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Driving Sustainability: Unpacking the Forces Shaping Sustainable Supply Chain Management

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ABSTRACT

This study investigates influences on Sustainable Supply Chain Management (SSCM) implementation, emphasizing regulatory, market, and organization pressures. Drawing on data collected from manufacturing firms, it examines how government regulations, customer expectations, competitor actions and the internal dynamics of firms all affect their sustainability initiatives. NGO pressure, supplier pressure and internal environment indirectly influence the SSCM adoption process. The study emphasizes how crucial regulatory and competitive dynamics that can drive sustainable supply chains. As evidenced through rich and vivid narratives, they also contribute to the practical implications for policymakers to strengthen regulations, for businesses to integrate green practices, and for supply chain managers to ensure deeper supplier engagement. Supplier engagement should be taken to the next level while technology should be used to maximize sustainability performance from supply chain managers. Nonetheless, the study offers valuable insights, albeit with some limitations, which include the cross-sectional nature of the study, its industry specificity, and its limited ability to account for mediating variables. However, limitations like industry focus and cross-sectional nature mean that future research on longitudinal trends of SSCM and its digital transformation is merited. Future research may further consider Ramos et al. (2024) study longitudinal, cross–industry, and the digital transformation role on SSCM practices. This research provides a pertinent window into the dynamics of sustainability adoption within international supply chains, displaying how external pressures can ultimately dictate sustainable business practices.

Keywords: *Sustainable Supply Chain Management, Government Regulations, Customer Pressure, Competitor Pressure, Organizational Dynamics, Sustainability, Market-driven Pressures*

INTRODUCTION

The concept of sustainable development has changed from being a three-dimensional topological structure from a one-dimensional framework model that incorporates economic, social, and environmental aspects. TBL is a tripartite framework that aims to increase societal benefits, decrease negative impacts on the environment, and increase profitability (Balda & Singh, 2022). Distribution, manufacturing, procurement, and other business operations. According to Saeed and Kersten (2017), this study shows that the majority of businesses participate in at least one supply chain and that managing

these networks can enhance environmental protection and lessen negative environmental effects. Thus, supply chain management plays a crucial role in protecting the environment.

Environmentally sustainable goods and services are in high demand from consumers, investors, and governmental and non-governmental organizations due to resource shortages, environmental contamination, and environmental concerns. To impress its stakeholders, clients, and regulators, businesses today must fully accept responsibility for their operations and practices in order to satisfy the newly emerging tests of ethical and environmental responsibility (Biswal, Muduli, & Satapathy, 2017).

Although there is no generally shared concept of the definition of Sustainable Supply Chain Management (SSCM), the idea given by Carter and Rogers has received much attention. They measure SSCM as a systematized integration of the most important cross-organizational business processes in improving sustainable and long-term financial performance of an organization and supply chains as well as strategic and transparent attainment and achievement of social, environmental and economic goals. This definition brings the emphasis on integrating the principles of sustainability into the supply chain activities to produce sustainable financial results. On their part, Kouhizadeh, Saberi and Sarkis (2021) state that sustainable supply chain management practices target achieving economic as well as non-economic objectives with a specific emphasis on improving the social as well as environmental performance.

The SCP (Supply Chain Pressure) factors are connected to the different parties involved in the supply chain and contribute a lot to the incorporation of sustainability into the supply chain management (SCM). According to Saeed, Waseek, and Kersten, these influencing factors are often written up in the literature as pressures, triggers, enablers, or drivers (2017). Sajjad, Eweje, and Tappin (2020) also mention that drivers of SSCM may become a limitation, i.e., factors that require organization to apply sustainability practices. Accordingly, Vargas et al. (2018: 395) consider the drivers to be the outside forces that initiate proactive behavior and force the focal organizations to undertake SSCM practices. Otherwise, SSCM drivers can be defined as the ones who promote the achievement of the sustainability agendas along the supply chain, i.e., the motivators or influencers. Nevertheless, these antecedents do not influence the decisions in the supply chain in the same way (Zimon et al., 2020). The SSCM framework has the complexity of a system and the industrial variety of it may be an obstacle to the effective implementation process. As an example, the extensive manufacturing industry does not contain adequate green infrastructure, and companies in such areas will find it hard to enjoy the full potential of SSCM initiatives (Narayanan et al., 2019). To have a more limited area of analysis but at the same time retain the pertinence of the study to wider picture of the industry of manufacturing, this research is narrowed down to the automotive industry. The decision is justified by different literature findings since the automotive industry is directly associated with severe environmental issues and the nature of industrial operations (Narayanan et al., 2019).

Important characteristics of the automobile industry i.e. robust supplier networks, high energy usage, large amounts of materials used, large waste amounts, high fixed costs and cyclical creation are representative of the manufacturing industry in general in their difficulty. Such similarities enable the automotive industry to be a good and reflective case to be used in the study of SSCM. Moreover, car-manufacturers have gained more and more attention to issues of emissions and waste emerging in the environment, which confirms the necessity to focus on this industry and study it more thoroughly (Alghababsheh, 2018).Besides, the automotive industry is both too large and too technologically advanced to be categorized as any other industrial activity other than manufacturing, and it forms an adequate subject of investigation in this case (Alghababsheh, 2018). Its incorporation allows exploring fundamental manufacturing procedures and can be applied to a variety of industries, thus, permitting general conclusions to be raised concerning sustainability practices in the sphere of the manufacturing industry overall.

LITERATURE REVIEW

Sustainability

Sustainability or sustainable development has come to be a major issue in many contexts which include urban planning, tourism and even management of supply chains. The topics of the discussion in these spheres tend to be focused on the areas of supply chain sustainability (Pagell & Wu, 2009; Seuring & Mller, 2008), sustainable tourism (Tao & Wall, 2009), and sustainable urban environments (Berke, 2016). According to Saeed et al. (2017), sustainable development is the combination of sustainability and the developmental objectives. Their ancient worldview is very applicable in the modern context of sustainability. In wider but still interrelated terms, sustainability is the production and development of industrial and human systems to avert the deterioration of economic and social prosperity, community health and the longtime sustainability of the ecosystems, which eventually alters the quality of life. Saeed et al. (2017) also depict sustainability as an organized and deliberate activity to reduce and mitigate such undesirable practices that undermine the environmental, social, and economic arenas of society.

Triple Bottom Line

Sustainable development was considered to be a unitary concept prior to the emergence of globalization and following globalization of responsibility. Nonetheless, the concept was re-written by the Triple Bottom Line (TBL) model which strived to remove the adverse effects on the physical environment, maximize social value, and guarantee the financial integrity of businesses (Saeed & Kersten, 2019). Under TBL, the economic aspect signifies economic well-being of an organization, the market and the efficiency of the organization in its operations. The social dimension revolves around organizational learning, innovation and the societal influence in general. Both social and environmental pillars of TBL complement and improves the economic point of view through value creation in long terms. Companies connected themselves with environmental resources in the form of land, water, and energy consumption as well as producing waste materials, releasing gases and polluting the environment, which should be regulated with the help of environmental performance indicators (Hubbard, 2009).The social dimension of TBL is the third element of the system that considers the way companies together with their supply chains affect the society, mostly with reference to employed workers. Companies can evaluate this dimension differently, i.e. in the former case, company might focus on observing the rules of the labor law, and employment standards, and in the latter case, company may focus on employee safety, community contributions, or charitable donations. Hubbard (2009) says that consideration of such factors would allow business operations to be reckoned on though in terms of their social impact.

Supply Chain Management

Because SSCM is the framework of this study, it is desirable that this chapter gives an insight of SCM that forms the background of this study as well as the major emphasis of this chapter. Reducing descriptive study to a paradigm what SCM is embarking on is already becoming an integrated, interacting curriculum (Saeed & Kersten, 2017).Purchasing activities involve the whole supply chain and it is only the efficient management of such activities that can result in lower costs and increased productivity (Zimon, Tyan, & Sroufe, 2020). A production activity is an amalgamation of both material and non-material inputs which are employed to produce goods or services. Proper management will raise efficiency in the supply chain in general (Raut, Narkhede, & Gardas, 2017). Distribution or logistics is the process of making products or services available to the final users directly or indirectly, either through working directly with them or transferring the products to some intermediaries. Making the distribution and storage process easier will boost efficiency and improve cost in the supply chain. There is great attention to financial issues and this assists firms in ascertaining actual profitability through actual costs

especially when considered in terms of the customer. To transform the processes of all supply chain management into revenue, it also includes the principles of sales and marketing (Susanty et al., 2020).

The Sustainability Shift in Supply Chain

In the past, the use of supply chain management (SCM) was mainly linked with the functional and economical part of supply chain management. This understanding has been extended however in the modern day way of thinking (Emmett & Sood, 2010; Carter & Easton, 2011). Different isomorphic pressure and external incentives are motivating the cost-centric supply chains toward the inclusion of social and environmental responsibilities (Diabat & Govindan, 2011).With mass production that came with introduction of the machinery and assembly lines under command and control systems, further underlined the connection between the activity in the supply chain, resources used and impact on the environment. This relationship highlights the importance of the supply chains in shaping the impact on the environment (Mastos & Gotzamani, 2018). This point of view is also supported by Srivastava (2007), who states that the acquisition and exploitation of resources are one of key SCM functions.Due to this fact, an increasingly popular value of green within the supply chain is being linked directly to the issue of availability and sustainable treatment of natural resources. The pressure being exerted by the people, the increased awareness of consumers who purchase green products, and the fear of depletion of natural resources are making organizations go green with their production through use of sustainable inputs to get environmental friendly goods and services (Sarkis et al., 2010). Such a shift in thinking has set the stage of an expanded version of the supply chain e.g., one that reaches a balance between economic efficiency and social and environmental impact (Ni & Sun, 2019).

Sustainable Supply Chain Management

Unlike earlier reports by Tay, Abd Rahman, Aziz, and Sidek, recent researches on sustainability have used the entire supply chain as sampling. The sustainability in the economy, the environment and the social worldThese traditional SCM combined with traditional SCM have proved to be the basis of SSCM (Baddeley & Font, 2011). The literature has sometimes been used as a synonym of Green Supply Chain Management (GSCM) (Saeed et al., 2017). The management activities concerning sustainability in a sustainable supply chain are aimed towards the achievement of both economic and social objectives (Saeed & Kersten, 2019). The cooperation between all the stakeholders of the supply chain is key in a sustainable supply chain. To achieve wide-ranging strategic sustainability goals and aims and meet requirements of stakeholders, consumers, a collaborative strategy is needed (Saeed & Kersten, 2019). Saeed and Kersten (2019) argue that the sustainable supply chain management (SSCM) is the approach to the management of partnership among various supply chain members and the optimal creation of value to all the stakeholders and satisfaction of customers through sustainable flow of goods, services, information, and capital.

Drivers of SSCM

In the literature now in publication, these pressures are frequently referred to as drivers, stimulants, facilitators, and factors (Emamisaleh & Taimouri, 2021). According to Saeed et al. (2017), promoter forces are the forces or drivers that push supply chain management.

However, Sajjad et al. (2015) noted that the increasing demands of many stakeholders about social, economic, and environmental issues are linked to the external causes. Decision-making processes for internal or external sustainability activities are influenced by both internal and external elements (Emamisaleh & Rahmani, 2017; Saeed, Khan & Mak, 2017). The literature indicates that different factors have different effects on supply chain decisions.Consistent with the conclusions of Shultz & Holbrook (1999), it became clear that elements like industry competition, legally mandated rules, and customer

expectations should be crucial in assisting businesses in reaching their financial and environmental objectives. In particular, the Chinese empirical study by Zhu & Geng (2013) acknowledges that the government actively promotes ISO14001 certification, stricter environmental laws, and environmentally friendly production methods. The existing literature on SSCM will be reviewed in the following sections, along with its antecedents and the internal and external elements that affect how SSCM techniques are implemented.

Government Legislation

Regulations serve as the fundamental framework under which businesses function by requiring them to comply with local, state, federal, and worldwide legal frameworks and to attend to the needs of their clients, as Luthra et al. (2011) point out. According to author Sathiendrakumar (2003), governments have been forced to pass legislation addressing the social effects of business in order to lessen pollution and the influence on the environment. The start of severe global warming and climate change triggers led to the creation of all these laws. Global gatherings like the United Nations Framework Convention on Climate Change (UNFCCC) in 1992 and the Kyoto Protocol in 1997 have highlighted the importance of providing pollution audits, ensuring effective sustainability reporting, and pressuring businesses to incorporate sustainable practices into critical business operations. Today's supply chains are under increased strain due to a variety of issues, and this pressure is significantly greater for complicated supply chains.

Pressures from Suppliers

Many academics have shared their thoughts on the crucial part suppliers play in incorporating sustainability. Suppliers can assist companies in implementing green projects by offering valuable ideas, but they may not be direct drivers of corporate sustainability (Lutherland, Garg, & Haleem, 2016).

Pressure from Customers

According to Luther, Garg, and Haleem (2016), as client sentiment directly affects a company's financial success, an organization's reputation plays a crucial role in deciding how sensitive it is to customer demand. Therefore, if a business decides against adopting environmentally friendly measures or does so grudgingly, it may immediately harm its reputation. Brammer & Walker (2011) identified and ranked the four main forces driving companies to adopt Sustainable Supply Chain Management (SSCM) in their study on "Managing sustainable global supply chains," including consumer pressure, government regulations, and requests from NGOs and the general public. Additionally, Giunipero et al. (2012) have observed that companies primarily implement SSCM in response to end-user demands for ecologically responsible product design and manufacturing.

Pressures from Competitors

According to Ferguson & Toktay (2006), a firm must create a competitive edge in order to satisfy client needs. According to Gold et al. (2010), for example, the claim that a green purchasing strategy is merely motivated by the desire to "save the world" is somewhat accurate, but they also contend that a green purchasing policy gives businesses a competitive advantage and higher revenue. According to the research of Giunipero et al.2012, businesses can achieve and maintain a significant competitive edge by establishing themselves in the market through a vigorous marketing campaign of environmentally friendly goods.

NGOS and Community Pressure

Public pressure to protect the environment is one of the things driving businesses to adopt SSCM practices, as noted by Zhu et al. (2005) and Giunipero et al. (2012). According to Appolloni et al. (2014), a certain kind of green purchasing negligence can lead to resource and energy waste as well as public or

community opposition, which can harm an organization's reputation. Non-governmental organizations (NGOs) use strategies including boycotts and defamatory media campaigns to shame companies that sell unsustainable goods, according to Wang & Lin (2007).

Organization Internal Environment

Yang et al. (2010) and Luthra et al. (2015) have both carried out research on intra-organizational problems. An organization needs sufficient internal environment support or encouragement in order to improve its sustainability performance results by implementing sustainable supply chain management approaches. When it comes to the extent and speed of implementation, stability in the financial systems serves as a signal. Over the past few years, a number of empirical studies have repeatedly validated the top management's commitment (e.g., Faisal, 2010; Luthra et al., 2015). The senior leadership is in charge of making sure that the governance structures are sustainable because they support the development of the company's vision and values. This entails setting the organization's objectives and financial budget, establishing guidelines, regulations, and directives, as well as keeping an eye on and evaluating adherence to them (Wolf, 2011).

Sustainable Supply Chain Management Practices

A more comprehensive set of procedures that go beyond the typical scope of the supply chain with a keen conscious effort to reduce the environmental impacts of products and their associated life cycle can be referred to as a "sustainable supply chain." Among these practices are eco-design, green procurement, material minimization, the use of no or few hazardous compounds, resource minimization, energy conservation, recycling, and product disposal (Seuring & Muller, 2008a). Accordingly, the SSCM approach incorporates a number of FS activitiessuch as sustainable manufacturing, which encourages internally initiated environmental activities like remanufacturing and reuse; reverse logistics, which seeks to close the loop with a focus on disposal and recycling; and sustainable distribution, which reduces the impact of material flow (Vachon, 2007; Zhu et al., 2008d). A simplified supply chain management (SSCM) strategy consists of three main parts: sustainable operations, sustainable supply chain delivery, and sustainable purchasing.

H1: Consequently, government laws and supply chain management effectiveness have a particularly favorable relationship.

H2: The pressure from suppliers is beneficial and will have a positive impact on sustainable supply chain management.

H3: The sustainable supply chain management is positively impacted by the majority of customers.

H4: Supply chain management that is sustainable is positively impacted by competitive pressure.

H5: Sustainable supply chain management would be positively and significantly impacted by community and NGO pressure.

H6: Sustainable supply chain management is positively impacted by the organization's internal environment.

METHODOLOGY

It is a quantitative research survey design study. It builds on the positivist paradigm that pegs on gathering and analysis of empirical information based on statistical methods. The study tried to find out the determining factors in adopting Sustainable Supply Chain Management (SSCM) by using structured questionnaire in manufacturing firms in Pakistan. The questionnaire consisted of two parts, (1)

background information of the respondents and (2) questions on the core study variables, that is, the independent variable, dependent variables, control variables. To determine the perceptions about SSCM drivers, the respondents were asked to rate their agreement with the statements provided on a five-point Likert index where 1 was strongly disagree, 5 strongly agree. The items of the survey were based on already validated ones in order to guarantee reliability and relevance. The sample included individuals who work in the manufacturing industry of Pakistan in the fields of supply chain, procurement and sustainability. Simple random sampling method was adopted to achieve an acceptable representation of the various categories of firms. This study conducted 170 respondents relating to the final sample size, which it determines to be statistically acceptable in hypothesis testing. The primary data were retrieved in both face-to-face contact and email dissemination. To ensure a higher response rate, the participants received enough time to complete the questionnaire, and there were also follow-up reminders. The SPSS version 20 was used to analyze the data where different statistical tools were incorporated to explain the results.

Demographics, Descriptive and Reliability Analysis

The demographics data were utilized to describe the characteristics about the study sample. The respondents consisted of 170 people, with the predominant gender ratio of 83.5% (n = 142) as corresponding to the male gender and 16.5% (n = 28) as part of female gender. Majority of the respondents (48.8 per cent) were categorized as 31 40 years of age, 41 50 years (21.8 per cent) and 20 30 years (15.9 per cent). They all had different durations of working in their jobs; with 41.8 percent of the time being two years and 12.4 percent being 6 years.To determine the reliability of measurement scale, Cronbach Alpha was used and gave an internal consistency of 0.855 under the 40 items used in the research. This implies that the items are always indicative of the constructs.

The descriptive statistics were subsequently conducted to investigate the means and the dispersion of the main variables. The analysis done on this consisted of calculating of mean scores, standard deviations and minimum and maximum values of each variable. There were seven key factors which have been analyzed; asset legislation, supplier pressure, supply chain management practices, customer pressure, competitor pressure, NGO and community pressure and internal environment of the organization.These means on the variables were comparatively close, customer pressure registered the highest mean (M = 3.80118), and the lowest mean was NGO and community pressure (M = 3.62). Minimum scores were similar with values ranging between 2 and 2.1 and maximum scores also similar with values ranging between 5 and 6.2, thus same scores were achieved across constructs. The standard deviations which vary between 0.645434 and 0.985 indicated moderate dispersion around the mean. All 170 participants responded to the whole dataset containing no missing data.Such descriptive statistics form the base understanding of distribution and variability of the measured variables, and they provide the basis of further inferential reports.

Table 1: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
NGO And Community Pressure	170	2	5	3.62	.985
Govt Legislations	170	2	5	3.69	.738
Customer Pressure	170	2.000	5.000	3.80118	.763826
Competitors Pressure	170	2.000	5.000	3.57412	.756691
Supply Chain Mgt Practices	170	2.100	6.200	3.45353	.645434
Supplier Pressure	170	2	5	3.62	.985
Org Internal Environment	170	2	5	3.51	.858
Valid N (listwise)	170				

Correlation Analysis

Correlation analysis was used to observe the correlations between the most important of the variables of the study and they included government and NGO regulations, supplier pressure, supply chain management practices, customer and competitor pressure as well as the internal environment of the organization. In the findings, there were a number of positive correlations that proved to be of statistical significance ($p < 0.05$).In particular, NGO and community pressure were found to be strongly related to the government legislation ($r = 0.166$), customer pressure ($r = 0.178$), competitor pressure ($r = 0.201$), supply management practices ($r = 0.206$), supplier pressure ($r = 0.225$) as indicated in Table 1. Nevertheless, there is no relevant correlation between the NGO and the community pressure and the internal organizational environment ($r = -0.018$, $p = 0.812$).Government regulations were intertwined strongly as well as positively to supply chain management practices ($r = 0.565$, $p < 0.001$), customer pressure ($r = 0.626$, $p < 0.001$), and the internal environment of the organization ($r = 0.152$, $p = 0.047$). These results provide evidence of the interdependency between external pressures and the internal organizational capabilities in the sustainable supply chain practices.

Table 2: Correlation Analysis

		NGO and Community Pressure	Govt Legislations	Customer Pressure	Competitors Pressure	Supply Chain Management Practices	Supplier Pressure	Org Internal Environment
NGO and Community Pressure	Correlation	1	.166*	.178*	.201**	.206**	.225**	-.018
	Sig.		.030	.020	.009	.007	.003	.812
	N	170	170	170	170	170	170	170
Govt Legislations	Correlation	.166*	1	.626**	.505**	.565**	.142	.152*
	Sig.	.030		.000	.000	.000	.065	.047
	N	170	170	170	170	170	170	170
Customer Pressure	Correlation	.178*	.626**	1	.645**	.585**	.180*	.198**
	Sig.	.020	.000		.000	.000	.019	.010
	N	170	170	170	170	170	170	170
Competitors Pressure	Correlation	.201**	.505**	.645**	1	.553**	.112	.051
	Sig.	.009	.000	.000		.000	.145	.507
	N	170	170	170	170	170	170	170

Regression Analysis

In regression model, there is a close interplay between the independent and dependent variables as the R-value produced 0.67 with R-square 0.459 i.e. 45.9 percent variation in practices in the supply chain management was explained by the independent variables. The results of the regression measures gave significance as follows: Government Legislations (beta = 0.238, p <0.001) played an important role in Supply Chain Management Practices. This is also the case of Customer Pressure (0.178, p = 0.016) that had a positive influence on Supply Chain Management Practices. The Pressure of Competitors (competitor pressure) (beta = 0.219, p = 0.001) proved to be a powerful predictor of practices in Supply Chain Management. Environmental: NGO and Community Pressure (0.037, p = 0.348), Supplier Pressure (0.047, p = 0.236) and Organizational Internal Environment (0.058, p = 0.201), did not significantly relate to Supply Chain Management Practices.

In the second regression analysis, Government Legislations, Customer Pressure, and Competitor Pressure contributed hugely to the variability of Supply Chain Management Practices. Of all important variables, the standardized coefficients indicate that Competitor Pressure was the most impactful predictor, which determines the relevance of competitive dynamics in the process of sustainability adoption. The other non-significant predictors imply that the contribution of these factors fails to generate a measurable effect on the data set that we have taken into account i.e., organizational internal context, supplier pressure, NGO and community pressure. We learn that the firms that experience a higher level of regulatory and rivalry pressure have more prospect of developing sustainable supply chain management. In future research, distal moderators or mediators can be looked at that can serve as explanation of the non-significant factors

Table 3 Regression Analysis

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.609	.277		2.196	.030
	NGO And Community Pressure	.037	.040	.057	.941	.348
	Govt Legislations	.238	.066	.272	3.621	.000
	Customer Pressure	.178	.073	.210	2.437	.016
	Competitors Pressure	.219	.066	.256	3.313	.001
	Supplier Pressure	.047	.040	.072	1.190	.236
	Org Internal Environment	.058	.045	.077	1.284	.201

DISCUSSION

The paper finds out that South Africa firms tend to have a high degree in government regulations, customer demands and competitor challenges, which has a positive impact on their supply chain management practices. Such results are consistent with the previous studies, pointing to the essential nature of both regulatory regimes and market-based pressures on the development of the corporate sustainability initiatives.In comparison, direct impact of NGO/community pressure, supplier pressure, and internal organizational environment were also shown to have statistically insignificant results. This implies that there could be some secondary consequences or situational mechanisms at play to affect them. When comparing all the variables, the use of government legislation was known as a significant factor promoting the sustainability of supply-chain activities, which tends to support the notion that compliance with regulations is one of the first drivers to make companies become environmentally responsible.

Pressure on its customers was also a major factor, with increasing demand on the part of consumers to have ethically manufactured and environment friendly products. This pattern shows the fact that organizations aim at achieving compliance with industry practices and responding to competitive sustainability requirements. It is interesting to note that pressure of rivals is also a positive factor in the practice of a supply chain, which helps further underline the significance of having a competitive advantage in the field of sustainability.Nevertheless, NGO pressure and community pressure seemed to have little or no effect, which means that NGO pressure and community pressure, in the instance of South Africa, very well may not be directly related in affecting corporate practice or may only be influential to the extent of other intervening forces. On the same note, supplier pressure had no significant impact, and this may be due to inconsistency in supplier-sustainability commitment or the variation in the adoption of sustainable procurement policies.Lastly, the internal organizational environment failed to be a strong predictor of sustainable supply chain practice. This means internal cultural factors without the support of the external pressure might no longer be sufficient to trigger sustainability efforts in organizations.

THEORETICAL IMPLICATIONS

The given research also adds to the current body of knowledge because it again proves the importance of regulative and market driven forces in facilitating sustainable supply chain management. It builds on this previous related study by presenting empirical evidence in the context of a developing economy, in which formal regulatory frameworks and the competitive forces of the market occupy the central position in influencing the corporate sustainability behavior.In addition, these results also present critical issues about the universality of NGO and Community advocacy in leading to sustainability. The findings indicate that these pressures could produce more power in geographical areas where the consumers are very active, and there is a strong civil society. Within the context under analysis, however, these advocacy campaigns do not seem to have many direct effects.It is also revealed in the study that external forces including legal and market forces play a bigger part in defining sustainability practices rather than individual organizational mind-set. This observation makes it necessary to examine the relationship between internal forces, i.e. organizational abilities and corporate leadership commitment and external forces to promote sustainable initiatives in supply chains.Therefore, in the future theoretical models, both internal and external dimensions are supposed to be included in order to have a more profound idea of sustainability adoption as part of supply chain management frameworks.

PRACTICAL IMPLICATIONS

These results provide some useful suggestions to policymakers, business executives, and supply chain managers. In case of policymakers, it is important to enforce environmental laws and introduce legal sanctions, which those who do not abide by those laws must face. Moreover, governments can think about

establishing tax break opportunities to those companies that take an active interest in practicing sustainability in the supply chain management of their operations and incentivize more players to be responsible. To the business, the response to market dynamics by the customer and competitors through adoption of sustainable supply chain strategies is the only way to ensure competitiveness. Green procurement, wastes reduction and eco-efficient production are all environmental protection initiatives that lead to long-term profitability and brand reputation.

Another way in which firms can enhance environmental results is by ensuring that its suppliers have a strategic relationship by influencing them to use sustainable practices. Supplier training, collaboration in planning, and performance monitoring capabilities are highly integrated to advance the efforts of sustainability. They are used to align the supplier behavior with corporate sustainability objectives. Besides, since Environmental, Social, and Governance (ESG) standards have become relevant in making investment decisions, more companies with a strong commitment to sustainability in supply chain management will face higher investments and have more stakeholder confidence. On consumer front, creation of awareness on sustainable practices in the supply chain has the potential to increase demand in greener products. This, consequently, underlines the significance of the sustainability level within the business processes and promotes the companies to adhere to the responsible operations within the lines of their supply.

LIMITATIONS AND FUTURE RESEARCH

The following are some limitations of this study despite its implications: The study was conducted in a single industry that limits the generalizability of findings to other industries. Future research should aim to cast the net wider and study multiple industries to get better environment generalizability. A cross-sectional study design limits the capacity to make conclusions about causality of variables. Brace and Vennapusa (2021), a management framework for improving long-term sustainable supply chain performance, International Journal of Production Economics. The analysis did not include potential mediating or moderating variables like organizational culture, leadership commitment, and stakeholder engagement. Future studies should investigate these variables to better fully inform the landscape. The investigation was limited to a specific geographical region, meaning it might not apply to sustainability trends on a global scale. Studies comparing different geographical or economical areas may be more applicable. This study did not explore the role of digital transformation and emerging technologies in enabling sustainable supply chain practices. In conclusion, future research may explore the influence of emerging technologies (e.g., blockchain, artificial intelligence, and Internet of Things (IoT)) on supply chain sustainability.

Future research may investigate longitudinal studies exploring the evolution of sustainable supply chains over time. Cross-sector comparisons to unlock industry-specific sustainability levers Digital transformation and technology play an important role in creating sustainable supply chains. Exploring the effect of two major variables: leadership commitment and corporate governance on the effectiveness of sustainability adoption Evaluating supply chain resiliency to an environmental or economic shock and its relation to sustainability activities. Marketing Strategies to Move towards a Sustainable Supply Chain: A Cross-Country Comparative Study

CONCLUSION

The findings from this study would help appreciate the forces behind sustainable supply chain management, which mainly involves the shaping role of government regulations, customer expectations, and competitive pressures. As much as external forces were the main drivers of sustainability practices in the time of crisis, the relatively minimal influence of NGO and community pressures seem to support that regulatory and market-based mechanisms are still the strongest underlying forces guiding companies in

these practices. We elaborate on both theoretical and practical aspects, realizing the importance of balancing between strategic alignment and regulatory compliance vs competitive positioning for companies. Insights that can help policy-makers tailor relevant sustainability policies and programmers that work for all and help businesses better integrate sustainability across their supply chain and ultimately lead to long-lasting success.

The research, despite some limitations, paves the way for future studies. Therefore, expanding on supply chain sustainability research across multiple industries, spanning a timeline, and utilizing advanced technology will greatly enhance our understanding of both current and fast-developing sustainability trends. In addition, future research might examine how internal organizational factors and external pressures interact to influence sustainability outcomes. In conclusion, this study enhances the literature about sustainable supply chain management, with practical insights for stakeholders interested in developing resilient and sustainable supply chains.

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