informants worked in firms with total assets of more than VND 100bn. In addition, 75.5 percent of informants worked in firms with more than 100 full time equivalent employees. Given that the final response rate was low (3.6 percent), the study followed Armstrong and Overton's (1977) procedure to test non-response bias. The independent *t*-tests revealed that there are no statistically significant differences in all measures among the first (earliest) and fourth (latest) quartiles of responses, indicating no non-response bias in this study.

### 3.2 Measurement scales and reliability and validity tests

This study adopts well-established scales in the existent literature to measure the variables in the research model. The main variables measured in the questionnaire were budgetary participation, perceived budget fairness, vertical information sharing, budget goal commitment and work performance. Budgetary participation was measured following previous studies (e.g. Milani, 1975; Nouri and Parker, 1998; Parker and Kyj, 2006). The scale has six seven-point items. The respondents were asked to assess the degree of involvement



and influence that they have in the budgeting process with the scale ranging from 1 = “very little” to 7 = “very much.” Perceived budget fairness was operationalized by budget distributive fairness and budget procedural fairness. Budget distributive fairness was measured using managers’ responses to five seven-point Likert items (Magner and Johnson, 1995; Wentzel, 2002). These items assess various comparative bases (needs, expectations and what is deserved) that employees may use when judging the fairness of distributions as well as the interpersonal facet of distributive fairness. Budget procedural fairness was assessed using responses to eight procedural fairness statements following Magner and Johnson (1995) and Wentzel (2002). These items measure the fairness of allocation procedures (consistency across persons and time, accuracy, correctability, ethicality and bias suppression) and the informational facet of procedural fairness. Vertical information sharing is assessed via the scale of Parker and Kyj (2006). Budget goal commitment was adapted from Chong and Chong (2002). This measure derives commitment levels by asking directly about the goal. The scale ranges from 1 = “strongly disagree” to 7 = “strongly agree.” Employees’ work performance was measured based on a widely accepted scale, which was originally developed by Mahoney *et al.* (1963) and subsequently used by Hall (2008), Kren (1992) and Lau and Roopnarain (2014). This study uses self-reports, or subjective scores, to evaluate work performance because “a worker’s cognitive representation and reports of his or her own” work performance “may be more subtle than those of his or her supervisor, since a worker has much more information about the historical, contextual, intentional and other backgrounds of his or her own work activities” (Janssen, 2001, p. 192). Following previous studies (e.g. Janssen, 2001), this study incorporates three demographic variables of the informants (age, academic qualifications and organizational tenure) as control variables of work performance. See Table II for the scales of the main constructs.

The measurement scales were first tested for reliability. Table II shows that the outer loadings of all observed variables for all of the main constructs ranged between 0.60 and 0.90, which was higher than the desirable value of 0.50 (Hulland, 1999). All corresponding *t*-bootstrap values were well above 1.96 to be statistically significant (ranged between 16.56 and 83.82). The average variance extracted (AVE) values of all latent variables were acceptable because they were higher than 0.50 (ranged between 0.51 and 0.78). In addition, the composite reliabilities of the latent variables ranged between 0.88 and 0.91. These results indicate a high level of reliability of the measurement scales used in the model.

The discriminant validity of the measurements was evaluated following the procedure proposed by Fornell and Larcker (1981). Table III shows that the square roots of the AVE of the main constructs ranged between 0.72 and 0.89, which were well above the corresponding bootstrapped correlations between these constructs (ranged between 0.10 and 0.70), thereby indicating the discriminant validity of the measurements. In addition, discriminant validity was demonstrated when the correlation between two constructs (the off-diagonal entries) was not higher than their respective composite reliability (Fornell and Larcker, 1981). Table III indicates that no individual correlations (ranged between 0.10 and 0.70) were higher than their respective composite reliabilities (ranged between 0.88 and 0.91), thereby indicating a satisfactory discriminant validity. In addition, most of the correlations were consistently smaller than the cut-off value of 0.70, suggesting acceptable discriminant validity (Tabachnick *et al.*, 2001). This study also employed the Heterotrait–Monotrait (HTMT) test, which is more stringent than that of Fornell and Larcker (1981), to evaluate discriminant validity (Henseler *et al.*, 2015). Table III shows that the HTMT values, which were computed based on the bootstrapping routine, ranged between 0.12 and 0.79. These values were significantly below 1.00, thereby discriminant validity was assumed to exist.

This study also examined the corresponding variance inflation factor (VIF) values of the independent variables to ensure there was no multicollinearity (O’Brien, 2007). The inner

Construct and items	Outer loading	t-test
<i>Budgetary participation (AVE = 0.57; CR = 0.89)</i>		
The portion of the budget I am involved in setting	0.78	34.88
The amount of reasoning provided to me by a superior when the budget is revised	0.68	22.99
The frequency of budget-related discussions with superiors initiated by me	0.76	32.85
The amount of influence I feel I have on the final budget	0.84	57.15
The importance of my contribution to the budget	0.82	48.72
The frequency of budget-related discussions initiated by my superior when budgets are being set	0.62	17.05
<i>Budget goal commitment (AVE = 0.53; CR = 0.91)</i>		
I am strongly committed to pursuing the budget objectives	0.72	30.51
I am willing to put forth a great deal of effort beyond what I'd normally do to achieve the budget objectives	0.76	33.60
Quite frankly, I don't care if I achieve the budget objectives or not (R)	0.78	32.31
There is not much to be gained by trying to achieve the budget objectives (R)	0.60	16.56
It is quite likely that the budget objectives may need to be revised, depending on how things go this quarter (R)	0.73	25.05
It wouldn't take much to make me abandon the budget objectives (R)	0.75	30.41
It's unrealistic for me to expect to reach the budget objectives (R)	0.71	28.17
Since it's not always possible to tell how tough courses are until you've been in them a while, it's hard to take this goal seriously (R)	0.79	36.16
I think the budget objectives are a good goal to shoot for	0.68	19.65
<i>Vertical information sharing (AVE = 0.78; CR = 0.88)</i>		
Through the budgeting process, I share my insights with my superior about the situation in my area of responsibility	0.87	55.32
In the budgeting process, I communicate information to my superiors about opportunities and problems facing the organization	0.90	77.18
<i>Distributive fairness (AVE = 0.67; CR = 0.91)</i>		
My responsibility area received the budget that it deserved	0.81	45.18
The budget allocated to my responsibility area adequately reflects my needs	0.81	45.20
My responsibility area's budget was what I expected it to be	0.87	83.82
I consider my responsibility area's budget to be fair	0.79	40.79
My supervisor expresses concern and sensitivity when discussing budget restrictions placed on my area of responsibility	0.82	46.09
<i>Procedural fairness (AVE = 0.56; CR = 0.91)</i>		
Budgeting procedures are applied consistently across all responsibility areas	0.78	38.66
Budgeting procedures are applied consistently across time	0.77	40.92
Budgetary decisions for my area of responsibility are based on accurate information and well-informed opinions	0.72	29.72
The current budgeting procedures contain provisions that allow me to appeal the budget set for my area of responsibility	0.73	32.77
The current budgeting procedures conform to my own standards of ethics and morality	0.76	40.22
Budgetary decision makers try hard not to favor one responsibility area over another	0.73	30.43
The current budgeting procedures adequately represent the concerns of all responsibility areas	0.75	32.31
Budgetary decision makers adequately explain how budget allocations for my responsibility area are determined	0.76	34.75
<i>Work performance (AVE = 0.51; CR = 0.90)</i>		
Planning for my area of responsibility	0.71	27.12
Coordinating my area's activities	0.74	35.50
Evaluating my subordinates' activities	0.75	32.59
Investigating issues in my area of responsibility	0.79	41.20
Supervising staff	0.66	22.06
Obtaining and maintaining suitable staff	0.71	30.11
Negotiating	0.62	19.58
Representing the interests of my area of responsibility	0.75	38.29
Overall performance	0.71	27.76

**Notes:** AVE, average variance extracted; CR, Composite reliability; R, Reversed code

**Table II.**  
Scale items and latent  
variable evaluation

**Table III.**  
Construct means,  
standard deviations  
and correlations

	Mean	SD	1____	2____	3____	4____	5____	6____
1. Budgetary participation	4.79	1.14	<b>0.75</b>					
2. Vertical information sharing	5.55	1.18	0.44** (0.56)	<b>0.89</b>				
3. Budget goal commitment	5.80	0.87	0.42** (0.49)	0.58** (0.72)	<b>0.72</b>			
4. Distributive fairness	4.46	1.48	0.12** (0.15)	0.40** (0.50)	0.50** (0.57)	<b>0.82</b>		
5. Procedural fairness	4.59	1.40	0.10** (0.12)	0.35** (0.44)	0.51** (0.57)	0.70** (0.79)	<b>0.75</b>	
6. Work performance	5.70	0.75	0.34** (0.40)	0.42** (0.53)	0.48** (0.56)	0.27** (0.31)	0.27** (0.31)	<b>0.72</b>

**Notes:** 1st value = Correlation between variables (off diagonal); 2nd value (italics) = HTMT ratio; Square root of AVE (bold diagonal). \*\*Correlation is significant at the 1 percent level (two-tailed *t*-test)

VIF values for each relationship between the independent variables in the proposed model were computed to detect potential multicollinearity. The results showed that the inner VIF values ranged between 1.01 and 4.19, which were well below the threshold criterion of 10 (Hair *et al.*, 2009), thereby indicating no multicollinearity problems in this study.

### 3.3 Analysis method choice

The partial least squares (PLS) method using SmartPLS3 was employed to analyze the data and test the proposed model and hypotheses. Compared to the traditional covariance-based structural equation model (SEM), PLS tends to achieve higher levels of statistical power under equal conditions (Reinartz *et al.*, 2009) because it is a non-parametric approach based on ordinary least squares regression, and it is designed to maximize explained variance (Ringle *et al.*, 2015). Moreover, PLS does not require a large sample, and it estimates quite precisely the parameters in the context of a small sample size (Reinartz *et al.*, 2009). A sample size of 556 greater than the required minimum sample size for robust PLS-SEM estimations, which is suggested to be ten times of path relationships in the testing model (Barclay *et al.*, 1995). Finally, PLS assists researchers to analyze the measurement model simultaneously with the structural model with both moderating and mediating relationships (Lee *et al.*, 2011). PLS is also a widely accepted statistical technique adopted in recent management accounting studies (Lau and Roopnarain, 2014; Nitzl, 2016).

## 4. Hypotheses testing results

To test the hypotheses in the proposed theoretical model, the strength and statistical significance of structural paths were examined. Table IV indicates 5 models, providing the results of the predictive relevance of the structural paths in terms of  $\beta$  coefficients and *t*-values, and the adjusted  $R^2$  for endogenous constructs. The bootstrapping procedure was used with 500 times. The adjusted  $R^2$  values for all predicted variables (vertical information sharing = 0.52; budget goal commitment = 0.56; and work performance  $\geq$  0.25) were greater than the recommended level of 0.10 (Falk and Miller, 1992), indicating that the variances of the dependent variables can be measured within the desirable level.

*H1* conjectured that vertical information sharing would partially mediate the relationship between budgetary participation and work performance. This hypothesis was confirmed because the  $\beta$  coefficient for the path between budgetary participation and vertical information sharing was 0.39 and significant at the 1 percent level ( $t = 9.22$ ) (see Model 1), and the  $\beta$  coefficient of the path between vertical information sharing and

Dependent variable	Model 1 IF		Model 2 COMMIT		Model 3 WP		Model 4 WP		Model 5 WP		
	$\beta$	<i>t</i> -value	$\beta$	<i>t</i> -value	$\beta$	<i>t</i> -value	$\beta$	<i>t</i> -value	$\beta$	<i>t</i> -value	
<i>Hypothesis Independent variable</i>											
<i>H1, H2</i>	PAR	0.39	9.22***	0.37	9.02***	0.12	2.91***	0.24	6.18***	0.18	4.35***
	DF	0.44	8.02***	0.35	7.41***			0.08	1.10	0.05	0.71
	PF	0.30	5.15***	0.49	11.67***			0.17	2.57**	0.04	0.58
<i>H3a, H4a</i>	DF×PAR	0.07	0.83	0.26	3.93***			0.03	0.29	(0.08)	1.07
<i>H3b, H4b</i>	PF×PAR	0.38	5.06***	0.13	2.29**			0.05	0.42	0.09	1.06
<i>H1</i>	IF					0.21	4.39***	0.23	3.36***		
<i>H2</i>	COMMIT					0.39	7.69***			0.40	5.72***
<i>Control variable</i>											
	Age					0.09	2.43**	0.07	1.87	0.06	1.61
	Qualifications					0.01	0.19	0.00	0.11	(0.01)	0.34
	Tenure					0.00	0.05	0.02	0.41	0.02	0.48
Adjusted <i>R</i> <sup>2</sup>		0.52		0.56		0.29		0.25		0.29	

**Notes:** PAR, Budgetary participation; DF, Distributive fairness; PF, Procedural fairness; IF, Vertical information sharing; COMMIT, Budget goal commitment; WP, Work performance. \*\*,\*\*\*Denote significance at 10, 5 and 1 percent, respectively (two-tailed *t*-test)

**Table IV.** Partial least squares results for theoretical model

work performance was 0.21 and significant at the 1 percent level ( $t = 4.39$ ) (see Model 3). *H2* posited that budget goal commitment has a positive mediating effect on the relationship between budgetary participation and work performance. This hypothesis was supported because the  $\beta$  coefficient for the path between budgetary participation and budget goal commitment was 0.37 and significant at the 1 percent level ( $t = 9.02$ ) (see Model 1); and the  $\beta$  coefficient of the path between budget goal commitment and work performance was 0.39 and significant at the 1 percent level ( $t = 7.69$ ) (see Model 3).

In addition, this study employed the Baron and Kenny's (1986) Sobel approach to test the mediating *H1* and *H2*. The direct effect of budgetary participation on work performance in the proposed model is positive and significant ( $\beta = 0.12, t = 2.91$ ) (see Model 3). However, when vertical information sharing and budget goal commitment were removed from the proposed model and did not act as mediating variables, this direct effect became stronger ( $\beta = 0.37, t = 10.07$ ). The increase in significant direct effect indicates evidence of partial mediation (Kline, 2015). Thus, both vertical information sharing (IF) and budget goal commitment (COMMIT) partially mediate the relationship between budgetary participation (PAR) and work performance, thereby supporting *H1* and *H2*.

This study further employed the Sobel test following the suggestion of Preacher and Hayes (2004) for a robustness check of *H1* and *H2*. It used a bootstrap technique using SPSS 22.0 with the Process Macro add-in and computed the correlations between the dependent and independent variables with their corresponding confidence intervals (Preacher and Hayes, 2004). The results indicated that when vertical information sharing was included as the mediating variable, the correlation of the indirect effect of budgetary participation on work performance was 0.10 ( $p < 0.05$ ; confidence intervals ranged between 0.07 and 0.13), Sobel statistics = 6.48 ( $p < 0.01$ ). Moreover, when budget goal commitment was added as the mediating variable, the indirect effect of budgetary participation on work performance had the correlation of 0.12 ( $p < 0.05$ ; confidence intervals ranged between 0.08 and 0.16 (see Model 2), Sobel statistics = 7.49 ( $p < 0.01$ ). Thus, both vertical information sharing and budget goal commitment partially mediate the effect of budgetary participation on work performance, thereby supporting *H1* and *H2*.

*H3a–H4b* posit that distributive budget fairness and procedural budget fairness positively moderate the PAR-IF and PAR-COMMIT relationships. In other words, when employees

perceive higher levels of distributive budget fairness and procedural budget fairness, the strengths of the PAR-IF and PAR-COMMIT relationships would be stronger. To test these hypotheses, this study creates two interaction terms DF×PAR and PF×PAR after mean centering the moderating variable (distributive budget fairness and procedural budget fairness) and the independent variable (budgetary participation) that constitute the interaction terms in order to mitigate potential multicollinearity (Aiken *et al.*, 1991). The PLS results for the theoretical model show that the  $\beta$  coefficient of the relationship between the interaction term DF×PAR and IF is insignificant ( $\beta = 0.07$ ,  $t = 0.83$ ) (see Model 1), and thus reject *H3a*. However, Models 1 and 2 show that three remaining  $\beta$  coefficients of the three interaction terms DF×PAR and PF×PAR (that linked to vertical information sharing (IF) and budget goal commitment (COMMIT)) had  $t$ -values ranged between 2.29 (significant at the 10 percent level) and 5.06 (significant at the 1 percent level). Therefore, *H3b*, *H4a* and *H4b* were supported.

Moreover, we ran models 4 and 5 to further check the potential direct effects of all the independent variables, including the interaction terms DF×PAR and PF×PAR, on work performance. We found that budget participation, vertical information sharing and budget goal commitment directly influence work performance ( $\beta$  coefficients ranged between 0.18 and 0.40;  $t$ -values ranged between 3.36 and 6.18), in supporting *H1* and *H2*. Models 4 and 5 reveal that except procedural fairness, the remaining variables distributive fairness and the interaction terms DF×PAR and PF×PAR do not significantly and directly affect work performance. However, these variables indirectly influence work performance via information sharing and budget goal commitment (see Models 1 and 2), supporting the mediating hypotheses *H1* and *H2*.

#### 4.1 Model fit and common method bias

The standardized root mean squared residual (SRMR) value of the composite model was also examined using SmartPLS3 to test the model fit. The SRMR of 0.043 was lower than the recommended value of 0.08, indicating an acceptable model fit (Henseler *et al.*, 2016). As cross-sectional data are collected using a single-informant approach, there might be common method bias effects that lead to spurious relationships among the variables (Podsakoff *et al.*, 2003). The marker-variable technique recommended by Lindell and Whitney (2001) was employed to test common method bias. This technique can detect common method bias by including “a measure of the assumed source of method variance as a covariate in the statistical analysis” (Podsakoff *et al.*, 2003, p. 889). In particular, we selected the item “do you want to go overseas for this year National holiday?” which has no theoretical relevance to any variables in the proposed model, as a marker variable to control for common method bias. The mean change in correlations of the key constructs ( $rU-rA$ ) when partialling out the effect of  $rM$  is insignificant at 0.02, providing evidence of no common method bias in this study.

## 5. Implications and limitations

### 5.1 Implications

This study contributes to the management and accounting literature in general and specifically budget participation literature in the following ways. First, the key premise of this study is that this positive effect of budgetary participation on work performance is partially mediated by employees’ vertical information sharing and budget goal commitment. This study integrates that both vertical information sharing and budget goal commitment act as intervening mechanisms in the budgetary participation – work performance relationship. Diverging with some studies such as Bonache *et al.* (2012), this study found that the direct effect of budgetary participation on work performance persists. A possible interpretation of the finding is that, apart from the motivational and informational aspects, budget participation may lead to the implementation of

improvement measures proposed by the participating employee and consequently enhance their performance. Another possible explanation could be the cultural context of this study. Vietnam is an Asian collectivist culture that is transitioning to the market economy. In the past, decisions could often be collectively made and one's performance could often be subsumed under organizational results. Therefore, it may be possible that employees in Vietnam attribute their performance directly to the participation in the collective decision making. There could be a possibility, though plausible, that other variables also operate in a similar manner just as vertical information sharing and budget goal commitment. While vertical information sharing and budget goal commitment may also be related in that the information sharing can help employees understand the goals better and thereby be more committed to goal achievement or the commitment to goals makes employees feel more compelled to information sharing. Nonetheless, this paper focused on understanding the relative role of each mediating intervention (vertical information sharing or budget goal commitment), controlling the effect of the other. Methodologically, direct associations between either concepts and work performance need to be established prior to the assessment of one as a mediator in the relationship between the other and work performance.

Second, this study enriches the budgetary participation literature by investigating the employees' perceived budget fairness as a contingency factor of the budget participation – vertical information sharing and budget participation – goal commitment relationships. Given that the moderated mediation mechanism arguably can make the budgetary participation environment more effective, this study further examined the interaction effects between employees' perceived budget fairness (the moderator) and budget participation on their vertical information sharing and budget goal commitment (the mediators), which in turn impact subsequent work performance. In doing so, the study adds to extant literature from the motivational and cognitive/informational perspectives examining the paths between budgetary participation – performance relationship (e.g. Chong and Johnson, 2007; Parker and Kyj, 2006; Shields and Shields, 1998; Venkatesh and Blaskovich, 2012) by introducing perceived budget fairness as a moderator on these paths. The study found that both distributive fairness and procedural fairness have positive moderating effects on the budgetary participation – vertical information sharing and budgetary participation – budget goal commitment linkages. This is an important finding as prior studies in this line of research mostly focused on linear effects of budget participation and intervening variables on work performance. Overall, this study contributes to the management and accounting literature by testing a more complex model of budgetary participation and work performance.

Furthermore, the study also leads to some practical implications. The findings of the study highlight the importance of promoting employees' budgetary participation as a vehicle to foster employees' vertical information sharing and their budget goal commitment toward enhancing managerial performance. The superiors need to select a proper level of budgetary participation that can facilitate vertical information sharing and motivate employees to be committed to achieve budget goals. Besides, the result relating to the interaction effects between budgetary participation and perceived budget fairness may assist top management understand the importance of ensuring budget fairness in the budgeting process. Organizations need to pay attention to employees' perceived budget fairness as a potentially effective mechanism in managing the organizational budgeting process toward enhanced performance effectiveness.

### *5.2 Limitations of this study*

As with any study, this research is subject to some limitations that should be considered in the interpretations of the findings. First, the research design of this study in cross-section

survey, which has limitation in making causal inferences or examining the process underlying the interrelationships between concepts (e.g. mediating variables in this research) (Rindfleisch *et al.*, 2008; Rong and Wilkinson, 2011). A longitudinal design in future research could address this shortfall. Second, although procedural and statistical measures have been taken to mitigate the potential common method variance issue, the survey data in this research rely on self-report of respondents. Future research may need to consider triangulation of data sources, e.g., data of actual work performance of employees. Finally, this research was conducted in just one emerging market context that is Vietnam. Future research may need to attempt to collect data from other emerging markets as well as developed markets to increase the generalizability of the findings.

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