CORPORATE BUDGET GOVERNANCE THROUGH WORKFORCE ENGAGEMENT: AS AN ANTECEDENT TO INNOVATION

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Abstract

While the notion that firms pursue innovation is not controversial, it is one of the most complex processes employed by organizations and results vary greatly across companies. This paper investigates the link between budgetary participation intensity and innovation, using communication, job satisfaction and decentralization as mediators to such relationships. Our findings in a developing country setting indicate that budgetary participation intensity is antecedent to communication, job satisfaction and decentralization which in turn affect innovation. Moreover, budgetary participation intensity affects indirectly innovation when these variables are embedded in Path Analysis Modeling as mediators between budgetary participation and innovation.

Keywords: Budgetary Participation, Job Satisfaction, Communication, Decentralization, Innovation

1. INTRODUCTION

The belief that business firms should be engaged in innovative activities is well accepted across companies seeking market niche, customer alignments, efficiency improvement, better financial performance, and long term competitive advantage (Sorensen, 2002; Bussey, 2012; Brynjolfsson and Scharage, 2009; Herring and Galagan, 2011). While the financial payback of such activity is not controversial, it is one of the most complex, difficult and costly processes to implement (More, 2011). To comprehend such complexity, several scholars have investigated the internal and external environmental factors that foster innovation activity. External factors that have been linked to innovation include the economic environment (Damanpour and Schneider, 2006), competition and market conditions (Kaiserfed, 2005), technology (Brynjolfsson and Sschneider, 2009), government support (More, 2011), environmental dynamism (Koberg, al., 2003) and environment uncertainty (McGinnis and Ackelsberg, 1983).

Internal factors are concerned with the type of organisation in terms of its structure complexity, size, and management culture toward research and development activity (Damanpour, 1996, Damanpour and Schneider, 2006, Yang, Wang and Cheng, 2009, Sampson, 2007, Mikkola, 2001 and Raymond and St-Pierre, 2007). While there are a larger number of studies showing the importance of internal factors in stimulating innovation in workplace, there are few studies that investigate the link between innovation and managerial determinants such as budgetary participation, communication and organizational structure. Wan, Ong and Lee (2005) argue that communication, job satisfaction and decentralization are the major antecedents of innovation processes. Birnberg, Shields and Young (1990) and Gul, Tsui, Fong and Kwok (1995) emphasize that the budgetary participation is essential to insure decentralization. They point out that budgetary participation leads to changes in organization structure from authoritarian to flexible and decentralized one. Fisher, Frederickson and Peffer (2000) and Ni, Su, Chung and Cheng (2009) argue that budgetary participation has a positive effect on communication. Shields and Shields (1998) suggest that budget participation leads to better communication between various hierarchical levels and to decentralization within the organization; which in turn could improve innovation. In the same context, Lau and Tan (2003) find a significant path coefficient linking budget participation and job satisfaction. It is noticeable that most studies investigate the link between two variables separately without developing a comprehensive model that includes all these managerial indicators such as budgetary participation, decentralization, job satisfaction and communication (Dunk, 1995, Wan et al., 2005 and Magee, 1982). Hence, additional scholarly research is required on how budgetary participation could affect communication, job

satisfaction and decentralization that are antecedents to innovation in a comprehensive model.

The purpose of this study is to explore the budgetary participation intensity and innovation relationship in private companies in a developing country setting, namely Tunisia. Prior researches that examined the budgetary participation consequences were conducted in American, European and Australian contexts. Nevertheless, none of these researches examined the African and the Arabic contexts. In this paper, we are interested by examining the Tunisia context as an Arabic country because in this country mostly the decisions are made top down (decisions are making by the higher levels of the corporate hierarchy and the middle or lower levels just execute the decisions). Nevertheless, as known such model (top down approach) doesn't spread communication, job satisfaction and decentralization within organization and then doesn't promote innovation. One contribution of this study was to help manufacturing Tunisian firms by examining how budgetary participation will increase the employees' implication and then will improve the innovation. As we know, while the budgetary participation had a positive effect on American and Australian contexts, because of the strong cultural gap between Tunisia and these countries, we fear that this sophistically managerial tool will not be appropriate to the Tunisian context. It also attempts to examine whether organizational structure and communication setting mediate budgetary participation intensity and innovation. A Path analysis is used to examine direct and indirect effect of budgetary participation intensity on innovation.

The findings suggest that budgetary participation intensity is antecedent to communication, job satisfaction and decentralization which in turn affects innovation. Moreover, budgetary participation intensity affects indirectly innovation when these variables are embedded in Path Analysis modelling as mediators between budgetary participation and innovation.

This paper is organized as follows. Section 2 provides a brief review of the literature and states the relevant hypothesis. Section 3 specifies the research methodology. Section 4 discusses the results and Section 5 concludes.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1. Linkage: Budgetary Participation, Decentralization and Innovation

Budgeting participation has been the focus of numerous scholars in the accounting literature. Shields and Shields (1998) defined the budgetary participation as a process in which a manager is involved with, and has an influence on, the determination of his or her budget.They indicate that budgetary participation influences organizational structure (Bruns and Waterhouse, 1975) and employee outcomes such as motivation (Brownell, 1983), performance (Brownell and Merchant 1990), job satisfaction (Aranya, 1990) and slack (Dunk, 1993).Studies also indicated that the theoretical basis for why participative budgeting exists is primarily rooted in economic, psychological and sociological theories. These theoretical bases

identify antecedent variables that are expected to be associated with the identified reasons why participative budgeting exists. Shields and Shields (1998) further assert that the underpinning of this research has been the contingency theory of organization that predicts that environmental uncertainty challenging an organization requires the organization to adopt a flexible structure (decentralization). Furthermore, Bruns and Waterhouse (1975) indicated that managers in decentralized organizations perceive themselves as having more influence in the budget elaboration. In contrast, managers in centralized organizations are granted less responsibility, and report less involvement in budget planning. They concluded that the participative approaches during the preparation of budgets are better adapted to the decentralized structures. Hence, budgetary participation is better conceived in decentralized structures. Budgetary participation is used by organizations to ensure decentralization and consequently to challenge environmental uncertainty. Brownell (1982) asserts that participation offers organizational advantages, and organizations in unstable environments are adapted to participation of lower organizational members. Hence, budgetary participation is considered as a management tool that leads to decentralization. Our reasoning is consistent with Emmanuel, Oteley and Merchant (1990) who argue that "participation is not a universal panacea, but can be selectively useful in helping promote commitment to organizational goals. It is perhaps useful in decentralized organizations (Gul et al. 1995). To investigate this relationship, the present study hypothesizes that:

Ha: Budgetary participation has a positive effect on decentralization

The relation between innovation and decentralization was controversial in the literature. In fact, several studies showed that the decentralization is considered a key internal factor that improves innovation. Aiken, Bacharach and French (1980) indicated that bureaucratic organizations are often considered as static entities unable to adapt their self to volatile environments. To meet such challenge, firms need to be decentralized and innovative. In the same context, Damanpour (1991) considered decentralization as a crucial antecedent to innovation, as participation of the subordinates in the decision-making facilitates their awareness, their involvement and their commitment to meet business's challenges by being innovative and generate of new ideas. Similarly, Tremblay (2003) and Aiken et al. (1980) emphasize that decentralization has a positive effect on innovation, as operational units are often closer to the market and consumer's needs, therefore, their feedback and their participation in the decision process, including budget preparation, will enhance the organization's reaction to the market expectation. Nevertheless other scholars, such as Moch and Morse (1977), using data gathering from a sample of US hospitals, found that the structural complexity (in particular centralization) increases innovation. They found that the centralization appeared to interact with size to affect the adoption of compatible innovations. While, Daft and Becker (1978) found that structural complexity does not affect innovation. These results were founded based on a sample of 13 suburban Chicago High school districts over two times period : 1959-1964 and 1968- 1972.

In the same context, Damanpour and Gopalakrishnam (1998) indicated that the divergence in the results concerning the relation between organization structure and innovation is explained by how the construct of innovation was considered. The authors distinguished between four theories that explain the relationship between organizational structure and innovation. The first theory called, the uni-dimensional theory, takes innovation as a whole and considers it as one and unique dimension. Damanpour and Gopalakrishnam (1998) indicated that the association between centralization and innovation in the uni-dimensional theory should be negative. However, the empirical results were mitigated. Daft and Becker (1978) found that structural complexity does not affect innovation. To explain this mitigation in results, innovation scholars have developed a second set of structural theories of innovation, which were called middle-range theories. Thus, the second theory, called the dual-core theory of innovation, distinguishes between administrative and technical innovations. Based on this theory, Damanpour and Gopalakrishnam (1998) predict that high centralization in decision making facilitates the top down process of administrative innovation. On the other hand, low centralization facilitates the bottom up process of technical innovation. The third theory, known by innovation radicalism, distinguishes between radical and incremental innovations. Based on this theory, high (low) centralization in decision making facilitates incremental (radical) innovation. Finally, the fourth theory, ambidextrous theory, focuses on the process of adoption of innovation and distinguishes between two stages in this process: initiation and implementation. Damanpour and Gopalakrishnam (1998) proposed that high (low) centralization in decision making facilitates initiation (implementation) of innovation. These authors report the results found by Damanpour (1991) for all these propositions that predict that centralization affects negatively but not significantly all dimensions of innovation.

Damanpour and Gopalakrishnam (1998) explained these results by the need to consider the environmental change as a key factor that affects this relationship. Specifically, they proposed to illustrate how the identification of environmental conditions will lead to the development of a more precise structure-innovation relationship than those developed in the past. Based on the three last theories, the literature review predicts that there is a dual relationship between decentralization and innovation.

Krajenbrink (2012) indicated that centralized or decentralized position of a lead firm have different implications for innovations. The challenge for the lead firm is to choose the organizational form that matches the type of innovation they are pursuing the best. He asks the question why is a high level of betweenness (bureaucracy) bad, and a low level of betweenness (flexibility) good? He hypothesis that a high level of betweenness will have a positive impact on the performance of architectectural product innovation. Nevertheless, a low level of betweenness will have a positive effect on the performance of a non-architectural innovation because an innovation which is not architectural may proceed faster when the lead firm is using a decentralized network approach. However based on, Wan et al., (2005) who proposed and found that "*greater decentralization of decision making is positively related to greater firm innovation*", we believe that decentralization structure is an important key to improve innovation. The relation between decentralization and innovation should be positive in all cases. Innovation is a big construct that it is not directly observed. For this reason, we will consider later two major areas of innovation (product and process innovation) product and process innovation. These two areas will be considered as two observed variables that will constitute the latent variable named innovation.

We hypothesize that:

Hb: Decentralization is positively correlated with innovation

2.2. Linkage: Budgetary Participation, Communication and Innovation

Budgetary participation facilitates and develops a good communication channel within the organization. Economic and psychological theories have developed the antecedents of the budgetary participation. The economic theory assumes that a subordinate knows more about his/.her task and task environment than does his/her superior. Thus budgetary participation will lead to information gain by the superior (Shields and Shields, 1998) and thereby communication and information sharing between superior and subordinates. The psychological theory, based on the cognitive mechanism, assumes that the process of participation improves subordinate performance by increasing decision quality as a result of the subordinate sharing information with the superiors (Shields and Shields, 1998).Christensen (1982) and Magee (1982) advocated that subordinates are more aware than their superior(s) about market expectations and the business environment. Thus, they consider that budgetary participation could be engaged by the superior (s) to gain information, communicate with subordinates and reduce environment's uncertainty. In addition, Ronen and Livingstone (1975) emphasized that the budgetary participation enhances the cognitive mechanism by improving the quality of decisions through communication and information sharing between subordinates and superiors.

Scholars such as Shields and Shields (1998) and Fisher et al. (2000) confirm that budgetary participation has a positive effect on communication. They argue that when the superiors set the budget without involving their subordinates, there is a high risk that the budget will not be implemented. They also specify that in the absence of budgetary participation, there would be a lack of communication between seniors and subordinates that will render top management unaware of various risks and opportunities surrounding the organization.

Leach-Lopez et al. (2009) have examined the relationship between budgetary participation and performance through job relevant information and job satisfaction. They stipulated that participation can improve performance by providing a forum for the superior to communicate information to subordinates. They founded that information communication aspect of budget participation may become more important as the level of difficulty that foreign managers when communicating with their US parent companies, becomes larger.

Ni et al. (2009) suggested that budgetary participation provides the communication opportunities between superiors and subordinates not only with improving managerial attitudes but

also with enhancing managerial cognition, which in turn improves their satisfaction and managerial performance. Kren (2003) argued that behavioral theory researchers have proposed that budgetary participation allows positive communication between superiors and subordinates which reduces the pressure to create slack.

Basing on Jermias and Yagit (2013), information asymmetry is an important determinant of the need for the budgetary participation. They indicated that the budgetary participation allows superiors to gain access to subordinates' private information, which in turn helps them to develop better strategies for achieving the budgets. For subordinates, budgetary participation might provide an opportunity to communicate perceptions of business opportunities and risks, to negotiate more reasonable budgets, and to ensure that the budget is aligned with personal aspirations. Based on the theoretical background of the pertinent literature, we can assert that budgetary participation affects communication within the organization positively. Hence, the following hypothesis:

Hc: Budgetary participation is positively correlated with communication

Developing communication channels within the organization promotes innovation. Aiken and Hage (1971) argue that internal communication within the organization favors innovation because it facilitates the dispersion of new ideas and increases diversity. In the same context, Tjosvold and McNeel (1988) recommended information sharing among all stakeholders within the organization as a precondition for improving the process of innovation. On the other hand, Wan et al. (2005) emphasized that the interaction among individuals within the organization leads to amplification and development of new knowledge. The authors proposed that the success of innovation requires exchange of knowledge and information among all stakeholders and employees within the organization. Nevertheless, the empirical results did not support this assumption.

Tremblay (2003) considered innovation as a complex and interactive process that transpires the need of communication and information sharing among all stakeholders. Engineers operating in a research and development environment should be in a continuous and close contact with all stakeholders operating within the organization, particularly marketing and production staff. The focus on communication channels as a prerequisite of innovation was also underlined by Monge, Cozzens and Contractor (1992) who pointed out that several empirical studies have concluded that a higher level of communication and information gathering is associated with higher levels of performance in R&D and innovation in general. Similarly, Kanter (1982) claimed that the most innovative managers practice a participative management style in which information is requested from subordinates and shared among all stakeholders within the organization.

However, Aiken et al.(1980) and Katz and Tushment (1979) did not support the importance of communication toward creating innovative organizations. They consider a high level of communication as a requirement to promote effective innovation only in the presence of complex problems. Less complex problems do not involve high levels of communication. These proposals, which supposed that communication is needed in the presence of complex problems, were supported by several other scholars such as Hall (1962), Hage, Aiken and Marrett (1971) and Lawrence and Lorsch (1967). Nevertheless, we consider that communication within an organization is an important factor that reinforces innovation and the creation of new ideas, regardless the level of the task complexity. In fact, we believe that even in the presence of a simple task, communication between subordinates and their superiors is necessary to ensure the best task execution. Hence, we hypothesize that:

Hd: Communication is positively associated with innovation

2.3. Linkage: Budgetary Participation, job satisfaction and Innovation

There is a large body of prior research that examined the link between budgetary participation on performance through job satisfaction. In the present paper we propose to underline the role of job satisfaction as a mediator variable between budgetary participation and innovation.

Brownell (1983) predicts that high degree of budgetary participation is associated with high employee job satisfaction and job performance. As well, Boujelbene and Affes (2015) stipulate that budgetary participation motivates subordinates by including them to accept and be committed to the budget goals, and consequently, improving their job performance. The results of Boujelben and Affes (2015) reveal that the higher the manager's perceived environmental uncertainty the more positive was the impact of budgetary participation on managers' self perception of their performance and job satisfaction.

Finally, Lopez et al. (2009) find that job satisfaction plays a significant role in the connection between budgetary participation and performance among Korean managers working for US controlled companies in Korea. Accordingly, the following hypothesis will be tested:

He: Budgetary participation affects positively job satisfaction.

Innovation requires more than the creative capacity to invent new ideas; it requires managerial skills and talents to transform the new ideas into practice. Thus, prior researches underlined the antecedent conditions to successful innovation. Among these conditions, Nerkar et al. (1996) have shown that innovation team performance is directly correlated with job satisfaction. They demonstrate that there are at least three independent facet of job satisfaction: instrumental satisfaction, social satisfaction and egocentric satisfaction. They add that only instrumental and social satisfactions affect the innovation team performance.

Shipton et al. (2007) investigated the relationship between aggregate job satisfaction and organizational innovation. Based on a sample of 3717 employees, they found that aggregate job satisfaction is a significant predictor of subsequent organizational innovation. They propose that where the majority of employees experience job

satisfaction, they will endorse rather than resist innovation and work collaboratively to implement as well as to generate creative ideas.

Hence, we hypothesize that:

*Hf:* Job satisfaction affects positively the innovation

Hashim et al. (2014) underlined that the budgetary participation improve the performance and this relation should be moderated by certain variable like the decentralization and budget goal commitment. Nevertheless, they didn't include any mediating variable to link up budgetary participation and performance. Consequently, Hashim et al. (2014) recommended adding in future researches moderating variable between dependent and independent variable. Nevertheless, the present paper will investigate the link between budgetary participation and innovation by adding mediating variables to better understand how the budgetary participation could affect the innovation.

The present study investigates the relationship between budgetary participation and innovation through decentralization, job satisfaction and communication that are presumed to mediate the relationship between budgetary participation and innovation, hence, the following hypothesis:

H1: Budgetary participation has an indirect effect on innovation via decentralization, job satisfaction and communication.

Figure 1. Relation between budgetary participation and innovation via communication, job satisfaction and decentralization
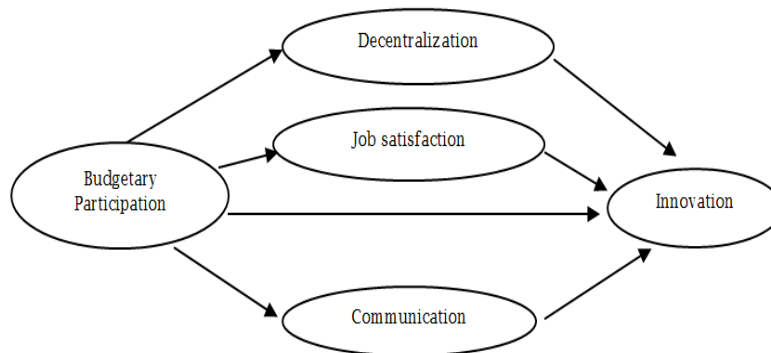
3. RESEARCH METHODOLOGY

3.1. Measurement of Variables

3.1.1. Innovation

This research will employ the measure used by Yang et al. (2009). This instrument includes two major areas of innovation: (1) product innovation and (2) process innovation. Product innovation is concerned with generating new ideas and integrating them in the end product or service. Whereas process innovation represents changes in the way firms produce end products or services. Each area of innovation is represented by a multi-item scale. Respondents were asked to rate different aspects of innovation, which included nine items, using seven-point Likert scales (see Appendix 1 for details). Yang etal. (2009) indicated that this method, as confirmed by Bisbe and Oteley (2004) and Subramanian and Nilakanta (1996), is used to minimize the bias from subjective answers and to emphasize construct validity.

3.1.2. Budgetary participation

Despite the development of many instruments to measure this construct, the present research will deploy the instrument developed by Milani (1975). This choice is justified by the high degree of validity and reliability of this instrument. Winata and Mia (2005) tested the reliability of this instrument and reported 0.89 alpha of Cronbach. We have tested the relevance of this instrument and found that Chronbach's alpha is equal to 0.891 (as shown in Appendix 2). This confirms the validity of this measure. Respondents were asked to rate different aspects of budgetary participation, which include six items, using seven-point Likert scale, (see Appendix 1 for details).

3.1.3. Job satisfaction

To measure the job satisfaction, this research uses the two items developed by Dewar and Werbel (1979) and employed by prior research (e.g., Boujelben and Affes, 2015). This measure seems to be reliable given that the Chronbach's alpha is equal to 0.842.

3.1.4. Communication

Although many instruments were developed to measure communication construct e,g., Monge et al. (1992), this research employs Evan and Black (1967) instrument that includes two items and each item is measured on five-point Likert scale, (see Appendix1 for details). We believe that this measure is very suitable for our research. It includes questions that are related to communication between those who propose innovation and those who finally review it.

3.1.5. Decentralization

Considering the large spectrum of the method, this research used Gordon and Narayanan (1984) instrument that includes five classes of decisions only. Respondents were asked to rate the degree of their participation in each type of decision using seven-point Likert scale, (see Appendix 1 for details). This instrument was also employed by Subramaniam and Mia (2001).

3.2. Sample and data collection

Shields and Shields (1998) defined budgetary participation as the involvement of operational managers in the budgetary process and the extent of the influence of their participation on the final budget. We assume that the technical and the sales managers are the operational managers whose participation is required to create innovative environment within a firm. Technical managers oversee the technical activity by managing scarce economic resources, while sales managers are concerned with customers' expectations and market competition. Thus, their participation in the budget

process seems to be necessary for the creation of innovative environment within the company in order to gain competitive advantage and meet customers' expectations.

To operationalize our theoretical framework, we empirically tested it via 60 Tunisian industrial firms obtained from the website of the agency for the Promotion of Industry and Innovation (http://www.tunisieindustrie.nat.tn/en/dbi.asp?idsect=&sde=&gvt=&dlg=&pys=&exp=&c1=&c2=&e1=&e2=) during the period 2014 and 2015. The human resource manager of each company was directly contacted and asked to provide lists of the technical and the sale managers who could be interviewed for this research. From each company the name and the phone number of the sale and technical managers. We end up with 120 subjects (60 technical managers and 60 sale managers). All the questionnaire had been handed to the 120 subjects given them a deadline of 10 days to send them back by email or by fax. In some cases, the authors go back to the firms to collect the questionnaire.

Table 1 and 2 provide information about the characteristics of our sample.

Table 1. Companies Distribution by Industries

Industrial sector	Number
Agribusiness	12
Manufacture of construction products, ceramics and glass	6
Manufacture of mechanicals and basic metals	7
Manufacture of electric and electronic equipment	11
Manufacture of chemicals and chemical products	8
Manufacture of textile and wearing apparel	9
Other manufacturers	7

Table 2. Distribution of Companies by Number of Employees

Number of companies	Number of employees		
	50 - 100	100 – 200	More than 200
35	17	22	21

3.3. Model Specification

The path analysis modeling was used to answer the question: how does budgetary participation combine with other variables such as communication, job satisfaction and decentralization to affect innovation? Path Analysis Modeling was employed to assess the linkage between budgetary participation and innovation through decentralization, job satisfaction and communication, and their contribution to the overall relationship observed between budgetary participation and innovation.

The major advantage of Path Analysis is that it allows a decomposition of an observed relationship between two variables (in this case budgetary participation and innovation) into the portion attributable to paths through one or more measured variables (in this case job satisfaction, communication and decentralization) posited as

intervening between the two, and the portion which results either from a direct relationship between the two variables or from unobserved variables.

Budgetary participation, the exogenous variable in the model, is denoted as *BP*, decentralization as *DEC*, job satisfaction as *JS*, Communication as *COM* respectively, and innovation as *INN*. The path coefficients in the model are denoted *α, β* and *β'.ε* denotes the unexplained portions of the endogenous variables, i.e., decentralization, job satisfaction, communication and innovation.

It should be noted that Barron and Kenny (1986) have presented four steps to examine the mediation. Firstly, it should be established that there is an effect between the independent variable (budgetary participation) and the dependent variable (Innovation). Thus, the first model that will be tested is:

$$INN = \beta\, BP + \varepsilon 1 \tag{1}$$

with :
INN: Innovation; BP: Budgetary participatio; ε1: error terms ; β: the coefficient

Secondly, it should be shown that the independent variable (Budgetary participation) affects significantly the mediator variables (job satisfaction, Communication and decentralization). Thus, a simple Regression Analysis should be conducted

with budgetary participation predicting communication and with budgetary participation predicting decentralization to test for path $α_1$, $α_2$ and $α_3$ respectively. So, the second and the third models are:

$$JS = \alpha_1 BP + \varepsilon_2 \qquad (2)$$
$$DEC = \alpha_2 BP + \varepsilon_3 \qquad (3)$$
$$COM = \alpha_3 BP + \varepsilon_4 \qquad (4)$$

with

JS: Job satisfaction; DEC: Decentraliation; COM: Communication; α1 and α2: coefficient;
ε2, ε3 and ε4 error terms

Thirdly, it should be demonstrated that the linkage between the mediator variables (communication, job satisfaction and decentralization) and the dependent variable (Innovation) is significant. In this process, a multiple regression analysis should be conducted with budgetary participation, job satisfaction, decentralization and communication predicting innovation. Hence the model is:

$$INN = \beta' BP + \alpha_4 DEC + \alpha_5 COM + \alpha_6 JS + \varepsilon_5 \qquad (5)$$

With:

INN: Innovation; BP: Budgetary participation; DEC: Decentraliation; COM: Communication;
JS: Job satisfaction, β′, α4, α5 and α6: coefficient; ε5 error terms

Finally, the direct effect between the dependent variable (Innovation) and the independent variable (budgetary participation) become insignificant by the introduction of the madiator variables (Communication, job satisfaction and decentralization).

To operationalize our hypothesis, we will follow at the same time the different steps proposed by Barron and Kenny (1986) and by the INSTITUTE FOR DIGITAL RESEARCH AND EDUCATION (http://www.ats.ucla.edu/stat/stata/faq/mulmediation.htm). We propose to use the "sureg" command followed by nlcom to detect the indirect effect

4. INTERPRETATION OF RESULTS

Firstly, The Cronbach's alpha was calculated as indicated in Table 3 for each variable in our model. The results confirm the validity of the proxy that was used to measure the different variables (Cronbach's alpha are higher than 0.6 which is the thrash hold stated by Nunnally (1978)). Then,

Principal Component Analysis was employed to reduce items measuring each variable in one factor.

As proposed by Baron and Kenny (1986), the authors examined the effect of the budgetary participation on innovation through communication, job satisfaction and decentralization. The first column in table 4 presents the results of the first step in which the authors examine if the budgetary participation has a direct effect on innovation before introducing any mediator variables. Results show that there is a positive (β = 0.0865) but not significant effect of the budgetary participation on innovation before introducing the mediator variables. These results indicate that the first step wasn't fulfilled. Nevertheless, as indicated by MacKinnon et al. (1995, 2002) the first and fourth steps of Baron and Kenny (1986) are not necessary. Then, the authors examined the second step that conducts a simple regression analysis with budgetary participation predicting job satisfaction, communication and decentralization as shown in Table 4.

Table 3. Descriptive Statistics

Variables	Items	Minimum	Maximum	Mode	Median	Cronbach Alpha
BP	BP1	1	7	7	6	0.891
	BP2	1	7	6	6	
	BP3	1	7	5	5	
	BP4	1	7	6	5	
	BP5	1	7	6	5	
	BP6	1	7	6	5	
DEC	D1	1	7	6	5	0.757
	D2	1	7	5	4.5	
	D3	1	7	5	5	
	D4	1	7	5	5	
	D5	1	7	5	5	
IPD	IP1	1	7	4	4	0.889
	IP2	1	7	5	5	
	IP3	1	7	5	4	
	IP4	1	7	4	4	
	IP5	1	7	4	4	
IPC	IPC1	1	7	5	5	0.865
	IPC2	1	7	4	4	
	IPC3	2	7	4	4	
	IPC4	1	7	4	4	
COM	C1	2	5	4	4	0.715
	C2	2	5	4	4	
JS	Js1	1	5	3	3	0.842
	Js2	1	5	3	3	
120 observations						

BP : budgetary participation ; DEC : decentralization ; IPD : product innovation ; IPC : process innovation ; JS: job satisfaction; COM : communication.

Table 4. Regression results

VARIABLES	(1) inn	(2) Dec	(3) com	(4) js	(5) Inn
Dec					0.209**
					(0.0874)
Com					0.247***
					(0.0849)
Js					0.287***
					(0.0915)
Bp	0.0865	0.602***	0.241***	0.388***	-0.210**
	(0.0527)	(0.0510)	(0.0533)	(0.0492)	(0.0817)
Constant	-2.79e-10	-6.30e-09	4.19e-09	8.24e-09	-2.36e-09
	(0.105)	(0.101)	(0.106)	(0.0975)	(0.0955)
Observations	120	120	120	120	120
R-squared	0.022	0.541	0.148	0.345	0.205

BP : budgetary participation ; DEC : decentralization ; IPD : product innovation ; IPC : process innovation ; JS: job satisfaction; COM : communication.

H.a predicts a positive relationship between budgetary participation and decentralization. As shown in table 4, the coefficient is positive and significant (α_2= 0.602***/ p= 0.000). Hence, *H.a* is confirmed. Thus, the second step proposed by Baron and Kenny (1986) was fulfilled for decentralization as a mediator variable .*H.c*, also, predicts a positive relationship between budgetary participation and communication. Based on table 4 we confirm again our hypothesis that predicts that the budgetary participation increases the communication within industrial firms (α_3 = 0.241***/ p= 0.0). In conclusion, *H.c* was accepted. Finally, we confirm too hypothesis *H.e* that predicts a positive relationship between budgetary participation and job satisfaction (α_1 = 0.388***/ p= 0.0). Considering budgetary participation has a significant effect on the three mediators, the second step required by Baron and Kenny (1986) was fulfilled yet again.

The authors examined the third step that predicted that the mediator variables (communication, job satisfaction and decentralization) affect the innovation with the introduction of the independent variable (Budgetary participation) into the model. As shown in the last column in table 4, the decentralization affects positively and significantly innovation (α_4= 0.209**/ p= 0.014). This result confirms H.b. On the other hand, higher communication increases the innovation (α_5= 0.247***/ p= 0.003), hence, H.d. hypothesis was accepted. In the same context, job satisfaction improves innovation (α_6= 0.001***/ p= 0.001) (H.f is confirmed), Thus, we can conclude that the third step proposed by Baron and Kenny (1986) was also operationalized.

Finally, the last step predicted that the relationship between budgetary participation and innovation become insignificant by introducing job satisfaction decentralization and communication. To fulfill this phase, the authors examined the last column in Table 4 in conjunction with Table 5 that reports the decomposition of budgetary participation's effect on innovation through job satisfaction, decentralization and communication.

Table 5. Decomposition of the indirect Effects

Indirect Effect through	*Coef*	*P>|z|*
DEC	0 .126	0.017
COM	0. .0595	0.013
JS	0 .111	0.003
Total indirect effect	0 .296	0.000

BP : budgetary participation ; DEC : decentralization ; IPD : product innovation ; IPC : process innovation ; JS: job satisfaction; COM : communication.

To decompose the effect of budgetary participation on innovation through job satisfaction, decentralization and communication, we used the seemingly unrelated regression "SUREG" followed by by nlcom to detect the indirect effect.

As shown on table 5, the budgetary participation affects indirectly the innovation through the three mediator variables. The indirect effects through decentralization, communication and job satisfaction are respectively positive and significant (0.126**/p= 0.017), (0 .0595** /p= 0.013) and (0.111/ p=0.003). In conclusion and as indicated above the total indirect effect (0.296**) is more important than the direct effect between budgetary participation. These results confirmed hypothesis (**H1**), which is the main hypothesis of this study.

This study extends the literature and provides important theoretical and practical implications. The results provide evidence that job satisfaction, communication and decentralization play a significant role in the connection between budget participation and innovation among Tunisian managers.

5. DISCUSSION, CONCLUSION AND MANAGERIAL IMPLICATION

The initiation of innovation by companies and identifying factors that influence the innovation process has attracted a particular interest in the accounting. This deserves to be analyzed because the contemporary companies are operating in an environment that requires them to promote the sense of creation and the culture of innovation in order to survive.

This research has examined the effect of budgetary participation on innovation through its effect on communication, job satisfaction and decentralization. Budgetary participation, like any

other decision taken in a participative way, leads to communication between different hierarchical levels and to the decentralization that involves the increase of the satisfaction of employees and their commitment to respond to the expectations of the customers. These imply the commitment of the organization to the innovation process to satisfy the customers who become more and more demanding.

The current study confirms that budgetary participation, through its effect on job satisfaction, communication and decentralization, enhances innovation. The budgetary participation affects positively and significantly decentralization that affect positively and significantly innovation. These results support the findings of previous studies of Tremblay (2003) and Aiken et al. (1980); that indicated that decentralization has a positive effect on innovation because the operational units are often closer to the market and consumer's needs. Thus, it seems appropriate to involve such units especially in the elaboration of the budget. The creation of new ideas, product or services requires the adoption of a decentralized structure and especially the participation of the managers in the budget preparation.

Similar to the finding of Leach-Lo´pez et al. (2009) the communication and the job satisfaction are important for Tunisian managers. They play a significant role in the connection between budget participation and innovation. This result, then, support the fact that a combination of a high budgetary participation, communication, decentralization and job satisfaction enhances the innovation. In conclusion, this research corroborates the finding of Boujelben and Affes (2015) which stipulates that the wider adoption of a high participative budgeting management style should be strongly encouraged in the Tunisian companies.

Our study aims to contribute to the enrichment of the management accounting literature about the effects of budget participation by analyzing its effect on innovation. The authors treated the direct and indirect effects of participation on innovation by introducing job satisfaction, communication and decentralization as two intermediate variables. The literature on the determinants of innovation is scant in managerial accounting literature. Hence, the current study underlines the role of the budgetary participation as a key factor reinforcing the organisations' innovation. This study provides evidence that explains how budgetary participation is used to improve innovation. The findings of this study rely on quantitative analysis which indicates that there is a significant indirect relationship between budgetary participation and innovation that was not explored by other researches. The degree to which a firm is competitive is associated to the degree to which subordinates are innovative. Although, Tunisian subordinates have the skills to bring new ideas to their firms, often, they could not convince their superiors to implement these ideas in the organization. Budgetary participation is considered an important tool that can help Tunisian subordinates to convince their superiors to implement their ideas in the organization and consequently to reinforce the innovation spirit.

5.1. Limitations

Despite the contributions of the current research, it has limitations. The first limitation concerns the sample size. It is composed of only sixty industrial firms. Thus, the results may not be generalized to all companies across Tunisia. Furthermore, the distribution of the survey was not random (judgment sample). In order to insure the managers' collaboration, the authors were obliged to use their contacts across Tunisian corporate sector. Although the small size of the sample constitutes a limitation to this study, it could be justified by the lack of collaboration of companies in promoting research in emerging countries. This problem was recognized by Dakhli (2009) who examined the effect of budgetary participation on job satisfaction across Tunisia by studying a sample of only 75 managers in 30 industrial companies. Shields and Shields (1998) have, also, used a small sample of 60 managers.

5.2. Future Research

Tunisia remains a land of many fields and prospects for future research. A replication of this study seems to be necessary in order to confirm or reject the presented results. It would be relevant to introduce other intermediate variables which could affect the relationship between budgetary participation and innovation such as environmental uncertainty, culture. Also, it will be interesting to use the industrial sector as the control variable.

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APPENDIX 1

Budgetary participation: (Response anchors: 1= strongly disagree, 7= strongly agree).

Q1: To what extent do you get involved when your budget is set?	1	2	3	4	5	6	7
Q2: To what extent does your supervisor provide reasons when your budget is revised?	1	2	3	4	5	6	7
Q3: How often do you state your request, opinion and or suggestions about the budget to your superior without being asked?	1	2	3	4	5	6	7
Q4: How much influence do you feel you have on the final budget?	1	2	3	4	5	6	7
Q5: How do you view your contribution to the budget?	1	2	3	4	5	6	7
Q6: How often does your superior seek your request, opinions and suggestions when the budget is being set?	1	2	3	4	5	6	7

Innovation: (Response anchors: 1= strongly disagree, 7= strongly agree).

Product innovation							
Q1: The level of newness (novelty) of your firm's new products?	1	2	3	4	5	6	7
Q2: The use of latest technological innovations in your new products?	1	2	3	4	5	6	7
Q3: The speed of your firm's new product development?	1	2	3	4	5	6	7
Q4: The number of new products that your firm has introduced to the market?	1	2	3	4	5	6	7
Q5:The extent of your firm's new products that are first-to-market (or early market entrants)?	1	2	3	4	5	6	7
Process innovation	1	2	3	4	5	6	7
Q1: The technological competitiveness of your company?	1	2	3	4	5	6	7
Q2: The speed with which your firm adopt the latest technological innovations in its processes?	1	2	3	4	5	6	7
Q3: The updatedness or novelty of the technology used in your firm processes?	1	2	3	4	5	6	7
Q4: The rate of change in your firm's processes, techniques and technology?	1	2	3	4	5	6	7

Decentralization (Response anchors: 1= no delegation, 7= complete delegation).

To what extent has authority been delegated to you for each of the following classes of decisions?

development of new products and services	1	2	3	4	5	6	7
hiring and firing of managerial personnel	1	2	3	4	5	6	7
selection of large investments	1	2	3	4	5	6	7
budget allocations	1	2	3	4	5	6	7
pricing decisions	1	2	3	4	5	6	7

Communication (Response anchors: 1= No communication, 5= Very much communication).

Q1: Was there communication during the development stage between the staff man or team who prepared the proposal and those who finally reviewed the proposal?	1	2	3	4	5
Q2: Was there communication during the development stage between the staff man or team who prepared the written proposal and those who would be most directly affected by the proposal?	1	2	3	4	5

Job satisfaction Five-point scale, 1 = strongly disagree and 5 = Strongly agree

Q1: All in all, are you satisfied with your job?	1	2	3	4	5
Q2: In general, would you like working in this company?	1	2	3	4	5