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Effect of Time Overruns on Apartment Building among Kuantan Malaysian Construction Industries

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ABSTRACT

This paper assessed the effect of time overruns on apartment building among Kuantan Malaysian construction industries. A survey was conducted among 10 construction industries in Kuantan Pahang. Using proportionate stratified random sampling, out of which 10 questionnaires were distributed for data analysis. Using five point Likert scale categories from previous studies, statistical analysis affirmed a significant positive relationship between time overruns and apartment building among Kuantan Malaysian construction industries.

1. Introduction

Delay in construction is measured to be one of the redo of work issues in the construction industries and it effect on project performance in terms of time, cost and quality [6]. Due to complex situation in construction industries it is very important to study the causes and critical factors which control the project to achieve the objective [7]. As Malaysia progressively marches towards industrialization, the role of the building industry is greatly enhanced, with the idea of transforming the aspirations and needs of people into reality [24]. The construction industries need to produce quality products that are affordable to all Malaysians. A common response to reduce the effects of cost overruns is to do the initiatives that serve to increase the capabilities of the client organization in handling complex projects. This line of thought is most clear explained by auditors that have been assigned to examine the causes of time and cost overruns [27].

Strikes, rework, and deficit organization, shortage of materials, machinery failure, and change orders is the major cause of delay [13]. All parties involving in the delay construction industries will experience costly. To produce a claim document in itself is consequential and it also incurred the time and expense [26]. Again, ineffective project risk management was asserted to have a negative influence on team members in a specific project as a result of incorrect strategy towards the

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uncertainty which a project might lead to [1,5].There is room for improvement in present practice for define of cause of delays.

Every year, delay will occur in the Malaysian construction project. This matter has a series of effect on the implementation of Malaysia Plans [9]. Time is the essence and important principle of a construction contract [15]. A study conducted by Mansur *et al*., [20] found that housing demand was increased. This is due to the impact of effort to achieve Vision 2020, when the process of rapid urbanization has cause and led to an increase in population in all cities in Malaysia [16]. Housing market is a major contributor and plays an important role in the Malaysian economy [12]. Due to that, the problem of delay is the first thing that needs to be avoided in construction project.

The late completed of work compared to the planned schedule was known as construction delays [19]. When the causes of delay are known, the construction delays can be reduced. Study by Cantarelli [8] affirmed that project delay in the construction industries is a worldwide or large-scale detectable fact affecting not only the construction industries but the overall economy of a country as well [21]. Project delay involves various complex issues of which are continuously of decisive magnitude to the organizations and the construction project contract or agreement. Causes of delay are considered to be interesting factor in the delivery of a construction project on time, within budget and as the required quality and design [10]. The success of the construction project requires strong strategies, good practices and careful judgment for completion of project on schedule with proper quality and with estimated cost [8].

Assessing delay: Time is important to everyone, especially to those in the construction industry. Every construction contract stipulates either a time of performance or a specific project completion date. Yet, with so much attention to time, construction projects are frequently subjected to delays [17]. Sorting out the issues and determining which party is responsible often proves difficult and time-consuming. Though many techniques are available for determining schedule impact, however very little has produced valid result on the severity of delay on projects.

2. Research Methods

2.1 Design of the Study

This paper is cross-sectional in nature [25]. The study covers one state which is Kuantan, Pahang. In this case, each of the state was regarded as a stratum. The sample frame of (10 construction companies) was selected from [11]. Out of the total of 10 construction companies, 10 from the states were selected for the survey. Thus, out of which 10 construction industries were selected for the pilot study among G7 contractors operating in Kuantan, Pahang construction industries.

2.2 Data Collection

Following Krejcie *et al*., [18], a sample size of 10 will be enough for a total population of 10 construction industries. Similarly, the study of [24] who studied risk factors in Malaysian construction companies had only a 2% response rate. Based on [14], a single representative (contractor) from each company was adequate to complete the questionnaire for this research. Therefore, 10 out of 10 distributed questionnaires valid and useable questionnaires were returned. Thus, this response was considered high when compared with prior studies

2.3 Statistical Analysis

Statistical Package for Social Science (SPSS) version 22.0 was used to analyse the collected data. The demographic profile of the companies and respondents were analysed with descriptive statistic. More so, the goodness of fit was ascertained by reliability test. Descriptive statistic like the standard deviation, percentage and mean score were analysed. Using scale categories interpretation [23], values (range) was ascribed to the 5-point likert scale used in the questionnaire in ascending order as follows: 1= strongly disagree; 2= Disagree; 3= Moderate; 4= agree; 5 =strongly agree. This was used to show the cause of delay in the industries.

2.4 Reliability Analysis

The Cronbach's alpha coefficient threshold was used to ascertain the reliability of all the items in this study. Subsequently, the composite reliability coefficient was used to determine the internal consistency reliability of measures [3]. In order to be sure that the scales adopted in this study were not confusing and the items within a component were measuring that same fundamental component reliability analysis was conducted [2]. Thus, higher Cronbach's alpha coefficient is a sign of greater consistency among the item for each component and the assurance that the measurements are reliable. This study followed the minimum reliability threshold level [22], where 0.7 is regarded acceptable. However, all the Cronbach's alpha coefficient values received in this study were above the 0.7 minimum threshold. Table 1 describes the cronbach's alpha coefficient for this study.

Table 1
Summary of pilot test

Construct	Total item	Cronbach's Alpha
Time overruns	10	0.730
Building Apartment	10	0.757

3. Results and Discussion

Out of 10 respondents that participated in this survey, as for gender, the percentage of male respondents were 50.0 % and also 50.0 % for female. The highest age was 35 years old 10.0% and the lowest age was 27 years old 10.0 %. Their level of education included college degree 20% and graduate degree 80%, Engineer 60%, contractors 10% and team members 30%. Their duration of working experience ranges from 2-6years, with the lowest working experience of 2 years at 50% and the highest working experience of 6 years at 20%.

Figure 1 depicts the skewness and kurtosis of the variables time overruns and apartment building used in the paper. The independent variable factors which are time overruns while the dependent variable was apartment building. From the statistics above, it shows that the data was distributed because the standard error of skewness multiply by 3 was greater than the absolute skewness and also the standard error of kurtosis multiply by 3 was greater than absolute kurtosis [4].

The descriptive frequencies in this study (Table 3) shows that time overruns scored the mean of 3.41 while building scored the mean of 3.23. As for standard deviation, there was a score of 0.462 for building and 0.31429 for time overruns. Besides, the minimum measure indicated most variable from 2.7 up to the highest and also the maximum of 3.9.

Table 2
Group of respondent

Respondent	Frequency	Percentage (%)
Gender:		
Male	5	50
Female	5	50
Age:		
Lowest age (27 years old)	1	10
Highest age (35 years old)	1	10
Level education:		
Elementary school	0	0
High school	0	0
College degree	2	0
Graduate degree	8	20
Other	0	80
Consultant information:		
Architectures	0	0
Engineers	6	60
Contractors	1	10
Project Managers	0	0
Team Members	3	30
Duration working experience:		
Lowest working experience (2 years)	5	50
Highest working experience (6 years)	2	20

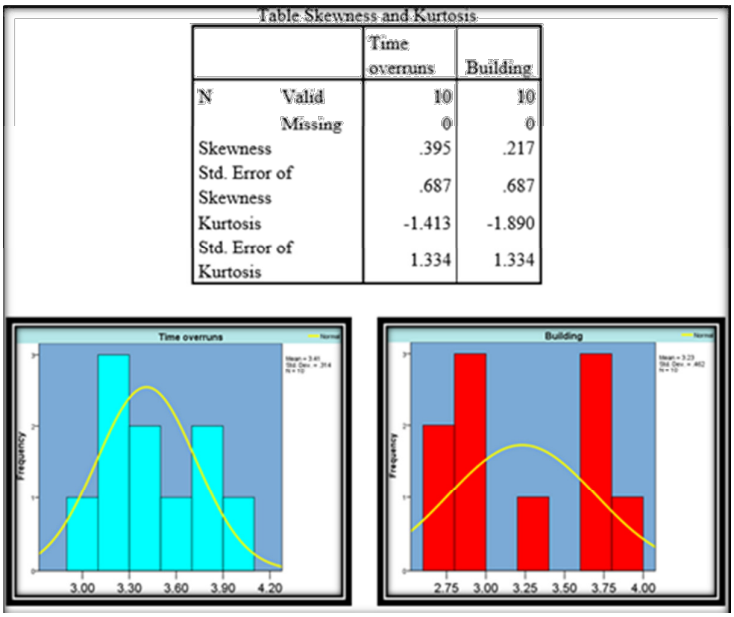

Fig. 1. Skewness and Kurtosis

Result in Table 3 shows a matrix of correlation and sample statistics of time overruns and apartment building. To access the relationship between variables, Pearson correlation was conducted. There was a strong positive correlation between time overruns, r= 0.832, n=10 and apartment building.

Table 3
Frequency of variable (N=10)

Variable	N	Minimum	Maximum	Mean	Std. deviation
Time overruns (TOR)	10	3.00	3.90	3.4100	0. 31429
Building (BUILD)	10	2.70	3.90	3.2300	0. 46200

Table 4
Pearson correlation analysis results

Correlations			
		TOR	BUILD
TOR	Pearson Correlation	1	.832**
	Sig. (2-tailed)		.003
	N	10	10
BUILD	Pearson Correlation	.832**	1
	Sig. (2-tailed)	.003	
	N	10	10
**. Correlation is significant at the 0.01 level (2-tailed).			

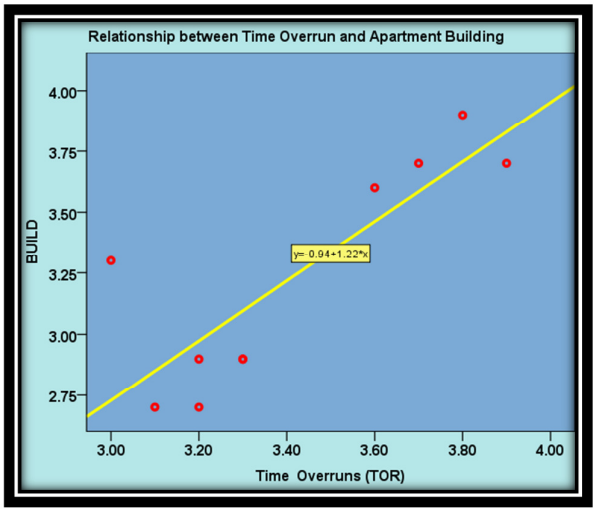

Fig. 2. Scatter diagram

From Figure 2, was the scatter diagram, shows that there was a positive linear relationship between time overruns and apartment building. Therefore, the research objectives in this paper was achieved.

4. Conclusion

The relationship between time overruns and apartment building among Kuantan Malaysian construction industries was investigated in this paper. Results revealed that there were significant positive relationship between time overruns and apartment building among Kuantan Malaysian construction industries. This shows that time overrun has a crucial role to play in curbing future cause of delay in Kuantan Malaysian construction industry projects. The theoretical and the

empirical result in this paper have also contributed to the growing body of knowledge within this domain.

Therefore, future studies can develop appropriate policy in reducing delay in Kuantan Malaysian construction industry projects. This study considered only limited variables, more variables can be included to give a higher reliability to the application of reducing delay in construction industry projects. This study can also be replicated in qualitative approach instead of quantitative as being used in this paper, and increase the sample size to give more generality to the research.

References

[1] Adeleke, A. Q., A. Y. Bahaudin, and A. M. Kamaruddeen. "Moderating Effect of Regulations on Organizational Factors and Construction Risk Management: A Proposed Framework." *International Journal of Economics and Financial Issues* 6, no. 7S (2016).

[2] Adeleke, A. Q., A. Y. Bahaudin, and A. M. Kamaruddeen. "Rules and regulations as potential moderator on the relationship between organizational internal and external factors with effective construction risk management in Nigerian construction companies: A proposed framework." In *AIP Conference Proceedings*, vol. 1761, no. 1, p. 020008. AIP Publishing, 2016.

[3] Adeleke, A. Q., A. Y. Bahaudin, and A. M. Kamaruddeen. "Organizational Internal Factors and Construction Risk Management among Nigerian Construction Companies." *Global Business Review* (2017): 0972150916677460.

[4] Adeleke, A. Q., Bahaudin, A. Y., & Kamaruddeen, A. M. (2016). Assessing the extand of effective construction risk management in negerian construction companies. Journal of advance Research in business management studies 3(1),1-10.

[5] Adeleke, A. Q., A. Y. Bahaudin, and A. M. Kamaruddeen. "Preliminary analysis on organizational factors influencing effective construction risk management: A case study of Nigerian construction companies." *Sains Humanika* 8, no. 2 (2016).

[6] Ahmed, Syed M., Salman Azhar, P. Kappagntula, and D. Gollapudil. "Delays in construction: a brief study of the Florida construction industry." In *Proceedings of the 39th Annual ASC Conference, Clemson University, Clemson, SC*, pp. 257-66. 2003.

[7] Bröchner, J. A. N., & Björk, B. C. (2008). Where to submit? Journal choice by construction management authors. Construction Management and Economics, 26(7), 739-749.

[8] Cantarelli, Chantal Corinne. "Cost overruns in large-scale transport infrastructure projects: A theoretical and empirical exploration for the Netherlands and worldwide." (2011).

[9] Chartered Industry of Building (CIOB), (2008). Managing the Risk of Delayed Completion in the 21st Century.

[10] Enshassi, Adnan, Jomah Al-Najjar, and Mohan Kumaraswamy. "Delays and cost overruns in the construction projects in the Gaza Strip." *Journal of Financial Management of Property and Construction* 14, no. 2 (2009): 126-151.

[11] CIDB, recived from www.cidb.gov.my

[12] Ezeanya, Andrew C. "Malaysian housing policy: Prospects and obstacles of national vision 2020'." In *International conference of Adequate and Affordable Housing for All. Kuala Lumpur, Malaysia*. 2004.

[13] Faridi, Arshi Shakeel, and Sameh Monir El-Sayegh. "Significant factors causing delay in the UAE construction industry." *Construction Management and Economics* 24, no. 11 (2006): 1167-1176.

[14] Hilmi, Mohd Faiz, and T. Ramayah. "Market innovativeness of Malaysian SMEs: Preliminary results from a first wave data collection." *Asian Social Science* 4, no. 12 (2009): 42.

[15] Hamid, ABDUL RAHIM ABDUL, D. M. C. Botiti, and SAEED REZA Mohandes. "Managing the Delayed Completion on Construction Project." *Journal of Advanced Research in Business and Management Studies* 1, no. 1 (2015): 14-24.

[16] slam, Rafikul. "Critical success factors of the nine challenges in Malaysia's vision 2020." *Socio-Economic Planning Sciences*44, no. 4 (2010): 199-211.

[17] Keane, P. John, and Anthony F. Caletka. *Delay analysis in construction contracts*. John Wiley & Sons, 2015.

[18] Krejcie, Robert V., and Daryle W. Morgan. "Determining sample size for research activities." *Educational and psychological measurement* 30, no. 3 (1970): 607-610.

[19] Majid, MZ Abd, and Ronald McCaffer. "Factors of non-excusable delays that influence contractors' performance." *Journal of management in engineering* 14, no. 3 (1998): 42-49.

[20] Mansur, S. A., AR Abdul Hamidb, and N. A. Yusofc. "Rising Trend in Construction Cost and Housing Price." *Journal of Advanced Research in Business and Management Studies* 3: 94-104.

[21] Memon,A.H., Abdul Rahman, I. and Abdul Azis, A. A. (2012).” Time and Cost Perfomance in Costruction Projects in Southern and Cenrtal Regions of Penisular Malaysia “. International Journal of Advances in Applied Sciences, 1(1): pp. 45-52.
[22] Nunnally, Jum C. "Psychometric theory." (1967).
[23] Pm, I. "A guide to the project management body of knowledge (PMBOK guide)." Project Management Institute, 2000.
[24] Sambasivan, Murali, and Yau Wen Soon. "Causes and effects of delays in Malaysian construction industry." *International Journal of project management* 25, no. 5 (2007): 517-526.
[25] Sekaran, Uma, and Roger Bougie. *Research methods for business: A skill building approach*. John Wiley & Sons, 2016.
[26] Shrestha, Pravin Malla, Amelia-Elena Rotaru, Muktak Aklujkar, Fanghua Liu, Minita Shrestha, Zarath M. Summers, Nikhil Malvankar, Dan Carlo Flores, and Derek R. Lovley. "Syntrophic growth with direct interspecies electron transfer as the primary mechanism for energy exchange." *Environmental microbiology reports* 5, no. 6 (2013): 904-910.
[27] Siemiatycki, Matti. "Academics and auditors: Comparing perspectives on transportation project cost overruns." *Journal of Planning Education and Research* 29, no. 2 (2009): 142-156.