

# The effect of environmental uncertainty and budgetary participation on performance and job satisfaction – evidence from the hotel industry

Mohamed Ali Boujelbene\*

PhD Student in accounting and financial methods  
at University of Sfax (Tunisia)

E-mail: [boujelbene.medali@gmail.com](mailto:boujelbene.medali@gmail.com)

Address: Faculty of Economics and management of Sfax, Tunisia

Habib Affes

Professor in management accounting at University of Sfax (Tunisia)

## Abstract

This study empirically examined the effect of budget participation on managerial performance and job satisfaction using a contingency theory approach. Perceived environmental uncertainty presents the contingent variable investigated. The responses of 41 managers, drawn from Tunisian hotels to a questionnaire survey were analyzed by using a moderated regression analysis. The results have indicated that environmental uncertainty moderates the effect of budgetary participation on both perceived managerial performance and job satisfaction. Our results suggest that the hotels should encourage the participation of managers in the budget setting process mainly in the current environment in Tunisia which is broadly characterized by a high level of uncertainty.

**Keywords:** budgetary participation, managerial performance, job satisfaction, environmental uncertainty, Hotels.

---

\* Corresponding author

## 1. Introduction

The effect of budgetary participation<sup>1</sup> on performance and job satisfaction has been the subject of considerable research in management accounting (Shields and Shields, 1998). Early empirical studies used a universalistic approach<sup>2</sup> to examine the effect of budgetary participation on performance and job satisfaction (Chong et al 2005). However, the results have been mixed (Chong et al 2005; Agbejule & Saaraskoski 2006).

They vary from highly positive impact on an insignificant impact up to have a significantly negative impact. For example, some studies (e.g. Bass and Leavitt, 1963; Chenhall and Brownell, 1988) have found a strong positive relationship between budgetary participation and performance while other studies (e.g. Stedry, 1960; Bryan and Locke, 1967) have found a negative relationship. With respect to job satisfaction, some studies (e.g. Cherrington and Cherrington, 1973; Milani, 1975; Kenis, 1979; Chenhall, 1986) have found that budgetary participation improves job satisfaction while other studies (e.g. Brownell, 1981, 1982b) have found that budgetary participation does not improve job satisfaction. Several studies (Milani, 1975; Kenis, 1979) have found no relationship.

To reconcile these conflicting results, several studies adopted contingency

---

<sup>1</sup> Participative budgeting refers to a “.....process whereby subordinates are given the opportunity to get involved in and have influence on the budget setting process” (Brownell, 1982a, p. 124)

<sup>2</sup> “The universalistic view argues for the relationship between participation and performance to hold under all conditions “ Govindarajan 1986)

approach and attempted to identify the conditions under which budgetary participation will lead to beneficial job related outcomes. For example: the locus of control (Brownell 1981, 1982b), perceived environmental uncertainty (Govindarajan, 1986), leadership style (Brownell, 1983), decentralization (Gul *et al.*, 1995), feedback (Chong and Chong, 2002); role ambiguity and role conflict (Chong and Bateman, 2000), market competition (Chong *et al.*, 2005), cost management knowledge (Agbejule and Saaraskoski, 2006) and hierarchy and control system (Jermier and Setiawan, 2008) are considered. All these variables may all have a major effect on budgetary participation-performance and job satisfaction relationships.

The present study aims to extend this line of research by examining the environmental uncertainty as a contingent variable. It presents an important external environmental factor. In Section 1 of the paper we will present the motivation for undertaking the study in the hotel industry in Tunisia. Second we will propose a review of the literature leading us to ask the hypotheses to be tested. We will then present the research methodology and discuss the findings.

Finally, we conclude trying to highlight the academic and managerial implications of our research and its limitations.

## **2. Motivation for the study**

This study was motivated, firstly by the lack of budgetary research in the African context. In fact, most budgetary participation research has been conducted in American, British and Australian contexts (e.g., Argyris, 1952; Brownell, 1981, 1982a, b, c, 1983; Kren, 1992; Chong *et al.*, 2005, 2006). Some recent studies have been made in some Asian countries (e.g., Birnberg and Snodgrass, 1988; Chow *et al.*, 1991, 1994, 1996, 1999; Harrison, 1992; Shields, Deng and Kata, 2000; Tsui, 2001; Ueno and Sekaran, 1992)

The second motivation is the limitation of budgetary research studies focus on firms operating in either the manufacturing or financial sectors. A precise examination of the effect of budgetary participation on performance and job satisfaction in firms operating in other industries, such as the hotel industry, has remained unexplored. In fact, empirical evidence on the existence of the relationship between budgetary participation and job satisfaction and performance in the hotel industry is lacking, despite the industry's growing economic importance (Harris and Brander Brown, 1998). For instance, Tourism is a major industry sector in the Tunisian economy.

Moreover, the hotel industry differs considerably from the manufacturing industry (Mia and Patiar, 2001; Winata and Mia (2005). In fact, managers in the hotel industry, compared to their counterpart in manufacturing industries, face more uncertain and complex work environment because of the hotel industry's exceptional service characteristics. Also, the business environment in the hotel industry is highly competitive; (Mia and Patiar, 2002). We argue that the research findings on the impact of budgetary participation on performance and job satisfaction may not be applicable in the hotel industry (Mia and Patiar, 2001)

One contribution of this study is to provide some Tunisian evidence related to budgetary participation and its outcomes with a sample consisting of managers from a hotel industry.

## **3. Hypothesis development**

Participative budgeting refers to a "process whereby subordinates are given the opportunity to get involved in and have influence on the budget setting process" (Brownell, 1982a, Chong *et al* 2006). Prior accounting studies have generally identified three mechanisms by which the benefits of participation are completed (Chong *et al.*, 2006; Wong-On-Wing *et al.*, 2010). These mechanisms are value

attainment, cognitive and motivational ones (Chong et al., 2006, Wong-On-Wing et al., 2010).

From the value attainment mechanism perspective, participation allows subordinates to feel fulfilled with their values (Locke and Schweiger, 1979). Shields and Shields (1998, p 59) theorized that the process of participation enables subordinates to “experience self respect and feelings of equality arising from the opportunity to express his or her values”. From the motivational mechanism perspective, participation may motivate subordinates by inducing them to accept and be committed to the budget goals, and consequently, improving their job performance (e.g., Brownell and McInnes, 1986; Mia, 1988; Chong et al., 2006; Wong-On-Wing et al., 2010 ).

From the cognitive mechanism perspective, participation is considered as an avenue for information exchange to assist subordinates in the process of decision making (Shields and Shields, 1998; Locke and Schweiger, 1979). Therefore, budgetary participation provides subordinates with the opportunity to gather and share job relevant information which contributes positively in decision-making process, and thereby, enhancing their job performance (e.g., Chenhall and Brownell, 1988; Kren, 1992; Chong, 2002; Parker and Kyj, 2006).

Further, it has been argued that the value attainment mechanism of participative budgeting influences job satisfaction and morale of subordinates in the organization (Shields and Shields, 1998; Chong et al., 2006). In addition, researches have affirmed that budgetary participation improves job performance through their two other mechanism i.e. motivational and cognitive (Agbejule and Saarikoski, 2006; Chong et al., 2006; Wong-On-Wing et al., 2010).

Despite the fact that, the literature supports the beneficial impact of the budgetary participation through their three mechanisms, the empirical evidence as we presented above presented inconclusive

results. However, a potential moderating effect of environmental uncertainty on the relationships between budgetary participation and performance and job satisfaction appears to be relevant in the budgetary literature.

Environmental uncertainty relates generally to the unpredictability in the actions of an organization's major stakeholders such as customers, suppliers, competitors and regulatory groups. Hence, the impact of environmental uncertainty on organizations has been largely studied. It has been based on decision makers' perceptions of the level of uncertainty in their task environments rather than on an objective measure of such uncertainty.

In this context, Truhman and Nadler (1978) argued that facing a stable environment; managers can cope with their environment by developing rules or standard operating procedures. However, if managers face a changing environment, then determined rules and standard operating procedures will not be appropriate to deal effectively with uncertainty. Consequently, managers at all levels within the company will require more and more job relevant information.

It is argued that the amount of information that managers require for decision-making depends on their external environment (Ewusi-Mensah, 1981; Gordon and Narayanan, 1984; Chenhall and Morris, 1986; Govindarajan, 1986 ; Gul, 1991; Mia, 1993; Mia and Chenhall, 1994; Gul and Chia, 1994). Gordon and Narayanan (1984) argued that as the environmental uncertainty increases, decision-makers look for more job relevant information for planning. Managers spend more time in gathering more job relevant information as their perceived level of external environment uncertainty increases (Ewusi-Mensah, 1981). Moreover, Shields et al. (2008) confirmed that the practice of participation of managers in general depends heavily on the importance of organizational changes of the company. According to Shields and Shields (1998), Contingency theory predicts that when the

external environment becomes more uncertain, the organization responds by increasing differentiation which in turn requires increasing use of integrated mechanisms, such as participation budget to coordinate actions. The budgetary literature suggested that the budget participation generates an environment that encourages the acquisition and use of job relevant information (Kren, 1992; Magner et al., 1996; Shields and Shields, 1998; Parker and Kyj, 2006).

Kren (1992) examined the perceived level of job relevant information as an intervening variable between budgetary participation and job performance. The results of his study have revealed that participation affects performance, not directly but through job relevant information. In addition this positive performance impact of participation persists and is more pronounced when environmental volatility is high.

When managers perceive environment as highly uncertain, however, they may require further job-relevant information for effective decision making (Brownell, 1985; Kren, 1992). Empirical studies (e.g. Kren, 1992; Magner et al., 1996; Shields and Shields, 1998; Chong et al., 2006; Parker and Kyj, 2006 ) which examined the effect of the cognitive role of budgetary participation on performance, have found that budgetary participation acts as an avenue for information exchange to gather job-relevant information for decision making.

Thus, the literature seems to suggest that it can be concluded that when the environmental uncertainty is high, managers who are allowed to participate in the budget setting process will have the opportunity to gather job-relevant information, which may enhance their performance (Kren, 1992; Chong et al., 2006; Parker and Kyj, 2006). Furthermore, these managers are more likely to have higher morale and to feel more satisfied in their jobs as participation allows them *“to experience self respect and feelings of equality arising from the opportunity to*

*express their values”* Shields and Shields, 1998, p. 59).

In contrast, managers who fail to have the opportunity to get involved in the budget-setting process which allows them to gather job-relevant information required to deal effectively with environmental uncertainty will perform insufficiently and will be less satisfied in their jobs.

In addition, when environmental uncertainty is low, tasks performed are repetitive and can rely on standardized operating. So, there is no necessity for managers to seek additional task knowledge through participation. Furthermore, Hopwood (1974) suggested that a participative management style may have little to offer in low environmental uncertainty situation. Govindarajan (1986) argued that when environmental uncertainty is low, decisions become more routine and managers' involvement in decisions with obvious solutions may be viewed as a waste of time. Consequently, these managers are likely to feel dissatisfied with their jobs if they are asked to participate (Ilgen and Klein, 1988; Shields and Shields, 1998). It can be concluded that under low environmental uncertainty situations, there is a little need for managers to participate in the budget setting process.

Clinton (1999) asserts that the relationship between budgetary participation and favorable outcomes of participation do not depend merely on the level of actual participation, but rather on the degree of congruence<sup>3</sup> between a perceived need for participation and the degree of actual participation. So, beneficial consequences of budgetary participation depend on the desired level of such participation. In case of low environmental uncertainty, there is a little need for job relevant information, as

---

<sup>3</sup> Leach-Lopez et al. (2008) measure budgetary participation conflict as the absolute difference between desired and actual level of participation. Clinton and Hunton (2001) presents budgetary congruence as same as conflict budgetary.

well as a little need of participation. Therefore, the higher the environmental uncertainty is the higher the need for participation will be and consequently the more positive will be the relationship between participation and performance and job satisfaction.

A high level of participation in situations of low uncertainty is likely to be inconsistent with the needs of managers. Consequently, the impact of budgetary participation has much positive impact on managers' job satisfaction and their performance.

To sum up, we expect that the relationship between budgetary participation and performance and job satisfaction are contingent upon an appropriate "fit" between the level of budgetary participation and the level of environmental uncertainty.

Therefore, it is hypothesized that the higher the uncertainty of environment is, the more positive will be the relationship between budgetary participation and job satisfaction (H1) and performance (H2).

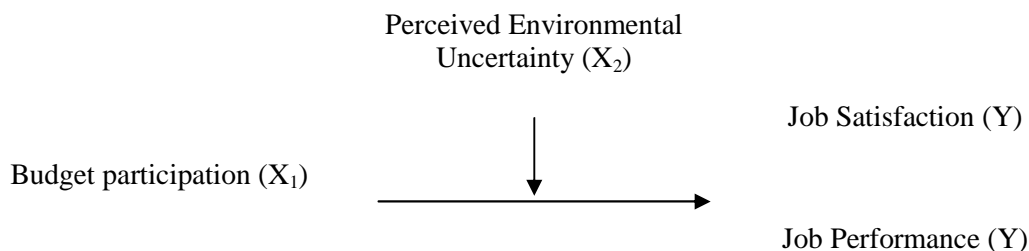
Accordingly, the following hypotheses were tested:

H1: The higher the environmental uncertainty ( $X_2$ ), the more positive is the relationship between budgetary participation ( $X_1$ ) and job satisfaction ( $Y$ ).

H2: The higher the environmental uncertainty ( $X_2$ ), the more positive is the relationship between budgetary participation ( $X_1$ ) and managerial performance ( $Y$ ).

Our research framework is as follows. (Fig. 1)

**Figure 1: Research framework**



#### 4. Research method

##### 4.1 Sample

The data were collected through a questionnaire survey. A sample of hotels was randomly chosen from the database of The Tunisian Federation of hotels. The criterion for the sample inclusion was especially the category hotels in Tunisia of (4–5 star ranking). (We focused on the touristic areas Hammamet, Mahdia and Sousse).

We collected data through visiting the selected hotels. This collection involved two stages.

Firstly, we visited their reachable hotels' headquarters to meet with Human resources manager and seek to participate in the survey. In this meeting, we

explained the purpose of this research and requested the permission to distribute the questionnaire in their respective firms. The managers of each firm were provided with a hard copy of the questionnaire.

Second, completed questionnaires were gathered after 10 days. We distributed 65 questionnaires but what I received was only 47 questionnaires which reflect a response rate of about 72.3%.

The questionnaire has two parts. The first part aimed to provide general information about the respondents. Questions were as follows: the service (or department), the number of years working within the hotel, the number of years of work in his/her current position and the period during which the manager has worked in the preparation of budgets (i.e. For how many years he participated in the preparation of budgets).

The second part consists of sixteen items classified under four groups of questions using five-point Likert scale. These items are designed for budget participation, environmental uncertainty, job satisfaction and managerial performance. This part aimed to survey the perceptions of the respondents about the above factors. All the measures included in the questionnaire have been used extensively in other studies with acceptable results for reliability and validity.

Some observations have been eliminated. The elimination considered the questionnaires that are not fully completed and respondents with no more than a one year of experience within the hotel. This elimination resulted in reducing the number of observations from 47 to 41. It should be noted that in terms of industry, our sample is more or less diversified. Respondents held middle-level management positions and were heading the following functional departments: sales marketing (31.7%), accounting and finance (34.4%), purchasing (21.95%), and Human Resource management (12.19%). Through a descriptive analysis of information on the participants in the survey, we found that the average years of work of respondents in their hotel is 5 years while they occupy their current position for an average of 4 years (almost the same period of budget preparation). These results reinforce the reliability of our sample because the respondents are familiar with the budgetary practice and have the enough experience to adequately respond to our questionnaire. Based on these statistics, it was deemed that the respondents were indeed appropriate to answer the questionnaire.

#### **4.2 Measurements of variables**

All the measurement items were taken from previous relevant studies. Participation was measured using Milani's (1975) scale. Measurement of managerial performance came from Mahoney et al. (1965), and environmental uncertainty from Govindarajan (1984).

Job satisfaction was measured by a two-item, developed by Dewar and Werbel (1979). For all these measures, we used the measurement scale of responses (Likert scale) ranging from 1 (far below average) to 5 (far above average).

Budgetary participation was measured by Milani (1975) six-item, five-point Likert-type scaled instrument. This measure has been used widely in studies of budgetary participation (e.g. Kren, 1992; Agbejule and Saarikoski, 2006 ; Parker and Kyj, 2006; Chong et al.,2005, 2006); Leach Lopez et al., 2009; Wong-Ong-Wing et al., 2010; Nasser et al., 2011; Sandalagaard et al., 2011) and has been found to have acceptable validity and reliability.

Most of these studies have viewed budgetary participation as a unidimensional. A factor analysis was conducted. The results revealed satisfactory construct validity in which the six items were loaded on a single factor which explained 66.81%. The Cronbach Alpha coefficient (Cronbach, 1951) for participative budgeting was 0.8962, which indicates satisfactory internal reliability for the scale (Nunnally, 1967).

Managerial performance was measured by a single-item scale, which asked respondents to rate their overall performance from "well below average" to "well above average" on a fully anchored five-point Likert-type scale. The use of this scale is consistent with several prior accounting studies (e.g.,Merchant, 1981, Brownell & Merchant, 1990; Mia & Chenhall, 1994; Dunk, 1995 Chong et al., 2006, 2007;Yahia et al., 2008).

Job satisfaction was measured by a two-item, five-point Likert-type scale developed by Dewar and Werbel (1979). This instrument has been used by prior accounting studies (see, e.g. Mia, 1993; Abernethy and Stoelwinder, 1995; Chong et al., 2005, 2006). The results of a factor analysis have revealed satisfactory construct validity in which the two items were loaded on a single factor which explained 87.332 %. The internal reliability

of the scale was 0.854 using Cronbach's alpha.

The instrument used to measure perceived environmental uncertainty was similar to the one used by Govindarajan (1984). Respondents were asked to indicate on a five-point Likert-type scale (varying from "highly predictable" to "highly unpredictable") as to how predictable or unpredictable each of the following factors was in the context of their business unit: manufacturing technology, competitors' actions, market demand, product

attributes/ design, raw material availability, raw material price, government regulation and labor union actions. A factor analysis was conducted. The results revealed satisfactory construct validity in which the items were loaded on a single factor which explained 57.044 %.The Cronbach alpha coefficient (Cronbach, 1951) for environmental uncertainty was 0.8615, which indicates satisfactory internal reliability for the scale (Nunnally, 1967). Table 1 shows the descriptive statistics for the variables used in the study.

Table 1: Descriptive statistics on measures used (n = 41)

Variables	Mean	SD	Actual range	Possible range
Budget Participation	22.21	3.71	11-29	1-30
Job Satisfaction	7.024	1.50	4-10	2-10
Environmental Uncertainty	24.68	2.94	18-33	7-35
Performance	3.47	0.74	2-5	1-5

### 4.3 Hypothesis testing

The hypotheses were tested using moderated regression analysis (MRA)<sup>4</sup> based on the following multiplicative model.

$$Y = b_0 + b_1X_1 + b_2X_2 + b_3X_1X_2 + e \quad (1)$$

Where Y is the self-perception of managerial performance or job satisfaction, X<sub>1</sub> is the Budget Participation, and X<sub>2</sub> is the perceived environmental uncertainty derived from factor analysis, X<sub>1</sub>X<sub>2</sub> is the interaction term, and e is the error term.

The hypothesis predicted an interaction between BP and environmental uncertainty affecting managerial performance and job satisfaction. To support both hypothesis H1 and H2, the coefficient b<sub>3</sub> in the regression equation (1) should be significant (b<sub>3</sub>≠0) and positive<sup>5</sup>.

<sup>4</sup> Moderated Regression Analysis (MRA) is a specific application of multiple linear regression analysis, in which the regression equation contains an 'interaction term' (Southwood, 1978).

<sup>5</sup> We conducted tests for normality. The statistical analyses (Kolmogorov- Smirnov tests, Skewness and Kurtosis values) were used. The results indicated that our data were normally distributed. Therefore, the normality assumptions are not violated in the regression models. In addition, we also conducted test for multicollinearity. We examined the variance inflation factors (VIFs) for the predictors. Our VIFs ranged from a low value of 1.154 to a high value of 1.527. According to Myers (1990, p. 369), if any VIFs is less than 10 the effect of multicollinearity is not significant in a regression. Thus, we conclude that multicollinearity was not considered to pose a significant problem to the interpretation of our results. Consequently, with respect to the above assumptions of the regression, we can analyze the outcomes of the regression.

The use of moderated regression analysis is considered as the prevalent form of statistical analysis in budgetary research (Schoonhoven, 1981; 1986; Chenhall, 1986; Mia, 1988; Choe, 1998; Tsui, 2001; Chong et al., 2005; Frucot and

Shearon, 1991; Agbejule and Saarikoski, 2006).

This technique is widely used to test contingency hypotheses that predict interaction effects between budgetary and contextual variables." (Hartmann and Moers 1999, 2003; Dunk, 2003)

## 5. Results

Table 2 presents the results of the moderated regression analysis.

Table 2: Results of Moderated Regression Analysis

Variables	Coefficient	Standard error	t-value	p
Y= job satisfaction				
Constant $\beta_0$	-0.131	0.160	-0.822	0.416
Budget Participation ( $X_1$ )	0.299	0.178	1.678	0.102
Environmental Uncertainty ( $X_2$ )	0.272	0.181	1.505	0.141
Interaction term ( $X_1X_2$ ) $\beta_3$	<b>+0.233</b>	0.129	1.809	<b>0.079</b>
<b>Statistic model: <math>R^2 = 0.233</math> ; Adj <math>R^2 = 0.170</math> ; F = 3.737 ; p &lt; 0.001 &gt;</b>				
Y= Managerial Performance				
Constant	3.426	0.118	29.019	0.000
Budget Participation ( $X_1$ )	0.459	0.132	3.490	0.001
Environmental Uncertainty ( $X_2$ )	5.012E <sup>-02</sup>	0.133	0.375	0.709
Interaction term ( $X_1X_2$ )	<b>+0.239</b>	0.095	2.508	<b>0.017</b>
<b>Statistic model: <math>R^2 = 0.357</math> ; Adj <math>R^2 = 0.305</math> ; F = 6.846 ; p &lt; 0.001 &gt;</b>				

### 5.1 The test of the hypothesis (H1)

As presented in Table 2, the results showed that the coefficient  $b_3^6$  was positive and significant (t-value= 1.809,  $p < 0.079$ ), providing support for hypothesis H1, which states that the higher the environmental uncertainty is, the more positive will be the relationship between budgetary participation and job satisfaction. The prediction model in Eq. (1) explains 23.3. % of the variance ( $R^2 = 0.233$ ) in job satisfaction.

#### • **Additional analysis of the interaction effect**

The results reveal that the greater the environmental uncertainty is, the greater

the positive impact of budget participation on job satisfaction will be. But these results do not point out whether budget participation constantly affects positively job satisfaction or not.

Thus, H1 argues that higher budget participation, when coupled with higher values of environmental uncertainty, should conduct to higher job satisfaction. This hypothesis can bear two interpretations (Govindarajan, 1986). The first would be that, if higher budget participation is coupled with lower values of environmental uncertainty, job satisfaction should be decreased since no congruence exists between participation and uncertainty. This implies that H1 has a symmetrical property because it suggests a *non monotonic* effect of participation on performance over the range of uncertainty. The second interpretation could be that budget participation does not depend on the level of uncertainty and contributes to effectiveness in a universalistic sense

<sup>6</sup> With the exception of  $b_3$ , the coefficients in Eq. (1) are not interpretable since they can be altered by shifting the origin points of  $X_1$  and  $X_2$  (see Govindarajan and Fisher, 1990, p274).



regardless of the level of uncertainty. This implies a *monotonic effect*.

To better understand the nature of the effect of Budget participation on job satisfaction with regard to environmental uncertainty, we should determine if symmetrical or non monotonic effects were present. So we will conduct a second stage of analysis.

As submitted by Schoonhoven (1981) and Southwood (1978), such effects can be detected by examining the partial derivative of equation (2) over  $X_1$ :

$$\frac{\partial Y}{\partial X_1} = b_1 + b_3 X_2$$

If the value of  $\frac{\partial Y}{\partial X_1}$  is always positive or always negative over the entire observed

range of  $X_2$ , then the relationship between  $Y$  and  $X_1$  would be regarded as monotonic; otherwise, it would be regarded as non monotonic.

Such a test for the presence of monotonicity was conducted for our two hypotheses. Consider the results of the regression equation used to test the interaction between Budget participation and environmental uncertainty on job satisfaction.

$$Y = -0.131 + 0.299X_1 + 0.272X_2 + 0.233(X_1X_2) + \epsilon$$

The partial derivative of equation (4) over the participation variable yields the following:

$$(\partial Y / \partial X_1) = 0.299 + 0.233 X_2 \quad (2)$$

Thus, the figure provides further support for hypothesis H1 presented in this study.

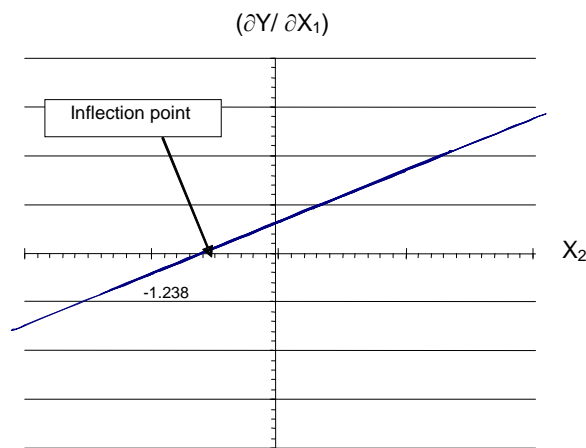


Figure 2: The impact of environmental uncertainty on the relationship between budgetary participation and job satisfaction

As can be calculated, equation (2) will be zero when environmental uncertainty has a value of (-1.283). When uncertainty has values above (-1.283), equation (2) will be positive; when uncertainty has values below (-1.283), equation (2) will be negative. Thus the inflection point of the slope (or the value of uncertainty when a change in the direction of the slope occurs) is (-1.238).

This inflection point <sup>7</sup>is within the range of values observed for uncertainty in the sample. In fact, the inflection point is very close to the mean value. It can be concluded therefore that budget participation has a no monotonic effect on budget attitude over the range of uncertainty.

Thus participation in the budgetary process contributes to managerial

<sup>7</sup> The point of inflexion of the partial derivative (e .g., Southwood, 1978; Schoonhoven, 1981) of Eq. (2) with respect to  $X_1$  (budget participation).

performance and job satisfaction when perceived environment is more uncertain. Yet, budget participation hampers performance and job satisfaction when perceived environment is less uncertain.

### 5.2 Test of the hypothesis (H2)

Similar to hypothesis H1, hypothesis H2 was tested by examining the sign and significance of the coefficient of the interaction term  $b_3$  in Eq. (1). As can be observed in Table 2, the coefficient  $b_3$  was positive and significant (t-value=2.508,  $P < 0.017$ ). This provides a support for hypothesis H2, which asserts that the higher the perceived environmental uncertainty is, the more positive will be the relationship between budgetary participation and managerial performance. The prediction model in Eq. (1) explains 35.7% of the variance ( $R^2 = 0.357$ ) in managerial performance. In addition, as presented in Table 2, these results suggested that a high budgetary participation and high perceived environmental uncertainty combination enhances subordinates' performance.

- **Additional analysis of the interaction effect**

As in the case of equation (1), equation (2) does not allow us to determine whether the interaction effect is monotonous or non-monotone. We will proceed with the partial derivative of this equation.

Substituting the regression coefficients already estimated in table 2, we obtain:

$$Y = 3.426 + 0.459 X_1 + 5.012E-02 X_2 + 0.239(X_1 X_2) + \epsilon$$

The partial derivative of equation (2) compared to INC (environmental uncertainty) is:

$$(\partial Y / \partial X_1) = 0.459 + 0.239 X_2 \quad (3)$$

As can be calculated, equation (3) will be zero when environmental uncertainty has a value of (-1.9205). When uncertainty has values above (-1.9205), equation (3) will be positive; when uncertainty has values below (-1.9205), equation (3) will be negative. Thus the inflection point of the slope (or the value of uncertainty when a change in the direction of the slope occurs) is (-1.9205).

This inflection point is within the range of values observed for uncertainty in the sample. In fact, the inflection point is very close to the mean value. It can be concluded therefore that budget participation has a non-monotonic effect on budget attitude over the range of uncertainty.

Thus participation in the budgetary process contributes to managerial performance and job satisfaction when perceived environment is more uncertain. Yet, budget participation hampers performance and job satisfaction when perceived environment is less uncertain.

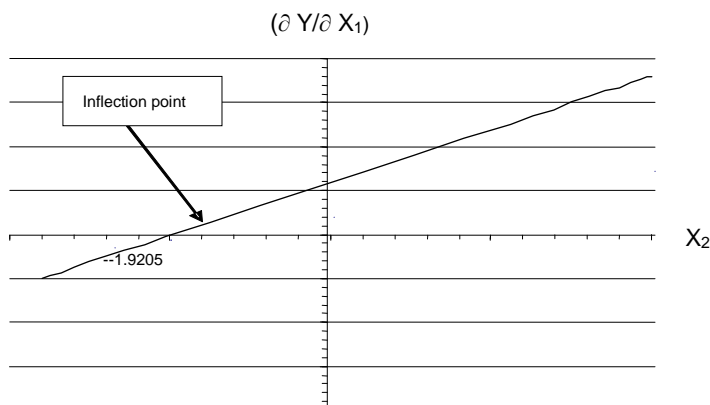


Figure 3: The impact of environmental uncertainty on the relationship between budgetary participation and managerial performance

Thus, we find that the effect of budgetary participation on managerial performance of managers depends on the level of environmental uncertainty perceived by the managers themselves.

## 6. Conclusion

The purpose of our study was to examine the impact of environmental uncertainty and budgetary participation on the performance of subordinates and their job satisfaction.

The results support the hypotheses developed in this study. In fact, the results support a strict contingency relationship between uncertainty and participation, more specifically; they support the hypothesized interaction between managers' perceived environmental uncertainty and participation in budgeting on managerial performance and job satisfaction.

According to our results, the higher the managers' perceived environmental uncertainty the more positive was the impact of budgetary participation on managers' self-perception of their performance and job satisfaction. Moreover, at low levels of environmental uncertainty, budgetary participation had a negative effect on perceived managerial performance and job satisfaction. The results of our study extend the existing literature and provide important theoretical and practical implications. From a theoretical perspective, the results provide additional evidence to support the theory that entails that a combination of high budgetary participation and high environmental uncertainty enhances performance and job satisfaction. A further theoretical implication of the results is that the study extends research on budgetary participation from manufacturing to the hotel industry.

A plausible interpretation for this conclusion is that when environmental uncertainty is high, there is a greater need to control the external environment. Subordinates' participation in budget setting process provides them with the

opportunity to gather, share, and use job-relevant information, which consequently improved their job performance (Kren, 1992; Chenhall et Brownell, 1988; Chong et al., 2005).

However, when the environmental uncertainty is low, there is less need to gather additional information, as under such situation, it is possible to apply standardized operating procedures for the performance of many tasks (Tushman and Nadler, 1978; Ewusi-Mensah, 1981, Govindarajan, 1986; Chong et al., 2005).

From a practical perspective, the results of this study imply that managers of the Tunisian hotel industry respond to higher environmental uncertainty conditions by increasing their participation in budget setting. Their participation in the budget setting process enables them to share job relevant information, thus enhance their performance. Furthermore, these managers have higher levels of morale and job satisfaction as involvement in the budget setting process allows them "to experience self respect and feelings of equality arising from the opportunity to express their values" Shields and Shields, 1998, p. 59).

Our study, therefore, provides evidence of the importance of understanding the relationship between environmental uncertainty and budgetary participation on the performance of subordinates and their job satisfaction in the hotel industry. This study reveals important implications. First, the results have shown that a combination of high budgetary participation and high environmental uncertainty enhances the performance of managers and their job satisfaction. Therefore, a wider adoption of a high participative budgeting management style should be strongly encouraged in the hotel industry given the fact that the tourism sector in general faces increasingly intense environmental uncertainty.

Second, such understanding may be important in supporting business to conceive and implement adequate budgetary system, which will allow managers to feel more satisfied and to

enhance their job performance in an environment more and more uncertain.

Despite these contributions, our study is subject to several limitations. First, as our sample was selected from hotel industry, generalizing our results to other sector is not evident.

Second, the use of a self-rating scale to measure the performance of managers is likely to have a higher mean value (higher leniency errors) and a lower variability error (a restrictive range) in the observed score than would superiors' ratings of the same managers (Lau et al., 1995). Future research may also consider employing more objective measures of performance such as applying superior's rating,

Finally, new avenues of research can be traced and that an extension of our results and conclusions. Further research could expand the model to include other contingency variables. As argued by Brownell (1982b), participation in the budgetary process might be contingent on four groups of variables: cultural, organizational, interpersonal and individual. Future research should pay attention to all these variables in order to develop a comprehensive and integrated model indicating the conditions under which budgetary participation will generate beneficial outcomes. Future research could employ different research methods (e.g. case studies) to improve our understanding to the conditions under which budget participation will have a positive effect on job satisfaction and performance.

#### References:

Abernethy, M.A., Stoelwinder, J.U., (1995). The role of professional control in the management of complex organizations. *Accounting, Organizations and Society* 20 (1), 1–17.

Agbejule. A., Saarikoski. L. (2006). The effect of cost management knowledge on the relationship between budgetary participation and managerial performance. *The British Accounting Review* 38: 427-440.

Argyris C., (1952). The impact of budget on people, Ithaca: School of business and public administration, Cornell University.

Bass, B. M., and Leavitt, H. J., (1963). Some experiments in planning and operating. *Management Science* 9 (4): 574-585

Birnberg, J. G., and Snodgrass, C. (1988). Culture and control: A field study. *Accounting, Organizations and Society*, 13: 447- 464.

Brownell, P., (1981). Participation in budgeting, locus of control and organizational effectiveness. *The Accounting Review* 56 (4): 844–860.

Brownell, P., (1982a). Participation in the budgeting process: when it works and when it doesn't. *Journal of Accounting Literature* 1: 124-153.

Brownell, P., (1982b). A field study examination of budgetary participation and locus of control. *The Accounting Review* 57 (4): 766-777.

Brownell, P., (1982c). The role of accounting data in performance evaluation, budgetary participation and organizational effectiveness. *Journal of Accounting Research*, 12–27 (Spring).

Brownell, P., (1983). Leadership style, budgetary participation and managerial behaviour. *Accounting, Organizations and Society* 8 (4): 307-321.

Brownell, P., Dunk, A.S., (1991). Task uncertainty and its interaction with budgetary participation and Budget Emphasis: some methodological issues and empirical investigation. *Accounting, Organizations and Society* 16 (8): 693–703.

Brownell, P., McInnes, M., 1986. Budgetary participation, motivation, and managerial performance. *The Accounting Review* 61: 587–600.

- Brownell, P.; Hirst, M., (1986). Reliance on Accounting Information, Budgetary Participation, and Task Uncertainty: Tests of a Three-Way Interaction. *Journal of Accounting Research* 24 (2) : 241-249.
- Bryan, J. F., and Locke, E. A., (1967). 'Goal setting as a means of increasing motivation'. *Journal of Applied Psychology*: 274-277.
- Chenhall, R.H., (1986). Authoritarianism and participative budgeting: a dyadic analysis. *The Accounting Review* 61 (2): 263-272.
- Chenhall, R.H., Brownell, P., (1988). The effect of participative budgeting on job satisfaction and performance: role ambiguity as an intervening Variable. *Accounting, Organizations and Society* 13 (3): 225-233.
- Cherrington, D.J., Cherrington, J.O., (1973). Appropriate reinforcement contingencies in the budgeting process. *Journal of Accounting Research* 11. *Empirical Research in Accounting: Selected Studies*: 225-253.
- Choe, J.M., (1998). The effects of user participation on the design of accounting information systems. *Information and Management* 34, (3): 185-198.
- Chong, V. K., (2002). A note on testing a model of cognitive budgetary participation processes using a structural equation modeling approach. *Advances in Accounting*, 19: 27-51
- Chong, V. K., and Darren M Johnson, (2007). Testing a model of the antecedents and consequences of budgetary participation on job performance. *Accounting and business research* 37 (1): 3-19
- Chong, V. K., Eggleton, I. R. C., and Leong, M. K., (2005). The impact of market competition and budgetary participation on performance and job satisfaction: a research note. *The British Accounting Review* 37: 115-133
- Chong, V. K., Eggleton, I. R. C., and Leong, M. K., (2006). The multiple roles of participative budgeting on job performance. *Advances in Accounting* 22: 67-95.
- Chong, V., Bateman, D., (2000). The effect of role stress on budgetary participation and job satisfaction-performance linkages: a test of two different models. *Advances in Accounting Behavioral Research* 3:91-118.
- Chong, V.K., Chong, K.M., (2002). The role of feedback on the relationship between budgetary participation and performance. *Pacific Accounting Review* 14 (2): 33-55.
- Chow, C. W., Kato, Y., and Merchant, K. A. (1996). The use of organizational controls and their effect on data manipulation and management myopia: A Japan vs. US comparison. *Accounting, Organizations and Society*, 21:175-192.
- Chow, C. W., Kato, Y., and Shields, M. D. (1994). National culture and the preference for management controls: An exploratory study of the firm-labor market interface. *Accounting, Organizations and Society*, 19: 381-400.
- Chow, C. W., Shields, M. D., and Wu, A. (1999). The importance of national culture in the design of and preference for management controls for multi-national operations. *Accounting, Organizations and Society*, 24: 441-46
- Chow, C.W., Shields, M. D., and Chan, Y. K. (1991). The effects of management controls and national culture on manufacturing performance: An experimental investigation. *Accounting, Organizations and Society*, 16(3):209-226.

Clinton, B., (1999) Antecedents of budgetary participation: the effects of organizational, situational and individual factors', *Advances in Management Accounting*, 8:45–70.

Clinton, D., and Hunton, J., (2001) 'Linking participative budgeting congruence to organization performance', *Behavioral Research in Accounting*, 13:127–141.

Cronbach, L. J., (1951). Coefficient alpha and the internal structure test. *Psychometrika*, 16(3): 297–334.

Dewar, R., Werbel, J., (1979). Universalistic and contingency predictions of employee satisfaction and conflict. *Administrative Science Quarterly* 24 (3): 426–448.

Dunk, A.S. (2003). Moderated regression, constructs and measurement in management accounting: a reflection. *Accounting, Organizations and Society* 28:793–802.

Ewusi-Mensah, K., (1981). The external organization environment and its impact on management information systems. *Accounting, Organizations and Society* 6 (4): 301–316.

Frucot, V., Shearon, W., (1991). Budgetary participation, locus of control, and Mexican managerial performance and job satisfaction. *The Accounting Review* 66: 80-99.

Gordon, L. A., and Narayanan, V. K., (1984). Management accounting systems, perceived environmental uncertainty and organizational structure: An empirical investigation, *Accounting, Organizations and Society*, 9: 33-47.

Govindarajan, V., (1984). Appropriateness of accounting data in performance evaluation: An empirical examination of environmental uncertainty as an intervening variable. *Accounting, Organizations and Society* 9: 125-135.

Govindarajan, V., 1986. Impact of participation in the budgetary process on managerial attitudes and performance: universalistic and contingency perspectives. *Decision Sciences* 17: 496–516.

Greenberg PS, Greenberg RH, Nouri H.(1994) Participative budgeting: a meta-analytic examination of methodological modifiers. *Journal of Accounting Literature* 1994. 13:117–41.

Gul, F. A., (1991). The effects of management accounting systems and environmental uncertainty on small business managers' performance'. *Accounting and Business Research*:22 (85): 57-61.

Gul, F. A., and Chia, Y. M., (1994). The effects of management accounting systems, perceived environmental uncertainty and decentralization on managerial performance: A test of three- way interaction'. *Accounting, Organizations and Society*: 19 (4-5): 413-426.

Gul, F., Tsui, S., Fong, S., Kwok, H., (1995). Decentralization as a moderating factor in the budgetary participation-performance relationships: some Hong Kong evidence. *Accounting and Business Research* 25: 107–113.

Harris, P., Brown, J., (1998). Research and development in hospitality accounting and financial management. *International Journal of Hospitality Management* 17: 161–181.

Hartmann, F.G.H., Moers, F., (1999). Testing contingency hypotheses in budgetary research: an evaluation of the use of moderated regression analysis. *Accounting, Organizations and Society* 24 (4): 291–315.

Hartmann, F.G.H., Moers, F., (2003). Testing contingency hypotheses in budgetary research using moderated regression analysis: a second look.

*Accounting, Organizations and Society*  
28 :803–809.

Hopwood, A.G., 1974. Accounting and Human Behavior. Haymarket Publishing Ltd

Jermias J., and Setiawan T., (2008). The moderating effects of hierarchy and control systems on the relationship between budgetary participation and performance. *The International Journal of Accounting* 43:268–292.

Kenis, I., (1979). Effects of budgetary goal characteristics on managerial attitudes and performance. *The Accounting Review* 54: 707–721.

Kren L, Liao W. (1988) The role of accounting information in the control of organizations: a review of the evidence. *Journal of Accounting Literature* 7:280–309.

Kren, L., 1992. Budgetary participation and managerial performance: the impact of information and environmental volatility. *The Accounting Review* 67: 511–526.

Lau, C. M., Low, L. C., and Eggleton, I. R. C. (1995). 'The impact of reliance on accounting performance measures on job-related tension and managerial performance: additional evidence'. *Accounting, Organizations and Society*, 20 (5): 359-381.

Lau, C., Low, L., Eggleton, I., 1997. The interactive effect of budget emphasis, participation and task difficulty on managerial performance: a cross-national study. *Accounting, Auditing and Accountability Journal* 10: 175–191.

Lau, C., Tan, J., 1998. The impact of budget emphasis, participation and task difficulty on managerial performance: a cross-cultural study of the financial services sector. *Management Accounting Research* 9: 163–183.

Leach-Lopez M, A., Stammerjohan W. W., Lee K. S., (2009). Budget

participation and job performance of South Korean managers mediated by job satisfaction and job relevant information *Management Research News* 32 (3) : 220-238

Leach-Lopez, M A., Stammerjohan W., McNair F., (2008). Effects of budgetary participation conflict on job performance of Mexican and US managers. *Advances in Accounting, incorporating Advances in International Accounting* 24:49–64.

Igen, D.R., Klein, H.J., (1988). Individual motivation and performance: cognitive influences on effort and choice, *Productivity in Organizations*. Jossey-Bass, San Francisco, CA: 143–176

Locke, E., Schweiger, D., 1979. Participation in decision-making: one more look. In: Staw, M. (Ed.), *Research in Organizational Behavior*, 1. JAI Press, Greenwich, CT: 265–339.

Magner, N., Welker, R., Campbell, T., (1996). Testing a model of cognitive budgetary participation processes in a latent variable structural equations framework. *Accounting and Business Research* 27: 41–50.

Mahoney, T., Jerdee, T., Carroll, S., (1965). The jobs of management. *Industrial Relations* 4: 97–110.  
Meyer, J. P., Allen, N. J., and Gellatly, I. R., (1990). Affective and continuance to the organization: Evaluations of measures and analysis of concurrent and time-lagged relations. *Journal of Applied Psychology*, 75(6): 710–720.

Mia, L., and Chenhall, R. H., (1994). 'The usefulness of management accounting systems, functional differentiation and managerial effectiveness'. *Accounting, Organizations and Society* 19 (1): 1-13.

Mia, L., (1988). Managerial attitude, motivation and the effectiveness of budget participation. *Accounting*

Organizations and Society 13: 465–476.

Mia, L., (1993). The role of MAS information in organizations: an empirical study. *British Accounting Review* 25: 269–285.

Mia, L., Patiar, A., (2001). The use of management accounting systems in hotels: an exploratory study. *International Journal of Hospitality Management* 20: 111–128.

Mia, L., Patiar, A., (2002). The interactive effect of superior-subordinate relationship and budget participation on managerial performance in the hotel industry: an exploratory study. *Journal of Hospitality and Tourism Research* 19:103–113.

Milani, K., (1975). The Relationship of Participation in Budget Setting to Industrial Supervisor Performance and Attitudes: A Field Study. *The Accounting Review* 50 (2): 274-284.

Murray, D., 1990. The performance effects of participative budgeting: an integration of intervening and moderating variables. *Behavioural Research in Accounting* 2: 104–123.

Nasser M., Mah'd, O., ,Nimer K., and Al.-okdeh S., (2011) .The Impact of Managers' Related Variables and Department Features on Budget Characteristics: The Case of Private Jordanian Universities" *International Business Research* 4 (4): 199-210.

Nunnally, J.C., Bernstein, I.H., (1994). *Psychometric Theory*, 3rd ed. McGraw-Hill, New York.

Parker. R. J, Kyj .L, (2006). Vertical information sharing in the budgeting process. *Accounting, Organizations and Society* 31: 27–45

Sandalgaard N., Bukh P. N. and

Poulsen C. S. (2011). The interaction between motivational disposition and participative budgeting Evidence from a

bank. *Journal of Human Resource Costing and Accounting* 15 (1): 7-23

Schoonhoven, C.B., (1981). Problems with contingency theory: testing assumptions hidden within the language of contingency theory. *Administrative Science Quarterly* 26: 349–377.

Shields M. D., J. Birnberg J. G., Rowe C., (2008). Effects of organizational process change on responsibility accounting and managers' revelations of private knowledge, *Accounting, Organizations and Society* 33: 164–198

Shields, M. D., and Young, S. M. (1993). Antecedents and consequences of participative budgeting: Evidence on the effects of asymmetrical information. *The Journal of Management Accounting Research*, 5: 265–280.

Shields, M. D., Deng F. J. and Kato, Y. (2000).The design and effects of control systems: Tests of direct-and indirect-effects. *Accounting, Organizations and Society* 25(2): 185-202.

Shields, M. D., Deng, F. J., and Kata, Y. (2000). The design and effects of control systems: Tests of direct- and indirect-effects models. *Accounting, Organizations and Society*, 25: 185–202.

Shields, M., Shields, D., 1998. Antecedents of participative budgeting. *Accounting Organizations and Society* 23: 49–76.

Southwood, K.E., (1978). Substantive theory and statistical interaction: five models. *American Journal of Sociology* 83:1154–1203.

Stedry, A. C., (1960). *Budget Control and Cost Behaviour*. Englewood, Cliffs, N. J.: Prentice Hall.

Tsui J.S., (2001). The impact of culture on the relationship between budgetary participation, management accounting systems, and managerial performance: an analysis of Chinese and Western



managers. *International Journal of Accounting* 36 (2): 125-146.

Tushman, M.L., Nadler, D.A., (1978). Information processing as an integrating concept in organizational design. *Academy of Management Review* 3 (3): 613–624.

Ueno, S., and Sekaran, U. (1992). The influence of culture on budget control practices in the USA and Japan: An empirical study. *Journal of International Business Studies*, 23(4): 659–674.

Winata. L, Mia L, (2005) .Information technology and the performance effect of managers' participation in budgeting: evidence from the hotel industry. *Hospitality Management* 24, 21–39

Wong-On-Wing B., Guo Lan, Lui G. (2010). Intrinsic and Extrinsic Motivation and Participation in Budgeting: Antecedents and Consequences. *Behavioral research in accounting*. 22, (2):133–153

Yahia M. N., Ahmad N. N. N., and Fatima A. H., (2008). Budgetary participation and performance: some Malaysian evidence" *International Journal of Public Sector Management* 21 (6): 658-673.