



## Drivers and enablers of green purchasing adoption: An empirical investigation of retail hypermarkets in UAE

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### ABSTRACT

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Growing pressures from various directions have caused managers in the UAE's retail sector to initiate the use of environmentally friendly approaches such as green purchasing (GP). Expanding on prior work by examining general GP practices, this study explores the GP drivers/enablers that motivate firms in the UAE to adopt GP practices. The results show that retail firms in the selected sectors respond strongly to institutional pressures to adopt GP practices with a beta value of 0.54, customer pressures with a beta value of 0.27, and expected business benefits with a beta value of 0.37. Evidence of a positive relationship between management support and firms' willingness to take on GP initiatives was weak, so the first hypothesis was not supported with a usual cut-off p-value of 0.05; however, by applying a cut-off p-value of 0.10 or above, it appears that all latent variables suggested in this study have a positive impact on the adoption of GP initiatives among retail hypermarkets in the UAE. This study had three main limitations. First, the sample was drawn from a specific government source, so it may not be a truly comprehensive representation of all retail firms. Second, the small number of samples might have led to bias. Third, as each questionnaire was answered by a single respondent, a common method variance may have resulted. This study will aid firms, as well as the government, who wish to improve their environmental performance in the value chain.

**Contribution/Originality:** This research makes a groundbreaking contribution to the body of knowledge on green purchasing. It is distinctive in the way that it encourages green buying practices in the UAE's retail sector. This research will help businesses, as well as the government, who want to enhance their environmental performance throughout the value chain.

## 1. INTRODUCTION

In recent decades, the environment has emerged as an important issue for organizations, governments and society as a whole. The increased attention paid to environmental issues such as global warming, solid waste and air pollution has become a challenge for organizations. Businesses are among the biggest sources of environmental problems. Their sourcing, logistics, marketing and retail activities are considered to have a negative impact on the environment. This increases the pressure on the firms by different parties, both inside and outside the business environment, to produce environmentally friendly products. Since firms have many stakeholders, a negative environmental performance can affect all stakeholders. In developed economies, multinational firms in Europe and USA have already started to enforce regulations and "green barriers" to minimize the negative environmental effects of their suppliers (Rao, 2006). For instance, in 2001, Dutch customs prohibited 1.3 million PlayStation

consoles from entering the country because the cables used in the devices contained dangerous levels of cadmium. These were created by suppliers of the well-known firm Sony. Sony incurred significant costs as a result of the need to replace the cables and repackage the product. The sale of machines valued at \$160 million was delayed (Lee, 2008). Despite the value of green purchasing (GP) in addressing environmental problems and producing economic benefits for businesses, the available literature indicates that GP is still not common in the UAE. Few studies have been published that explain why businesses are hesitant to embrace GP practices (Chien & Shih, 2007; Hsu & Hu, 2008; Srivastava, 2007). Rao (2002) noted that there is a dearth of research on the effects of the supply chain on environmental management. Drivers of GP are incentives that encourage businesses to implement GP activities. This research examines the factors that influence UAE firms to implement GP initiatives, including customer pressure (CP), institutional pressure (IP), management support (MS), and expected business benefits (EBB).

## 2. LITERATURE REVIEW

### 2.1. Green Purchasing Drivers

Various drivers of GP are mentioned in the literature. According to Rao (2006), CP and EBB are the variables that most affect GP. Min and Galle (2001) stated that regulations and EBB are the most significant enablers of GP. Preuss (2001) argued that social responsibility, EBB and regulations are the noteworthy drivers of GP. Carter and Carter (1998) found that CP was the only driver of GP adoption. Raman and Peir (2006) conducted a study on ten small and medium-sized firms in Malaysia. According to their findings, the main drivers of corporate social responsibility (CSR) were paperless technology, waste recycling, biodegradable containers, CP, a professional code of conduct, ethics, expected financial benefits, personal values of the owner and reputation. ElTayeb, Zailani, and Jayaraman (2010) found that regulations, CP and EBB have a positive relationship with GP. They also found that firms in Malaysia show a high level of social responsibility; however, it does not constitute a real driver for Malaysian firms to adopt GP. Based on the available literature, this study focuses on four variables in the context of the UAE's retail hypermarket sector: customer pressure (CP), institutional pressure (IP), management support (MS) and expected business benefits (EBB).

### 2.2. Customer Pressure (CP)

Customers can put real pressure on suppliers to adopt GP to achieve better environmental performance, which motivates suppliers to cooperate with customers to achieve environmental objectives. As customers are among the main stakeholders of any firm, they have the power to influence any organization to adopt GP to achieve sustainability (Doonan, Lanoie, & Laplante, 2005; Hsu & Hu, 2008; Peng & Lin, 2008). According to Lee (2008) and Simpson, Power, and Samson (2007), customers are the most influential and important stakeholders of suppliers; therefore, changes in customers' purchasing behaviors to protect the environment can directly influence suppliers' attitudes. This makes the behaviors and practices of suppliers more environmentally friendly when delivering their products. There is empirical evidence proving the relationship between green supply chain management and customer requirements (Simpson et al., 2007). Anbumozhi and Kanda (2005) found that in Asia, CP and customers' expectations of sellers to adopt GP are key drivers of GP adoption. Since small Asian companies are the main suppliers of materials to big multinational corporations (MNCs) in the USA, Europe and Japan, the pressure from such MNCs compels the Asian suppliers to adopt environmentally friendly practices. Studies conducted by Carter and Carter (1998) and Rao (2006) also showed a positive relationship between CP and GP initiatives. Therefore, this study hypothesizes that:

*H1. CP has a positive impact on GP initiatives in the UAE's retail hypermarket sector.*

### 2.3. Institutional Pressure (IP)

Companies respond positively to IP and regulatory forces to adopt effective GP (Zhu & Geng, 2001). Regulatory forces compel retail hypermarket firms to adopt and comply with GP practices. By implementing

environmental rules and regulations, governments encourage firms to adopt and implement sustainable practices in their supply chains (Zhu, Sarkis, Cordeiro, & Lai, 2008). Government laws and environmental attitudes may be the best predictors of firms' adoption of GP practices. Simpson et al. (2007) believed that the role of government is to strictly implement environmental protection laws to encourage firms to adopt GP practices. This ultimately helps governments to resolve environmental issues. Researchers have found a positive relationship between IP and GP adoption (Simpson et al., 2007). Williamson, Lynch-Wood, and Ramsay (2006) argued that environmental laws result in improved environmental procedures and sustainable practices. Schaper (2016) also found a positive relationship between government regulations and the adoption of GP practices to enhance environmental improvements. Zhu et al. (2008), however, found no significant relationship between government regulations and GP practices. Min and Galle (2001) and Preuss (2001) found a significant positive relationship between regulations and GP practices. This study hypothesizes that:

*H2. IP has a positive impact on GP initiatives in the UAE's retail hypermarket sector.*

#### 2.4. Management Support (MS)

The implementation of GP initiatives highly depends on the knowledge and understanding of an organization's management. Lack of capacity in environmental management and lack of professional environmental knowledge are among the major hurdles to implementing GP (Ehrhart, 2004). To adopt GP practices, firms should overcome these hurdles, including a lack of top management support, lack of information, lack of environmental management techniques, lack of professional knowledge among personnel in the supply chain management department, and lack of financial or human resources (González-Torre, Alvarez, Sarkis, & Adenso-Díaz, 2010). MS is important as it is linked with the firm's strategic planning, a critical factor in many green supply chains. The implementation of GP initiatives depends on how top management handles the firm's policies and strategic planning (Zhu et al., 2008). According to Luthra, Garg, and Haleem (2015) and Zhu et al. (2008), top management must provide all the necessary resources, including capital, manpower and time, along with their support in the form of regulations, policies and directions to achieve green supply chain goals. There is a positive relationship between MS and the success of green supply chain initiatives such as GP. Therefore, this study hypothesizes that:

*H3. MS has a positive impact on GP initiatives in the UAE's retail hypermarket sector.*

#### 2.5. Expected Business Benefits (EBB)

Any organization's primary goal is to optimize revenue and financial gains. Companies use cost and benefit analysis to evaluate every choice they make. This also holds for GP programs. According to Ann, Zailani, and Abd Wahid (2006), a company should profit from green initiatives. Any project that a company invests in is driven by the hope of reaping financial rewards. Businesses compete to gain a competitive edge and take the lead in their market. Businesses aim to increase profits and are less concerned with environmental and societal factors. When companies identify the operational and financial benefits, the adoption of GP projects increases (Bowen, Cousins, Lamming, & Farukt, 2001). Previous research has shown that EBB has a positive effect on GP (Min & Galle, 2001; Preuss, 2001; Rao, 2006). Anbumozhi and Kanda (2005) discovered that in Malaysia savings, costs, and financial advantages are primary factors influencing GP adoption in Asia. According to ElTayeb et al. (2010), Malaysian businesses only use CSR strategies if they can gain something in return. Rao (2002) asserted that green buying has numerous advantages for organizations, including cost savings and the inclusion of suppliers in a participatory decision-making process that fosters environmental innovation. As a result, this research postulates that:

*H4. EBB have a positive impact on GP initiatives in the UAE's retail hypermarket sector.*

Table 1 presents the relevant literature related to this study.

Table 1. Relevant literature related to this study.

Authors	Major emphasis	Major finding	Research methodology	Implications for the research study
Bowen et al. (2001)	Supply management competencies and green supply practices	Internal drivers to implement green supply chains in a firm are strategic purchasing, proactive corporate environmental supply, and management competencies.	Empirical study	Referred to in literature review to understand and define GP initiatives (Particularly those driven by buying firms) and to develop a survey measurement of a buyer's GP practices.
Preuss (2001)	Greener retail hypermarkets and purchasing	The use of the analytical hierarchy process (AHP) as a decision support model helps managers understand the trade-offs between environmental dimensions.	Case studies	Referred to in literature review to understand and define GP initiatives (In particular, EBB and IP) and to develop a survey measurement of IP and EBB.
Akhtar (2019)	Green supply chain initiatives and their impact on the economic performance of firms	IP is the most influential variable in the adoption of green supply chain initiatives among UAE firms, while social pressure and competitive pressure also have an impact.	Empirical study	Referred to in literature review to understand and define GP initiatives (In particular, IP). Also referred to in the results section to support the study findings.
Anbumozhi and Kanda (2005)	The role of voluntary initiatives towards green supply chains in Asia	This paper depicts the general circumstances with respect to deliberate activities in Asia; it also analyzes the comparative execution in several economies in the region, recognizing major patterns such as the arrangement of capable unions, local community, and other market forces.	Discussion paper	Referred to in the customer pressure section. How customer pressure can play a role in the adoption of environmentally friendly initiatives in Asia.
Bagozzi and Yi (1988)	Evaluation of structural equation models	This paper illustrates, defines and critiques the criteria for evaluating structural equation models. Based on an interpretation of converging and diverging evidence, an overall program for model evaluation is also proposed.	Discussion paper/Theory building	Referred to in the methodology section to build the empirical model of the study.
Bollen (1989)	A new incremental fit index for general structural equation models	The article has three main purposes: First, a new incremental fit measure with an adjustment to the normed index for sample size and degree of freedom. Second, an explanation of the relationship between the new fit model and previous ones. Third, it illustrates its properties with an empirical	Empirical and Monte Carlo simulation	Referred to in order to define/explain the reliability matrix of the research study.

		example and a Monte Carlo simulation.		
Bowen et al. (2001)	The role of supply management capabilities in green supply	The paper argues that to explain the gap between the theory and practice of green supply, one should look beyond the aggregate pattern of firms. Firms do not ignore the potential benefits of green supply. On the other hand, they are rational actors who focus on their strengths and design suitable packages of green supply activities within the corporate environment and performance contexts.	Interview/Questionnaire	Referred to in the literature review regarding the impact of EBB on GP initiatives. Also referred to in the development of H4 on EBB.
Carter and Carter (1998)	Determinants of environmental purchasing: Evidence from consumer products firms	The paper shows that environmental purchasing has a positive relationship with the cost of goods sold and income. The control variables used are size, earnings per share and leverage.	Empirical study	Referred to in the literature review regarding GP and CP and the role of firm size as a control variable.
Churchill (1979)	A paradigm for developing better measures of marketing constructs	The most important factor in developing the fundamental knowledge of marketing and for improved marketing research is the development of better measures of the variables. This paper introduces an approach to achieve this goal.	Theory building	Referred to in the methodology section to build the empirical model of the study. Specifically mentioned in the survey development and testing sections of this study.
Green, Zelbst, Meacham, and Bhadauria (2012)	Impact of green supply chain practices on firm performance	Firms' environmental and economic performance is generally improved by the adoption of green supply chain practices by retail hypermarket firms, which in turn enhances the operational performance of the firms.	Empirical study	Referred to in the discussion section of this study to understand the empirical results and align them with the literature.
Hamner (2006)	Impact of GP tactics on supplier behavior	Large companies currently tend to use GP practices more often. It is becoming more and more common among large firms to use it as a corporate practice.	Discussion paper	Referred to in the GP section to understand and define GP initiatives in order to develop an understanding of the different GP concepts.
Holt, Anthony, and Viney (2000)	Environmental improvements among SMEs in the UK	Small and medium enterprises (SMEs) prefer to have clear, consistent and accessible guidance from an external organization for actual ecological support services.	Case study	Presented in the discussion section of the study to support the empirical findings of the research.

Hu and Hsu (2010)	Important factors for employing green supply chain management tactics	The study finds twenty critical factors based on the four dimensions of product recycling, life cycle management, supplier management and organization involvement.	Empirical study	Referred to in the GP section to understand and define GP initiatives (In particular CP).
ElTayeb et al. (2010)	Examining the drivers of GP adoption among firms in Malaysia	The study suggests a positive relationship between regulations, CP, EBB and firm ownership and GP.	Empirical study	Referred to in the first section of this paper to understand GP initiatives (in particular, CP and EBB).
Lee (2008)	The enablers of small and medium-sized suppliers' participation in green supply chain initiatives	The study suggests a positive relationship between buyer environmental requirements and suppliers' readiness to contribute to green supply chain initiatives. The role of the government is critical to motivate these suppliers.	Empirical study	Referred to in the first section to develop an understanding of GP drivers. Also referred to in the discussion section of this study.
Min and Galle (2001)	GP practices of US firms	The study identifies the variables that stimulate the effective execution of GP practices. It further evaluates the effects of GP on a firm's waste management, supplier selection, packaging and regulatory compliance.	Empirical study	Referred to in order to define firms' GP drivers and strategies. Also used to develop H2 on the relationship between IP and GP.
Preuss (2001)	In dirty chains? Purchasing and greener retail hypermarkets	This paper introduces the idea of a "green multiplier effect" and recommends that purchasing could become a critical agent of change towards environmental initiatives in the supply chain.	Case study	Referred to in order to define GP drivers and understand the different GP concepts. Also used to develop H4 on the relationship between EBB and GP.
Rao (2006)	Greening inbound logistics in the South-East Asian context	The paper presents different approaches to greening supply chains in growing retail hypermarkets in the Southeast Asia region.	Empirical study	Referred to in the first section to develop an understanding of GP drivers. Also used to develop H1 and H4.
Schaper (2016)	Forecasting GP in Western Australian pharmacies	The result of this empirical study shows that owners of Western Australian pharmacies have a good attitude towards green initiatives but there is no significant relationship between their attitude and the company's actual performance. Also, the demographic characteristics of	Empirical study	Referred to in the hypothesis development section. Specifically mentioned in H3 on the relationship between MS and GP initiatives. Also referenced in the discussion section of the study.

		managers are irrelevant to firms' environmental performance.		
Simpson et al. (2007)	Greening practices in the automotive industry: a relationship perspective	Customers' environmental requirements push suppliers to adopt GP. Suppliers believe that increased investment in the customer-supplier relationship can help avoid penalties for non-compliance with environmental requirements.	Empirical study	Referred to in the hypothesis development section. Specifically mentioned in H1 on CP and H2 on IP. Also referenced in the discussion section of the study.
Zhu et al. (2008)	Pressures, practices and performance towards green supply chain management in the Chinese automobile industry	The results show a positive relationship between regulatory and market pressures and green supply chain adoption. Firms also have some internal drivers for green practices. However, their green supply chain implementation has a poor relationship with external considerations.	Empirical/Case study	Referred to in the GP section to understand and define GP initiatives (In particular, CP and IP). Also referred to in the hypothesis development and discussion sections of the study.

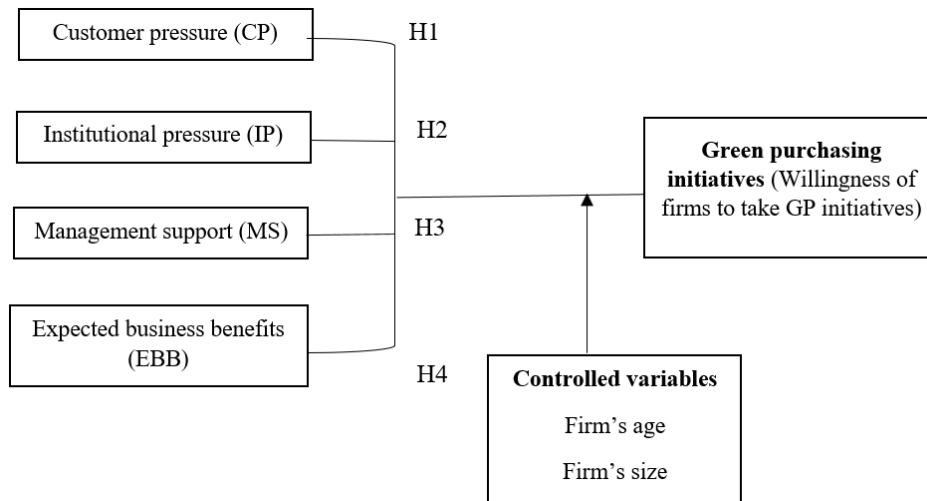


Figure 1. Theoretical framework of this study.

Figure 1 illustrates the theoretical framework of this study.

### 3. RESEARCH METHODOLOGY

A questionnaire with Likert-scale responses was distributed via email. Sekaran (2003) claimed that this method has certain benefits, including low costs and the ability to quickly cover a large area. A detailed explanation of the employed methodology is provided in the following subsections.

#### 3.1. Sample and Data

##### 3.1.1. The Population of Interest

The population of interest in this research comprises retail hypermarkets operating in the UAE. Both listed and non-listed companies form part of this study, that is to say, all companies listed on the UAE Stock Exchange as well as non-listed companies that are registered with the Ministry of Commerce and Industry (MCI UAE). This makes it possible to generalize the results. A company was included in the target population if it:

- Was listed on the UAE Stock Exchange.
- Was registered on the list of the Ministry of Commerce and Industry of the UAE.
- Was not operating in the service sector or government administration.
- Had been in operation for more than five years.

These criteria include two restrictions. First, the restriction of at least five years in operation was imposed because newly established companies may enjoy explosive growth from a new base, which can affect the overall industry results. Second, government-owned companies were excluded because they might operate under heavy regulations or enjoy a strong financial base. The following subsections describe the sampling strategy and the survey procedure adopted for this research study.

##### 3.1.2. Sampling Frame and Sampling Method

The sampling frame of this study was the UAE Stock Exchange and the Ministry of Commerce and Industry of the UAE (MCI UAE). Companies of different sizes, along with their contact details, are readily available in this frame. Further, by using this sampling frame, we avoided the risk of not including certain companies because it is mandatory for all retail hypermarkets operating in the UAE to be listed or registered with the Ministry of Commerce and Industries of the UAE.

Stratified random sampling was conducted in this study. According to Cooper and Schindler (2006), there are three basic reasons for using stratified random sampling:



- It increases a sample's statistical efficiency.
- It provides adequate data to analyze the various strata or sub-populations.
- It enables the use of different procedures and research methods in different strata.

The research instrument was distributed randomly to 50 firms in each of the strata.

Since the scale was adapted from a previous study (Lee, 2008), it was necessary to invite experts and possible respondents to review the measuring scales to avoid any potential problems arising due to poor operationalization or ambiguous definitions of the variables (Churchill, 1979). For this purpose, seven experts, three academicians in the field of operations and supply chain management, and four industry practitioners were asked to provide their critical views on the terminology, understandability, completeness and ambiguity of the items in the instrument.

Additionally, using Segars and Grover's (1998) method, a further sorting process was employed to determine whether the items used to operationalize the constructs did, in fact, measure what they were intended to measure (Churchill, 1979). Since the elements were modified from an established scale, the validity of this instrument was likely to be confirmed. Therefore, the academic and business specialists were given descriptions of the hypothesized constructs along with all the adapted items, which were rearranged into a single sentence. Participants were instructed to meticulously group items according to the dimensions of CP, IP, MS, EBB, and GP. They were also asked to comment on the significance of the research issues, the vagueness or ambiguity of the scale items' wording, and any required adjustments. The participants were also asked to identify any indeterminable matches.

According to Moore and Benbasat (1991), the placement ratios for each item assess the general construct's reliability and the content validity of the adapted items. The frequencies with which each item was properly associated and matched with its intended construct were computed for the responses related to each construct, as shown in Table 2. According to the analysis, all constructs were above the recommended level of 70% as the average placement ratio of items within the target constructs was 84% (CP = 82%, IP = 80%, MS = 88%, EBB = 85%, and GP = 85%). These ratios verified that the scale items which were modified could indeed capture the pre-specified variables. Therefore, it was decided that no additional analysis was required for item creation or refinement, and conceptual definitions from the literature were used as measures of the associated constructs. Table 2 presents the results of sorting the measurement items.

**Table 2.** Result of sorting the measurement items.

No of respondents	CP	IP	MS	EBB	GP
Respondent 1	5	4	4	4	4
Respondent 2	5	3	5	5	3
Respondent 3	3	5	5	5	5
Respondent 4	5	4	3	3	4
Respondent 5	4	4	4	3	4
Respondent 6	3	5	5	5	5
Respondent 7	4	3	5	5	5
Total score	29	28	31	30	30

### 3.2. Final Data Collection

After the preparation of the final questionnaire, a large-scale survey was conducted. This section describes how the data was collected for the main survey.

To identify suitable companies for data collection, the UAE Stock Exchange and the Ministry of Commerce and Industry were contacted. They were requested to provide updated addresses and contact details of the retail hypermarket companies operating in the UAE. The potential respondents of this study were staff members within the field of supply chain and operations management, with titles such as operations manager, supply chain director/manager, chief operating officer, general manager, sales manager, or any other relevant staff member who could respond in the scope of the distributed survey. The reason for contacting top-level managers was their knowledge of supply chain and strategic management.

A data collection company that was contracted specifically for this task was used to gather the data. The agency was provided with specific instructions on how to improve the response rate. The data collection company was provided with the list of companies acquired from the Ministry of Commerce and Industry. Each prospective respondent received a self-administered questionnaire by email, along with a unique cover letter asking them to take part in the research. In addition to sending each respondent an email, a follow-up phone call was made. Each prospective respondent was guaranteed a copy of the survey findings in order to raise the overall response rate. One month after the first attempt, a second email was sent to the non-respondents. When a survey bounced due to an undeliverable location or for any other reason, a replacement company was chosen from the Ministry of Commerce and Industry's list. Of the 100 surveys that were sent out, 70 were returned; 52 of these came from the first attempt, and 18 came from the second. Eight questionnaires were found to be unusable after examination because important data was either missing or incomplete. The remaining usable 62 responses represented 62% of the mailed questionnaires. The 62% response rate can be considered a good response rate. Table 3 presents a summary of the survey response rate.

**Table 3.** Summary of survey responses.

Industry	Total
Sample size	100
Respondents	70
Dropped	8
Response rate (%)	62

According to Prahinski and Benton (2004), a response rate of more than 20 percent is ideal for supply chain and operations management research. Non-response bias was checked by comparing the responses received in the first wave and those returned later. The responses were split into two groups based on whether the survey was returned before or after the reminder phone call. Fourteen items were randomly chosen from the survey to run a t-test on the responses of the two groups ( $n1 = 110$ ,  $n2 = 60$ ). The t-test produced no statistically significant differences among the fourteen survey items tested.

As shown in Table 4, 62.85% of the respondents were mid-level managers, while 17.14% were senior-level managers. Mid-level management often has the best knowledge of management initiatives regarding GP and environmental concerns. Therefore, their profiles most closely met the requirements of the respondents of this study.

**Table 4.** Management level of respondents.

Management level	Percentage
Senior managers and executives	17.14%
Mid-level managers	62.85%
Other professionals	20.00%

The category of senior managers and executives included vice presidents, chief operating officers, senior executives, general managers and other high-ranking individuals. Supply chain management product managers, operations managers and logistics heads are all mid-level managers, while the "other professionals" category includes supervisors, shift leaders and other relevant professionals who have knowledge of supply chain and operations management.

### 3.3. Reliability of the Construct

Cronbach's alpha is generally used to measure reliability (Hair, Anderson, Tatham, & Black, 1998). However, composite reliability can be used in lieu of Cronbach's alpha, as claimed by Bagozzi and Yi (1988). Applying the methodology and standards suggested by Hair et al. (1998), reliability was assessed for each latent variable. A value

of 0.70 is considered to indicate high reliability, while a value of more than 0.60 is acceptable (Nunnally, 1978). Additionally, this study examined composite reliability and average variance extracted (AVE), two additional model-based reliability estimates (Bollen, 1989). While AVE is used to determine the amount of variance in the indicators that have been accounted for, composite reliability is used to assess the internal consistency of the indicators.

Table 5. Construct reliability.

Latent variable	Indicators	Factor loadings	Eigen value	Composite reliability	AVE
Management support (MS)	MS_1	0.73	3.69	0.88	0.75
	MS_2	0.74			
	MS_3	0.77			
	MS_4	0.71			
	MS_5	0.82			
	MS_6	0.79			
Customer pressure (CP)	CP_1	0.73	3.55	0.84	0.57
	CP_2	0.75			
	CP_3	0.77			
	CP_4	0.68			
	CP_5	0.68			
Institutional pressure (IP)	IP_1	0.80	3.46	0.81	0.66
	IP_2	0.72			
	IP_3	0.75			
	IP_4	0.77			
	IP_5	0.73			
	IP_6	0.79			
Expected business benefits (EBB)	EBB_1	0.74	3.40	0.83	0.65
	EBB_2	0.73			
	EBB_3	0.71			
	EBB_4	0.66			
	EBB_5	0.66			

Table 5 shows the values of factor loadings, eigenvalue, composite reliability and AVE. All scales have Cronbach's alphas greater than 0.70 except for two indicators of CP and two indicators of EBB, which have factor loadings of 0.68 and 0.66, respectively; however, they are still well above the acceptable threshold of 0.60. Any items below the 0.60 threshold were dropped from further analysis. The reliability metrics are higher than 0.70 for all reflective constructs, establishing the internal reliability of the scales. Table 6 presents the study's correlation matrix.

Table 6. Correlation matrix.

Latent variable	Mean	SD	1	2	3	4	5
Management support (MS)	2.23	0.77					
Customer pressure (CP)	2.17	0.89	0.36***				
Institutional pressure (IP)	2.32	0.76	21.25***	0.05			
Expected business benefits (EBB)	2.41	0.77	0.69***	0.49***	20.12		
Firm size	5.11	1.35	0.19**	20.05	0.03	20.19*	
Firm age	20.05	12.23	21.11	0.29***	0.03	0.39***	0.07

Note: \* p-value < 0.10; \*\* p-value < 0.05; \*\*\* p-value < 0.01.

The descriptive analysis shows that the means for all the independent variables range from 2.17 to 2.41. However, the standard deviation scores show that most of the respondents have similar perceptions of the GP indicators. The correlation matrix shows that some independent variables have strong correlations with each other. MS appears to have a strong correlation with all other independent variables. However, CP seems to strongly correlate only with EBB. Meanwhile, IP and EBB show no correlation with each other.

Table 7. Results of hierarchical linear regression.

Variables	Hypothesis beta	Supported/Rejected
Firm size	0.19 ***	Supported
Firm age	21.22	Not supported
Management support (MS)	0.21 *	H1 not supported
Customer pressure (CP)	0.27 ***	H2 supported
Institutional pressure (IP)	0.54 ***	H3 supported
Expected business benefits (EBB)	0.36 ***	H4 supported
R <sup>2</sup>	0.43 ***	
Adj-R <sup>2</sup>	0.35	
F statistics	33.26	
No. of observations	150	

Note: \* p-value < 0.1; \*\*\* p-value < 0.01.

#### 4. DISCUSSION

Hierarchical linear regression was used to test the four hypotheses on the relationships between management support, customer pressure, institutional pressure, expected business benefits and the willingness of retail hypermarket firms to engage in green purchasing initiatives.

Three of the four hypotheses were firmly supported by the findings in Table 7. With a typical cut-off p-value of 0.05, the first hypothesis (on MS) was not supported because there was insufficient evidence of a positive relationship between MS and firms' willingness to adopt GP initiatives. However, when using a cut-off p-value of 0.10, all latent variables suggested in this study appear to have a positive impact on the adoption of GP initiatives by retail hypermarket firms in the UAE. The incremental variance in the regression model, which was explained by the four factors, was statistically significant (adj R<sup>2</sup> = 0.35, p < 0.01).

The results of this study show, first, that CP has a significant positive impact on retail hypermarket firms' willingness to adopt GP initiatives. There is strong evidence that customers play a vital role in facilitating firms to adopt environmentally friendly initiatives. For many firms, the fundamental channel for receiving demands for more environmentally friendly products is their customers (Lee, 2008). The firms in this study, therefore, often respond to first-hand parameters conveyed by the customers through the supply chain (Green et al., 2012). The results of this study are consistent with previous studies that argued that the direct involvement of customers leads to greener supply chains. Rao (2002) argued that collaborative associations among customers and suppliers can contribute to a high level of advanced environmental management practices, such as GP, and an overall greener supply chain. Not only customer pressure but also customer support drives firms to improve their environmental capacity and take part in green supply chain initiatives like GP. In a country like the UAE, where most of the firms have direct relationships with their customers because of strong competition, respond more actively to customer demands and incorporate customer ideas quickly to make their supply chains greener and more environmentally friendly (Akhtar, 2019).

Second, IP was expected to have a significant impact on UAE retail hypermarket firms' willingness to adopt GP initiatives. The empirical figures confirmed this with a beta value of 0.54, p < 0.01. This result is in line with previous studies in which IP proved to be one of the most influential factors in the adoption of environmentally friendly initiatives (e.g., Akhtar (2019)). According to Lee (2008), direct or indirect involvement of government institutions in facilitating firms in terms of finance, knowledge, and technical support promotes innovation in retail hypermarket companies that suffer from a lack of funds and facilities. Thus, these firms tend to adopt green supply chain initiatives more proactively with the support of government institutions. In developed countries, there is also evidence of such support; in the UK, firms were supported to improve their environmental performance by different government programs (Holt et al., 2000). However, in developing countries, where government institutions are not very rich in resources, they tend to pressure firms to adopt green supply chain initiatives. This is because firms in developing countries violate the regulations more often than those in developed countries. On the other hand, in

developing countries such as Pakistan, where firms are charged substantial penalties if they do not follow the institutional guidelines, companies tend to feel more IP (Akhtar, 2019). The results of this study show that IP, with its beta value of 0.54, is the strongest enabler of GP initiatives among UAE retail hypermarket firms.

Third, EBB shows a significant relationship with firms' willingness to adopt GP, with a beta value of 0.36,  $p < 0.01$ . Firms expect to earn money from each business initiative. As found by Bowen et al. (2001), operational and financial benefits are the main motivation for firms to adopt environmentally friendly behavior. The results of this study align with previous studies such as those of Min and Galle (2001), Preuss (2001) and Rao (2006). According to Anbumozhi and Kanda (2005), the costs, savings and other operational benefits are the main enablers of GP among firms in Asia. Similar results were reported by Younis, Sundarakani, and Vel (2016) in Pakistan; GP has a positive effect on firms' economic performance. In a developing country, where firms depend mostly on internal resources, they hesitate to invest in any project that cannot generate profit in the short run. Environmental initiatives are long-term investments as the outcome of such initiatives can take time to mature. The results of this study support the previous literature in which EBB had a positive impact on GP initiatives. According to Min and Galle (2001), customers are more inclined to buy environmentally friendly products in the current competitive business environment. This ensures a direct profit for environmentally friendly firms. Similar results were found by Sarkis (2003); the reduction of environmental damages by switching to GP can reduce the cost of operations for a firm, which eventually increases the firm's profits. For instance, purchasing less energy- and water-consuming products can help to significantly reduce service bills, and the reduction of harmful substances in products may decrease firms' disposal costs.

In this study, the only variable that showed no significant impact at a confidence interval of 95% was MS. However, MS did have a significant positive impact on GP initiatives at a confidence interval of 90% or  $p < 0.10$ . This shows that MS does not play a large role in the adoption of GP initiatives in the UAE retail hypermarket sector. One can conclude that firms in the UAE retail hypermarket sector are under more influence from the consumers and institutions that promote GP in the country. The impact of IP is more apparent than that of CP.

The two control variables in this study were firm size and age. These were selected because they are known to have an impact on the adoption of environmentally friendly practices. As expected, firm size had a positive impact on the adoption of GP practices as an important contextual variable. Even among firms with 30 to 300 workers, bigger firms were more enthusiastic about adopting GP initiatives than smaller firms. Small firms may not be able to allocate resources towards the adoption of environmentally friendly initiatives, which means that bigger firms participate more in green initiatives (Lee, 2008). The second control variable, firm age, did not display any relationship with GP adoption. The results of both control variables are consistent with the environmental management literature (Klassen, 2000; Lee, 2008).

## 5. CONCLUSION

Many research studies have focused on the importance of GP initiatives, especially on the internal organizational projects that strive to enhance the economic and environmental efficiency of an entire supply chain. These initiatives can only be implemented successfully if all supply chain stakeholders participate with equal resilience and focus. This study has investigated the drivers of the adoption of GP initiatives among UAE retail hypermarket firms. The results show that the adoption of GP initiatives is heavily influenced by three of the study variables, namely, customer pressure, institutional pressure and expected business benefits, while management support showed a weak statistical relationship. Customer pressure is inevitable in any business. The firms in these sectors respond well to the eco-friendly demands of customers. In developing countries, institutional pressure is also mandatory to protect the environment. Government institutions should keep playing their role in protecting the environment from the effects of business activities. Expected business benefits are the key to any business initiative; if a firm does not expect to benefit from an investment, it will hesitate to pursue it. Government

institutions should offer benefits to motivate firms to adopt GP initiatives. These benefits could take the form of necessary training or technology or a reduction in business costs, such as low taxation of environmentally friendly firms.

### 5.1. Practical Implications

This study will help firms, as well as the government, who wish to improve their environmental performance in the value chain. First, consistent with the author's expectations, institutional pressures motivate firms to participate in green initiatives. Firms that are under more environmental pressure expect a helping hand from the government to get involved in green initiatives. Second, customer pressure is vital to the adoption of environmentally friendly initiatives.

This study can be a source of information for the firms in selected sectors to give importance to customers' demands. They should seek help and guidance from customers in the effort to go green, as customers are a strong source of information about the necessity of adopting green initiatives.

### 5.2. Research Limitations and Future Directions

By focusing on the limitations of this paper, we recommend directions for future research. First, the sample was drawn from a specific government source, so it may not comprehensively represent all retail hypermarket firms. Second, the small sample number may have given rise to bias. Third, as each questionnaire was answered by a single respondent, there may be a common method variance. Future research is expected to remedy these limitations. Moreover, other potential variables, such as competitive pressure, could be included in future studies.

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