International Journal of Industrial Engineering & Production Research September 2023 Vol. 34, No. 3: 1-21
DOI: 10.22068/ijiepr.34.3.3

RESEARCH PAPER

The Role of Institutional Pressure, Green Procurement and Reverse Logistics Practices on Environmental Performances: Evidence from Ethiopia Industrial Parks

Tesfaye Kefale Torban *[1], Mathewos Ensarmu Jalata[2] & Chala Dechassa Geleta[3]

Received 6 April 2023; Revised 23 May 2023; Accepted 3 July 2023;

ABSTRACT

Environmental sustainability is a growing concern for businesses and organizations due to climate change trends. This study aims to examine the direct impact of institutional pressures, green procurement (GP), and reverse logistics (RL) on environmental performance (EVP). The mediating influences of RL and GP on institutional pressure and EVP are also examined. The study uses a quantitative method where data is gathered from the CEO, operations, human resources, logistics, and procurement managers of 165 industrial park firms using customized questionnaires. The data is analyzed using the PLS-SEM software (SmartPLS 4). The results suggest that the adoption of institutional pressures has a significant effect on GP and RL, and the findings show that GP does not improve EVP. However, the implementation of RL mediates the relationship between institutional pressure and EVP. The study develops a comprehensive empirical model that tests the joint influence of institutional pressure- GP-RL-EVP model was developed and validated. The findings indicate that institutional pressure and RL help firms advance EVP.

KEYWORDS: *Institutional pressure; Green procurement; Reverse logistics; Environmental performances; Smart PLS predict.*

1. Introduction

Environmental sustainability challenges are becoming a concern for businesses and organizations in many countries, including Ethiopia. The Ethiopian government devised a climate-resilient green economy (CRGE) strategy in 2011 to achieve middle-income status [1]. The Ministry of Trade and Industry (MoTI), the Industrial Park Development Corporation (IPDC), local governments, and private industrial park developers are involved in the country's economic development. As a result, the Ethiopian government established the IPDC in 2014 to creation, and manage industrialization. IPDC aims to create a diversified, internationally competitive, and environmentally accountable industrial sector [2]. So, Ethiopia's industrial park (IP) expansion aims to increase the new economy, productivity, and competitiveness of manufacturing firms, link the high-tech and light manufacturing industries, expand the metal and engineering sectors, and swap imported goods for those made domestically [3].

Consequently, Ethiopia's manufacturing sector has grown significantly over the past 20 years[2]. The practices of fertilizers, insecticides, herbicides, and gas emissions from industrial activities all contribute to environmental pollution [4].According to [5]and [6], environmental factors can significantly harm circular environment (CE) performance. Ethiopian governments, corporate communities, and individuals constantly monitor ecological issues [7] and [8]. Ethiopia IP are under different pressure to safeguard the environment due to increasing demand from the government and environmental regulatory institutions [9]. Customers, media, governments, employees, society, and investors are just a few of the

* **Corresponding author:** ***Tesfaye Kefale Torban***
ttorban123@gmail.com

1. *Department of Management, College of Business and Economics, Bule Hora University, Oromia, Ethiopia*.
2. *Department of Logistics and Supply Chain Management, College of Business and Economics, Addis Ababa University, Addis Ababa, Ethiopia*.
3. *Department of Management, College of Finance and Management, Oromia State university, Oromia, Ethiopia*.

stakeholders under pressure to adopt environmentally friendly practices [10],[11],and [12]. Because of the stakeholeders encourage the company to initiate using GP and reverse logistics (RL), regulatory and customers pressures develop an EVP. Manufacturers under intense regulatory pressure employ GP strategies [13]. GP is the activity of procuring goods and services that have little or no negative environmental impact. When seeking high-quality products and services at reasonable prices, consider the effects on human health and the environment [14]. Recycling products in the supply chain and reducing waste sources are two aspects of GP [15]. The results show [15] that adopting GP practices reduces the cost of pollution management, improves organizational market share, and improves circular EVP. Also, GP protects the environment from harmful and poisonous materials [16]. Then, GP is a reliable tool for reducing pollution, and as a result, it is essential to the EVP of firms [17] . Furthermore, it builds a company's favorable reputation and image in the marketplace [15].

Mimetic drivers are one of the drivers of environmental management practices, as they occur when organizations mimic their competitors when responding to environmental issues. Chinese companies have gained benefits by learning from clients and competitors, such as in the [18] study, which found that Chinese firms learned good environmental practices from leading competitors in developed countries and implemented them proactively in China. Competitive factors such as green image, policies and missions, and liability for disposal of hazardous materials also play a significant role in driving organizational environmental practices [19].

RL refers to material recycling, reuse, and reduction during production [20] and [21]. Industrial firms in developing countries employ RL and green buying less frequently to handle their long-term environmental responsibilities [22]. Environmentally friendly RL is crucial for businesses to reduce environmental impacts and boost productivity [23]. EVP is the effect that firms practice on the natural milieu [24]. It can lead to increased market share, improved revenue, reduced operating costs, higher productivity, and efficiency [25].

The Industrial Parks Proclamation 886/2015 requires IP developers, operators, and businesses to adhere to environmental and social norms, standards, safeguards, management practices, and mitigation strategies [26]. The main challenges of environmentally friendly practices IPs in Ethiopia include lack of appropriate policies and implementation strategies, inadequate knowledge, poor coordination and insufficient capability of stakeholders, challenges with political instability and security, and poor information and technology management [27]. The Ethiopian IP firms faced a lack of technology, and sustainability systems, resulting from high solid waste, air pollution, and GHG emissions, a decline in productivity and profitability due to resource waste, and a lack of EMS [28], and[29].

Therefore, studies of the relationships between institutional pressures, GP, and RL on EVP in developing countries have not been extensive. According to [30]'s outcomes, there is little research on institutional pressure, GP, and RL on environmental performance in Africa. The researchers have investigated the use of institutional drivers, GP, and RL to determine how effective they are at enhancing firms' EVP, and the results have varied [31]. A substantial body of research has shown an association between institutional pressure, GP, and RL and a firm's EVP [13]. However, the institutional drivers, RL, and GP on EVP couldn't be studied or investigated in Ethiopia's industrial parks, and there were many research gaps and a lack of clarity regarding the relationship between variables in Ethiopia's IPs. According to [32] , the relationship between institutional pressure and EVP was investigated but mediating by GP and RL was not evaluated. This study contributed to the body of knowledge by carefully analyzing recently initiated discussions on the environmental benefits attained by GP, RL, and institutional pressure for IP firms in Ethiopia [33] and [34]. By bridging disparate points of view within the body of knowledge, the study is better able to produce trustworthy outcomes and present conclusive findings in developing nations with this broadly integrated perspective. The study surveyed information acquired from IP firms in Ethiopia. The contribution is to further the research by examining how institutional pressure, GP, and RL practices are intertwined. The theory's relevance is supported when institutional theory is employed as a theoretical framework because no study has used it to assess the impact of stakeholder pressures on EVP . Generally , the environmental effect in Ethiopia's industrial park needs to be studied and the gaps investigated enhance firms' EVP. Additionally,the study gives managers of firms in Ethiopia's industrial parks directions on specific elements and methods for improved EVP. There are four research questions:

- Do the institutional pressures encourage GP, RL, and EVP?

- To what extent can GP practices have a direct effect on EVP?
- To what extent can the RL affect the EVP?
- To what extent do GP and RL have a mediating role between institutional pressures and a firm's EVP?

2. Literature Review

2.1. Institutional theory

The institutional theory explains how an organization behaves and acts [35]. The main application of institutional theory is to provide proper and improved knowledge of organizational and supply chain sustainability strategies [36]. According to institutional theory, decisions and actions, including rules and regulations, standards of conduct, cultural norms, and expectations, have businesses operate [37]. According to related studies, there is a lot of pressure on manufacturers to undertake environmental management [38] [39]. This theory, as well as regulatory (coercive), customer (normative), and competitor (mimetic) considerations, have all examined and explained the reason for and extent of implementing the firm's sustainable practices [40] [41].

2.2. Institutional pressure on GP, RL, and EVP

Globalization not only puts pressure on companies but also gives them the impetus to improve their EVP [42]. The supply chain networks of businesses play a large part in environmental deterioration [30]. The institutional theory and circular environment issues are incorporated into supply chain operations [43] [44] and help to implement green practices in endwise supply chain operations to achieve EVP [45]. Organizations profit from regulatory, competitive, and market pressures resulting in green procurement,and reverse logistics enhanced EVP [32] [46]. Environmental rules have compelled companies to generate green products proactively, minimizing environmental impact and improving EVP [47], [48]. Institutional pressures, such as domestic regulatory agencies, government rules, stakeholders, clients, rival businesses, non-governmental groups, and staff, can have an impact on EVP [49]. Also, pressure from rival companies motivates organizations to embrace GP and RL [50]and [51]. Evidence suggests that government oversight, legislation, and RL are crucial elements in creating cooperation between product designers and suppliers to lessen and eliminate the environmental impact of products [52]. According to [53], improving EVP results in pressure applied to pesticide chemical companies and other businesses to embrace green practices by the government, consumers, media, and other institutions, and similarly, the government focuses on facilitating and giving subsidies. According to a survey of 196 manufacturing managers, institutional pressure significantly affected EVPs [47]. [35] discovered a link between institutional pressure and environmental issues in "the internal activities created by the company towards pollution control and environmental restoration" [54]. Additionally, industrial businesses are under pressure to implement RL into their supply chain procedures due to government regulations, the competitive benefit of product recalls, and customer demand for better environmental policies [50]. RL stands for the collection and processing of waste goods and resources [21].

The findings of [27] revealed the most details in this text: the challenges obstructing the sustainability of sustainable industrial parks in Ethiopia. The results include political instability and security problems, a lack of suitable policies and implementation strategies, inadequate knowledge, weak coordination and limited capacity of stakeholders, weak management of industrial parks, and poor information and technology management. Also, the effectiveness of governance practices for sustainable industrial park development and operation in Ethiopia has less attention. [55] found that barriers to green manufacturing in Ethiopia included a lack of environmental knowledge, societal influence, and technological, financial, organizational, and regulatory or government barriers to environmental performance. [56] found that institutional pressures played a role in enhancing environmental performance. The study by [57], Ethiopian manufacturing firms are not adopting green purchasing, suppliers' ecological management audits, designing products for reduced material consumption, product life cycle assessment, or reverse logistics practices. [58] The main obstacles to GMP in Ethiopia include a lack of awareness and information, inadequate legislation, law enforcement, low top management commitment, and low public pressure. This study integrates competitive, customer, and regulatory aspects with GP and RL to improve EVP. Thus, we hypothesize that:

H1. Institutional pressure has a direct significant positive effect on EVP

H2. Institutional pressure has a positive effect on GP.

H3. Institutional pressure has a positive effect on RL.

2.3. GP on EVP

GP is a different strategy that can improve EVP. Green purchasing (GP) is an effective way to develop the performance of companies by minimizing wastage and encouraging recycling. It is also known as an environmentally preferred purchase (EPP), which means products that satisfy customers without affecting the environment [59]. GP reduces transaction costs and increases access to innovative environmental solutions [60], [61] , and [62]. Due to the concentration of businesses that use waste as a resource in production, industrial symbiosis offers a competitive advantage to firms in industrial parks. The environment and society benefit from green products, commonly called sustainable products. Eco-friendly items, recycled papers, energy-efficient lighting, and eco-friendly bags are a few examples. Additionally, these devices often cause little trash and can be recycled [63], [64], [65], and [66]. [67] Green procurement in Ethiopia faced difficulties due to a lack of qualified employees with experience in GP and sustainability. Thus, we hypothesize that:

H4. GP has a positive effect on EVP

2.4. RL, and EVP

When it is impossible to reduce environmental harm or improve the overall quality of each environmental category without raising prices, a collection of remedies is said to be RL. Rising ecological concerns make RL crucial to the modern supply chain [21]. Firms should differentiate between value-adding and non-value-adding RL activities and set their targets to minimize planned RL activities efficiently and effectively to reduce environmental impacts [68]. EVP implies using waste minimization, pollution avoidance, reuse, and recycling as environmental performance metrics [69] and [70]. Solid waste management in developing countries is a constraint but integrated solid waste management is becoming a paradigm. Waste management focuses on physical and governance elements, achieving financial sustainability, and strengthening institutions to perform their enviromental tasks [71]. Firms employ reverse logistics to cut costs and improve environmental performance [72] and [73]. Thus, we propose that:

H5. RL has a positive effect on EVP.

2.5. The mediating effect of GP and RL

Institutional pressure is essential for using green techniques to improve EVP [22], [37], [59],and [60]. For instance, [74], the research shows that RL and GP devices are more effective when institutional pressure is present. Through pressure and environmental regulation, executives are encouraged to use RL and GP to improve EVP [40], and[33].These actions can result in environmentally friendly waste disposal and reduce the impact of environmental pollution [77], [40],and [78]. Environmental performance is a consequence of the integration of GP and RL [79]. Through reverse logistics and green procurement, the study illustrates the direct and indirect effects of institutional pressure on environmental performance [41]. Thus, we hypothesize that:

H1a: GP positively mediates institutional pressure and EVP

H1b: RL positively mediates institutional pressure, and EVP

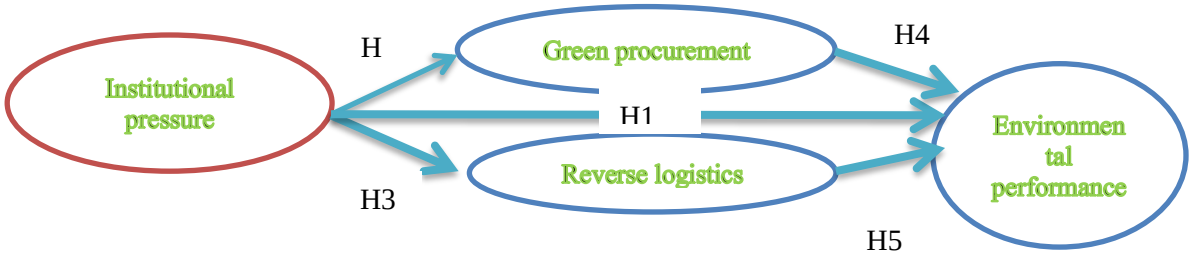

Fig. 1. Research model.

3. Material and Methods

Data were collected using cross-sectional, quantitative, and survey questionnaire methods. Industrial park firms served as the study's unit of analysis. The Ethiopian Industrial Parks Development Corporation has built 13 industrial parks. Bole Lemi IP, Kilinto IP, and Information and Communication Technology Park in Addis Abeba; Hawassa IP in Sidama; Debre Birhan IP, Kombolcha IP, Bahir Dar IP, and Arerti IP in Amhara; Mekelle IP in Tigray; Adama IP, Jimma IP, and Eastern Industrial IP in Oromia; Dire Dawa IP in Dire Dawa; and Semera IP in Afar.There are currently eight Operational industrial parks, Bole Lemi IP, Hawassa IP, Eastern Industrial Zone IP, Adama IP, Dire Dawa

IP, Debre Birhan IP, Bahir Dar IP which consist of 270 registered companies in the Industrial Park Corporation (IPDC). Political instability and uncertainties associated with security problems are the key challenges currently obstructing the effort to promote sustainable Industrial Parks in Ethiopia. Investigation of the current status has identified pertinent issues triggered by the prevailing political instability and security problems [27]. Since manufacturing companies contribute to economic value and environmental degradation, Eastern, Hawasa, Adama, and Bole Lemi industrial parks are conveniently included in this study because of political instability in Amhara and Tigray, time, costs, and large numbers of firms in the parks. Once ethics clearances were granted by both Bule Hora University and the IPDC directors' office, we tested participant knowledge and comprehension of the various study scales. To collect the data, direct survey methods were employed. The top and middle managers of firms located in industrial parks were the intended responders for this study's questions regarding operations, logistics and purchasing, human resources, and other managers. The researchers sent questionnaires to 176 firms in industrial parks. Out of these, 169 questionnaires were completed (or 96%) , while seven respondents (or 5%) declined (five from Eastern IP and two from Hawassa IP). The response resulted from Hawassa IP (36), Adama IP (8), Bole Lemi IP (14), and Eastern IP (107). 165 of the 169 results were genuine, while 4 (3%) were discarded due to incomplete information. A total of 93.75 percent of the study's participants replied. Production managers (32%), human resources managers (27%), and logistics and procurement managers (19%) all provided the same number of responses, while other managers provided fewer responses.

3.1. Sampling techniques

Sampling allows for generalizations about a population or a theory [80]. There are two methods of sampling: non-probability sampling and probability sampling. Since including Ethiopia's northern industrial parks would be impractical because of political instability, probability sampling is inappropriate for the current study. Non-probability sampling could be helpful when randomization is challenging, such as when the population is large. In this study, industrial parks were chosen using the convenience sampling method. Nonrandom sampling is preferred due to limited resources and time, with target respondents chosen based on criteria such as ease of access, proximity, availability, and willingness to participate [81]. Due to the high concentration of firms and good standing in the industry, a census survey was used to collect data from selected industrial park firms [82].

3.2. Measure of constructs

To test our assumptions, we created a survey instrument with 47 items: 20 items on institutional pressure, 9 items on GP, 11 items on RL, and 7 items on EVP. The questions are based on feedback from industry professionals and literature used in previous empirical research investigations by [32] [83] [40] and [84]. With the assistance of the practitioners' and academics' viewpoints, we were able to remove any ambiguous and useless scales and elements.The questionnaire of this study employed a five-point Likert scale to evaluate the extent to which the respondents agreed or disagreed with items of institutional pressure, GP, RL,and EVP, with (1 = strongly disagree to 5 = strongly agree) being used to assess institutional pressures, (1 = not implemented yet to 5 = fully implemented), to assess GP and RL, and (1= being barely significant and 5= being highly significant) to assess EVP components. Following that, effective communication with practitioners and academics has conducted to validate and improve these assessment tools [85]. Second, a pilot test was carried out with the cooperation of the fifteen most senior managers employed by industrial park companies to evaluate the validity of the primary questionnaire. The internal consistency of each construct was assessed through the distribution of questionnaires and analysis of the responses [86] [87]. Researchers consider the Cronbach's coefficient alpha test reliable when 0.70 or above, with 0.60 being considered average [88]. High reliability coefficients for the results, which ranged from 0.770 to 0.922, were observed (see Table 1).

Tab. 1 Reliability tests for pre-testing

Construct	N of Items	Mean	Std. Deviation	Cronbach's Alpha
Regulatory pressures/drivers	6	3.1667	.78427	.770
Customer pressures	7	3.7429	.65953	.807
competitor pressure	6	3.8444	.82247	.922

Green Procurement Practices	7	3.8952	.74126	.898
Reverse Logistics Practices	11	3.7818	.63059	.889
Environmental performance	7	4.2381	.82361	.920

Sources: Survey data

3.3. Non-Response and common method Bias

Because nonresponse bias influenced the study's findings, a t-test was used to determine whether there was a statistically significant difference between early and late responses [89]. There was no statistically significant difference ($p < 0.05$) in the results [90]. A t-test was also used to examine the perceived differences between operation managers, logistics and procurement managers, and HR managers. The findings revealed that there was no statistically significant difference between managers at ($p < 0.05$). Furthermore, we used the variance inflated factor (VIF) of each construct to detect whether common method bias occurs. Because all of the constructs had VIF values, the results indicated that common method bias should not be a concern in this study because all the constructs had VIF values VIF< 3.3 suggested by [91],as shown in Table 2

Tab. 2. VIFs

	VIF				
CP1	1.724	MP3	2.520	RL11	1.780
CP3	1.818	MP4	2.338	RL2	1.805
CP4	1.609	MP5	1.701	RL4	1.594
CP5	1.253	MP6	2.272	RL7	1.750
NP1	1.590	GP1	2.783	EVP1	2.387
NP2	1.814	GP2	2.579	EVP2	2.046
NP6	1.911	GP3	1.471	EVP4	2.853
NP7	1.542	GP5	1.656	EVP5	2.705
MP1	1.999	GP7	1.476	EVP6	2.777
MP2	3.203	RL10	1.817	EVP7	2.264

Note: CP=Coercive/regulatorypressure;NP=normative/customer pressure; MP= mimetic/competitive pressure GP= Green procurement; RL= Reverse Logistics EVP= Environmental Performance

4. Results and Discussion

4.1. Sample profile of respondents

A total of 176 managers from four industrial park firms participate in the study. The CEO, Logistics/Purchasing, Human Resources, Production/Operations, and Plant Managers are frequently the responders. The sample group was well-represented, with 74% of respondents between the ages of 20 and 30 years old, compared to 6.1% who were above 60;(63.5%) who were found to be male, and the majority were production, human resources, and logistics managers. The results suggest the respondent's age can forecast their ability to implement environmentally friendly practices. The study results in responses from ISO 9001 and 14001-certified respondents' firms, indicated that 40% of them were certified and aware of green practices. Also, more than 86% of the respondents had a bachelor's degree or higher, ranging from a bachelor's degree to a master's degree. As a result, it was likely that people with this level of education were aware of and using sustainable practices.

PLS-SEM is employed in this study to proceed with the data using Smart PLS software version 4. For several reasons, the authors used this strategy in their investigation. To begin, recent suggestions for employing PLS-SEM have demonstrated its utility in measuring mediation. This study model necessitated a mediation analysis [92] ,and [93]. Second, because the research model employed in this study is complicated with first- and second-order variables as well as over 47 items, the PLS-SEM is the appropriate and best choice for analysis [94]. Third, PLS-SEM has more statistical power than CB-SEM. As a result, PLS-SEM is the most powerful and practical tool for analyzing correlations. Finally, PLS-SEM can perform several measurement scales with a small sample size. The descriptive statistics shown in Table 3 were computed using the same program. Even though PLS-SEM can accept non-normal data, we validated the data's normality to support the findings and make them repeatable. Skewness and kurtosis values fell within the advised range of -2 to 2 (see Table 3) [95]. Since the data in this investigation were sufficiently normal, SEM could be performed on them.

Tab. 3. Reliability, validity, and descriptive statistics of first-order constructs.

Constructs	Items	Loading	Skew-ness	Kurtosis	T Value	Alpha	CR	AVE
Regulatory pressures(CP)	CP1	0.825	-0.434	-0.562	23.714	0.766	0.852	0.592
	CP3	0.821	-0.472	-0.570	22.908			
	CP4	0.790	-0.350	-0.821	13.432			
	CP5	0.626	-0.300	-0.955	10.212			
Customers pressure(NP)	NP1	0.716	-0.423	-0.580	11.584	0.758	0.847	0.582
	NP2	0.827	-0.324	-0.584	25.727			
	NP6	0.821	-0.432	-0.458	20.525			
	NP7	0.677	-0.289	-0.885	10.986			
Competitor pressure(MP)	MP1	0.765	-0.171	-0.715	21.131	0.890	0.916	0.647
	MP2	0.863	-0.312	-0.763	36.083			
	MP3	0.831	-0.529	-0.459	27.902			
	MP4	0.808	-0.388	-0.702	25.014			
	MP5	0.729	-0.462	-0.585	14.683			
	MP6	0.822	-0.418	-0.850	31.796			
Green procurement (GP)	GP1	0.862	-0.623	-0.270	34.072	0.843	0.889	0.618
	GP2	0.854	-0.938	0.430	34.967			
	GP3	0.712	-0.805	0.310	12.242			
	GP5	0.752	-0.627	-0.301	16.789			
	GP7	0.737	-1.016	0.696	14.857			
Reverse logistics(RL)	RL10	0.799	-0.605	-0.374	24.993	0.838	0.885	0.607
	RL11	0.795	-0.884	0.471	23.016			
	RL2	0.789	-0.816	0.067	20.508			
	RL4	0.735	-0.91	0.066	16.437			
	RL7	0.778	-0.696	-0.306	19.441			
Environmental performance(EVP)	EVP1	0.731	-0.770	-0.152	13.869	0.896	0.920	0.658
	EVP2	0.782	-1.096	0.778	18.142			
	EVP4	0.869	-1.032	0.649	36.871			
	EVP5	0.850	-0.934	0.414	30.991			
	EVP6	0.841	-1.114	0.779	25.267			
	EVP7	0.786	-1.085	0.730	21.424			

Source: Survey data result, 2023

4.2. Measurement model assessment

The Cronbach alpha, composite reliability (CR), and average variance extracted (AVE) were used to evaluate the constructs' reliability and validity [92] [95] [96],and[97]. The dependability of the measurement model was validated by examining the indicator and construct reliability. All indicators exceeding the 0.6 minimum threshold were retained, whereas ones with lower loadings were eliminated. Table 2 confirms the internal consistency and reliability of the measurement model based on the six reflecting constructs, all of which have alpha values > 0.6 and CR > 0.7 [98]. Construct validity was shown by proving the convergent and discriminant validity of all first-order reflective constructs. As can be seen in Table 3, all constructions had AVE values greater than the 0.5 threshold for being considered complete. It followed that convergent validity was established. The discriminant validity determines how much a concept differs from other components in the model [99]. If the square root of AVE for each construct is greater than its correlation coefficient with other constructs, then the Fornell and Larcker technique, as it is commonly known, accepts the existence of discriminant validity [100].The heterotrait-monotrait (HTMT) ratio of correlations, a more modern technique, is also utilized to verify discriminant validity in PLS analysis. To demonstrate the discriminant validity of conceptually extremely comparable ideas, an HTMT value of less than 0.90 is advised [101]. Table 4(A) shows the square root of the AVE values for each construct as bold values in the diagonal. These values are larger than all other values below them as a correlation, and the values in Table 4(B) are HTMT values. By meeting the HTMT0.90 threshold value, all HTMT values were less than 0.90, which strengthened the discriminant validity of all first-order reflective constructs.

Tab. 4(A). Discriminant validity of first order constructs.

	CP	EVP	GP	MP	NP	RL
CP	0.770					
EVP	0.377	0.811				
GP	0.501	0.588	0.786			
MP	0.401	0.517	0.565	0.804		
NP	0.443	0.556	0.603	0.619	0.763	
RL	0.506	0.676	0.711	0.535	0.639	0.779

Note: Values on the diagonal are the square root of AVEs.

Tab. 4(B). Discriminant validity of first order constructs.

	CP	EVP	GP	MP	NP
CP					
EVP	0.440				
GP	0.632	0.662			
MP	0.493	0.570	0.644		
NP	0.575	0.659	0.741	0.752	
RL	0.616	0.768	0.842	0.609	0.800

Note:. HTMT values are less than 0.90
Source: Survey data result, 2023

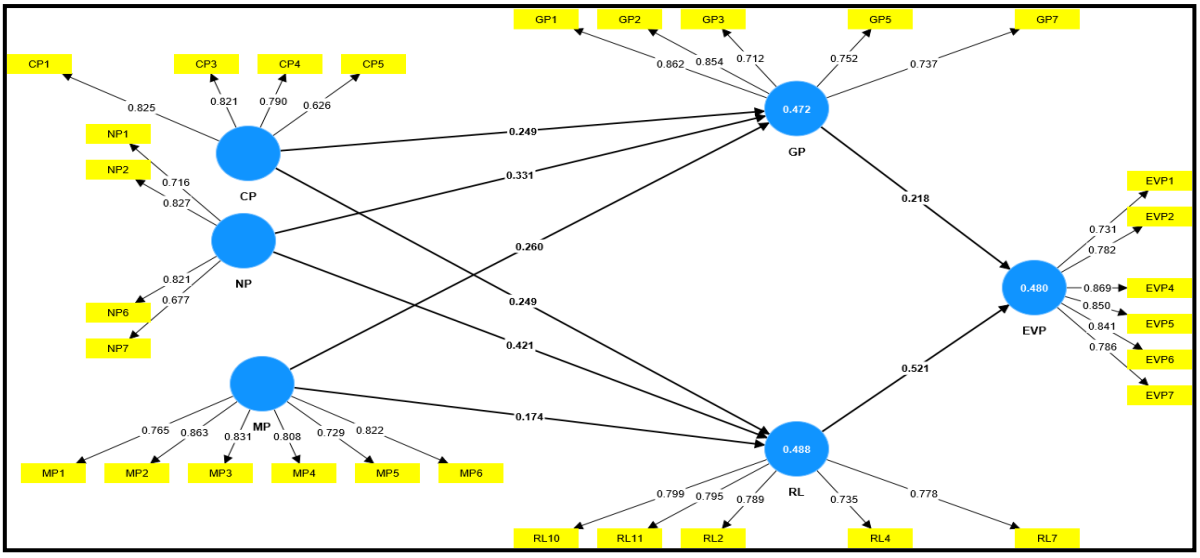

Fig. 3. PLS-SEM result.

Second-order constructs, such as institutional pressure, are created using a two-stage approach [102]. Three constructs were measured as first-order constructs (GP, LR, and EVP), with each set of indicators used to determine the outcomes. The three dimensions of institutional pressure are regulatory, customer, and competitive pressure, and the latent variable scores of these constructs' dimensions were utilized as indicators for estimating the model. According to [103], the proposed second-order constructions must be distinct from one another and must be able to explain the first-order structures. It is crucial to demonstrate that the second-order constructs may conceptually characterize the first-order constructs to increase knowledge of the theoretical framework in use. In the current study, institutional pressure is indicated in Table 5 as a second-order construct. This was done using SmartPLS 4 to create a unique model that included institutional pressure as a second-order reflective construct [104]. Regulatory pressures (CP), consumer pressures (NP), and competitor pressures (MP) were the indicators of the institutional pressure second-order construct. We had to reevaluate the new model's first- and second-order constructs at this step, similar to how we did with the first-order constructs [102]. Table 5 includes the findings of the institutional pressure evaluation together with the first-order reflective

constructs GP, RL, and EVP.

Tab. 5. Validity and reliability after generating second-order constructs.

	Alpha	CR	AVE
EVP	0.898	0.92	0.622
GP	0.844	0.883	0.523
Institutional pressure	0.876	0.898	0.410
RL	0.838	0.885	0.608

Note: EVP: Environmental Performance; GP: Green procurement; RL: Reverse Logistics

Source: Survey data result, 2023

Cronbach alpha, CR, and AVE values of the first and second-order constructs were above 0.6, 0.7, and 0.5, respectively, except institutional pressure AVE, and fulfilled the requirements of minimum threshold values [105]. Item loadings for the second-order institutional pressure constructs were also good. Table 6 shows the discriminant validity test results for the second order after the generation of second-order constructs. HTMT0.90 methods showed evidence for the discriminant validity of the constructs in the new measurement model. Hence, the measurement model was acceptable for second-order structural model assessment.

Tab. 6. HTMT ratio after generating second-order constructs.

	EVP	GP	Institutional pressure
EVP			
GP	0.712		
Institutional pressure	0.659	0.809	
RL	0.756	0.889	0.775

Source: Survey data result, 2023

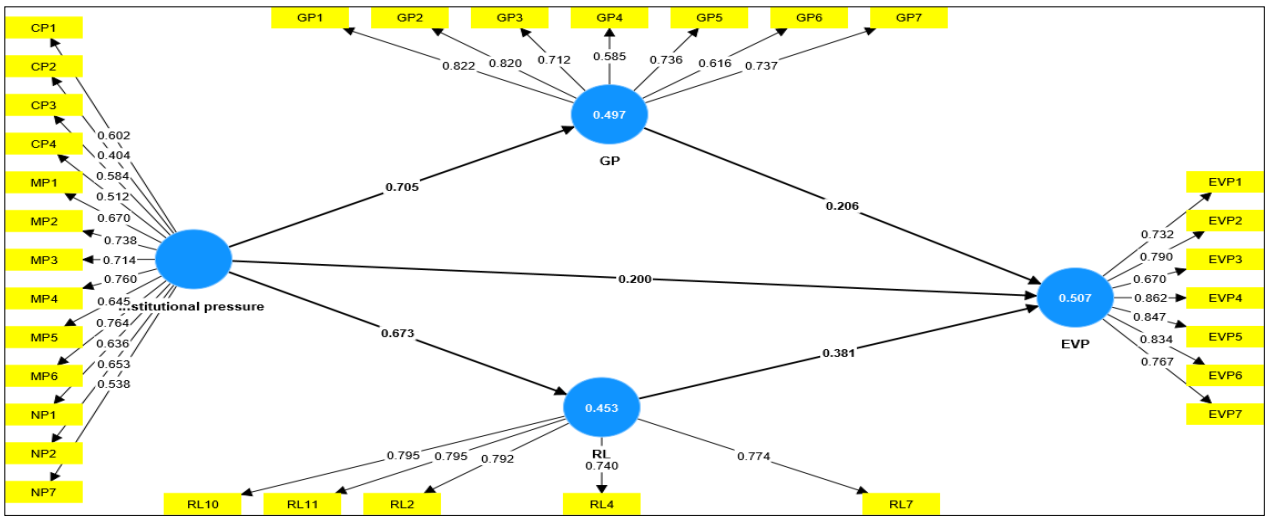

Fig. 4. Higher order PLS-SEM result

4.3. Structural model evaluation

Explanatory power, predictive power, and multi-collinearity were all evaluated using VIF, R^2, and PLS prediction, respectively [105]. The findings indicated that the model had moderate explanatory power for GP, RL, and EVP (R^2, 49.7%, 45.3%, and 50.7%, respectively; see Figure 3). There is no multi-collinearity issue in this investigation (see VIF value Table 7 below). The model's ability to predict outcomes outside the sample was then evaluated using PLS prediction analysis. According to Table 6's findings, Q^2 forecasts that all of the endogenous variable's primary indicators (EVP) will be larger than zero. Additionally, all but EVP7 of the mean absolute error (MAE) of the PLS-SEM of EVP is lower than the MAE of the linear model [94]. The findings prove that the model has high predictive power [106].

Tab. 6. PLS predict environmental performance

Indicators	MAE		Q^2 predict
	PLS-SEM	LM	
EVP1	0.879	0.893	0.122
EVP2	0.732	0.781	0.242
EVP3	0.745	0.759	0.117
EVP4	0.701	0.695	0.209
EVP5	0.735	0.757	0.181
EVP6	0.711	0.715	0.262
EVP7	0.708	0.725	0.306

Source: Survey data result, 2023

4.4. Hypothesis results

The hypotheses (direct and indirect) were tested using a bias-corrected and accelerated (BCa) bootstrap, with a subsample of 10,000 and 5% significance (α= 0.05) [107]. The path coefficient is deemed significant when the t-values are greater than 1.96 and the p-values are less than 0.05. The results shown in Table 7 indicate that, apart from H4 and H1a, which are not supported, the other five hypotheses (H1, H1b, H2, H3, and H5) are supported. So, our hypothesis results except H4 and H1a all are supported with "T-statistics > 1.96 and p-value < 0.05" [108][53]. The direct effect of institutional pressure on GP, RL, and EVP shows a t-value of 2.536, 15.688, and 15.323, with β-value of 0.200, 0.705, and 0.673, respectively. The values show a significant positive impact of institutional pressure on GP, RL, and EVP. Therefore, an increase in institutional pressure will enhance GP and RL and have a greater effect on the firm's EVP. Furthermore, while examining the effect of GP on EVP, it is found that the t-values are 1.88 with β-values of 0.206. These values show that variable GP has no significant positive or negative impact on EVP. This indicates no relationship between GP and EVP. Hence, there was a "positive and significant relationship proven between institutional pressure and EVP". Hence, "RL had a mediating role between institutional pressures and EVP". These results (institutional pressures > RL - > EVP) indicated a "relationship coefficient" (β) = 0.257, "T-statistics" = 3.324, and a "p-value" = 0.001. So, our hypothesis was accepted with "T-statistics > 1.96 and p-value < 0.05". Hence, "RL had a mediating role between institutional pressures and the firm's EVP" [96]. The size of the mediating effect is estimated using variance accounted for (VAF) (indirect effect/total effect) [109]. As shown in Table 8, the VAF confirms the mediating effects of reverse logistics, since it is more than 20%.

Tab. 7. Results of hypothesis testing

Direct path	Hypothesis	Beta (β)	STD	T Statistics	VIF	p values ≤ 0.05	Decision
Institutional pressure -> GP	H2	0.705	0.045	15.688	1.000	0.000	Support
Institutional pressure -> RL	H3	0.673	0.044	15.323	1.000	0.000	Support
Institutional pressure -> EVP	H1	0.200	0.079	2.536	2.200	0.011	Support
GP -> EVP	H4	0.206	0.110	1.880	2.729	0.060	Not supported
RL -> EVP	H5	0.381	0.111	3.437	2.501	0.001	Support

Mediation					LCL 2.5%	UCL 97.5%	VAF (IP/TP)	
Institutional pressure -> GP -> EVP	H1a	0.145	1.827	0.068	0.000	0.320	0.2408	Not support
Institutional pressure -> RL -> EVP	H1b	0.257	3.324	0.001	0.101	0.407	0.4269	Support

Notes: VAF = IE/TE; TE VAF < 0.20, no mediation; VAF ≤ 0.79, partial mediation; and VAF ≥ 0.80, full mediation. VAF = variance accounted for; IE = indirect effect; TE = total effect [110].

5. Discussions

The convergent validity of this research model was evaluated, and the importance of each indication pertaining to each research variable and its components was confirmed. As they produced insignificant loading, some indications were dropped. All values were higher than or equal to 0.70. The findings thus fully supported the convergent validity of the study model, demonstrating that there is a strong correlation between all construct indicators. Most of the hypotheses were confirmed by the research's empirical findings.

In particular, the findings showed that the participants concurred that institutional pressure might favorably result in RL and that RL is a way to maintain environmental sustainability. As a result, businesses increase consumer collaboration to environmentally friendly produce and packaging by minimizing their negative environmental effect, cutting water and material waste, and reducing environmental contamination. According to some past research [111] [112] [113], and [114], institutional pressure is detrimental and has no appreciable impact on EVP. However, recent studies [115] [116] [117], and [118] have reported a strong positive association between institutional pressure, RL, and EVP which is consistent with the findings of this study. RL and institutional pressures had an effect on how well the EVP [53]. It's interesting to note that institutional pressure had a detrimental impact on Pakistani manufacturing enterprises' adoption of GP and RL practices. This study found no significant relationships between institutional pressure and GP, RL, and EVP. As a result, the current study validates previous studies that found no or little correlation between institutional pressure and GP with EVP [7]. According to [53] study recommends that implementing sustainable practices is positively related to protecting the environment.

With the use of products with low energy and material requirements, cutting-edge materials, and avoiding dangerous substances, RL had a mediating effect on EVP [119] and [120]. The research found that RL is crucial for lowering water and solid waste output, which will reduce environmental effects, and EVP is improved by RL and institutional pressure. This agrees with other studies that have demonstrated the beneficial impacts of sustainable practices on environmental performance [121] [75] [122] [76] and [40].

5.1. Implications for theory and practice

Although there has not any published research on this topic. This study establishes the framework for institutional pressure through GP, RL, and EVP. According to [123], few previous studies looked at how institutional pressure affected EVP; this study demonstrates that RL plays a mediating role concerning the impact of effect institutional pressure on EVP. In this regard, [124] [125] [17] [53] [126] [127] stressed that future studies should test a more comprehensive model of the significance of institutional pressure in developing countries by containing EVP to provide validation for resource-based logic with a sustainable perspective regarding sustainable practices.Environmental alignment has been effective inside organizations' supply chain processes because of regulations imposed on businesses, customers' growing awareness, and competitors' [36] [128]. Meanwhile, by presenting empirical data on the effects of institutional pressure, GP, and RL toward achieving EVP, this work contributes to the application of institutional theory.

This study investigates how institutional pressure and RL impact industrial park companies' environmental performance. The study discovers that in emerging nations, there is less awareness of RL, such as recycling and reusing, and less pressure from the government, suppliers, and clients of the focal firm. Industrial park top management must work to integrate cutting-edge technology like big data analytics into the supply chain. Industrial park business owners can raise EVP by implementing numerous RL-friendly tactics and utilizing west management more regularly. The study's findings emphasize that RL has a more effect on EVP. Managers should ensure that RL and institutional pressure are successfully established to advance and improve EVP.

To protect natural resources and the environment for future generations, it may be possible to minimize raw material consumption and increase resource utilization as a result of this study. According to the findings, RL can be utilized in industrial parks to reduce air pollution, energy consumption, environmental hazards, and solid waste discharge/disposal, which can help reduce respiratory and airborne infections. The report can help industrial businesses make rational decisions about the strategies and tactics they will employ to address environmental and climate risks.

6. Conclusion, and Recommendation

Environmental sustainability is a growing concern for businesses and organizations due to climate change trends. This study examines the relationship between institutional pressure, GP,

and RL in Ethiopian industrial parks firms, using data from a survey of companies in the Ethiopia industrial parks. Our results show that the institutional pressure and RL effect on EVP. The findings show that GP does not improve EVP. Previous research suggests that GP practices contribute to environmental performance gains, but contradictory results have been reported [129] [40]). These findings were similar to, [94] found that GP had no positive effect on environmental performance. According to [40] and [130] GP has a positive influence on net income and the price of goods sold but has less of an impact on the environmental performance and competitiveness of China's auto industry. However, the result is consistent with the findings of [32], institutional pressure (Market or normative and regulatory or coercive pressures) exist, and these pressures encourage businesses to have enhanced environmental performance, particularly when these pressures lead to the adoption of RL practices. In order to improve EVP, institutional pressure sources are essential. Further, the study found RL plays a mediation role between institutional pressure and EVP, guiding the development of green practices like reusing, recycling, and reducing air pollution, energy consumption, and environmental hazards. These lead to green products and cleaner production, reducing waste, conserving resources, and promoting low operational costs [83], [131], [132]. These, in turn, enhance market and sales growth, improving profit margins and earnings per share. Institutional pressures, such as regulatory, market, and competitive factors, can also influence RL practices. According to this study, institutional pressure and RL project the firm's image, which pushes industrial park firms that care about the environment to prevent pollution, produce more cleanly, and put environmental management systems in place. To capitalize on the relationship's synergy and achieve market growth, a favorable reputation, and environmental performance, managers should use RL. Industrial park firms should also take the initiative to use institutional pressure and RL to help them enter the global market, especially in developed countries markets. According to the study, policymakers should give priority to institutional pressure and develop information systems to monitor, assess, and advise on environmental sustainability. Recycling waste materials reduces costs, enhances EVP, and reduces waste and energy consumption. Additionally, a climate task force should be established to provide environmental guidance to the Board of Governors, support and promote the dissemination of green best practices guidelines, and compile a database of eco-friendly corporate practices. Also, Ethiopia industrial park firms need incentives, technical training, resources, and effective monitoring and enforcement of rules and regulations to adopt green initiatives. Ethiopia banks should offer financing at lower rates and lower insurance premiums to protect against environmental risks.

6.1. Research limitation and future directions

Generalizability, endogeneity, and potential common method bias (CMB) are just a few limitations. The study was conducted in a particular national context (manufacturing firms in Ethiopian industrial parks); hence, the findings might not be generalizable to larger organizations or other cultural contexts. Future research may further test the model in other economies to see how institutional pressure, GP, and RL affect other performance metrics, including economic and social performance. Furthermore, since this study was carried out in a developing country, future studies may gather data from both developed and developing countries and compare them.Also, future research should examine other methods and theories.

7. Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

8. Funding

The author(s) received no financial support for the research and/or authorship of this article.

9. Acknowledgement

We would like to acknowledge industrial parks manufacturing company operators and managers in Ethiopia.

References

[1] OECD, “Tools for Delivering on Green Growth,” (2011), pp. 1-29.

[2] D. Negesa, W. Cong, L. Cheng, and L. Shi, “Development of eco-industrial parks in Ethiopia: The case of Hawassa Industrial Park,” *J. Ind. Ecol.*, Vol. 26, No. 3, (2022), pp. 1078-1093.

[3] EPA, “Ethiopia ’ s Climate- Resilient Green Economy Strategy Agriculture,”

Fed. Democr. Repub. Ethiop., no. November, (2011), pp. 1-14.

[4] D. Baranikumar, M. L. Bikila, and G. Chala, "Sustainable Green Supply Chain Management and Waste Management in Construction Industry," *J. Contemp. Issues Bus. Gov.*, Vol. 27, No. 03, (2021).

[5] M. Damtie and M. Bayou, "Overview of Environmental Impact Assessment in Ethiopia," (2008).

[6] United Nations Industrial Development Organization, "World Manufacturing Production," *UNIDO Stat.*, (2019), pp. 35-35.

[7] A. Saeed, Y. Jun, S. A. Nubuor, H. Puwakpitiyage, and R. Priyankara, "Institutional Pressures , Green Supply Chain Management Practices on Environmental and Economic Performance : A Two Theory View," *Sustain. Artic.*, (2018), pp. 1-24.

[8] R. Dubey, A. Gunasekaran, T. Papadopoulos, S. J. Childe, K. T. Shibin, and S. Fosso, "Sustainable supply chain management : framework and further research directions," *J. Clean. Prod.*, Vol. 142, (2017), pp. 1119-1130.

[9] M. N. Kalyar, "Enhancing fi rms ' environmental performance and fi nancial performance through green supply chain management practices and institutional pressures," Vol. 11, No. 2, (2020), pp. 451-476.

[10] J. T. M. Pinto and A. Diemer, "Resources , Conservation & Recycling Supply chain integration strategies and circularity in the European steel industry," *Resour. Conserv. Recycl.*, vol. 153, no. November 2018, (2020), p. 104517.

[11] R. Jaggernath and Z. Khan, "Green supply chain management," *World J. Entrep. Manag. Sustain. Dev.*, Vol. 11, No. 1, (2015), pp. 37-47.

[12] T. Rahman, S. M. Ali, A. Moktadir, and S. Kusi-, "The Management of Operations Evaluating barriers to implementing green supply chain management : An example from an emerging economy," *Prod. Plan. Control*, (2019), pp. 1-26.

[13] R. Dubey *et al.*, "Examining the effect of external pressures and organizational culture on shaping performance measurement systems (PMS) for sustainability benchmarking: Some empirical findings," *Int. J. Prod. Econ.*, Vol. 193, (2017), pp. 63-76.

[14] K. L. Wontner, H. Walker, I. Harris, and J. Lynch, "Maximising ' Community Benefits ' in public procurement : tensions and trade-offs," no. ref 1369142, (2019).

[15] C. R. Carter, P. L. Easton, and C. R. Carter, *Sustainable supply chain management : evolution and future directions*. (2011).

[16] Q. Zhu, Y. Qu, Y. Geng, and T. Fujita, "A Comparison of Regulatory Awareness and Green Supply Chain Management Practices Among Chinese and Japanese Manufacturers," no. February, (2015).

[17] Y. Chen, Q. Zhu, J. Sarkis, and Y. Chen, "Green supply chain management practice adoption sequence : a cumulative capability perspective capability perspective," (2022).

[18] Q. Zhu and Q. Liu, "Eco-design planning in a Chinese telecommunication network company: Benchmarking its parent company," *Benchmarking*, Vol. 17, No. 3, (2010), pp. 363-377.

[19] S. B. Banerjee, "Corporate environmentalism: The construct and its measurement," *J. Bus. Res.*, Vol. 55, No. 3, (2002), pp. 177-191.

[20] Y. C. Huang and M. L. Yang, "Reverse logistics innovation, institutional pressures and performance," *Manag. Res. Rev.*, Vol. 37, No. 7, (2014), pp. 615-641.

[21] N. N. C. Pushpamali, D. Agdas, T. M. Rose, and T. Yigitcanlar, "Stakeholder perception of reverse logistics practices on supply chain performance," *Bus. Strateg. Environ.*, Vol. 30, No. 1, (2021), pp. 60-70.

[22] A. Esfahbodi, Y. Zhang, and G. Watson, "Sustainable supply chain management in emerging economies: Trade-offs between environmental and cost performance," *Int. J. Prod. Econ.*, Vol. 181, (2016), pp. 350-366.

[23] G. Büyüközkan and G. Çifçi, "Evaluation of the green supply chain management practices: A fuzzy ANP approach," *Prod. Plan. Control*, Vol. 23, No. 6, (2012), pp. 405-418.

[24] P. De Giovanni, P. De Giovanni, and V. Esposito, "Covariance versus component based estimations of performance in Green Supply Chain Management Int . J . Production Economics Covariance versus component-based estimations of performance in green supply chain management," *Intern. J. Prod. Econ.*, Vol. 135, No. 2, (2012), pp. 907-916.

[25] Q. Zhu, J. Sarkis, and K. H. Lai, "Examining the effects of green supply chain management practices and their mediations on performance improvements," *Int. J. Prod. Res.*, Vol. 50, No. 5, (2012), pp. 1377-1394.

[26] The Federal Democrative Republic of Ethiopia, "Growth and Transformation Plan (GTP) 2010/11-2014/15," no. September 2010, (2014), pp. 1-85.

[27] G. Guteta, H. Worku, C. Development, and C. Development, "Analysis of the Governance Practices for Promoting Sustainable Industrial Parks Development in Ethiopia : Challenges and Prospects," no. August, (2022).

[28] E. USAID, IPDC, "Green Manufacturing Strategy for Ethiopia," (2019).

[29] F. M. G. B. D. FEYISA, "Assessing the Performance of Industrial Parks (Ips) in Ethiopia: the Case of Bole Lemi 1, Eastern Industry Zone and Hawassa Industrial Parks," *Soc. Sci. Educ. Res. Rev.*, Vol. 6, No. 1, (2019), pp. 72-111.

[30] M. Tseng, S. Islam, N. Karia, and F. Ahmad, "Resources , Conservation & Recycling A literature review on green supply chain management : Trends and future challenges," *Resour. Conserv. Recycl.*, Vol. 141, No. June 2018, (2019), pp. 145-162.

[31] Y. Agyabeng-mensah, E. Afum, and E. Ahenkorah, "Exploring the mediating influences The just in time between green supply chain practices and performance," (2020).

[32] Q. Zhu and J. Sarkis, "The moderating effects of institutional pressures on emergent green supply chain practices and performance," *Int. J. Prod. Res.*, Vol. 45, Nos. 18-19, (2007), pp. 4333-4355.

[33] Q. Zhu, J. Sarkis, and K. Lai, "Journal of Purchasing & Supply Management Institutional-based antecedents and performance outcomes of internal and external green supply chain management practices," *J. Purch. Supply Manag.*, Vol. 19, No. 2, (2013), pp. 106-117.

[34] C. R. Carter and D. S. Rogers, "A framework of sustainable supply chain management: Moving toward new theory," *Int. J. Phys. Distrib. Logist. Manag.*, Vol. 38, No. 5, (2008), pp. 360-387.

[35] S. R. Colwell and A. W. Joshi, "Corporate Ecological Responsiveness: Antecedent Effects of Institutional Pressure and Top Management Commitment and Their Impact on Organizational Performance," *Bus. Strateg. Environ.*, Vol. 22, No. 2, (2013), pp. 73-91.

[36] N. Nureen, D. Liu, B. Ahmad, and M. Irfan, "Exploring the technical and behavioral dimensions of green supply chain management : a roadmap toward

environmental sustainability," *Environ. Sci. Pollut. Res.*, (2022), pp. 63444-63457.

[37] Fabiana Meijon Fadul, "Predicting Intention to Adopt Iiner Organizational Linkages: An Institutional Perspective," Vol. 27, No. 1, (2019), pp. 19-49.

[38] R. Moser, J. Winkler, G. Narayanamurthy, and V. Pereira, "Organizational knowledgeable responses to institutional pressures – a review, synthesis and extension," *J. Knowl. Manag.*, Vol. 24, No. 9, (2020), pp. 2243-2271.

[39] J. Sarkis, Q. Zhu, and K. Lai, "Int . J . Production Economics An organizational theoretic review of green supply chain management literature," *Intern. J. Prod. Econ.*, Vol. 130, No. 1, (2011), pp. 1-15.

[40] Q. Zhu, Y. Geng, and J. Sarkis, "Motivating green public procurement in China : An individual level perspective," *J. Environ. Manage.*, Vol. 126, (2013), pp. 85-95.

[41] Y. Liu, C. Blome, J. Sanderson, and A. Paulraj, "Supply chain integration capabilities , green design strategy and performance : a comparative study in the auto industry," (2018).

[42] R. Abdullah, M. G. Hassan, and N. A. Johari, "Exploring the Linkage of Supply Chain Integration between Green Supply Chain Practices and Sustainable Performance : a Conceptual," Vol. 61, (2014), pp. 116-120.

[43] F. A. A. Carlos, V. Sena, and C. Kwong, "Institutional pressures as drivers of circular economy in firms: A machine learning approach," *J. Clean. Prod.*, Vol. 355, No. March, (2022), p. 131738.

[44] S. Adomako and N. Phong, "Eco-innovation in the extractive industry : Combinative effects of social legitimacy , green management , and institutional pressures," *Resour. Policy*, Vol. 80, No. December 2022, (2023), p. 103184.

[45] S. A. R. Khan, Z. Yu, and M. Umar, "A road map for environmental sustainability and green economic development: an empirical study," *Environ. Sci. Pollut. Res.*, Vol. 29, No. 11, (2022), pp. 16082-16090.

[46] N. Somsuk and T. Laosirihongthong, "Prioritization of applicable drivers for green supply chain management implementation toward sustainability in Thailand," Vol. 4509, No. June, (2016).

[47] C. Gonzalez, V. Agrawal, D. Johansen, and R. Hooker, "Green supply chain practices: The role of institutional pressure, market orientation, and managerial commitment," *Clean. Logist. Supply Chain*, Vol. 5, No. December 2021, (2022), p. 100067.

[48] S. Gupta, S. Modgil, A. Gunasekaran, and S. Bag, "Dynamic capabilities and institutional theories for Industry 4 . 0 and digital supply chain," *Supply Chain Forum An Int. J.*, Vol. 21, No. 3, (2020), pp. 139-157.

[49] H. Zhang, W. Liu, and Z. Jia, "Green supply chain decision modeling under financial policy , with or without uniform government emission reduction policy," No. February, (2020), pp. 1-17.

[50] T. J. Barker and Z. B. Zabinsky, "Reverse logistics network design: A conceptual framework for decision making," *Int. J. Sustain. Eng.*, Vol. 1, No. 4, (2008), pp. 250-260.

[51] S. Choi, H. Min, H. Joo, and H. Choi, "Assessing the impact of green supply chain practices on firm performance in the Korean manufacturing industry," No. October 2017, (2016).

[52] S. A. R. Khan, *Discussion on Green Supply Chain Management*. (2020).

[53] X. Ma, R. Akhtar, and A. Akhtar, "Mediation effect of environmental performance in the relationship between green supply chain management

practices , institutional pressures , and fi nancial performance," no. August, (2022), pp. 1-17.

[54] P. P. M. A. R. Heugens and M. W. Lander, "Structure! agency! (and other quarrels): A meta-analysis of institutional theories of organization," *Acad. Manag. J.*, Vol. 52, No. 1, (2009), pp. 61-85.

[55] A. Andaregie and T. Astatkie, "Determinants of the adoption of green manufacturing practices by medium- and large-scale manufacturing industries in northern Ethiopia," *African J. Sci. Technol. Innov. Dev.*, (2021).

[56] P. Berrone, A. Fosfuri, L. Gelabert, and L. R. Gomez, "Necessity as the Mother of ' Green ' Inventions : Institutional Pressures and Environmental Innovations," *Strateg. Manag. J.*, Vol. 34, (2013), pp. 891-909.

[57] A. Balda and R. Singh, "Sustainable Supply Chain Management Practices in Ethiopian Manufacturing Firms," No. 01, (2019).

[58] G. M. B. K. Rama Mohana Rao, "Green Manufacturing Practices in Ethiopian Cement Industries- Critical Barriers," Vol. 06, No. 1, (2018), pp. 1-13.

[59] J. K. Roehrich, S. U. Hoejmose, and V. Overland, "Driving green supply chain management performance through supplier selection and value internalisation: A self-determination theory perspective," *Int. J. Oper. Prod. Manag.*, Vol. 37, No. 4, (2017), pp. 489-509.

[60] H. Younis and B. Sundarakani, "The impact of firm size , firm age and environmental management certification on the relationship between green supply chain practices and corporate performance," Vol. 27, No. 1, (2020), pp. 319-346.

[61] S. Mitra and P. P. Datta, "Adoption of green supply chain management practices and their impact on performance: An exploratory study of Indian manufacturing firms," *Int. J. Prod. Res.*, Vol. 52, No. 7, (2014), pp. 2085-2107.

[62] A. B. L. de Sousa Jabbour, C. J. C. Jabbour, K. Govindan, D. Kannan, M. H. Salgado, and C. J. Zanon, "Factors affecting the adoption of green supply chain management practices in Brazil: Empirical evidence," *Int. J. Environ. Stud.*, Vol. 70, No. 2, (2013), pp. 302-315.

[63] R. Dubey, S. Bag, S. S. Ali, and V. G. Venkatesh, "Green purchasing is key to superior performance: An empirical study," *Int. J. Procure. Manag.*, Vol. 6, No. 2, (2013), pp. 187-210.

[64] B. W. Jacobs, V. R. Singhal, and R. Subramanian, "An empirical investigation of environmental performance and the market value of the firm," *J. Oper. Manag.*, Vol. 28, No. 5, (2010), pp. 430-441.

[65] K. Govindan, "Sustainable consumption and production in the food supply chain: A conceptual framework," *Int. J. Prod. Econ.*, (2018).

[66] D. Nawrocka, T. Brorson, and T. Lindhqvist, "ISO 14001 in environmental supply chain practices," *J. Clean. Prod.*, Vol. 17, No. 16, (2009), pp. 1435-1443.

[67] H. A. Worku, "Barriers for Green Supply Chain Management Implementation : In Ethiopia Leather and Leather Product Industry," Vol. 6, No. 1, (2019), pp. 613-623.

[68] Y. Kazancoglu, E. Ekinci, S. K. Mangla, M. D. Sezer, and Y. Kayikci, "Performance evaluation of reverse logistics in food supply chains in a circular economy using system dynamics," No. March, (2020), pp. 1-21.

[69] R. Frei, L. Jack, and S. A. Krzyzaniak, "Sustainable reverse supply chains and

circular economy in multichannel retail returns," *Bus. Strateg. Environ.*, Vol. 29, No. 5, (2020), pp. 1925-1940.

[70] M. Tseng, K. Wu, M. K. Lim, and W. Wong, "Data-driven sustainable supply chain management performance : A hierarchical structure assessment under uncertainties," *J. Clean. Prod.*, Vol. 227, (2019), pp. 760-771.

[71] A. Y. Kassaye, "Contemporary institutional solid waste management practices of Haramaya University , Eastern Ethiopia," Vol. 1338, (2018).

[72] P. Sasikumar and G. Kannan, "Issues in reverse supply chains, part II: Reverse distribution issues - an overview," *Int. J. Sustain. Eng.*, Vol. 1, No. 4, (2008), pp. 234-249.

[73] G. R. S. Pandian and W. Abdul-Kader, "Performance evaluation of reverse logistics enterprise–an agent-based simulation approach," *Int. J. Sustain. Eng.*, Vol. 10, No. 6, (2017), pp. 384-398.

[74] Y. C. Huang, C. H. Huang, and M. L. Yang, "Drivers of green supply chain initiatives and performance: Evidence from the electrical and electronics industries in Taiwan," *Int. J. Phys. Distrib. Logist. Manag.*, Vol. 47, No. 9, (2017), pp. 796-819.

[75] R. M. Vanalle and L. B. Santos, "Green supply chain management in Brazilian automotive sector," No. December, (2020).

[76] Q. Yang, R. Geng, and T. Feng, "Does the configuration of macro- and micro-institutional environments affect the effectiveness of green supply chain integration ?," No. December 2019, (2020), pp. 1-19.

[77] P. H. Rao, "Green Supply Chain Management : A Study Based on SMEs in India," *J. Supply Chain Manag.*, Vol. 8, No. 1, (2019), pp. 15-24.

[78] S. S. Nelson, D. M., Marsillac, E., Rao, "Antecedents and Evolution of the Green Supply Chain," *J. Oper. Supply Chain Manag.*, No. December, (2012).

[79] V. Balon, "Green supply chain management : Pressures , practices , and performance An integrative literature review," no. July, (2019), pp. 1-19.

[80] M. S. P. Lewis and A. Thornhill, *Research methods for business students*. (2013).

[81] I. Etikan, "Comparison of Convenience Sampling and Purposive Sampling," *Am. J. Theor. Appl. Stat.*, Vol. 5, No. 1, (2016), p. 1.

[82] R. Flowerdew and A. Saunders, Mark; Lewis, Philip; Thornhill, *Research methods for business students*, Vol. 30, No. 1. (2012).

[83] E. Afum, Y. Agyabeng-mensah, and Z. Sun, "Exploring the link between green manufacturing , operational competitiveness , firm reputation and sustainable performance dimensions : a mediated approach," (2020).

[84] Q. Zhu and J. Sarkis, "Relationships between operational practices and performance among early adopters of green supply chain management practices in Chinese manufacturing enterprises," Vol. 22, (2004), pp. 265-289.

[85] Genot, E. J., and A. Saunders, Mark; Lewis, Philip; Thornhill, *Research Methods for Business Students*, Vol. 195, No. 5. (2018).

[86] M. Z. U. Haq, "Supply chain learning and organizational performance: evidence from Chinese manufacturing firms," *J. Knowl. Manag.*, Vol. 25, No. 4, (2020), pp. 943-972.

[87] L. J. Cronbach, "Coefficient alpha and the internal structure of tests," *Psychometrika*, Vol. 16, No. 3, (1951), pp. 297-334.

[88] R. F. DeVellis, "Scale Development Theory and Applications (Fourth Edition)," *SAGE Publ.*, Vol. 4, (2016), p. 256.

[89] J. D. A. S. Diniz, N. Fabbe-costes, and A. G. Berger, "International Journal of Logistics Research and Applications : A Leading Journal of Supply Chain Management Supply Chain Management and Supply Chain Orientation : key factors for sustainable development projects in developing countries ?," No. December 2014, pp. 37-41.

[90] A. Oke, D. I. Prajogo, and J. Jayaram, "Strengthening the Innovation Chain: The Role of Internal Innovation Climate and Strategic Relationships with Supply Chain Partners," *J. Supply Chain Manag.*, Vol. 49, No. 4, (2013), pp. 43-58.

[91] N. Kock, "Common method bias in PLS-SEM: A full collinearity assessment approach," *Int. J. e-Collaboration*, Vol. 11, No. 4, (2015), pp. 1-10.

[92] H. Younis, "The impact of the dimensions of green supply chain management practices on corporate performance," (2016).

[93] C. Fornell and D. F. Larcker, "Evaluating structural equation models with unobservable variables," *J. Mark. Res.*, vol. XVIII, no. February, (1981), pp. 39-50.

[94] S. Zailani, K. Jeyaraman, G. Vengadasan, and R. Premkumar, "Sustainable supply chain management (SSCM) in Malaysia: A survey," *Int. J. Prod. Econ.*, Vol. 140, No. 1, (2012), pp. 330-340.

[95] R. D. Burnett, D. R. Hansen, and O. Quintana, "Eco-Efficiency: Achieving Productivity Improvements through Environmental Cost Management," *Account. Public Interes.*, Vol. 7, No. 1, (2007), pp. 66-92.

[96] J. A. Bamgbade, "Moderating Effects of Government Support on the Relationship Between Organizational Innovativeness , Culture and Sustainable Construction Among Malaysian Contractors Doctor of Philosophy," (2016), p. 342.

[97] D. Russo and K.-J. Stol, "PLS-SEM for Software Engineering Research," *ACM Comput. Surv.*, Vol. 54, No. 4, (2022), pp. 1-38.

[98] A. A. Teixeira, C. J. C. Jabbour, A. B. L. De Sousa Jabbour, H. Latan, and J. H. C. De Oliveira, "Green training and green supply chain management: Evidence from Brazilian firms," *J. Clean. Prod.*, Vol. 116, No. 2016, (2016), pp. 170-176.

[99] S. Yildiz Çankaya and B. Sezen, "Effects of green supply chain management practices on sustainability performance," *J. Manuf. Technol. Manag.*, Vol. 30, No. 1, (2019), pp. 98-121.

[100] F. Schuberth, *Confirmatory composite analysis using partial least squares: setting the record straight*, Springer Berlin Heidelberg, Vol. 15, No. 5, (2021).

[101] J. Henseler, C. M. Ringle, and M. Sarstedt, "A new criterion for assessing discriminant validity in variance-based structural equation modeling," *J. Acad. Mark. Sci.*, Vol. 43, No. 1, pp. 115-135, (2015).

[102] J. M. Becker, K. Klein, and M. Wetzels, "Hierarchical Latent Variable Models in PLS-SEM: Guidelines for Using Reflective-Formative Type Models," *Long Range Plann.*, Vol. 45, Nos. 5-6, (2012), pp. 359-394.

[103] B. M. Byrne, *Structural Equation Modeling with Amos: Basic Concepts, Aplications, and Programming. (3rd ed.). New York and London: Routledge Taylor & Francis Group.* (2016).

[104] F. Magno, F. Cassia, and C. M. M. Ringle, "A brief review of partial least squares structural equation modeling (PLS-SEM) use in quality management

studies," *TQM J.*, (2022).

[105] J. F. Hair, G. T. M. Hult, C. Ringle, M. Sarstedt, N. Danks, and S. Ray, *Partial least squares structural equation modeling (PLS-SEM) using R: A workbook*. (2021).

[106] G. Shmueli *et al.*, "Predictive model assessment in PLS-SEM: guidelines for using PLSpredict," *Eur. J. Mark.*, Vol. 53, No. 11, (2019), pp. 2322-2347.

[107] M. Sarstedt, J. F. Hair, and C. M. Ringle, "'PLS-SEM: indeed a silver bullet'– retrospective observations and recent advances," *J. Mark. Theory Pract.*, (2022), pp. 1-15.

[108] S. Akter, S. Fosso Wamba, and S. Dewan, "Why PLS-SEM is suitable for complex modelling? An empirical illustration in big data analytics quality," *Prod. Plan. Control*, Vol. 28, Nos. 11-12, (2017), pp. 1011-1021.

[109] J. F. Hair, M. C. Howard, and C. Nitzl, "Assessing measurement model quality in PLS-SEM using confirmatory composite analysis," *J. Bus. Res.*, Vol. 109, No. August , (2020), pp. 101-110.

[110] M. Sarstedt, J. F. Hair, J. H. Cheah, J. M. Becker, and C. M. Ringle, "How to specify, estimate, and validate higher-order constructs in PLS-SEM," *Australas. Mark. J.*, Vol. 27, No. 3, (2019), pp. 197-211.

[111] R. G. Richey, S. E. Genchev, and P. J. Daugherty, "The role of resource commitment and innovation in reverse logistics performance," *Int. J. Phys. Distrib. Logist. Manag.*, Vol. 35, No. 4, (2005), pp. 233-257.

[112] R. O. Large and C. Gimenez Thomsen, "Drivers of green supply management performance: Evidence from Germany," *J. Purch. Supply Manag.*, Vol. 17, No. 3, (2011), pp. 176-184.

[113] I. Miroshnychenko, R. Barontini, and F. Testa, "Green practices and financial performance : A global outlook Green practices and fi nancial performance : A global outlook," *J. Clean. Prod.*, Vol. 147, (2017), pp. 340-351.

[114] S. Akter *et al.*, "Clean Manufacturing and Green Practices in the Apparel Supply Chain," *Open J. Bus. Manag.*, Vol. 08, No. 01, (2020), pp. 104-113.

[115] M. Jawaad, "Improving sustainable development and firm performance in emerging economies by implementing green supply chain activities," (2019), pp. 1-14.

[116] S. Abdul, R. Khan, and Z. Yu, "Assessing the eco-environmental performance : an PLS-SEM approach with practice-based view," *Int. J. Logist. Res. Appl.*, (2020), pp. 1-19.

[117] R. Chavez, W. Yu, M. Feng, and F. Wiengarten, "The Effect of Customer-Centric Green Supply Chain Management on Operational Performance and Customer Satisfaction," *Bus. Strateg. Environ.*, Vol. 25, No. 3, (2016), pp. 205-220.

[118] X. Pan, X. Pan, M. Song, and R. Guo, "The Management of Operations The influence of green supply chain management on manufacturing enterprise performance : moderating effect of collaborative communication," *Prod. Plan. Control*, (2019).

[119] P. González-Torre, M. Álvarez, J. Sarkis, and B. Adenso-Díaz, "Barriers to the implementation of environmentally oriented reverse logistics: evidence from the automotive industry sector," *Br. J. Manag.*, Vol. 21, No. 4, (2010), pp. 889-904.

[120] G. J. L. Micheli, E. Cagno, G. Mustillo, and A. Trianni, "Green supply chain management drivers, practices and performance: A comprehensive study on the moderators," *J. Clean. Prod.*, Vol. 259, (2020), p. 121024.

[121] Y. Li and J. Huang, "Journal of

Purchasing and Supply Management The moderating role of relational bonding in green supply chain practices and performance," *J. Purch. Supply Manag.*, (2017), pp. 0-1.

[122] I. Masudin, T. Wastono, F. Zulfikarijah, and S. Liu, "The effect of managerial intention and initiative on green supply chain management adoption in Indonesian manufacturing performance," *Cogent Bus. Manag.*, Vol. 5, No. 1, (2018), pp. 1-19.

[123] B. Hazen, D. Roubaud, S. Gupta, and C. Foropon, "Examining sustainable supply chain management of SMEs using resource based view and institutional theory," *Ann. Oper. Res.*, (2017).

[124] P. Taylor, R. P. Mohanty, and A. Prakash, "Production Planning & Control : The Management of Operations Green supply chain management practices in India : an empirical study," (2014), pp. 37-41.

[125] S. H. Chu, H. Yang, M. Lee, and S. Park, "The impact of institutional pressures on green supply chain management and firm performance: Top management roles and social capital," *Sustain.*, Vol. 9, No. 5, (2017).

[126] S. Bag, S. Gupta, S. Kumar, and U. Sivarajah, "Role of technological dimensions of green supply chain management practices on firm performance," (2020).

[127] P. Taylor, K. Mathiyazhagan, K. Govindan, and A. N. Haq, "Pressure analysis for green supply chain management implementation in Indian industries using analytic hierarchy process," (2014), pp. 37-41.

[128] S. A. R. Khan *et al.*, "Re-investigating the nexuses of renewable energy, natural resources and transport services: a roadmap towards sustainable development," *Environ. Sci. Pollut. Res.*, Vol. 29, No. 9, (2022), pp. 13564-13579.

[129] K. W. G. Jr, P. J. Zelbst, J. Meacham, and V. S. Bhadauria, "Green supply chain management practices : impact on performance," (2012).

[130] C. R. Carter and M. Dresner, "Purchasing ' s Role in Environmental Management : Cross-Functional," *J. Supply Chain Manag.*, no. August, (2001), pp. 12-27.

[131] Y. Agyabeng-mensah, E. Ahenkorah, E. Afum, A. N. Agyemang, C. Agnikpe, and F. Rogers, "Examining the in fl uence of internal green supply chain practices , green human resource management and supply chain environmental cooperation on fi rm performance," Vol. 5, (2020), pp. 585-599.

[132] Y. Agyabeng-mensah, C. Baah, and E. Afum, "Do the roles of green supply chain learning , green employee creativity , and green organizational citizenship behavior really matter in circular supply chain performance ?," *J. Environp. Plan. Manag.*, (2022), pp. 1-23.