Impacts of procurement strategies on construction SMEs' growth

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Abstract

Purpose – This study aims to investigate the impacts of procurement strategies on the growing proportion of construction small- and medium-sized enterprises (SMEs) and whether the size of the construction company moderates the effect.

Design/methodology/approach – This study adopted a quantitative research approach and a cross-sectional questionnaire survey in achieving its objectives. The survey requires the respondent to identify both the most successful and most outstanding project that the respondent was involved in between 2010 and 2016.

Findings – The study found that only traditional and management-oriented procurement strategies ensure the achievement of all growth plans for construction SMEs in South Africa; and that medium-sized construction enterprises achieve social growth such as community empowerment, managerial skills and advancement on the cidb Register of Contractors.

Practical implications – The findings of the study imply that policymakers should base their decisions regarding macroeconomic issues and growth plans for construction SMEs on the internal and external factors such as differences in the sizes of construction SMEs and differences in the suitability of procurement strategies affecting the growth of construction SMEs.

Originality/value – In past studies, the diversity amongst SMEs is often overlooked and SMEs are erroneously assumed to share similar objectives, possess equal capabilities and face challenges of the same magnitude. The original contribution of this study is shown in the investigation of the moderating effect of SMEs' diversity (in terms of company size) on their growth proportion as influenced by procurement strategies.

Keywords Company growth, Construction SMEs, Integrated procurement,
Management-oriented procurement, Traditional procurement

Paper type Research paper

1. Introduction

In the construction industry, small contractors have to compete with established large firms for contracts (Ashworth and Perera, 2018; Cohen, 2018; Loosemore, 2016). Banks and non-bank financial intermediaries are ready to finance businesses if they have sufficient collateral available. However, according to Block *et al.* (2018) and Bottero *et al.* (2018), this is only to the advantage of large enterprises and not small- and medium-sized enterprises (SMEs). The majority of SMEs, for instance, start-ups and micro-enterprises, start with a little capital and, therefore, financial institutions limit the number of loans given to such businesses due to their high risks, small portfolios and high administrative costs (Domeher *et al.*, 2017; Omondi and Jagongo, 2018). The absence of this well-functioning SME lending market has impeded their development.

Additionally, SMEs lack the managerial knowledge to compete with larger established firms. Crane *et al.* (2019), Boschmans and Pissareva (2018), Bjelvert and Tornberg (2019) and Sibande (2019) note that the majority of SMEs fail to recognise the need to improve their management skills, partly because of the high training skills and advisory services but mostly because many of the entrepreneurs feel content with the skills they already have. Hence, they are less dependent on impersonal labour markets. Further, consulting firms are not fully equipped with cost management solutions for SMEs (Diaz-Briquets, 2019). While regulatory barriers have also been identified as another significant factor hindering SME growth. Maingi *et al.* (2019) and Wellalage and Fernandez (2019) note that SMEs, especially start-up firms, face unnecessarily high costs when applying for licensing and registration requirements. Initially, small business owners are faced with red tape that was once relevant regulations and procedures but is now ineffective and produces undesired costs such as compliance costs, which are additional costs incurred to comply with administrative regulations (Christensen *et al.*, 2014). Williams *et al.* (2015) and Mars (2019) also found that small firms had poor industrial relations, especially with trade unions and industrial councils, which make it difficult for them to operate. In summary, the factors that hinder the development of SMEs include the lack of funding, access to finance and poor managerial skills (Nkwabi and Mboya, 2019; Osano and Languitone, 2016), regulatory constraints, limited purchasing power and access to international markets (Rasheed *et al.*, 2019; Kowo *et al.*, 2019).

Contractor growth frameworks in South Africa began in the mid-1980s and has evolved. The very first initiatives were as follows: entrepreneurs who had previous contractual experience were exposed to support systems, allowing them to make mistakes and then correcting their errors after that. Trainees were trained for several weeks and allowed to tender for simple contracts; once their credibility was established, they would progress to more demanding contracts. In 1995, the South African Government focussed on the importance of SMEs to the economy as a source of job creation and poverty alleviation (Ngek, 2014). The Procurement Reform Task Team, established by the Ministries of Finance and Public Works in South Africa in 1995, has since been actively involved in the formation of these procurement systems to implement Affirmative Procurement policy (Masango, 2019). Growth from a microenterprise to a large contractor amongst labour, only contractors, were encouraged by the provision of technical and managerial counselling and training (Quinn and Woodruff, 2019).

However, there seems to be a stagnation in the development of SMEs in South Africa, despite SMEs flourishing in terms of employment growth and turnover globally. More recent programmes/initiatives range from those that incorporate emerging contractors into the mainstream of the construction industry to those that are skewed towards job creation and poverty alleviation (Gasa, 2012). One of such is procurement strategy. The Government

of South Africa has put in place a plethora of preferential procurement strategies for the development of registered contractors, namely, unbundling of projects; targeted development programmes for the potentially emerging contractors and preferences to contractors who enter into joint ventures with subcontractors (Adediran and Windapo, 2017). According to Li *et al.* (2018), these strategies will enable contractors registered in lower grading designations with the opportunities to improve their track record and be promoted to a higher contracting grading designation. Contractors who are prioritised can overcome constraints such as access to markets, skills, finance and supportive institutional arrangements through a developed system of procurement referred to as targeted procurement. The Todes and Turok (2018) and Holmes (2019) notes that because of the high influx of small emerging contractors tendering for public sector works contracts, micro-enterprises in the building and civil engineering sector have become competitive and unsustainable in several regions of South Africa. Research also shows that there is a high failure rate amongst SMEs, of which South Africa has one of the lowest survival rates compared to global SMEs (Neneh and Van Zyl, 2017; Ngibe and Lekhanya, 2019).

In the public procurement policy landscape, tendering remains highly problematic for SMEs and the ongoing appearance of the so-called "SME-friendly" policies towards combating problems faced in tendering justifies this. In fact, according to Ancarani *et al.* (2019), Woldesenbet and Worthington (2019) and Windapo *et al.* (2019), the very existence of the "SME-friendly" policies is the cause of the failing market for SMEs. According to Flynn *et al.* (2013) and Windapo *et al.* (2019), the failure of construction SMEs in public procurement is attributable to the assumption of homogeneity across the SME population, and it is hindering the growth of SMEs. Flynn *et al.* (2013) concluded that the placement of "SME-friendly" policies is imposed on the SME population without considering the fact that it might impact the SME in different ways depending on their size. Windapo *et al.* (2019) and Martinez Cillero *et al.* (2019) state that the diversity amongst SMEs is often overlooked and that SMEs are erroneously assumed to share similar objectives, possess equal capabilities and face challenges of the same magnitude.

Therefore, this study investigates the impact of procurement strategies on the growing proportion of construction SMEs and whether the size of construction SMEs moderates the effect. For this study, procurement strategy will refer to a long-term plan that combines, contracting arrangement, delivery management and procurement arrangement for a particular project/aspiration. The term growth of construction SMEs will be used to describe the business development goals of the companies; while SME will refer to construction firms in the developing countries with 5–99 workers and construction firms in the industrialised countries with 99–499 workers (Faloye, 2014). The term size of construction SMEs will refer to the following categories of construction SMEs as follows: medium enterprise (less than 200 employees and less than R26m annual turnover), small enterprise (less than 50 employees and less than R6m yearly turnover), very small enterprise (less than 20 employees and less than R3m annual turnover) and micro enterprise (less than 5 employees and less than R0.20m annual turnover) (Taylor, 2013).

2. Research background and framework

2.1 Procurement strategies and growth of construction small- and medium-sized enterprises
The procurement strategies used by public sector clients in SME development comprise targeted procurement and unbundling of contracts through the traditional, integrated and management-oriented procurement strategies (Adediran and Windapo, 2017; Windapo *et al.*, 2019). Targeted procurement aims to provide SMEs with the opportunity to gain market access (Windapo *et al.*, 2019; Koirala, 2019). Unbundled contracts are contracts that require

prime contractors to "unpack" their contracts into smaller contracts that can be made accessible to targeted enterprises in several ways such as a structured joint venture where small scale enterprises form ventures with more substantial businesses. Through these initiatives, contracts or portions thereof are reserved for contractors who are classified as historically disadvantaged enterprises, while non-targeted and targeted joint ventures are encouraged (Windapo *et al.*, 2019; Tzenev, 2019). Previous research acknowledges that targeted/preferential procurement is a social policy used in addressing unemployment and lack of business opportunities for historically disadvantaged individuals (Makotose, 2019); it enables the survival of minority firms (Khathi, 2018); and provides construction SMEs an opportunity to gain market access, which translates into the creation of work opportunities through labor-intensive government-funded infrastructure projects (Lufele, 2019).

Each of these procurement strategies (traditional, integrated and market-oriented) has different characteristics. For example, there is no need for sophisticated machinery in the traditional procurement strategy because it is not suitable for complex projects that adopt advanced construction technologies (Windapo, 2013). The use of traditional procurement strategy has been linked to the high cost of construction projects, and the resultant effect of this is that it may cause the firms to become bankrupt (Hoppe *et al.*, 2013). While the integrated procurement strategy has a single point of responsibility and allows the catchment of both the design and construction fee (Windapo *et al.*, 2019); it could shorten the project duration (Masterman and Masterman, 2013); and allows contractors to conduct buildability analysis, which might result in lower construction risks (Naoum and Egbu, 2015). In a management-oriented procurement strategy, the works are subcontracted to a pool of subcontractors, which implies that a great scale of the workforce is required and less plant and machinery are required (Al-Jawhar and Rezouki, 2013). Naoum and Egbu (2015) concluded that management-oriented procurement strategy could fast track contracts, which ensure that the subcontractors get the work done quickly enough to move on to the next project, increasing the number of projects the firms handle in a period.

2.2 Research framework
The proposed model in this study defines the growth of construction SMEs as linear, and deterministic based on the class of the construction SME (Figure 1). The theoretical
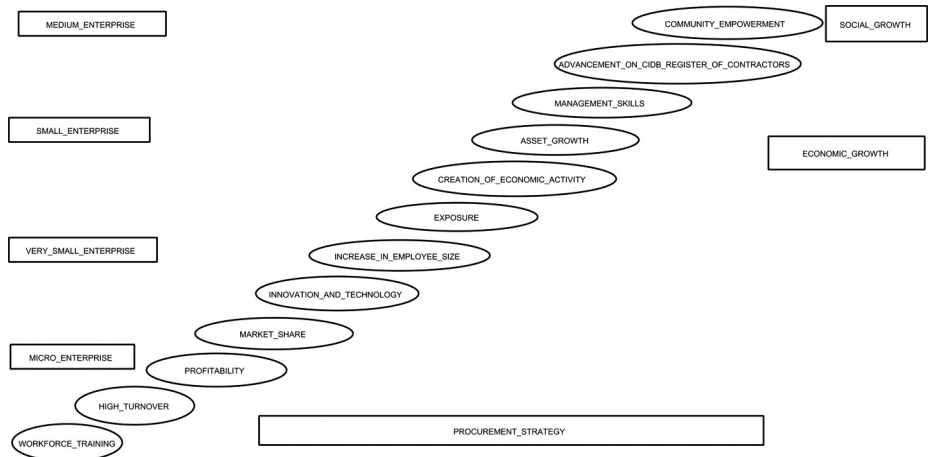

Figure 1.
Theoretical framework of proportionate growth of construction SMEs

framework is based on Gibrat's theory of proportionate growth. The theory states that the commensurate growth of surviving firms is independent of previous accomplishment (Buldyrev *et al.*, 2007). This framework illustrates a three-stage growth per size of construction SME. The entry-level for economic growth is as a microenterprise, and the growth stages are *workforce training, high turnover and profitability*. The first stage of growth for very small enterprises is the market share, and this stage is followed by *innovation and technology* and *an increase in employee size*. At this point, the construction SME's focus must be on *exposure, creation of economic activity and asset growth* to grow into a small enterprise. With efforts such as *management skills development, advancement on the cidb Register of Contractors and community empowerment*, the construction SMEs willfully become a medium-sized enterprise and will grow socially.

Drawing insights from Gibrat's model with modification based on the effects of procurement strategies and the size of construction SMEs, a theoretical model is developed (Figure 2). The model proposes that there is a relationship between procurement strategies used and proportionate growth of construction SMEs; and that the size of the construction SMEs moderates these relationships. The concept behind introducing size of construction SMEs into the relationships between the procurement strategies and proportionate growth of SME construction firms was based on the differences in the managerial abilities of the SMEs resulting from size-class (micro, very small, SEMs) (Abor and Quartey, 2010; Mahembe, 2011; Ackah and Vuvor, 2011). The resulting relationships amongst the constructs (procurement strategies, growth of construction SMEs and size of construction SMEs) and hypotheses stated to guide the direction of the study are illustrated in Figure 3.

Over the past decades, most research in procurement strategies has emphasised that there is a significant relationship between procurement strategies and social-economic growth of construction SMEs (Woldesenbet and Worthington, 2019; Patrucco *et al.*, 2019; Windapo *et al.*, 2019; Awuzie and McDermott, 2019; Yu *et al.*, 2019; Da Costa and Da Motta, 2019). Naoum and Egbu (2015) observed that the integrated procurement strategy is useful in obtaining a higher market share and higher turnover. Rono and Moronge (2019) found that the direct payment of SMEs by the client under the management-oriented procurement
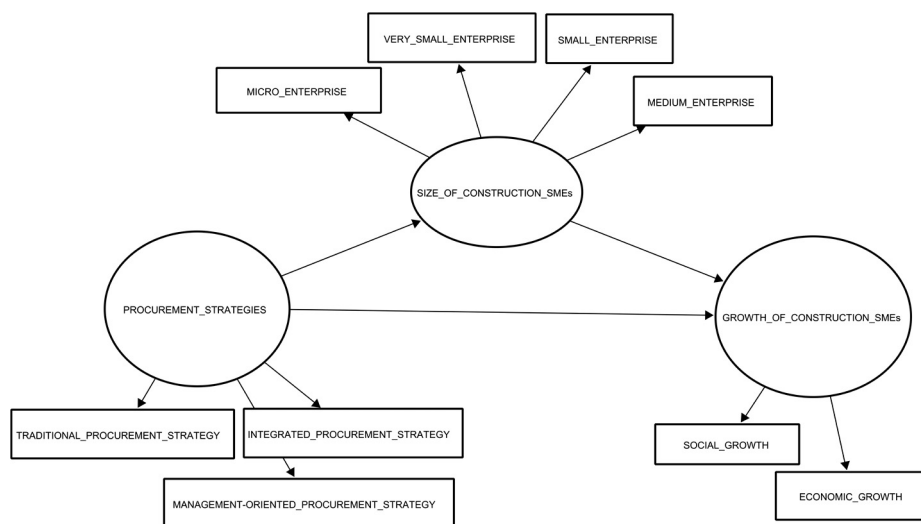
Figure 2.
Theoretical model of the mediation effects of the size of construction SMEs on procurement strategies and growth of construction SMEs

strategy means that project managers do not take out of the profit margin/fees of the subcontractors, thereby resulting in profitability for the SMEs. Also, Harper and Sanchez (2019) and Masterman and Masterman (2013) maintained that the use of less workforce under an integrated procurement strategy leads to higher profitability for the contractors. Procurement strategies are also useful in giving construction SMEs the flexibility they require to respond to respond to market opportunities. Procurement strategies can be used by the government to improve the general economic and social environment, as well as to remove barriers to the participation of the construction SMEs in the public procurement markets. Based on the various benefits of procurement strategies, the use of construction SMEs-friendly procurement strategies such as traditional and management-oriented procurement strategies in the construction industry will surely have a high impact on the growing proportion of construction SMEs. Studies such as Loader (2018), Windapo *et al.* (2019), Del Giudice *et al.* (2019) and Woldesenbet and Worthington (2019) provide support for these findings.

Based on the above theoretical background, this study proposes the following hypotheses:

H1. Traditional procurement strategy has a positive influence on the growth of construction SMEs.

H1a. Traditional procurement strategy has a positive influence on the growth of microenterprises.

H1b. Traditional procurement strategy has a positive influence on the growth of very small enterprises.

H1c. Traditional procurement strategy has a positive influence on the growth of small enterprises.

H1d. Traditional procurement strategy has a positive influence on the growth of medium enterprises.

H2. Integrated procurement strategy has a positive influence on the growth of construction SMEs.
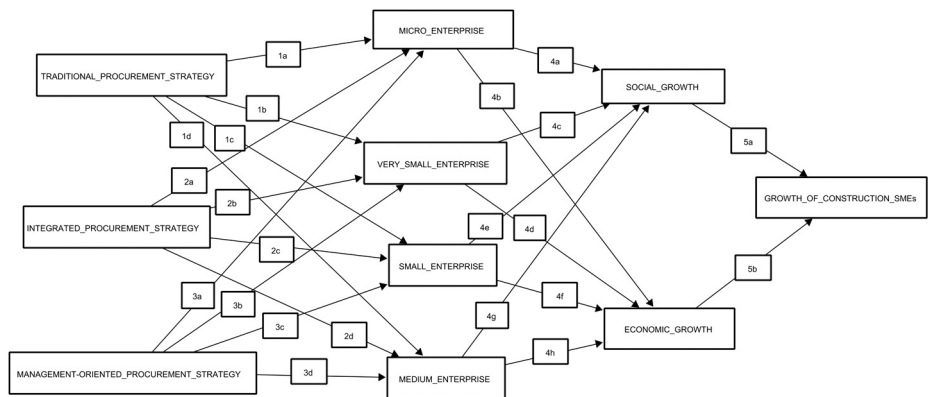

Figure 3.
Relationships and hypotheses amongst the procurement strategies, growth of construction SMEs and size of construction SMEs

H2a. Integrated procurement strategy has a positive influence on the growth of microenterprises.

H2b. Integrated procurement strategy has a positive influence on the growth of very small enterprises.

H2c. Integrated procurement strategy has a positive influence on the growth of small enterprises.

H2d. Integrated procurement strategy has a positive influence on the growth of medium enterprises.

H3. Management-oriented procurement strategy has a positive influence on the growth of construction SMEs.

H3a. Management-oriented procurement strategy has a positive influence on the growth of microenterprises.

H3b. Management-oriented procurement strategy has a positive influence on the growth of very small enterprises.

H3c. Management-oriented procurement strategy has a positive influence on the growth of small enterprises.

H3d. Management-oriented procurement strategy has a positive influence on the growth of medium enterprises.

2.3 Class and growth of construction small- and medium-sized enterprises
According to Gupta *et al.* (2013) and Hanson (2019), the size of an enterprise is incidental to its growth process. Growth is multi-faceted, whether from the change-in-amount view or the process view growth (Bauweraerts *et al.*, 2019). The heterogeneity in firm growth can be ascertained based on what measure of growth the firm uses, and the appropriateness of the different criteria used relative to the different theories (Delmar *et al.*, 2013). Different forms of growth have various determinants and effects (Leoncini *et al.*, 2019), and as a result, have different implications.

There are various theories that support why company growth is paramount and should be analysed. Firstly, firm growth is positively correlated with its survival (Lee *et al.*, 2012). Secondly, a negative or positive firm growth has consequences for employment, a negative rate implies a loss of jobs, whereas a positive rate means net job creation (Zheng *et al.*, 2015; Haltiwanger *et al.*, 2013). Consequently, this job creation and loss affect the ability of SMEs to grow. Thirdly, innovation and technological change can be brought about by firm growth (Pellegrino *et al.*, 2019). Fourthly, market competitiveness and concentration increase if the SMEs grow at a fast rate because then the size of incumbents and new entrants increases (Bustinza *et al.*, 2019). Governments try to regulate market competitiveness by obstructing the creation of monopolies and oligopolies (Huang, 2019). Equally important to firm growth is the elimination of the factors causing the failure of SMEs. Kowo *et al.* (2019), Yadav *et al.* (2019) and Porter and Kramer (2019) suggested that SMEs' failure is due to the lack of effective management during the early stages of development, lack of funds for training resources, inadequate systems used in construction procurement and lack of managerial skills.

Nakamura and Paul (2019) note that there are two basic approaches to measuring growth; the absolute or relative, where the measure of absolute growth examines the actual

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difference/relative changes in firm size, also referred to as growth rates (Vastani and Monroe, 2019; Kuhn and George, 2019). This suggests that the size of SME construction firms and procurement strategies affect the growth of the enterprise. Ansoff *et al.* (2019) found that firms that grow successfully do so by first being profitable. Abu Bakar *et al.* (2012) and Vlachos (2011) found that the size of SME construction firms is linked to and sometimes limits their growth. The effect of size of SME construction firms and procurement strategies on the socio-economic growth of the firms is revealed in the need for the SMEs to aspire for socio-economic growth while working towards the attainment of their optimal size (Bird, 2019), because, for an SME, the opportunities to develop socio-economically increases as the firm increases in size.

Thus, this study proposes the following hypotheses:

H4. Size of construction SMEs determines the level of growth of the company.

H4a. Microenterprise achieves social growth.

H4b. Microenterprise achieves economic growth.

H4c. Very small enterprise achieves social growth.

H4d. Very small enterprise achieves economic growth.

H4e. Small enterprise achieves social growth.

H4f. Small enterprise achieves economic growth.

H4g. Medium enterprise achieves social growth.

H4h. Medium enterprise achieves economic growth.

H5. The growth of construction SMEs comprises of social and economic growth.

H5a. Social growth is a component of the growth of construction SMEs.

H5b. Economic growth is a component of the growth of construction SMEs.

3. Research method
3.1 Measurement
This study adopted a quantitative research approach and a cross-sectional questionnaire survey in achieving its objectives. The survey requires the respondent to identify both the most successful and most outstanding project that the respondent was involved in between 2010 and 2016. There are two main subsections in the questionnaire; one that consists of the background profile of the SME and one that requires project-based questions. The questions in the first subsection include the approximate cost of the best project the respondent was involved in, the type of sector (commercial, industrial, institutional or residential – if it was not any of the above mentioned, the respondent has the option of specifying what type of sector the project belonged to), the company's average annual turnover per annum, the number of full-time paid employees the company employs and the company's grade in accordance with the cidb Register of contractors. The first subsection mainly helps to identify the class of SME the respondent represents following the National Small Business Act, 1996.

The second subsection includes questions on the size of SMEs, the procurement strategy for SMEs growth, the growing proportions of the construction SMEs and the impacts of procurement strategies on the growing proportion of the construction SMEs. The questionnaire is structured such that the questions are presented to all respondents in

the same format and sequencing to ensure that all the same set of questions are posed to all the participants. The items in the questionnaire were developed based on the theoretical framework proposed in Section 2. These questions are set so that they can be answered easily, and repetitive questions are avoided. The questionnaire consists of a combination of mostly closed questions and a few open-ended questions. With open-ended questions, the participants have the freedom to respond in their way (Pallant, 2013). The closed questions limited the responses to a selected range of answers. As such items may constrain the responses artificially, the option of stating any other response was provided.

The Likert-type scale question offers a wide range of possible scores, therefore, increasing the range of statistical analyses available for the research. The Likert scale used ranged from 1 to 5, with 1, 2, 3, 4 and 5 meaning that the growth was not achieved; that the growth was moderately achieved but not to the standard that was set; for neutral that is the set growth for the project was achieved or not achieved, 4 that the growth was achieved and 5 that the growth was significantly achieved beyond the set expectations, respectively.

3.2 Sampling and data collection

A sample frame of contractors listed in Grades 1–6 of the cidb Register of Contractors (SME grade) in South Africa was used in data collection. The use of this database ensured that a wide range of responses from the diverse sizes of SMEs in the construction industry was obtained for the survey. SurveyMonkey email platform was used to administer the questionnaire via e-mail invitations with a cover letter. This was done following the provisions of Chambers and Nimon (2019).

A total of 5,016 invitations were administered through the SurveyMonkey platform of which 1,690 recipients (28.4%) accepted the invitation to participate in the survey, 3,322 recipients (56.3%) did not open the email invitation, 700 email invitations (11.9%) bounced that is requests were not delivered either because the email addresses were incorrect or non-existent while 204 recipients opted out of the survey. Of the 1,690 recipients who accepted the invitation to participate, 265 responses were received, of which 180 were fully completed (67.9%) the survey while 85 respondents (32.1%) partially completed the survey.

3.3 Methods of data analysis

The mean item score (MIS), confirmatory factor analysis (CFA) and partial least square-structural equation modelling (PLS-SEM) were used to analyse the data collected from the questionnaire survey. The MIS was calculated based on the indices obtained from the five-point Likert scale (discussed in Section 3.1). These scores were used to determine the rank of the level of achievement of aspirations set by the SMEs. The MIS is calculated by dividing the summation of the product of the number of respondents that selected an index and the index chosen by the total number of respondents (Norman, 2010). CFA was conducted to confirm the indicators of the growth of construction SMEs and to establish if the data set is suitable for further analysis by checking the adequacy of the sample size and strength of the relationship in the data set (Pallant, 2013). This study aligns itself with Tabachnick et al.'s (2001) view that the sufficient sample size should be 150 cases. However, this study has over 200 cases, and therefore, meets the requirement of an applicable data set for factor analysis. An index above 0.6 (for Kaiser–Meyer–Olkin), factor loadings above 0.5 and factors with an Eigenvalue of 1.0 were considered significant (Pallant, 2013).

PLS-SEM was used in determining the relationships between the variables outlined in the conceptual framework. The PLS model requires less herculean distributional assumptions; Elbanna et al. (2013) consider the PLS-SEM to be an ideal technique for the development of a new theory. Hence, in this study, PLS-SEM was used to examine the

theoretical framework and model proposed in Section 2. Bootstrapping was carried out to resample the data, increase accuracy and perform t-tests, which indicate the significance level of the path (Garson, 2014). In this study, *t*-values higher than 1.96, is an indication that the path coefficient is significant at the $p < 0.05$ significance level (Nandakumar, 2008). The overall effect size measure for the structural model is the R^2, which is the coefficient of determination that explains the variance of the model (Garson, 2014). Henseler and Chin (2010) stated that the predictive strength of the structural model is determined by the R^2 value of the endogenous constructs. According to Elbanna *et al*. (2013), if the R^2 values are higher than the recommended value of 0.10, then they are acceptable.

4. Results
4.1 Respondents' profile
As shown in Figure 4, the majority of the respondents are directors (61.4%), closely followed by Chief Executive Officers (18.7%). Also, most of the construction SMEs are micro-enterprise (42.6%) and very small enterprise (33.5%). About 25% of the construction SMEs have existed for less than five years; while 26% of the construction SMEs have 5–10 years of experience. In addition, 53% and 36.7% of the number of full-time employees in the construction SMEs is less than 5 and between 5 and 20, respectively. The study also found that most of the construction SMEs are categorised as Grade 1 (52.4%) and Grade 2 (15.5%) on the cidb register of contractors. This result suggests that valuable information would be provided by the respondents because most of the respondents fulfil the characteristics of construction SMEs as conceptualised in the study. The result also suggests that the respondents have an in-depth knowledge of construction SMEs operations based on their designation as directors and CEOs of the SME companies. This finding suggests that the construction SMEs are representative of the various size of the construction SMEs. It also validates the model proposed in this study that the SMEs population are not homogeneous and that they can be categorised as micro*enterprise*, *very small enterprise*, *small enterprise* and *medium enterprise*

4.2 Validity and reliability of constructs
Cronbach's alpha coefficient indicates the internal consistencies of the scale used and consequently, the reliability of the constructs. Table 1 shows the Cronbach's alpha for the constructs in the proposed theoretical model for this study (Figure 2). All the values are above 0.8, which indicates that there are reliability and consistency amongst the constructs – procurement strategies, growth of construction SMEs and class of construction SMEs proposed in the theoretical model (Pallant, 2013).

4.3 Measurement model
4.3.1 Procurement strategies for the growth of the construction of small- and medium-sized enterprises. The study sought to know the perception of the respondents regarding the procurement strategies that contributed to the growth of the construction SMEs in certain dimensions listed in Table 2. Table 2 reveals that the respondents are achieving *community empowerment* (mean score = 3.08) and *creation of economic activities* (mean score = 3.00) under the traditional procurement strategy the areas in which the respondents moderately achieve growth are *managerial skills* (mean score = 2.98), *exposure* (mean score = 2.94), *advancement on cidb register of contractors* (mean score = 2.30), *workforce* (mean score = 2.62), *increase in employed size* (mean score = 2.35), *innovation and technology* (mean score = 2.51), *turnover* (mean score = 2.80), *profitability* (mean score = 2.61), *asset growth* (mean score = 2.40) and *market share* (mean score = 2.12). Under integrated procurement strategy,
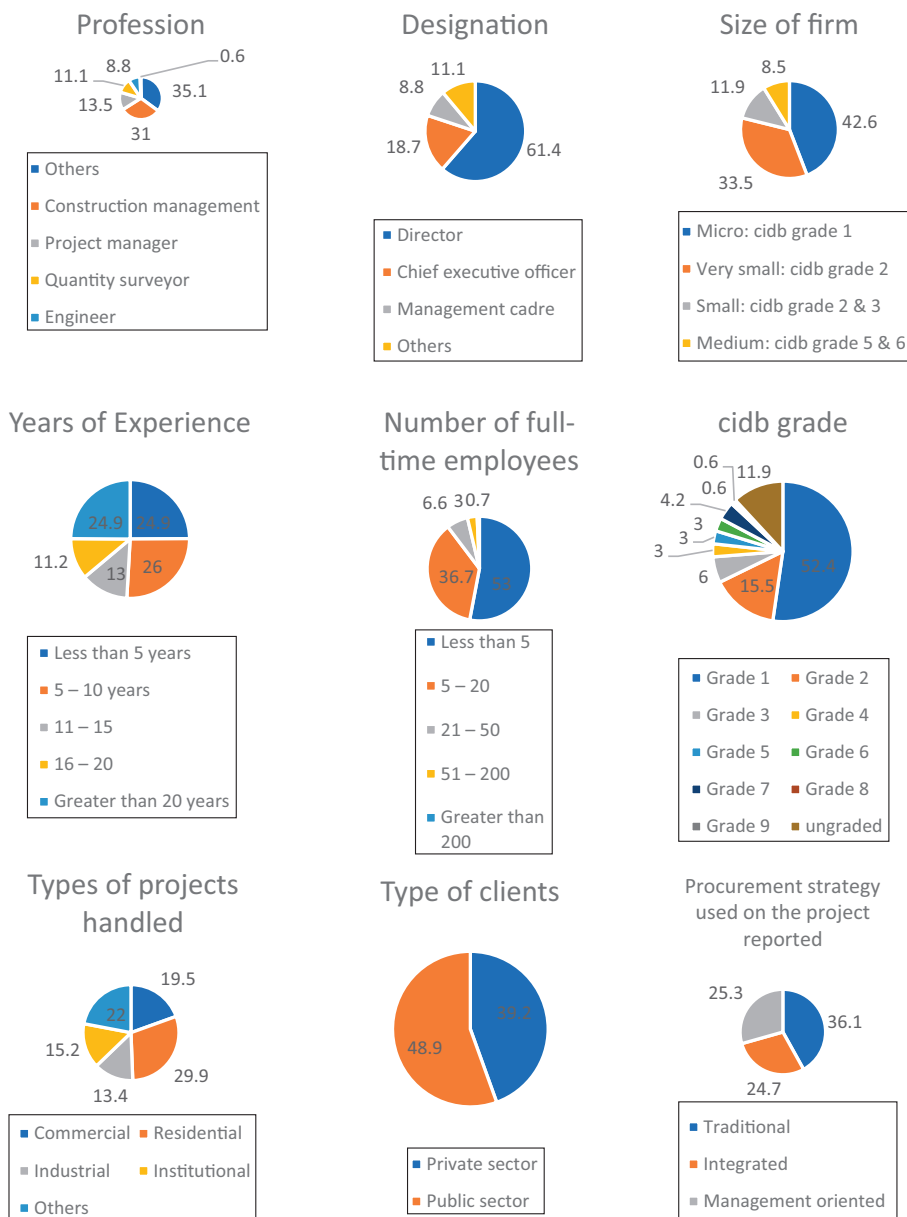
Profession

- Others
- Construction management
- Project manager
- Quantity surveyor
- Engineer

0.6 8.8 35.1 31 13.5 11.1

Designation

- Director
- Chief executive officer
- Management cadre
- Others

11.1 8.8 18.7 61.4

Size of firm

- Micro: cidb grade 1
- Very small: cidb grade 2
- Small: cidb grade 2 & 3
- Medium: cidb grade 5 & 6

8.5 11.9 42.6 33.5

Years of Experience

- Less than 5 years
- 5 – 10 years
- 11 – 15
- 16 – 20
- Greater than 20 years

24.9 11.2 13 26

Number of full-time employees

- Less than 5
- 5 – 20
- 21 – 50
- 51 – 200
- Greater than 200

6.6 30.7 36.7

cidb grade

- Grade 1
- Grade 2
- Grade 3
- Grade 4
- Grade 5
- Grade 6
- Grade 7
- Grade 8
- Grade 9
- ungraded

0.6 11.9 0.6 4.2 3 3 6 15.5 52.4

Types of projects handled

- Commercial
- Residential
- Industrial
- Institutional
- Others

19.5 22 15.2 13.4 29.9

Type of clients

- Private sector
- Public sector

48.9

Procurement strategy used on the project reported

- Traditional
- Integrated
- Management oriented

25.3 36.1 24.7

Figure 4.
Profile of respondents

the respondents indicated that they had not satisfactorily achieved growth in the following areas: *turnover* (mean score = 1.80), *profitability* (mean score = 1.94), *asset growth* (mean score = 1.70) and *market share* (mean score = 1.86). As indicated by the respondents, they are moderately achieving growth in the following areas when the integrated strategy is used

in procurement: *community empowerment* (mean score = 2.68), *managerial skills* (mean score = 2.73), *creation of economic activities* (mean score = 2.23), *exposure* (mean score = 2.19), *advancement on cidb register of contractors* (mean score = 2.67), *workforce* (mean score = 2.31), *increase in employed size* (mean score = 2.34), *innovation and technology* (mean score = 2.17). As presented in Table 2, the respondents indicated that they are moderately achieving all the growth plans for construction SMEs under management-oriented procurement strategy.

Overall, from a ranking perspective, procurement strategies are perceived by the respondents to achieve more growth of construction SMEs in the area of community empowerment, followed by managerial skills and the creation of economic activities. While the construction SMEs achieve the least growth in market share.

4.3.2 Growth proportion of the construction of small- and medium-sized enterprises. The growing proportion of the construction SMEs was investigated before subjecting the responses to mean score analysis, the 12 items (Table 2) used in eliciting information for this objective were subjected to CFA. The results show that the Kaiser–Meyer–Olkin was 0.907, which exceeds the recommended value of 0.6 and Barlett's test of sphericity reached statistical significance with a *p*-value of 0.00, supporting the factorability of the items. The principal components analysis revealed the presence of one main component with eigenvalue exceeding 1, explaining 59.761% of the variance. An inspection of the scree plot revealed a clear break after the second component. Using a screen test, it was decided to retain two-components for further investigation. To aid in the interpretation of these two components, a direct Oblimin rotation was performed. The rotated solution revealed the presence of a simple structure, with both components showing, factor loading for all the items was above 0.5 (Table 3).

The results presented in Table 3 shows that the proportionate growth for the construction SMEs is moderately being achieved but not to the standard that was set by the SMEs and the government (mean score = 2.0), a rating of 3 stands for neutral that is this not

Constructs	Cronbach's alpha
Procurement strategies	0.936
Growth of construction SMEs	0.997
Class of construction SMEs	0.930

Table 1.
Cronbach's alpha for the constructs in the theoretical model

Growth of construction SMEs	Traditional MIS	Integrated MIS	Management-oriented MIS
Community empowerment	3.08	2.68	2.95
Managerial skills	2.98	2.73	2.95
Creation of economic activities	3.00	2.23	2.83
Exposure	2.94	2.19	2.88
Advancement on the cidb Register of Contractors	2.30	2.67	2.78
Workforce	2.62	2.31	2.58
Increase in employed size	2.35	2.34	2.49
Innovation and technology	2.51	2.17	2.42
Turnover	2.80	1.80	2.41
Profitability	2.61	1.94	2.42
Asset growth	2.40	1.70	2.39
Market share	2.12	1.86	2.18

Table 2.
Mean score of procurement strategies for the growth of construction SMEs

amongst the planned growth areas for the project. The results also show that the growth proportion for the construction SMEs is not in line with the proposed framework for the study (Section 2). The growth proportion for the construction SMEs according to the findings of this study is as follows: economic growth [*creation of economic activities* (mean score = 2.69), *exposure* (mean score = 2.67), *workforce* (mean score = 2.50), *increase in employee size* (mean score = 2.39), *innovation and technology*(mean score = 2.37), *turnover* (mean score = 2.34), *profitability* (mean score = 2.32), *asset growth* (mean score = 2.16) and *market share* (mean score = 2.05)]; and social growth [*community empowerment* (mean score = 2.90), *managerial skills* (mean score = 2.89), *advancement on the cidb Register of Contractors* (mean score = 2.58)]. These results suggest that the perceived growth realised through public sector procurement is that economic activities as a first stage of producing economic growth are created, while community empowerment is seen as the first stage of social growth.

4.4 Structural model analysis

4.4.1 Impact of procurement strategies on the growing proportion of the construction of small- and medium-sized enterprises. The impact of procurement strategies on the growing proportion of the construction SMEs was investigated by asking the respondents to indicate the procurement strategies that have the most impact on their growth proportion. A Likert scale of five-points was used to elicit information for this objective, where 1 = v*ery low impact* and 5 = *very high impact*. The data was analysed using mean score and presented in Table 4.

Growth dimensions	Growth component	Factor loading	Mean
Social growth	Community empowerment	0.859	2.90
	Managerial skills	0.880	2.89
	Advancement on the cidb Register of Contractors	0.676	2.58
Economic growth	Creation of economic activities	0.756	2.69
	Exposure (marketing)	0.727	2.67
	Workforce	0.780	2.50
	Increase in employee size	0.782	2.39
	Innovation and technological	0.808	2.37
	Turnover	0.841	2.34
	Profitability	0.831	2.32
	Asset growth	0.740	2.16
	Market share	0.780	2.05

Table 3.
Growth proportion of the construction SMEs

Procurement strategies	Growth proportion	
	Social growth	Economic growth
Traditional	2.80	2.61
Management-oriented	2.41	2.41
Integrated	1.80	1.94

Table 4.
Mean score of the impacts of procurement strategies on the growing proportion of the construction SMEs

The results in Table 4 show that traditional procurement strategy has the highest impact on *social growth* (mean score = 2.80) and *economic growth* (mean score = 2.61) in comparison with *integrated procurement strategy* and *management-oriented procurement strategy*, which came second and third, respectively, on the level of impact on *social* and *economic growth*. Overall, *traditional procurement strategy* has the highest impact on the growth proportion of construction SMEs with a mean score of 2.80 and 2.61, closely followed by a *management-oriented procurement strategy* with a mean score of 2.41. *Integrated procurement strategy* has a very low impact on the growth proportion of construction SMEs with a mean score of 1.80 and 1.94. These results suggest that traditional procurement and management-oriented strategies enable the achievement of the social and economic growth of construction SMEs more than integrated procurement strategy.

4.4.2 The moderating effects of the size of the construction small- and medium-sized enterprises on the relationship between procurement strategies and growing proportion of the construction of small- and medium-sized enterprises. PLS method was used to examine the structural path of the model by analysing the relationships between the constructs in the model (the path coefficients of the side effects of SMEs construction firms on the relationship between procurement strategies and the growing proportion of construction SMEs). The path coefficients and their corresponding t-statistic and p-values (significance) are presented in Table 5 and Figure 5. The results show that there is a weak positive correlation between procurement strategies and growth of construction SMEs (r = 0.121), procurement strategies and size of construction SMEs (r = 0.264) and size of construction SMEs and growth of construction SMEs (r = 0.294). Using a boundary of 1.96 for t-statistics and 0.05 for p-values, it can be inferred from the results presented in Table 5 that there is a positive relationship

Table 5.
Path coefficient between procurement strategy and development with size as moderator

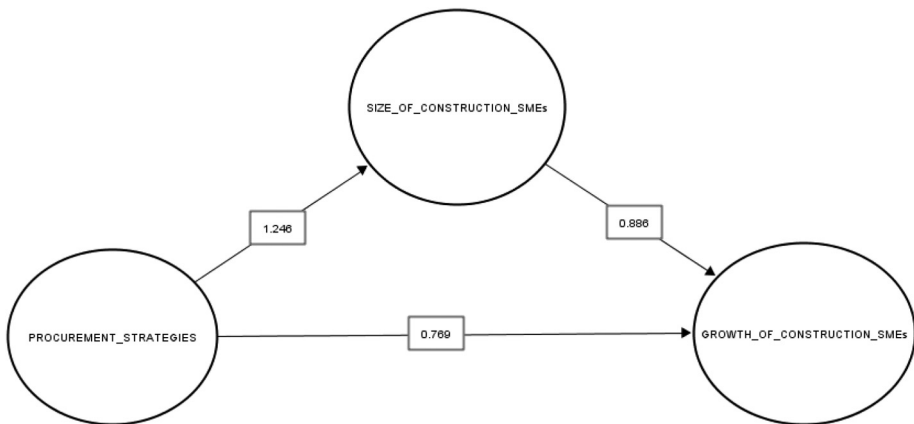| Relationship paths	Correlation (r)	Path coefficient	S.E	t-statistics	p-values
Procurement strategies → growth of construction SMEs	0.121	−0.016	0.157	0.769	0.442
Procurement strategies →; size of construction SMEs	0.264	0.191	0.212	1.246	0.213
Size of construction SMEs → growth of construction SMEs	0.294	−0.004	0.331	0.886	0.376

Figure 5.
Structural model with *t*-statistic value

between the constructs in the model, but the relationships are not significant (t-statistics $<$ 1.96 and p-values $>$ 0.05).

4.5 Research hypotheses
This study evaluated the individual paths of the model to determine the significance of the hypothesised relationships between components within the constructs. The results are summarised in Table 6 and Figure 6. The hypothesised relationships that are supported by the path coefficient, t-statistics and p-values are *H3b: management-oriented procurement strategy → very small enterprise [r (path) =0.202; t = 2.237; p = 0.026], H4b: micro enterprise → economic growth [r (path)=0.385; t = 4.507; p = 0.000], H4a: micro enterprise → social growth [r (path)= 0.210; t = 2.437; p = 0.015], H1d: traditional procurement strategy → medium enterprise[r (path)=0.286; t = 4.796; p = 0.000], H1b: traditional*

Relationships	Correlation	Path coefficient	S.E	t-statistics	p-values
Economic growth → growth of construction SMEs	0.728	0.728	0.030	24.145	0.000
Integrated procurement → growth of construction SMEs	0.082	0.075	0.042	1.930	0.054
Integrated procurement → economic growth	0.090	0.083	0.047	1.908	0.057
Integrated procurement → medium enterprise	0.076	0.077	0.051	1.510	0.132
Integrated procurement → micro enterprise	0.098	0.098	0.099	0.990	0.323
Integrated procurement → small enterprise	0.142	0.123	0.090	1.583	0.114
Integrated procurement → social development	0.064	0.059	0.034	1.917	0.056
Integrated procurement → very small enterprise	0.095	0.094	0.089	1.062	0.289
Management-oriented → growth of construction SMEs	0.039	0.032	0.044	0.894	0.372
Management-oriented → economic growth	0.039	0.030	0.049	0.794	0.427
Management-oriented → medium enterprise	0.113	0.116	0.060	1.863	0.063
Management-oriented → micro enterprise	−0.109	−0.111	0.096	1.135	0.257
Management-oriented → small enterprise	0.156	0.148	0.084	1.862	0.063
Management-oriented → social growth	0.044	0.040	0.036	1.232	0.219
Management-oriented → very small enterprise	0.200	0.202	0.089	2.237	0.026
Medium enterprise → growth of construction SMEs	−0.043	−0.056	0.055	0.790	0.430
Medium enterprise → economic growth	−0.060	−0.075	0.063	0.957	0.339
Medium → social growth	0.002	−0.007	0.054	0.037	0.971
Micro enterprise → growth of construction SMEs	0.362	0.333	0.088	4.090	0.000
Micro enterprise→ economic growth	0.417	0.385	0.092	4.507	0.000
Micro enterprise → social growth	0.232	0.210	0.095	2.437	0.015
Small enterprise→ growth of construction SMEs	0.143	0.094	0.122	1.177	0.240
Small enterprise→ economic growth	0.153	0.099	0.132	1.158	0.247
Small enterprise→ social growth	0.126	0.086	0.106	1.186	0.236
Social growth → growth of construction SMEs	0.251	0.252	0.032	7.752	0.000
Traditional procurement → growth of construction SMEs	−0.001	−0.006	0.052	0.018	0.986
Traditional procurement → economic growth	−0.009	−0.016	0.059	0.158	0.874
Traditional procurement → medium enterprise	0.294	0.286	0.061	4.796	0.000
Traditional procurement → micro enterprise	−0.192	−0.186	0.098	1.963	0.050
Traditional procurement → small enterprise	0.171	0.162	0.086	1.992	0.047
Traditional procurement → social growth	0.023	0.020	0.044	0.532	0.595
Traditional procurement → very small enterprise	0.184	0.184	0.091	2.033	0.043
Very small enterprise → growth of construction SMEs	0.308	0.286	0.088	3.516	0.000
Very small → economic growth	0.338	0.311	0.095	3.552	0.000
Very small → social growth	0.248	0.235	0.086	2.886	0.004

Table 6.
Complex path
coefficient between
procurement
strategies, size and
development

procurement strategy → very small enterprise[r (path)= 0.184; t = 2.033; p = 0.043], H4d: very small enterprise-> economic growth [r (path)= 0.311; t = 3.552; p = 0.000], H4c: very small enterprise -> social growth [r (path) = 0.235; t = 2.886; p = 0.004]; H5a: social growth -> growth of construction SMEs [r(path) = 0.252; t = 7.752; p = 0.000]; and H5b: economic growth -> growth of construction SMEs [r (path)= 0.728; t = 24.145; p = 0.000].

5. Discussions, implications and limitations

The study was based on a theoretical model, which proposed that there are relationships between procurement strategies and proportionate growth of construction SMEs; and that the size of the construction SMEs moderates these relationships. The findings indicate that traditional, integrated and management-oriented procurement strategies are all in use in South Africa by public sector clients. However, amongst these procurement strategies, only traditional and management-oriented procurement strategies are ensuring the achievement of all the economic and social growth plans for construction SMEs as outlined in the proposed model. Under the integrated procurement strategy, economic growth plans such as increased turnover, profitability, asset growth and market share are not being achieved by the construction SMEs through the project procured. This finding is in line with previous studies by Naoum and Egbu (2015), who established that management-oriented procurement strategies allow the work to be split into smaller work packages and carried out by subcontractors selected by the client. The findings by Harper and Sanchez (2019) and Lahdenperä (2012) also established that integrated procurement strategy is more applicable for small scale contractors' development in their early stages as the risks and responsibilities are shared amongst the parties and not absorbed by only the micro-enterprises.

Similarly, the findings of this study are in agreement with that of earlier research by Isikdag (2019), Rivera and Kashiwagi (2019), Yap *et al.* (2019) and Hoppe and Schmitz (2013), who determined that the traditional procurement strategy is widely used in public procurement because of its accountability and transparency. In further accord with the results of this study, Abor and Quartey (2010) and Quaye *et al.* (2014) stated that SMEs are the most vulnerable and when they make use of the larger companies' assistance and supervision, they are more likely to survive and gain market access through traditional procurement strategy, which allows a clear line of responsibility, authority and liability amongst the contract participants who are familiar with the construction process.
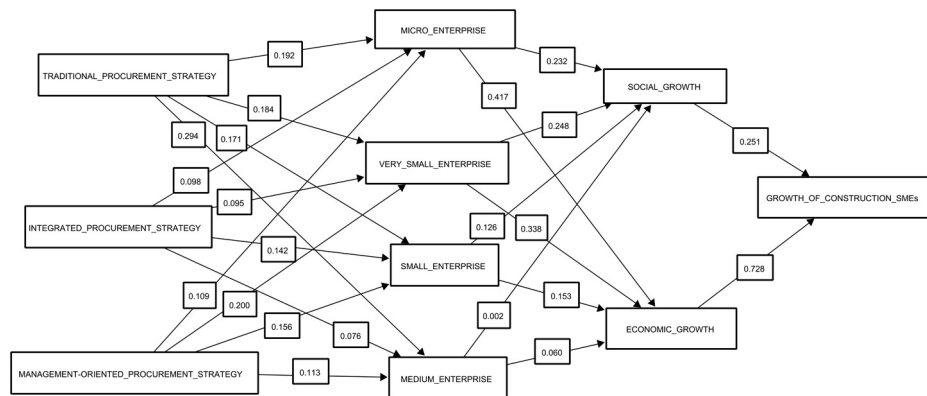

Figure 6.
Path diagram for the hypotheses and constructs

This study also found that construction SMEs can be easily categorised as a micro, very small, SMEs. This evidence substantiates the argument that there is no homogeneity across the SMEs population and that the growth of the construction SMEs must not be addressed with an assumption that all procurement strategies will favour all the SME population. These findings corroborate the conclusions of the study by Flynn *et al.* (2013), which indicated that SME friendly policies imposed on the SME population without due consideration of their differences would not ensure a uniform development amongst the SMEs population. These findings imply that the size of construction SMEs must no longer be overlooked when formulating policies on the growth of construction SMEs (Porter and Kramer, 2019; Schwab *et al.*, 2019). Another implication of these findings is that construction SMEs do not have shared interests, challenges and capabilities.

On the growing proportion of construction SMEs, this study found that medium enterprises are achieving social growth such as community empowerment, managerial skills and advancement on the cidb Register of Contractors. As for economic growth, only the micro, very small and small enterprises are achieving economic growth. The microenterprise is growing in the creation of economic activities, exposure and workforce development. The growing proportion of very small enterprises is an increase in employee size, innovation and technology and turnover; while profitability, asset growth and market share are the growth proportion achieved by small enterprises through project procurement. These findings validate the theoretical framework of the study, which proposed that construction SMEs must only aspire for social growth when they have grown in size from a micro, very small and small enterprise into a medium-sized construction enterprise. The micro, very small and small-sized construction SMEs must only aspire for economic growth to develop their financial capability to prosecute social growth.

However, the study found that construction SMEs prioritise community empowerment more than the other indicators of social growth. This contradicts the proposed order of inclination on social growth in the theoretical framework. Earlier studies by Bustinza *et al.* (2019), Yadav *et al.* (2019), Prajogo *et al.* (2013), Saunila *et al.* (2014), Gimenez *et al.* (2019) and Shah and Ahmad (2019) provide support for this finding. These studies indicate that employment size, innovation, profitability, managerial skills and market share are the areas of growth of the small-sized enterprise.

The result of this study implies that traditional and management-oriented procurement strategies have a high impact on the growing proportion of construction SMEs as they enable the achievement of the social and economic growth of construction SMEs much more than integrated procurement strategy. The high impacts of the traditional and management-oriented procurement strategies on the growth of construction SMEs could be as a result of the usefulness of procurement strategies in promoting inclusive growth and support policies, which construction SMEs can benefit from.

The use of construction SMEs-friendly procurement strategies such as traditional and management-oriented procurement strategies in the construction industry provide the best opportunity for the growth of the construction SMEs because, under there procurement strategies, the construction SMEs are more accountable and transparent. Transparency and accountability of construction SMEs represent the honesty and diligence of the directors of the construction SMEs. These enable the construction SMEs to attract investors and satisfy the stakeholders because transparency and accountability are of great importance to the stakeholders and investors. This confirms that transparency and accountability are corporate governance practices that can enable the construction SMEs to attain their growth pans. Other than the attraction of investment and confidence, transparency and accountability will enable the construction SMEs to have relevant and reliable information

on their operations and finances. Transparency and accountability will also enable the construction SMEs to build credibility that will enhance their chances of getting bank loans.

The analysis of the measurement and structural models suggests a positive but not significant and robust relationship between procurement strategies and size of construction SMEs, size of construction SMEs and growth of construction SMEs and procurement strategies and growth of construction SMEs. Although these findings dismiss the argument for the impact of procurement strategies on the growing proportion of construction SMEs; however, it substantiates the debate in this study that the relationship between procurement strategies and growing proportion of construction SMEs is not significant because there is no homogeneity across the SME population. This means that the size of construction companies moderates the relationship between procurement strategies and the growing proportion of construction SMEs. The analysis of the hypothesised relationships between procurement strategies and the growing proportion of construction SMEs as moderated by the size of construction SMEs support the following theories:

> Traditional procurement strategy has a positive influence on the growth of a very small enterprise and the medium-sized enterprise; Management-oriented procurement strategy has a positive influence on the growth of the very small enterprise; Micro-enterprise and the Very small enterprise achieve social and economic growth through procurement; and Social and Economic growth is a component of the growth of construction.

These findings imply that the growing proportion of construction SMEs comprises of social and economic growth; however, these growth proportion is determined by the size of construction SMEs. The findings also imply that not all the procurement strategies apply to the growth of construction SMEs. The significant hypothesised relationships explain that the traditional procurement strategy will only ensure the growth of very small and medium enterprises; while, a management-oriented procurement strategy will ensure the growth very small enterprise. Further, through the use of traditional and management-oriented procurement strategy, only micro and very small enterprises will achieve social and economic growth.

6. Conclusions
The study examines the impact of procurement strategies on the growing proportion of construction SMEs, and whether the size of construction SMEs moderates the effect. To achieve this objective, the study developed a theoretical model on the relationships between procurement strategies, growing proportion of construction SMEs and size of construction SMEs. The model was based on insights from Gibrat's theory of proportionate growth. The study found that SMEs populations are not homogeneous and cannot grow at the same rate under similar procurement strategies. The proportionate growth of construction SMEs depends on the aspiration of micro, very small and small enterprises for economic growth; while aspiration for social growth should come after becoming a medium enterprise. Based on the findings of this study, it can be concluded that traditional and management-oriented procurement strategies are useful for ensuring the growth of construction SMEs; and that the size of construction SMEs moderates the relationship between procurement strategies and their growth proportion. The study also concludes that traditional procurement strategy is more suitable for the growth of the very small and medium-sized enterprises, while a management-oriented procurement strategy is ideal for the growth of very small enterprises. Also, micro and very small-sized enterprises will achieve social and economic growth under traditional and management-oriented procurement strategy.

Hence, policymakers can base their decisions regarding macroeconomic issues as contained in the model proposed in this study for planning the growth of construction SMEs. Having a vast knowledge of the internal and external factors affecting the growth of construction SMEs will strengthen and make the public policies more effective. It is important to note that attributes such as time, cost, quality and the inherent risk of the projects executed by the construction SMEs under construction SMEs-friendly procurement strategies (that is, traditional and management-oriented procurement strategies) will likely impact the proportionate growth of the construction SMEs. However, owing to time limitations and the authors' area of interest, the impact of the attributes of the projects executed by the construction SMEs on their proportionate growth was not covered in this study. Future studies will concentrate on the specific investigation of the growing proportion of different sizes of construction SMEs and the different types of construction projects.

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