Forming index of barriers to corporate social responsibility in the Construction industry

Hình thành chỉ số ảnh hưởng các rào cản đến trách nhiệm xã hội của doanh nghiệp trong ngành Xây dựng

> **LE DINH THUC**
Civil engineering, Ho Chi Minh City University of Technology and Education
Email: thucld@hcmute.edu.vn

ABSTRACT

The objective of this paper is to define barriers and compute an impact index among barriers to corporate social responsibility (CSR) in the Vietnamese construction environment. A review of the literature and semi-structured interviews were carried out to identify barriers affecting CSR implementation. Through factor analysis, 19 identified barriers were classified into five factors, namely, internal perspectives of enterprises, construction industry characteristics, difficulties of CSR, political, and stakeholders. The fuzzy synthetic evaluation approach developed an impact index of barriers and indicated that the internal perspectives of enterprises are the most crucial factor for CSR implementation in the Vietnamese construction sector. Apart from this, most developing countries in Asia and Africa contain challenges regarding construction firms' context when implementing CSR. The study result may contribute to CSR knowledge of barriers to CSR practice in the construction field and a theoretical perspective. The findings also help policy-makers in developing countries integrate full strategies for ensuring effective CSR implementation and reducing conflicts and disputes in business activities.

Keywords: Barrier; corporate social responsibility; developing country; construction; fuzzy synthetic evaluation; Vietnam

TÓM TẮT

Mục tiêu của bài viết là xác định các rào cản và tính toán chỉ số tác động giữa các rào cản đối với trách nhiệm xã hội (TNXH) của doanh nghiệp trong môi trường xây dựng ở Việt Nam. Việc xem xét tài liệu và phỏng vấn bán cấu trúc đã được thực hiện để xác định các rào cản ảnh hưởng đến việc thực hiện TNXH. Thông qua phân tích nhân tố, 19 rào cản được xác định được phân thành 5 yếu tố là quan điểm nội bộ của doanh nghiệp, đặc điểm ngành Xây dựng, khó khăn thực hiện TNXH, chính trị và các bên liên quan. Phương pháp đánh giá mờ tổng hợp được sử dụng để tính chỉ số ảnh hưởng của các rào cản và chỉ ra rằng quan điểm nội bộ của doanh nghiệp là yếu tố quan trọng nhất trong việc thực hiện TNXH trong ngành Xây dựng Việt Nam. Ngoài ra, hầu hết các nước đang phát triển ở châu Á và châu Phi đều có những thách thức liên quan đến bối cảnh của các công ty xây dựng khi thực hiện TNXH. Kết quả nghiên cứu có thể đóng góp vào kiến thức TNXH về các rào cản đối với thực hành TNXH trong lĩnh vực xây dựng và góc độ lý thuyết. Những phát hiện này cũng giúp các nhà hoạch định chính sách ở các nước đang phát triển tích hợp các chiến lược đầy đủ để đảm bảo thực hiện TNXH hiệu quả và giảm xung đột, tranh chấp trong hoạt động kinh doanh.

Từ khóa: Rào cản; trách nhiệm xã hội doanh nghiệp; nước đang phát triển; xây dựng; đánh giá mờ tổng hợp; Việt Nam

1. INTRODUCTION

The construction sector significantly contributes to social and economic development in many countries worldwide. In 2030, global construction product is forecast to increase by 17.5 trillion USD, equivalent to 14.7% of the global gross product (Zhang et al., 2019). However, the construction activities utilized a huge number of resources during the construction project life-cycle (Zhao et al., 2012). In the last several decades, infrastructure management toward sustainability has received more attention in most countries worldwide, especially in developing countries due to complex engineering systems such as uncertainties, high risks, huge investment budgets, multi-

stakeholders, and environmental impacts (Zeng et al., 2015). Moreover, constructing infrastructure facilities negatively affects the environment, society, and economy such as environmental pollution, traffic congestion, labor accidents, and energy consumption (Yang et al., 2022). As a developing country, the complexity of the construction sector in the globalization circumstance brings the challenges of sustainable development in Vietnam. To exist in this highly competitive area, construction enterprises mainly focus on profit maximization with a low effort into environmental protection or workers' health (Jiang and Wong, 2016; Lu et al., 2016). In certain situations, the business activities of construction enterprises must sometimes be at the expense of

negative results for social well-being, unsatisfactory work, a harsh working environment, and low occupational safety standards (Lu et al., 2016). Hence, by being socially responsible, construction firms can enhance sustainable competitive advantages and improve organizational productivity. In recent years, corporate social responsibility (CSR) has received more attention in academics as well as business, especially in the construction sector which more robust impact on the community and environment compared with other sectors (Lin et al., 2017; Alotaibi et al., 2019). CSR commitment in construction needs dynamic and flexible to adapt to its inherent uncertain and complicated environment (Xia et al., 2018, Loosemore and Lim, 2018). Given these characteristics, studies have emphasized the necessity to increase CSR commitments for achieving sustainable goals in the construction field (Jiang and Wong, 2016; Xiong et al., 2016; Zhao et al., 2012). Loosemore and Lim (2018) observed that CSR concerns around business, environmental, and labor relations are mentioned by many developed countries, non-government organizations (NGOs), and regulatory agencies such as the United Nations (UN), European Nations (EU), and International Labour Organization (ILO) for a long time. However, implementing CSR in developing countries is at an initial development (Alotaibi et al., 2019), thus, Nguyen (2022) noticed that there are different barriers to CSR performance in these nations such as characteristics of the construction sector, enterprise culture, and political barriers. Thereby, one question arises whether there is any relationship among barriers to CSR implementation for attaining sustainable goals. Besides, assessing barriers in the construction sector is ambiguous and uncertain due to human judgment and the linguistic preferences of the decision-makers (Negash et al.,2021). Such issues might not be significantly solved by traditional methods because decision-makers need unique information sources. Thus, the objectives of this paper are: (1) Identify barriers and principal barriers from defined barriers; (2) Propose an impact index of barriers of CSR implementation in the Vietnamese construction market. The findings not only bridge the gaps of the CSR knowledge body in the construction area but also help construction enterprises as well as the government more deeply understand barriers in CSR implementation, thereby, they might pose strategies to reduce risks in CSR practice.

2. RESEARCH OVERVIEW

Many prior studies have pointed to barriers to CSR adoption in the construction area. Serpell et al. (2013) revealed that due to the pressure on the economy and poor living standards, it is difficult to carry out CSR to ensure priority for sustainable development in most developing countries. Alotaibi et al. (2019) found that there was no difference in the barriers affecting SCR in the current two complex projects in Saudi Arabia. Accordingly, there are five most important barriers, including increased costs, shortage of awareness and knowledge, unclear guidelines and strategies, poor stakeholder communication, and law enforcement. Similarly, Duman et al. (2016) conducted a quantitative comparison between the collected barriers of four typical companies in the UK and Turkey such as the negative attitudes of many employees, the money-focused business approach, limited project time, a lot of obstacles to thinking, the cost of CSR, the characteristics of the construction industry, and low CSR sharing.

From another circumstance, Bevan and Yung (2015) have proposed two hypotheses leading to the poor CSR performance of construction SMEs in Australia. They incorporated several aspects of CSR activities in construction SMEs. However, most SMEs mainly concentrate on ethical and economic aspects more than environmental and social. In addition, enterprises are not interested in incorporating CSR into business practice due to the misconception that CSR will increase expense and

time as well as a lack of financial resources to take reasonable solutions (Chiveralls et al. 2012; Kechiche and Soparnot, 2012). As a result, cost pressure can affect the extent of SCR implementation. On another aspect, Zhang et al. (2019) reviewed the previous studies regarding the motivations, advantages, and barriers to CSR implementation in construction enterprises. Which, the barriers are found to be classified into 5 groups: government policy, construction enterprises, CSR attributes, stakeholder perspective, and construction industry. In the surveys, Arevalo and Aravind (2011) indicated the key barriers to CSR implementation in Indian enterprises regarding the lack of resources, the difficulty of CSR, and the lack of management support. Besides, they complain that implementing CSR is too expensive, complex, and time-consuming. By concentrating on the energy area that much-consuming resources area, Alizadeh (2022) utilized a comparison between barriers to CSR in East North and Western Africa, by which, financial pressure, incurred costs, low CSR experience, and ownership concentration are constraints that impact both East North and Western Africa regions. Besides, this research also noticed that limited law enforcement, lack of stakeholder linkage, poor management commitment, low interest, corruption, and financial debts are several barriers to CSR in East North Africa, whereas cost/benefit ratio, low customer interest, and lack of scientific frameworks are significant barriers in Western countries. Wu et al. (2015) analyzed the perceptions of International contractors about CSR practices in the Chinese construction industry. They found the significant perception gaps between contractors mainly focus on a shortage of health and safety management, low compliance and ethical standards as well as insufficient consideration of CSR in business decision-making.

Generally, most prior studies are mainly interested in barriers to CSR commitment in construction enterprises by qualitative research or stop at ranking barriers with the mean score technique. There is little research concern on the impact level among barriers to CSR knowledge. Therefore, the present paper aims to construct the causal interrelationship framework via barriers to CSR implementation toward sustainable development in the construction industry in Vietnam as well as other developing countries.

3. RESEARCH METHOD

To handle this present research, the factor analysis technique is used to develop a hierarchical model of variable clusters from valid variables (Bui et al., 2020). With assessing linguistic preference, the fuzzy synthetic evaluation (FSE) approach is then employed to calculate the barrier index to CSR adoption in the Vietnamese construction circumstance. The FSE method and research steps are described in this section and Figure 1.
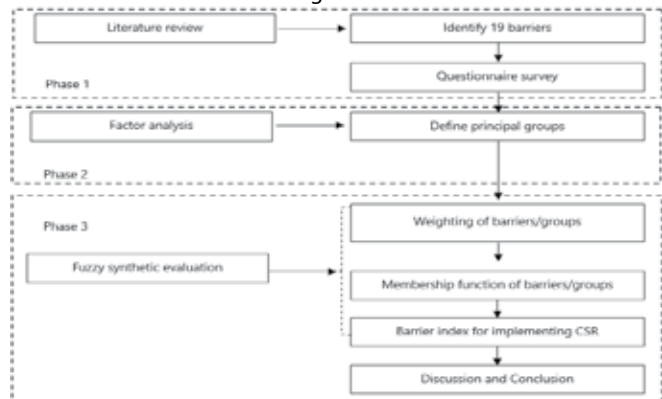

Figure 1. Proposed method

Proposed analysis process

A process of three phases was utilized for forming an overall barrier index among attributes of CSR (presented in Fig. 1)

Phase 1: A comprehensive literature review was performed to define barriers to CSR via phrases such as "Corporate social responsibility" and "barriers to CSR in construction" from Web of Science, Scopus, and Google Scholar databases. To be suitable in the present study, defined barriers were interviewed by three experts who have more than ten years of experience in leading Vietnamese construction corporates. They were asked whether or not the identified barriers impact CSR in the Vietnamese context. Along with that, experts were also asked to add additional barriers (if any). However, there are no barriers that are added by the consensus of experts. Finally, a total list of 19 barriers was identified and established in the questionnaire survey. Continuously, questionnaire surveys were sent to 56 experts who have more than 10 years of experience in large construction enterprises and groups performing many CSR programs in Vietnam, such as Holcim Vietnam, Hoa Sen Group, Construction Corporation No.1 – Joint Stock Company, Hoa Binh Construction Group, Nova Group, and Vingroup. The information of experts is indicated in Table 1. The respondents were asked to rate the influence of barriers to CSR according to the Likert scale (1 = very low, 2 = low, 3 = medium, 4 = strong, 5 = very strong) (Kim and Le, 2021).

Table 1. Backgound of respondents

Criteria	Quantity (people)	Percentage (%)
Experience		
<= 5 years	10	17.86
6 – 10 years	11	19.64
11 – 15 years	16	28.57
> 15 years	19	33.93
Total	56	100
Organization type		
Public sector	8	14.29
Investor	28	50.00
Contractor	20	35.71
Total	56	100
Position		
Director/Vice director	9	16.07
Leader/Vice leader	13	23.21
Technical staff	34	60.72
Total	56	100

Phase 2: Factor analysis and Cronbach's alpha technique were applied to confirm the reliability and consistency of attributes and barriers by using SPSS 21.0 software.

Phase 3: Collected data from questionnaire surveys were analyzed by FSE method. The research results were overall index among attributes of barriers influence to CSR implementation in Vietnam.

4. RESEARCH RESULTS

4.1. Factor analysis

Table 3 indicates KMO value is 0.756 > 0.6 and Bartlett's test is significant with p = 0,00 < 0.05. Therefore, it is suitable for the factor analysis process. Factor loading scores of 19 identified barriers are higher than 0.5. These barriers are divided into 5 attributes, namely, internal perspectives of enterprises; construction industry characteristics; difficulties of CSR; political; and stakeholders (shown in Table 2).

Table 2. Factor analysis for groups and barriers

Groups		Barriers		Factor loading	Cronbach's Alpha (α)
A1	Internal perspectives of enterprises	B1	Lack of awareness and knowledge in enterprises	0.773	0.859
		B2	Workforce self-satisfaction	0.760	
		B3	Leadership support in organization	0.675	
		B4	Lack of training and education	0.647	
		B5	Negative attitude within enterprise	0.647	
		B6	Lack of capacity and expertise	0.631	
A2	Construction industry characteristics	B7	Construction industry complexity	0.788	0.803
		B8	Environmental protection	0.724	
		B9	Increased time consumption	0.675	
		B10	Low CSR sharing	0.649	
A3	Difficulties of CSR	B11	Additional cost	0.712	0.790
		B12	Lack of benefit evaluation tool	0.697	
		B13	Money-focused approach	0.584	
		B14	Low benefits	0.523	
A4	Political	B15	Lack of government support	0.748	0.701
		B16	Lack of CSR communication	0.702	
		B17	Lack of attractiveness of CSR to customers	0.693	
A5	Stakeholders	B18	Lack of communication between stakeholders	0.844	0.842
		B19	Fair opration and competition	0.801	

4.2. The calculation process of FSE application

Firstly, the objective of this study is to define an overall index of barriers to adopting CSR practice via five attributes. The major steps of FSE are conducted as follows:

Step 1: Establish the membership function of barriers (level 2)

$$MF_{B11} = \frac{0.09}{\text{very low}} + \frac{0.09}{\text{low}} + \frac{0.2}{\text{medium}} + \frac{0.52}{\text{strong}} + \frac{0.11}{\text{very strong}} = \frac{0.09}{1} + \frac{0.09}{2} + \frac{0.2}{3} + \frac{0.52}{4} + \frac{0.11}{5}$$

The membership function (MF) of barriers (level 2) is computed based on obtained data from respondents. Using 'addition cost' (B11) as an example, the result of questionnaire surveys revealed that the total of 5 respondents (9%) expressed addition cost impacts very low to CSR implementation; 9% as low; 20% as medium; 52% as strong; and 11% as very strong, respectively. The MF of B11 can be presented as:

Besides, MF of B11 is also written as: [0.09, 0.09, 0.2, 0.52, 0.11]. Similarly, the MF of the remaining barriers is shown in Table 3.

Table 3. The MF of barriers

Barriers/Groups		No. of respondents					Total	MF of level 2				
		1	2	3	4	5		1	2	3	4	5
	A1											
B1		2	5	13	27	9	56	0.04	0.09	0.23	0.48	0.16
B2		3	8	10	29	6	56	0.05	0.14	0.18	0.52	0.11
B3		2	6	14	24	10	56	0.04	0.11	0.25	0.43	0.18
B4		5	10	9	26	6	56	0.09	0.18	0.16	0.46	0.11
B5		2	11	9	25	9	56	0.04	0.20	0.16	0.45	0.16
B6		2	10	5	26	13	56	0.04	0.18	0.09	0.46	0.23
	A2											
B7		6	7	12	20	11	56	0.11	0.13	0.21	0.36	0.20
B8		6	4	15	22	9	56	0.11	0.07	0.27	0.39	0.16
B9		3	9	17	20	7	56	0.05	0.16	0.30	0.36	0.13
B10		4	4	15	21	12	56	0.07	0.07	0.27	0.38	0.21
	A3											
B11		5	5	11	29	6	56	0.09	0.09	0.20	0.52	0.11
B12		4	5	8	28	11	56	0.07	0.09	0.14	0.50	0.20
B13		1	9	14	28	4	56	0.02	0.16	0.25	0.50	0.07
B14		7	3	13	25	8	56	0.13	0.05	0.23	0.45	0.14
	A4											
B15		7	8	14	22	7	58	0.12	0.14	0.24	0.38	0.12
B16		4	2	11	30	9	56	0.07	0.03	0.19	0.52	0.16
B17		6	6	15	24	5	56	0.10	0.10	0.26	0.41	0.09
	A5											
B18		0	15	16	21	4	56	0.00	0.27	0.29	0.38	0.07
B19		0	11	16	24	5	56	0.00	0.20	0.29	0.43	0.09

Step 2: The weightings of barriers/groups

The weightings of barriers within each group can be evaluated based on the mean score (MS) of barriers. For example, the weighting of B11 belongs to 'difficulties of CSR' (A3) is presented as follows:

$$w_{B11} = \frac{3.46}{3.46+3.66+3.45+3.43} = 0.247$$

In the same way, the weighting of A3 is determined as follows:

$$w_{A3} = \frac{14.00}{65.87} = 0.213$$

The weightings of the remaining barriers/groups are shown in Table 4.

Table 4. The weightings of barriers/groups

Barriers/Groups		MS of barriers	Weightings of barriers	MS of groups	Weightings of groups
	A1			21.23	0.322
B1		3.64	0.172		
B2		3.48	0.164		
B3		3.61	0.170		
B4		3.32	0.156		
B5		3.50	0.165		
B6		3.68	0.173		
	A2			13.77	0.209
B7		3.41	0.248		
B8		3.43	0.249		
B9		3.34	0.243		
B10		3.59	0.261		
	A3			14.00	0.213
B11		3.46	0.247		
B12		3.66	0.261		
B13		3.45	0.246		
B14		3.43	0.245		
	A4			10.21	0.155
B15		3.24	0.318		
B16		3.68	0.360		
B17		3.29	0.322		
	A5			6.66	0.101
B18		3.25	0.488		
B19		3.41	0.512		
Total				65.87	

Step 3: Compute the MF of barrier groups (level 1)

A fuzzy matrix of A3 can be installed as follows:

$$R_{A3} = \begin{bmatrix} MF_{B11} \\ MF_{B12} \\ MF_{B13} \\ MF_{B14} \end{bmatrix} = \begin{bmatrix} 0.09 & 0.09 & 0.2 & 0.52 & 0.11 \\ 0.07 & 0.09 & 0.14 & 0.5 & 0.2 \\ 0.02 & 0.16 & 0.25 & 0.5 & 0.07 \\ 0.13 & 0.05 & 0.23 & 0.45 & 0.14 \end{bmatrix}$$

The MF of A3 is computed as follows:

$$D_{A3} = (0.247, 0.261, 0.246, 0.245) \bullet \begin{bmatrix} 0.09 & 0.09 & 0.2 & 0.52 & 0.11 \\ 0.07 & 0.09 & 0.14 & 0.5 & 0.2 \\ 0.02 & 0.16 & 0.25 & 0.5 & 0.07 \\ 0.13 & 0.05 & 0.23 & 0.45 & 0.14 \end{bmatrix} = [0.08, 0.10, 0.20, 0.49, 0.13]$$

The MF for the five barrier groups is presented in Table 5.

Table 5. The MF of groups (level 1)

Barriers/Groups	Weights	MF of barriers (level 2)					MF of groups (level 1)				
A1							[0.05	0.15	0.18	0.47	0.16]
B1	0.172	[0.04	0.09	0.23	0.48	0.16]					
B2	0.164	[0.05	0.14	0.18	0.52	0.11]					
B3	0.170	[0.04	0.11	0.25	0.43	0.18]					
B4	0.156	[0.09	0.18	0.16	0.46	0.11]					
B5	0.165	[0.04	0.20	0.16	0.45	0.16]					
B6	0.173	[0.04	0.18	0.09	0.46	0.23]					
A2							[0.08	0.11	0.26	0.37	0.17]
B7	0.248	[0.11	0.13	0.21	0.36	0.20]					
B8	0.249	[0.11	0.07	0.27	0.39	0.16]					
B9	0.243	[0.05	0.16	0.30	0.36	0.13]					
B10	0.261	[0.07	0.07	0.27	0.38	0.21]					
A3							[0.08	0.10	0.20	0.49	0.13]
B11	0.247	[0.09	0.09	0.20	0.52	0.11]					
B12	0.261	[0.07	0.09	0.14	0.50	0.20]					
B13	0.246	[0.02	0.16	0.25	0.50	0.07]					
B14	0.245	[0.13	0.05	0.23	0.45	0.14]					
A4							[0.10	0.09	0.23	0.44	0.12]
B15	0.318	[0.12	0.14	0.24	0.38	0.12]					
B16	0.360	[0.07	0.03	0.19	0.52	0.16]					
B17	0.322	[0.10	0.10	0.26	0.41	0.09]					
A5							[0.00	0.23	0.29	0.40	0.08]
B18	0.488	[0.00	0.27	0.29	0.38	0.07]					
B19	0.512	[0.00	0.20	0.29	0.43	0.09]					

Step 4: Compute the barrier index of five groups

Finally, all MF of five groups are defuzzied which are input values to set up the coefficients of overall barrier index (BI). For example, the BI of A3 is calculated as:

BI$_{A3}$ = [0.08, 0.10, 0.20, 0.49, 0.13]×(1, 2, 3, 4, 5)

= 0.08×1 + 0.10×2 + 0.20×3 + 0.49×4 + 0.13×5 = 3.50

Similarly, the remaining BIs are shown in Table 6.

Table 6. The BI of groups

Groups	Code	BI	Coefficient*	Linguistic
Internal perspectives of enterprises	A1	3.54	0.250	Strong
Construction industry characteristics	A2	3.44	0.201	Medium
Difficulties of CSR	A3	3.50	0.204	Medium
Political	A4	3.33	0.194	Medium
Stakeholders	A5	3.33	0.194	Medium
Total		17.14		

Coefficient* = BI of each group/ Total of BI

Finally, overall BI is expressed as follows:

Overal BI = (0.250 × Internal perspectives of enterprises) + (0.204 × Difficulties of CSR) + (0.201 × Construction industry characteristics) + (0.194 × Political) + (0.194 × Stakeholders)

Discussion

Internal perspectives of enterprises (A1) which include lack of awareness and knowledge in enterprises (B1), workforce self-satisfaction (B2), leadership support in organization (B3), lack of training and education (B4), negative attitude within enterprise (B5), and lack of capacity and expertise (B6) also significantly impact on effectiveness of CSR implementation. Construction enterprises are not fully aware of the meaning and the impact of social responsibility on enterprises themselves and the Vietnamese economy. Besides, the attitude of Vietnamese enterprises toward the role of social responsibility is not serious. Another obstacle in applying CSR standards is the lack of guidelines with international codes of conduct, and overlapping regulations of ministries and departments in Vietnam. So far, the government has not developed a code of conduct and CSR standards in the construction sector. Moreover, there are few Vietnamese enterprises that have a code of conduct that is standards applied in their production and business activities. Thus, lack of training and education program can hamper effective CSR solutions in the business activities of these firms. At the same time, the commitment to leadership support and workforce self-satisfaction is essential to ensure the success of CSR implementation in construction firms.

Second, difficulties of CSR are also challenges to adopting CSR development for sustainable goals in the construction sector. Difficulties of CSR consist of additional cost (B11), lack of benefit evaluation tool (B12), money-focused approach (B13), and low benefits (B14). Indeed, many construction firms noticed that they do not have

enough financial resources for CSR solutions. Their common concern is the way how to meet profit in the context of increasing competition recently. They affirm that CSR practice is a mandatory obligation for both charity and humanitarian activities, nevertheless, the lack of benefit evaluation tools and low profit did not create motivation for the adoption of CSR in the construction field.

Besides, construction industry characteristics (A2) are also a major barrier influence on CSR, including construction industry complexity (B7), environmental protection (B8), increased time consumption (B9), and low CSR sharing (B10). Zeng et al. (2015) emphasized the complexity of the construction industry, especially infrastructure complexity brings big challenges for CSR and sustainability. Construction projects need to invest huge financial budgets and resource consumption for deploying. Opposite to many other industries, the construction industry and its products, including buildings and other structures, consume large amounts of natural resources such as electricity and minerals which might lead to air pollution and habitat fragmentation. Thus, the strategy for environmental protection in sustainable development is an obstacle for construction enterprises for CSR implementation in developing countries like Vietnam. Moreover, additional time and low CSR sharing in employing social commitments might cause anxiety for construction firms toward sustainable targets.

With the above-mentioned causes, they might bring challenges to CSR's expectations, especially in stakeholders (A5) and political (A4). Stakeholders play an important role in successful CSR practice (Aloitaibi et al., 2019). Due to the different characteristics of the construction industry compared to other industries, each stakeholder often individually organizes according to their method, policies, and expertise. A lack of trust and well-being with other stakeholders will hinder innovation and partnership options (Othman and Abdellatif, 2011). Thus, the lack of communication between stakeholders as well as fair operation and competition has seriously constrained the effectiveness of CSR in construction projects. Within developing countries as well as Vietnam where differences in the construction environment, CSR implementation is little experience compared to developed countries. Construction enterprises have not received the attention and support of the government and local authorities, it is difficult for these businesses to access international standards of social responsibility. Therefore, the environment and legal framework which is the most effective measure required to support ethical solutions in implementing CSR have not been established. This is also a robust obstacle for Vietnam in the context that it needs to attract the attention of domestic and foreign customers. If it is no high requirements for CSR implementation, the growth results in the construction industry can hardly offset the environmental and social consequences and thus will not realize sustainable development goals.

5. CONCLUSION

CSR practice is considered a valid commitment of enterprises in business sectors toward sustainable development and the construction industry is also not excluded. This study aims to investigate and construct an impact index among barriers to CSR implementation in the Vietnamese construction industry. This study categorized five principal attributes from nineteen barriers that were identified from the literature review. An overall BI between five barrier groups was defined using the FSE technique. The finding indicated that the internal perspectives of enterprises are the strongest barrier group to CSR implementation among the five identified barrier groups by factor analysis.

The study result may contribute to CSR knowledge of barriers to CSR practice in the construction field and a theoretical perspective (i.e. organizational theory, sociological theory, and stakeholder theory). Relying on the overall index among attributes, practitioners might enhance their CSR attitude before setting any efforts toward CSR goals. The findings also help policy-makers in developing countries integrate full strategies for ensuring effective CSR implementation and reducing conflicts and disputes in business activities. Besides, understanding barriers and impact index among barriers to CSR practice, the government needs to issue detailed instructions and guidelines on coherent CSR regulations for sustainable development in the construction sector.

Notwithstanding, this study still has limitations. This research's model was conducted in Vietnam circumstance, thereby this finding is more suitable in developing countries compared to others. Thus, it can examine more stakeholders to develop CSR studies based on multiple perspectives in further research.

REFERENCES

[1]. Alizadeh, A. (2022), "The Drivers and Barriers of Corporate Social Responsibility: A Comparison of the MENA Region and Western Countries", Sustainability, Vol. 14 No. 2:909.

[2]. Alotaibi, A., Edum-Fotew, F. and Price, A.D.F. (2019), "Critical barriers to social responsibility implementation within mega-construction projects: the case of the Kingdom of Saudi Arabia", Sustainability, Vol. 11, 1755.

[3]. Arevalo, J.A. and Aravind, D. (2011), "Corporate social responsibility practices in India: approach, drivers, and barriers", Corporate Governance, Vol. 11 No. 4, pp. 399-414.

[4]. Bevan E.A.M. and Yung P. (2015), "Implementation of corporate social responsibility in Australian construction SMEs," Engineering, Construction and Architectural Management, Vol. 28 No. 1, pp. 4-17.

[5]. Bui, T.D., Tsai, F.M., Tseng, M.L., Wu, K.J. and Chiu, A.S.F. (2020), "Effective municipal solid waste management capability under uncertainty in Vietnam: Utilizing economic efficiency and technology to foster social mobilization and environmental integrity", Journal of Cleaner Production, Vol. 259, 120981.

[6]. Chiveralls, K., Zuo, J., Zillante, G., Wilson, L. and Pullen, S. (2012), Constructing corporate social responsibility: encouraging CSR through legislation and regulation. COBRA RICS Conference, Manchester, pp. 12-13.

[7]. Duman, D.U., Giritli, H. and McDermott, P. (2016), "Corporate social responsibility in construction industry. A comparative study between UK and Turkey", Built Environment Project and Asset Management, Vol. 6 No. 2, pp. 218-231.

[8]. Jiang, W.Y. and Wong, J.K.W. (2016), "Key activity areas of corporate social responsibility (CSR) in the construction industry: a study of China", Journal of Cleaner Production, Vol. 113, pp. 850-860.

[9]. Kechiche, A. and Soparnot, R. (2012), "CSR within SMEs: literature review", International Business Research, Vol. 5 No. 7, pp. 97-104.

[10]. Kim, S.Y. and Le, T.D. (2021), "Evaluating the Impact Index of Key Barriers to Public-Private Partnership Transportation Projects in Vietnam: Comparison between Selected Asian Countries", Journal of Urban Planning and Development, Vol. 147 No. 2: 04021016.

[11]. Lin, X., Ho, C.M.F. and Shen, G.Q.P. (2017), "Research on corporate social responsibility in the construction context: a critical review and future directions", International Journal of Construction Management, Vol. 18 No. 5, pp. 394-404.

[12]. Loosemore, M. and Lim, B.T.H. (2018), "Mapping corporate responsibility strategies in the construction and engineering industry", Construction Mangement and Economics, Vol. 36 No. 2, pp. 67-82.

[13]. Lu, W., Ye, M., Flanagan, R. and Ye, K.H. (2016), "Corporate Social Responsibility Disclosures in International Construction Business: Trends and Prospects", Journal of Construction Engineering and Management, Vol. 142 No. 1, 14.

[14]. Negash, Y.T.N., Hassan, A.M. and Tseng, M.L. (2021), "Sustainable construction and demolition waste management in Somaliland: Regulatory barriers lead to technical and environmental barriers", Journal of Cleaner Production, Vol. 297, 126717.

[15]. Othman, A. and Abdellatif, M. (2011), "Partnership for integrating the corporate social responsibility of project stakeholders towards affordable housing development", Journal of Engineering, Design and Technology, Vol. 9 No. 3, pp. 273-295.

[16]. Serpell, A., Kort, J. and Vera, S. (2013), "Awareness, actions, drivers and barriers of sustainable construction in Chile", Technological and Economic Development of Economy, Vol. 19 No. 2, pp. 272-288.

[17]. Wu, W.W. (2012), "Segmenting critical factors for successful knowledge management implementation using the fuzzy DEMATEL method", Applied Soft Computing, Vol. 12 No. 1, pp. 527-535.

[18]. Xia, B., Olanipekun, A., Chen, Q., Xie, L. and Liu, Y. (2018), "Conceptualising the state of the art of corporate social responsibility (CSR) in the construction industry and its nexus to sustainable development", Journal of Cleaner Production, Vol. 195, pp. 340-353.

[19]. Xiong, B., Lu, W.S., Skitmore, M., Chau, K.W. and Ye, M. (2016), "Virtuous nexus between corporate social performance and financial performance: a study of construction enterprises in China", Journal of Cleaner Production, Vol. 129, pp. 223-233.

[20]. Yang, J.K., Thuc, L.D., Cuong, P.P., Du, N.V. and Tran, H.B. (2022), "Evaluating a driving index of nonresidential green building implementation for sustainable development in developing countries from a Vietnamese perspective", Sustainable Development, Vol. 31 No. 3, pp. 1720-1734

[21]. Zhang Q., Oo, B.L. and Lim, B.T.H. (2019), "Drivers, motivations, and barriers to the implementation of Corporate Social Responsibility practices by construction enterprises: A review", Journal of Cleaner Production, Vol. 210, pp. 563-584.

[22]. Zhao, Z.Y., Zhao, X.J., Davidson, K. and Zuo, J. (2012), "A corporate social responsibility indicator system for construction enterprises", Journal of Cleaner Production, Vol. 29-30 No. 5, pp. 277-289.

[23]. Zeng, S.X., Ma, H.Y., Lin, H., Zeng, R.C. and Tam, V.W.Y. (2015), "Social responsibility of major infrastructure projects in China", International Journal of Project Management, Vol. 33 No. 3, pp. 537-548.