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RESEARCH PAPER

Success vs Failure Prediction Model for SMEs: A Study of South Punjab and Baluchistan

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PAPER INFO	ABSTRACT
	This paper examines the factors that lead to success or failure of Small Medium Enterprises (SMEs) operating in South Punjab and Baluchistan. There is lack of studies that have conducted in this setting particularly in Pakistan.. Using quantitative approach the data was collected through questionnaire adapted from Lussier Model to measure the success and failure factors of SME's. The data was analyzed by using e-views to examine the reasons for the success or failure using logistic regression statistical analysis. The result of this study showed that proper business planning, employee staffing, adequate capital inflow and partnerships are important for the viability, management experience, and planning play important role for the success of SMEs. The findings of this study help the SMEs owner, managers, policy makers, practitioners and other professional advisor to improve the success of SME's by focusing on proper planning, professional advice, relevant industry experience, education, staffing, age, and to avoid failure by maintaining and improving proper record keeping and financial control.

Introduction

Economist, practitioners and academicians verified that SME's helps economies to elevate poverty (Khan & Ali Qureshi, 2007;OECD, 2004). create employment, increase growth (Soomro & Aziz, 2015). promote innovation and foster research and development (Ejaz, 2012). In addition, SMEs helps the countries in creating new jobs, increasing social solidity and access to capital (Morrison, Ali & Breen, 2003).

In developing countries approximately more than 90 percent of the firms are SMEs and among these SMEs, more than 90% enterprises are small enterprises (Schapper 2006). Pakistan as a developing country is concentrating on the development of SMEs that was guided by Small and Medium Enterprise Authority (SMEDA) in several sectors including trade, manufacturing and agri-business (Hussain et al, 2009). Despite the importance of SMEs, the failure rate of SME's is very high particularly in Pakistan (Hyder et al., 2015). It is realized by the researchers that small business owners with entrepreneurial characteristics has less chances of failures and have ability to utilize their resources in an efficient and effective manner that helps in strengthens the development and economic growth of a country. Therefore, to run a successful SME, there is a need to know why some entrepreneurs fail or succeed to run their business? This gap is highlighted by the study of Olison and Sorensen, (2014) that there is a need to predict, why some businesses grew frequently, and others failed?

In Pakistan's GDP, SME's shares about 40%, retail and wholesale business contribution is 18.2% with 5.79% annual growth rate (Government of Pakistan, 2018). Initiation and creation of SME's play a crucial role to increase the size and quality of employment and sustainability of Pakistan. Carter & Van Auken, (2006) study has realized that there is need to focus on the development of SMEs in Pakistan to establish small enterprise creation and to reduce the phenomena of failures. Therefore, it is important for researcher to predict SMEs success and failure factors (eg., Ciampi & Godini, 2013; Lussier, 1995, Lussier and Pfeifer, 2000; Marom& Lussier, 2014). This research focused on the evaluation of SME'ssuccess versus failureand find out the reasons that lead to the success and failure of small business.

The main objective of this study is to identify the variables (adapted) from Lussier (1995) model that apply in predicting the success/failure of SME's of South Punjab and Baluchistan. In this study, the term "success/failure", implies that a single variable can have an effect on success and/or failure, not necessarily either or. In other words, the term means that a variable can have an effect on success, on failure, or both. For others this variable would be a "failure" factor since they started with insufficient funds. Either way, it is a success/failure factor.

Literature Review

Lussier (1995) has explained the factors that can leads to success or failure of a firms including capital, financial control, record keeping, industry experience, management experience, planning, professional advisor, education, staffing, product/industry, economic timing, age, partners, parents, minority, and marketing are the factors that. Capital as money is a contributing factor for success or failure of business. It is argued undercapitalized firms have a greater chance of closing while firms with appropriate capital have a greater chance of success. Financial controls and record keeping refers to the findings that firms that fail to use adequate financial controls, such as accounts payables, receivables, inventory,

cash flows, etc. Industry experience on the part of the business owner is contributing factor in the success /failure of business. It explain that business owners management experience that involve planning, organizing, leading, staffing and controlling, Planning describes the planning about business startups that lack a business plan including that involves but is not limited to the purpose and objectives of the business, strategies to accomplish the objectives, financial projections that include costs and sales forecasts, products, marketing, financing, location, etc. Professional advisors, it explains the capacity of a firm that does not uses the advice and help from bankers, accountants, lawyers, and consultants.

An important factor is education; it relates that education of owner/manager with the success or failure of SMEs. **S**taffing, product/industry, economic timing, age of owner, number of partners, parents support, minority contribution and marketing strategies are also considered as contributing factors towards the success/ failure of businesses.

As SME's have eventual effect on the growth of economy particularly, it has effect on SMEs operating in South Punjab and Baluchistan. The findings from the research provided necessary information to answer the research questions. It can be concluded that SMEs from South Punjab and Baluchistan, like other countries SME's can play a key role in socio-economic development provided SMEs entrepreneurs are made aware of the factors of entrepreneurial success of failure. The exposure of entrepreneurs in this study is remarkable in the South Punjab and Baluchistan commercial SMEs located in selected area is the unique contribution of this study.

Material and Method

Based on quantitative approach, this study used non-probability sampling technique. The data was collected about the factors adapted from Lussier (1995) SMEs success/failure prediction model from the owners operating and operated their SME's in South Punjab and Baluchistan. The study is also ex-post facto because the independent variables in the model are already inferred in the literature as contributing causes of success/failure inSME's through statistical test suggested by previous studies. Each one of the independent variables in the modelis tested in order to determine if they have an effect or not on the dependent variables (success and/or failure) in the context of SMEs from South Punjab and Baluchistan. Cochran (1981) stated that research on business failure for subgroups about SMEs for example sector would prove very useful.

Measures

This study used previously validated Lussier (1995) model. The model measure the 15 variables showed in Table 1. Lussier (1995) model is adopted and validated by other studies (e.g., Chu et al 2007). In this research, the dependent variable is success and failure of (SMEs). "In the present study, successful organization is described as the startup of business that invest in business with

new ideas and innovations, the business model should be scalable that the point of risk incurred phenomena behind the development of policies and model highlighted. if the startup changes its ownership during the period, the survival remained active, it is indicated as a successful startup. In the present research, failed organization is defined as an organization that have lack of management experience, lack of planning, lack of education and etc. factor defined by Lussier (1995).

In this study, the term "success/failure", implies that a single variable can have an effect on success and/or failure, not necessarily either or. In other words, the term means that a variable can have an effect on success, on failure, or both. For others this variable would be a "failure" factor since they started with insufficient funds. Either way, it is a success/failure factor. In this case the null hypothesis would be rejected in favor of the alternative hypothesis. When a variable does not have an effect on either success or failure, then the null hypothesis for that variable cannot be rejected and the alternative hypothesis is rejected (there is a null and alternative hypothesis for 15 independent variables in this study).

Logistic Regression

This study used logistic regression technique to analyses the collected data. Most of previous studies used logistic regression technique to test and analyses success and failure of organizations (e.g., Chu et al; 2007; Cooper et al. 1990, 1991; Lussier 1995). Multiple logistic regression analysis, is a stepwise methods helps to select the best combination of these variables (reduced model) as suggested by Lussier (1995). The probability is the parameter for the binomial distribution (Agresti, 2007). Thus, logistic regression estimates parameters by equation which as follows.

General Equation

$Y_i = \beta_o + \beta_1 X_{1i} + u_i$

There are more than two variables can be estimated through logistic regression.

$Y_i = \beta_o + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \ldots + \beta_k X_{ki} + u_i$

Y_i = represent the dependent variable

$X_{1i} + X_{2i} + X_{3i} + X_{4i} + \ldots + X_{ki}$ = represent the independent variables

$\beta_o + \beta_1 + \beta_2 + \beta_3 + \beta_4 + \ldots + \beta_k$ = represent the regression coefficients

u_i represents the error in the model, error term

whereas:

Yi = 1, yi* > 0 and , yi* ≤ 0

The following equation derived from the logistic regression equation that is used to analyze the hypotheses of present study literature.

SUC = β0+ β1capti+ β2inexi+ β3maexi+ β4plani+ β5pradi+ β6stafi+ β7pstii+ β8ectii+ β9mrkt β10penti + β11educi+ β12agei+ β13parti+ β14rkfci+ β15miori+*ui*

FAL= β0+ β1capti+ β2inexi+ β3maexi+ β4plani+ β5pradi+ β6stafi+ β7pstii+ β8ectii+ β9mrkt

β10penti + β11educi+ β12agei+ β13parti+ β14rkfci+β15miori+*ui*

Where SUC/FAL dummy variables of success/failure and ui is the error term, (i=1…n) is relates to a startup business.

Results and Discussion It is shown also established the sample size of population (N=200). contains on 86.79 % of males and 13.20 % of females. It shows that entrepreneurship is a top choice for south Punjab and Baluchistan males and females entrepreneurs. On average, the participants of mature age (25-40 years). have graduation, and they have 5-6 years and more business prior work experience. There were two dependent variable in the current study's model success and failure. The systematic data analysis coding through e-views was 0 (success) and 1 (failure).

Table 1
Results of the Model

	Variables in the Equation	B	S.E.	Wald	df	Sig.	Exp(B)
	Gender	5.352	18322.945	.000	1	1.000	211.088
	Education	-1.749	4005.200	.000	1	1.000	.174
	Money invested to start the business was sufficient.	-2.755	6350.582	.000	1	1.000	.064
	I had propose experience of this business for starting it.	-.958	8832.250	.000	1	1.000	.384
Step 1	I had previously management experience.	14.636	8324.059	.000	1	.999	2272646.563
	Before starting the business properly planned that business	-.008	13868.869	.000	1	1.000	.992
	I got professional advice to start that business.	.263	7200.029	.000	1	1.000	1.300
	My employees in that business active and reliable.	5.782	6750.204	.000	1	.999	324.543
	I have been introducing new product and services	1.828	7436.878	.000	1	1.000	6.222

I have been actively changing decisions according to market situation.	4.595	9014.563	.000	1	1.000	99.007
I have marketing skills.	6.731	15532.673	.000	1	1.000	837.947
Did your parents have similar business?	2.774	24793.545	.000	1	1.000	16.015
Do you think education play important role in business?	-11.793	42785.399	.000	1	1.000	.000
Do you think owner's age also impact on business?	-20.491	20146.979	.000	1	.999	.000
Staff role is very important to run a business.	-.537	43743.801	.000	1	1.000	.584
Financial control record sufficient for the success and failure.	21.034	18817.718	.000	1	.999	1364302912.000
Minority has participation in this business.	-6.564	21363.797	.000	1	1.000	.001
Constant	-66.252	27188.606	.000	1	.998	.000

In the Table 1 the result showed that negative variables are weak in relation but have significant result. The -1.749 to -66.252 figure showed there is no relation of variable as the t-values are less than 1.96. The setup started without education and discrimination of age, staff owner validation. Other side the results of standard errors are very high it means there is high range of error term factor exist there is need to reached on final solution with specific term and condition for entrepreneur business in south Punjab and Baluchistan.

Table 2
Result of Model

Dependent Variable: SUCCESS/ failure				
Method: ML - Censored Logistic (Quadratic hill climbing)				
Date: 09/26/18 Time: 08:31				
Sample: 200				
Included observations: 200				
Left censoring (value) at zero				
Convergence achieved after 7 iterations				
Covariance matrix computed using second derivatives				
Variable	**Coefficient**	**Std. Error**	**z-Statistic**	**Prob.**
Q1(capital)	0.010100	0.012280	0.822517	0.4108
Q10(parents)	0.019509	0.025065	0.778323	0.4364
Q11(education)	-0.230383	0.083350	-2.764057	0.0057
Q12(age)	-0.178930	0.088669	-2.017961	0.0436
Q14(record keeping financial control)	-0.374917	0.129890	-2.886422	0.0039

Q2(industry experience)	0.067667	0.028890	2.342189	0.0192
Q4(planning)	0.147685	0.030452	4.849782	0.0000
Q5(professional advise)	0.037268	0.013708	2.718721	0.0066
Q6(staff)	0.117296	0.028018	4.186425	0.0000
Q7(product & services)	0.035355	0.013525	2.614011	0.0089
Q8(education)	0.062143	0.024315	2.555732	0.0106

As the p-value (< 0.05) showed that there is significant result the null hypothesis is rejected and if the results are greater than 0.05 it indicates that they are insignificant. In the Table 1 the p-value of all variables are as (< 0.05) that indicates the significance of result except capital and parents values are insignificant.

It has been described in Table 1 the characteristics that influenced   the success/failure of the startup a business. According to the results, the variable *planning* (β = 0.1476, p =0.000, z = 4.8497) the p value shows significant results represent that planning is play a vital role in the success of business, development of new ideas and plans create the innovation in the business. It is also observed that variables *staff*(β = 0.1172, p =0.000, z = 4.1864) p-value indicates positive results that the reliable and active staff is the strengthen variable that support positively to the business with the effectiveness and efficiency in the work. The trustworthy staff is the blessing for the business, it works only for the growth of the business through their creativity and professional skills hence, the variable *product and service* (β = 0.0353, p =0.0089, z = 2.614) present that proper planning and the active staff retain the creditability and recognition of the business by introducing new products and services but it shows the weak relationship with dependent variables. On the other hand, the *professional advise* (β =0.0372, p =0.0066, z =2.7182) and *industry experience* (β =0.0676, p =0.0192, z =2.3421) correlation coefficient represent very weak relationship of*professional advice* and*industry experience*with the success/failure but the p-value and z value show significant results. It means there is need of professional advisor and industry experience in south Punjab and Baluchistan region. The variables *capital*(β =0.0101, p =0.4108, z =0.8225) and *parents* (β =0.0195, p =0.4364, z =0.7783) also show the weak positive relationship with the success/failure. The z-value of *capital* 0.8225 and*parents*0.7783 does not rejected the null hypothesis it describes that these two variables have not significant relation with the dependent variables.

The three variables *education*(β = -0.2303, p = 0.0057, z = -2.7640). *age* (β = -0.1789, p = 0.0436, z = -2.0179) and *record keeping financial control*(β =0.3749, p =0.0039, z = -2.8864) β coefficient represent the negative relation with the dependent variables whereas the p value indicates results are significant. The overall results describe that there is lack of awareness among the people that without education and record keeping and financial control it is not possible to create new ideas and to run planned business system. The cognizance of industrial experience, profession advisory and market situation affected the business outcomes. According to results it should be added in this discussion that the capital has the fundamental part to

start and run the business but due to lack of awareness in Baluchistan and South Punjab.

Correlation Matrix

In this table, firstly the word **N** showed the number of samples which is 200 for all 14 independent variables. The answer of one question is missing in one questionnaire that is related to the role of staff. The Pearson correlation describes the linear relationship between two variables. It is also called bi variate correlation and product moment correlation coefficient (PMCC) that is related to dichotomous variable. The is total negative significant value range is between +1 and -1 if it is 1means total positive linear correlation,0 means no correlation and less than 0 or -1 is indicated the result total negative correlation. Therefore the two tail test describe the statistical hypothesis which measure the both sides of sampling and distribution of sample where as it is belonged to rejected region or accepted region.

As correlation coefficient of variables money, business experience, management experience, planned, professional advice, employee reliability, new products availability market skills have negative linear correlation with variables education, age of owner, financial control, role of staff and minority range (-.296 to - .990).But the two tail test showed the results are significant whereas there is positive relation with other variables. The professional pal and advices have less significant relation 0.09 and education correlation with parents and new products is not significant 0.911 and 0. 141. This is all shows that the correlation coefficient was not significant means both variables were not correlated with each other.

If it was considered that success is opposite of failure it does not mean if the business on not success stage that means it is failed. Hence, business required some improvement management innovative and intellectual skills as well as financial feasibility and human resource. These are all the need of south Punjab and Baluchistan business but the respondent unaware from all these factors.

Results and Discussion

SMEs in South Punjab and Baluchistan (and perhaps elsewhere) are viewed erroneously as having the same needs and wants as other SME's. The results of this study showed that some factors inferred in the literature as small business success/failure determinants are also success/failure factors of small medium enterprise in South Punjab and Baluchistan. Despite the fact that the SMEs (2007) acknowledges that small medium enterprises (SMEs) represent 99% of all businesses in the Pakistan., they are the fastest growing type of business, and are considered as the "backbone" of the Pakistan's economy. The researcher feels confident, with precaution however, about generalizing the results of this study. Even though SME's owners from unprivileged areas of south Punjab and Baluchistan were surveyed, and the minimum sample required was achieved, the

researcher realizes that things in the market change quickly and times change as well.

Therefore, the researcher suggests that the results of this study be generalized for the entire of south Punjab and Baluchistan. Only during the period this study was conducted in generalization outside of south Punjab and Baluchistan is not considered by the researcher. Since small medium enterprises are not studied in the same frequency as other businesses, it is best to perform studies like this one on small medium enterprises in different province in order to compare results.

Implications of the Study

Knowing the factors that have an effect on the failure/success of small medium enterprises in south Punjab and Baluchistan is very important. Academics, advisers and government business training programs and seminars can teach how to make a variable work in the entrepreneur's favor, since a single variable can be a success factor for one business and a failure factor for another business. Entrepreneurs can be thought and trained on how to convert variables into success factors, rather than leaving this to chance. This alone would help decrease the amount of business closings, avoiding bankruptcies and personal and commercial loan defaults. More employment, less job losses, a more prosperous supply chain, more tax revenues for towns, cities, and the state, and a healthier economy in general (Pompe & Bilderbeek, 2005) are also results of such teachings. Very few programs, if any, teach active and future business owners this way (this researcher does).

Recommendations for Future Research

This study has following recommendation: Future studies can perform similar small medium enterprises studies on sub-groups and sub-cultures in south Punjab and Baluchistan, in order to compare results within groups and with the entire population. Further studies can examine the other variables including moderators not included in this study but expressed in the literature as success/failure factors. In this study, many of the business owners surveyed express their feelings (unofficially) about the variables and about operating a small medium enterprise in general in south Punjab and Baluchistan. Gathering all these feelings officially should provide very interesting insights.

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