The Effect of Drivers and Barriers on the Adoption of Green Supply Chain Management in Construction of Iraq: A Cross-Sectional Study

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ABSTRACT

The primary reason for adopting green supply chain management (GSCM) in developing nations is that, compared to industrialized nations, these nations continue to confront various hurdles and motivators to embrace GSCM. Most studies on the construction industry were conducted in industrialized nations, whereas empirical research on Iraq's emerging economy received little attention. To overcome this deficiency, the research focused primarily on the influence of drivers and impediments on the adoption of GSCM in Iraqi construction. The survey instrument data was obtained from 250 project managers using a quantitative and cross-sectional research approach. The Partial Least Square (PLS)-Structural Equation Modeling (SEM) regression results reveal that managerial barriers have little effect on GSCM. However, sectoral/economic suppliers and supplier barriers substantially affect GSCM. In addition, government legislation has little impact on GSCM. However, customer pressure and entrepreneurship have a substantial impact on GSCM. With these findings, this study could also assist construction industry management in understanding the significance of drivers and barriers that could hamper or improve GSCM. The research could potentially assist future researchers in their endeavors.

KEYWORDS: Green supply chain management, drivers, barriers, Iraq, Construction industry.

INTRODUCTION

Increased awareness of the continuously deteriorating environmental conditions, particularly due to industrial activity, has raised significant concerns over the actions that can be taken to green the supply chain. To green the supply chain, eco-friendly conditions must be implemented, and including the abovementioned procedures in the supply chain can considerably improve the environment's worsening condition. Green supply chain management (GSCM) is an umbrella term for green supply chain management methodologies. The concept of GSCM is sufficiently general to be implemented in a range of distinct organizational

contexts. The complexity of the supply chain in the construction industry differs from that of other industries due to the large number of stakeholders involved, including material suppliers, customers or users of the material, planners, contractors, and owners (Behera, Mohanty, & Prakash, 2015). However, GSCM tailored to the construction industry could improve efficiency and reduce costs and time (Balasubramanian & Shukla, 2017; Behera et al., 2015). According to Park, Kim, and Lee (2022), a successful GSCM in the construction industry results from methods that account for the distinctions between a conventional manufacturing supply chain and a construction supply chain. The government and other groups have exerted tremendous pressure on construction companies to maintain the environment's safety, which has been plagued by a myriad of problems due to some hazardous industrial practices.

Academics have spent the last decade seeking to improve supply chain management (SCM) within the context of GSCM (Lim & Wong, 2015; Pagell & Wu, 2009). With the growing significance of GSCM, research procedures on GSCM are in their infancy in developing countries (Esfahbodi, Zhang, & Watson, 2016). This low uptake is because supply networks in emerging and developing nations face more sustainability issues than those in industrialized countries (Silvestre, 2015). Companies, particularly the construction industry, face new challenges and opportunities in adopting environmentally friendly methods (Murillo-Luna, Garcés-Ayerbe, & Rivera-Torres, 2011) as well as social practices (Köksal et al., 2017). Therefore, it is essential to comprehend how GSCM could be developed within the organizations (Baig et al., 2020). Diverse scholars stated that numerous forces and obstacles impacted the GSCM (Aslam et al., 2018; Baig et al., 2020).

To compile a comprehensive list of sustainability hurdles within GSCM, an extensive literature analysis was conducted to identify the barriers identified through qualitative research conducted by multiple researchers. Moktadir et al. (2018), for instance, analyzed the background constraints of Bangladesh's manufacturing industry. Al Zaabi, Al Dhaheri, and Diabat (2013) examined the obstacles in the particular industry. Oelze (2017) examined the construction industry only in industrialized nations and developed economies. Luthra et al. (2011) conducted a literature review to identify obstacles faced by Indian automobile manufacturers. Although a large number of studies have been shown in this field, the vast majority of research suffers from a lack of generalizability because the scope of their findings is limited to a particular sector and developed nations (Giunipero, Hooker, & Denslow, 2012), while the construction industry in Iraq receives little attention. In addition, prior studies on the influence of barriers on GSCM were qualitative (Walker, Di Sisto, & McBain, 2008), with little emphasis on quantitative research, particularly in Iraq. Previous research has shown that economic/sectoral, managerial, and supplier barriers substantially impact GSCM (Baig et al., 2020).

Moreover, the majority of the studies on internal and external drivers in the existing literature with other exogenous factors relationship (Islam et al., 2017) may pay less attention to a company's GSCM as a whole (Hsu et al., 2014). In addition, past research has emphasized the relationship between drivers and GSCM in other nations but has paid less attention to non-developing economies. In developing countries, a parallel study undertaken in the Chinese context by Zhu, Cordeiro, and Sarkis (2013) yielded contradictory results, highlighting the need for additional research into GSCM drivers. They explore the GSCM drivers within the context of various nations. Academics have claimed that cultural disparities in motivation for social responsibility exist (del Mar Miras-Rodríguez, Carrasco-Gallego, & Escobar-Pérez, 2015). In addition, considerable Drivers and GSCM research has been conducted in "China, India,

Taiwan, and Brazil." These nations have lately become global building hubs, and as a result, they possess more resources and skills to execute green projects (Vijayvargy, Thakkar, & Agarwal, 2017). A previous study determined that government regulation, customer pressure, and entrepreneurship are more prevalent factors that majorly impact GSCM (Aslam et al., 2018). In addition, prior quantitative studies focused on the individual influence of drivers and barriers, but the combined effect of drivers and barriers received little attention, particularly in quantitative studies (Baig et al., 2020; Walker et al., 2008). In addition, barriers and drivers connected with GSCM have been studied in the context of several nations and industries outside Iraq (Chakraborty & Mandal, 2014). It is impossible to exaggerate the significance of the Construction industry to the expansion of numerous emerging economies. Socially and commercially, construction is considered a key industry in Iraq (Buniya et al., 2021). Consequently, this industry could not be disregarded.

To summarize the preceding discussion, it has been determined that previous studies have primarily focused on qualitative research while paying little attention to quantitative research and have also mainly focused on developed economies in terms of the relationship between drivers and GSCM while paying little attention to developing economies. Numerous studies on growing economies have been undertaken in other nations or industries, but the building business in Iraq has received little attention. To analyze the influence of drivers and barriers on the GSCM performance of the Iraqi construction sector, this study seeks to make the following contributions to the literature on GSCM.

The paper was broken into the following sections for presentation. The introduction comprises the introductory section. The second section is a literature analysis examining what makes GSCM procedures effective and what hinders their effectiveness. The final section of the report discusses the study's methodology. The fourth section discusses the study's findings. The fifth section includes the research findings. Conclusions are drawn at the end, including the limitations of the research and its future direction.

LITERATURE REVIEW

Green supply chain management

The focus of "green supply chain management" (GSCM) is overly ingrained in environmental protection (Zhu et al., 2017). SCM refutes the notion that companies are independent entities that strive to avoid entanglement with other companies (Lee, Kim, & Choi, 2012). This implies that all SC enterprises must collaborate to achieve supply chain-wide objectives (Frödell, 2011). According to environmental preservation literature, businesses must develop environmentally friendly practices to safeguard the environment (Innes & Sam, 2008). GSCM blends the principles of SCM with those of environmental protection. It adds a green element to the SCM concept (Frödell, 2011). In addition, GSCM is defined as the management of SC to reduce its detrimental impact on the environment (Lee et al., 2012). GSCM processes not only contribute to the environmental friendliness of businesses but also to the optimal utilization of natural resources, hence enhancing the profitability of the businesses (Rao & Holt, 2005). This study focuses on organizations' motivators and barriers when attempting to deploy GSCM processes. Among these drivers and Barrie, government regulations can play an important role in promoting environmentally responsible behavior (Zhu, Sarkis, & Lai, 2013). Strict environmental regulations in emerging nations such as Iraq have driven more industrial enterprises to implement GSCM programs (Zhu et al., 2017), while the construction industry

has gotten less focus. A contributing factor may be that the application of GSCM in developing countries focuses more on reducing environmental harm than on addressing the key drivers and impediments to reducing the source of pollution and waste (Zhu et al., 2011). This study investigates the drivers and obstacles of GSCM implementation in the Iraqi construction industry. The subsequent section presented the empirical analysis of the link between GSCM obstacles and drivers.

Barriers and adaptation of green supply chain management

Multiple obstacles prevent businesses from implementing GSCM (Giunipero et al., 2012). When GSCM procedures are implemented, firms confront numerous sectoral, management, and supplier obstacles (Luthra et al., 2011). Inadequate support from higher management, misalignment between short- and long-term objectives, the complexity of implementing new procedures and policies, the high cost required, the absence of applicable environmental laws and regulations, and other factors all contribute to these difficulties (Moktadir et al., 2018). The government and other stakeholders should provide appropriate regulations for developing GSCM, but they create obstacles instead (Meixell & Luoma, 2015). Weak regulatory checks and controls are the most significant factors holding GSCM behind (Oelze, 2017). Stakeholders are at the top of the significant GSCM group, followed by customers and governments. In developing nations, stakeholders, especially supply chain partners, lack GSCM understanding (Soda, Sachdeva, & Garg, 2015). They result in a lack of payment willingness and demand for GSCM items (Habib, Bao, & Ilmudeen, 2020). Jabbour et al. (2016) uncovered the effect of obstacles on GSCM and showed that internal barriers negatively affect the adoption of GSCM. Researchers have relied primarily on qualitative studies to identify the issues, but it is uncommon to obtain primary evidence that supports these qualitative results (Sajjad, Eweje, & Tappin, 2020). Due to the global nature of construction supply chains and the sector's importance in economic growth, job creation, and social effects, it is essential to identify and research the hurdles that inhibit the usage of GSCM. This study employed three types of internal and external barriers, including economic, managerial, and obstacles to the supplier, which substantially impact the GSCM (Baig et al., 2020). Consequently, based on study gaps, the following research hypothesis is formulated:

H1: Sectoral/economic barriers have a significant relationship with the green supply chain management of the construction industry in Iraq.
H2: Managerial barriers have a significant relationship with the green supply chain management of the construction industry in Iraq.
H3: Supplier barriers have a significant relationship with the green supply chain management of the construction industry in Iraq.

Drivers and green supply chain Management

In addition to barriers, drivers play a key role in advancing GSCM. This study examined three factors for the adoption of the GSCM in the Iraqi construction industry: government regulations (GOL), customer pressure (CUP), and environmental entrepreneurship (ENP).

Governmental legislation and adoption of GSCM

Governmental Legislation (GOL) necessitates businesses implement eco-friendly procedures (Aslam et al., 2018). In recent years, the rate of depletion of natural resources has accelerated

(Aslam et al., 2018). To preserve these scarce resources, the government is compelled to enact ecologically responsible regulations (Saalfeld, 2005). Increasing governmental and societal restraints have played a crucial role in driving businesses to strike a balance between ecological and financial efficiency by implementing practices that reduce the negative environmental impact of their SC operations (Pan, 2003).

Prior research has demonstrated that GOVL plays an important role in adopting GSCM (Campbell, 2007). Governmental constraints influence the implementation of GSCM (Zailani et al., 2012). In their empirical study, Holt and Ghobadian (2009) demonstrated that GOL is the most influential factor in GSCM adoption. Zhu, Cordeiro, et al. (2013) reported similar results in their analysis, namely that GOL is a significant variable for adopting GSCM. Other research also identified a correlation between GOL and GSCM procedures (Aslam et al., 2018). This hypothesis demonstrated the association; hence, the following hypothesis is stated;

H4: Governmental legislation significantly affects the adoption of green supply chain management in the construction industry in Iraq.

Customer pressure and adoption of GSCM

Several researchers have highlighted the importance of customer pressure in promoting GSCM practices (Zeng et al., 2011). As public environmental awareness increases, consumers become an influential pressure group pressing enterprises to adopt GSCM policies (Zhu & Wang, 2018). As community and customer pressures mount, businesses must include environmentally friendly policies and procedures in their everyday operations and strategic strategy (Zhu, Sarkis, & Lai, 2008). Customers want to do business with organizations that share their environmental values and avoid companies that do not have GSCM certification (Bai & Sarkis, 2010). Customers in the construction industry are increasingly demanding that contractors implement more GSCM principles. Even some of them utilize it as a contract criterion. Therefore, customers are more likely to favor businesses that implement environmentally friendly business methods (Aslam et al., 2018). Previous research reveals that consumer pressure substantially impacts the adoption of GSCM (Holt & Ghobadian, 2009; Zhu et al., 2011). Another study reached the same conclusion, namely that consumer pressure significantly impacted GSCM (Aslam et al., 2018). The following research hypotheses are formulated based on past studies:

H5: Customer pressure significantly affects the adoption of green supply chain management in the construction industry in Iraq.

Entrepreneurship and Adoption of GSCM

Menon and Menon (1997) defined entrepreneurship (ENV) as an entrepreneurial approach that combines the needs of the environment and society with an organization's economic objectives. In reality, ENV appears to be a culture that requires tremendous dedication (Paulraj, 2011). Establishing an entrepreneurial culture within a company is difficult; hence, organizations must make large investments in time and money to cultivate an entrepreneurial culture (Lee, Lee, & Pennings, 2001). The firms' ENV approach displays their risk-taking and proactive nature, which may enable them to collect the resources and talents essential to service customers, generate income, and safeguard the environment (Lee et al., 2001).

Therefore, the organization generates environmentally friendly and innovative ideas and recognizes green raw materials for manufacturing green products following an ENV culture (Paulraj, 2011). These companies make large efforts in R&D to develop breakthrough environmentally friendly processes. These initiatives aid firms in enhancing their GSCM operations and making them more eco-friendly. According to previous studies evaluating analogous connections between ENV and GSCM (Paulraj, 2011; Rao, 2002). Another study also discovered a correlation between ENP and GSCM (Aslam et al., 2018).

H6: Enviropreneurship significantly affects the adoption of green supply chain management in the construction industry in Iraq.

Research Design and Conceptual Framework

The research instrument for data collection was developed by a review of the relevant literature, where it had already been employed. The barriers and drivers are the study's independent variables. The obstacles were measured in three dimensions modified from the research (Giunipero et al., 2012). These dimensions were determined using ten different questions. Five of these questions pertained to sectoral/economic barriers, three to management barriers, and three to supplier hurdles. These items were adopted from Giunipero et al.'s (2012) study. The drivers were also operationalized on three dimensions, each using 12 questions. Four of these questions were derived from the research of Paulraj and pertained to GOL (2011). Four questions connected to the environment were collected from the study of Tachizawa and Wong (2015), and four items relating to customer pressure were selected from the same study. The study's dependent variable, green supply chain management (GSCM), was quantified using 15 items from Rao's study (2002). The data was collected from respondents using a five-point Likert scale that ranged from 1 (strongly disagree) to 5 (strongly agree).

The research was conducted on the Iraqi construction sector using project managers as the population of the study. The project managers were selected due to their superior knowledge of the construction progress. The data was collected using a survey self-administered questionnaire using the easy sampling technique, which is deemed essential when resources and time are limited (Taherdoost, 2016). When a survey instrument obtains data, the quantitative research approach and cross-sectional study design are deemed appropriate (Kelley-Quon, 2018; Mann, 2003). The survey was delivered to three hundred project managers. There were 250 replies returned in total. The projected survey variables are displayed in Figure.1;

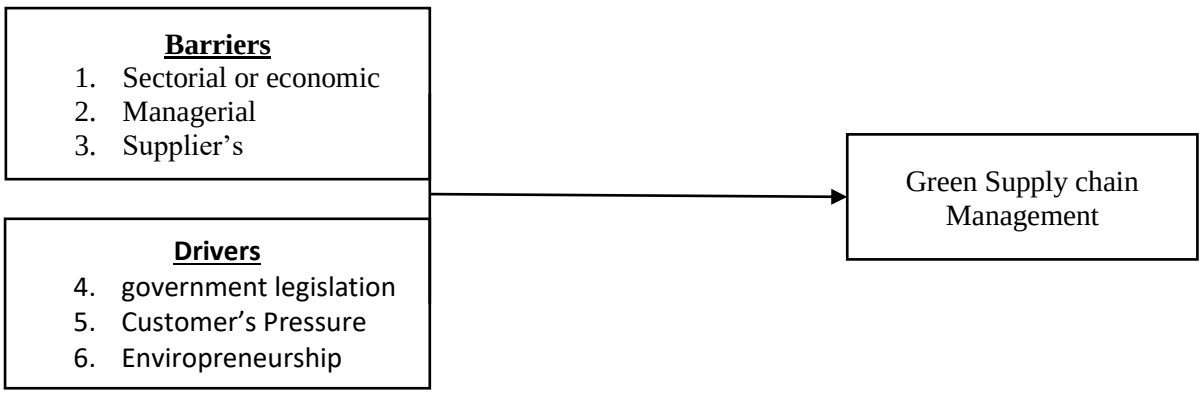

Figure.2: Conceptual Framework

DATA ANALYSIS

This study aims to examine the influence of barriers and drivers on the adoption of GSCM in the Iraqi construction industry. For this reason, data was obtained from the construction industry's textile project managers in Iraq. Using Smart PLS-SEM, the gathered data was evaluated. This software is deemed superior when the small sample size (Ahmad et al., 2020; Hair et al., 2017). The Partial Least Square (SEM)-Structural Equation Modeling (SEM) technique was used to validate the measurement and structural models detailed in the next section.

Convergent Validity

Like other structural equation modeling approaches, PLS-SEM requires evaluating both measurement and structural models. The reliability and validity of the model are ensured by analyzing the measurement model beforehand (Hair Jr et al., 2016). After validity and dependability are validated, the structural method is employed. In structural equation modeling, convergent and discriminant validity conditions must be met. This relates to the number of elements that measure the same construct (Hair, Ringle, & Sarstedt, 2012). The convergence validity is confirmed by item loadings and the composite reliability of the construct. The composite reliability must be at least 0.70, and the extracted AVEs must be at least 0.5. (Bacon, Sauer, & Young, 1995). The internal consistency (Cronbach's Alpha) and composite reliability results confirm all constructs' convergent validity. The expected convergent validity results are shown in Table 1 below.

Table.1: Convergent Validity

	Factor Loadings	Cronbach Alpha	CR	AVE
CUP1	0.881	0.812	0.882	0.714
CUP2	0.842			
CUP3	0.811			
ENV1	0.880	0.903	0.913	0.777
ENV2	0.889			
ENV3	0.875			
GOL2	0.67	0.803	0.814	0.596
GOL3	0.766			
GOL4	0.868			
GSCM1	0.792	0.719	0.789	0.555
GSCM10	0.749			
GSCM12	0.727			
GSCM13	0.789			
GSCM14	0.781			
GSCM15	0.764			
GSCM8	0.856			
GSCM9	0.837			
MAB1	0.765	0.899	0.929	0.621
MAB2	0.739			
MAB3	0.732			
SEB1	0.843	0.912	0.92	0.698
SEB2	0.843			
SEB3	0.824			
SEB4	0.841			
SEB5	0.826			
SUB1	0.51	0.783	0.789	0.56
SUB3	0.927			

Note: CUP-customer pressure, GOL-government legislation, GSCM-green supply chain management, MAB-managerial barriers, SEB-sectoral/economic barriers, SUB-suppliers barriers.

Discriminant Validity

The distinctiveness of the constructs refers to the degree to which constructs of the same model are unique from one another when discussing discriminant validity. In other words, the indications linked with a specific construct must exclusively represent that construct (Joe F Hair et al., 2012). The most common method for establishing discriminant validity is the HTMT ratio. All HTMT values must be less than 0.90 to ensure the discriminant validity of the model's constructs. The HTMT results are presented in Table 2, with all scores falling below the 0.90 cutoffs, showing that respondents understood the five distinct concepts.

Table.2: Discriminant Validity

	CUP	ENV	GOL	MAB	MAP	SEB
CUP						
ENV	0.668					
GOL	0.553	0.342				
MAB	0.469	0.547	0.327			
MAP	0.022	0.814	0.525	0.382		
SEB	0.737	0.555	0.327	0.232	0.811	
SUB	0.549	0.176	0.527	0.114	0.336	0.397

Note: CUP-customer pressure, GOL-government legislation, GSCM-green supply chain management, MAB-managerial barriers, SEB-sectoral/economic barriers, SUB-suppliers barriers, ENV-enviropreneurship.

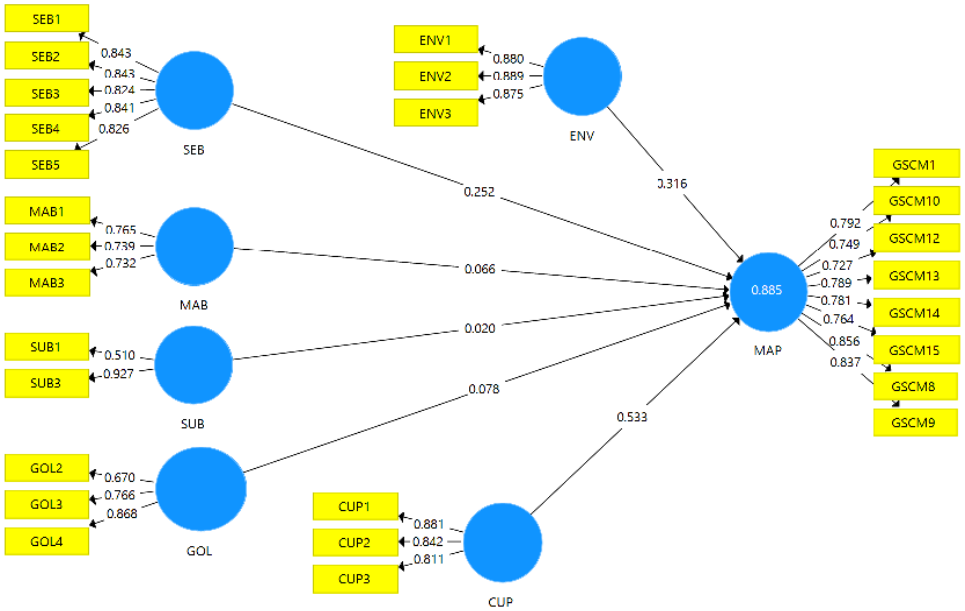

Figure.2: Measurement model

Hypothesis Testing

This structural model was based on the following factors. The first one is multi-collinearity which was determined by a variance inflation factor (VIF). The second one is the coefficient of determination which R2 determines. The third one is predictive relevance Q^2. The fourth is effect size, which f2 and fifth path coefficients choose. These criteria were recommended by various authors (Ahmad et al., 2020; Bacon et al., 1995; Hair Jr et al., 2014). Evaluating multi-collinearity was performed to acquire the most correct parameter estimation (Mela & Kopalle,

2002). All values remain less than the 5.0 threshold value (Hair, Ringle, & Sarstedt, 2013). R^2 represents the combined influence of external latent variables on the endogenous latent variable which value is 60 percent change due to exogenous variables in the endogenous variables. The predictive occurrence was determined by R^2, while the Q^2 value should be greater than 0 (Hair et al., 2013). The fact that the value of Q2 was higher than zero provided empirical evidence for the validity of endogenous reflective factor loadings as a source of predictive ability.

Table.3: Hypothesis Results

	Original Sample	Sample Mean	Standard Deviation	T Statistics	P Values	Decision
CUP -> MAP	0.533	0.523	0.064	8.354	0.000	Significant
ENV -> MAP	0.316	0.315	0.062	5.141	0.000	Significant
GOL -> MAP	0.078	0.079	0.042	1.881	0.061	Insignificant
MAB -> MAP	-0.066	-0.056	0.042	1.593	0.112	Insignificant
SEB -> MAP	-0.252	-0.252	0.05	5.086	0.000	Significant
SUB -> MAP	0.219	0.225	0.042	5.234	0.000	Significant

Note: CUP-customer pressure, GOL-government legislation, GSCM-green supply chain management, MAB-managerial barriers, SEB-sectoral/economic barriers, SUB-suppliers barriers, ENV- enviropreneurship.

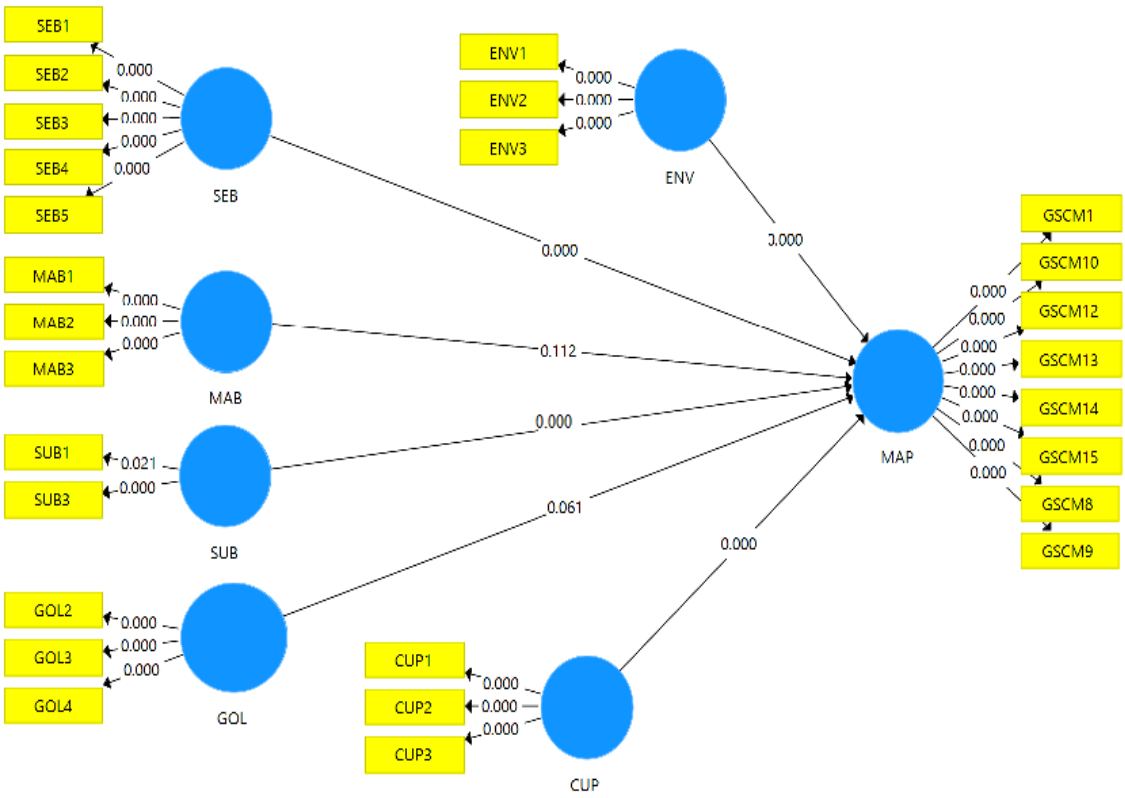

Figure.3: Structural Model

Several of the most important hypotheses evaluated in the study were found to be significant. The MAB had no significant effect on GSCM. Table.3 and Figure.3 displayed the investigation outcomes as expected values. The management obstacles are considered the second impediment to GSCM implementation in the Iraqi construction industry, but their impact is negligible. These outcomes are also consistent with research by Moktadir et al. (2018), which

revealed that senior management choices do not support the adoption of SSCM procedures. The company's upper management's devotion, willingness, and support are important to the sustainability initiative. The Iraqi economy is still expanding. Therefore managers base their decisions not on how long they will last but on how the economy is performing and how much they can earn (Jia et al., 2018). Changing firm rules and procedures to be more environmentally friendly is difficult for any organization. Therefore this could be a significant issue (Giunipero et al., 2012). Due to the lack of awareness and demand for sustainability measures on the part of domestic consumers, top management rules could not be a barrier for domestic product manufacturers. To better align their construction companies with the GSCM of the global market, managers must evaluate their commitment to GSCM standards. As stated by Gandhi et al. (2015), directors (executive members) appear to be a company's decision-makers. Their commitment to sustainability requires them to participate as resource personnel in implementing a comprehensive method to maximize the effectiveness of general SC management performs and to engage shareholders in implementing sustainable performance.

For GSCM procedures in the construction industry, the second hypothesis consists of supplier-related obstacles that must be resolved. The key findings demonstrate that supplier obstacles significantly affect green supply chain management. This reveals that construction companies were instrumental in the establishment of their GSCM. In his study, Vachon (2007) contends that the supplier's engagement in implementing GSCM practices is vital, but only if these actions lessen the community's sustainable development concerns. Due to the absence of appropriate government regulations and specialized sustainability requirements in the country, the majority of construction industry suppliers in Iraq are small-scale enterprises that pay little or no attention to CSR standards. According to Zhu and Sarkis (2006) and Govindan and Hasanagic (2018), strict adherence to environmental regulations can lessen supplier concerns in GSCM process implementation. Based on these findings, it is recommended that government regulations aid the Iraqi construction industry in removing obstacles to using GSCM.

In addition, sector or economic barriers have a negative and significant impact on GSCM, indicating that when a sector or economic obstacles increase, so does the company's GSCM. This notion is corroborated by Teixeira, Jabbour, de Sousa Jabbour, Latan, and De Oliveira's (2016) study, which found that sectorial or economic obstacles affect GSCM. The possible reason for the decline of the GSCM is that sectoral/economic policies are not supportive of the GSCM. Moreover, government law has a negligible impact on GSCM. This demonstrates that government regulation is not a significant factor in the growth of GSCM in the construction industry. This result is consistent with prior research (Aslam et al., 2018), but there is a dispute over the effect of government regulation on the adoption of GSCM methods. Previous research showed that environmental norms, consumer backing, and government pressures motivate businesses to use GSCM approaches (Zhu, Sarkis, et al., 2013).

On the other hand, consumer pressure has a positive and significant effect on GSCM, indicating that the construction industry played a key part in increasing GSCM when customer pressure increased. This result is consistent with prior research (Aslam et al., 2018), which also suggested that when consumer pressure rises, so does the GSCM because it is more difficult for construction firms to create sustainable projects. Similarly, enviropreneurship has a favorable and significant effect on GSCM, demonstrating that when enviropreneurship increases, so do GSCM within the Iraqi construction and building industry. This assertion is further supported by Aslam et al. (2018), which revealed the same considerable and good outcomes.

CONCLUSION AND FUTURE DIRECTION

The study aimed to determine the effect of barriers to adopting green supply chain management in the Iraqi construction sector. For this objective, data was obtained from the construction industry textile project managers in Iraq. The results demonstrated that, except for managerial barriers, all barriers substantially affected GSCM procedures. Based on these data, it is stated that the Iraqi construction sector should pay more attention to managerial-related obstacles to boost GSCM. In other words, enviropreneurship and customer pressure have a good and large effect on GSCM, whereas government legislation has a negligible effect on GSCM. Based on these findings, it is asserted and indicated that GSCM approaches offer a fascinating area of research and practice that warrants further investigation. Greater external demands from various stakeholders and the organization's voluntary environmental practices push businesses to effectively employ GSCM strategies, resulting in improved environmental and financial performance. Companies may avoid enacting environmental rules if they are insensitive to external pressures from various shareholders, which could be detrimental to their performance and reputation. Therefore, manufacturing businesses in emerging nations such as Pakistan must emphasize adopting GSCM processes to respond to growing environmental issues and demands effectively.

This work aims to provide a theoretical and empirical basis for future research on these topics. This study contributes to the existing body of literature. Initially, earlier studies concentrated mostly on qualitative research and paid little attention to quantitative analysis. This study focused mostly on quantitative research utilizing the Partial Least Equation-Structural Equation Modeling method to provide useful research findings to the existing literature. Second, prior studies have focused more on countries and other industries, while the building business in Iraq has received scant attention.

Consequently, this study added crucial insights to the existing literature that could assist future researchers in conducting their investigations. Thirdly, earlier quantitative studies focused on the individual influence of drivers and barriers, but the combined effect of drivers and barriers received little attention, particularly in quantitative studies. In addition, this study might help the management of the construction sector understand the significance of the drivers and barriers that can hamper or enhance the GSCM.

The construction industry's adoption of sustainability considerations would also be an investment-attractive effort through the convergence of environmental, social, and economic objectives. Therefore, it is recommended that future researchers explore the impact of these highlighted barriers and drivers on the sustainable performance of businesses using GSCM techniques. The two variables whose relationship was insignificant were the managerial barriers and government legislation. This could be due to the small sample size, which consisted of only project managers. Future research could be conducted with a larger sample and data set to increase the generalizability of the research in the context of the Iraqi construction industry. In addition, the study was limited to the direct impact of drivers and barriers. Still, several other contextual factors could interact with the obstacles or drivers and provide a valuable contribution to future research. Consequently, a prospective study could include a contextual element as a mediating variable to improve the model's predictive validity.

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