



INNOVATION AND FIRM PERFORMANCE: WHAT MUST SMEs LEARN FROM THE EXPERIENCE IN ZIMBABWEAN MANUFACTURING SMEs?

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Abstract

*In Zimbabwe, the collapse of the formal economy and the lack of formalised employment has made the informal SME sector even more important. However, the continued failure to grow and the early closure of these businesses is a challenge which points to the lack of innovation. The aims of this study were to assess the level of innovation in manufacturing SMEs, to establish the relationship between the level of SME innovation and business costs and to establish the relationship between the level of SME innovation and annual revenues. The study depended on primary data collected from the staff and some secondary data. It was established that the mean for product innovation was 3.4 whilst that for process innovation was 2.8, showing that Zimbabwean SMEs have only fairly adopted innovation in their operations. There also were significant correlations between the process and product innovations (-0.658) and between the production costs and the overall costs (0.782), showing that innovation in terms of the SMEs' processes affected the innovation on the product level, whilst the costs incurred in the production affected the overall costs incurred by the SMEs. Apart from this, the findings also showed that the *t* value for the relationship between product innovation and SME revenue performance was 4.075 whilst that for the relationship between the process innovation and the revenue performance was -3.544. The study therefore recommended that Zimbabwean SMEs should formally adopt innovation as part of their business strategies, particularly product and process innovations.*

Keywords: SME, innovation, business costs, revenues, business performance



INTRODUCTION

Background

SMEs are important in global business today. It is believed that the SME sector represents as much as 99.7% of global enterprises (Mwangi and Namusonge, 2014). They have been suggested to be the major source of employment available in the majority of the developing nations, with SMEs contributing above 90% of African businesses and above 50% of the continents' GDP and employment (Mwangi and Namusonge, 2014). As such, these firms make contributions to the economic and social development of many countries, which makes it imperative for there to be policies and strategies that enhance their growth and development.

Today's business environment makes innovation more critical than ever. The rise and rapidity of globalization in the marketplace has led to the need for stronger value chains and firm competitiveness (Love and Roper, 2013). The dynamic business environment has led to a more critical need for SME businesses to change their organizational processes and structures so as for them to stay updated (Gale, Gelfond and Krupkin, 2016; Trimi and Berbegal-Mirabent, 2012). It is important for considerations to be made on the ways through which the business earns its money which is a difficult feat in today's highly competitive business environment (Trimmi and Berbegal-Mirabent, 2012; Hartkamp, 2017). SMEs are struggling to keep abreast with these developments as they mostly have low innovation activity due to resource constraints for R&D. This is against the fact that SMEs are more likely to innovate and grow as compared to other firms (Love and Roper, 2013). SMEs which innovate grow faster and are more capable of introducing successful products and services in the markets which they save (Leithold, Haase and Lautenschlager, 2015).

Innovation challenges are abound in most Zimbabwean SMEs. Hartkamp (2017) suggests that SMEs, unlike larger firms, have more innovation challenges which are often related to poor resources as well as low skills. Added to resource and skill challenges, SMEs are usually faced with the challenges of operating in a new industrial sector and have fewer connections with the administrative and business functions (Molz, Tabaa and Totskaya, 2009; Molz et al., 2009). In the view of Foreman-Peck (2012), SMEs are more prone to market failures since they may be constricted in their ability to generate and use knowledge, which is the prerequisite resource to innovate. Owing to the high chances of failure, the investments in R&D and innovative activities may possibly lead to high financial losses for the SMEs (Foreman-Peck, 2012).

Despite these and other challenges, it is always imperative for SMEs to establish effectiveness, market performance, economies of scale and business survival and in order for this to be done, the firms must attend to their organizational, human and financial resources

through innovative ideas (Molz et al., 2009). As such, this study sought to establish the impact of innovation on the cost and revenue performance of SMEs in Zimbabwe.

Statement of the problem

Zimbabwean SMEs are burdened by high operating costs which emanate from the macroeconomic challenges that the country has been facing since the turn of the millennium. With a growing adoption of SMEs as the major employers in the largely informal economy, the revenue performance of the sector is critical for its viability and survival. However, there is a dearth of academic knowledge on the extent to which the manufacturing sector SMEs in the country are leveraging on the use of innovations in improving their operations, and the impact this has on cost reduction and revenue enhancement. In Zimbabwe, there is little knowledge on the issues of SME performance and innovation (Makate, 2015). As such, the rationale of this study was focused on establishing the relationship the level or degree of innovation in the SME has with the total costs incurred by the business as well as the annual revenues received.

Objectives

- To assess the level of innovation in the SMEs
- To establish the relationship between the level of SME innovation and business costs
- To establish the relationship between the level of SME innovation and annual revenues

Significance (Contribution) of the study

The study could be used to guide business strategy in the SMEs. The majority of Zimbabwean SMEs, owing to the turbulent economy, are risk averse when it comes to investing in innovation for improved performance. The study could provide data on how to make decisions in the investment cost-revenue performance trade-off. This could enhance SME performance and survival as innovative business strategies reduce cost inefficiencies whilst maximizing on performance. To the literature, the study helps to fill current research gaps on how innovation contributes to the reduction of operating costs and leads to the enhancement of revenue performance in the particular context of manufacturing SMEs in distressed economies. Governments and other policymakers can find the study useful in the formulation of SME-oriented innovation policies and programmes.

Delimitations

The study only focused on SMEs located in the Harare central business district (CBD) only and was biased towards SMEs with a line of manufacturing finished goods, such as manufacturers

of non-alcoholic beverage drinks, clothes, shoes and soap. As such, the study excluded SMEs offering services or retailers. The study also used time period between 2013 and 2017 and focused only on technological innovations in production and marketing.

Limitations

The major limitations in the study were data bottlenecks owing to the generally informal nature of the SMEs which gave rise to unclear organizational hierarchies and command structures, the disorganization and even non-existence of the required data as well as the misconceptions that the research was a regulatory clampdown on their businesses.

LITERATURE REVIEW

Theoretical framework: The Open Innovation Theory

The study was based on the Open Innovation Theory. This is one of the most popular innovation theories which suggests that firms need to adopt strategies of innovation through making use of both internal and external means (Chesbrough, 2006). The Open Innovation theory makes the contention that a firm's innovativeness is not only a product of internal strategies and capabilities but is also dependent on external ones which must be given equal emphasis. For SMEs, the theory helps to explain the existence of barriers to innovation, such as resource shortages, poor human resources and capabilities. SMEs, however, have a remarkable character of innovating even in the face of these barriers and benefit from open innovation as they can make use of external resources and ideas to come up with new services or products, production and marketing processes (Chesbrough, 2006).

The concept of innovation

Firstly, it is important to understand what innovation entails from a conceptual perspective. Innovation relates to the doing of new or novel things or the doing of old things through new strategies so as to enhance sales, cost, profit or market performance (Abdilahi, Hassan and Muhumed, 2017). Innovation has also been suggested to be the use of institutional, technological or human resources in ways that achieve new products, markets and practices (Abdilahi et al., 2017). Innovations can manifest as a new service or product, a new technological process in production, a new organizational administration structure or system, a new program or plan. Product and process innovation types are the major focus of academic literature on innovation, although organizational innovation is also a newer type of innovation dimension being focused on by researchers (Braunerhjelm, Ding and Thulin, 2016).

The innovative capability of the firm has been tied to the process of research and development (R&D) within the SME. R&D leads to the generation of newer knowledge which informs new innovations (Zimmerman, 2017). As such, SMEs which regularly do R&D activities are more likely to have newer knowledge and thus will be able to come up with new services or products or newer processes of production.

Relationship between innovation and SME performance

The relationship between innovation and firm performance is not a novel idea. Many academic investigations have established the positive relationship between innovation and the performance of the business (Zimmerman, 2017; Trimi and Berbegal-Mirabent, 2012; Molz et al., 2009; Mahmutaj, 2014). The impetus to innovate arises from poor or unsatisfactory profits, revenues, sales or market shares and innovation can be seen as the corrective measure to achieve satisfaction on these and other performance indicators. Innovations often bring short term benefits such as the reduction of competitive forces and the enhancement of market positioning, which have been related increased productivity. In the long run, some products or services will become obsolete whilst competitiveness becomes reduced (Hall et al., 2008).

Firm performance can be measured from different levels. The two categories which can be used to measure SME performance include the financial as well as the non-financial measures (Piabou, Baye and Tieguhong, 2015). Amongst the financial measures are the return on investment, total costs, profitability and sales measures whilst the non-financial measurements often include customer satisfaction and retention, product lead time, process and delivery as well as employee learning and development (Piabou et al., 2015; Maseko, 2013). Often, the combination of both types of performance measures enhances the understanding of SME performance (Njogu, 2012; Piabou et al., 2015; Sharma, Davcik and Pillai, 2016).

Despite the existence of recent studies which show how SMEs can enhance their performance through newer innovations to their business models (BM) (Heikkila, Bouwman and Heikkila, 2017), the ways through which the SMEs can be able to innovate in their BMs are still unclear (Foss and Saebi, 2017; Barjak, Niedermann and Perret, 2014). Furthermore, SMEs are generally less likely to be innovative as compared to larger businesses (Bauman and Kritikos, 2016), although they do have higher intensities to innovate (Peters, Roberts, Vuong and Fryges, 2013). As a result of the lack of resources, SMEs often try to be innovative even in the absence of R&D investments (Peters et al., 2013).

Conceptual Framework

The conceptual framework informing this study was derived from the BM innovation canvas, which relates the partners, activities, resources, value proposition, relationships, cost structure and revenue streams of the firm as the major sources and avenues of the innovation. This model is as shown in Figure 1 below.

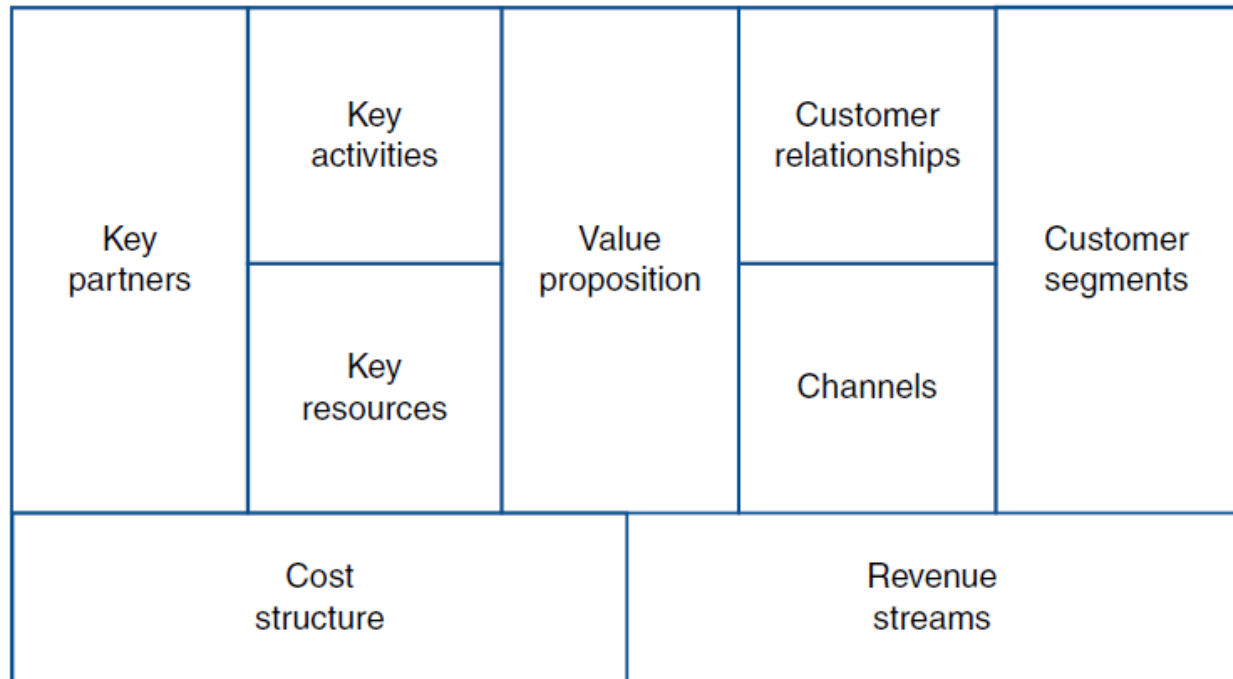


Figure 1. The BM innovation canvas

The canvas was important in this study in order to help explain the relatedness between SME innovation capabilities (in the resource-based perspective) to the performance (in the cost and revenue-based perspectives), as shown in Figure 1 above.

METHODOLOGY

Research Philosophy

A research philosophy is a worldview underlying the theories and methodology of a particular scientific subject (Wood, 1997). The major research paradigms that dominate literature are the positivism paradigm as well as the phenomenology paradigm. In this study, the researcher made use of pragmatism, which is a mixture of positivism and interpretivism. This is a more relevant research paradigm to use as it combines the strengths of one research paradigm to compliment the weaknesses of the other, as explained by Saunders et al. (2009). A combined methodology can overcome the problems of each individual method, without becoming trapped

in the problems of the other. This mixed methods approach been selected because it places the research problem as central and applies different approaches to understanding the research problem. It recognises that every method has its limitations and different approaches can be complimentary. This mixed methods design was fixed as suggested by Cresswell and Clark (2011: 54) since it “is predetermined and planned at the start of the research process, and the procedures are implemented as planned.” Kato (2002) suggests that this is a more persuasive way of social science. The roots of mixed methods are typically traced to the multi-trait, multi-method approach of Campbell and Fiske (Mood et al, 1994), although it is considered a relatively new methodology whose key philosophical and methodological foundations and practice standards have evolved since the early 1990s (Tashakkori, 2009).

Research Approach

In this study, induction was favoured as it is more suited to studies where there may be little or scanty empirical data, as suggested by Saunders et al., (2015). It was also favoured is it is more suited to the testing of theories. This approach allowed the researcher to make use of scientific theories and to explain the causal relationship between the research variables whilst maintaining an understanding of the contexts in which the phenomena occur in the real world and to allow flexibility to changes which can occur in the research context as the study progresses.

Saunders et al. (2015, p.145) state that inductive research “starts by collecting data to explore a phenomenon” and that it generates or build a theory. In the perspective of Denscombe (2010, p.273), inductive research “tends to work from the particular to the general and the analysis attempts to arrive at more abstract and generalized statements about the topic.” Inductive research is aimed at building a theory and “is particularly concerned with the context in which such events were taking place” (Saunders et al., 2011, p. 119). As the aim of this study was to come up with conclusions and generalisations on the effect of tourism policies on the performance of the tourism sector, the inductive approach was therefore relevant and adopted.

Research Design

In this study, the researcher made use of the convergent parallel design owing to the fact that this study was a mixed methods and this design is more suited as a triangulation design as stated by Cresswell and Plano Clark (2011). This design allowed the researcher to obtain similar yet complimentary data on the effect of governmental policies on the performance and contribution of the tourism sector. This enhanced data validation and corroboration as Cresswell

and Plano Clark (2011) state. The design was also selected for as the researcher had limited time to carry out the data collection as well as since he had appreciable understandings of both qualitative and quantitative research methods.

Population

Best and Khan (1995) describe the term population as any group of individuals that are under study. A research population is the exhaustive list of all the elements or items or objects under study or investigation. Sekaran (2001) defines a population as the entire group of people, events or things of interest that the researcher wishes to investigate. The population of this study included key manufacturing SMEs from the SMEs association database, particularly those in the Harare CBD.

Sampling

A sample are the representatives selected for a study whose characteristics exemplify the larger group from which they were selected Patton, (2005); Silverman, (2006). To study the target population or the whole population to arrive at generalizations would be impracticable, for reasons such as a change in the characteristics of the population to be measured, cost, time space and the reliability of the measurements. It is noted that, analyses are best when conducted on samples that are still fresh (Sarantakos, 2005).

Sample surveys were carried out in the sample sites in Harare. This study interviewed SMEs that are only involved in manufacturing activities. SMEs were used in this study as the units of data collection and analysis. It was not possible to involve all the SMEs because of the lack of human and financial resources, hence purposive sampling was be used. The following formula for determining the sample size (Mutambirwa, 2002) was used:

$$n^* = (n) / [1 + (n/N)]$$

Where;

n^* =necessary sample size

n =desired sample size when n is less than 10 000

N =estimated population size

n/N =the sampling fraction

This was done so that there could be uniformity in the samples in the areas, and so that it could be easy for comparing the data from the study area. The sampling was simple and randomized. This ensured no bias in choosing the SMEs for the study. The total population for the study included 161 employees in SMEs involved in the manufacturing sector.

Data collection and analysis

The study depended on primary data collected from the staff and some secondary data. The primary data was collected from the field survey using Multi-Level Questionnaires and interview schedules. The questionnaires comprised of both close-ended and open ended questions. These formed the basis of the analysis of the study. The study research instrument was adapted from (Abdilahi, Hassan, Muhumed, 2017). The data was analysed using the Statistical Package for Social Scientists (SPSS). Responses were numerically coded and inputted into an SPSS data editor. Several data analysis functions were used to generate frequency tables, cross-tabulations and other descriptive statistics showing the most popular responses. Data from interviews with key informants was also classified according to the order of the questions on the interview schedule and important quotes from interviewees were noted for direct citation in data analysis. Data collected from field observations were recorded separately and used in the analysis where it was applicable.

Analysis of variance (ANOVA) was used to test the hypothesis formulated and determine goodness of fit of regression models computed in the study. Simple regression was used to quantify and establish the nature of the relationships between various variables in the research, such as the duration of operation, earnings and number of employees.

Validity and Reliability

To ensure the validity and reliability of the data, the researcher made use of two methods, namely a pilot study and data triangulation.

Pilot Testing

In order to test the validity and reliability of the instrument, a pilot study was conducted on 5 respondents. The participants of the pilot study were not included in the main study. The instrument were measured on the extent to which individual questions related to the overall objectives of the study. Results from the pilot study indicated points of improvements on the research tool.

The aim of the pre-test was to ensure the validity and reliability of questionnaires and to find out whether the instructions and questions were clear. The pilot study also tested the time taken to complete the questionnaires or to interview the research subject. The pilot study helped in the correction of errors that were pointed out by the responses used in the survey. The pre-test survey assisted in assessing the appropriateness of the research instruments before the actual collection of the desired data was done.

Triangulation

To make the research result bias free, the researcher also used data triangulation. Valid and generalised triangulation plays an important role in this area by increasing the rate of certainty and bringing neutrality. Triangulation is process of using more than one method, theory, researcher and data collection method and technique to make the research findings more valid, reliable and generalisable (Kothari, 2004). In this study, the researcher made use of both the questionnaire and interview methods as a form of triangulation to improve the research's findings. Furthermore, the researcher also made use of both primary and secondary data in the analysis to ensure that the findings were valid and reliable.

FINDINGS

Descriptive statistics

Table 1. Descriptive statistics of data

	Mean	Std. Deviation	N
Product	3.3602	1.27746	161
Process	2.7826	1.29757	161
Production Costs	2.8075	1.17535	161
Overall Costs	2.9006	1.25102	161
Revenues	2.8323	1.27100	161
Profits	4.6273	.75680	161

Table 1 shows that the means for the product use, the process, production and costs were 3.4, 2.8 and 2.8, respectively. For the overall costs, the mean was 2.9, for the revenues it was 2.8 and for the profits the mean was 4.6. These means show that the majority of the studied SMEs have only fairly adopted the three types of innovation, namely product, process and production innovations, although product innovation is the most widely adopted type of innovation. The SMEs also have fair levels of performance as seen from the reduced costs, overall costs and revenues, although the profitability is high.

Reliability analysis

Table 2. Reliability testing results

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.660	.704	20

From Table 2, it is clear that the Cronbach Alpha coefficient was 0.704. This showed a fairly high degree of reliability of the variables and findings.

Demographic details of participants

Demographic variables such as the participants' gender, age group, highest academic level attained and the age of their SMEs were investigated. The findings on the demographic variables included in the study are as presented in Table 3.

Table 3. Demographic details of the participants

Response	Frequency	Percent	Cumulative Percent
Gender			
Female	74	46.0	46.0
Male	87	54.0	100.0
Age group			
25-35	55	34.2	34.2
36-50	66	41.0	75.2
Above 50	8	5.0	80.1
Below 24	32	19.9	100.0
Academic level			
Certificate	12	7.5	7.5
Degree	56	34.8	42.2
Diploma	45	28.0	70.2
Postgrad	38	23.6	93.8
Primary	1	.6	94.4
Secondary	9	5.6	100.0
SME age			
2-5	57	35.4	35.4
6-10	36	22.4	57.8
Above 10	34	21.1	78.9
Below 1	34	21.1	100.0
Total	161	100.0	

From the findings above, the majority gender were males who made up 54% of the participants. The majority were those aged between 36 and 50 years, who made up 41% of the participants, followed by those between 25 and 35 years, who made up 34.2% of the total participants in the study. Most of the participants had first degrees, and these made up 34.8% of the total participants, whilst the majority of the SMEs were between 2 and 5 years old, being 35.4% of the total SMEs in the study.

From these findings, it is clear that SMEs are made up mostly of males, even though there is an almost equal distribution of gender in this sector, and the majority of the entrepreneurs are well educated as they possess academic degrees. Most of the SMEs are, however, in their infancy stages, which is when the adoption of innovation is most critical and new to them.

Level of innovation in the SMEs

Table 4 shows the descriptive statistics for the findings on the level of innovation in the SMEs.

Table 4. Level of innovation in SMEs

	N	Minimum	Maximum	Mean	Std. Deviation	Variance	Skewness	Kurtosis			
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Product	161	1.00	5.00	3.3602	.10068	1.27746	1.632	-.339	.191	-1.135	.380
Process	161	1.00	5.00	2.7826	.10226	1.29757	1.684	.499	.191	-.965	.380
Valid N (listwise)	161										

From Table 4, the mean for product innovation was 3.4 whilst that for process innovation was 2.8. It is therefore clear that SMEs have only fairly adopted innovation in their businesses. Given the young age of most of the SMEs in the study, which were between 2 and 5 years, it is clear that innovation challenges are being faced in these business, hence its fair adoption.

Relationship between the level of SME innovation and business costs

A correlation test was done to determine the effect of innovation level on SME business costs. The findings of the test are presented in Table 5.

Table 5. Effect of innovation on SME business costs

		Product	Process	Production Costs	Overall Costs
Product	Pearson Correlation	1	-.658**	-.020	.003
	Sig. (2-tailed)		.000	.800	.970
	N	161	161	161	161
Process	Pearson Correlation	-.658**	1	.091	.010
	Sig. (2-tailed)	.000		.250	.903
	N	161	161	161	161
Production Costs	Pearson Correlation	-.020	.091	1	.782**
	Sig. (2-tailed)	.800	.250		.000
	N	161	161	161	161
Overall Costs	Pearson Correlation	.003	.010	.782**	1
	Sig. (2-tailed)	.970	.903	.000	
	N	161	161	161	161

** . Correlation is significant at the 0.01 level (2-tailed).

From the findings, there were significant correlations between the process and product innovations (-0.658) and between the production costs and the overall costs (0.782). This shows that innovation in terms of the SMEs' processes affected the innovation on the product level, whilst the costs incurred in the production affected the overall costs incurred by the SMEs.

Relationship between the level of SME innovation and annual revenues

The findings on the relationship between the level of SME innovation and the revenue performance of the firm are as presented in Table 6.

Table 6. Effect of innovation on SME revenues

Model		Unstandardized		Standardized	t	Sig.	95.0% Confidence	
		Coefficients		Coefficients			Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
	(Constant)	2.495	.478		5.218	.000	1.550	3.439
1	Product	.345	.085	.347	4.075	.000	.178	.513
	Process	-.296	.083	-.302	-3.544	.001	-.460	-.131

a. Dependent Variable: Revenues

A probability plot of the regression is also as presented in Figure 2 below.

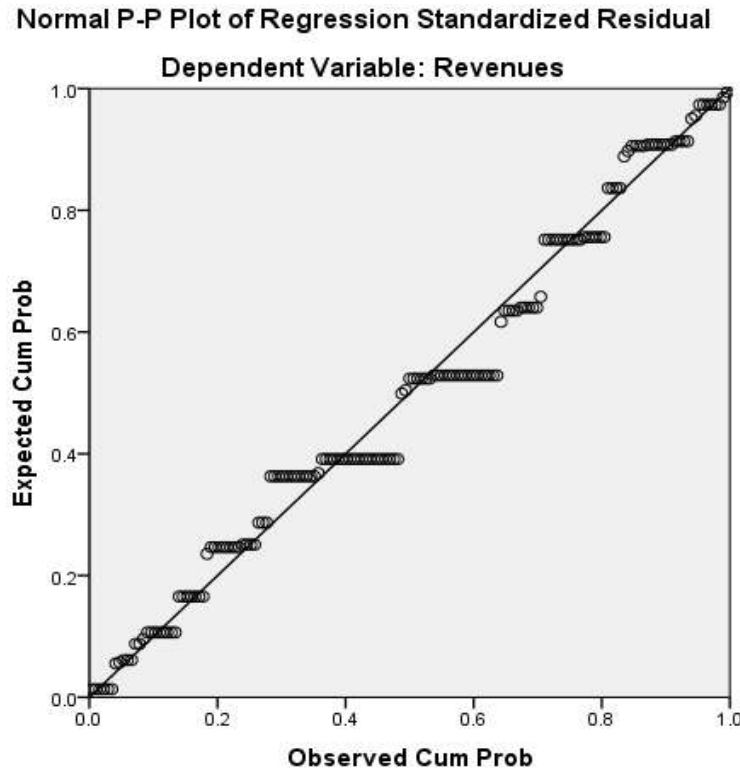


Figure 2. Probability plot for effect of innovation on revenue performance

The findings show that the t value for the relationship between product innovation and SME revenue performance was 4.075 whilst that for the relationship between the process innovation and the revenue performance was -3.544. Generally, the findings show that innovating in terms of the product benefited the SMEs better as compared to innovating in terms of the process, even though there was also a significant and positive correlation between the process innovation and the product innovation.

DISCUSSION AND CONCLUSION

The findings of the study show that SMEs in Zimbabwe have only fairly adopted innovation in their businesses, mostly since the majority of them are new and young businesses which are still facing innovation challenges. The majority of the SMEs in the study are thus not doing new things, which is the main characteristic of innovative firms (Abdilahi et al., 2017). This can only mean that such SMEs are suffering from the failure to produce new products to reach newer markets as well as in the adoption of technology in their practices, which are amongst the major benefits realized by an innovative firm (Braunerhjelm et al., 2016).

It was established that there is a positive relationship between the process innovation and the product innovation types among SME businesses in Zimbabwe. It was also highlighted that there exists a strong relationship between the production costs and the overall costs incurred by the SMEs. This is one of the possible reasons why most Zimbabwean SMEs prefer not to adopt innovation since it is believed to increase the production costs, ultimately raising operational costs for the business and affecting profits. This state of affairs is against the vast literature which suggests that innovation can positively affect the performance of the SME (Mahmutaj, 2014; Piabou et al., 2015; Sharma et al., 2016; Zimmerman, 2017).

The study also showed that innovating in terms of the product benefited the SMEs better as compared to innovating in terms of the process, even though there was also a significant and positive correlation between the process innovation and the product innovation. However, whilst this may be true for the SMEs in Zimbabwe, it is important to note that innovation is still a necessity for the firms. Even though it may increase business costs, the Open Theory of Innovation suggests that one of the sources of the impetus for innovation are outside factors, which if not adopted to, may cause even greater financial losses for the firms (Chesbrough, 2006).

RECOMMENDATIONS

Zimbabwean SMEs should formally adopt innovation as part of their business strategies, particularly product and process innovations. Thus it is of importance for SMEs to invest in innovation programmes, such as purchasing the necessary technologies and financing projects to develop new products. Through innovation, the firms will be able to withstand the internal and external pressures working against their performance, as well as to reach new markets. Ultimately, the innovating firms will be more profitable and financially viable. Even though innovation can lead to higher operational costs in the short term, it can prove beneficial to firm performance in the long term and SMEs can make use of it as they grow and develop.

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