



## **Business Administration and Business Economics**

### **Gender Analysis of Business Factors amongst Entrepreneurs in South Africa: Multivariate Analysis of Variance**

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**Abstract:** The article raises a pertinent question; is there a significant difference between Male Entrepreneurs and Female Females in terms of key Business Success Factors? This article tests the null hypothesis that the population means on a set of dependent variables do not vary across Gender. Thus, this paper determines the variation if any between Male and Female Entrepreneurs with reference to Customer and Market Size; Products and Services and Management Know-How. However, opinions differ on the degree of the effects of contextual factors on the success or otherwise of SMEs especially in developing countries such as South Africa. Furthermore, studies on the direction of these factors in terms of male and female ownership of SMEs have not been fully documented in South Africa; thereby necessitating the need for this research. We divided the sample population into groups (strata) and then selected samples from each stratum for the survey. Questionnaires were subsequently distributed among the SME's operating in Mpumalanga. For this study, we applied a two-fold structured questionnaire. The first section addressed questions on participants' demographics and business types. The second section addressed questions on business success factors relevant to the scope of the study. Using MANOVA, we created a new summary dependent variable, which is a linear combination of each of our original dependent variables and then executes an analysis of variance using the new combined dependent variable. Policy makers need to recognise that women are a heterogeneous group with many differences in their motivations, intentions and projects for engaging in business activities. Traditional instruments have been used to address these barriers but these approaches have not yielded the expected effects. There is need to expand the strategies in-addition to the broad institutional conditions required for a successful business. In this article therefore, a comparative analysis of some identified success factors of SMEs in South Africa is undertaken in order to examine the gender differentials in productivity and performance of both female-owned and male-owned enterprises. More targeted action is required to ensure that family policies, social policies and tax policies do not discriminate against entrepreneurship by women.

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## 1. Introduction

Globally, researchers have lend credence to the importance of Small and Medium Enterprises (SMEs) as an engine of growth. This relevance had been shown in the arrears of poverty reduction, employment generation, equitable distribution of income, improved lifestyle all of which account for a reasonable increase in economic growth of any nation (Bushe 2019, Cant and Wiid 2013 and Ramukumba 2014). In South Africa, and just like many other developing economies, SMEs have not only become the saving haven for job seekers but also a source to the livelihood and survival of millions of people (Babalola and Agbenyegah 2016, SMME Quarterly Survey (2019Q1). According to the Quarterly Financial Survey of Statistics SA (2019Q1), the total number of employment generation by SMEs in South Africa was 10.8 million people, which accounts for 66% of the total jobs in the country. In terms of numerical strength, the survey further indicated an increase of 4.4% in the number of SMEs from 2.44m in 2018 to 2.55m in 2019. This was against 2m as at 2014.

Defining SMEs is a function of individual countries and their level of development (Njanike. N.d. Eltahir 2018). However, issues that bothers on capital, number of employees, turnover rate and regulatory framework are being taken into consideration in explaining or describing what constitute an SME. In a study on SMEs' high quality that determines the growth success, Ngek (2014) measured the quality of SMEs in South Africa in terms of growth ambition, market orientation, human capital, innovativeness and motivation. In the USA, SMEs are defined as enterprises with employees below 500. In Japan, an enterprise with 4-299 are classified to fall under SMEs (United States Small Administration 2003) while in Sudan, the required number of employees before an organization can be said to belong to SME is 10. In Nigeria, the definition of SMEs comprises of employees of less than 300 (FFS 2020). The South Africa gazette No. 339 (2019) defined Small Enterprise as a separate and distinct business entity, together with its branches or subsidiaries. It also includes cooperative enterprises, managed by one owner or more predominantly carried on in any sector or subsector of the economy mentioned in column 1 of the Schedule and classified as a micro, a small or a medium enterprise by satisfying the criteria mentioned in column 3 and 4 of the schedule. By implication, the above provision represents a clear definition of SMEs within the context of the country. In the new definition, two proxies are used to qualify what constitutes an SME and these are full-time paid employees and annual turnover returns. This categorization also differ from industry to industry as shown below:

**Table 1. Categorization of SMEs in South Africa**

S/N	Industry	Classification	Required Number of Full-Time Employees	Annual Turn-Over (Rand)
1.	Agriculture	Micro	1-10	7M or Less
		Small	11-50	17M or Less
		Medium	51-250	35M or less
2.	Catering/Accommodation/other trading activities	Micro	1-10	5M or Less
		Small	11-50	15M or Less
		Medium	51-250	40M or less
3.	Community/Social/Personal Services	Micro	1-10	5M or Less
		Small	11-50	22M or Less
		Medium	51-250	70M or less
4.	Construction	Micro	1-10	10M or Less
		Small	11-50	75M or Less
		Medium	51-250	170M or less
5.	Finance/Business Services	Micro	1-10	7.5M or Less
		Small	11-50	35M or Less
		Medium	51-250	85M or less
6.	Manufacturing	Micro	1-10	10M or Less
		Small	11-50	50M or Less
		Medium	51-250	170M or less
7.	Mining and Quarrying	Micro	1-10	15M or Less
		Small	11-50	50M or Less
		Medium	51-250	210M or less
8.	Retail/Motor Trade/Repair Services	Micro	1-10	7.5M or Less
		Small	11-50	25M or Less
		Medium	51-250	80M or less
9.	Transportation/Storage/Communications	Micro	1-10	7.5M or Less
		Small	11-50	45M or Less
		Medium	51-250	140M or less
10.	Wholesale	Micro	1-10	20M or Less
		Small	11-50	80M or Less
		Medium	51-250	220M or less

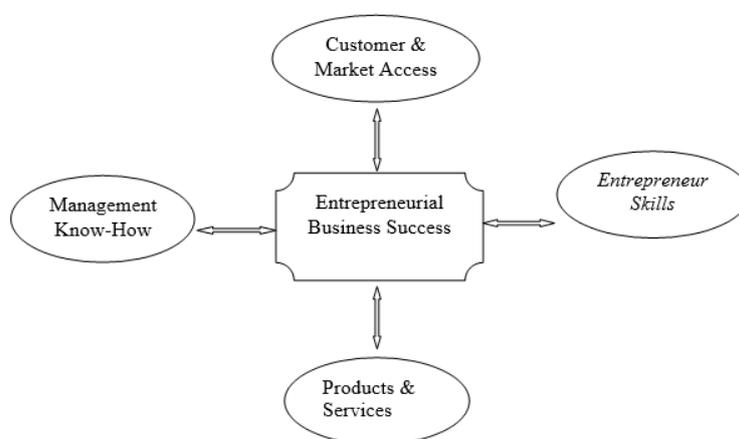
*Source: Author's computation using SA Government Gazette No. 399, Ministry of Small Business Development.*

From the table in the medium category, wholesale industry has the highest required minimum turnover rate of R220m followed by mining and quarry with R210m. The requirement for both catering, accommodation and other trading activities and community, social and personal services industries is a minimum rate of turnover of R5m per annum. Although the required start-up capital may be small compared to other sectors, it is an indication that financial assistance to these sectors is also low (Rabie et al 2016). By nature, female entrepreneurs are expected to dominate these sectors and the required start-up capital is expected to be little compared to other

sectors. This confirms the opinion of Adrian (2015) that female entrepreneurs are risk averters and as such, do shy away from sourcing huge capital to start their businesses. Not only that, Brixiova and Kangoye (2015) confirmed that female entrepreneurs are not usually at disadvantaged in loan application mostly because of their domestic commitments. However, a pivotal component to any entrepreneurship growth intervention seeking to make a transformative change, challenges gender identity roles in entrepreneurship. In Tanzania's PRIDE study for instance, women reported, spending on average, 10 hours less in their businesses per week than men. The component of owner's time is a critically binding constraint, notably for enterprises with fewer employees (Eyerusalem S, 2015). Women also report having lesser say in important household and business decisions and diverting business resources to household expenditures, due to either external pressures (De Mel 2009) or lack of self-control (Fafchamps et al. 2011). A randomized control trial experiment in Kenya found that expanding access to savings accounts increased the probability of saving for self-employed women working as market vendors, and increased their productive investment and private expenditures, implying significant barriers to savings and investment (Pascaline D and Jonathan R, 2013). Another gender component inhibiting women is the crowding-out effect, meaning women are stopped from expanding their businesses because capital grant leads to a reduction of external financial support from their spouses (Berge et al. 2011). Of greater need is a further investigation into the success factors of SMEs in relation to gender especially as it affects the promotion and improvement of private sector development in this world of global competition (Bardasi and Guzman 2007). The reasoning here is that these factors may have different effects on the full participation of men and women in the development of Africa's private sectors. Contextual factors encompassing education, training, skill acquisition, time management, health quality, personality, leadership style, and management of finance, amongst others have been confirmed as being responsible for gender effects of SMEs in contemporary economies (Matthew and Panchanatham 2011, Afolabi and Machebe 2012, Adrian et al 2015, Fowowe 2017, Irene 2017, Mamabolo 2017, Meyer 2019, Herrington and Coduras 2019). Other factors in relation to gender differentials are access to finance, self-evaluation, gender ownership, behaviours and attitudes (Olawale and Garwe 2010, Asiedu et al 2013, Brixiova and Kangoye 2018 and Shava 2018).

However, opinions differ on the degree of the effects of these factors on the success or otherwise of SMEs especially in developing countries such as South Africa. Furthermore, studies on the direction of these factors in terms of male and female ownership of SMEs have not been fully documented in South Africa; thereby necessitating the need for this research. In this article therefore, a comparative analysis of some identified success factors of SMEs in South Africa is undertaken in order to examine the gender differentials in productivity and performance of both

female-owned and male-owned enterprises. This article tests the null hypothesis that the population means on a set of dependent variables (Customer and Market Size; products and Services and Management Know-How) do not vary across Gender. This thus raises a pertinent question; is there a significant difference between Male Entrepreneurs and Female Females in terms of key Business Success Factors? Thus, this paper determines the variation if any between Male and Female Entrepreneurs with reference to Customer and Market Size; Products and Services and Management Know-How.



**Figure 1. Conceptual Framework: Business Success Factors**

*Source: Author(s)*

## 2. Brief Review of Related Literature: SME Success Factors

Evidences abound about the entrepreneurship success factors between males and females entrepreneurs globally especially in developed countries such as the USA, Canada, Britain, Germany and other big economies of the world but such is still missing in developing and underdeveloped economies of the world. Yet, studies on gender-based success factors of SMEs in developing countries such as South Africa are still very sparse in the literature. The only exception to this were the studies by Shava (2018) and Meyer (2019). However, the effects of these factors on male and female entrepreneurs differs from one country to the other (Mathew and Panchanatham 2011, Irene 2017 and Shava 2018). For instance in India, entrepreneurial activities were presumed to be a prerogative activity of males before the socio-cultural relationship changed this trend. Making use of standard statistical data procedures, Mathew and Panchanatham (2011) observed that factors, which include health quality, issues of dependent cares, overload, absence of proper social supports and time management, were the major factors influencing world-life

balance in India. The study further revealed that the degree to which these factors affect female entrepreneurs differ from one category of women to the other. On another trajectory, while investigating external and internal environmental factors that inhibit the growth of SMEs in South Africa using principal component analysis approach, Olawale and Garwe (2011) identified finance as the leading internal environmental factor inhibiting the success and birth of new SMEs in that country. However, Fowowe (2017) pointed out in a study on access to finance in 30 Africa countries that finance constitute a vital factor to the growth of business enterprise but the issue of gender was not taken into consideration. Thus, Asiedu *et al* (2013) examined gender access to finance and concluded that gender ownership of business is a major determining factor to the growth of SMEs in the country. Brixiova and Kangoye (2015) linked entrepreneurial productivity to start-up capital and networking in their study on Swaziland and concluded that the males have access to start-up finance than their female counterpart, which creates a difference in their success level. In this article, we have therefore analyzed the gender success dynamics of SMEs on four major sub-headings; Customer and Market Accessibility; Products and Services; Managerial Know-How and Entrepreneur Skills.

*Customer and Market Access:* Olawale and Garwe (2010) emphasized the importance of market accessibility to customers of a product. In a study on the obstacles to the growth of SMEs in South Africa, they posited that the choice and location of an enterprise would reduce the cost of production, meet customers' demand, make goods and services available at affordable prices and increase the profit margin in the face of nearby competitors. Further studies have identified market orientation of an entrepreneur, training and development of employees as contributory factors to the success and development of SMEs. As defined by Gudlaugsson and Schalk (2009), market orientation is a way of culturally organizing employees in an organization in order to ensure their commitment and dedication for the continuous creation of superior customer value through sequential marketing activities that can enhance the performance of a business. As a success factor, which involves market intelligent gathering and competitors' information, it also affords small businesses an added advantage over their bigger competitors (Reijonen *et al* 2012 and Reijonen and Komppula 2010). This is so because SMEs are readily accessible to their customers and can quickly adjust to the demands since bureaucracy is absent (Ngek 2014). In addition, Rabie *et al* (2016) contends that education helps to enhance customers and market accessibility. According to the authors, this scenario depends on availability of finance, a link that is always missing in most SMEs. They admitted in their study that this variable is an important success factor to the survival of SMEs in South Africa but the success differ in terms of gender.

*Products & Services:* Another success factor is the ability to identify the existence of the market for the products and services. According to Ramukumba (2014), the

identification of this market opportunity is not enough factor but the ability to grab and exploit this. Further, the study concluded that attracting repeat customers and the performance of the product are the major success factors that can ensure the continued existence of SMEs in South Africa. In the GEM report (2013), efficiency was identified as another success factor of SMEs in South Africa. One major component of this factor is innovation. As stated in the report, SMEs contribution is not limited to job creation and economic growth alone but also innovations in the area of new products and services. This suggests that innovation as a success factor can lead into discovery of new products and services. All these will positively impact poverty and unemployment. Studies have also shown innovation (creativity) as additional sustainable factor of SMEs (Prakash 2015 and Alfoqahaa 2018). According to Prakash et al (2015), innovation is the ability to bring fresh ideas that will result in creation of new products and services. A set of critical success factors which include brand reputation, excellent delivery and customer services and innovation were tested against the survival of SMEs in Palestine by Alfoqahaa (2018) and innovation was shown as not having positive effect on sales in that study. This negates the submission by Prakash et al (2015) where innovation was seen as a key element of business growth in India. This suggest inconclusive findings on innovation as an influencing factor in the literature. However, Bushe (2019) argued that the production of goods and services is the responsibility of three industrial sectors namely the primary, secondary and tertiary industries. It goes further to state that each of these has its own standard rules of engagement as success factors to the survival SMEs. Essentially, the focus here is the relevance of marketing to service delivery of good and services. In order to retain customers, provision of efficient products and services as well as good customer care are very important. For this to be achieved, there is the need for proper choice of goods and services that appeal to most customers. For these to be achieved therefore, the role of finance cannot be underestimated (Olawale and Garwe 2010 and Brixiova and Kangoye 2016). As pointed out by Olawale and Garwe (2010), the activities of Small Enterprise Development Agency (SEDA) in this regard should be used for proper awareness for entrepreneurs. Other factors in relation to products and services is the ability of an entrepreneur to adapt to the changing demands of customers by continuously monitoring market trends, improves on existing products and services, develops new products and services in the face of changing technology with increased functionality and performance Drejer (2006) and Lotz and van der Merwe (2013). By implication, an enterprise that fails to adapt with the prevailing dynamics in customer service will be consumed by the wave of competition (Ramachandran *et al* 2006). Brixiova and Kangoye (2016) studied the differences in entrepreneurial performance and start up finance based on gender disparity in Swaziland and submitted that high start-up capital resulted in better sales performance of products and services.

*Management Know-how:* One driving force in the art of business is the degree of expertise and managerial know-how. In linking managerial know-how as a success factor to SMEs in South Africa, issues that ranges from knowledge, training, education, and other means of skill acquisition (herein referred to as internal factors) to finance, government regulations, bureaucratic licensing procedures, competition etc. (herein referred to as environmental factors) are taken into consideration (Struwig and Lillah 2017 and Herrington and Coduras 2019). As noted in Struwig and Lillah (2017) and Herrington and Coduras (2019), environmental issues constitute major managerial challenges to contemporary SMEs. Management expertise also include factors such as knowledge, skills, education, training, behaviours and attitudes that added up to the running and success of an enterprise (Olawale and Garwe 2010 and Herrington and Wood 2003). The management know-how on the need for training, retraining and development of employees makes the difference between success and failure of an enterprise (Rabie et al 2016). Accessibility to finance by female entrepreneurs was seen in another study as a function of the level of education, which differs, from one group of women to the other (Brixiova and Kangoye 2019). Therefore, policy intervention was advocated in order to correct this anomaly. Another component of the managerial skill as a success factor to SMEs is the element of Behavioural Control Skill (BCS) of an entrepreneur. In the words of Martin Pena *et al* (2010) and Sanchez-Medina *et al* (2014) BCS is the ability of an entrepreneur to self-evaluation on the success or otherwise of an intending assignment or existing outlay. Environmental factor as pointed out by Ayankoya (2016) include the enabling policies and regulatory burdens such as entry barriers that guide the running of SMEs. This according to the study requires the understanding and analysis of the environment and socio-cultural issues that affect a business organization. One other managerial skill factor is the entrepreneurial orientation (Lotz and van der Merwe 2013). In a study that investigated the relationship between entrepreneurial orientation of agribusinesses in South Africa and their perceived successes, proactiveness, risk taking and autonomy were the major managerial attributes to the success of such businesses. Hoque (2016) identified technological capability, access to finance, managerial competence and skill as some of the internal environmental factors that affect management in the running of SMEs in South Africa. Further, external environmental factors according to the study include competition, regulatory framework, globalization, crime, and corruption. Shortcomings from lack of management know-how can also be in form of ineffective and inefficient planning, unprofessional record keeping, inefficient or outright lack on managerial information and inadequate business control (Lekhanya 2015).

*Entrepreneur Skills:* As a driving force to sustainable economic growth, an Entrepreneur requires certain skills before this can be achieved (Mamabolo 2017, Herrington *et al* 2014). Issues of interest here are the personal attributes of an

Entrepreneur irrespective of how they were acquired. Skill acquisition in the running and management of SMEs are many and varies from country to country (Vuuren and Alemayehu 2018). However, factors that ranges from the personal quality, lack of entrepreneurial mindset and behavior of an entrepreneur to skill acquisition through training and education have been adduced as major relevant factors for a successful entrepreneur (Mamabolo 2017, Ayankoya 2016, Prakash et al 2015 and Cowdrey 2012). In a study on the required skills by an entrepreneur in South Africa, Mamabolo (2017) identified past experience especially in the areas of record keeping and monitoring, management of labour turn-over, the needed resources, appropriate re-order level to training and level of education as the required skills for the success of an enterprise. The findings from the confirmatory factor analysis further added marketing, start-up, leadership, social and interpersonal, technical and business management skills as additional factors for the success or otherwise firm. This forms the basis of the so-called Human Capital Theory. Entrepreneurial mindset, which includes self-confidence, fear of failure and ability to assume risks (Cowdrey 2012) can be more assumed by male entrepreneurs than the female counterpart.

Herrington *et al* (2014) and Brixiova and Kangoye (2015) further emphasized the importance of training and education in acquiring relevant skills in the successful running of an enterprise. As noted by Lekhanya (2015), majority of the SMEs in the rural areas in South Africa hardly keep records of their businesses. A success factor that has led to the folding up of many SMEs. However Briere *et al* (2014) listed financial, human and social capital as the major supports required by an average entrepreneur to succeed. In addition, Ayankoya (2016) emphasized the role that values, cultural norms and beliefs play in the success of an enterprise in South Africa. Prakash et al (2015) pointed to the role that “affective state in learning” play in the development of entrepreneurial skill. In their study on supportive government policy, locus of control and students entrepreneurial intensity, affective state in learning is the experience of affection acquired in a learning process. This process could result from social, economic, cultural, demographic, political and technological factors which go a long way in shaping the entrepreneurial skill of a business manager. Fatoki and Asah (2011) attributed entrepreneurial characteristics which include managerial competency of a firm owner, gender and networking as success factors of an enterprise.

Trainings that go beyond financial capital and basic business skills, and teach necessary life skills have also shown a small, but positive impact on female-owned microenterprises. For instance, a Peruvian training program provided to clients of FINCA-Peru (Karlan, et al. 2011) a microfinance institution, taught general business skills such as how to calculate production costs and product pricing in addition to life skills such as separating business and home finances. The result—found through randomized control trials—was a positive, albeit small, impact of the Peruvian training program on female-led enterprise revenues. Similarly, a randomized control

trial on Tanzania's Business Women Connect program, cited above, found that women save substantially more through a mobile savings account. The same study found that providing women with a business skills training bolstered the effect. A higher proportion of married women who participated in the mobile savings program reported that they were the sole decision makers about their own personal expenditures than those who did not participate in the program. Thus, the mobile savings program has had unexpected empowerment outcomes for women, though it did not influence female-owned enterprise profits or sales. To summarize, successful interventions, among studies reviewed above, have usually paired basic business skills provision (as well as basic financial capital) with provision of soft skills such as leadership and mindset considerations. Moreover, programs that address or work around socially imposed gender roles increase female understanding of inhibiting normative assumptions. Business training interventions emphasizing the need to challenge or work around gender identities, in addition to soft skills and shifting mindsets, have found a small but positive shift in perspective. Liberia's Economic Empowerment of Adolescent Girls training program (Adoho et al. 2014) included hard and technical skills such as office computer skills and accommodated the special needs of female entrepreneurs—safe locations and free childcare. Studied through a randomized control trial, the training program was found to increase earnings of female entrepreneurs and positively affect female self-confidence and self-assessed entrepreneurial ability. The most significant finding is the program saw a small but positive shift in self-reported gender role perspective—meaning survey respondents were more likely to report that both men and women should take care of household responsibilities.

### **3. Data and Methods**

#### ***3.1. Study Sample and Questionnaire***

The sample for our analysis (stratified approach) was taken from a general survey of active SMEs in Mpumalanga Province South Africa. This article is based on the (EU 2003) characterization of SMEs, which described it as businesses with less than 250 and 50 persons for middle-sized and small size establishments. We divided the sample population into groups (strata) and then selected samples from each stratum for the survey. Questionnaires were subsequently distributed among the SME's operating in Mpumalanga. For this study, we applied a two-fold structured questionnaire. The first section addressed questions on participants' demographics and business types. The second section addressed questions on business success factors relevant to the scope of the study. The trustworthiness assessment of the questionnaire used was conducted using the test re-test reliability method, which generated an R-value of 0.70, and internal constancy measured by Cronbach Alpha gave a value of 0.875.

### 3.2. Analysis Technique

Multivariate analysis of variance (MANOVA) is an extension of analysis of variance for use when there are *more than one* dependent variable. Our dependent variables are related in some way and MANOVA compares the groups and informs whether the mean differences between the groups on the combination of dependent variables is likely to have occurred by chance. To do this MANOVA creates a new summary dependent variable, which is a linear combination of each of our original dependent variables and then executes an analysis of variance using the new combined dependent variable. MANOVA informs if there is a significant difference between our groups on this composite dependent variable as well as showing the univariate results for each of our dependent variables separately. However, there has been a debate on why not just conduct a series of ANOVAs separately for each dependent variable, which in fact is what many researchers do. Unfortunately, by following that path, we run the risk of an ‘inflated Type 1 error. Put simply, this means that the more analyses we run, the more likely we are to find a significant result, even if in reality there are no differences between your groups. The advantage of using MANOVA is that it ‘controls’ for this increased risk of a Type 1 error. Using MANOVA comes at a cost because of additional assumptions that must be met. Our preliminary analysis indicate that our data set met the minimum threshold for the assumptions of sample size, normality and outliers.

### 3.3. MANOVA Assumptions

Sample size: To meet this assumption, there must be more cases in each cell than the number of dependent variables. Our sample is large enough to avoid the normality question. In this instance, the minimum required number of cases in each cell is four (the number of dependent variables). We have seven cells (two levels of our independent variable: male/female; and four dependent variables for each). The number of cases in each cell is provided as part of the MANOVA output. In our case, we have many more than the required number of cases per cell (see the **Descriptive statistics** box in the **Output**).

Normality: Although the significance tests of MANOVA are based on the multivariate normal distribution, in practice it is reasonably robust to modest violations of normality (except where the violations are due to outliers). According to Tabachnick and Fidell (2001), a sample size of at least 20 in each cell should ensure ‘robustness’. In this instance, we have more than nine hundred recorded cases.

Outliers: MANOVA is quite sensitive to outliers (i.e. data points or scores that are different from the remainder of the scores). We checked for univariate outliers (for each of the dependent variables separately) and multivariate outliers. We found no significant outlier amongst the variables.

**3.4. Descriptive Statistics****Table 2. Business Factors (Gender)**

<b>Business Factors</b>	<b>Gender</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>N</b>
Customer & Market Access Score	Male	21.18	3.575	503
	Female	20.35	3.745	423
	Total	20.80	3.676	926
Products & Services Score	Male	15.59	3.111	503
	Female	15.41	2.814	423
	Total	15.51	2.978	926
Mgt Know How Score	Male	19.45	4.039	503
	Female	18.61	3.693	423
	Total	19.07	3.906	926
Entrepreneur Skill Score	Male	14.11	1.505	503
	Female	13.94	1.465	423
	Total	14.03	1.488	926

The above table represents the sample size used in the analysis. The N values depict the cell sizes, and in this instance, the cases are more than 30 for each cell implying that violations of normality or equality of variance in our results would not matter.

**3.5. Diagnostic Tests****Table 3. Box's Test of Equality of Covariance Matrices<sup>a</sup>**

<b>Box's M</b>	<b>21.096</b>
F	2.100
df1	10
df2	3819657.171
Sig.	.021
Tests the Null Hypothesis that the observed Covariance matrices of the Dependent variables are equal across groups.	
a. Design: Intercept + Sex	

**Table 4. Levene's Test of Equality of Error Variances<sup>a</sup>**

		<b>Levene Statistic</b>	<b>df1</b>	<b>df2</b>	<b>Sig.</b>
Customer & Market Access Score	Based on Mean	.604	1	924	.437
	Based on Median	.378	1	924	.539
	Based on Median and with adjusted df	.378	1	922.310	.539
	Based on trimmed mean	.527	1	924	.468
Products & Services Score	Based on Mean	4.642	1	924	.031
	Based on Median	5.348	1	924	.021
	Based on Median and with adjusted df	5.348	1	922.656	.021
	Based on trimmed mean	4.769	1	924	.029
Mgt Know How Score	Based on Mean	2.326	1	924	.128
	Based on Median	2.259	1	924	.133
	Based on Median and with adjusted df	2.259	1	910.258	.133
	Based on trimmed mean	2.142	1	924	.144
Entrepreneur Skill Score	Based on Mean	2.550	1	924	.111
	Based on Median	.079	1	924	.779
	Based on Median and with adjusted df	.079	1	864.176	.779
	Based on trimmed mean	1.374	1	924	.241
Tests the null hypothesis that the error variance of the dependent variable is equal across groups. a. Design: Intercept + Sex					

Table two (output box labelled Box's Test of Equality of Covariance Matrices) indicates if our data violates the assumption of homogeneity of variance covariance matrices. According to Tabachnick and Fidell (2001). If the Sig. value is *larger* than .001, then the assumption have *not been* violated. Further, Tabachnick and Fidell (2001) posit that Box's M can tend to be too strict when you have a large sample size. Fortunately, in our Case, the Box's M sig. value is .021; therefore, we have not violated this assumption. Further, table three (Levene's Test of Equality of Error Variances) is another diagnostic test showing the robustness of our results. The Sig. column indicates violation of the assumption of equality of variance for the each variable if the values are less than .05. the Sig values for the mean, median and trimmed mean for our three dependent variables Customer & Market Access, Mgt Know How and Entrepreneur Skill are above 0.5 whereas that of Products & Services were below the Sig value. Because of the violation for one of our dependent variable, we used a more conservative alpha level for determining significance for that variable in the univariate F-test. Tabachnick and Fidell (2001) suggest an alpha of .025 or .01, rather than the conventional .05 level.

#### 4. General Linear Model Results

**Table 5. Multivariate Tests**

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Intercept	Pillai's Trace	.990	23500.136 <sup>b</sup>	4.000	921.000	.000	.990
	Wilks' Lambda	.010	23500.136 <sup>b</sup>	4.000	921.000	.000	.990
	Hotelling's Trace	102.064	23500.136 <sup>b</sup>	4.000	921.000	.000	.990
	Roy's Largest Root	102.064	23500.136 <sup>b</sup>	4.000	921.000	.000	.990
Sex	Pillai's Trace	.024	5.739 <sup>b</sup>	4.000	921.000	.000	.024
	Wilks' Lambda	.976	5.739 <sup>b</sup>	4.000	921.000	.000	.024
	Hotelling's Trace	.025	5.739 <sup>b</sup>	4.000	921.000	.000	.024
	Roy's Largest Root	.025	5.739 <sup>b</sup>	4.000	921.000	.000	.024
a. Design: Intercept + Sex							
b. Exact statistic							

Our multivariate test results in table 4 indicates the statistically significant differences among the groups on a linear combination of the dependent variables. However, there are a number of statistics to choose from (Wilks' Lambda, Hotelling's Trace, and Pillai's Trace). One of the most commonly reported statistics is Wilks' Lambda. Tabachnick and Fidell (2001) recommend Wilks' Lambda for general use. In our case, our sample size is large enough, with equal N values and absence of violations. Thus, our analysis is based on the Wilks Lambda test. However, the F-tests for Wilks' Lambda, Hotelling's Trace and Pillai's Trace are identical where there are only two groups such as ours. The value of Wilks' Lambda for our independent variable (Sex) is less than 0.05 and highly significant at (0.000). Thus, we conclude that there is a difference amongst our groups. In this instance, we obtained a Wilks' Lambda value of .976, with a significance value of .000. This is less than .05; therefore, there is a statistically significant difference between males and females in terms of business factors.

Table 6. Tests of between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	Customer & Market Access Score	162.026 <sup>a</sup>	1	162.026	12.137	.001	.013
	Products & Services Score	6.859 <sup>b</sup>	1	6.859	.773	.380	.001
	Mgt Know How Score	164.341 <sup>c</sup>	1	164.341	10.889	.001	.012
	Entrepreneur Skill Score	6.578 <sup>d</sup>	1	6.578	2.975	.085	.003
Intercept	Customer & Market Access Score	396298.250	1	396298.250	29685.232	.000	.970
	Products & Services Score	220813.770	1	220813.770	24886.226	.000	.964
	Mgt Know How Score	332854.341	1	332854.341	22054.228	.000	.960
	Entrepreneur Skill Score	180676.232	1	180676.232	81727.852	.000	.989
Sex	Customer & Market Access Score	162.026	1	162.026	12.137	.001	.013
	Products & Services Score	6.859	1	6.859	.773	.380	.001
	Mgt Know How Score	164.341	1	164.341	10.889	.001	.012
	Entrepreneur Skill Score	6.578	1	6.578	2.975	.085	.003
Error	Customer & Market Access Score	12335.413	924	13.350			
	Products & Services Score	8198.589	924	8.873			
	Mgt Know How Score	13945.508	924	15.093			
	Entrepreneur Skill Score	2042.692	924	2.211			
Total	Customer & Market Access Score	413172.000	926				
	Products & Services Score	230894.000	926				
	Mgt Know How Score	350756.000	926				
	Entrepreneur Skill Score	184274.000	926				

Corrected Total	Customer & Market Access Score	12497.438	925				
	Products & Services Score	8205.447	925				
	Mgt Know How Score	14109.849	925				
	Entrepreneur Skill Score	2049.270	925				

- a. R Squared = .013 (Adjusted R Squared = .012)  
b. R Squared = .001 (Adjusted R Squared = .000)  
c. R Squared = .012 (Adjusted R Squared = .011)  
d. R Squared = .003 (Adjusted R Squared = .002)

Because we have obtained a significant result from our multivariate test of significance, we investigate further in relation to each of our dependent variables. The key question, do male and female entrepreneurs differ on all of the dependent measures, or just some is answered in table 5 (**Tests of Between-Subjects Effects**) above. For the reason that we are looking at a number of separate analyses here, we used a higher alpha level to reduce the chance of a Type 1 error (i.e. finding a significant result when there isn't really one). The most common way of doing this is to apply what is known as a Bonferroni adjustment. In its simplest form, this involves dividing our original alpha level of .05 by the number of analyses performed (see Tabachnick & Fidell, 2001). In this case, we have four dependent variables to investigate; therefore, we would divide .05 by 4, giving a new alpha level of .0125. We will consider our results significant only if the probability value (Sig.) is less than .0125. The **Tests of Between-Subjects Effects table shows all of our** dependent variables, with their associated univariate F, df and Sig. values in the row labelled with your independent variable (in this case SEX). In this instance, three of our dependent variables (Customer & Market Access, Mgt Know How, Entrepreneur Skill) recorded a significance value less than our cut-off (with Sig. values of .001, 0.001 and 0.085) respectively.

**Table 7. Estimated Marginal Means (Gender)**

Dependent Variable	Gender	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Customer & Market Access Score	Male	21.185	.163	20.865	21.505
	Female	20.345	.178	19.997	20.694
Products & Services Score	Male	15.586	.133	15.326	15.847
	Female	15.414	.145	15.129	15.698
Mgt Know How Score	Male	19.453	.173	19.113	19.793
	Female	18.608	.189	18.237	18.978
Entrepreneur Skill Score	Male	14.105	.066	13.975	14.235
	Female	13.936	.072	13.794	14.078

The importance of the impact of gender on business success factors is evaluated using the effect size statistic provided by SPSS: **Partial Eta Squared**. This represents the proportion of the variance in the dependent variables scores that can be explained by the independent variable (sex). The values in this case are .013; .012; and .003, which, according to generally accepted criteria (Cohen, 1988), is considered quite a small effect. This represents only 1.3%, 1.2% and .3% of the variance in our significant variables respectively. Although we know that male and female entrepreneurs differed in terms of Customer and Market Access, Mgt Know How and Entrepreneur Skill, we do not know who had the higher scores. To find this out we refer to table six (**Estimated Marginal Means**). For Customer & Market Access, Mgt Know How and Entrepreneur Skill, the mean scores for males and females are 21.18 and 20.34; 19.45 and 18.60; 14.10 and 13.93. Although statistically significant, the actual difference in the mean scores was very small, fewer than 2 scale points.

**Table 8. Gender \* Business Success Score Cross tabulation**

			<b>Weak Business Success Score</b>	<b>Average Business Success Score</b>	<b>High Business Success Score</b>	<b>Total</b>
<b>Gender</b>	Male	Count	212	130	169	511
		% within Gender	41.5%	25.4%	33.1%	100.0%
		% within Business Success	47.0%	54.4%	66.5%	54.1%
	Female	Count	239	109	85	433
		% within Gender	55.2%	25.2%	19.6%	100.0%
		% within Business Success	53.0%	45.6%	33.5%	45.9%
<b>Total</b>	Count	451	239	254	944	
	% within Gender	47.8%	25.3%	26.9%	100.0%	
	% within Business Success	100.0%	100.0%	100.0%	100.0%	

The table above shows that male entrepreneurs have a better score for business scores more than their female counterparts do. About 41% of male entrepreneurs have a weak business success score whereas more than 55% of females fall into the same category. The percentage of males under a high business score is 33% whereas their counterparts (females) have fewer representatives (19.6) under this category. Both male and female entrepreneurs share the same percentage in terms of an average success (25%). However, the number of males under this category are higher than

the females. It is apparent and suggestive, that male entrepreneurs seem to be more successful than their female counterparts.

## 5. Discussion

Results above are in tandem with Olawale and Garwe (2010) as per the huge effect of Customer and Market Access have on business success. Their study showed that access to both customers and the market reduces the cost of production for the entrepreneur and makes goods and services available at affordable prices. This presupposes that female accessibility to the market and customers is a challenge in South Africa. Rabie (2016) also concludes that this variable assists in the growth of both the enterprise and the owners themselves. Results from table seven confirms that there is a significant difference as per success level of female and male entrepreneurs because of this variable. On the other hand, our results suggest that products and services offerings does not change the success level of both female and male owned SMEs. In South Africa. Contrary to this result, several studies have shown it to be a major catalyst to business success (Prakash 2015 and Alfoqahaa 2018). Thus, it is obvious that entrepreneurs in South Africa are not concerned about fresh ideas or innovations that could result in creation of new advantages. Nonetheless, Alfoqahaa (2018) showed that success factors, which include brand reputation, excellent delivery and customer services and innovation, did not show any positive results for SMEs growth, which supports our finding. This however, negates the submission by Prakash et al (2015) and warrants a further analysis why there are divergent results on the effect of this success factor. The understanding and analysis of the environment and socio-cultural issues that affect a business organization is a pre-requisite for business success. Lotz and van der Merwe (2013) investigated the relationship between entrepreneurial orientations of agribusinesses in South Africa. They found that their perceived successes and proactiveness, came from there managerial attributes. It is obvious from our results that male entrepreneurs possess these latent qualities more than the female entrepreneurs. Other authors such as Hoque (2016) concluded that managerial competence and skills are key in determining success for SMEs. Further, Martin Pena *et al* (2010) posit that management control skill could make a difference in the success of a venture. Mamabolo (2017) confirms that entrepreneur skill acquisition is a major factor for a successful business. Ayankoya (2016), Prakash et al. (2015) and Cowdrey (2012) also reiterated these conclusions. They concluded that past experience especially in the areas of book-keeping, monitoring, management of labour turn-over and level of education as the ingredients' that enhance the effectiveness of the variable. As indicated by our findings, this variable is a major source of difference between male and female entrepreneurs operating in South

Africa. This is indicative that male businesspersons acquire more skill and education as per their lines of business more than the females.

Policy makers need to recognise that women are a heterogeneous group with many differences in their motivations, intentions and projects for engaging in business activities. The challenges that women identify in starting a business include discouraging social and cultural attitudes, lower levels of entrepreneurship skills, greater difficulty in accessing start-up financing, smaller and less effective entrepreneurial networks and policy frameworks that discourage women's entrepreneurship. Traditional instruments such as training and grants have been used to address these barriers but these approaches have not yielded the expected effects. There is need to expand the strategies in-addition to the broad institutional conditions required for a successful business.

## 6. Conclusion

The UN Sustainable Development Goal 8 supports entrepreneurs and the jobs they generate. Nevertheless, business achievement is no easy exploit, especially for women, who are faced with multiple obstacles that their male counterparts do not. These comprise cultural and political barricades, a lack of mentoring and a serious lack of capital. In 2017, only 2% of venture funding went to female founders. Nonetheless, women's entrepreneurship rates, rose globally by 13% in 2017 and has continued to increase, reflecting broader momentum of increased female representation across the public and private sectors in many regions of the world. However, women represent the largest market opportunity and control an estimated \$20 trillion in annual spending. When we invest in women, their communities and countries prosper which creates a multiplier effect and sets a positive example for the next generation of girls. In fact, it has been shown that when women earn an income, they invest 90% back into their communities. In an effort to guarantee parity and prosperity for women entrepreneurs globally, the public and private sectors must work together to remove the barricades affecting women entrepreneurs. South African government is therefore encouraged to use Small Business Act, which is designed to help disadvantaged small business owners especially females compete in the marketplace. Expectedly, the result of the study shows the gender effects and sensitivity of success factors to the growth and development of SMEs in South Africa. This will guide policy makers on the appropriate policy direction, supporting female entrepreneurs. Specifically, we recommend:

**1. *Enhancing Female Access to Development Finance:*** Creating inducements for individuals and organizations to finance female-owned corporations through venture funds, corporate venture, private equity and social capital. Updating existing government certification, grant and loan programmes that help female-owned

businesses compete to reflect changing investment models. In-addition, the generation of new sources of capital, such as crowdfunding and impact investments are encouraged

**2. Expedite Connections to Markets, Local and Global Networks:** Promoting global and open standards, as well as reliable machineries for cross-border data transfers has become imperative. In-addition, business support services and networks focused on female businesspersons', while providing sufficient protections for privacy and information security must be enhanced. Besides, government should encourage mentorship drives, via financial support; encouragement of multiplier stages such as accelerators; persistent education and training programmes; and enabled networking events for female entrepreneurs would be required.

**3. Supporting Growth of Female Entrepreneurial in Technology:** Government and business leaders can help women entrepreneurs thrive by emphasizing science, technology, engineering and mathematics subjects (STEM) and digital literacy in education and early training programmes. Government should intensify awareness campaigns amongst women with emphasis on hardware, software and digital resources they can access to scale-up their businesses.

**4. Improving Culture and Social Context.** Entrepreneurs are strongly influenced by role models and social context. It is therefore important to promote women entrepreneurs as role models and ensure that the education system is gender-neutral and does not discourage women from going into STEM fields (i.e. science, technology, engineering and mathematics). Finally, more targeted actions can be taken to ensure that family policies, social policies and tax policies do not discriminate against entrepreneurship by women.

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