A FRAMEWORK FOR ENVIRONMENTAL AND OPERATIONAL PERFORMANCE IN THE CONSTRUCTION SUPPLY CHAIN IN SOUTH AFRICA

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ABSTRACT

With the proliferation of small businesses in the South African construction industry as fuelled by the black economic empowerment initiative, competition has increased significantly. As a result, construction businesses, especially smaller ones, face the pressure to improve their performance, which increases their chances of survival and success in this highly competitive industry. This study proposes and tests a conceptual framework for improving environmental and business performance in the South African construction industry. Specifically, the study examined relationships existing between social responsibility, green purchasing, environmental and business performance using data collected from SMEs operating in the construction industry.

A quantitative approach using the cross-sectional survey design was applied in which data were collected from a convenience sample consisting of 213 respondents drawn from SMEs based in Gauteng Province. A structural equation

modelling approach using SMART PLS 3 software was applied to test the formulated hypotheses. In the results of the study, social responsibility emerged as a driver for green purchasing and environmental performance. The purchase of green products leads to improvements in environmental performance. In turn, environmental performance was positively linked to business performance. However, there were no direct relationships between business performance and two predictor constructs, namely social responsibility and green purchasing.

The study confirms the importance of social responsibility and green purchasing as antecedents of environmental and business performance in the construction industry. The study also confirms the mediating role of environmental performance on the relationship between business performance, social responsibility and green purchasing. To overcome the prevailing competition and succeed in their dynamic industry, construction SMEs could identify and create specific interventions for improving these two individual predictor factors.

Keywords: Social responsibility, green purchasing environmental performance, business performance, SME

JEL Classification: M31

1. INTRODUCTION AND BACKGROUND

There is little doubt amongst many stakeholders that the construction sector has a strong impact on the economy of most countries, and that it is a worldwide activity with many special characteristics in comparison with other economic activities (Butkovic, Kauric & Mikulic, 2016). Globally the construction industry is considered to be an engine in national economies (Ofori, 2015). It is regarded as a mature business that has important links to the rest of the economy in such areas as the private cost for housing as well as business investments (Fredrik, 2000; Khan, Liew, Ghazali, 2014). The construction industry plays a powerful role in economic

growth, in addition to producing infrastructures that add to productivity and quality of life-related factors such as job creation and poverty alleviation (Dlamini, 2008; Magaya & Nhavira, 2016).

In South Africa, the role of the construction industry to the country's economy is well acknowledged (Crampton, 2016). The construction industry in South Africa performs a major role in the South African economy by contributing in areas such as infrastructure development, investment, and job creation (Pillay & Mafini, 2017). It contributes greatly to productivity and employs a considerable percentage of the working population in the country (Statistics South Africa, 2016). According to the Construction Industry Development Board (2017), the construction industry makes up at least 50% of the total national capital investment in South Africa and accounts for at least 3.9% of the Gross-Domestic Product (GDP).

In spite of its socio-economic importance to South Africa, the contribution of the construction industry to the socio-economic growth of the country has been declining progressively. For instance, its contribution to GDP has decreased from 8% in 2010 to 3.9% in 2017 (Crampton, 2018). This retarded performance has been influenced by numerous challenges that have troubled the South African economy. This is also noted by Pillay and Mafini (2017) who reported that the economic environment in South Africa is currently perforated with constant pressures that threaten the viability of most businesses in various sectors of the economy. Most SMEs in the South African construction industry have succumbed to internal and environmental constraints and competitive pressures, leading to their early mortality (Okanga, 2016). Factors such as limited financial resources, skills shortage, power supply constraints, the fragmented structure of the construction industry, dysfunctional relationships between supply chain members, lack of sound procurement practices and systems, lack of knowledge and experience, and rising costs are some of the challenges facing the construction industry in South Africa (Didiza 2010; Ladzani & Seeletse 2012; Pillay & Mafini, 2017; De Bruyn, 2018). Other challenges that are mostly cited within that industry include the lack of proper technology, lack of top management support, poor supply chain social responsibility by SMEs, and continuous environmental deterioration due to lack of green initiatives (Balasubramanian, 2012; Bhool & Narwal, 2013;

Khiewnavawongsa & Schmidt, 2013; Jayant & Azhar, 2014; Srivastav & Gaur, 2015). Anti-competitive behaviours, poor quality outputs, delays in payment, frequent spells of labour unrest and customer and client dissatisfaction have also been mentioned as symptoms of the underperforming construction industry (Gigaba, 2014).

This study aims to investigate the drivers of the environmental and business performance of SMEs in the construction industry in South Africa. The study projects the perspective that the linkage between social responsibility and green purchasing could be key to improving environmental performance and business performance. Specifically, the objectives of the article are to establish the influence of supply chain social responsibility on green purchasing, environmental performance, and business performance. The study also explores the influence of green purchasing on environmental and business performance as well as establishing the influence of environmental performance on business performance. The study suggests that the key to improving environmental and business performance lies in better supply chain social responsibility and green purchasing. Despite, the importance of supply chain management to SMEs, most previous studies conducted within South Africa (e.g. Ladzani & Seeletse 2012, Chinomona & Pooe, 2013, Pooe, Mafini & Loury-Okoumba, 2015, Sayed & Sunjka, 2016; Pillay & Mafini, 2017, Mafini & Loury-Okoumba, 2017; Mathu & Tlare, 2017, Epoh & Mafini, 2018) generally overlooked construction industry SMEs. Studies that focus on environmental and business performance in South African construction SMEs have also remained limited, thereby prompting the need to address such knowledge gaps.

2. CONCEPTUAL FRAMEWORK

The conceptual framework indicated in Figure 1 was developed, which illustrates the proposed linkages between the constructs under consideration in this article.

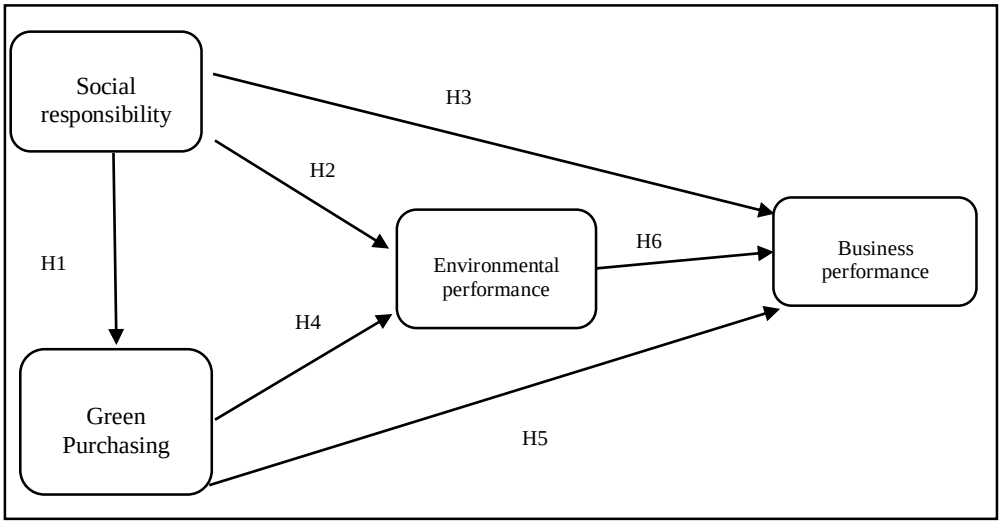

Figure 1: Conceptual Framework for Social Responsibility, Green Purchasing, Environmental Performance and Business Performance

3. LITERATURE REVIEW AND HYPOTHESES FORMULATION

This section of the study presents an overview of the South African construction industry as well as literature on social responsibility, green purchasing, environmental and business performance.

3.1. The Construction Industry

Globally the construction industry is one of the important and largest sectors of the economy. It is responsible for the planning, design, construction, maintenance and eventual demolition of buildings and the common infrastructure (Chun, Hwang & Byun, 2015; Doloi, 2013; Pillay & Mafini, 2017). The construction industry encompasses all civil engineering works and all types of the building project as well as maintaining and repairing existing structures (Lönngren, Rosenkranz & Kolbe 2010). In South Africa, the construction industry is a mix of both established corporates entities and small and medium enterprises (SMEs) which play a major role in the economy in terms of employment creation and income generation (Pooe,

Mafini & Loury-Okoumba, 2015; Mathu & Tlare, 2017). Most SMEs within this industry have been created through the Black Economic Empowerment policies initiated and promoted by the South African government, which are intended to redress the legacies of the apartheid system (Motsetse, 2015**;** Mofekeng, Giampiccoli & Jugmohan, 2018). The prevalence of numerous SMEs in the construction industry is a significant factor, given that such enterprises have become the vehicle a through which the lowest income people in the society gain access to economic opportunities (Ntsika Enterprise Promotion Agency, 2002).

3.2. Social Responsibility

Social responsibility refers to the integration of social and environmental concerns into the business operations, and to the interaction of the organisation with its stakeholders on a voluntary basis, that is, going beyond compliance with legal obligations (Mandl, 2009; Cullinan, Mahoney & Roush, 2016). Through social responsibility, firms act in ways that serve the interest of its stakeholders (Schermerhorn et al., 2005; Othman & Mia, 2008:243). McAlister (2005) considers social responsibility to be the emerging consensus amongst businesses to extend their roles and responsibilities beyond profit-seeking. According to Narbaiza *et al.* (2009), the term social responsibility was mainly associated with large established enterprises, hence the use of the term corporate social responsibility. Social responsibility, however, demands that every organisation shifts from focusing solely on making a profit to including financial, environmental and social responsibility in their core business strategies. In South Africa, social responsibility is often viewed as an unnecessary burden to SMEs due to their limited resources (Ladzani & Seeletse, 2012). Difficulties in attaining access to finances, a lack of time and expertise, and the associated additional administrative burdens create a barrier to launching any programmes that do not contribute directly to their core functions (Geldehuys, 2009).

Social responsibility can help any business to succeed through building sales, developing the workforce, boosting enthusiasm and innovation, enhancing trust in an enterprise and increasing a firm's reputation and standing (Ladzani & Seeletse, 2012). Pursuing responsible business practices makes firms more competitive and

build trust with new and existing customers (Chell *et al.,* 2014; Chazireni, 2017). Most SMEs in the construction industry tend to benefit from supply chain social responsibility as it enables organisations to build trust with new and existing customers thereby broadening their supply chain partner's base (Pillay & Mafini, 2017). Participating in social responsibility initiatives also enables SMEs to recruit customers as well as retain the existing ones (Battaglia *et al.,* 2014). It boosts the morale of employees and allows innovation which in turn boosts business performance and attracts the skilled and qualified workforce (Cochran, 2007). From these perceived benefits of social responsibility to organisations, it appears that there it interacts positively with green purchasing, environmental and business performance. Therefore, the following hypotheses are formulated:

H1: Improved social responsibility leads to improved green purchasing.

H2: Improved social responsibility leads to enhanced environmental performance.

H3: Improved social responsibility leads to enhanced business performance.

3.3. Green Purchasing

Green purchasing has been defined as a responsible purchasing process that accounts for environmental and social consequences where it involves activities that reduce, reuse or recycle materials that express environmental preferences through the supply chain (Chien & Shih, 2007; Ninlawan *et al.,* 2010). It involves buying environmentally friendly products and avoiding products that harm the environment and animals (Schaefer & Crane, 2005; Joshi & Rahman, 2016). Green purchasing behaviour represents complex ethical decision-making and is also considered a type of social responsibility (Joshi & Rahman, 2016). Environmentally responsible purchasing is vital as unplanned purchasing of goods can severely damage the environment. Factors such as environmental collaboration, government regulations, top management commitment, regulatory pressure, environmental investment, supplier relationship and corporate social responsibility, as well as customer pressure have been cited as drivers for green purchasing (Yen & Yen, 2011; Ramakrishnan, Haron & Goh, 2015; Mafini & Loury-Okoumba, 2018). Kaufmann, Panni, and Oephanidou (2012) added awareness about government

actions and support, beliefs about product safety and use, beliefs about product friendliness to the environment and availability of product and product information as other drivers for green purchasing.

Green purchasing enables organisations to reduce costs in the short, medium and long-term by introducing a life-cycle perspective and compliance with regulations that save organisations from hefty fines by the government and environmentalists (Kanchanapibul, Lacka, Wang & Chan, 2014). Also, green purchasing empowers organisations to keep pace with consumers' preferences and to gain a greater competitive advantage in the market (Ramayah, Lee, and Mohamad, 2010). This view is supported by some scholars (Kanchanapibul, Lacka, Wang & Chan, 2014, Joshi & Rahman, 2015) who note that the demand for environmentally safe products is increasingly felt in both developed and developing countries. Thus, green purchasing enhances environmental consciousness, which improves environmental performance which intern leads to business performance. This leads to the following hypotheses:

H4: Green purchasing has a positive and significant influence on environmental performance

H5: Green purchasing has a positive and significant influence on business performance.

3.4. Environmental Performance

Environmental performance relates to the ability of an organisation or manufacturing plant to reduce dangerous emissions, effluent waste and solid wastes and the ability to decrease the consumption of hazardous and toxic materials (Zhu *et al.,* 2008; Green Jr *et al.,* 2012). This definition suggests that environmental performance deals with how organisations in their endeavour to deliver goods and services try to promote environmental stability. Environmental performance commonly measures that amounts of pollutants released into the air from industrial plants and hazardous substances transferred from and to other plants/ markets that probably end-up as landfill affecting soil and water quality (El Saadany, Jaber & Bonney, 2011). Accordingly, it essentially concerns the level of effect a supply

chain has on the natural environment. According to Perotto, Canziani Marchesi and Butellievery (2008) organisations must have an Environmental

Management System (EMS) to assess its environmental performance against its environmental policy, objectives, targets and other environmental performance criteria. Such an EMS provides an organised and coherent scheme to properly deal with environmental issues in an organisation with the main purpose to improve their environmental performance. Environmental performance is mainly influenced by social norms, consumer preferences, internalised environmental costs, and market structure and community pressure and environmental regulations Peart (2001). It is widely acknowledged that if organisations enhance their environmental performance, their business performance graph also rises or improves (Faure & Svatikova, 2012, Adams, 2014). The following hypothesis is therefore put forward;

H6: Increased environmental performance has a positive and significant influence on business performance

3.5. Business Performance

Business performance relates to the ability of an organisation or an enterprise to gain profit and growth as well as meeting its predetermined goals and objectives (Yildiz, 2010; Coltman, Devinney & Midgley 2011; Abdi & Ali, 2013; Olughor, 2015). Business performance determines how well a firm manages its internal resources and adapts to its external environments which reflects the accomplishment of its strategic objectives and growth goals (Al-Ansari, Pervan & Xu, 2013). According to Mishra (2012), for every business to be successful, every owner or manager has a task of ensuring that the business is operating effectively and efficiently. However, Nguegan Nguegan and Mafini (2017) argue that to improve the efficiency and effectiveness of the business a solid understanding of the most important drivers to business performance coupled with the willingness to apply these key elements are essential. Yildiz and Krakas (2012) highlight there are various methods for the measurement of business performance. Some scholars Muniz, Peon, and Ordas, 2009; Darwish & Singh, 2013; Nguegan Nguegan & Mafini, 2017) support this view by noting that regarding its measurement, business

performance can be measured by either subjective or objective scales because there is no single, universally valid method (. Sometimes both the subjective and objective methods are combined to complement the shortcoming of either method (Yildiz and Krakas, 2012; Rylkova, 2015).

4. RESEARCH METHODOLOGY

4.1.Research Design and Participants

The study used a quantitative approach since it was focused on testing relationships between four different constructs. For the faster and cheaper collection of numeric data (Check & Schutt, 2012), from a cross-section of SMEs within the construction industry, a survey design was employed. The target population for this study consisted of SMEs within the construction industry in Gauteng

Province, South Africa. Gauteng Province was selected because it has the largest number of construction SMEs in South Africa (Construction Industry Development Board, 2017). However, there was no single sample frame from which a list of construction industry SMEs in Gauteng Province could be obtained. Since there was no sample, frame, participating SMEs selected using the convenience sampling technique. The convenience sampling technique involves the selection of those respondents that are easily accessible and available to participate in the research (Etikan, Musa & Alkassim, 2016). To obtain the names and contact details of these SMEs, an Internet search was conducted using enter words such as Conduction Industry Firms, Construction Industry SMEs and Construction Companies in Gauteng Province. The search yielded a total of 36 firms

that were willing to participate in the study after they had been contacted either telephonically or by email. From each firm, managers and professional employees who had some knowledge of the issues under consideration in the study were then selected purposively. A purposive sampling technique involves the selection of only those population elements that have information relevant to the study (Zhi, 2014). To be included in the study, the respondents had to have a post-matric business-related qualification and at least one-year experience within the construction

industry. After the application of these procedures, a total of 213 respondents were selected as the respondents of the study.

After analysing their demographic profiles, it emerged that 62% (n=132) of the respondents were male, while the remaining 38% (n=81) were female. The age profiles show that 33% (n=71) of the respondents were aged below 30, 39% (n=83) were aged between 31 and 40; 17% (n=36) were aged between 41 and 50; and 11% (n=23) were aged above 50 years. With regards to race, 72% (n=154) of the respondents were black; 17% (n=36) were whites; 9% (n=19) were Indians; and 2% (n=4) were of the mixed race. With reference to their positions within the participating SMEs, 13% (n=28) were owners of the enterprises, 34% (n=77) were managers and a majority 53% (n=112) were employed as professionals. In terms of their work experience in the construction industry, 31% (n=66) of the respondents had less than five years' experience, 52% (n=111) had experience ranging between six and 10 years; 8% (n=17) had experience between 11 and 20 years, and 9% (n=19) had over 20 years of work experience.

4.2. Procedures for Data Collection

Data were collected between June and August 2017 using a survey questionnaire. A drop and collect method was used, in which respondents had two weeks each to complete the questionnaire. Section A of the questionnaire elicited information on the demographic profile of the respondents, while section B elicited information on the profile of participating SMEs. Section C elicited information on social responsibility using three items adapted from Turker, (2008). Section D elicited information on green purchasing using five questions adapted from Zhu, Sarkis and Lai (2008). Section E elicited information on environmental performance using four items adapted from Zhu et al. (2008) while Section F elicited information on business performance, using four items adapted from Narver and Slater (1990). Response options for sections for sections C to F and D were presented in five-point Likert-type scales anchored by 1= strongly disagree, and 5= strongly agree. During the collection of data, various ethical considerations such as voluntary participation, informed consent, respondent's anonymity and consideration were followed.

4.3. Data Analysis

Information required for assessing the demographic profiles of respondents and their SMEs as well as determining the reliability of the measurement scales was analysed using the Statistical Packages for the Social Sciences (SPSS version 24.0). For testing the psychometric properties of the scales as well as the hypotheses, structural equation modelling using partial least squares (SMART PLS3) was used.

5. RESEARCH RESULTS

This section focuses on the profile of participating firms, psychometric properties of measurement scales, and the results of the hypotheses tests.

5.1.Profile of Participating Firms

Of the 36 construction industry SMEs that participated in the study, 14 employed less than 50 people; seven employed between 51 and 100 people; eight employed between 101 and 150 people, and another seven employed between 151 and 200 people. A total of 11 SMEs had an annual turnover that is less than R10m; 10 had an annual turnover between R10m and R20m, and the remaining 15 SMEs had a turnover higher than R20m per annum.

5.2.Psychometric Properties of Measurement Scales

A confirmatory factor analysis was conducted to test the psychometric properties of measurement scales, especially regarding reliability and validity. Confirmatory factor analysis is a statistical analysis technique for checking whether the factor structure of the observed variables in terms of how well they represent the latent (unobserved) variables (Hoyle, 1995). Reliability was tested using the Item-to-total correlations, the Cronbach alpha value and the Composite reliability. Construct validity was tested using the Average Variance Extracted, factor loadings of the respective items and the inter-factor correlations. Table 1 presents the results of the confirmatory factor analysis.

Table 1: Accuracy analysis statistics

Research Constructs		Cronbach's Test		C.R. Value	AVE Value	Factor Loading
		Item-total	α Value			
Social Responsibility (SR)	SR1	0.805	0.755	0.755	0.632	0.904
	SR2	0.755				0.837
Green Products Purchase (GP)	GP1	0.712	0.899	0.898	0.700	0.824
	GP2	0.734				0.848
	GP3	0.761				0.855
	GP5	0.589				0.668
Environmental Performance (EP)	EP1	0.503	0.796	0.796	0.500	0.561
	EP2	0724				0.779
	EP3	0.529				0.651
	EP4	0.605				0.799
Business Performance (BP)	BP1	0.699	0.800	0.800	0.532	0.786
	BP2	0.686				0.768
	BP3	0.587				0.634
	BP4	0.593				0.668

Note: Social Responsibility (SR); Green Products Purchase (GP); Environmental Performance (EP); Business Performance (BP); C.R: Composite Reliability; AVE: Average Variance Extracted

As shown in Table 1, item-to-total correlations for the four scales were greater than the minimum cut-off value of 0.3 (Nunnally & Bernstein, 1994) depicting that the scale items are sufficiently 'discriminating' and should be retained in the analysis. Cronbach alpha values for the scales were all above the minimum threshold of 0.7 (Tavakol & Dennik, 2011), depicting that the scales are internally consistent. Also, Composite reliability values for the scales were above the suggested minimum acceptable value of 0.7 (Fornell & Larcker, 1981), indicating the satisfactory levels of internal consistency in the scales.

Construct validity was assessed through its two sub-components namely convergent and discriminant validities. The first criterion in checking for convergent validity was to compute the factor loadings for the individual scale items, using a suggested

minimum threshold of 0.5 (Anderson & Gerbing, 1998). This led to the elimination of two items (SR1 and SR4) from the social responsibility scale and one item (GP4) from the green purchasing scale since these items had factor loadings below 0.5. After elimination of these items, all factor loadings satisfied the 0.5 cut-off value, implying that convergent validity was satisfactory. In addition, AVE values for all the scales were above the minimum cut-off value of 0.5 (Fornell & Larcker, 1981), which indicates that convergent validity was acceptable. To check for discriminant validity, correlations between constructs were used. All inter-factor correlations (Table 2) were positive and below the maximum cut off value of 0.8 (Henseler, Ringle & Sarstedt, 2014), thereby confirming that items that should not be related within the scales were indeed unrelated.

Table 2: Correlations between Constructs

Research Construct	**Construct correlation**			
	SR	**GP**	**EP**	**BP**
Social Responsibility(SR)	1.000			
Green Products Purchase (GP)	0.499**	1.000		
Environmental Performance (EP)	0.331**	0.487**	1.000	
Business Performance (BP)	0500***	0.568**	0.591**	1.000
** Correlation is significant at the 0.01 level (2-tailed)				

5.3.Results of the Hypotheses Tests

As presented in Table 3, the levels of the coefficients of all four of the six hypotheses are significant at a level of $p<0.01$. According to Chinomona, Lin, Wang and Cheng (2010) significant levels of $p<0.05$, $p<0.01$ and $p<0.01$ are indicators of positive, strong and significant relationships between the research

constructs. Based on this view it is stated that four of the six hypotheses in this study are significant and acceptable.

Table 3: Results of hypotheses testing (Path Modelling)

Proposed hypothesis relationship	**Hypothesis**	**Path coefficient estimates**	**Decision**
Social Responsibility →Green purchasing	H1	0.521***	Accepted
Social Responsibility → Environmental Performance	H2	0.415***	Accepted
Green Purchase→ Environmental Performance	H3	0.380***	Accepted
Social Responsibility → Business Performance	H4	-0.129	Rejected
Green Purchase → Business Performance	H5	0.000	Rejected
Environmental Performance → Business Performance	H6	0.585***	Accepted

Figure 2 represents the resulting path model showing both the latent and observed constructs as well as the relationships between them.

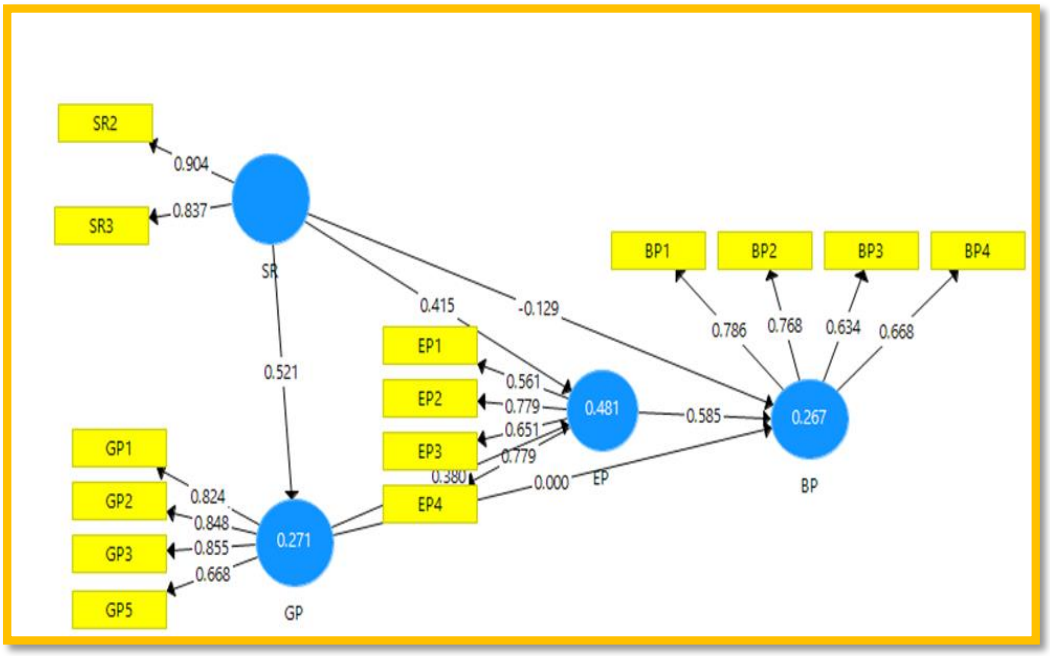

Figure 2: Path modelling and factor loading results

6. DISCUSSION

In this study, six hypotheses explaining the relationships between social responsibility, green purchasing, environmental performance and business performance were put forward for testing. The first hypothesis proposed that improved social responsibility leads to improved green purchasing This hypothesis was supported since social responsibility significantly and positively predicted green purchasing (β=0.521; $p<0.01$). This result implies that construction SMEs that exercise social responsibility are likely to be also involved in the purchasing of green products. The second hypothesis suggested that improved social responsibility leads to enhanced

environmental performance. This hypothesis was accepted, as the results indicated that social responsibility predicts environmental performance (β=0.415; $p<0.01$). This result demonstrates that construction SMEs that exercise social responsibility

are likely to excel in their performance within their environments. The third hypothesis postulated that improved social responsibility leads to enhanced business performance. This hypothesis was accepted because it emerged that green purchasing predicts environmental performance (β=0.380; $p<0.01$). This result denotes that construction SMEs that are involved in the purchase of green products from their suppliers are likely to excel in taking care of both the environment and the community.

The fourth hypothesis suggested that there is a positive and significant relationship between social responsibility and business performance. This hypothesis was rejected, citing the insignificant and negative influence of social responsibility on business performance (β=-0.129; $p>0.01$). The negative beta value illustrates that business performance decreases as a construction SME improves its social responsibility. This result is quite unusual, given that some past results (Ismail, 2009; Wozmak, 2011; Choongo, 2017) have shown a positive relationship between these two constructs. A possible explanation for these unfamiliar results may be that the implementation of social responsibility usually involves an outlay of additional financial resources, which most construction SMEs in South Africa do not have. As such, social responsibility within these firms is either implemented insignificantly and is sometimes non-existent. Hence any effects of social responsibility on business performance within construction SMEs are also likely to be almost either negligible or negative.

The fifth hypothesis stated that there is a positive relationship between green purchasing and business performance. This hypothesis was also rejected, as green purchasing had an insignificant influence on business performance (β=0.00; $p>0.01$). The beta value is zero suggesting that there is no direct relationship between green purchasing and business performance amongst SMEs in the construction industry. Again, this result is unique since previous research results within South Africa (Muposhi & Mafini, 2017; Epoh & Mafini, 2018; Loury-Okoumba & Mafini, 2018) typically suggest a positive relationship between these two constructs. The result of the current study may be attributed to the view that most construction SME that participated in the study are not practising green purchasing, which makes it difficult to realise how such practices can lead to better

business performance. Green purchasing practices should, therefore, be promoted amongst construction SMEs to facilitate the realisation of the possible spin-offs, such as business performance.

The sixth hypothesis suggested that there is a positive relationship between environmental performance and business performance. This hypothesis was accepted as environmental performance positively and significantly influenced business performance (β=0.585; $p<0.01$). This result implies that greater performance by construction SMEs is likely to lead to superior business performance. This result gives credence to the mediating role of environmental performance on the relationship between business performance and the two predictor variables, namely social responsibility and green performance.

7. CONCLUSIONS AND MANAGERIAL IMPLICATIONS

This study aimed to investigate the relationship between social responsibility, green purchasing, environmental performance and business performance amongst SMEs in the construction industry. The literature reviewed indicated that construction SMEs in South Africa are experiencing frequent challenges that impede their performance, which supports the need for more effective business interventions. The empirical results showed the likelihood of improved green purchasing and environmental performance when there is stronger social responsibility within the firm. However, business performance may decrease directly with the improvements in construction SME social responsibility. Also, while improvements in green purchasing activities may lead to firmer environmental performance, there is no direct relationship with business performance. Still, positive environmental performance leads to greater business performance.

The study has several managerial implications. First, within the construction industry, improvements in environmental performance may be realised by enhancing the firm's social responsibility as well as by increasing the procurement of environmentally friendly products. To enhance the firm's social responsibility, it is important that a budget for social responsibility be put in place for the financing of various projects that may include participating in community events, providing

funding for charity, taking good care of own employees, and investing in taking care of the environment. Green purchasing may be stimulated through the selection of suppliers that protect the environment within their operations as well as encouraging the purchase of green products. Incentives can be put aside to encourage employees to be both socially and environmentally responsible in the daily practices. The mission statements of firms can also be revised to incorporate both social responsibility and environmental consciousnesses so that these practices can become part of the value systems and culture within the firm. Since environmental performance exerted a positive influence on business performance, the later would naturally increase once the former is increased.

8. LIMITATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

The study is limited in its dependence on data collected from a small number of SMEs (36) that were based in one province. Caution should, therefore, be exercised in generalising these results to construction SMEs in other environments. The use of PLS poses another limitation in that it eliminates the requirement for the application of various indices to check for model fit. This makes it difficult to ascertain whether the collected data was able to fit with the structural model of the study.

Future research may consider extending this study to other geographic locations excluded from this study and to increase the number of participating construction SMEs. Similar studies may be conducted using large construction firms, which may provide a basis for comparing SMEs and larger enterprises. Still, similar studies may be conducted in other industries to check how social responsibility and green purchasing may be harnessed for the improvement of business performance. Other green supply chain management practices such as eco-design, green manufacturing, green training, green distribution, and reverse logistics may also be included in the study to expand its scope.

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