



Print ISSN: 1738-3110 / Online ISSN 2093-7717  
 JDS website: <http://www.jds.or.kr/>  
<http://dx.doi.org/10.15722/jds.19.11.202111.37>

# The Impacts of Social Sustainability Practices on Supply Chain Performance: Mediating Role of Supply Chain Integration\*

Ngoc-Hong DUONG<sup>1</sup>, Quang-An HA<sup>2</sup>

Received: September 02, 2021. Revised: October 17, 2021. Accepted: November 05, 2021.

## Abstract

**Purpose:** The importance of sustainability in the supply chain has steadily risen in recent decades as a result of the growing awareness on the social issues. The purpose of this research is to examine the relationship between social sustainability practices and performance outcomes, as well as explore the mediating role of supply chain integration on that relationship. **Research design, data and methodology:** PLS-SEM model is developed to identify the impacts of sustainability on performance outcomes and the mediating role of supply chain integration. We received 285 responses from medium and large companies located in Vietnam, and after filtering, 206 responses were used for further analysis. **Results:** Our findings showed that sustainability impacts significantly on integration and performance in the supply chain. Moreover, the result indicates that supplier integration and internal integration mediate the relationship between social sustainability practices and supply chain performance, while customer integration mediation role was not found significant at all. **Conclusions:** Our results prove that social sustainability practices can link all the stakeholders and enhance collaboration. To maintain sustainable development, firms should embrace values of sustainability to improve the well-being, working condition, and healthcare of their employees as well as the advancement of local society.

**Keywords :** Social Sustainability Practices, Supply Chain Integration, Supply Chain Performance, Mediation Role

**JEL Classification Code :** M11, M14, M16, Q01

## 1. Introduction<sup>2</sup>

### 1.1. Overview

Over the past decades, due to the increasing awareness among members on the local society and environment, the importance of social sustainability in the supply chain has regularly increased (Kleindorfer, Singhal, & Van Wassenhove, 2005). According to Bergman, Bergman, and Berger (2017) sustainability means satisfying today's demands without endangering the demands of future

generations. Additionally, many researchers have investigated whether enhancing sustainability practices into firm's supply chain is an essential action in developing its supply chain performance (Winter & Knemeyer, 2013).

Much of the current literature on sustainability pays attention to developed economies (Ciliberti, Pontrandolfo, & Scozzi, 2008; Lu, Lee, & Cheng, 2012) where social values and norms are different compared to emerging economies (Ashby, Leat, & Hudson-Smith, 2012). Social sustainability practices have been examined in many multinational corporations in developed countries,

\* The authors would like to thank Editors and the Reviewers for their comments and suggestions. In addition, this research is funded by University of Economics Ho Chi Minh City, Vietnam.

1 First Author. PhD Candidate, School of International Business and Marketing, University of Economics HCMC, Vietnam. Email: hongdn@ueh.edu.vn

2 Corresponding Author. PhD, School of International Business and Marketing, University of Economics HCMC, Vietnam. Email: anhq@ueh.edu.vn

© Copyright: The Author(s)  
 This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/4.0/>) which permits unrestricted noncommercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

especially in Europe and Northern America (Brown, 2015; Pagell & Gobeli, 2009; Tate, Ellram, & Kirchoff, 2010; Yakovleva, Sarkis, & Sloan, 2012). Some literatures have examined this topic in emerging economies and found that sustainability can support and enhance a firm's competitiveness and its supply chain performance (Mani, Gunasekaran, & Delgado, 2018; Mani, Gunasekaran, Papadopoulos, Hazen, & Dubey, 2016; Mani, Jabbour, & Mani, 2020; Sodhi, 2015).

In addition, social sustainability practices may play an important role in enhancing the overall performance of the supply chain. The link between social sustainability and supply chain performance could be explained by how a company is operating in ways that enhance society and the environment; thus, it will lead to improve its supply chain performance. Some authors have been investigated how an organization can apply supply chain integration practices to develop performance outcomes and improve its sustainability activities (Brown, 2015; Gelhard & Von Delft, 2016; Paulraj, 2011). Besides, the relationship between supply chain integration and sustainability practices is still unclear in the previous studies (Flynn, Huo, & Zhao, 2010; Frohlich, 2002; Power, 2005).

## 1.2. Research Gap

This research has been conducted for various reasons. Firstly, as mentioned above, our research realizes the necessity for further study about the impacts of social sustainability practices on supply chain performance with the mediating role of supply chain integration, particularly in emerging economies. Our research tries to examine the following research questions:

- (1) How do social sustainability practices influence supply chain integration and supply chain performance as a whole?
- (2) How does supply chain integration enhance supply chain performance?
- (3) How do the integrations between supply chain members mediate the relationship between social sustainability practices and supply chain performance?

Through examining these three main questions, our research will gain the following contributions in the context of emerging economies. The second reason for conducting this research is to examine the concept of social sustainability practices and gives the clear explanation on how sustainability can enhance performance outcomes in the supply chain. Thirdly, our research is perhaps the first study investigating the relationship between social sustainability practices and supply chain integration in emerging economies. The final reason is to broaden other

research on supply chain integration by including literature on the collaboration between supply chain integration and supply chain performance.

## 2. Literature Review

### 2.1. Theoretical Background

#### 2.1.1. Social Sustainability Practices

Sustainability refers to “meeting today’s needs without compromising the future generations’ needs” (Bergman et al., 2017). Many studies have shown that it is essential to understand the three pillars of sustainability: economic, environment and social (Gallego-Álvarez, Galindo-Villardón, & Rodríguez-Rosa, 2015; Pagell, Wu, & Wasserman, 2010). Since the social aspect did not receive much attention from the previous literatures (Ashby et al., 2012), we will focus on the social aspect of sustainable development in our study. Social sustainability can be defined as an “ethical code of conduct for human survival and outgrowth that needs to be accomplished in a mutually inclusive and prudent way” (Sharma & Ruud, 2003).

In the scope of supply chain management, social sustainability practices can be defined as preventing social insufficiency with adverse influences on local societies and enhancing staff and social well-being and welfare (Huq, Chowdhury, & Klassen, 2016). An alternative explanation of social sustainability practices is a firm’s capability to locate social manners related to products and services that might affect the well-being, benefits, and safety of customers, suppliers, and employees in the supply chain (Tate et al., 2010). A large volume of published studies describes the essential determinants of social sustainability practices and how to measure them (Castka & Corbett, 2016; Giannakis & Papadopoulos, 2016; Mani & Agrawal, 2015; Tate et al., 2010). In many studies, “employees’ safety, health, and welfare” are three essential aspects of social sustainability practices. Besides, many authors have found that “diversity, philanthropy, health and safety, and human rights” are other dimensions to measure supply chain social sustainability (Hutchins & Sutherland, 2008). Meanwhile, “safety, equity, and poverty” have been identified as major social sustainability practices in developing countries (Vachon & Klassen, 2008).

In the supply chain, especially in logistics and purchasing sectors, social manners such as “safety, diversity, human rights, and philanthropy” have a significant impact on supply chain performance (Carter, 2005). In addition, determinants like “safety, diversity, equity, human rights, and labor practices” might be considered as social sustainability practices (Maloni & Brown, 2006). Similarly, “employee diversity” has been identified as an essential

factor to supply chain social sustainability in Malaysian manufacturing industry (Chin, Huam, & Sulaiman, 2015). Our study selects “philanthropy, safety, equity, human rights, health & welfare and ethics” as six major determinants that affect social sustainability practices in emerging economies.

### 2.1.2. Supply Chain Integration

Supply chain integration is a close alignment and coordination within a supply chain, often with the use of shared management information systems. It is also a process where all the members involved with the fulfillment of a product are integrated into a single system (Frohlich & Westbrook, 2001). This step acquires fascinating collaboration and adjustment to ensure all members is efficiently working toward the same objective all the time. According to Horvath (2001), one of the primary keys to create success is supply chain integration. In order to increase competitiveness, firms should pay attention to integrated supply chain management. Supplier integration, internal integration, and customer integration have been identified as three significant aspects of supply chain integration (Frohlich & Westbrook, 2001; Zhao, Huo, Selen, & Yeung, 2011). Additionally, the need for a strong integration among suppliers, customers, and internal mechanisms is rising because of global competition. This leads to the requirement of an adequate movement of information and goods/services in the supply chain (Chang & Lee, 2007).

### 2.1.2. Supply Chain Performance

An explanation of supply chain performance is access to determine the overall performance of the supply chain. Another definition of supply chain performance is the broad supply chain's actions in satisfying the end consumer needs and demands (Grimm, 2004). Study has applied stakeholder resource-based view (SRBV) (Sodhi, 2015) to investigate the links among social sustainability practices, supply chain integrations and supply chain performance. The stakeholder resource-based view was built on resource-based view, stakeholder theory, and utility theory to investigate the sustainability phenomenon in operations management. According to SRBV, all stakeholders (supplier, customer and internal employees) are treated on a par with each other to make sure all of their viewpoints are respected. All stakeholders are assumed to maximize their own utility, with diverse factors influencing their choices to shape their preferences (Sodhi, 2015), and to do so, they employ their respective routines, resources, and capabilities. So, in order to have better supply chain performance, social sustainability should be employed to manage all stakeholders' drivers and let them have the “right” choices that are good for all stakeholders.

## 2.2. Hypotheses Development

Several authors suggested that there is a link between social sustainability practices and supply chain performance (Bai & Sarkis, 2010; Pinto, 2019). In addition, previous studies have reported the positive connection between social sustainability practices and the performance outcomes in the supply chain (Andersen & Skjoett-Larsen, 2009). By pointing out social problems, a company can refine the supply chain performance and the country's financial achievement (Hutchins & Sutherland, 2008). In emerging economies, social sustainability applications and firm performance have positively related in the supply chain (Mani et al., 2018). In addition, other authors have demonstrated that there were complicated outcomes on supply chain achievement in developing nations (Chin et al., 2015; Gopalakrishnan, Yusuf, Musa, Abubakar, & Ambursa, 2012; Mani & Agarwal, 2015). As a result, in this paper, we will examine the relationship between social sustainability practices and supply chain performance in emerging countries. These studies mentioned above lead to the hypothesis:

**H1:** Social sustainability practices are positively related to supply chain performance.

There is a positive linkage between staff well-being programs and tight internal integration and operating performance (Pagell & Gobeli, 2009; Voorde, Paauwe, & Veldhoven, 2011). Previous research showed that firms should maintain workplace safety and employees' well-being programs to follow social sustainability practices (Jørgensen, 2008). Additionally, several studies have indicated that various indicators such as encouraging welfare, providing safety working conditions, and support workers' healthcare will positively impact internal integration (Das, Pagell, Behm, & Veltri, 2008; Okun, Guerin, & Schulte, 2016). An investigation to evaluate firm procedures and human resource practices found that staff well-being programs and employees' health and safety are two main indexes (Vachon & Klassen, 2008). As a result, we hypothesize:

**H2:** Social sustainability practices are positively related to internal integration.

It has been suggested that the company's reputation and financial situation might be damaged if their main suppliers negatively impact the environment and society (Zhang, Shen, & Wu, 2011). On the other hand, companies that help and support suppliers to meet sustainability standards can quickly satisfy their customers' needs and expectations. In addition, social manners such as unsafety working

conditions, low income, inequity policies, or over-working from large multinational corporations like Nike and Adidas have been reported in previous research (Seuring & Mx ller, 2008). Most of these social issues have come directly from trading partners' facilities. Therefore, companies should pay more attention to engage and encourage their suppliers to act ethically and responsibly to improve supply chain performance. There has been an increasing amount of literature on sustainability challenges in supplier locations (Huq et al., 2016; Klassen & Vachon, 2009). Hence, we propose our following hypothesis:

**H3:** Social sustainability practices positively related to supplier integration.

Companies that create value and contribute to society; thus, their customers are pleased and might be happy to purchase more products and services. Furthermore, many authors have found that the application of such sustainability actions contributes to the supply chain performance through increased turnover (Lau, Tang, & Yam, 2010; Lee, 2019). While supporting society and protecting the environment, firms may develop customer integration into firm sustainability management practices. Moreover, customer integration might improve the flow of information within the supply chain. Therefore, companies will discover the customers' requirements and demands and social issues quickly (Gelhard & Von Delft, 2016). In an analysis of customer collaboration, it has been shown that customer integration might be a critical aspect of completing intra and inter-sustainability management practices (Vickery, Jayaram, Droge, & Calantone, 2003). These studies mentioned above can subsequently lead to the hypothesis:

**H4:** Social sustainability practices are positively related to customer integration.

In order to enhance supply chain performance, firms should focus on internal integration because it helps to increase communication among different departments in the organization (Williams, Roh, Tokar, & Swink, 2013). Furthermore, effective internal integration within the organization will save production lead time and develop a variety of products. According to Won Lee, Kwon, and Severance (2007), internal integration can easily access the integrated database, communicate between functional units of the firms effectively and efficiently, approach inventory management software throughout the supply chain, and restore inventory situation in actual time. Numerous studies have attempted to explain in order to satisfy customers' needs and demands, as well as effectively

communicate with strategic suppliers, firms should focus on internal integration since it links with processes and actions inside the organizations, inter and intra-organization practices. Therefore, we propose our following hypothesis:

**H5:** Internal integration is positively related to supply chain performance.

In an analysis of supplier integration, it has been examined that successful firms cooperate with their suppliers all the time and throughout the supply chain, such as designing new products or services, the production planning process, manufacturing products, as well as responding to the delivery system (Won Lee et al., 2007). Additionally, joint decision-making will lead to more information and intelligence as well as reduce external risks (Chen & Paulraj, 2004; Zhao et al., 2011). This action can create mutual trust and gain benefits between firms and their strategic suppliers; hence, the supply chain objectives will be achieved effectively and efficiently (Yan, 2013). The above studies prove that increased supplier integration provides tools for outstanding operational performance and supply chain agility performance. Hence, we hypothesize:

**H6:** Supplier integration is positively related to supply chain performance.

In the early stage of the supply chain process, firms involving main customers in their R&D activities will achieve the firm's goals successfully. Hence, firms will receive an on-time review about the product's efficiency and effectiveness (Droge, Jayaram, & Vickery, 2004). Additionally, the engagement between firms and main customers may bring complete information and framework that might effectively boost product quality and product quantity (Lau et al., 2010). Previous research has indicated that customer integration can support the establishment and react quickly to different requirements from strategic customers, leading to better supply chain performance (Chen, Sohal, & Prajogo, 2013). Many authors showed that organizations should focus on sharing information and increasing collaboration with their valued customers (Closs, Swink, & Nair, 2005). This action saves time and money in production, lowered inventory, and drives better supply chain performance (Lee, 2004). Therefore, we hypothesize:

**H7:** Customer integration is positively related to Supply chain performance.

The research framework and hypotheses are shown in Figure 1.

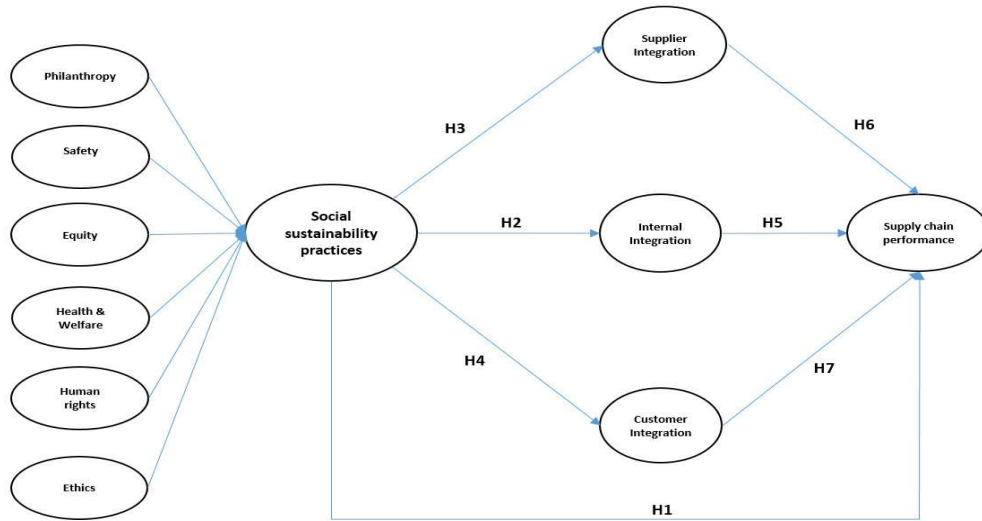


Figure 1: Research Framework

### 3. Methodology

#### 3.1. Participants and Data Collection

We researched by delivering an online survey to employees of companies in Vietnam. All companies have at least five years of operating in Vietnam, and the capital investment must exceed 200 thousand USD. We applied these criteria to ensure all the companies are mature in operations and might develop some knowledge on sustainability practices. In total, we received 285 responses, and after filtering all companies to meet the requirements mentioned above, 206 responses from 206 companies were used for further analysis. The main sample characteristic was presented in Table 1.

Table 1: Sample Characteristics

Characteristics	Frequency (N=204)	Percent (100%)
<b>Company's operation time</b>		
5-10 years	64	31.4
11-15 years	55	27.0
16-20 years	45	22.1
>20 years	40	19.6
<b>Firm's capital investment</b>		
<1 million USD	54	26.5
1-5 million USD	38	18.6
>5 million USD	112	54.9
<b>Industry</b>		
Services	53	26.0
Agriculture/Agro-based food products	65	31.9
Logistics	30	14.7

Characteristics	Frequency (N=204)	Percent (100%)
Retailer and Distribution	30	14.7
Other	26	12.7
<b>Respondent's working experience (years)</b>		
<3	44	21.6
4-5	48	23.5
6-10	60	29.4
11-15	40	19.6
16-20	9	4.4
> 20	3	1.5
<b>Respondent's position in the company</b>		
Employee	115	56.4
Middle Manager	61	29.9
Executive and top-level	28	13.7

#### 3.2. Measurement

In this study, the measurement for social sustainability practices was adapted from the research of (Mani et al., 2016) and (Mani & Agrawal, 2015). The social sustainability is the first order factor that included six second order factors: Philanthropy (4 items), Safety (3 items), Equity (4 items), Health & Welfare (2 items), Human Rights (3 items), Ethic (2 items). For supply chain integration, we adapted the measurements from Jajja, Chatha, and Farooq (2018) with Supplier Integration (4 items), Internal Integration (4 items) and Customer Integration (4 items). All revised the measurement items from previous studies used a 7-point Likert scale (ranging from Strongly disagree to Strongly agree).



## 4. Results

### 4.1. Descriptive Statistics, Reliability and Discriminant Validity

We conducted factor analysis and reliability test in SmartPLS 3.0 to examine the variable consistency (Ringle, Sven, & Jan-Michael, 2015). After the first stage of running

factor analysis, all items that have a factor loading smaller than 0.7 are removed (Hair, Ringle, & Marko, 2011). Regarding the reliability test, composite reliability (C.R.) and Cronbach's Alpha are greater than 0.7 to guarantee high reliability of the measurements (Bagozzi, 2011; Fornell & Larcker, 1981). The convergent validity is also met when the average variance extracted (AVE) of all constructs are bigger than 0.50 (Chin, 1998), Table 2 shows the results of the descriptive statistics and reliability measurements.

**Table 2:** Descriptive Statistics and Factor Analysis Results

Construct	Items	Mean	SD	Factor Loading	AVE	C.R.	Cronbach's Alpha
<b>SOCIAL SUSTAINABILITY PRACTICES (SSPs) – 1<sup>st</sup> order</b>							
Philanthropy (PHIL)	ssph1.	5.592	1.481	0.911	0.800	0.952	0.938
	ssph2.	5.335	1.529	0.896			
	ssph3.	5.282	1.579	0.876			
	ssph4.	5.461	1.486	0.908			
	ssph5.	5.131	1.600	0.882			
Safety (SAFE)	ssaf1.	6.272	1.021	0.935	0.851	0.945	0.913
	ssaf2.	6.150	1.039	0.918			
	ssaf3.	6.238	0.998	0.915			
Equity (EQUI)	sseq1.	6.155	0.998	0.901	0.792	0.938	0.912
	sseq2.	6.024	1.059	0.914			
	sseq3.	5.976	1.095	0.915			
	sseq4.	5.680	1.327	0.826			
Health & Welfare (HEWE)	sshw1.	5.922	1.151	0.944	0.884	0.938	0.869
	sshw2.	5.660	1.380	0.931			
Human Rights (HURI)	sshr1.	6.010	1.061	0.828	0.764	0.907	0.845
	sshr2.	6.034	1.204	0.880			
	sshr3.	6.102	1.112	0.913			
Ethics (ETHI)	ethi1.	6.083	1.068	0.927	0.858	0.924	0.834
	ethi2.	6.162	1.067	0.926			
<b>SOCIAL SUSTAINABILITY PRACTICES (SSPs) - 2<sup>nd</sup> order</b>	PHIL	5.360	1.376	0.749	0.586	0.964	0.960
	SAFE	6.220	0.943	0.853			
	EQUI	5.959	0.995	0.912			
	HEWE	5.791	1.190	0.866			
	HURI	6.049	0.987	0.875			
	ETHI	6.122	0.960	0.874			
<b>SUPPLIER INTEGRATION (ISP)</b>	isp2.	5.102	1.620	0.894	0.732	0.891	0.817
	isp3.	5.282	1.557	0.855			
	isp4.	5.917	1.101	0.821			
<b>CUSTOMER INTEGRATION (ICU)</b>	icu1.	5.204	1.551	0.858	0.724	0.887	0.818
	icu2.	5.553	1.283	0.883			
	icu3.	5.107	1.567	0.836			
<b>INTERNAL INTEGRATION (INTE)</b>	iin1.	5.694	1.303	0.902	0.795	0.939	0.914
	iin2.	5.777	1.292	0.899			
	iin3.	5.757	1.333	0.917			
	iin4.	5.874	1.224	0.890			
<b>SUPPLY CHAIN PERFORMANCE (SCPF)</b>	scpf1.	5.840	1.019	0.929	0.859	0.948	0.918
	scpf2.	5.840	1.101	0.931			
	scpf3.	5.874	1.030	0.922			

To assess the discriminant validity of measurements, the Fornell-Larcker criterion and Heterotrait-Monotrait ratio (HTMT) were used (Henseler, Ringle, & Sarstedt, 2015). In Table 3, the results showed that the square root of the AVE (the diagonal elements) of each construct was more significant than other inter-construct correlations, providing evidence for satisfactory discriminant validities of the constructs. The results of HTMT also showed that discriminant validity was not an issue for this study when all Heterotrait-Monotrait ratios of the correlations between the constructs were in the range of 0.507 to 0.757 smaller than the threshold of 0.85.

**Table 3:** Correlations between Research Constructs

	ICU	INTE	ISP	SSPs	SCPF
<b>ICU</b>	0.859				
<b>INTE</b>	0.520	0.902			
<b>ISP</b>	0.627	0.491	0.857		
<b>SSPs</b>	0.386	0.596	0.314	0.766	
<b>SCPF</b>	0.397	0.631	0.414	0.699	0.927

Note: Diagonal elements (in bold) are the square root of the average variance extracted

### 4.2. Hypothesized Model Testing

We employed SmartPLS 3.0 (Ringle et al., 2015) to evaluate the structural model based on the significance of the estimated path coefficient and R-squared (Hair et al., 2011). Following Hair et al.'s (2011) recommendation, we

examined the model with 5,000 bootstrap samples to ensure the results of estimated path coefficients are stable. The result of PLS-SEM is shown in Table 4. The adjusted R-squared values obtained for the four endogenous variables are also substantial: Supplier Integration (0.221), Internal Integration (0.529), Customer Integration (0.228), and Supply chain performance (0.582) (Hair et al., 2011).

The results indicated that H1 was supported as social sustainability practices positively impacts supply chain performance ( $\beta=0.410$ ,  $p<0.001$ ). moreover, supply chain social sustainability also positively influences the supplier integration, internal integration, customer integration ( $\beta_{H2}=0.470$ ,  $p_{H2}<0.001$ ;  $\beta_{H3}=0.729$ ,  $p_{H3}<0.001$  and  $\beta_{H4}=0.478$ ,  $p_{H4}<0.001$  respectively). The Supplier integration, internal integration and customer integration were expected to have positively impact on supply chain performance; however, the results showed that only supplier integration and internal integration had these impacts ( $\beta_{H5}=0.211$ ,  $p_{H5}<0.01$  and  $\beta_{H6}=0.232$ ,  $p_{H6}<0.05$ ). Therefore, H5 and H6 were supported, while H7 was not supported ( $\beta_{H7}=0.053$ ,  $p_{H7}>0.05$ ). The hypotheses testing results were depicted in the conceptual model (Figure 2). We also examine the control variables (year of operation, firm's capital investment) to identify any confounding effect of these control variables on supply chain performance. The results showed that those control variables do not have any relationship with the dependent variables.

**Table 4:** The PLS-SEM Results

	Path	Beta	t-value	Result
<b>Main paths</b>				
H1	Social Sustainability Practices → Supply chain performance	0.410**	4.017	Supported
H2	Social Sustainability Practices → Supply chain performance → Supplier Integration	0.470***	6.301	Supported
H3	Social Sustainability Practices → Supply chain performance → Internal Integration	0.729***	18.199	Supported
H4	Social Sustainability Practices → Supply chain performance → Customer Integration	0.478***	8.032	Supported
H5	Supplier Integration → Supply chain performance	0.211**	2.681	Supported
H6	Internal Integration → Supply chain performance	0.232*	2.114	Supported
H7	Customer Integration → Supply chain performance	0.053	0.762	Not Supported
<b>Control Variables</b>				
	Years of operation → Supply chain performance	-0.020	0.578	Not significant
	Firm's capital investment → Supply chain performance	-0.077	0.720	Not significant
<b>Specific Indirect Effects</b>				
	Social Sustainability Practices → Supply chain performance → Supplier Integration → SC performance	0.099**	2.654	Significant
	Social Sustainability Practices → Supply chain performance → Internal Integration → SC performance	0.169*	2.141	Significant
	Social Sustainability Practices → Supply chain performance → Customer Integration → SC performance	0.025	0.727	Not significant

Note: Significance level at \*\*\*: p-value < 0.001; \*\*: p-value <0.01; \*: p-value <0.05; ns: non-significant

Moreover, to seek more insight into the relationship between social sustainability practices and supply chain performance, we examined the mediating role of three dimensions of supply chain integration on the mentioned relationship. The results in Table 4 showed that only customer integration does not significantly mediate the

relationship between supply chain social sustainability and supply chain performance ( $\beta_{CI}$  indirect effect = 0.025,  $p > 0.05$ ), while both supplier integration and internal integration have the mediation effects on this relationship. The results of PLS-SEM is showed in Figure 2.

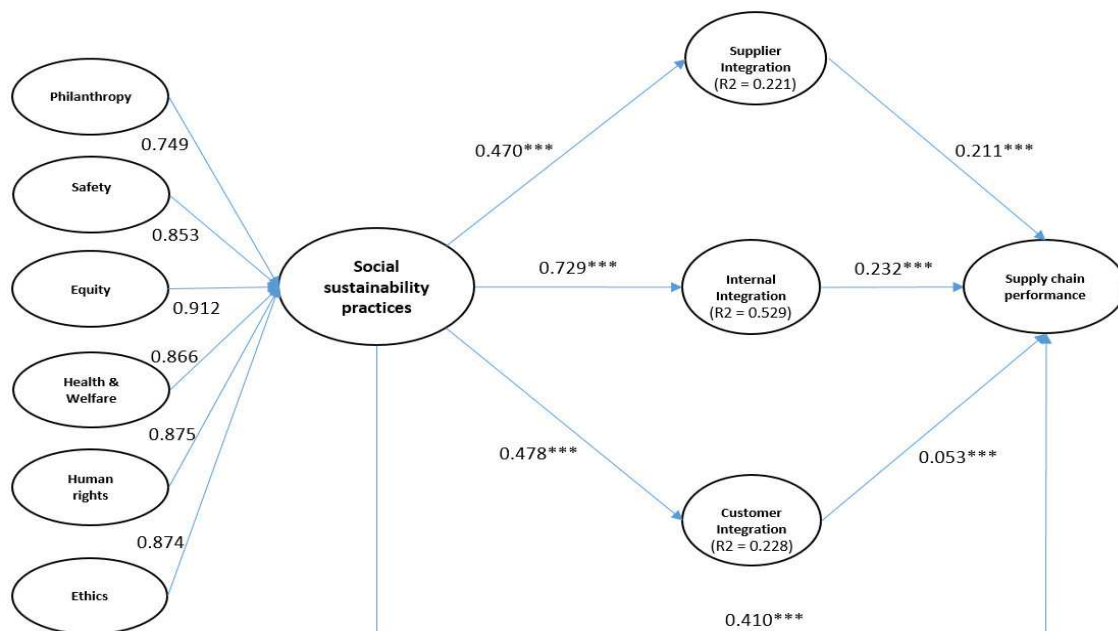


Figure 2: The Results of PLS-SEM

## 5. Research Contributions

### 5.1. Theoretical Contributions

Firstly, our research finding proves that social sustainability practices will enhance supply chain performance. The results are also in line with previous research (Chin et al., 2015; Gopalakrishnan et al., 2012; Mani et al., 2016; Mani et al., 2020). Furthermore, through perceiving social sustainability in emerging economies, our study decreases the gap in the context of interpreting the components of supply chain social sustainability in developed nations (Mani et al., 2016). In addition, by applying six dimensions to examine social sustainability in developing countries, including philanthropy, safety, equity, health & welfare, and human rights (Mani et al., 2020), we could validate dimensions of social.

Secondly, this study broadens other research on supply chain integration and supply chain performance. Our findings emphasized the importance of supply chain integration, especially in internal integration and supplier integration, to achieve high performance in the supply chain

(Koufteros, Vonderembse, & Jayaram, 2005; Swink, Narasimhan, & Wang, 2007; Vickery et al., 2003; Zhao, Huo, Sun, & Zhao, 2013). It is also essential to the survival and success of a firm. Due to the complexity of participants and the variety of companies in our study, their job positions differ from employees to top managers and work in many companies. Hence, the result shows that customer integration did not significantly influence supply chain performance, which in contrast to previous research findings (Closs et al., 2005; Frohlich & Westbrook, 2001; Schoenherr & Swink, 2012). One possible reason for this result is the current perception and knowledge of participants in our survey, since they do not have enough information about customer's feedbacks to the focal company's social sustainability practices.

Thirdly, our study is perhaps the first study investigating the relationship between social sustainability practices and supply chain integration and the mediation effect of supply chain integration on the relationship between social sustainability practices and supply chain performance. The results show that supplier integration and internal integration mediate the mentioned relationship, which contributes more evidence for the stakeholder resource-



based view. Indeed, supply chain performance is not only decided by the company's social sustainability activities but also by the integration of different stakeholders in the supply chain. Stakeholders (supplier and employees in this case) always try to maximize their utilities (Sodhi, 2015). If there are any social issues, it may disrupt the drivers of stakeholders' preferences, which leads to the failure of the focal company's supply chain. Therefore, this study contributes to the understanding of the mediating role of supply chain integration as well as the relationship between social sustainability practices and supply chain integration.

Lastly, our finding suggests that the organization's year of operation and capital investment do not significantly impact the supply chain performance. This finding is opposite to previous research (Mani et al., 2020), even though this research also took place in developing countries. Some of the main reasons might be the difference in sample size, size of firms, and industry types. There are many firms from different sectors in our research, including services, agriculture, aquaculture, retailer and consumer, logistics, and others. Other studies only focused on large manufacturing firms (Carter, 2005; Lu et al., 2012; Tate et al., 2010).

## 5.2. Managerial Implications

Firstly, the finding provides better insights into social sustainability practices; hence, it encourages supply chain managers should act ethically and responsibly in their society and contribute to the well-being and healthcare of their employees. Moreover, it encourages managers to pay more attention to enrich employees' welfare and benefits and contribute to local society. Our research also provides advice that supply chain managers can accept to understand and apply social sustainability in emerging economies and developing countries.

Secondly, this study also provides evidence about the integration between social sustainability practices and integration in the supply chain. Supply chain managers can collaborate and encourage their partners, including suppliers, customers and employees, to act responsibly and contribute to society. Hence, these actions will help managers to achieve athletic goals effectively and efficiently. In details, firms often contribute to local society and support their employees; thus, their customers might be pleased and pleasant to purchase more products and services from them. While doing these practical and meaningful actions, the firm may develop customer integration into firm sustainability management practices.

Additionally, firms should focus on their supplier integration and encourage them to act ethically and responsibly to improve supply chain performance as a whole. Moreover, by maintaining workplace safety and employee

well-being, the firm will gain more reputation and increase internal integration. Hence, their employees are cheerful and ready to contribute to the success of operational performance. This will lead to achieving the firm's goal effectively and efficiently and increasing supply chain performance.

Finally, our research model indicates that managers should pay more attention to supply chain integration, especially in supplier integration and internal integration. Our results show that managers cannot achieve high performance in the supply chain without proper internal collaboration and supplier collaboration. Therefore, managers should focus on developing information and data sharing systems to increase collaboration among supply chain members.

## 6. Conclusion and Future Recommendation

Although our findings contribute both theoretical and practical aspects, there are some limitations in our study. Firstly, the participants have different job positions, from employees to top managers. Therefore, the perception and viewpoint of the interviewees are different in terms of the work role, year of experience, and knowledge about supply chain social sustainability. Secondly, the social manners in developing countries are distinct from developed countries. Hence, this study may only apply in the context of emerging economies.

Due to these limitations mentioned above, there are many opportunities for future studies. Firstly, this study only examines supply chain performance as a whole. Hence, it will be engaging in future studies to investigate the influence of supply chain collaboration on specific sectors, including supplier performance, operational performance, and customer performance. Last but not least, this study provides an insight into supply chain social sustainability collected at a particular time. As a result, it will be fruitful for further studies to examine whether the firm's social and environmental policies differ over time.

In brief, we conclude that in emerging economies, social sustainability practices are essential to the long-term survival and success of the supply chain. However, supply chain managers in developing nations do not pay much attention to this issue. Our research proves that social sustainability practices can link all the members in the supply chain and enhance supply chain collaboration; thus, it results in high supply chain performance. We also suggest that supply chain managers should focus on the well-being, working conditions, and healthcare of their employees and the development of local society. As a result, with all of these efforts, firms will gain more reputation and quickly achieve the firm's goal effectively and efficiently.

## References

- Andersen, M., & Skjoett-Larsen, T. (2009). Corporate social responsibility in global supply chains. *Supply Chain Management: An International Journal*, 14(2), 75-86.
- Ashby, A., Leat, M., & Hudson-Smith, M. (2012). Making connections: A review of supply chain management and sustainability literature. *Supply Chain Management: An International Journal*, 17(5), 497-516.
- Bagozzi, R. P. (2011). Measurement and meaning in information systems and organizational research: Methodological and philosophical foundations. *MIS Quarterly*, 35(2), 261-292.
- Bai, C., & Sarkis, J. (2010). Green Supplier Development: Analytical Evaluation Using Rough Set Theory. *Journal of Cleaner Production*, 18(12), 1200-1210.
- Bergman, M. M., Bergman, Z., & Berger, L. (2017). An Empirical Exploration, Typology, and Definition of Corporate Sustainability. *Sustainability*, 9(5), 753.
- Brown, G. D. (2015). Effective protection of workers' health and safety in global supply chains. *International Journal of Labour Research*, 7(2), 35-53.
- Carter, C. R. (2005). Purchasing social responsibility and firm performance. *International Journal of Physical Distribution & Logistics Management*, 35(3), 177-194.
- Castka, P., & Corbett, C. (2016). Adoption and diffusion of environmental and social standards: The effect of stringency, governance, and media coverage. *International Journal of Operations & Production Management*, 36(11), 1504-1529.
- Chang, S. C., & Lee, M. S. (2007). A study on relationship among leadership, organizational culture, the operation of learning organization and employees' job satisfaction. *The Learning Organization*, 14(2), 155-185.
- Chen, J., Sohal, A. S., & Prajogo, D. I. (2013). Supply chain operational risk mitigation: A collaborative approach. *International journal of production research*, 51(7), 2186-2199.
- Chin, T., Huam, T., & Sulaiman, Z. (2015). Green Supply Chain Management, Environmental Collaboration and Sustainability Performance. *Procedia CIRP*, 26, 695-699.
- Chin, W. W. (1998). Issues and opinions on structural equation modelling. *MIS Quarterly*, 22(1), 7-10.
- Ciliberti, F., Pontrandolfo, P., & Scozzi, B. (2008). Investigating corporate social responsibility in supply chains: A SME perspective. *Journal of Cleaner Production*, 16(15), 1579-1588.
- Closs, D. J., Swink, M., & Nair, A. (2005). The role of information connectivity in making flexible logistics programs successful. *International Journal of Physical Distribution & Logistics Management*, 35(4), 258-277.
- Das, A., Pagell, M., Behm, M., & Veltri, A. (2008). Toward a theory of the linkages between safety and quality. *Journal of Operations Management*, 26(4), 521-535.
- Droge, C., Jayaram, J., & Vickery, S. K. (2004). The effects of internal versus external integration practices on time-based performance and overall firm performance. *Journal of Operations Management*, 22(6), 557-573.
- Flynn, B., Huo, B., & Zhao, X. (2010). The Impact of Supply Chain Integration on Performance: A Contingency and Configuration Approach. *Journal of Operations Management*, 28(1), 58-71.
- Fornell, C., & Larcker, D. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(3), 39-50.
- Frohlich, M., & Westbrook, R. (2001). Arcs of Integration: An International Study of Supply Chain Strategies. *Journal of Operations Management*, 19(2), 185-200.
- Frohlich, M. T. (2002). E-Integration in the Supply Chain: Barriers and Performance. *Decision Sciences*, 33(4), 537-556.
- Gallego-Álvarez, I., Galindo-Villardón, M. P., & Rodríguez-Rosa, M. (2015). Evolution of sustainability indicator worldwide: A study from the economic perspective based on the X-STATICO method. *Ecological Indicators*, 58, 139-151.
- Gelhard, C., & Von Delft, S. (2016). The role of organizational capabilities in achieving superior sustainability performance. *Journal of business research*, 69(10), 4632-4642.
- Giannakis, M., & Papadopoulos, T. (2016). Supply chain sustainability: A risk management approach. *International Journal of Production Economics*, 171(4), 455-470.
- Gopalakrishnan, K., Yusuf, Y. Y., Musa, A., Abubakar, T., & Ambursa, H. M. (2012). Sustainable supply chain management: A case study of British Aerospace (BAe) Systems. *International Journal of Production Economics*, 140(1), 193-203.
- Grimm, C. M. (2004). The practice of supply chain management: Where theory and application converge. *Transportation Journal*, 43(2), 59-73.
- Hair, J. F., Ringle, C. M., & Marko, S. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice*, 19(2), 139-151.
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modelling. *Journal of the Academy of Marketing Science*, 43(1), 115-135.
- Horvath, L. (2001). Collaboration: the key to value creation in supply chain management. *Supply Chain Management: An International Journal*, 6(5), 205-207.
- Huq, F. A., Chowdhury, I. N., & Klassen, R. D. (2016). Social management capabilities of multinational buying firms and their emerging market suppliers: An exploratory study of the clothing industry. *Journal of Operations Management*, 46(1), 19-37.
- Hutchins, M., & Sutherland, J. (2008). An Exploration of Measures of Social Sustainability and their Application to Supply Chain Decisions. *Journal of Cleaner Production*, 16(15), 1688-1698.
- Jajja, M. S. S., Chatha, K. A., & Farooq, S. (2018). Impact of supply chain risk on agility performance: Mediating role of supply chain integration. *International Journal of Production Economics*, 205, 118-138.
- Jajja, M. S. S., Kannan, V. R., Brah, S. A., & Hassan, S. Z. (2016). Supply chain strategy and the role of suppliers: evidence from the Indian sub-continent. *Benchmarking: An International Journal*, 23(7), 1658-1676.
- Jørgensen, K. (2008). A systematic use of information from accidents as a basis of prevention activities. *Safety science*, 46(2), 164-175.
- Klassen, R., & Vachon, S. (2009). Collaboration and Evaluation in the Supply Chain: The Impact On Plant-Level Environmental

- Investment. *Production and operations management*, 12(3), 336-352.
- Kleindorfer, P. R., Singhal, K., & Van Wassenhove, L. N. (2005). Sustainable operations management. *Production and operations management*, 14(4), 482-492.
- Koufteros, X., Vonderembse, M., & Jayaram, J. (2005). Internal and external integration for product development: the contingency effects of uncertainty, equivocality, and platform strategy. *Decision Sciences*, 36(1), 97-133.
- Lau, A. K. W., Tang, E., & Yam, R. C. M. (2010). Effects of Supplier and Customer Integration on Product Innovation and Performance: Empirical Evidence in Hong Kong Manufacturers. *Journal of Product Innovation Management*, 27(5), 761-777.
- Lee, J. M. (2019). A Study on Consumer Value and Corporate Social Responsibility Distribution Activities. *Journal of Distribution science*, 17(4), 17-26.
- Lu, R. X. A., Lee, P. K. C., & Cheng, T. C. E. (2012). Socially responsible supplier development: Construct development and measurement validation. *International Journal of Production Economics*, 140(1), 160-167.
- Maloni, M. J., & Brown, M. E. (2006). Corporate Social Responsibility in the Supply Chain: An Application in the Food Industry. *Journal of Business Ethics*, 68(1), 35-52.
- Mani, V., Agarwal, R., Gunasekaran, A., Papadopoulos, T., Dubey, R., & Childe, S. J. (2016). Social sustainability in the supply chain: Construct development and measurement validation. *Ecological Indicators*, 71, 270-279.
- Mani, V., & Agrawal, R. (2015). Social sustainability practices in the supply chain of Indian manufacturing industries. *International Journal of Automation and Logistics*, 1(3), 211-233.
- Mani, V., Gunasekaran, A., & Delgado, C. (2018). Enhancing supply chain performance through supplier social sustainability: An emerging economy perspective. *International Journal of Production Economics*, 195, 259-272.
- Mani, V., Gunasekaran, A., Papadopoulos, T., Hazen, B., & Dubey, R. (2016). Supply chain social sustainability for developing nations: Evidence from India. *Resources, Conservation and Recycling*, 111, 42-52.
- Mani, V., Jabbour, C. J. C., & Mani, K. T. N. (2020). Supply chain social sustainability in small and medium manufacturing enterprises and firms' performance: Empirical evidence from an emerging Asian economy. *International Journal of Production Economics*, 227, 107656.
- Okun, A. H., Guerin, R. J., & Schulte, P. A. (2016). Foundational workplace safety and health competencies for the emerging workforce. *Journal of Safety Research*, 59, 43-51.
- Pagell, M., & Gobeli, D. (2009). How Plant Managers' Experiences and Attitudes Toward Sustainability Relate to Operational Performance. *Production and operations management*, 18(3), 278-299.
- Pagell, M., Wu, Z., & Wasserman, M. E. (2010). Thinking differently about purchasing portfolios: An assessment of sustainable sourcing. *Journal of Supply Chain Management*, 46(1), 57-73.
- Paulraj, A. (2011). Understanding the relationships between internal resources and capabilities, sustainable supply management and organizational sustainability. *Journal of Supply Chain Management*, 47(1), 19-37.
- Pinto, L. (2019). Social Supply Chain Practices and Companies Performance: An Analysis of Portuguese Industry. *Journal of Distribution Science*, 17(11), 53-62.
- Power, D. (2005). Supply chain management integration and implementation: A literature review. *Supply Chain Management: An International Journal*, 10(4), 252-263.
- Ringle, C. M., Sven, W., & Jan-Michael, B. (2015). *SmartPLS. Bönningstedt: SmartPLS*.
- Schoenherr, T., & Swink, M. (2012). Revisiting the Arcs of Integration: Cross-Validations and Extensions. *Journal of Operations Management*, 30(1-2), 99-115.
- Seuring, S., & Mller, M. (2008). From a literature review to a conceptual framework for sustainable supply chain management. *Journal of Cleaner Production*, 16(15), 1699-1710.
- Sharma, S., & Ruud, A. (2003). On the path to sustainability: Integrating social dimensions into the research and practice of environmental management. *Business Strategy and The Environment*, 12(4), 205-214.
- Sodhi, M. S. (2015). Conceptualizing Social Responsibility in Operations Via Stakeholder Resource-Based View. *Production and operations management*, 24(9), 1375-1389.
- Swink, M., Narasimhan, R., & Wang, C. (2007). Managing Beyond the Factory Walls: Effects of Four Types of Strategic Integration on Manufacturing Plant Performance. *Journal of Operations Management*, 25(1), 148-164.
- Tate, W., Ellram, L., & Kirchoff, J. (2010). Corporate Social Responsibility Reports: A Thematic Analysis Related to Supply Chain Management. *Journal of Supply Chain Management*, 46(1), 19-44.
- Vachon, S., & Klassen, R. (2008). Environmental Management and Manufacturing Performance: The Role of Collaboration in the Supply Chain. *International Journal of Production Economics*, 111(2), 299-315.
- Vickery, S. K., Jayaram, J., Droge, C., & Calantone, R. (2003). The effects of an integrative supply chain strategy on customer service and financial performance: An analysis of direct versus indirect relationships. *Journal of Operations Management*, 21(5), 523-539.
- Voorde, K., Paauwe, J., & Veldhoven, M. (2011). Employee Well-being and the HRM-Organizational Performance Relationship: A Review of Quantitative Studies. *International Journal of Management Reviews*, 14(4), 391-407.
- Williams, B. D., Roh, J., Tokar, T., & Swink, M. (2013). Leveraging supply chain visibility for responsiveness: The moderating role of internal integration. *Journal of Operations Management*, 31(7), 543-554.
- Winter, M., & Knemeyer, A. M. (2013). Exploring the integration of sustainability and supply chain management: Current state and opportunities for future inquiry. *International Journal of Physical Distribution & Logistics Management*, 43(1), 18-38.
- Won Lee, C., Kwon, I. W. G., & Severance, D. (2007). Relationship between supply chain performance and degree of linkage among supplier, internal integration, and customer. *Supply Chain Management: An International Journal*, 12(6), 444-452.

- Yakovleva, N., Sarkis, J., & Sloan, T. (2012). Sustainable benchmarking of supply chains: The case of the food industry. *International journal of production research*, 50(5), 1297-1317.
- Yan, T. (2013). Communication intensity, goal congruence, and uncertainty in buyer-supplier new product development. *Journal of Operations Management*, 31(7-8), 523-542.
- Zhang, X., Shen, L., & Wu, Y. (2011). Green strategy for gaining competitive advantage in housing development: A China study. *Journal of Cleaner Production*, 19(2), 157-167.
- Zhao, L., Huo, B., Sun, L., & Zhao, X. (2013). The impact of supply chain risk on supply chain integration and company performance: A global investigation. *Supply Chain Management: An International Journal*, 18(2), 115-131.
- Zhao, X., Huo, B., Selen, W., & Yeung, J. H. Y. (2011). The impact of internal integration and relationship commitment on external integration. *Journal of Operations Management*, 29(1), 17-32.