

Analysis of Competition Levels, Pricing, and Human Resources on the Competitiveness of Small Contractors

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ABSTRACT

The construction industry in Indonesia significantly contributes to the national economy, ranking fourth with a 10.06% contribution (BPS, 2024). Over 77% of construction businesses are small contractors, resulting in intense competition. To survive, these contractors must adopt strategies focusing on efficiency, innovation, and quality improvement to enhance competitiveness. This study identifies effective strategies to increase the competitiveness of small contractors in building construction projects. A quantitative survey was conducted using online questionnaires distributed to 100 small contractor business actors in DKI Jakarta, West Java, and Lampung. Primary data came from closed and open questionnaires, while secondary data were sourced from scientific journals, BPS reports, and related literature. Data were analyzed using descriptive statistics and SEM-PLS (Structural Equation Modeling - Partial Least Square) with SmartPLS 4 software to examine variable relationships. Results showed the Competition Level (X1) had no significant direct influence on Competitiveness (Y), with a T-statistic of 0.509 and P-value of 0.611. Conversely, Price Quotation (X2) and Human Resources (Z) significantly influenced Competitiveness, with T-statistics of 2.917 and 4.710, and P-values of 0.004 and 0.000, respectively. The moderation test indicated that Human Resources did not strengthen the relationship between Competition Level and Price Quotation on Competitiveness, as the T-statistic was below the critical value and the P-value exceeded 0.05. Therefore, while Human Resources has a direct impact, its moderating role was not significant in this study.

KEYWORDS

Competition level, price quotation, human resources, competitiveness of small contractors.



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INTRODUCTION

The construction industry in Indonesia plays a crucial role in supporting the growth of national economic development. According to the Indonesian Central Statistics Agency, (2024) the contribution of the construction sector to the Indonesian economy is in fourth place at 10.06% of the construction sector's percentage in Indonesia's Gross Domestic Product (GDP) in the third quarter of 2024.

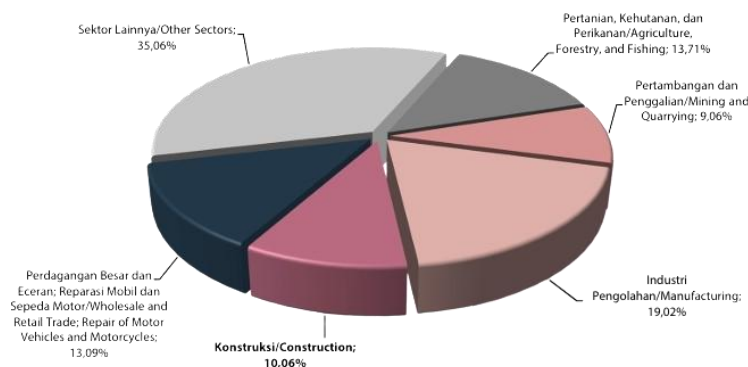


Figure 1 Distribution of Percentage of Gross Domestic Product on the basis of applicable prices by business field, Quarter III-2024

Source: Central Statistics Agency (2024)

Infrastructure development is one of Indonesia's mainstay sectors, because it is able to create multiplier effect, to encourage Indonesia's economic growth, including by creating new jobs and economic growth points, opening logistics networks to production centers. The acceleration of infrastructure development is carried out through increasing the productivity of national construction services, encouraging the use of domestic products that are sustainable, digital transformation, and facilitating investment opportunities through ease of business licensing, especially in the Indonesian construction sector.(Direktorat Jenderal Bina Konstruksi - Kementerian Pekerjaan Umum Indonesia, 2023)

Table 1 Number of Construction Companies in Indonesia According to Business Qualifications in 2023

Business Qualifications	Sum
Small	143.914
Intermediate	22.414
Big	1.176
Non-Qualifications	19.030
Total	186.534

Source: Indonesian Central Statistics Agency (2024)

Based on Table 1 data, there are 186,534 construction business entities in Indonesia which are dominated by small qualification categories of more than 77%. The existence of a large number of small contractors in Indonesia causes competition in the fight for jobs. This very tight competition requires small contractors to have good competitiveness to be able to survive in existing conditions.(Samuel & Wibowo, 2020)

With the number of construction service companies in Indonesia, it is very difficult to compete to win tenders or get jobs, this is evidenced by the number of construction service companies that are unable to get jobs, making the company bankrupt. The problem that often occurs is that because there are quite a lot of advantages used by construction service companies, these advantages must be used appropriately so that a competitiveness is produced for the company to continue to compete and be able to win the competition.(Johari & Soekiman, 2019)

Contractors are typically involved in complex project environments and face very stiff construction market competition. Therefore, there is an urgent need for contractors to explore effective ways to increase their competitive advantage. In the face of fierce competition between contractors, it is necessary to have various skills and strategies that need to be applied. (Keung & Shen, 2017)(Amoah & Bikitsha, 2022)

According to Pahlevi et al (2020), the bidding strategy for a company is highly dependent on the company's goals, including maximizing profits. Competitive bidding is another type of pricing in marketing terms. In competitive bidding, each bidder on a given contract must submit all bidding documents that are still accountable (lowest, responsive, and responsible) as consideration for winning the tender. The bid strategy model is based on the expected profit maximum, where the higher the bid price, the less likely it is to be the lowest bid, with the lowest

bid the greater the chance of winning the tender.

Human resources are one of the important things to achieve a successful construction project. Human resource management is a factor that affects the competitiveness of small contractors. (Johari & Soekiman, 2019)

Based on a literature review from 20 previous studies, there are various approaches and findings related to the competitiveness of small contractors, with the main focus on the variables of competition level, pricing, and human resources. Research shows that Competitiveness can be influenced by trust and satisfaction (Krystyan et al., 2025), business strategy (Farida & Setiawan, 2022), HR capabilities and change management (Fakhrudin et al., 2021), and technological advances and HR management (Muntu et al., 2021). Other factors such as strategy effectiveness and managerial capabilities were also found to play a major role in the competitiveness of contractors (Ozorhon et al., 2020). Several studies such as Pahlevi et al. (2020) and Johari & Soekiman (2019) affirm the importance of price pricing and human resource management. However, most of the research is still macro and has not specifically highlighted small contractors in building projects, especially government projects that have their own regulations and fierce competition.

From the analysis, research gaps were found that showed a lack of research focus on small contractors in government building projects and there were not many studies that positioned the quality of human resources as a moderation variable between the level of competition and price quotation on competitiveness. Therefore, this study offers a state of the art in the form of integrating these three variables in one holistic model. The novelty of this research lies in the specific focus on small contractors in government building projects, as well as the strategic role of human resources as a moderation variable, which has not been explored much in previous studies (Prabowo et al., 2019; Pahlevi et al., 2020; Scott, 2020; Oyewobi et al., 2019). With this approach, it is hoped that the results of the research can make a theoretical and practical contribution in increasing the competitiveness of small contractors in the national construction sector.

Against the background of the above problems, there is a need for research that specifically highlights how small contractors in Indonesia can develop strategies in the context of a dynamic construction industry because there is still very limited research that addresses the main factors that affect the increase in the competitiveness of small contractors in Indonesia, as well as identifies strategies that can be implemented to achieve success.

This study aims to fill these gaps by identifying factors of competition level, price offering, and human resources as in increasing Competitiveness in small contractors. Small contractor objects, especially in building construction, were chosen so that the research was more specific and not macro in determining the research sample. Building construction is considered to have more complex market dynamics and project characteristics than other sectors, so it requires a more targeted Competitiveness strategy. This research is also important in providing practical recommendations for small contractors as well as input for policymakers to encourage sustainability and increase the competitiveness of small contractors in Indonesia.

METHOD

The research method used in this study was a quantitative method with a survey approach. Data collection was carried out through the distribution of online questionnaires to 100 respondents who were business actors in the field of building construction with small contractor qualifications in the DKI Jakarta, West Java, and Lampung areas. Primary data were obtained from the results of closed and open questionnaires, while secondary data were collected through literature studies and documentation from relevant sources such as scientific journals, BPS reports, and other related references. Data analysis was carried out using descriptive statistical techniques and SEM-PLS (Structural Equation Modeling - Partial Least Square) analysis with the help of SmartPLS 4 software to test the relationships between variables, both directly and moderately, between the level of competition, pricing, and human resources on the competitiveness of small contractors.

RESULT AND DISCUSSION

Data Analysis

In this study, a test was carried out on the variable interaction model to see the effect of the composition of the free variables on the bound variable and the moderation variable. Variable interaction models are presented in the following Figure.

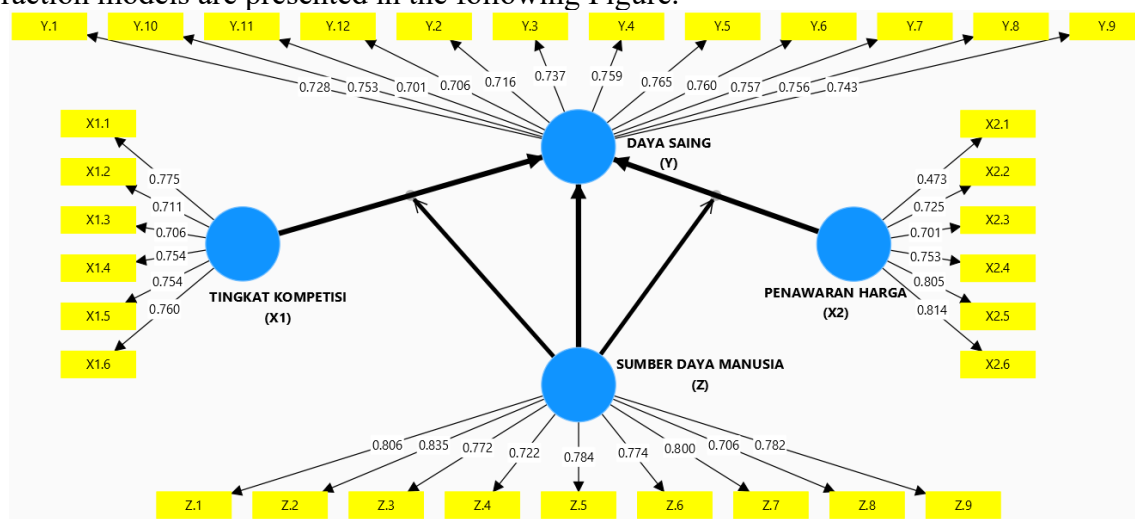


Figure 2 Research Model with SmartPLS 4

Source: Author's Processing (2025)

After modeling the relationship between variables as shown in Figure 2, data analysis was then carried out, including validity tests, reliability tests, and correlation tests on data that had been collected through respondents.

a. Evaluation of the Outer Model (Measurement Model)

At this stage, the value of loading factor, validity and reliability will be measured before the hypothesis test for the relationship between latent variables in the structural model.

1) Loading Factor

Loading factor is used to see how much an indicator contributes in explaining its construction variables. From the first algorithm analysis process, there is an indicator that has a < value of 0.70 so that the indicator must be eliminated from the test model and then re-run the data

on the model. The indicator that has a loading factor value of < 0.70 is X2.1 with a value of 0.472 which means that it does not contribute to explaining the variables of the measurement construct. Therefore, the X2.1 indicator was eliminated with the following model construct.

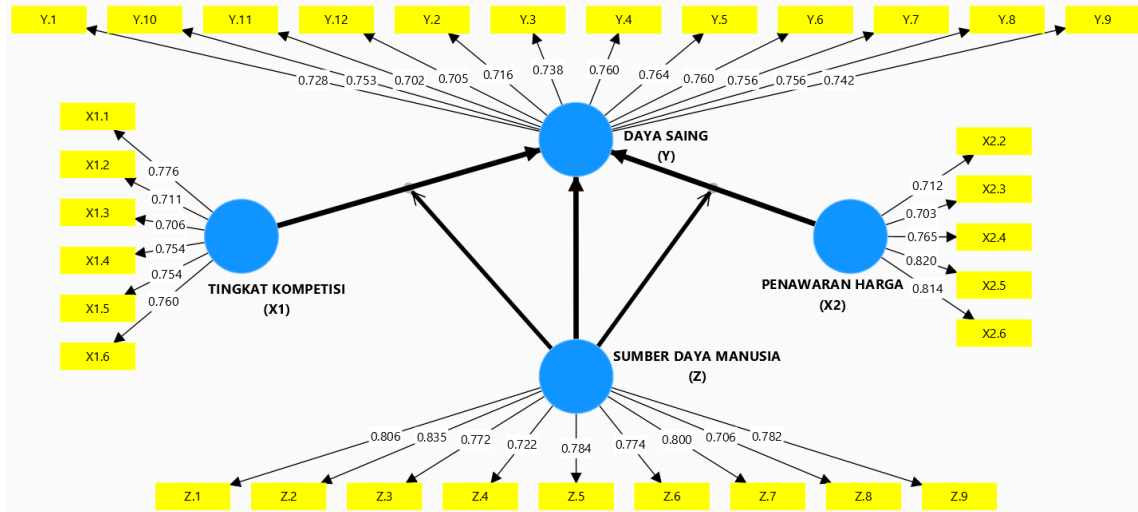


Figure 3 Research Model after Indicator Elimination

After eliminating the X2.1 indicator, then the research model was reanalyzed and all loading factor values were > 0.70 as shown in Table 2 so that it was concluded that the remaining indicators met the requirements.

Table 2 Outer Loadings - Matrix

	Competitiveness (Y)	Price Quotation (X2)	Human Resources (Z)	Level Competition (X1)
X1.1				0.776
X1.2				0.711
X1.3				0.706
X1.4				0.754
X1.5				0.754
X1.6				0.760
X2.2		0.712		
X2.3		0.703		
X2.4		0.765		
X2.5		0.820		
X2.6		0.814		
Y.1	0.728			
Y.10	0.753			
Y.11	0.702			
Y.12	0.705			
Y.2	0.716			
Y.3	0.738			
Y.4	0.760			
Y.5	0.764			
Y.6	0.760			
Y.7	0.756			
Y.8	0.756			
Y.9	0.742			
Z.1			0.806	

Competitiveness (Y)	Price Quotation (X2)	Human Resources (Z)	Level Competition (X1)
Z.2		0.835	
Z.3		0.772	
Z.4		0.722	
Z.5		0.784	
Z.6		0.774	
Z.7		0.800	
Z.8		0.706	
Z.9		0.782	

Source: Author's Processing (2025)

2) Construct Reliability and Validity

The next stage is to measure the reliability of the internal consistency of the construct based on the value of composite reliability and Cronbach alpha. The latent variable is declared good if it has a composite reliability value and a Cronbach alpha > 0.70 . The validity test of latent constructs is based on the AVE (Average Variance Extracted) value or convergent validity with a minimum value of 0.50. Based on the results of data analysis, the following results were obtained.

Table 3 Construct Reliability and Validity

	Cronbach's Alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Competitiveness (Y)	0.925	0.927	0.936	0.548
Price Quotation (X2)	0.823	0.842	0.875	0.584
Human Resources (Z)	0.917	0.920	0.932	0.603
Level Competition (X1)	0.840	0.849	0.881	0.553

Source: Author's Processing (2025)

From the table above, the results show that the composite reliability value and Cronbach alpha meet the minimum requirements because it has a $>$ value of 0.70. In addition, the AVE value also meets the requirements according to the minimum limit, which is > 0.50 . Once the value of the AVE of each construct is known, the next stage is discriminant validity testing.

3) Discriminant Validity

Discriminant validity is a test used to test the validity of a block of indicators. In this test, the researcher used two methods, namely the Heterotrait-Monotrait Ratio (HMTM) and the Fornell-Larcker Criterion with the results as follows.

a) Heterotrait-Monotrait Ratio (HTMT) - Matrix

Discriminant validity testing using HTMT was declared eligible for each variable with a $<$ value of 0.90.

Table 4 HTMT Measurement Values – Matrix

	Competitiveness (Y)	Price Quotation (X2)	Human Resources (Z)
Competitiveness (Y)			
Price Quotation (X2)	0.737		
Resources Human (Z)	0.751	0.809	
Competition Level (X1)	0.526	0.679	0.561

Source: Author's Processing (2025)

b) Fornell-Larcker Criterion

Table 5 Fornell-Larcker Measurement Value

	Competitiveness (Y)	Price Quotation (X2)	Human Resources (Z)	Competition Level (X1)
Competitiveness (Y)	0.740			
Price Quotation (X2)	0.666	0.764		
Human Resources (Z)	0.707	0.705	0.777	
Level Competition (X1)	0.478	0.561	0.502	0.744

Source: Author's Processing (2025)

Based on the table above, the root values of AVE (values in the diagonal direction indicated in the numbers in bold letters) of each variable are greater than the correlation between the construct and the other constructs. It can be concluded that all variables have met the discriminant validity.

4) Model Collinearity Test

The collinearity test aims to identify whether there is a significant linear relationship between two or more variables. This test is carried out by checking the value of the Variance Inflation Factor (VIF). If the VIF value is greater than 5.00, then there is a collinearity problem, whereas if the VIF is less than 5.00, then there is no collinearity problem. The results of the collinearity test are presented in the following table.

Table 6 Collinearity Statistics (VIF) Score

	VIF
Price Quotation (X2) -> Competitiveness (Y)	2.421
Human Resources (Z) -> Competitiveness (Y)	2.185
Competition Level (X1) -> Competitiveness (Y)	1.716
Human Resources (Z) x Competition Level (X1) -> Competitiveness (Y)	1.970
Human Resources (Z) x Price Quotation (X2) -> Competitiveness (Y)	2.006

Source: Author's Processing (2025)

Based on the results of data analysis in the table above, the VIF value for all indicators is below 5.00, which indicates that there is no problem of collinearity between indicators.

b. Evaluation of Inner Model (Structural Model)

1) R-Square

R-square testing is used to measure the suitability of a structural model, i.e. the extent to which independent latent variables affect dependent latent variables. Based on the results of the analysis, the R-square value was obtained as follows.

Table 7 Result R-Square

	R-square	R-square adjusted
Competitiveness (Y)	0.582	0.560

Source: Author's Processing (2025)

The R-square value of the Competitiveness variable in the data analysis was 0.582. From the results shown in the table above, it can be concluded that the model shows the variable Competitiveness (Y) mask in the moderate category. These results show the ability of variance that can be explained by the variables Competition Level (X1), Price Quotation (X2) and Human Resources (Z) to Competitiveness (Y) of 58.2% with the remaining 41.8% explained by other variables outside the model.

2) F-Square

F-square or effect size testing is used to assess the relative impact of independent (exogenous) variables on dependent (endogenous) variables. The criteria for assessing the effects of this measure are as follows: $F^2 < 0.02$ indicates a small effect, F^2 between 0.02 and 0.15 indicates a moderate effect, F^2 between 0.15 and 0.35 indicates a large effect, and $F^2 > 0.35$ indicates a very large effect. Based on the results of data analysis, the value of F-square is presented in the following Table 8.

Table 8 F-Square Influence Value

Relationships Between Variables	Value F-Square	Effect Description
Price Quotation (X2) -> Competitiveness (Y)	0.122	Keep
Human Resources (Z) -> Competitiveness (Y)	0.267	Big
Competition Level (X1) -> Competitiveness (Y)	0.005	Small
Human Resources (Z) X Competition Level (X1) -> Competitiveness (Y)	0.006	Small
Human Resources (Z) X Price Offer (X2) -> Competitiveness (Y)	0.049	Keep

Source: Author's Processing (2025)

c. Hypothesis Test

1) Partial Hypothesis Test

Testing the relationship of partial significance or each independent variable (independent variable) to the dependent variable (bound variable) is intended to test the hypothesis that has been formulated in Chapter II. This hypothesis test uses a comparison between the T-statistical value with the T-table and its significance value.

The results of the path coefficient and t-statistical values that have been obtained through the bootstrapping process are presented in the following table.

Table 9 Partial Hypothesis Test

Variable Relationships	Original sample	T statistics	P values	Result
Competition Level (X1) -> Competitiveness (Y)	0.058	0.509	0.611	H1 Rejected
Price Quotation (X2) -> Competitiveness (Y)	0.351	2.917	0.004	H2 Accepted
Human Resources (Z) -> Competitiveness (Y)	0.494	4.710	0.000	H3 Accepted

Source: Author's Processing (2025)

Based on the Table above, it can be concluded that:

- The value of the path coefficient (original sample) of the Competition Level (X1) to Competitiveness (Y) is 0.058 and has a positive value. It is known that the T-statistical value (0.439) < T-table (1.985) and P-value (0.611) > 0.05, Based on these results, the results of the level of competition have a positive but not significant effect on Competitiveness (Hypothesis 1 is rejected).
- The value of the line coefficient (original sample) of Price Quotation (X2) to Competitiveness (Y) is 0.351 and has a positive value. It is known that the T-statistic value (2,917) > T-table (1,985) and P-value (0.004) < 0.05. Based on these results, the results of the price offer have a positive and significant effect on Competitiveness (Hypothesis 2 is accepted).
- The value of the path coefficient (original sample) of Human Resources (Z) to Competitiveness (Y) is 0.494. It is known that the T-statistical value (4,710) > the T-table (1,985) and the P-value (0,000) < 0.05. Based on these results, the results of human resources are obtained that have a positive and significant effect on Competitiveness (Hypothesis 3 is accepted).

2) Moderation Hypothesis Test

In addition to testing the significance relationship partially or from each independent variable (independent variable) to the dependent variable (bound variable), hypothesis testing was also carried out on the influence of significance of the moderation variable. This hypothesis test uses a comparison between the T-statistic value and the T-tabe; and its significance.

Estimate this measurement model

Table 10 Moderation Hypothesis Test

Variable Relationships	Original sample	T statistics	P values	Result
Human Resources (Z) X Competition Level (X1) -> Competitiveness (Y)	-0.042	0.365	0.715	H4 Rejected
Human Resources (Z) X Price Quotation (X2) -> Competitiveness (Y)	0.117	1.022	0.307	H5 Rejected

Source: Author's Processing (2025)

Based on the Table above, it can be concluded that:

- The value of the path coefficient (original sample) of Human Resources (Z) x Competition Level (X1) to Competitiveness (Y) is -0.042, which is negative (weakening). In addition, it is known that the T-value of the statistics (0.365) < T-table (1.985) and P-value (0.715) > 0.05 (insignificant). Based on these results, human resources do not play a role in moderating the relationship between the variables of the level of competition and competitiveness. (Hypothesis 4 is rejected).

- b) The value of the path coefficient (original sample) of Human Resources (Z) x Price Quotation (X2) to Competitiveness (Y) is 0.117, which is a positive value (strengthening). In addition, the T-value of the statistics (1.022) < the T-table (1.985) and the P-value (0.307) > 0.05 (insignificant). Based on these results, human resources do not play a role in moderating the relationship between price bid variables and competitiveness because the P-value is not significant. (Hypothesis 5 is rejected).

3) RII (Relative Importance Index) Results

This analysis method is processed by statistical calculation with questionnaire results as inputs that will later be processed to find out the most influential/dominant factors with the ranking system based on the weight of the scores given from the respondents. The RII value of the responses that the researcher received from the respondents to 4 variables consisting of 32 indicators that meet the outer loading, is presented in the following table.

Table 11 RII Results of Each Variable

Variable	Indicator	RII	Ranking
Competition Level (X1)	X1.1 The product is standardized	0.70	6
	X1.2 The user's ability to price the product	0.74	4
	X1.3 Government regulations	0.73	5
	X1.4 Capital requirements	0.78	2
	X1.5 Number of competitors	0.74	3
	X1.6 Product differentiation	0.82	1
Price Quotation (X2)	X2.2 Innovation Management	0.78	5
	X2.3 Ability to forecast changes in market conditions	0.80	4
	X2.4 Availability of experts in bidding	0.83	1
	X2.5 Availability of resources, both methods, materials, equipment, and finance for the offer	0.81	3
	X2.6 The effect of the bidding activities that have been carried out previously	0.82	2
Resources Human (Z)	Z.1 Knowledge	0.82	9
	Z.2 Skills	0.85	7
	Z.3 Behaviour	0.86	5
	Z.4 Awards	0.85	6
	Z.5 Work Situation/Environment	0.90	1
	Z.6 Work done	0.89	2
	Z.7 Compliance with the rules	0.88	3
	Z.8 Compliance with working hours	0.84	8
	Z.9 Work by procedure	0.87	4
Competitiveness (Y)	Y.1 Verified strategy	0.80	10
	Y.2 Project selection strategy	0.81	9
	Y.3 Bid strategy	0.83	8
	Y.4 Knowledge and expertise in the market	0.79	11
	Y.5 Experience in similar projects	0.84	7
	Y.6 A good reputation of contractors in the construction market	0.88	2
	Y.7 Ability to manage work funds	0.85	6
	Y.8 Having financial stability	0.88	1
	Y.9 Financing capability	0.86	3
	Y.10 Client/owner relationships	0.85	5
	Y.11 Relationship with suppliers/subcontractors	0.85	4
	Y.12 Relationship with banks	0.78	12

Source: Author's Processing (2025)

Based on the data in the table above, it is known that the ranking of the dominant factors in each variable is as follows.

- a) The dominant factors that affect competitiveness based on the variables of the level of competition with the RII analysis method are indicators of product differentiation (0.82), capital requirements (0.78), number of competitors (0.74), ability of users to determine product prices (0.74), government regulations (0.73), and standardized products (0.70).
- b) The dominant factors that affect Competitiveness based on the competition level variables with the RII analysis method are indicators of the availability of experts in conducting bidding (0.83), the influence of previously conducted bidding activities (0.82), the availability of resources, both methods, materials, equipment, and finance for bidding (0.81), the ability to predict changes in market conditions (0.80), and innovation management (0.78)
- c) The dominant factors that affect Competitiveness based on the variables of the level of competition with the RII analysis method are indicators of work situation/environment (0.90), work done (0.89), compliance with regulations (0.88), working according to procedures (0.87), behavior (0.86), awarding (0.85), skills (0.85), compliance with working hours (0.84), and knowledge (0.82)
- d) The dominant indicators in the Competitiveness variable with the RII analysis method are financial stability (0.88), good reputation of contractors in the construction market (0.88), financing ability (0.86), relationships with suppliers/subcontractors (0.85), relationships with clients/owners (0.85), ability to manage work funds (0.85), experience in similar projects (0.84), bidding strategy (0.83), project selection strategy (0.81), verified strategy (0.80), knowledge and expertise in the market (0.79), and relationship with banks (0.78).

Discussion

1. Research Question 1

This study uses a quantitative approach with the SEM-PLS method to analyze the influence of Competition Level (X1), Price Quotation (X2), Human Resources (Z) on Competitiveness (Y) in small contractors.

Based on the results of data processing from 100 small contractor respondents spread across various regions, path coefficient and p-value scores were obtained for each path for each path of intervariable relationship. The results show that they are as follows.

- 1) There is no significant relationship between competition level and Competitiveness. An ineligible T-statistic value and an insignificant p-value indicate that the level of competition is not significantly related to the increase in Competitiveness. This is quite logical because fierce competition is indeed an external pressure, but it does not automatically lower or increase competitiveness without a proper internal response. In other words, the competitiveness of small contractors is determined more by how they respond to competition through other strategies. Prabowo et al (2019) have conducted a study on the factors that affect the level of competition of small contractors by showing that the dominant factor that affects the level of competition is the bargaining power of users. In contrast to this study, which shows that product differentiation (an indicator of the subvariable of competition between existing companies) has the highest value of outer loading and RII which means that service innovation is the advantage of contractors in competing with other contractors
- 2) There is a significant relationship between price bidding and Competitiveness. The T-statistic value is qualified, and the significant p-value indicates that the Price Offering is significantly

related to the direction of the positive influence on Competitiveness. This is in line with research conducted by Pahlevi et al (2020) which states that the inner indicator of the Competitiveness strategy for small contractors is price bidding in winning tenders so contractors must focus on developing effective marketing and bidding strategies as well as improving qualifications and work performance. Sari et al (2020) stated that the application of project cost management has the highest average in identifying competitive advantages in the construction services industry.

- 3) There is a significant relationship between human resources and competitiveness. The T-statistic value meets the requirements, and the significant p-value shows that human resources are significantly related to providing a positive influence on Competitiveness. This is in line with the research conducted by Johari and Soekiman (2019) which stated that of the 9 factors studied to analyze the competitiveness of small contractors in the West Java construction industry, there is the most dominant factor, namely human resource management. The absorption of technology and skilled labor also provides a positive aspect to the condition of the construction industry in Pakistan (Azeem et al, 2020). Dewi et al (2016) stated that human resources consisting of competence, motivation, loyalty, and work discipline are combinations that can be used by a company to improve project performance in Badung Regency.

Thus, this study provides empirical evidence that efforts in improving the competitiveness of small contractors in construction auctions should be directed at realistic and competitive bidding strategies, as well as the development of skilled and professional human resources. Competitiveness Strategy needs to be focused on strengthening efficient Price Offerings and superior human resource management. Although the competition level variable is not statistically significant in direct influence, it is still important to understand it as an external context that demands a strategic response from the company.

The results of the SEM-PLS modeling for the effect of human resource moderation on the variables of competition level and price quotation on Competitiveness show the following results

- 1) Based on the explanation in the previous subchapter, there is no influence on the level of competition on Competitiveness, while on price bidding and human resources on Competitiveness there is a significant influence.
- 2) Regarding the variables of moderation of human resources in the path of competition level and price quotation to Competitiveness, the following results are given.
 - a) The moderation of human resources on the path of competition level to Competitiveness is not significant.
 - b) Although the human resource moderation model on the Price Offering path to Competitiveness shows a positive value, it is still insignificant because the p-value > 0.05.

Table 12 Results Recapitulation and Discussion

Items	Hypothesis	Conformity to Previous Research	
		Linear	Opposite
Competition Rate (X1) x Competitiveness (Y)	Rejected		The dominant factor that affects the level of competition is the bargaining power of users (Prabowo, 2019)
Price Quotation (X2) x Competitiveness (Y)	Accepted	-	The most dominant indicator in the Competitiveness strategy of small

Items	Hypothesis	Conformity to Previous Research	
		Linear	Opposite
		contractors is price bidding (Pahlevi et al, 2020)	
		- The application of project cost management has the highest average in identifying competitive advantages in the construction services industry (Sari et al, 2020)	
Human Resources (Z) x Competitiveness (Y)	Accepted	- Human resource management is the most dominant factor among the 9 factors studied for the competitiveness of small contractors in West Java (Johari & Soekiman, 2019) - The absorption of technology and skilled labor also provides a positive aspect to the condition of the construction industry in Pakistan (Azeem et al, 2020) - Competence, motivation, loyalty, and work discipline are combinations that can be used by a company to improve project performance (Dewi et al, 2016)	
Human Resources (Z) x Competition Level (X1) -> Competitiveness (Y)	Rejected	Ghattas et al (2020) stated that Human resource management factors have an influence and relationship on the performance of construction projects in Egypt, but are not the main controlling factors.	
Human Resources (Z) x Price Quotation (X2) -> Competitiveness (Y)	Rejected		

Source: Author's Processing (2025)

These findings resulted in a relationship model construct that explains that price bidding and human resources are the two main pathways that significantly affect the competitiveness of small contractors. Conversely, the level of competition may be more accurately understood as an external environmental factor that is pressuring but still does not automatically lower or increase competitiveness without a strategic response from internal factors.

In addition, the results of the R-square analysis for the Competitiveness variable showed a value of 0.582 which indicates that the model has a moderate/moderate level of compatibility, which is able to make a significant contribution in explaining the variation of dependent variables of 58.2%, but there is still a large majority of the variation explained by factors outside the model of 41.8%.

Based on the results of the calculation of the Relative Importance Index (RII) in the previous subchapter, the following indicators rank first (rank 1) in each variable, which shows that these indicators are considered the most important by the respondents in relation to increasing the competitiveness of small contractors. The indicators are as follows.

Table 13 Dominant Factors in Each Variable

Variable	Indicator	Result	
		RII	Ranking
Competition Level (X1)	X1.6 Product differentiation	0.82	1
Price Quotation (X2)	X2.4 Availability of experts in bidding	0.83	1
Human Resources (Z)	Z.5 Work Situation/Environment	0.90	1
Competitiveness (Y)	Y.8 Have financial stability	0.88	1

Source: Author's Processing (2025)

Based on the table above, it is concluded that contractors need to highlight their specific advantages in order to be able to compete with other service providers, especially in the dense construction market. Technical innovation, specialization of the type of work, or speed of service can be the main differentiation strategies. Quotes prepared by a competent team will be more accurate, competitive, and convince project owners. This reinforces the importance of the quality of technical human resources at the tender stage. In addition, to increase Competitiveness, small contractors must create a conducive and harmonious work environment to support productivity, loyalty, and workforce performance. Financial strength is needed because this allows contractors to manage *project cash flow* well, meet initial financing needs, and face the risk of late payment from service users. The results of this interpretation show that service differentiation, the readiness of offer experts, and a supportive work environment, as well as financial stability are the four main pillars that must be focused on in the strategy to increase the competitiveness of small contractors.

CONCLUSION

The analysis concluded that price offerings and human resources significantly influence the competitiveness of small contractors, while the level of competition does not have a direct significant effect. The model indicates that price bidding and human resources are key factors shaping competitiveness, with competition level acting as an external factor addressed through internal strategies. Human resources did not moderate the relationship between competition level and price bidding on competitiveness. RII analysis showed that product differentiation, availability of experts, work environment, and financial stability were dominant factors within the variables studied. Future research should incorporate additional variables to improve the R-square value, which currently stands at 58.2%, and expand the study to cover non-building projects or other sectors of construction.

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