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Analysis of Business Sustainability of Startups in India

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Abstract

The startup ecosystem in India has transformed the country in different aspects recently.Startup ecosystem are driven by several factors such as funding, innovative ideas, services, platform etc. Startups are growing in almost all parts of India, driving a new job opportunities. Startups are now a days receiving much attention from the research scholars and corporate specialists. However, startups are shutting down within a short span of time. In this paper, exploratory data analysis has been performed to find out the factors affecting a startupstability in Delhi, NCR (India). Experimental results have been shown with the help of tables and figures showing the impact of different influential factors for startupstability, thus helps in understanding of startup ecosystem.

Keywords:
Startup, Uni-variate Analysis, Bivariate Analysis, Eco System

1. INTRODUCTION

Startups are considered as nation builders globally. This statement is true for India also, Since India is a fastest growing countries in terms of entrepreneurship[1]. With their success, counntry's economy growth also increases rapidly. Start up is defined as a new business that is in the initial stages of operation and financed by an individual or small group of individuals. This term was coined a long way back, but Indian people are not aware of that term. Start-ups are nothing but an Idea that manifests into a commercial undertaking. Government of India has launched Start up India initiative to encourage the youngsters to take up the initiatives. Indian government is serious in promoting entrepreneurship at the startup level and has taken a number of initiatives to ensure appropriate support. In this aspect it is relevant to mention **'Make in India'** campaign introduced in September'14 to attract foreign investments[2] and encourage domestic companies to participate in the manufacturing sector. The government increased the foreign direct investment (FDI) limits for most of the sectors and strengthened intellectual property rights (IPRs) protection to instill confidence in the startups.In order to make the country as number one destination for startups, Government of India (GoI)has introduced a new campaign called **'Standup India'** in 2015[2] aimed at promoting entrepreneurship among women and to help startups with bank funding.Another commendable and far reaching initiative is '**Digital India'** introduced in 2015[3] to ensure government services are made availableto every citizen through online platform thataims to connect rural areas by developing their digital infrastructure which translates into a huge businessopportunity for startups[4] .There are different factors influencing Endurance of the startups and researchers are designing various models to predicte the success of the startup.

2. PURPOSE OF THE STUDY

The purpose of the research is to study the impact of various factorsinfluencing the sucess and sustainability of a startup. Government policies also play an important role in the sucess of a startup. This study is exploratory on secondary data in nature.Data is analysed in Time series and Cross sectional or Longitudinal (same sample at different points in time) tofind out the most promising feature, that impacts the stability of the start up.

3. RESEARCH METHODOLOGY

Basic process of data analysis includes data acquisition, data preprocessing, data analysis and result interpretation.[5]

3.1. Data Acquision

Startup ecosystems are influenced by internal as well as external factors also[6]. Impact of these factors depend on the location of the startup too. In this paper,only few external factors affecting starups are only taken into consideration. Data used in study are secondary data and source of the data is data.gov.in. The dataset contains the details of the startups spanning for last 30 years starting from 1900 to 2019. Our focus of study is limited to Delhi and NCR region. Dataset contains 6fetaures and 315540 rows in the dataset.Details of the dataset are described in next section.

3.2. Data Preparation

Data needs to be cleaned for further processing[7]. We have removed null values from the dataset in order to avoid ambuigity.

Table 1: Factors with description

Factors	Description
Company_Status	Current Status of the company.
Company _ Class	Type of Company
Company Category	Domain of the company
Company SubCategory	Sub Domains of the company
Data_Of _registrtaion	Registration Date
Paidup_Capital	Amount paid for the startup

From the dataset, Company_status is considered as dependent variable(Y) for the analysis and contains 13 different categories. For better understanding of the analysis, categories have been reduced to three i.eActive, Strike Off and Dormant. Company_Class, Company_Category consists of three values. Company subcategory has domain of five values. Data of registration has been divided into decades and twelve decades are considered for the analysis. Company_Class(X1), Company_Category(X2), Company_SubCategory(X3) are categorical variables but Date_Of_registration(X4) and Paidup_Capital(X5) are continuous variable

3.3. Analysis of Data

Data is analysed using Excel Analysis Toolpak andData interpretation is based on statistical data returned by Regression analysis.

3.4. Descriptive Statastics

Univariate analysis on the dependent variablei.ecompany status(Y) is performed and visualized with the help of Pie chart.

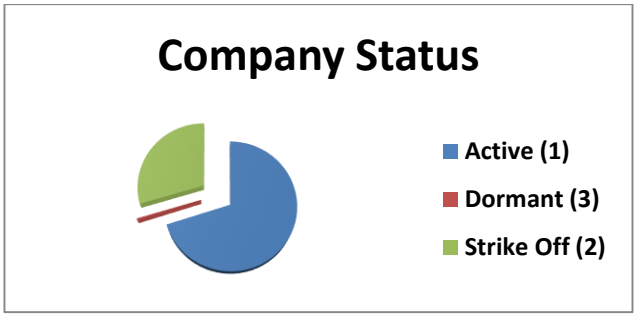

Figure 1: Status of Startups (1990-2019)

The chart indicates that 70% of the startups are active state, 29.5% are strike off and 0,3% are in dormant state over the span of 29 years.

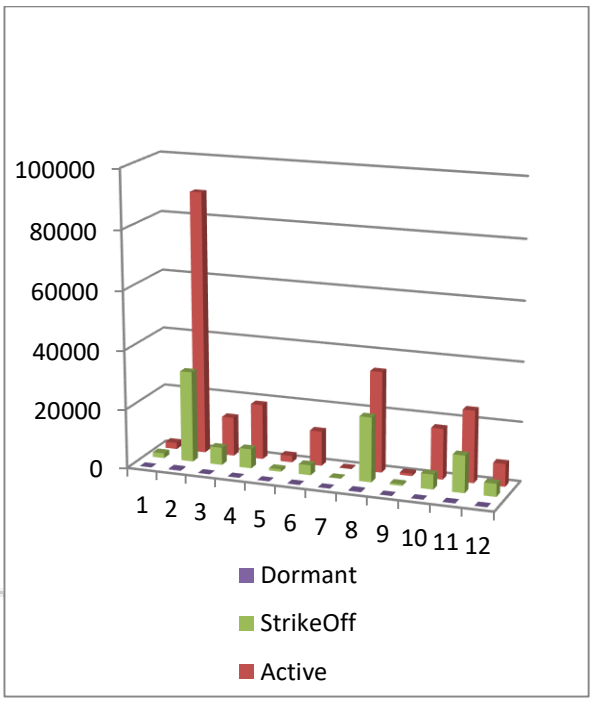

Figure 2: Number of startups in one of the 3 states states across 12 Decades (X=1 □ 1901-1910, X=2□ 1911-1920….)

Bivariate analysis on independent variable Date_Of_Registration and dependent variable Company_statusis achieved and visualized with the help of bar chart. Bar chart illustrates that startupsareactive in the year range from 1911-1920, 1971-1980, 2011-2020,2001-2010, 1931 – 1940 and 1921-1930 in descending order.

Correlation coefficientis calculated between any two variables considering one dependent variable(X) and dependent variable(Y) and results are shown here.

a) COMPANY_CLASS → COMPANY_STATUS =-0.037381224
b) COMPANY_CATEGORY → COMPANY_STATUS = 0.014151841

c) COMPANY_SUBCATEGORY → COMPANY_STATUS = -0.032426257
d) DECADE_OF_REGISTRATION -→ COMPANY_STATUS= -0.187851816
e) PAIDUP_CAPITAL → COMPANY_STATUS = 0.065030073

The above result clearly indicates that allfive independent variables is not determining the dependent variable company status,since the correlationcoeffient value range does not lie between <=0.05 and >=0.05.As correlation coefficient or univariate analysis does not identify any feature which could be held responsible for the Company_status, so wehave decidedto do multivariate analysis, so that we can identify pattern in the data by considering combination of more than one feature in order to justify output variable.

Multiple regression is done to find out the features which are important contributors to the status of the startups and arranged in descending order of their impect. All possible combinations of indepent variables are considred and calculated the values. Since Paid_Up _ Capital is a cotinous variable, contribution of this variable Is not considered in our study.

1. Y=-0.06544*COMPANY_CLASS+0.073851* COMPANY_CATEGORY+1.355202
2. Y=-0.6693*COMPANY_CLASS+-0.05921*COMPANY_SUBCATEGORY+1.492873
3. Y= 0.041765 * COMPANY_CLASS+ -0.12264*DECADE+2.566597
4. Y=1.258795*COMPANY_CATEGORY+0.02872*COMPANY_SUBCATEGORY+0
5. Y=-0.05917*COMPANY_CATEGORY+-0.12092 *DECADE+2.688383
6. Y=0.285716*COMPANY_SUBCATEGORY+0.089899 *DECADE+0 (6)
7. Y=-0.06583*COMPANY_CLASS+0.087619*COMPANY_CATEGORY+-0.06109 *COMPANY_SUBCATEGORY+1.404583
8. Y=0.041339*COMPANY_CLASS+-0.05596*COMPANY_CATEGORY+-0.12296*DECADE+2.627091
9. Y=-0.05188*COMPANY_CATEGORY+-0.03005*COMPANY_SUBCATEGORY+-0.1205*DECADE+ 2.5944
10. Y=-0.03038*COMPANY_SUBCATEGORY+-0.1223*DECADE+0.041121*COMPANY_CLASS+ 2.5944
11. Y=0.006284*COMPANY_CLASS+-0.06364*COMPANY_CATEGORY+-0.1976*DECADE+-0.04594*COMPANY_SUBCATEGORY

Company_Category with Company_Subcategory is a good predictor of Company_Status

The above Equations reveals that there is no one variable which is effectively contributing to the dependent variable i.e COMPANY_STATUS weather It is Active, Strike Off or in Dormant State. Still decade of registration of the Company has some positive impact on the status of the Co.

Multicolliniarity occurs when imput variables are not only coorelated to the output variable (Y) but greatly dependent on each other too. Multicollinearity is considered to find the attributes which could be dropped from the regression analysis as it is linked to the values in the other input variable.

Multicoliniarity exists between independent variables if VIF is >=5
Where as VIF = [1/(1-R2)]
R2 is a parameter to calculate how good the feature set can be to predictors of the output variable. Higher the value of R2 ,better are the feature set predict Y.

Table 2: VIF analysis of Equations (7), (8), (9) and (10)

EQUATION	VARIABLE	R2	1-R2	VIF (Variance Inflation Factor)
7	DECADE	0.0026943351	0.997305649	1.0027
8	SUB_CATEGORY	0.0820977741	0.917902259	1.02259
9	COMPANY_CLASS	0.0818544423	1.0891519	9.18189
10	COMPANY_CATEGORY	0.0822894438	1.0896682	9.1089

Variance Inflation Factor clearly indicates that Company_Class and Company_Category features should be removed from the Regression model to predict Company_Status based on their p-value. Feature (Company_Class and Company_Category) if result to have higher p-value should be eliminated first.

4. CONCLUSION

This study is an effort to explore that how promising is a feature in predicting the dependent variable. Features taken for the study are based on the external factors which are driving the startups. Through exploratory data analysis on the
data under consideration, some important points revealed are:

A good percencentage of startups are active (79%)

Output variable (Y) is categorical variable with 3 categories so logarithmic Regraession is applicable but not the Binary LogrithmicRegesssion.

More of the startups are active during 1911-1920, 1971-1980, 2011-2020 with a good spike in the decade 1911-1920.

Although predictive modelling is out of the scope of this paper and also the feature set is too small to to create a model to predict the Company_Status but observed facts during our study are

Multiple regression identifies Company_Category as apretty good predictor of ompany_Status.Company_Class and Company_Category features show multicollinearity so they might not contribute well in the Regression model if built.
Thus the work can help us to improve the understanding of the startup ecosystem.In future work, categories and subcategories can be considered for further processing.
REFERENCES

[1] Sharifi,Omid, Hossein,Karbalaei.Bentolhoda "Understanding The Financing Challenges Faced By Startups In India: International journal of Science Technology and Management (IJSTM). Vol.4, Issue1,2015.

[2] Badra,Shailja, Dr. Sharma,Vivek, “Startup India-New Opportunities For The Entrepreneur,” InInternational Journal of Science Technology and Management, vol. 5, no. 1, 2016.

[3] D. S. S. Uruba Andaleeb, “A study of Financing Sources for Start-up Companies in India,” International Review of Business and Finance, vol. 8, no. 1, 2016.

[4] D. R. Dr. C Shekhar Upadhyay, “Let’s Start Them Up - An Inside View in the Indian Start Up Scenario,” International Journal for Research in Applied Science & Engineering Technology (IJRASET), vol. 5, no. 1, October 2017.

[5] Rahmat Nurcahyo, Mohammad Ilhamsyah Akbar, Djoko Sihono Gabriel “Characteristics of Startup Company and its Strategy:Analysis of Indonesia Fashion Startup Companies,” Internationa Journa of Engineering and Technology, vol. 7, 2018.

[6] Akanksha Dutta, “Start-up Initiative,” IOSR Journal of Business and Management.

[7] Sairka Sharma, Mrinal Raj, Tanya Gandhi, “Challenges and Issues Faced by Startup Companies in India,” in Sixteenth AIMS International Conference on Management.

[8] N. K. Pander, “An Analysis of Startup Ecosystem in Metropolitan City in India,” International Journal of Engineering and Management Research, p. 9, April, 2018.

[9] A. A. Adefemi, “Testing for Multicollinearity using Microsoft Excel: Using the Variance Inflationn Factor,” RESEARCH SOLUTION GROUP, p. 24, March 2019.

[10] D. R. Dr. C Shekhar Upadhyay, “Let’s Start Them Up - An Inside View in the Indian Start Up Scenario,” International Journal for Research in Applied Science & Engineering Technology (IJRASET), vol. 5, no. 10, October 2017.