Corporate social responsibility strategy, sustainable product attributes, and export performance

Zeeshan Ullah1,2 | Ahmad Arslan1 | Vesa Puhakka1

1Department of Marketing, Management and International Business, University of Oulu, Oulu, Finland
2Department of Business Administration, Oulu University of Applied Sciences, Oulu, Finland

Abstract
The current article is one of the first studies to address the role of corporate social responsibility strategy (CSRS) in the development of performance-oriented sustainable product attributes (SPA) mix in manufacturing firms. We specifically analyze whether the extent of SPA development by the firm's CSRS matches SPA contribution in export performance or do firms need to adapt CSRS to develop a performance-oriented SPA mix. The empirical analysis uses a panel dataset of 433 manufacturing firms from the United States during 2002–2017. The findings reveal the difference between SPA's outcome (contribution) and SPA development in firms. Further analysis of disaggregated SPA explains the reasoning behind this difference because the firm's CSRS' emphasis on developing distinct attributes of SPA tends to mismatch the proportionate contribution of distinct attributes of SPA in export performance. Our study contributes to SPA, CSRS, and export performance literature by establishing the differences in performance contribution and development of aggregated and disaggregated SPA in manufacturing firms.

Keywords
corporate social responsibility strategy, environmentally sustainable product attributes, export performance, resource-based view, socially sustainable product attributes

1 | INTRODUCTION

It is an established fact that firms are profit-maximizing entities that seek to grow continuously. Traditionally firms pursued growth through different efficiency and differentiation-focused management and marketing strategies. However, due to an increased awareness of social and environmental challenges in global business markets, firms need to incorporate these aspects in their product differentiation strategy (e.g., Cheng et al., 2021). In this concern, it has been argued that customers’ demand for socially sustainable and environmentally sustainable products is a key driver behind the strategic corporate social responsibility (CSR) initiatives of the firms (Cillo et al., 2019; Scarpato et al., 2020), such as development of sustainable product attributes (SPA) in current study context. It is further important to mention that strategic CSR initiatives are costly and consume the R&D budget, thus decrease the R&D efficiency of manufacturing firms (e.g., Fu et al., 2020). Though firms may wish and need to pursue sustainability initiatives, it is likely that due to strategic and competitive dynamics, their CSR budget may end up being used for R&D in different functional areas (Upton, 2017). This explains that organizations decide on strategic CSR implementation, objectively. In other words, the decision about the extent of strategic CSR implementation is based on the performance outcome of strategic CSR initiatives. As a result, incorporating CSR dynamics into organizational key performance indicators which influence market competitiveness is increasingly essential. The current article builds on this specific argument by
being one of the first studies to specifically focus on the development of SPA in relation to a manufacturing firms performance. Hence, our article tried to further the understanding of what needs to be done to optimize CSR-based product differentiation and develop a performance-oriented SPA mix in manufacturing firms.

Cost–benefit analysis provides a foundation to develop a performance-oriented SPA mix of a firm (McWilliams & Siegel, 2001). SPA is a customer-driven CSR initiative; therefore, SPA’s performance outcome translates customer demand for a proportionate mix of sustainable attributes in products. To develop a performance-oriented SPA mix, the current article seeks to understand the need of manufacturing firms to adapt CSRS to develop SPA for international markets. Therefore, we analyze the extent of SPA’s export performance contribution and development by manufacturing firm's corporate social responsibility strategy (CSRS).

Social and environmental attributes are distinct from each other and, when integrated within a product (an economic factor), make up a sustainable product (Ketata et al., 2015) under the triple-bottom-line (TBL) approach. Firms’ internationalization has changed firms’ need for societal legitimacy (Sundström, 2009). The customers in international markets increasingly demand sustainable attributes in the products that they are purchasing (e.g., Kara et al., 2014). Social and environmental attributes are not new; however, customers’ demand has made it essential for firms to combine these attributes in products. Thus, it is essential to meet customer’s demands for increasing export performance (Andries & Stephan, 2019). Moreover, stakeholders’ focus is changing from environmentally sustainable attributes to socially sustainable attributes (Bruccoleri et al., 2018). Therefore, while implementing a CSR-based product differentiation strategy in export markets, firms need to develop a performance-oriented SPA mix.

Prior scholars have studied the environmental products or green products’ effect on firm performance (e.g., Amores-Salvadó et al., 2014; Ar, 2012; Lin et al., 2013). However, the specific influences of socially sustainable products on the export performance of manufacturing organizations are significantly under-researched. The study by Boehe and Cruz (2010) is one of the rare studies on this topic that analyzed the influences of sustainable product differentiation (as aggregated concept) on a firm’s export performance. It should be further noted that customers’ demand for distinct attributes of sustainable products makes understanding disaggregated SPA (e.g., socially sustainable and environmentally sustainable product attributes) in relation to export performance very critical, a research focus that our article is exploring. Socially sustainable product attributes (SSPA) are different from environmentally sustainable product attributes (ESPA), which cannot be disregarded from the sustainable product development construct (Ahmad et al., 2018; Badurdeen et al., 2018; Held et al., 2018; Miranda et al., 2019). Varadarajan (2017) theorized the sustainable product innovation concept from an environmental perspective and overlooked the social element from the theoretical side. The predominant literature of sustainable product development (e.g., Chang et al., 2014; Poulikidou, 2012; Shi et al., 2017) analyzed the environmental attributes, however, ignored integrating the social attributes into it; hence the concept of SPA is also developed partially (da Cunha Bezerra et al., 2020). Our article conceptualizes the SPA construct and adds to export performance literature by studying the aggregated and disaggregated SPA effect on manufacturing firms’ export performance. Therefore, the first question investigated by this article is: “To what extent aggregated and disaggregated SPA contributes to firms’ export performance.”

CSR has been traditionally referred to as a socially valuable firm activity not required by law and rather inconsistent with shareholders' interest (McWilliams & Siegel, 2001). However, this view of CSR has evolved over the years into CSRS, where it is seen as a strategic interest and imitative of the firms. In this context, Tang et al. (2012) defined CSR engagement strategy as a manner in which managers identify CSR-related activities, organize resources to conduct these activities, and use the knowledge acquired from these activities for commercial outputs. The inherent paradox of corporate sustainability assumes that a sustainable product is an implementation of CSRS in a firm. Firms implement CSRS to integrate environmental, social, and economic aspects into products (Martinez-Conesa et al., 2017). Hence, CSRS is a product differentiation strategy (Hadj, 2020; Siegel & Vitaliano, 2007). However, to what extent social and environmental attributes need to be integrated into sustainable products are inconclusive. To optimize CSRS efficiency, firms need to develop a performance-oriented SPA mix under the CSR-based product differentiation strategy. Researchers studied the CSR or CSRS with (generic) sustainable innovation (e.g., Baciello et al., 2020; García-Piqueres & García-Ramos, 2020; Poussing, 2019). However, scant literature (e.g., Ning et al., 2017, June) studied CSR’s impact on sustainable product’s environmental attributes and ignored the social attributes. This identified gap warrants an investigation of aggregated and disaggregated SPA’s development in a manufacturing firm’s context. Therefore, to contribute to CSR-sustainable product literature, the second question investigated by our article is: “To what extent CSRS influence the development of aggregated and disaggregated SPA.”

The manufacturing sector is a fundamental pillar of modern economies. However, these days, the consumers of manufactured products are concerned about warranty/guaranty, labeling, safety, and products’ environmental attributes. United States is the top R&D spending country globally, and the manufacturing sector performs 70% of R&D. Furthermore, the US manufacturing sector contributes 18% to global manufacturing output and drives 60% US exports (West & Lansang, 2018). Therefore, our article uses a panel dataset of 433 US manufacturing firms and examines the influence of aggregated and disaggregated SPA and the influence of CSRS on the development of aggregated and disaggregated SPA. Regression estimates show that SPA positively contributes to export performance, and results of SPA’s distinct dimensions show nearly equal positive contribution in export performance. The regression estimates also show a positive influence of CSRS on the aggregated and disaggregated SPA development.

The current article contributes to CSR, TBL, and export performance literature streams in three ways. First, despite studying the SPA as a monolithic concept comprised of environmental dimensions,
this study contributes to TBL literature by incorporating the SSPA and ESPA into the SPA construct. In this way, this study incorporates the research recommendations of Bangsa and Schlegelmilch (2020) and da Cunha Bezerra et al. (2020) to fill the above-identified theoretical and empirical research gaps. Second, this study documents the positive effect of aggregated SPA on manufacturing firms’ export performance. This article further documents the performance differential of SPA’s distinct dimensions (SSPA and ESPA) contributing to export performance. Thirdly, this study deviates from the existing literature, studying CSRS or CSR with environmental dimension only, by documenting the significantly positive influence of CSRS on the development of aggregated and disaggregated (social and environmental) dimensions of SPA.

2 | LITERATURE REVIEW

2.1 | Sustainable product attributes

The TBL approach provides a foundation for the sustainability concept, where organizations integrate the social and environmental elements with economic benefits. Sustainable innovation is a broad concept that includes a wide range of innovations such as product, process, organization, technology, and marketing (Horbach et al., 2012). The current study focuses explicitly on sustainable products. Researchers have been using the sustainable product (Borland et al., 2019; Severo et al., 2017), environmental product (Amores-Salvador et al., 2014; Choi & Yi, 2018; Kammerer, 2009), eco-product (Rashid & Shami, 2017, March; Rashid et al., 2014) and green product (Chang, 2016, 2018; Dangelico, 2016; Dangelico et al., 2017; Qiu et al., 2020; Song et al., 2018) terminologies interchangeably. However, these terminologies are nearly synonymous and have trivial differences in meaning (Pacheco et al., 2018). Hjónnik and Ruzzier (2016) explicate that eco, environmental, and green innovations consolidate environmental elements only, while sustainable innovation also includes a social element (Zubeltzu-Jaka et al., 2018). Thus, Garcia-Piqueres and García-Ramos (2020) emphasized the inclusion of SPA’s social element.

Researchers have been using terminologies such as social innovation, corporate social innovation, and socially responsible innovation, rather interchangeably to study sustainable innovation’s social element, irrespective of the conceptual differences. Mulgan (2008) referred to social innovation as innovative activities used to meet a social need and carried out by an organization whose primary purpose is social only. Poussing (2019) used the notion of social innovation as a social element of sustainable innovation. A sustainable organization pursues economic gains with environmental and social endurance from the TBL perspective. Theoretically, from the stakeholder theory perspective, this view of social innovation contrasts with the implication of the sustainable innovation concept in an organization where the primary purpose is to pursue stakeholders’ well-being through the persistent generation of higher returns (Freeman, 2010; Hussain et al., 2018; Mitchell et al., 1997). Therefore, referring to the social innovation concept by Mulgan (2008) as a “social element” of sustainable innovation is inconsistent, theoretically.

Some scholars studied the environmental attributes under the umbrella of the “social or socially responsible” concept, for example, Moore (2003) argued that firms become socially responsible for easing the tension between economic and social endeavors. Mahlouji and Anaraki (2009) studied socially responsible innovation with CSR and considered the social and environmental sustainability elements under the term “socially responsible innovation.” Likewise, Bruccoleri et al. (2018) and Tully and Winer (2014) studied the socially responsible products carrying social and environmental elements together. In order to explain corporate social innovation, the scholars like Dionisio and de Vargas (2020) and Herrera (2015) argued that corporate social innovation is used to create shareholder value and social value. Mirvis et al. (2016) asserted that corporate social innovation consists of social, environmental, and economic elements. Theoretically, the notion of socially responsible innovation and corporate social innovation corresponds with the broader concept of sustainable innovation, explained under the TBL approach. Therefore, empirically studying the discussed socially responsible products/innovation and corporate social innovation as a social element of sustainable innovation is incoherent.

The corporate social performance stream of research studied the concept of product quality (Boehe & Cruz, 2010; Johnson & Greening, 1999; Mallin et al., 2013; Turban & Greening, 1997). Johnson and Greening (1999) disaggregated the product quality dimensions into “environmental” and “product quality.” It is further suggested that product quality and environmentally friendly manufacturing are two product attributes. Product quality consists of specific product characteristics, for example, health, safety, fair trade/price, labeling, product warranty/guarantee (Shapiro, 1982). These product characteristics explain customers’ social concerns relating to products (Bangsa & Schlegelmilch, 2020); hence, it equates the “product quality” concept to SPA’s social element and paves the way for developing a conceptual understanding of the social dimension of SPA.

Building on the TBL approach (Elkington, 1997) and the existing definition of SPA by Luchs et al. (2010), this research defines the SPA as it involves positive social and environmental characteristics in product. SPA brings sustainability through achieving an optimum balance among the economic, social, and environmental aspects while meeting cost-effectiveness and basic customer requirements associated with conventional product functionality (Maxwell & Van der Vorst, 2003). The current article uses the terms “socially sustainable product attributes” and “environmentally sustainable product attributes” to conceptualize sustainable products’ social and environmental attributes. Based on Luchs et al.’s (2010) definition, the current study defines the SSPA as it involves positive social characteristics such as warranty/guarantee, labeling, fair trade, customer health, and safety in a product. Likewise, ESPA involve positive environmental characteristics such as (but not limited to) eco-design, dematerialization, and reduced emission in a product.
2.2 | Hypotheses development

2.2.1 | SPA and export performance

Under the CSRS, firms go beyond compliance and address social and environmental issues organization-wide to enhance firm value (Boehe & Cruz, 2010). With the focus on strategic fit, CSRS implements a sustainable marketing strategy to achieve superior export performance in international markets (Chen et al., 2016). Under the sustainable marketing strategy, firms position their products as socially or environmentally sustainable to gain a competitive advantage. Bçakçkoğlu et al. (2019) emphasize product differentiation through incorporating sustainable attributes in the products rather than the firm processes producing products.

From the resource-based view (RBV) perspective, export performance is improved through CSR (Branco & Rodrigues, 2006). Export performance is, achieving firm performance objectives in international markets (Cavusgil & Zou, 1994). Firms use product differentiation, a Porter’s (1985) generic strategy, to compete in the international market. Tatoglu et al. (2020) assert that firms should adopt product differentiation positioning. SPA is CSR-based product differentiation, which firms use in export markets to increase their sales volume (Boehe & Cruz, 2010). Firms project their reputation in the markets as producers of socially sustainable products and/or environmentally sustainable products (Fombrun & Shanley, 1990). Meeting customer demand regarding SPA increases foreign customer’s satisfaction and loyalty, which in turn enhance export performance (Bçakçkoğlu et al., 2019). Based on this argumentation, we hypothesize that:

H1. Sustainable product attributes positively influence a firm's export performance.

CSRS-based SPA differentiates a firm’s product (Siegel & Vitaliano, 2007). SPA is comprised of ESPA and SSPA. When companies adopt an environmental product differentiation positioning, it increases firm reputation in front of foreign customers (Bçakçkoğlu et al., 2019). Meeting customers’ environmental preferences reduces the negative publicity of firms in the market (Liu et al., 2018) and enables firms to meet current and future customer needs (Wu, 2017). Possessing the environmental product certificate (Leonidou et al., 2017) and using reusable and biodegradable material enhance product uniqueness for the customer (Alhawari et al., 2021). Orsato (2006) emphasizes the inclusion of environmental attributes into product differentiation to position environmental product differentiation in international markets, hence increasing export performance (Tatoglu et al., 2020).

ESPA allows firms to charge a premium price. In this context, a recent study by Awan, Arnold, and Gölgeci (2021) stressed that green product innovation provides opportunities for revenue generation. ESPA provides firms a chance to open up new segments and new markets and increase their revenue and profitability through higher sales yield from pricing power (Hill et al., 2014). Firms with ESPA-based product differentiation positioning can broaden their customer portfolio and enhance their customers’ satisfaction resulting in loyal customers and repeating purchases in export markets (Bçakçkoğlu et al., 2019; Martín-Tapia et al., 2009). Based on this discussion, we hypothesize that:

H2. Environmentally sustainable product attributes positively influence a firm's export performance.

In general, product differentiation creates a differential image or a better quality (Boehe & Cruz, 2010). SSPA is an essential competitive factor. Customers are willing to pay for CSR-based quality products sold by firms, meeting customer demands (Giallonardo & Mulino, 2012, August). A well-implemented CSR increases product value for customers (Fandos-Roig et al., 2021). Firms practicing CSR signals to customers about improved product quality (Giallonardo & Mulino, 2012, August); hence, customers’ increased perceptions may increase the export sales (Boehe & Cruz, 2010). Higher product quality leads firms to charge a higher price in export markets (Rodrigue & Tan, 2019).

Rodrique and Tan (2019) argue that increased product quality is associated with increased export sales. Previous studies have found a positive influence of product quality on export performance (Fischer, 2010; Rodrigue & Tan, 2019). However, Boehe and Cruz (2010) provide a contrasting finding of insignificant and negative product quality effects on export performance. Moreover, Fischer’s (2010) study provide contrasting finding between Italy, France, and Germany. Italy and France results show a highly significant positive effect of different high-quality products on export performance. However, the results of Germany provide negative findings of high-quality products on export performance.

It is important to note that earlier literature has focused on generic specifications. For example, Boehe and Cruz (2010) focused on product consistency, reliability, durability, and product performance specifications of product quality. SSPA specifications of product quality are related to CSR-based product differentiation and consist of characteristics such as product warranty/guarantee, labeling, fair trade, customer health, and safety (Bangsa & Schlegelmilch, 2020). However, based on the previous research on generic product quality specifications and customer perception about CSR-driven product quality, we assume that SSPA contributes to manufacturing firms’ export performance. Hence, we hypothesize that:

H3. Socially sustainable product attributes positively influence a firm’s export performance.

2.2.2 | CSRS and SPA

According to Lankoski (2009), CSR’s effect is dependent on the undertaken specific attributes of CSR. CSR practices have evolved remarkably; therefore, it is needed to specify first what CSR practices are to focus on in the current article. Initially, CSR was reactive to legislation
and stakeholder pressure, but today, firms adopt proactive CSR to anticipate and avoid upcoming problems. Proactive CSR or CSRS integrates CSR practices into a firm strategy to enhance innovation and firm performance and eventually gain a sustainable competitive advantage (Poussing, 2019). Strategic management scholars discussed CSRS from RBV perspective, emphasizing resources and capabilities to develop and implement strategies (e.g., McWilliams & Siegel, 2001; Nidumolu et al., 2009). This research uses the RBV to further develop the theory-of-the-firm model of performance-oriented SPA mix as McWilliams et al. (2006) emphasize RBV is useful for investigating the outcome of CSRS in firms.

CSRS has been considered a crucial business practice worldwide (Xiang et al., 2020). Vishwanathan et al. (2020) assert that CSRS influences firm performance through R&D or innovation capacity. However, to what extent social and environmental attributes are integrated distinctly into sustainable products is not researched. When firms adopt CSRS, it implies strategic consideration of environmental and social dimensions (Poussing, 2019). Therefore, CSRS integrates social and environmental dimensions organization-wide (Bacinello et al., 2020). Firms implement CSRS to integrate environmental and social attributes into products (Martinez-Conesa et al., 2017). Hence, CSRS implementation develops SPA, a CSR-based product differentiation, in a firm. Scholars have been studying the link of CSRS with sustainable innovation but not specifically with the SPA (e.g., Bacinello et al., 2020; García-Piqueres & García-Ramos, 2020; Poussing, 2019). Considering that a product introduces a firm in the international market and customers increasingly demand sustainable products worldwide (Kara et al., 2014). It is necessary to identify the development of SPA by firm CSRS. Based on this discussion, we hypothesize that:

**H4.** Corporate social responsibility strategy positively influences the development of sustainable product attributes.

In recent decades, researchers shifted their focus on studying the implications of CSRS on environmentally friendly goods (Kraus et al., 2020). Contemporary, environmental, and climate change issues emphasize organizations to address environmental concerns (Kraus et al., 2020) by incorporating environmental attributes into their products (Awan, Nauman, & Sroufe, 2021; Kara et al., 2014). Nowadays, firms willingly assume responsible and take strategic actions to eliminate factors harmful to the environment (Chen et al., 2020). Pullman (2012) noted an increasing trend in green and quality products purchasing in nine countries. The majority of the customers were found concerned about environmental impact. Green product offerings provide additional margins and increase manufacturers' market share. Therefore, the development of environmental products has become a strategic goal of manufacturing firms (Kara et al., 2014). Ning et al. (2017, June) found that CSRS fosters environmental dimension in products. However, the extent to which the CSRS incorporates environmental attributes in a sustainable product is inconclusive. Therefore, this research studies the development of ESPA by CSRS.

Firm innovations should incorporate social improvement objectives to guarantee sustainable development (García-Piqueres & García-Ramos, 2020). In this regard, CVS Health announced the dis-continuation of tobacco products as a CSRS initiative (Liu et al., 2018). Macgregor et al.’s (2008) findings emphasize that CSR-driven product innovations aim to have a social purpose. Gionannono and Mulino (2012, August) contend that CSR is a signal of product quality to customers; however, Calveras and Gani’s (2018) study shows that CSR enhances product quality. Under CSR practices, organizations adopt ISO 9000 to establish standards and guidelines to ensure product quality and safe practices (Johnson & Greening, 1999). Ning et al. (2017, June) studied CSR’s effect on sustainable products’ environmental dimension and ignored the SSPA. However, SSPA should have an equitable place in the aggregate sustainable product as per customer’s demand and contribution to firm performance.

CSRS is a product differentiation strategy (Hadj, 2020). It incorporates different product differentiation characteristics such as environmentally friendly and compliant with SPA’s social standards. CSRS includes specific social and environmental dimensions into SPA, therefore SPA results in a multidimensional construct. The emphasis of CSRS on the inclusion of specific attributes into sustainable products might need an adjustment to meet customer demand and avoid reputational risk in foreign markets. Therefore, it is necessary to identify the intensity of CSRS emphasis on distinct attributes of sustainable products. Based on this discussion, we hypothesize that:

**H5.** Corporate social responsibility strategy positively influences the development of environmentally sustainable product attributes.

**H6.** Corporate social responsibility strategy positively influences the development of socially responsible product attributes.

### METHODOLOGY

#### 3.1 Sample and estimation

We constructed the sample from the Asset4 and WorldScope databases. WorldScope database provides financial information of firms. However, the Asset4 database provides CSR-related data expanded under four pillars of corporate sustainability and corresponding to 18 different categories. Asset4 is a standardized database that facilitates statistical analysis by providing the verified values (Duque-Grisales et al., 2020).

The current article utilizes a panel dataset of US firms. Asset4 provides data for 1446 US firms comprised of different sectors, as illustrated in Table 1. According to a report by West and Lansang (2018), the United States is the top R&D spending country worldwide, and 70% of R&D is done in the manufacturing sector. The US manufacturing sector contributes 18% to global manufacturing and adds above 2 trillion dollars to the US economy while driving 60% US exports. Therefore, this study uses the dataset from all the
manufacturing sector firms covered by Asset4. The manufacturing sector dataset occupies the largest share (approximate 30%) in the Asset4 US data universe. The study sample size comprises 433 firms of the United States' manufacturing sector. There are 20 different industries included in the sample size representing the two-digit SIC code from 20 to 39. The sample's description from 2002 to 2017 is presented in Table 2. Due to changes in the Asset4 database after 2017, this study's dataset is limited to 16 years from 2002 to 2017. This dataset is an unbalanced panel due to missing values or new firms' commencement starting operations after 2002. Therefore, the variables' observations range from 6498 (SPA) to 5539 (Age). However, the useful sample size in the lagged regression estimations consists of 15 years (per year observations ranging from 4854 to 5008) of 400 and 401 firms in the first and second set of analysis, respectively.

Descriptive statistics present the mean and standard deviation of observations. The correlation matrix is used to explain the correlation between variables. The variance inflation factor (VIF) test is used to confirm the absence of collinearity in our analysis. Two sets of panel regression estimations are used to investigate the study hypotheses. A random-effect regression model is applied to examine the study hypotheses empirically. The first set of regression estimations consists of four random-effect regression models studying the H1, H2, and H3. The second set of regression estimations consists of six random-effect regression models studying the H4, H5, and H6. In light of prior literature, we control for seven variables relevant to the context of our study.

### 3.2 | Variables operationalization

Previous year firm strategy materializes the firm's conduct in the proceeding year (Maria et al., 2018). Therefore, this study follows the Papagiannakis et al. (2019) and uses the one-year lag values for

| Sectors        | Share of sectors |
|----------------|------------------|
| Agriculture    | 0.21%            |
| Mining         | 6.50%            |
| Construction   | 2.21%            |
| Manufacturing  | 30.71%           |
| Transport      | 10.17%           |
| Trade          | 3.39%            |
| Retail         | 6.64%            |
| Financial      | 25.73%           |
| Services       | 14.45%           |
| Total firms    | 1446             |

| Two-digit SIC | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 20            | 24   | 24   | 24   | 24   | 25   | 25   | 26   | 26   | 26   | 26   | 28   | 28   | 28   | 28   | 28   | 28   |
| 21            | 3    | 3    | 4    | 4    | 4    | 4    | 4    | 4    | 4    | 4    | 4    | 4    | 4    | 4    | 4    | 4    |
| 22            | 4    | 4    | 4    | 4    | 4    | 4    | 4    | 4    | 4    | 4    | 4    | 4    | 4    | 4    | 4    | 4    |
| 23            | 4    | 4    | 4    | 4    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    |
| 24            | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    |
| 25            | 6    | 7    | 7    | 7    | 7    | 7    | 7    | 7    | 7    | 7    | 7    | 7    | 7    | 7    | 7    | 7    |
| 26            | 7    | 7    | 7    | 8    | 9    | 11   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   |
| 27            | 11   | 11   | 11   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   |
| 28            | 45   | 46   | 48   | 54   | 56   | 57   | 59   | 59   | 59   | 59   | 60   | 60   | 60   | 62   | 63   | 66   |
| 29            | 11   | 11   | 11   | 11   | 12   | 12   | 12   | 13   | 14   | 14   | 14   | 15   | 15   | 15   | 15   | 15   |
| 30            | 7    | 8    | 8    | 8    | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 11   |
| 31            | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    |
| 32            | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 4    | 5    |
| 33            | 13   | 13   | 13   | 13   | 13   | 13   | 13   | 14   | 14   | 14   | 14   | 16   | 16   | 16   | 17   | 17   |
| 34            | 16   | 16   | 19   | 19   | 20   | 20   | 21   | 22   | 23   | 24   | 24   | 24   | 24   | 25   | 26   | 26   |
| 35            | 46   | 46   | 46   | 48   | 48   | 49   | 49   | 49   | 49   | 50   | 50   | 50   | 51   | 52   | 54   | 54   |
| 36            | 25   | 25   | 27   | 29   | 29   | 31   | 32   | 32   | 32   | 34   | 35   | 36   | 36   | 36   | 37   | 37   |
| 37            | 35   | 35   | 36   | 37   | 38   | 38   | 42   | 43   | 44   | 45   | 45   | 45   | 45   | 45   | 47   | 49   |
| 38            | 40   | 40   | 41   | 42   | 42   | 43   | 45   | 45   | 46   | 46   | 46   | 46   | 46   | 48   | 49   | 51   |
| 39            | 4    | 4    | 4    | 4    | 4    | 4    | 5    | 5    | 5    | 5    | 6    | 7    | 7    | 7    | 7    | 7    |
| Total         | 312  | 315  | 324  | 339  | 348  | 356  | 371  | 374  | 379  | 386  | 392  | 396  | 405  | 413  | 429  | 433  |
control variables in all regression models. However, in the second set of regression estimates, we also use the lag value of the CSRS.

### 3.2.1 Corporate social responsibility strategy

We use the CGVS score obtained from the Asset4 database to operationalize the CSRS. CGVS score ranges from 0 to 100. Thomson Reuters Asset4 describes CGVS as a vision and strategy category that measures a company’s management commitment and effectiveness towards creating an overarching vision and strategy integrating financial and extra-financial aspects. It reflects a company’s capacity to convincingly show and communicate that it integrates the economic (financial), social and environmental dimensions into its day-to-day decision-making processes. This score includes the public commitment of management towards incorporating environmental and social issues into strategy (day-to-day decision making) and refers to set objectives to be attained to integrate social and environmental issues organization-wide (Albers, 2019). This definition of CGVS corresponds to the CSRS concept and aligns well with the current study’s objective.

### 3.2.2 Sustainable product attributes

We use product innovation and product responsibility scores available in Asset4, ranging from 1 to 100, to operationalize ESPA and SSPA. Gangi et al. (2020) and Nemlioglu and Mallick (2017) used product innovation scores to operationalize environmental/green product innovation. Thomson Reuters Asset4 describes product innovation score as “it reflects a company’s capacity to reduce the environmental costs and burdens for its customers, and thereby creating new market opportunities through new environmental technologies and processes or eco-designed, dematerialized products with extended durability.” This score corresponds well to the description of the ESPA of the current study.

Papagiannakis et al. (2019) used the product responsibility score. Asset4 describes product responsibility score as “it reflects a company’s capacity to maintain its license to operate by producing quality goods and services, integrating its health and safety, and preserving its integrity and privacy through accurate product information and labeling.” This score corresponds well to the description of the SSPA of the current study. This study uses the average of ESPA and SSPA to operationalize the SPA of the current study.

### 3.2.3 Export performance

Export performance relates to international sales, profitability from export sales, and market share in export markets (Lages et al., 2008). Ketata et al. (2015) used foreign sales to total sales ratio to operationalize the firm’s internationalization. García-Piqueres and García-Ramos (2020) used this ratio to measure export intensity. Therefore, current study uses foreign sales to total sales ratio to operationalize export performance.

### 3.2.4 Control variables

This study follows the García-Piqueres and García-Ramos (2020), Hussain et al. (2018), Maria et al. (2018), and Papagiannakis et al. (2019) to control for potential variables such as firm size, human capital, (generic) product differentiation, community, physical capital intensity, and firm age. These studies have identified the potential role of these variables (as control variables) in explaining the CSRS-based SPA and its performance outcome. Therefore, it is vital to control for these variables.

Firm size is a widely acknowledged control variable. The current article uses a log of total assets to operationalize firm size adopted from the study of García-Sánchez et al. (2019). The firm’s age is calculated based on the number of years from the firm’s foundation. The scale is taken from Tarig et al. (2019) study. Their study measures the physical capital intensity with the ratio of property, plant, and equipment to total sales adopted from Riley et al.’s (2017) study. The human capital score is adopted from the study of Papagiannakis et al. (2019). This score consists of four dummy variables taken from the employee quality category of Asset4 and ranges from 0 to 4. The community engagement score is taken from the study of Bettinazzi and Zollo (2015, June), further used by Papagiannakis et al. (2019). This aggregate score of the local community category of Asset4 ranges from 0 to 100. Customer awareness score is an aggregate score that ranges from 0 to 100 of the client loyalty category of Asset4. This measure is adopted from Gong et al.’s (2019) study. This research tease out the effect of CSRS on SPA, a CSR-based product differentiation. Therefore, it is important to control other product differentiation strategies such as product innovation, explaining the firm’s export performance (Boehe & Cruz, 2010). Therefore, we operationalize the generic-product differentiation with the ratio of research and development (R&D) to total sales, adopted from the study of Lin et al. (2020).

### 4 RESULTS AND DISCUSSION

#### 4.1 Descriptive statistics, correlation matrix, and VIF results

Table 3 presents the results of descriptive statistics along with the correlation matrix. SPA (0.28), ESPA (0.28), and SSPA (0.26) have no collinearity with export performance. However, CSRS, size, customer awareness, human capital, and community engagement have high positive correlation values with SPA, ESPA, and SSPA. However, VIF analysis values of less than 5 for all the variables and less than 10 for community engagement ensure the absence of collinearity. One possible explanation for higher correlation values of size and human capital is, firm capital and labor are factors of production (Mansfield, 1994).
CSRS implements SPA, customer awareness or customer demand for SPA, and environmental and social concerns are relevant to the community; hence firms engage the community in SPA development. Therefore, CSRS, customer awareness, and community have a high correlation with SPA and need to control it in the regression analysis.

### 4.2 Regression estimates

Table 4 presents the results of the SPA, ESPA, and SSPA effect on the export performance. A set of four random-effect regression models estimates Hypotheses 1–3 of the study. Model 1 analyzes the control variables’ effect on the export performance with the R-square value of 0.10. Hypothesis 1 postulates that SPA affects export performance. Model 2 presents the positive effect of SPA (0.17) on export performance with a p-value <0.01. Hence Hypothesis 1 is accepted. Model 3 presents the result for Hypothesis 2. A significantly positive ESPA (0.13) effect on export performance leads to Hypothesis 2 acceptance. Likewise, the Model 4 result confirms the significant positive effect of SSPA (0.11) on export performance. Therefore, Hypothesis 3 is accepted. Results of Hypotheses 1–3 indicate that SPA, ESPA, and SSPA positively contribute to the export performance of study sample firms.

Study results indicating the extent of the ESPA (0.13) and SSPA (0.11) contribution to export performance with almost equal strength answer the first research question. The result of ESPA corresponds to theoretical arguments of Bıçakçıoğlu et al. (2019) and Tatoglu et al. (2020). Empirical results of SSPA support the theoretical argument and partially correspond to Boehe and Cruz’s (2010) findings, studying the product differentiation effect on firms’ export performance. Results show that SPA contributes to the export performance of sample firms and is in line with Boehe and Cruz’s (2010) study results.

The second set of six regression models presents the results for Hypotheses 4–6 in Table 5. Models 5, 7, and 9 in Table 5 present the effect of control variables on the SPA, ESPA, and SSPA. Model 6 results confirm the significant positive effect of CSRS (0.19) on SPA. Likewise, Model 8 and Model 10 confirm the positive effect of CSRS on ESPA (0.31) and SSPA (0.07), respectively. All the direct effects of CSRS on SPA, ESPA, and SSPA are statistically significant. Hence, the findings support Hypotheses 4–6 of the study. The results show the significant positive effect of CSRS on SPA, ESPA, and SSPA; however, the strength of the effect varies between ESPA to SSPA. Though statistically significant results indicate that firms incorporate distinct sustainable attributes in the product. However, coefficient values indicate sample firms’ emphasis on SPA’s specific dimensions.

To answer the second research question, current study results identify the extent of CSRS emphasis on ESPA (0.31) and the SSPA (0.07) while developing SPA in a firm. This finding of higher emphasis on ESPA corresponds to the finding of Kraus et al. (2020). To increase performance, firms need to incorporate distinct SPA according to customer’s demands. However, sample firms emphasize the environmental dimension, and the social dimension is explicitly less emphasized. One possible explanation for the high emphasis on ESPA is, the
sample firms consist of the manufacturing industry, and there has been pressure from stakeholders to incorporate environmental concerns (Cainelli et al., 2015). However, the social concerns cannot be ignored as there is a shift in changing emphasis of stakeholders from environmental concerns to social concerns (Bruccoleri et al., 2018), which current research results also confirm.

### TABLE 4 Regression estimates for export performance

| Model 1 Coefficient | Model 2 Coefficient | Model 3 Coefficient | Model 4 Coefficient |
|---------------------|---------------------|---------------------|---------------------|
| **Main effects**    |                     |                     |                     |
| SPA                 | 0.170687***         | 0.131505***         | 0.110083***         |
| ESPA                |                     |                     |                     |
| SSPA                |                     |                     |                     |
| **Control variables** |                   |                     |                     |
| Size                | 8.221933***         | 6.985821***         | 7.018903***         | 7.634549***         |
| Customer awareness  | 0.156266***         | 0.103167***         | 0.116023***         | 0.121463***         |
| Human capital       | -2.886922***        | -3.753569***        | -3.569691***        | -3.433250***        |
| Generic product differentiation | 0.218568*** | 0.207418***         | 0.209239***         | 0.211994***         |
| Community engagement| -0.017378           | -0.072002***        | -0.060438***        | -0.051791***        |
| Physical capital intensity | -1.093602 | -0.501962           | -0.778959           | -0.593842           |
| Age                 | 0.021539***         | 0.022035***         | 0.020074**          | 0.023405***         |
| **C**               | -19.61320***        | -13.99876***        | -13.52641***        | -17.46648***        |
| **R-squared**       | 0.101807            | 0.120297            | 0.116531            | 0.113331            |
| **F-statistic**     | 78.46835            | 82.81727            | 79.88285            | 77.40907            |
| **Observations**    | 4854                | 4854                | 4854                | 4854                |

**Note:** Significance levels:
* p < 0.10.
** p < 0.05.
*** p < 0.01.

### TABLE 5 Regression estimates for CSRS effect

| SPA Model 5 Coefficient | SPA Model 6 Coefficient | ESPA Model 7 Coefficient | ESPA Model 8 Coefficient | SSPA Model 9 Coefficient | SSPA Model 10 Coefficient |
|-------------------------|-------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| **Main effects**        |                         |                          |                          |                          |                          |
| CSRS                    | 0.195698***             | 0.315602***              | 0.077978***              |                          |                          |
| **Control variables**   |                         |                          |                          |                          |                          |
| Size                    | 7.927922***             | 6.353578***              | 7.222515***              | 6.004887***              | 5.386038***              |
| Customer awareness      | 0.296058***             | 0.273003***              | 0.253733***              | 0.302491***              | 0.293114***              |
| Human capital           | 4.212835***             | 2.871324***              | 2.250332***              | 4.179410***              | 3.633379***              |
| Generic product differentiation | 0.058343*** | 0.041232               | 0.036415               | 0.054052               | 0.047127               |
| Community engagement    | 0.320933***             | 0.236413***              | 0.19810***               | 0.313111***              | 0.279447***              |
| Physical capital intensity | -3.97905***           | -4.66280***              | -3.59422***              | -5.06747***              | -5.34696***              |
| Age                     | 0.002043                | -0.001503                | 0.009423                | -0.011882                | -0.013220                |
| **C**                   | -36.8099***             | -27.2581***              | -34.3128***              | -23.4080***              | -19.6479***              |
| **R-squared**           | 0.683336                | 0.692392                 | 0.636371                 | 0.562781                 | 0.563785                 |
| **F-statistic**         | 1541.374                | 1406.527                 | 1250.038                 | 919.4171                 | 807.6197                 |
| **Observations**        | 5008                    | 5008                     | 5008                     | 5008                     | 5008                     |

**Note:** Significance levels:
* p < 0.10.
** p < 0.05.
*** p < 0.01.
Empirical results show that the outcome of SPA (0.17) in terms of export performance does not match the CSRS input (0.19) in SPA development. Firms can determine an ideal level of SPA through cost–benefit analysis (McWilliams & Siegel, 2001). This input and output difference of SPA is possibly due to differences in input–output of distinct attributes. Current study results of disaggregated SPA identify the imbalance between the development of ESPA and SSPA and the contribution of ESPA and SSPA in a firm’s export performance. Therefore, to develop a performance-oriented mix of SPA, firms need to adapt CSRS to balance the incorporation of ESPA and SSPA in SPA development. This way, SPA’s performance contribution would possibly increase and match the input of the CSRS in SPA.

5 | CONCLUSION AND IMPLICATIONS

The current article investigated the extent of SPA contribution and development in manufacturing firms. It contributes to the extant literature by conceptualizing SPA and analyzing the extent of SPA contribution in export performance and SPA development by the firm’s CSRS. Although the literature has recognized that SPA is an implementation of CSRS and CSR-based product differentiation affects export performance. However, empirical results identify the difference between the extent of SPA development by a firm’s CSRS and the outcome of SPA in terms of export performance. The study findings also provide a possible explanation of differences by further exploring the extent of contribution of SPA’s distinct dimensions in export performance and the firm’s CSRS emphasis on developing distinct dimensions of SPA. In doing so, a significantly positive influence of sustainable products’ social dimension on export performance is empirically verified. The finding of the CSRS effect on the ESPA confirms the firm’s higher emphasis on the ESPA, which needs to be adjusted according to the performance outcome of ESPA. Therefore, this study concludes that the SPA performance outcome does not match the SPA development based on the empirical results. The development of disaggregated SPA mismatches the performance outcome of disaggregated SPA. Therefore, to optimize CSR-based product differentiation strategy, firms need to adapt CSRS and develop a performance-oriented mix of SPA.

Based on theoretical argumentation and empirical findings, the current article offers several theoretical contributions. First, it provides coherence to the SPA construct and contributes to sustainable product literature. Prior researchers have usually studied the SPA as a monolithic construct, usually consisting of the environmental element only (e.g., Ning et al., 2017; June; Severo et al., 2017). The TBL perspective explicates that SPA is a multidimensional construct, and to achieve corporate sustainability, firms need to include all the elements of sustainability. García-Pique and García-Ramos (2020) emphasized the inclusion of social improvement objectives in sustainable products to bring social legitimacy to the organizations (Blanco et al., 2013). Boehe and Cruz (2010) studied the CSR-based product differentiation as an aggregated construct and conceptualized the product quality differentiation as a separate construct to investigate their effect on export performance. However, our article specifically disaggregates the SPA construct based on the TBL approach and conceptualizes the product quality construct under the SPA as a social attribute. Hence, based upon future research recommendations by Bangsa and Schlegelmilch (2020) and da Cunha Bezerra et al. (2020) and the identified theoretical and empirical research gaps, our article contributes to sustainable products literature by integrating the social and environmental dimensions into SPA both theoretically and empirically.

Secondly, this article contributes to export performance literature by investigating aggregated and disaggregated SPA’s contribution to manufacturing firms’ export performance. The findings reveal that social attributes and environmental attributes positively and significantly contribute to manufacturing firms’ export performance. It is important to mention that the current research conceptualizes and empirically investigates the product quality concept as a social dimension of SPA with export performance and extends the SPA construct’s contribution in export performance literature. A decade earlier, Boehe and Cruz (2010) reported an insignificant and negative product quality differentiation contribution to the export performance. However, the current research finding of SSPA contribution in export performance is particularly interesting and confirms the notion of changing stakeholders’ emphasis from environment to social dimension. This finding enhances the importance of developing a performance-oriented SPA mix where firms should duly incorporate social and environmental attributes in sustainable products. This finding led the current research to investigate SPA’s development by the firm’s CSRS.

Thirdly, current research contributes to CSRS literature by studying the development of aggregated and disaggregated SPA by a firm’s CSRS. The literature recognizes CSRS as a product differentiation strategy. Study results documented a significant and positive effect of CSRS on SPA development aggregated and disaggregated. However, results indicate that firms CSRS have a significantly higher emphasis on environmental attributes than the social attributes of sustainable products. This finding indicates that to develop a performance-oriented SPA mix, firms need to adapt CSRS. The emphasis of stakeholders is changing from environment to social dimension (Brucoleri et al., 2018); current study results of disaggregated SPA contribution in export performance also proved it empirically.

Our article offers practical implications as well. In light of increasing stakeholder emphasis on the social dimension, managers need to avoid any reputational risk associated with over-emphasizing one dimension of SPA, such as the ESPA in the current study context, or ignoring the SSPA, the other SPA dimensions. Furthermore, to develop a performance-oriented SPA mix, managers need to adjust CSRS emphasis on SPA’s distinct dimensions in light of SPA’s performance contribution in manufacturing firms.

The current article has several limitations like other academic studies. Firstly the sample size is limited to study manufacturing sector firms of the United States. Therefore, the results might not be generalizable in other countries. Therefore, this research recommends extending the current research in other countries to increase generalizability. Second, this research is limited to studying SPA’s export
performance outcome. Therefore, the results may not be generalized to the local or domestic market. This research recommends studying the SPA effect on domestic or local-level firm performance. It is also important to document the extent of SPA’s impact on the firm’s environmental performance. Third, this research does not consider the contingent factors affecting the export performance in international markets. Therefore, it is recommended to study the environmental dynamism and other contingent factors affecting firm performance in international markets.

**ORCID**

Zeeshan Ullah https://orcid.org/0000-0003-4081-3914

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