

Management Control Systems and Employee Organisational Commitment in the Malaysian Public Sector

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Abstract

Purpose: This study investigates the relationship between management control systems (input controls, behaviour controls and output controls) and the level of employee organisational commitment in the Malaysian public sector.

Methodology: The quantitative method was applied using convenience sampling techniques. A total of 102 usable questionnaires were collected from the prospective respondents of public sector departments/agencies in Putrajaya, Malaysia. The primary data analysis technique for this study is Partial Least Squares Structural Equation Modelling (PLS-SEM).

Findings: The research findings indicate no relationship between output controls and employee organisational commitment. Input controls and behaviour controls, on the other hand, were found to be positively related to the level of employee organisational commitment in the public sector.

Practical Implications: This study offers a number of practical guidelines for the public sector emphasising the utilisation of input controls and behaviour control to promote the level of employee organisational commitment.

Originality/Value: Given the lack of extant literature on this topic, this is probably one of the first studies that provides evidence of the relationship between management control systems (input controls, behaviour controls and output controls) and the level of employee organisational commitment in the Malaysian public sector context that is in line with the social exchange theory.

Keywords: Input control, behavioural control, output control, employee organisational commitment, public sector

1.0 Introduction

Numerous studies (Lee & Yang, 2011; Su et al., 2015) have highlighted the effect of management control systems on company performance, but very few studies have focused on investigating the effectiveness of management control systems on employee behavioural outcomes, and, in particular, on employee organisational commitment (Su et al., 2015). However, it should be noted that previous studies had determined that employee organisational commitment is significant to organisations because of its ability to enhance staff work performance (Sahoo & Das, 2011). Hence, this provides the rationale for implementing management controls systems to improve employee organisational commitment.

In the past, the Malaysian government had faced many concerns regarding its inefficiency and ineffectiveness because of the lack of human resources and human capital (Rashidah et al., 2013). Several past studies (Hashim, 2015; Mahdi et al., 2014) found that Malaysian employees have a lower level of employee organisational commitment. However, a recent private-sector literature review and the experience of other countries have led to the conclusion that the findings may not be completely applicable to the Malaysian public sector context.

Numerous crucial discussions on employee organisational commitment have been backed by the social exchange theory (Cropanzano et al., 2017; Haque et al., 2019; Viswanathan et al., 2019). However, there is a lack of literature discussing the social exchange theory in management control systems in general and in the Malaysian public sector context in particular.

Thus, this study has a theoretical contribution to make by addressing the gap by investigating those relationships in the Malaysian public sector. It will contribute to the extant literature using social exchange theory to support and develop the theoretical framework. The research findings can also make a practical contribution by helping heads of departments/agencies and employees to formulate and implement appropriate plans and strategies to improve employee organisational commitment, thereby enhancing the overall performance of the Malaysian public sector.

The remainder of the paper is divided into five sections. Section two presents the literature reviews and hypotheses development. The methodology is outlined in section three. The results are reported in section four. Finally, the discussion and conclusion are presented in section five.

2.0 Literature Review and Hypotheses Development

2.1 Management Control Systems

Management accounting controls systems can be defined as the mechanism that forms an informational network that gathers information and creates relationships that control and affect behaviours (Roque et al, 2018). According to Anthony and Young (2003) and Merchant and Van der Stede (2003), management control systems concentrate on the efficient application of strategies to meet achievable targets set by the company. Snell (1992) conceptualised the management control system as a three-component model consisting of input controls, behaviour controls and output controls. While input controls are defined as control systems that manage the organisations' acquired resources, including employees' knowledge and skills. Behaviour controls are defined as the characteristics of the staff themselves who take responsibility and control their own behaviours (Snell,1922). Output controls, on the other hand, are defined as control systems that focus on achieving the desired outcome, with employees required to take responsibility for the results, which are related to their actions and behaviours to achieve the desired outcomes (Snell, 1922).

There are several reasons for choosing Snell's 1992 three-component model for this study. First and foremost, many management and accounting studies have used Snell's 1992 three-component model successfully (Cardinal et al., 2004; Johnson, 2011), as its construct is apparently most suitable for examining individual behaviour outcomes. It had been used in the past for the integration of human resources management (HRM) practices (Gupta & Govindarajan, 1991; Liao, 2006), and it is also consistent with the behavioural aspects in many ways, such as attempting to shape and develop employees' behaviour (Snell, 1992; Liao, 2006). The idea that management control systems influence individual behaviour outcomes is supported by studies such as those of Langevin and Mendoza (2012) and Klein et al. (2019).

This study's main objective is focused on the individual level, with an examination of the effects of implementing management control systems on individual behaviour outcomes. Thus, this study does not include factors related to organisation levels, such as size, culture, etc.

2.2 Employee Organisational Commitment in the Public Sector

Allen and Meyer (1996) defined employee organisational commitment as a psychological connection between the workers and the organisation, regardless of whether the workers had a low possibility of leaving the organisation for any avoidable reasons. In other words, it is viewed as how a worker builds up the sentiment of belonging to their company (Wadhwa & Verghese, 2015). Numerous studies have found that employee organisational commitment improves company performance (Karim & Rehman, 2012; Azeem & Akhtar, 2014; Hanaysha, 2016). Previous studies had examined several factors that have an influence on employee organisational commitment, such as empowerment, teamwork, culture, etc.

(Krajcsák & Gyökér, 2013; Wadhwa & Verghese, 2015; Hanaysha, 2016). The study by Hanaysha (2016) showed that workers' involvement, the environment of the workplace and organisation learning had a significantly positive relationship on employee organisational commitment at public universities in Northern Malaysia.

In the past, public sector organisations were more focused on behaviour controls, especially policies and processes to manage companies (Frey et al., 2013). Today, the use of indicators based on output performance is becoming common in New Public Management and performance management in many public sector organisations (Frey et al., 2013; Siverbo et al., 2019). A study by Verbeeten (2008) showed significant results when performance measurement and reward systems interacted with other methods of control systems in public sector entities.

2.3 Management Control Systems and Employee Organisational Commitment Linkage in the Public Sector

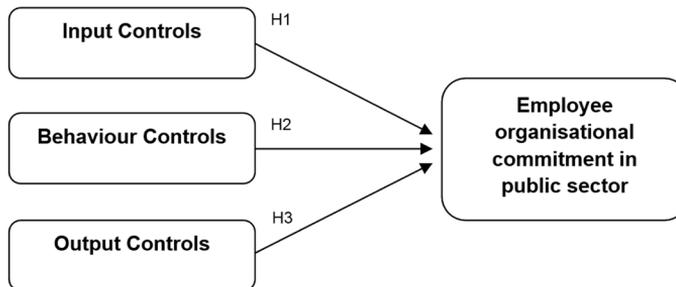
Aziah and Scapens (2007) found that the implementation of accounting control systems affects the relationship between low-level management and accountancy executives in the Malaysian public sector, based on trust between the two parties. Bracci and Tallaki (2021) suggested that management control systems can assist in the decision-making process and support adaptive behaviour by providing information to cope with external barriers in the public sector. Moreover, Siddiquee (2010) revealed that public services in Malaysia had followed the global trends to implement result control but mentioned that while the current approach tended to suffer from serious inadequacies and limitations, many of the shortcomings of the traditional method could be resolved through result control and budgeting. Van der Kolk et al. (2018) highlighted the fact that personnel and cultural controls were also crucial to enhance intrinsic motivation and performance, implying that focusing primarily on the results of controls was too narrow and could cause a suboptimal level of employee motivation and performance in the public sector. Nuhu et al. (2019), on the other hand, concluded that the implementation of interactive controls and diagnostic controls did not influence changes in the performance of organisations in the public sector of Australia.

2.4 Theoretical Framework and its' Underpinning Theory

The social exchange theory perspective provides the theoretical framework for the effects of management control systems on employee organisational commitment in the public sector. The theory argues that the staff is committed to contributing 'more than expected' if the staff is satisfied and experiences support from the organisation (Haque et al., 2019). According to previous studies (Cropanzano et al., 2017; Haque et al., 2019; Viswanathan et al., 2019), employee organisational commitment can be achieved by fundamentally following the social exchange theory. The social exchange theory is related to the behavioural aspects in company practices, such as recruitment and selection, training, performance evaluation, rewards and compensation emphasising the personal level (Boselie, 2010; Jackson et al., 2014).

However, there is a lack of literature discussing the social exchange theory in management control systems and especially in the Malaysian public sector context. Based on the logic of social exchange theory, this research indicates that management control systems in terms of input controls, behaviour controls and output controls influence employee organisational commitment through the organisation practices and investment such as recruitment, training, procedures, rewards and compensation. It is used in this study as a fundamental theory in developing the conceptual framework of the effects of management control systems on employee organisational commitment in the public sector. Figure 1 shows the theoretical framework for this study.

Figure 1: Theoretical Framework



2.5 The Relationship between Input Controls and Employee Organisational Commitment

Employee selection based on person-organisation fit, regular educational opportunities, and accelerated job significantly correlates with employee organisational commitment (Sivapragasam and Raya, 2017). A study by Hanaysha (2016) found that employee organisational commitment is affected by staff training. Moreover, employees consider different kinds of input control consisting of training and skills development activities as a positive sign that their respective employing organisations are concerned about their job development and welfare (Su et al., 2015). Studies have shown that development programmes enhance the staff's abilities (Dymock et al., 2012) and boost workers' emotional attachment to the employing organisation (Newman et al., 2011). Consequently, a positive relationship between the input controls and the degree of employee organisational commitment is anticipated as postulated in the following hypothesis:

H1: The extent to which input controls are used is positively related to the level of employee organisational commitment in the public sector

2.6 The Relationship between Behaviour Controls and Employee Organisational Commitment

A study by Aziah and Scapens (2007) on the Malaysian public sector showed that behaviour controls caused distrust among employees and misinterpretation of the organisation's

intention. Siverbo et al. (2019) also concluded that behavioural controls might influence performance management dynamics and cause dysfunctional effects, while Akroyd and Kober (2019) contended that implementing bureaucratic controls would negatively influence the organisational culture. Blom (2019) indicated that when the public sector implemented the required rules and regulations, employees considered those rules and regulations burdensome and unproductive. Su et al. (2015) also agreed that close supervision and monitoring resulted in employees with lesser organisational commitment. A negative relationship between the implementation of behaviour controls and the degree of employee organisational commitment is anticipated as suggested in the following hypothesis:

H2: The extent to which behaviour controls are used is negatively related to the level of employee organisational commitment in the public sector

2.7 The Relationship between Output Controls and Employee Organisational Commitment

Human resources practices such as giving incentives and benefits correlate significantly and positively with employee organisational commitment (Sivapragasam & Raya, 2017). In addition, employees who are treated well by the organisation feel a moral obligation to reciprocate for the organisation's well-being (Haque et al., 2019). Verbeeten and Speklé (2015) found that a results-oriented culture in New Public Management was positively related to performance. Van der Kolk et al. (2018) examined the relationship between the various types of management controls, intrinsic and extrinsic motivation, and performance in the public sector and found that the use of results controls was positively related to the employees' extrinsic motivation. The following hypothesis predicts a positive relationship between the implementation of output controls and the degree of employee organisational commitment.

H3: The extent to which output controls are used is positively related to the level of employee organisational commitment in the public sector

3.0 Methodology

3.1 Research Methodology

The majority of participants of this study were the staff working in the public sector in Putrajaya, Malaysia. Putrajaya was selected because it is the proposed administrative capital designed to handle the increasing number of ministries in the federal government (Morris et al., 2016). The quantitative method was applied in this study. The quantitative approach is the most effective approach to understand the direct and indirect relationship between numerous variables and to explore how they can influence each other (Kumar et al., 2013).

According to the Department of Statistics Malaysia (2021), the total population of Putrajaya in 2019 was 0.10 million, while the employed labour force was 38,100. However, it should

be noted that the exact number of the public sector employees was unavailable. Therefore, convenience sampling was used in this study. Convenience sampling is a non-probability sampling technique that considers respondents who are selected according to the researchers' ease instead of any specific sample design based on probability (Link, 2018). In this study, the respondents were randomly selected through a Google search on the directories of staff in the various public sector departments/agencies in Putrajaya. The prospective respondents were contacted via their e-mail address displayed in their respective directory. They were guaranteed anonymity and those who consented to participate in the study completed the online questionnaire via Google Form.

The questionnaire was designed using a 5-point Likert rating scale as the tool for data collection. It comprised three sections: Section 1 focused on the respondents' demographic information such as gender and age. Section 2 sought information on the level of employee organisational commitment using Cook and Wall's (1980) 9-item scale instrument while Section 3 included the indicators for the three types of control using Snell's (1992) instrument (See Appendix A).

Numerous studies by Jaramillo et al. (2005), Karsh et al. (2005), and Su et al. (2015), had highlighted Cook and Wall's 9-item scale as an effective tool for measuring employee organisational commitment. The nine items focused on three main elements: organisational identification, organisational involvement and organisational loyalty with items number three, four and seven stated negatively, as an opposite scoring was expected.

Snell's (1992) instrument is generally used as the source and reference for independent variables for the three types of control, viz., input controls, behaviour controls and output controls. In Section 3, a 5-point Likert scale was used for every item, ranging from "extremely disagree" to "totally agree".

Validity depends on the significance of the data collected and whether a correct version of the studied phenomenon is created. If the test has high validity, then more items are closely related to the test's proposed objective (Bloor & Wood, 2006). In this study, pre-test and pilot study are not run to avoid experimental manipulation, this can be supported by Pasnak (2018). However, face validity is established, two academic experts in management accounting had reviewed the selection of each variable, analysed the contents of each item in the questionnaire and advised on any adjustments on wording to reflect the context. A minor adjustment was made with the change of the word "organisation" to "agency/department", reflecting the structure of the Malaysian public sector. This study did not consider any control variables, as including inappropriate control variables in multiple regression and other analyses can result in a less accurate interpretation of results (Spector & Brannick, 2011).

A total of 3,133 questionnaires were e-mailed to the prospective participants identified through the Google search, and they were given one month to complete the questionnaires. Out of the responses received, 110 invalid e-mails and 23 unidentified questionnaires were excluded,

leaving only 102 usable responses.

Rindfuss et al. (2015) concluded that low response rates did not indicate any evidence of bias when examining relationships between variables in a multivariate analysis. This could be further supported by the results of the response bias tests outlined in the following section, Section 4. Table 1 below is the summary of the sampling done.

Table 1: Summary of Sampling

Total e-mailed	3,133
Invalid e-mail	(110)
Valid e-mail	3,023
Respondents	125
Unidentified respondents	(23)
Total sample of respondents	102

4.0 Results

4.1 Demographic Background of the Respondents

The summary of the respondents' demographic background is presented in Table 2 further below. Among the 102 respondents, 47 (46.1%) were male, and 55 (53.9%) were female. As for their ages, there were 12 (11.8%) respondents between 21 and 30 years, 44 (43.1%) between 31 and 40 years, 33 (32.4%) between 41 and 50 years, while 13 (12.7%) were 50 and above. As for their educational qualifications, 39 (38.2%) of the respondents were bachelor degree holders, followed by 33 (32.4%) with academic qualifications of Masters or above, 19 (18.6%) diploma holders, 9 (8.8%) SPM holders and 2 (2%) STPM holders. The data relating to their position in the civil service varied accordingly. Only 4 (3.9%) of the respondents held top management positions, while the majority of them i.e. 59 (57.8%) respondents were in middle management positions and 31 (30.4%) in low management positions. The remaining 8 (7.8%) respondents were in non-management positions. As far as the length of their service in their respective department/agency, the majority of them, numbering a total of 70 (68%) respondents, had worked for more than 10 years, followed by 17 respondents with around 5 to 10 years of service, while 15 respondents had worked for fewer than 5 years.

Table 2: Summary of Respondents' Demographic Background

<i>Demographic background</i>	<i>Frequency</i>	<i>Percent</i>
Gender		
Male	47	46.1
Female	55	53.9
<i>Total</i>	<i>102</i>	<i>100</i>
Age		
21 - 30	12	11.8
31 - 40	44	43.1

41 – 50	33	32.4
50 and above	13	12.7
<i>Total</i>	<i>102</i>	<i>100</i>
Education		
SPM	9	8.8
STPM	2	2.0
Diploma	19	18.6
Bachelor degree	39	38.2
Master's or above	33	32.4
<i>Total</i>	<i>102</i>	<i>100</i>
Position		
Top management	4	3.9
Middle management	59	57.8
Low management	31	30.4
Non-management	8	7.8
<i>Total</i>	<i>102</i>	<i>100</i>
Year of services		
< 5 years	15	14.7
5 – 10 years	17	16.7
> 10 years	70	68.6
<i>Total</i>	<i>102</i>	<i>100</i>

4.2 Response Bias and Descriptive Statistics

The test for non-response bias was run by examining the means for each variable for the group of early and late respondents through the independent samples t-test. The p-value of input controls, behaviour controls, output controls, and employee organisational commitment was greater than 0.05, indicating no difference between the early and late respondents. This implied the absence of a non-response bias. Before using the SmartPLS to assess the measurement model, the descriptive statistics for each variable were computed using the SPSS analytical software. Table 3 summarises the descriptive statistics of each independent and dependent variable.

Table 3: Descriptive Statistics

Descriptive Statistics							
Variables	N	Minimum	Maximum	Sum	Mean	Std. Deviation	Variance
Input Controls	102	3.14	5.00	415.57	4.0742	0.44396	0.197
Behaviour Controls	102	2.60	5.00	403.40	3.9549	0.44313	0.196
Output Controls	102	2.50	5.00	395.00	3.8725	0.49762	0.248
Employee Organisational Commitment	102	2.78	5.00	391.78	3.8410	0.51798	0.268

4.3 Assessment of the Measurement Model

The fundamental purpose of assessing the measurement model is to measure the assumptions related to reliability and validity. In this study, the reliability measures utilised were the two approaches viz. indicator reliability and internal consistency reliability. Table 4 further below summarises the outer loadings of all the indicators. First, several items with weak values for indicator reliability were deleted. The values for items 1 and 2 under input controls were less than 0.40; thus, they were deleted. Item 8 under employee organisational commitment, which had a weak value of 0.485, was deleted. The items that were retained included items 3 and 4 under input controls, items 1 and 2 under behaviour controls, items 1, 4, 5, and 6 under output controls, and all the items under employee organisational commitment that were in the range between 0.4 and 0.7. The rationale for this is that if in the evaluation process, the variables meet the threshold of composite reliability and average variance extracted (AVE), the items can be retained (Hair et al., 2014).

Next, the items were assessed for internal consistency reliability. Cronbach's Alpha is a measurement to test the consistency of measurement instruments containing multiple items (Warrens, 2015). Generally, a value in the range from 0.6 to 0.7 indicates that the level of reliability is acceptable, while a value that is 0.8 or higher indicates that the level of reliability is very good (Ursachi et al., 2015). Composite reliability (CR), also known as McDonald's coefficient, is acceptable when the values are at least 0.7 and above (Dakduk et al., 2019). Table 4 further below summarises the Cronbach's Alpha and composite reliability results for each variable. All variables had a Cronbach's Alpha and composite reliability value of more than 0.70, indicating a good internal consistency reliability level. Thus, all variables were reliable for further assessment.

Construct validity is the extent to which a set of measured items reflects the latent theoretical construct that they are designed to measure. Construct validity consists of two important components: convergent validity and discriminant validity. Table 4 (see below) summarises the average variance extracted (AVE) results for all the variables. The behaviour controls had a value of 0.509, which is more than 0.50, the required value for an AVE result to be deemed acceptable (Hair et al., 2017). On the other hand, the other variables for input controls, output controls and employee organisational commitment had AVE results of less than 0.50 but more than 0.40. According to Fornell and David (1981), an AVE of less than 0.40 is acceptable if the composite reliability is higher than 0.6. In this study, the input controls, output controls and employee organisational commitment had composite reliability values which were more than 0.80, thus the AVE values which were more than 0.40, were considered acceptable.

Discriminant validity is used to determine whether the variables in the model are highly correlated among themselves or not. Therefore, the square root of the AVE for a variable is compared to the correlation between the variable and the other variables. The rule of thumb suggests that the square root of AVE should be higher than the correlation between the variables (Dakduk et al., 2019). Table 4 summarises the Fornell-Larcker Criterion result for all

variables. The square root of the AVE of all the variables was larger than the value of correlation with the other variables, thus indicating that discriminant validity was well established.

Table 4: Assessment of Measurement Model

Variables	Indicators	Outer Loadings	Cronbach's Alpha	Composite reliability	Average Variance Extracted (AVE)	Discriminant Validity Fornell-Larcker Criterion	
Input Control	IC3	0.435	0.731	0.821	0.491	Input Controls	0.701
	IC4	0.672				Behaviour Controls	0.540
	IC5	0.786				Output Controls	0.534
	IC6	0.763				Employee Organisational Commitment	0.570
	IC7	0.727					
Behaviour Control	BC1	0.497	0.753	0.829	0.509	Input Controls	0.540
	BC2	0.464				Behaviour Controls	0.713
	BC3	0.724				Output Controls	0.658
	BC4	0.883				Employee Organisational Commitment	0.565
	BC5	0.882					
Output Control	OC1	0.675	0.761	0.826	0.455	Input Controls	0.534
	OC2	0.852				Behaviour Controls	0.658
	OC3	0.835				Output Controls	0.675
	OC4	0.439				Employee Organisational Commitment	0.432
	OC5	0.546					
	OC6	0.601					
Employee Organisational Commitment	EOC1	0.614	0.789	0.844	0.405	Input Controls	0.570
	EOC2	0.64				Behaviour Controls	0.565
	EOC3	0.65				Output Controls	0.432
	EOC4	0.699				Employee Organisational Commitment	0.636
	EOC5	0.621					
	EOC6	0.668					
	EOC7	0.58					
	EOC8	0.565					
	EOC9	0.565					

4.4 Assessment of Structural Model – Hypothesis Test

The structural model was assessed to evaluate and to perform hypothesis tests related to the causal relationship between the exogenous and endogenous variables specified in the path diagram (Dakduk et al., 2019). The result was 0.096, which indicates a good fit adjustment. The value of R was 0.419, while the R-square was equal to 0.401. This indicated that 40.1% variations in the dependent variable can be explained by the variations in all three independent variables. The input controls had an f square value of 0.16, which indicated a medium effect on employee organisational commitment. The behaviour controls indicated a small effect on

employee organisational commitment with an f square value of 0.121. In contrast, the output controls show no effect on employee organisational commitment when the f square value is 0.00. In this assessment, SmartPLS was used to perform a bootstrap resampling technique (5000 resamples), which helps determine the path estimates and t-statistics for all the paths within the structural model. The resampling bootstrapping was only run once with a one-tailed procedure and significance levels of 5% (95% confidence interval). Figure 2 (below) shows all the structural paths for this study.

Figure 2: Assessment of Structural Model

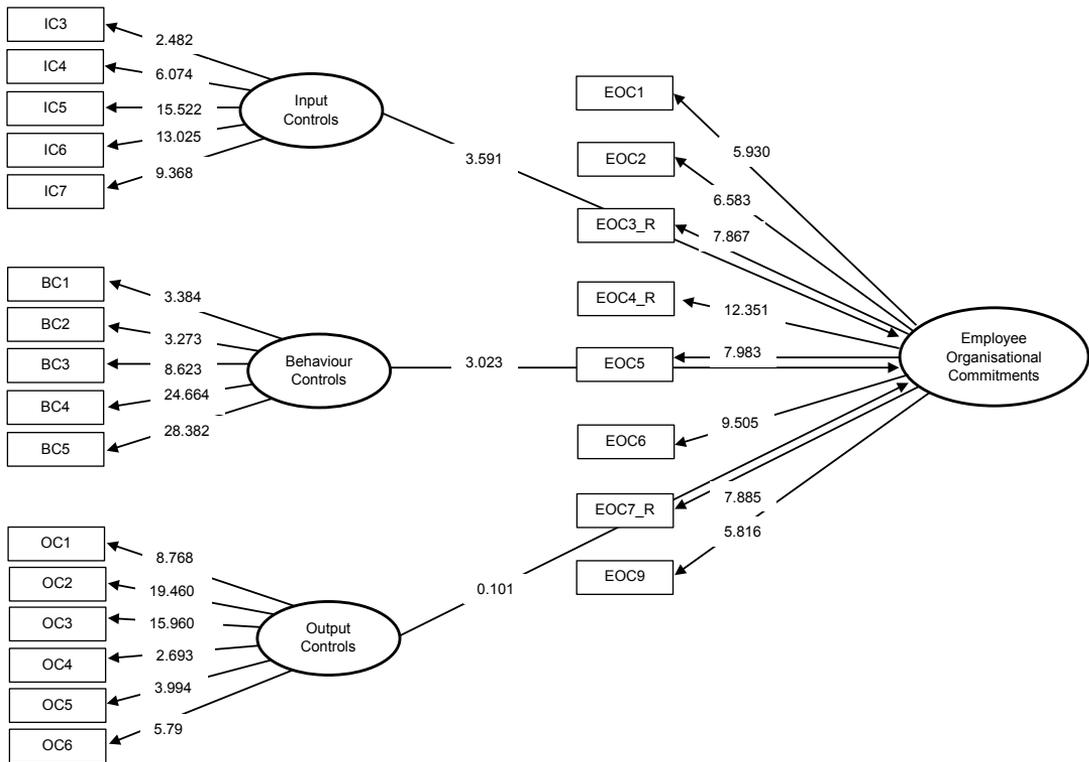


Table 5 (below) summarises the hypotheses and tests of this study.

Table 5: Summary of Hypothesis and Test

Hypothesis and Path	Parameter Estimate (β)	Sample Mean (M)	Std. Dev.	T Statistics	P Values	Result
H1: Input Controls -> Employee Organisational Commitment	0.369	0.366	0.117	3.147	0.002	Supported
H2: Behaviour Controls -> Employee Organisational Commitment	0.378	0.374	0.101	3.742	0.000	Not supported
H3: Output Controls -> Employee Organisational Commitment	-0.013	0.024	0.122	0.105	0.916	Not supported

Hypothesis H1 which stated that ‘the extent to which input controls are used is positively related to the level of employee organisational commitment in the public sector’ was supported ($b = 0.369$, $T = 3.147$, $p = 0.002$). Hypothesis H2, which stated that ‘the extent to which behaviour controls are used is negatively related to the level of employee organisational commitment in the public sector’ was not supported as the result shows that the relationship was positive instead of negative ($b = 0.378$, $T = 3.742$, $p = 0.000$). Hypothesis H3 which states that ‘the extent to which output controls are used is positively related with the level of employee organisational commitment in the public sector’ was also not supported, as the result is not significant, even though the relationship proved to be positive ($b = -0.013$, $T = 0.105$, $p = 0.916$).

5.0 Discussion and Conclusions

The study investigated the relationship between implementing the three types of management accounting controls, viz., input controls, behaviour controls and output controls, and the level of employee organisational commitment in the Malaysian public sector. The findings show that while output controls do not affect employee organisational commitment, input controls and behaviour controls are significantly and positively related to employee organisational commitment.

The results also indicate that input controls variables have a significant positive effect on employee organisational commitment. This is in line with previous studies (Newman et al., 2011; Dymock et al., 2012; Su et al., 2015; Hanaysha, 2016; Sivapragasam & Raya, 2017) suggesting that managers should use input controls to enhance employee organisational commitment.

The findings also reveal that behavioural controls have a significant positive effect on employee organisational commitment, which, however, does not align with those of other studies (Aziah & Scapens, 2007; Su et al., 2015; Akroyd & Kober, 2019; Siverbo et al., 2019). However, this disparity can be explained by the nature of the public sector. Blom (2019) had concluded that

government bureaucracy only had a minimal negative influence on public sector employee organisational commitment, as workers in government agencies, unlike workers in the private sector, have a stronger intrinsic motivation to serve the public interest.

The results indicate no significant relationship between output controls and the level of employee organisational commitment in the Malaysian public sector. This contradicts the conclusions of some researchers who have argued that there is a significant positive relationship between output controls and employee organisational commitment (Verbeeten & Speklé, 2015; Sivapragasam & Raya, 2017; van der Kolk et al., 2018; Haque et al., 2019). However, this conflict can be resolved by taking into account the characteristics of public sector employees. Houston (2006) found that public servants were less motivated by monetary rewards than private sector employees. This suggests that extrinsic rewards in output controls have limitations in motivating employees. Thus, organisations need to look into intrinsic rewards or other strategies to enhance employee organisational commitment.

This study has several theoretical implications. It contributes to the extant literature on management control systems by investigating the effect of management control systems on employee organisational commitment, and it also fills the research gap by investigating the correlations from the Malaysian public sector perspective. This study also augments the existing literature on using Snell's model to conceptualise the management control systems as the independent variable, and by examining the relationships between the three controls based on the social exchange theory.

The results also have a crucial practical implication: heads of departments in the public sector should be advised to reconsider the value of implementing input controls and behaviour controls to promote employee organisational commitment, since traditional rewards and performance evaluation systems in output controls were found to be ineffective practices for promoting employee organisational commitment unlike the private sector, due to the nature and structure of the public sector.

This research also has limitations that are common in the survey approach. The survey was localised: it was limited to willing participants in the public sector agencies/departments in Putrajaya, Malaysia, and therefore, it may not be possible to extrapolate the results to other states in Malaysia or to other countries. It is recommended that future researchers use a mixed-mode of different approaches to address the shortcomings; for example, surveys can be used together with interviews, thus providing a deeper insight into the factors influencing employee organisational commitment in the public sector.

References

- Akroyd, C., & Kober, R. (2019). Imprinting founders' blueprints on management control systems. *Management Accounting Research*.
- Allen, N., & Meyer, J. (1996). Affective, continuance, and normative commitment to the organization: An examination of construct validity. *Journal of Vocational Behavior*, 49(3), 252–276.
- Anthony, R., & Young, D. (2003). *Management Control in Non-profit Organizations*. McGraw-Hill/Irwin, New York, NY.
- Azeem, S. M., & Akhtar, N. (2014). Job satisfaction and organizational commitment among public sector employees in Saudi Arabia. *International Journal of Business and Social Science*, 5(7), 127-133.
- Aziah, N. A., & Scapens, R. (2007). Corporatisation and Accounting Change: The Role of Accounting and Accountants in a Malaysian Public Utility. *Management Accounting Research*, 18(2), 209-247. doi:<https://doi.org/10.1016/j.mar.2007.03.003>
- Blom, R. (2019). Mixed Feelings? Comparing the Effects of Perceived Red Tape and Job Goal Clarity on HRM Satisfaction and Organizational Commitment Across Central Government, Government Agencies, and Businesses. *Public Personnel Management*. doi:10.1177/0091026019878204
- Bloor, M., & Wood, F. (2006). *Keywords in Qualitative Methods*. Sage, London.
- Boselie, P. (2010). High performance work practices in the health care sector: A Dutch case study. *International Journal of Manpower*, 42-58. doi:10.1108/01437721011031685
- Bracci, E., & Tallaki, M. (2021). Resilience capacities and management control systems in public sector organisations. *Journal of Accounting & Organizational Change*.
- Cardinal, L., Sitkin, S., & Long, C. (2004). Balancing and rebalancing in the creation and evolution of organizational control. *Organization Science*, 15(4), 411-431.
- Cook, J., & Wall, T. (1980). New work attitude measures of trust, organizational commitment and personal need non-fulfillment. *Journal of Occupational Psychology*, 53(1), 39-52.
- Cropanzano, R., Anthony, E. L., Daniels, S. R., & Hall, A. V. (2017). Social exchange theory: A critical review with theoretical remedies. *Academy of Management Annals*, 479–516.

Dakduk, S., González, Á., damp, & Portalanza, A. (2019). Learn About Structural Equation Modeling in SmartPLS With Data From the Customer Behavior in Electronic Commerce Study in Ecuador. doi:10.4135/9781526498205

Department of Statistics Malaysia. (2021, May 17). Federal Territory of Putrajaya. Retrieved 24 September 2021, from Department of Statistics Malaysia Official Portal: https://www.dosm.gov.my/v1/index.php?r=column/cone&menu_id=bkJnUlk2WXUyT0hVWm5IZXlubERjUT09

Dymock, D., Billett, S., Klieve, H., Johnson, G., & Martin, G. (2012). Mature age 'white collar' workers' training and employability. *International Journal of Lifelong Education*, 31(2), 171–186.

Fornell, C., & David, F. L. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 39-50.

Frey, B., Homberg, F., & Osterloh, M. (2013). Organizational Control Systems and Pay-for-Performance in the Public Service. *Organization Studies*, 34(7), 949-972. doi:10.1177/0170840613483655

Gupta, A., & Govindarajan, V. (1991). Knowledge Flows and the Structure of Control with Multinational Corporations. *Academy of Management Review*, 16(4), 768–92.

Hair, J., Hult, G., Ringle, C., & Sarstedt, M. (2014). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. SAGE Publications, Inc.

Hair, J., Hult, G., Ringle, C., & Sarstedt, M. (2017). *A primer on partial least squares structural equation modeling (PLS-SEM)*. SAGE.

Hanaysha, J. (2016). Testing the Effects of Employee Engagement, Work Environment, and Organizational Learning on Organizational Commitment. *Procedia - Social And Behavioral Sciences*, 289-297. doi:10.1016/j.sbspro.2016.07.139

Haque, T., Uddin, M., Easmin, R., & Sohel, S. (2019). Job Satisfaction and Citizenship Behavior: A Mediating Effect of Organizational Commitment. *Organizacija*, 236-249. doi:<https://doi.org/10.2478/orga-2019-0015>

Hashim, R. (2015). Levels of Job Satisfaction among Engineers in a Malaysian Local Organization. *Procedia - Social And Behavioral Sciences*, 175-181. doi:10.1016/j.sbspro.2015.06.430

- Houston, D. J. (2006). 'Walking the walk' of public service motivation: Public employees and charitable gifts of time, blood, and money. *Journal of Public Administration Research and Theory*, 67–86.
- Jackson, S. E., Schuler, R. S., & Jiang, K. (2014). An aspirational framework for strategic human resource management. *The Academy of Management Annals*, 8(1), 1-56. doi:10.54 65/19416520.2014.872335
- Jaramillo, F., Mulki, J., & Marshall, G. (2005). A meta-analysis of the relationship between organizational commitment and salesperson job performance: 25 years research. *Journal of Business Research*, 58(6), 705-714.
- Johnson, W. (2011). Managing university technology development using organizational control theory. *Research Policy*, 40(6), 842-852.
- Karim, F., & Rehman, O. (2012). Impact of job satisfaction, perceived organizational justice and employee empowerment on organizational commitment in semi-government organizations of Pakistan. *Journal of Business Studies Quarterly*, 3(4), 92-104.
- Karsh, B., Boojke, C., & Sainfort, F. (2005). Job and organizational determinants of nursing home employee commitment, job satisfaction and intention to turnover. *Ergonomics*, 48(10), 1260-1281.
- Klein, L., Beuren, I., & Dal Vesco, D. (2019). Effects of the management control system in unethical behaviors. *RAUSP Management Journal*, 54(1), 54-76. doi:<https://doi.org/10.1108/rausp-06-2018-0036>
- Krajcsák, Z., & Gyökér, I. (2013). How to increase workplace commitment? *Periodica Polytechnica Social And Management Sciences*, 21(1), 39. doi:<https://doi.org/10.3311/ppso.2155>
- Kumar, M., Talib, S., & Ramayah, T. (2013). *Business Research Methods*. Oxford Fajar Sdn Bhd.
- Langevin, P., & Mendoza, C. (2012). How can management control system fairness reduce managers' unethical behaviours? *European Management Journal*, 31(3), 209-222.
- Lee, C., & Yang, H. (2011). Organization structure, competition and performance measurement systems and their joint effects on performance. *Management Accounting Research*, 22(1), 84-104.

- Liao, Y.-S. (2006). Human resource management control system and firm performance: a contingency model of corporate control. *The International Journal of Human Resource Management*, 17(4), 716–733. doi:10.1080/09585190600581691
- Link, M. (2018). New data strategies: nonprobability sampling, mobile, big data. *Quality Assurance In Education*, 26(2), 303-314. doi:https://doi.org/10.1108/qae-06-2017-0029
- Pasnak, R. (2018). To Pretest or Not to Pretest. *Biomedical Journal of Scientific & Technical Research*, 5(2). doi:10.26717/bjstr.2018.05.001185
- Mahdi, O., Mohd, E., & Almsafir, M. (2014). Empirical Study on the Impact of Leadership Behavior on Organizational Commitment in Plantation Companies in Malaysia. *Procedia - Social And Behavioral Sciences*, 1076-1087. doi:10.1016/j.sbspro.2013.12.5
- Merchant, K., & Van der Stede, W. (2003). *Management Control Systems: Performance Measurement, Evaluation and Incentives*. London: Prentice-Hall.
- Morris, K., Chan, A., Salleh, S., Ooi, M., Oozeer, M., & Abakr, Y. (2016). Numerical study on the urbanisation of Putrajaya and its interaction with the local climate, over a decade. *Urban Climate*, 1-24. doi:https://doi.org/10.1016/j.uclim.2016.02.001
- Newman, A., Thanacoody, R., & Hui, W. (2011). The impact of employee perceptions of training on organizational commitment and turnover intentions: A study of multinationals in the Chinese service sector. *The International Journal of Human Resource Management*, 22(8), 1765–1787.
- Nuhu, N., Baird, K., & Appuhami, R. (2019). The impact of management control systems on organisational change and performance in the public sector. *Journal Of Accounting and Organizational Change*, 15(3), 473-495. doi:https://doi.org/10.1108/jaac-08-2018-008
- Rashidah, M. I., Mazuri, A. G., & Ahmad Munir, M. S. (2013). Elevating Organizational Citizenship Behavior among Local Government Employees: The Mediating Role of Job Satisfaction. *Asian Social Science*, 9(13), 92–104.
- Rindfuss, R. R., Choe, M., Tsuya, N., Bumpass, L., & Tamaki, E. (2015). Do low survey response rates bias results? Evidence from Japan. *DEMOGRAPHIC RESEARCH*, 32(26), 797–828.

- Roque, A., Alves, M., & Raposo, M. (2018). Management Accounting and Control Systems and Strategy: A Theoretical Framework for Future Researches. Vision 2020: Sustainable Economic Development and Application of Innovation Management from Regional expansion to Global Growth. *32nd International Business Information Management Association Conference (IBIMA)*, (pp. 15-16). Seville, Spain.
- Sahoo, C., & Das, S. (2011). Employee empowerment: a strategy towards workplace commitment. *European Journal of Business and Management*, 3(11), 46-54.
- Siddiquee, N. (2010). Managing for results: lessons from public management reform in Malaysia. *International Journal Of Public Sector Management*. 23(1), 38-53. doi:<https://doi.org/10.1108/09513551011012312>
- Sivapragasam, P., & Raya, R. (2017). HRM and Employee Engagement Link: Mediating Role of Employee Well-being. *Global Business Review*, 19(1), 147-161. doi:<https://doi.org/10.1177/0972150917713369>
- Siverbo, S., Cäker, M., & Åkesson, J. (2019). Conceptualizing dysfunctional consequences of performance measurement in the public sector. *Public Management Review*, 1801-1823. doi:<https://doi.org/10.1080/14719037.2019.1577906>
- Snell, S. (1992). Control theory in strategic human resource management: the mediating effect of administrative information. *Academy of Management Journal*, 35(3), 292-327.
- Spector, P., & Brannick, M. (2011). Methodological Urban Legends: The Misuse of Statistical Control Variables. *SAGE*, 287-305.
- Su, S., Baird, K., & Schoch, H. (2015). Management control system effectiveness. *Pacific Accounting Review*, 27(1), 28-50. doi:<https://doi.org/10.1108/par-06-2012-0022>
- Ursachi, G., Horodnic, I., & Zait, A. (2015). How Reliable are Measurement Scales? External Factors with Indirect Influence on Reliability Estimators. *Procedia Economics And Finance*, 20, 679-686. doi:[https://doi.org/10.1016/s2212-5671\(15\)00123-9](https://doi.org/10.1016/s2212-5671(15)00123-9)
- van der Kolk, B., van Veen-Dirks, P., & ter Bogt, H. (2018). The Impact of Management Control on Employee Motivation and Performance in the Public Sector. *European Accounting Review*, 28(5), 901-928.
- Verbeeten, F. (2008). Performance management practices in public sector organizations. *Accounting, Auditing and Accountability Journal*, 21(3), 427-454.

- Verbeeten, F., & Speklé, R. (2015). Management Control, Results-Oriented Culture and Public Sector Performance: Empirical Evidence on New Public Management. *Organization Studies*, 953–978.
- Viswanathan, R., Lal, N., Prasad, V., & Parveen, J. (2019). Does Job Satisfaction and Employee Commitment pave way for Employee Engagement in IT Sector. *International Journal Of Recent Technology And Engineering*, 8(254), 307-313. doi:<https://doi.org/10.3594>
- Wadhwa, D. S., & Verghese, M. (2015). Impact of employee empowerment on job satisfaction and organizational commitment: An empirical investigation with special reference to selected cement industry in Chhattisgarh. *International Journal in Management and Social Science*, 3(3), 280-286.
- Warrens, M. (2015). Some Relationships Between Cronbach's Alpha and the Spearman-Brown Formula. *Journal Of Classification*, 32(1), 127-137. doi:<https://doi.org/10.1007/s00357-015-9168-0>

Appendix A

Questionnaire

Section 1

Gender: <i>Jantina:</i>	Male / Female <i>Lelaki / Perempuan</i>
Highest level of education: <i>Tahap pendidikan tertinggi:</i>	SPM / STPM / Diploma / Bachelor Degree / Master or above / Others: _____ <i>SPM / STPM / Diploma / Ijazah / Sarjana dan ke atas / Lain-lain: _____</i>
Current position: <i>Jawatan Sekarang:</i>	Top management / Middle management / Low management / Non-management / Others: _____ <i>Pengurusan atasan / Pengurusan pertengahan / Pengurusan yang rendah / Bukan pengurusan / Lain-lain: _____</i>
Year of services: <i>Tahun perkhidmatan:</i>	<5 years / 5 to 10 years / >10 years <i><5 tahun / 5 ke 10 tahun / >10 tahun</i>
Agency / Ministry / Department: <i>Agensi / Kementerian / Jabatan:</i>	_____ _____ _____

Section 2

9-item scale of Cook and Wall's (1980): Measure of the level of Employees Organisational Commitment

Please indicate the extent to which you agree with the following statements
 (1 = strongly disagree, 5 = strongly agree)

Organisational Identification

1. I am quite proud to be able to tell people who it is I work for.
2. I feel that I am a part of the agency/department.
3. I would not advise a close friend to join my agency/department. (R)

Organisational Involvement

4. I am not willing to put myself out just to help the agency/department. (R)
5. In my work I like to feel I am applying some effort not just for myself but for the agency/department as well.
6. I am determined to make a contribution for the good of my agency/department.

Organisational Loyalty

7. I sometimes feel like leaving this employment for good. (R)
8. Even if my agency/department was not paying me well financially, I would be reluctant to change to another employer.
9. The offer of a small increase in remuneration by another employer would not seriously make me think of changing my job.

Section 3

Snell's (1992) instrument: Measure of three types of controls

Please indicate the extent to which the following statements reflect the work environment in your agency/department (1 = not at all, 5 = to a great extent).

Input controls

1. Employees must undergo a series of evaluations before they are hired.
2. Employees receive substantial training before they assume new responsibilities.
3. New employees undergo orientation regarding organisational activities.
4. Our agency/department has gone to great lengths to establish staffing policies and procedures.
5. Employees are expected to adhere to established staffing policies and procedures.
6. Employees are given ample opportunity to broaden their range of talents.
7. Our agency/department provides on-going training and skill development to employees.

Behaviour controls

1. Employee performance is evaluated based on their ongoing behaviour.
2. Employees are held accountable for their actions, regardless of results.
3. Employees are monitored to ensure that they are complying with staffing policies and procedures.
4. Supervisors regularly monitor the actions undertaken by employees.
5. Employees are accountable for areas of responsibilities that are defined by top managers.

Output controls

1. Performance evaluations place emphasis on results.
2. There are clear and planned performance targets set for employees.
3. Pre-established targets are used as a benchmark for evaluations.
4. Regardless of what employees are like personally, their performance is judged by results achieved.
5. The rewards employees receive are linked to results.
6. Employees who do not reach objectives receive a low performance rating.