

BUDGETARY PARTICIPATION IN PUBLIC SECTORS: A FOCUS ON VIETNAM

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Abstract

Due to the lack of insight into the impact of budgeting practices at the micro-levels in emerging countries in Asia, this study examines the effect of budgetary participation on managerial performance in Vietnam. Drawing from the framework of decision-making, nomological network, and self-determination theory, this study proposes that the link between budgetary participation and managerial performance is mediated by autonomous motivation and information sharing. It is also proposed that high autonomous motivation induces information sharing. Data collected from 153 managers working in Vietnamese public schools were used to test the proposed model. The results from PLS-SEM analysis show that only information sharing mediates the relationship between budgetary participation and managerial performance, while autonomous motivation does not because data fails to support the positive relationship between autonomous motivation and managerial performance. Budget participation also leads to higher autonomous motivation, and autonomous motivation improves information sharing.

Keywords: autonomous motivation, budgetary participation, information sharing, managerial performance, public schools, Vietnam.



1. Introduction

In 1986, the Vietnamese government introduced a new economic reform, *Doi Moi* (Renovation) policy, which allows significant change towards a socialist market economy. One of the critical elements of this reform is the public administration reform, which enables the improvement of public management's efficiency by adopting new public management (Painter, 2003). The basic idea of new public management is that this approach allows public sectors to operate as businesslike organizations (Kolthoff, Huberts and Van Den Heuvel, 2006). Thus, it is required for public institutions to adopt management practices to become more businesslike organizations (Hyndman and Lapsley, 2016).

The adoption of budgeting/accounting practices for managerial purposes from private sector into public sector seems to be promising for improving efficiency because it is suggested that the budgeting process has a tremendous impact on resource allocation and spending in public entities (Anessi-Pessina and Steccolini, 2005; Jackson and Lapsley, 2003). A recent review of this research in public management addresses two issues (Anessi-Pessina *et al.*, 2016). First, studies that examine the impact of budgeting practices at the micro-levels (e.g., managerial levels) are scarce. Second, the dominant research is on European countries, while there are two studies in the Asian region, which does not include Vietnam. It is strongly argued that the adoption of management practices as budgeting practices may vary from country to country due to the country's unique characteristics (Bloom and Van Reenen, 2010). Thus, it seems budgeting knowledge at the micro-levels in Vietnam is still limited.

The purpose of this study is to address this gap. Particularly, similar to the study of Yahya, Ahmad and Fatima (2008), this study examines the influences of budgetary participation on managers working in public schools in Vietnam. Drawing from the nomological network (Shields and Shields, 1998), the framework of participation in decision-making (Locke and Schweiger, 1979) and self-determination theory (SDT) (Deci and Ryan, 1985), this study proposes that budgetary participation fosters motivational and cognitive effects on managers, which in turn leads to higher managerial performance. For motivational effects, this study hypothesizes that when managers participate in the budgeting process, the degree of autonomous motivation is high, which, as a result, enhances managerial performance. Regarding cognitive effects, participation in the budgeting process acts as a conduit of information sharing and improves managerial performance. The results suggest that participation in the budgeting process can foster managerial autonomous motivation and information sharing. However, managers can find performance improvement thanks to information sharing rather than autonomous motivation.

In light of these findings, this study contributes to the research in public management threefold. First, according to a recent review on the budgeting research in public management (Anessi-Pessina *et al.*, 2016), budgeting research in public management is dominated by studies focusing on European countries, while there is a

lack of studies focused on the Asia region. For example, only two studies focus on the Asia region, while forty-nine papers focus on European countries. Consistently, in the review of the studies on management accounting in public management, Van Helden and Uddin (2016) raised a concern, which is a lack of study on budgeting studies in the public sector in emerging countries, and urged future studies should shift their attention to this practice in this area. With that regard, knowledge on budgetary participation in public management in emerging countries is still limited. This study addresses this gap by examining budgetary participation in the public sector in Vietnam.

Second, in the public management literature, budgeting studies at the micro-levels aim to establish the role of budget/accounting information on performance at managerial levels. However, the crucial role of the explanatory framework should be emphasized to explain the impact of budgeting on its outcomes (Anessi-Pessina *et al.*, 2016). The study of Yahya, Ahmad and Fatima (2008), which shares similarities with this study, does not consider theoretical frameworks to propose the research model. It leads to a major concern in the research of management accounting in public management, which Van Helden and Uddin (2016) referred to as the lack of theorization. It hampers a deeper understanding of research problems or questions (Jacobs, 2012) and limits the development of the academic body of knowledge. However, this study overcomes this limitation because it draws from the framework of participation in decision-making, nomological network, and SDT to propose the research model.

Third, the use of SDT in public management research has been rocketed from the study of Kuvaas (2009) because of the high possibility of integrating this theory with public sector motivation (see Andrews, 2016). In this line of research, much attention has been paid to autonomous motivation because it fosters positive effects on public staff, such as the enhancement of upward activities (Chen, Berman and Wang, 2017) and improvement of work engagement (Moreira-Fontán *et al.*, 2019) as well as reduction of turnover intention (Mustafa and Ali, 2019). This study extends this research line by providing additional empirical evidence showing that autonomous motivation induces information sharing. Furthermore, although autonomous motivation is linked with positive outcomes, it is shown that enhancing autonomous motivation is quite challenging (see van Loon, Baekgaard and Moynihan, 2019). Thus, by showing that budgetary participation induces this motivation, this study contributes to the literature of SDT in public management by considering budgetary participation as a means to foster autonomous motivation.

The remainder of this paper is structured as follows. The next section provides the research context. The following section reviews the literature and develops the hypotheses. Then, section 4 presents the methodology used in this study. Section 5 provides the results of this study as well as the discussion. The last section concludes and provides limitations and future research.

2. Research context

2.1. Educational system in Vietnam

The educational system in Vietnam has a long tradition. According to Nguyen *et al.* (2020), this system has changed much from the system organized according to the ancient Chinese models to the modern system nowadays. At the moment, this system follows a common approach, which can be observed in any country. According to this system, the basic education consists of five levels: preschool (e.g., kindergarten), primary school (e.g., grades 1 to 5), secondary school (e.g., grades 6 to 9), high school (e.g., grades 10 to 12), and higher education (e.g., diploma and higher).

The education system shares many similarities with any modern educational system in the world nowadays. There are two educational entities: private and public entities (e.g., kindergartens, schools, and universities). They both operate under educational law (see Vietnam National Assembly, 2019). The private entities recently appeared in the system due to the implementation of *the Doi Moi* policy. The financial source of these entities is the tuition fee. In contrast, the source of public sectors' operation is mainly government funding. According to the law, there is a ceiling fee applied to public entities. In this regard, studying in public entities has a lower tuition fee than studying in private ones. Furthermore, there is also a no-tuition fee policy for pupils and students who live in difficult development areas. As a result, the operations of these public entities depend much on government funding.

2.2. Budgeting process

Due to the dependency on government funding, budget settings in public schools must follow the State Budget Law (see Vietnam National Assembly, 2015). This law provides details about the procedure of budget setting in public entities and the responsibility of each party involved in the budgeting process. Because this study is interested in the budgets of public schools, the following paragraph provides insight into how the final budgets of these schools are set.

A document used for managerial training at public schools provides insight into establishing the budgets (see Nguyen, 2004). There are two parties involved in the budgeting process. The first party includes the schools. The school can only propose the draft budget, and send it to the financial department. The second party is the financial department, which has authority on budget finalizations. It is noted that the budgeting process of elementary and secondary schools requires the involvement of the financial department at district levels, while the budgeting process of high schools requires the involvement of the financial department at city level. The schools play subordinate roles, while the financial departments play superior roles in the budgeting process.

The budgeting process is as follows. First, the budget is initiated at the school level. This budget covers the expenditures for the upcoming year. There are two types of expenditures: frequent and infrequent expenditures. The frequent expenditures cover

expenses in one year. Some expenses are teachers' salaries, awards and sponsors for pupils, and other expenses for frequent operations. The infrequent expenditures commonly include expenses used for national missions (e.g., improving the rate of pupils going to schools in underdeveloped areas), the expenses for unexpected tasks assigned by the city, and other infrequent expenses.

After that, it is sent to upper management levels (financial department at city or district levels). It is commonly observed that a representative working in the financial department is responsible for examining the relevance of the budgets. There is a communication process between the two parties, namely public schools and the financial department, which aims to finalize the budgets for the upcoming year. The budgets are finalized when there is a mutual agreement on the budget settings between the schools and the financial department.

The managers of public schools represent the schools in the budgeting process and communicate with the representatives working in the financial department. Because the budgeting process takes place when there are two representatives from subordinate positions (e.g., the schools) and superior positions (e.g., the financial departments), it is sufficient to use the budgeting literature at micro-level to explain the effects of budgetary participation.

3. Theoretical background and hypothesis development

3.1. Budgetary participation

Budgetary participation exists in many forms in public management literature. One form is citizens' participation in the budgeting process (see Ebdon and Franklin, 2006). Studies in this form examine the budgeting process at the macro-levels (e.g., policy, system, or country). Another form, which focuses on the micro-level (e.g., organization or department), examines managers from the public sectors participating in the budgeting processes (see Yahya, Ahmad and Fatima, 2008). This study focuses on the latter due to the lack of studies in this area (see Anessi-Pessina *et al.*, 2016).

At the micro-levels, budgetary participation refers to the process in which managers at lower management levels are allowed to be involved and have the influence to determine budget settings (Brownell, 2015). This process has gained much attention from budgeting researchers due to its dramatic impact on managers (Derfuss, 2009). Empirical evidence shows that budgetary participation can improve managerial performance (Jermias and Yigit, 2013; Macinati, Bozzi and Rizzo, 2016; Stammerjohan, Leach and Stammerjohan, 2015).

The link between budgetary participation and performance is suggested to be indirect rather than direct. It is mediated by two effects (Covaleski *et al.*, 2003; Locke and Schweiger, 1979; Shields and Shields, 1998). The first effects are the motivational effects, which drive individuals to put more effort, and as such, improve their performance. The second effects refer to the cognitive effects, which act as the conduit of information exchange. It allows individuals to find performance implications through

the enhancement of decision-making effectiveness by the improvement of information sharing. Thus, this paper proposes the research framework as follows (see Figure 1).

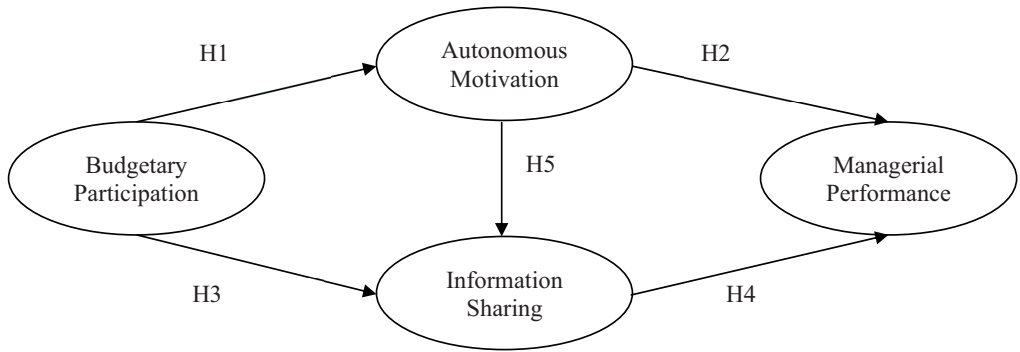


Figure 1: Research framework

3.2. *Autonomous motivation*

Self-determination theory (SDT) was first introduced by Deci and Ryan (1985), who suggested different types of motivation. First, SDT emphasizes the crucial notion that motivation should be separated into two types as extrinsic and intrinsic motivation (Vansteenkiste, Lens and Deci, 2006). Intrinsic motivation is generated by an individual's self-interest, whereas extrinsic motivation is driven by external contingencies (e.g., reward, punishment). Extrinsic motivation is particularly important when an individual is demotivated because the provision of such extrinsic factors (e.g., rewards, punishment) enhances extrinsic motivation to drive this individual to perform better (Gagné and Deci, 2005). As a result, extrinsic motivation refers to energized factors driving individuals to perform a certain activity because of desired outcomes rather than self-interest (Ryan and Deci, 2000). Second, SDT further elaborates that motivation varies between controlled and autonomous motivation depending on the degree of internalization (Gagné and Deci, 2005; Ryan and Deci, 2000; Vansteenkiste, Ryan and Deci, 2008). Internalization refers to the process, which individuals are aware of the importance of values or regulatory structures, and as such, it allows the transformation of external regulation into internal regulation of an individual's behavior (Gagné and Deci, 2005). In this case, external factors are no longer necessary for boosting individuals' motivation.

3.3. *The association between budgetary participation and autonomous motivation*

According to SDT, the satisfaction of three psychological needs as autonomy, competence, and belongingness (or relatedness) is crucial for the emergence of autonomous motivation. Participation in the budgeting process may allow the satisfaction of such needs. First, budgetary participation allows managers to have a wide

range of choices, resulting in a high sense of control (Chong, 2002). This sense allows the satisfaction of the need for autonomy because it induces a sense of choices and psychological freedom (Deci, Connell and Ryan, 1989). Second, participative budgeting increases the degree of informational feedback relating to the budget goals (Yuen, 2007). Such feedback triggers managers' sense of relatedness (Deci, Ryan and Williams, 1996). Third, budgetary participation also induces the managers' self-efficacy (Macinati, Bozzi and Rizzo, 2016). This variable is shown to have a relationship with the need for competence (Van den Broeck *et al.*, 2010). Hence, it is clear that the more participative is the budgeting process, the more autonomous motivation enhances. This leads to the first hypothesis as follows.

H1: There is a positive correlation between budgetary participation and autonomous motivation.

3.4. The association between autonomous motivation and managerial performance

This paper proposes a positive correlation between autonomous motivation and managerial performance due to the overlap between motivation and commitment. Particularly, motivational theorists argue that commitment may be a component of work motivation (Meyer, Becker and Vandenberghe, 2004; Meyer and Herscovitch, 2001). In SDT, researchers also emphasize the overlap between organizational commitment and work motivation (Gagné *et al.*, 2008; Gagné and Deci, 2005). Since Yahya, Ahmad and Fatima (2008) found a positive relationship between affective organizational commitment and managerial performance when examining the impact of budgetary participation on this performance in the context of Malaysian public sectors, this paper expects the same effects of autonomous motivation on managerial performance. Therefore, the second hypothesis proposed is as follows.

H2: There is a positive correlation between autonomous motivation and managerial performance.

3.5. The association between budgetary participation and information sharing

In the budgeting literature, managers' participation in the budgeting process allows them to be involved in and influence the establishment of budget settings (Brownell, 2015). As argued by Maiga (2005), this process allows managers to have opportunities to discuss widely with their upper management how to formulate an appropriate budget for the next upcoming year. As a result, the high degree of participation in the budgeting process is positively associated with a high degree of managers' sharing their insight into the issues relating to their responsible areas with their upper management (Kyj and Parker, 2008), and, as such, it leads to sufficient budget allocations. This leads to the positive expectation on the association between budgetary participation and information sharing.

The literature on public management reveals that participation in decision-making can enhance information sharing (Bryson *et al.*, 2013). Public management theorists argued that one mechanism driving behavior is the perception of trust (Nyhan, 2000). When the perception of trust is established, a high degree of information sharing is expected of individuals working in the public sector (Karlsson *et al.*, 2017). With this respect, this paper expects that when managers participate in the budgeting process, they are more likely to share more information with upper management levels. This leads to the third hypothesis as follows.

H3: There is a positive correlation between budgetary participation and information sharing.

3.6. The association between information sharing and managerial performance

The budgeting literature suggests that information, which remains unknown to upper management levels, is critical to enhancing managers' performance when it is revealed to upper management levels. In particular, Magner, Welker and Campbell (1996) argued that the incorporation of private information only owned by managers into the budget plans allows this budget plan to be realistic, and as such, results in a high degree of managers' performance. In a similar way, Murray (1990) suggested that this incorporation also allows the upper management to develop better strategic plans, which permits a high degree of managerial performance. Furthermore, revealing this information also allows managers to receive sufficient resources to accomplish their tasks, which results in higher performance (Nouri and Parker, 1996).

The literature in public management also indicates the positive correlation between individuals' sharing behavior relating to knowledge and their performance. More specifically, Henttonen, Kianto and Ritala (2016) revealed that knowledge-sharing behavior is positively associated with individuals' performance. Also, Kang, Kim and Chang (2008) found a positive correlation between knowledge sharing and work performance among Korean public employees. Since information sharing and knowledge sharing are used interchangeably (Amayah, 2013), a high degree of information sharing leads to high individual performance. With this respect, this paper expects that when managers share more information during the budgeting process, they are more likely to find performance improvements. This leads to the fourth hypothesis as follows.

H4: There is a positive correlation between information sharing and managerial performance.

3.7. The association between autonomous motivation and information sharing

In knowledge management literature, it is suggested that motivation induces knowledge sharing (Foss *et al.*, 2009). According to SDT, autonomous motivation is also proposed to lead to a high degree of knowledge-sharing behavior (Gagné, 2009). One reason is that when individuals feel to be autonomously motivated, they are more

open to opportunities to learn from the experiences of others and more likely to search for knowledge to improve their competencies (Deci and Ryan, 2000). Prior empirical evidence shows support for this relationship (Nesheim and Smith, 2015; Reinholt, Pedersen and Foss, 2011). Since knowledge sharing and information sharing are used interchangeably (Amayah, 2013), this paper provides the fifth hypothesis as follows.

H5: There is a positive correlation between autonomous motivation and information sharing.

4. Methods

4.1. Data collection

This study focuses on public schools located in Can Tho city. This city is one of the largest cities located in the south of Vietnam. This city is considered the heart of the Mekong Delta. The population of this city is more than 1.6 million people (Nquyen Quy, 2020). In the city, there are about 437 public schools, including elementary, secondary and high schools.

This study uses purposive sampling to collect data. Particularly, it focuses on managers who work in public schools and participate in the budgeting process. There are three steps in the data collection. First, this study takes advantage of personal networking to collect data. An opportunity to teach a subject in the Master of Accountancy program, a graduate program, allowed the establishment of personal networking with a student. This student is currently working in the financial department of Can Tho city.

To establish the relevance of budgetary participation in Vietnamese public schools, a short interview with that student was executed. According to that student, before establishing the final budget for each public school around this city, the managers, who represent the schools, are required to come to the financial department to provide insight into the budget proposals. Elementary and secondary schools provide it to the financial department at district levels, while high schools provide this to the financial department at city levels. During this process, some adjustments are made according to the discussions between managers and the financial department.

The interview also sheds light on who represents the schools to participate in the budgeting process. In these public schools, the managers at different management levels in the public school (e.g., principals and vice-principals, department heads, group leaders) can represent the school to participate in the discussions with the representative of the financial department.

The interview shows the establishment of budgetary participation because the managers of the public schools are involved in the budgeting process and influence the budget settings (see Brownell, 2015).

Second, because the original instruments were all written in English, a Vietnamese translation was made. After translation, the student made some minor adjustments

relating to the word choices to ensure the questionnaire’s appropriateness to the Vietnamese budgeting context.

The third step is the distribution of the questionnaire. This paper has benefited from the networking between the student and the department of education of Can Tho city. Particularly, the student requested assistance from this department to distribute the link to an online survey to each public school in Can Tho city. The target respondents were the managers who had experience in participating in the budgeting process (e.g., negotiation with the representative of the financial department). Each school received an email asking for participation in the research survey. In the email, there is also a requirement, which asks the respondents to have experience with the budgeting process. In total, there are about 437 emails sent to public schools located in Can Tho city. The data collecting process took about a month, from the end of May 2019 to the end of June 2019. At the end of the collecting period, the online survey revealed 153 filled surveys. Table 1 discloses the characteristics of the respondents.

Table 1: Descriptive statistics of respondents’ characteristics (n = 153)

Respondents’ characteristics	Frequency	%
Education		
Professional diploma	1	0.65
Associate degree*	3	1.96
Bachelor	127	83.01
Master	22	14.38
Managerial level		
Lower-management level (e.g., group leaders)	103	67.32
Middle management level (e.g., department heads)	43	28.10
Top management level (e.g., school principals)	4	2.61
Not specified	3	1.96
Function		
General management	13	8.50
Accounting and finance	119	77.78
Human resources	12	7.84
Facility and equipment	1	0.65
Academic departments	6	3.92
Others	2	1.31
Current position’s experience		
< 1 year	3	1.96
1–5 years	36	23.53
6–10 years	69	45.10
11–15 years	21	13.73
15–20 years	22	14.38
>20 years	2	1.31

* In Vietnam’s educational system, a student, who graduates from high school, can earn an associate degree when completing the courses within two and a half years in a college.

4.2. Measures

Because there is no direct measure of four latent variables in the research model, this study borrows instruments from prior studies to measure them. In particular, there are four adapted constructs. In each construct, there are several items, which can be directly measured by asking the respondent to rate their opinion relating to the proposed statements (see Appendix). A five-point Likert scale was used to measure these items.

Budgetary participation (BP)

An instrument from Milani's research (1975) was adapted to measure the degree to which the respondents are involved in and have an influence on the budgeting processes. This instrument consists of 6 items. This instrument was previously used in the context of public management (Mohd Noor and Othman, 2012; Yahya, Ahmad and Fatima, 2008), and thus it has high reliability. A 5-point Likert scale ranging from (1) 'very little' to (5) 'very much' was applied to this instrument.

Autonomous motivation (AM)

The multidimensional work motivation scale developed by Gagné *et al.* (2015) was used to measure autonomous motivation. Following the suggestion of Gagné *et al.* (2008), autonomous motivation includes three items measuring the degree of intrinsic motivation and three items measuring the degree of identified regulation. A 5-point Likert scale ranging from (1) 'not at all' to (5) 'completely' was used.

Information sharing (IF)

This study measures the degree of information sharing by adopting an instrument from Parker and Kyj's (2006) study. There are two items in this instrument. Since this study focuses on the budgetary participation of the managers working at schools and the city financial department, some minor revision was made. This instrument asks the target respondents to indicate the degree to which they share local information with the financial department when they participate in the budgeting process. A 5-point Likert scale ranging from (1) 'strongly disagree' to (5) 'strongly agree' was used.

Managerial performance (PER)

The managerial performance was assessed by adapting a self-evaluation instrument from Mahoney's study (1963). This instrument asks the target respondents to indicate their performance evaluation regarding nine aspects. A 5-point Likert scale ranging from (1) 'extremely below average' to (5) 'extremely above average' was applied to this instrument. This instrument shows a high degree of reliability because previous studies (Mohd Noor and Othman, 2012; Yahya, Ahmad and Fatima 2008) use it in the context of public management.

4.3. Assessment of common method bias

Data collected in the same survey may pose a high degree of common method bias. Therefore, this study uses two approaches recommended by Podsakoff *et al.* (2003) to evaluate this bias. In particular, Harman's single-factor test (Podsakoff and

Organ, 1986) and the PLS marker variable approach (Rönkkö and Ylitalo, 2011) were used. The results revealed that this type of bias does not pose a concern to this study.

4.4. Statistical analysis

Due to non-normality and small sample size, this study uses partial least square structural equation modeling to analyze the data (see Ali *et al.*, 2018; Cassel, Hackl and Westlund, 1999; Hair *et al.*, 2017). It is an approach of structural equation modeling, which is used to analyze the relationship between observed items and latent variables. Partial least square structural equation modeling is one of the approaches of structural equation modeling, which is used to analyze the complex cause-effect relationship between latent variables (Hair *et al.*, 2018). The analysis process consists of two stages (see Sarstedt *et al.*, 2019). First, this study evaluates the measurement model, which aims to establish the relationship between observed items and latent variables. Second, the structural model was assessed to reveal the results of the hypothesized relationships. This study uses the SmartPLS tool to assess the measurement and structural model.

5. Results

5.1. Measurement model

The unidimensionality of constructs was examined first by using the conduction of principal axis factoring with Oblimin rotation (see Fabrigar *et al.*, 1999). The results indicate that after removing items PART_2 and PER_3 due to the low factor loading (e.g., lower than 0.5 threshold), the remaining items are intended to load to four extracted components.

Second, the convergent validity of the constructs are well established because the average variance extracted (AVE) of the items are higher than the value of 0.5 (see Table 3), and these items load to their respectively intended constructs higher than other items (see Table 2) (Fornell and Larcker, 1981).

Third, the discriminant validity is also well established because it is shown that the square root of AVE is all higher than any correlation between this variable and other latent variables (Chin, 1998; Fornell and Larcker, 1981). Forth, composite reliability (CR), Cronbach's alpha (CA), and Dillon-Goldstein's rho (rho_A) are larger than threshold values of 0.7 (see Table 3), suggesting the establishment of internal consistency (Hair, Ringle and Sarstedt, 2011; Henseler, Ringle and Sinkovics, 2009). Lastly, VIFs of items are all less than 5 (see Table 3), which in turn suggests the absence of multicollinearity among items (Hair, Ringle and Sarstedt, 2011).

Table 2: Cross-loadings of the items

	AM	IF	PART	PER	VIF
AM_1	0.837	0.239	0.267	0.154	2.670
AM_2	0.873	0.360	0.209	0.243	2.749
AM_3	0.877	0.420	0.235	0.205	2.733
AM_4	0.761	0.220	0.089	0.031	2.667
AM_5	0.818	0.293	0.126	0.134	2.862
AM_6	0.788	0.237	0.084	0.084	2.482
IF_1	0.325	0.931	0.390	0.266	2.258
IF_2	0.375	0.938	0.295	0.352	2.258
PART_1	0.224	0.254	0.809	0.109	1.974
PART_3	0.141	0.273	0.673	0.212	1.309
PART_4	0.199	0.287	0.746	0.030	1.696
PART_5	0.131	0.348	0.818	0.211	1.856
PART_6	0.155	0.204	0.753	0.144	1.692
PER_1	0.111	0.284	0.175	0.816	2.178
PER_2	-0.058	0.093	0.085	0.443	1.298
PER_4	0.147	0.209	0.082	0.779	2.016
PER_5	0.180	0.212	0.163	0.683	1.611
PER_6	0.186	0.268	0.070	0.780	1.944
PER_7	0.166	0.344	0.178	0.771	1.742
PER_8	0.003	0.122	0.073	0.702	1.891
PER_9	0.195	0.233	0.213	0.761	1.997

Table 3: CA, rho, CR, AVE, and Fornell and Larcker's criterion

	CA	rho_A	CR	AVE	AM	IF	PART	PER
AM	0.910	0.949	0.928	0.684	0.827			
IF	0.855	0.856	0.932	0.873	0.375	0.934		
PART	0.818	0.825	0.873	0.580	0.221	0.366	0.761	
PER	0.870	0.898	0.897	0.527	0.193	0.332	0.191	0.726

5.2. Structural models

Table 4: R², R² adjusted, Q², and VIF among latent variables

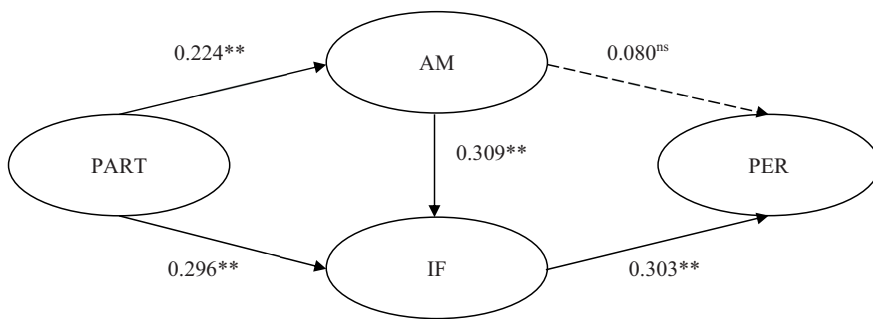
	R ²	R ² Adjusted	Q ²	AM	IF	PART	PER
AM	0.049	0.043	0.027	-	1.051	-	1.175
IF	0.225	0.214	0.179	-	-	-	1.290
PART	-	-	-	1.000	1.051	-	1.165
PER	0.120	0.103	0.048	-	-	-	-

The structural models assessment was examined by applying a bootstrapping procedure with 5,000 replacements (Hair, Ringle and Sarstedt, 2011). Besides, three criteria were examined before interpreting the results of structural models. First, VIFs of latent variables are less than 5 (see Table 4), showing the absence of multicollinearity between these variables (Hair, Ringle and Sarstedt, 2011). Second, the model fit is established because the Stone-Geisser Q^2 value is larger than zero (see Table 4) (Chin, 1998; Hair, Ringle and Sarstedt, 2011). Third, R-square values are adequate (see Table 4) (Falk and Miller, 1992).

Table 5: Relationship between latent variables

Hypotheses	Path	Beta	t-value	p-values	Confident interval
H1	PART -> AM	0.224	2.703	0.007	[0.038; 0.368]
H2	AM -> PER	0.080	0.793	0.428	[-0.139; 0.255]
H3	PART -> IF	0.296	3.581	0.000	[0.122; 0.444]
H4	IF -> PER	0.303	3.698	0.000	[0.102; 0.438]
H5	AM -> IF	0.309	3.848	0.000	[0.147; 0.461]
	PART -> IF -> PER	0.089	2.322	0.020	[0.024; 0.173]

Table 5 and Figure 2 reveal the results regarding the magnitude and strength of the paths. Accordingly, there is a significant relationship between budgetary participation and autonomous motivation ($\beta = 0.224, p = 0.007$) as well as information sharing ($\beta = 0.296, p < 0.001$). Besides, the relationship between autonomous motivation and information sharing is significant ($\beta = 0.309, p < 0.001$). Lastly, only information sharing is significantly related to performance ($\beta = 0.303, p < 0.001$), while autonomous motivation is not ($\beta = 0.080, p = 0.428$).



* indicates significance at the 0.05 level
 ** indicates significance at the 0.01 level
 ns indicates non-significance

Figure 2: Research results

5.3. Mediating assessment

Following the suggestions of Covaleski *et al.* (2003), this study also examines the intervening (mediating) effects of information sharing on the relationship between budgetary participation and managerial performance. A step-by-step analysis described by Zhao, Lynch Jr. and Chen (2010) was used to assess these effects. A bootstrapping procedure with 5,000 replacements was used (Hair *et al.*, 2017). It is noted that a direct path between budgetary participation and managerial performance was added into the model to examine mediating effects.

Table 5 shows that the link between budgetary participation and information sharing is significant ($\beta = 0.296, p < 0.001$). The link between information sharing and managerial performance is also significant ($\beta = 0.303, p < 0.001$). The indirect effects of information sharing on the link between budgetary participation and managerial performance are significant ($\beta = 0.089, p = 0.020$). The confidence interval of the indirect effects is between 0.024 and 0.173, which excludes zero. Therefore, mediating effects are well established. Besides, the direct path between budgetary participation and managerial performance is insignificant ($\beta = 0.080, p = 0.428$) while controlling for the effects of information sharing. Thus, information sharing fully mediates the link between budgetary participation and managerial performance.

6. Discussions

The findings of this paper are consistent with previous studies in several ways. First, relating to the motivational effects, Chong and Johnson (2007) and Jermias and Yigit (2013) show that budgetary participation induces managers' budget goal commitment in private sectors. In public sectors, Mohd Noor and Othman (2012) and Yahya, Ahmad and Fatima (2008) found that budgetary participation allows a high degree of managers' organizational commitment. In the same vein, this study shows that when managers from public schools participate in the budgeting process, the degree of their autonomous motivation increases. It implies that budgetary participation is crucial to Vietnamese managers working in public schools to the extent to which it acts as a motivational device. However, autonomous motivation does not lead to higher managerial performance. One of the proper explanations for this issue is that the link between autonomous motivation and performance is indirect rather than direct (see Reizer, Brender-Ilan and Sheaffer, 2019).

Second, regarding the cognitive effects, Leach-López, Stammerjohan and Lee (2009) found that budgetary participation allows managers to gain more job-relevant information and improve their performance in the private sector. Parker and Kyj (2006) found that budgetary participation triggers the cognitive mechanism, which allows managers to share more private information during the budgeting process, and as such, improve their performance in private sectors. In a similar way, this study shows that in public schools, when managers participate in the budgeting process, they share more information, and as a result, find performance implications. With respect to this

finding, it is implied that budgetary participation allows the managers working in Vietnamese public schools to share more insight into their jobs with the financial department. As a result, this department incorporates this information to allocate adequate and realistic budgets to managers and to develop a strategic plan which is suitable for managers. As such it allows managers to find performance implications.

Third, with respect to the link between motivational and cognitive effects, the results of this paper are consistent with prior studies. Particularly, Parker and Kyj (2006) and Park (2012) revealed the positive relationship between organizational commitment and information sharing. Leach-López, Stammerjohan and Lee (2009) found that proxy motivation, job satisfaction are positively associated with information sharing. In a similar vein, this study draws from SDT to show that autonomous motivation resulting from budgetary participation induces information sharing. It implies that autonomous motivation drives managers working in Vietnamese public schools to share more information relating to their job with the financial department when they participate in the budgeting process.

Lastly, the results also show the significant mediating effects of information sharing on the link between budgetary participation and managerial performance, while there are no mediating effects of autonomous motivation due to the insignificant relationship between autonomous motivation and managerial performance. It implies that cognitive effects resulting from budgetary participation are somewhat more crucial for managers in Vietnamese public schools to find performance implications than the motivational effects. This is consistent with the study of Latham, Winters and Locke (1994). Particularly, those authors found that cognitive effects mediate the link between participation in the formulation of task strategies and performance while there are no mediating effects on the link between participation in goal-setting and performance due to the insignificant relationship between goal commitment and performance.

7. Conclusion, limitations, and future research

The purpose of this study is to gain insight into the impact of budgetary participation at the micro-levels. Drawing from the nomological network (Shields and Shields, 1998) and the framework of participation in decision-making (Locke and Schweiger, 1979), this study proposes that budgetary participation fosters motivational and cognitive effects on managers working in Vietnamese public schools to find performance improvement. The results show that only those managers improve their performance when they participate in the budgeting process because this process allows a high degree of information sharing, which in turn leads to higher performance. However, although budgetary participation induces autonomous motivation, this motivation does not lead to higher performance.

Consistent with any research, this study is subject to some limitations. First, due to data only including the managers working in public schools located in Can Tho

city, the generalizations of the findings to other areas of Vietnam should be taken cautiously. Second, missing the pilot test may cause bias. However, this bias is at a minimum because the questionnaire was carefully examined by an experienced person working in the financial department of Can Tho city.

This study also provides a fruitful avenue for future research. First, the result shows the insignificant path between autonomous motivation and managerial performance. According to Reizer, Brender-Ilan and Sheaffer (2019), this relationship may be indirect via job satisfaction and emotion. Thus, future research should incorporate these two variables in the model to examine whether or not motivational effects resulting from budgetary participation can lead to higher performance. Second, because the focus of this study is on the managers working at Vietnamese public schools, future research should replicate this study by examining managers from other areas of public sectors. One fruitful avenue is to examine managers from healthcare areas because recent studies on budgeting show budgetary participation is relevant in public hospitals in developed countries like Italy (see Macinati and Rizzo, 2014).

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Appendix

Autonomous motivation

Please indicate the degree to which why you put efforts into the current job regarding following statements.

- | | |
|------|---|
| AM_1 | Because I have fun doing my job. |
| AM_2 | Because what I do in my work is exciting. |
| AM_3 | Because the work I do is interesting. |
| AM_4 | Because I personally consider it important to put effort in this job. |
| AM_5 | Because putting effort in this job aligns with my personal values. |
| AM_6 | Because putting effort in this job has personal significance to me. |

Information sharing

Please indicate the degree to which you agree with the following statements.

- | | |
|------|---|
| IF_1 | Through the budgeting process, I share my insights with the financial department about the situation in my area of responsibility. |
| IF_2 | In the budgeting process, I communicate information to the financial department about opportunities and problems facing the organization. |

Budgetary participation

Please indicate your involvement and influence in the budgeting process regarding the following statements.

- | | |
|--------|---|
| PART_1 | The portion of the budget I am involved in setting. |
| PART_2 | The amount of reasoning provided to me by the financial department staff when the budget is revised. |
| PART_3 | The frequency of budget-related discussions with the financial department initiated by me. |
| PART_4 | The amount of influence I feel I have on the final budget. |
| PART_5 | The importance of my contribution to the budget. |
| PART_6 | The frequency of budget-related discussions initiated by the financial department when budgets are being set. |

Managerial performance

Please indicate your own performance regarding to the following dimensions.

- | | |
|-------|---|
| PER_1 | Determining specific goals, policies, and courses of action (e.g., budgeting, work scheduling, programming). |
| PER_2 | Collecting and preparing information usually in the form of records, reports, and accounts (e.g., measuring output, record keeping, job analysis). |
| PER_4 | Exchanging information with people in the organization other than my subordinates in order to relate and adjust programs (e.g., expediting, liaison with other managers, arranging meetings). |
| PER_5 | Assessment and appraisal of proposals or reported/observed performance (e.g., employee evaluations, judging output records, product inspection). |
| PER_6 | Directing, leading, and developing my subordinates. |
| PER_7 | Maintaining the work force of my unit (e.g., selecting and promoting my subordinates). |
| PER_8 | Purchasing, selling, or contracting for goods and/or services (e.g., contracting with suppliers, collective bargaining, tax negotiations, advertising). |
| PER_9 | Advancing the general interests of my organization through speeches, consultations, or contacts with individuals and groups outside the organization. |
-