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Factors Affecting Startup Innovations and Growth

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Abstract

Businesses are a vital component of every economy. It creates job and reduces the burden of many households. The number of launched Start-up is very high and the number of start-ups that don't survive is highly correlated. Factors such as environment, social, technological, and political factors are known to be the most common factors that cause the failure of most startups. Others such as knowledge in the said area of startup, leadership skills, financing, marketing, and promotion are also major factors which affect the performance of the startups. The objective of this research is to dive into factors that influences innovation in start-ups and to find factors that will help increase the success in securing Funds.

By using three different models, which are the pooled model, fixed effect model and the random model, and further analysis by performing the Hausman test, indicated so points like financing having a greater influence on innovation.

Keywords: Innovation, Startup, Financing, Demographic, Market openness

INTRODUCTION

Businesses are a vital component of every economy. It creates job and reduces the burden of many households. The number of launched Start-up is very high and the number of start-ups that don't survive is highly correlated. Factors such as environment, social, technological, and political factors are known to be the most common factors that cause the failure of most startups. Others such as knowledge in the said area of startup, leadership skills, financing, marketing, and promotion are also major factors which affect the performance of the startups.

The objective of this research is to dive into the demographic factors that influences innovation in start-ups and to find factors that will help increase the success in securing Funds.

Startups failure and success depend on a countless number of factors, Literature has identified one major point which affects startup in their product design, marketing, innovation, and strategies. Financing has been identified as a major factor in the success of most startups. Because of the market crash of 2008, it has been difficult for startups to come up with financing. Which intends has affected startup innovation. Focused is particularly on the demographical factors that affect innovation in startups. Most startups fail not because they lack financing but because they do not have the foresight and good R&D team. It has been identified that financing is highly correlated with good innovation. Many companies were not able to survive because they could not keep up with the innovation cap in the market. Innovation can be seen as a survival technique. In 1955, Fortune Magazine listed the 500 largest companies in a list that's become synonymous with success. 60 years later, only 71 of those companies still remain.

Companies such as Yahoo, Blackberry, Myspace, Border books and the entire publishing industry are almost forgotten, but in the early 2000s, these were the companies others looked upto.

In 2005, Yahoo owned 21% of the online advertising market, #1 among all players. Yet today, they're struggling maintain their #4 position behind Google, Facebook and Microsoft.

Blackberry in the early 2000 held about 50% of the mobile phone market in the world but after the release of the iphone they lost their market position total because they did not understand the swift.

LITERATURE REVIEW

Innovation is a strong pillar to the success of every startup known in the world, Business that are not able to invest in research and development dies in the striving market. the capital cycle has become the main feature of the innovative market, as indicated by (Gompers and Lerner 2004), (Kaplan and Schoar, 2005), (Gompers, Kovner, Lerner and Scharfstein 2008). (Rhodes-Kropf, M. 2015) indicated that the market plays a vital role in the financing and financing also has a strong linkage with innovation. Financing hinders innovation in small scale enterprises in Europe(Ghisetti Et al, 2017). (Nanda, R., Rhodes-Kropf, M. 2017) and (Ou, C. 2011) indicated that strong financial support for startups can trade off high-level risks. Many business failures are mostly attributed to lack of financing, internal market dynamics and lack of innovations. there is a concern over declining innovation in small and medium-

sized enterprises, most particularly in the case of family businesses(Schäfer, D., Stephan, A., Mosquera, J.S. 2017). the research indicated the inefficient realization of innovative practice by families businesses due to funding in R&D. which means that if enough financing allocated to such business it will increase their survival and innovativeness. The gap between innovation and financing seems too difficult to close as noted by (Czarnitzki and Hottenrott 2011; Mohnen et al. 2008; Canepa and Stoneman 2008; Freel 2007). Source of funding of innovative activity becomes the other of the day since there would not be innovation without research.

from these, we come up with these set of Hypothesis.

1. H1-: Financing is a strong pillar in which innovation thrives.

Financing has been identified to have a strong correlation with innovation and success in most startups. it has also been identified to be the best mean to the trade of risk is by high initial investment in startups.

H1: Innovation is influenced to a certain level by Internal market Openness:

A theoretical model describing the dependence of innovation activity of enterprises on the degree of competition in the market can also be found in Aghion, Bloom, Blundell, Griffith and Howitt, 2002. (Berger, 2010) in his work he established an empirically positive relationship between competition in the market and innovation. Significant is also the effect of economies of scale and greater ability to raise funds for innovative research. openness bring competition and ensures the quality of product and services,

H1: Turnover influence the decision of a corporation to be innovative.

Innovation has a major effect on the turnover and general growth of companies (Capasso, M., Treibich, T., Verspagen, B. 2015). we want to find out if turnover also influences the decision of corporation to invest much in R&D.

DATA STRUCTURE

The data is a panel data, the countries which are part are all developed countries and this selection was done looking at the GDP of the various countries. so 13 countries are considered, that is: Belgium, Canada, France, Germany, Italy, Japan, Netherlands, United kingdom, United States, Switzerland, Sweden, Russia, China. the years selected for the analysis was selected because of the availability of data. data was

selected from the year 2006-2015. Missing data are replaced with the mean.The GDP per capita is not presented in percentage but in raw figures to know the actual value in dollars.

The data below describes the factors considered in the data structure and what each factor represent.The GDP per capita is not presented in percentage but in raw figures to know the actual value in dollars.

Models description

The equation for the fixed effects model becomes:

$Yit = \beta 1Xit + \alpha i + uit$ [eq.1]

Where

– αi (i=1….n) is the unknown intercept for each entity (n entity-specific intercepts).

– Yit is the dependent variable (DV) where i = entity and t = time.

– Xit represents one independent variable (IV),

– $\beta 1$ is the coefficient for that IV,

– uit is the error term

Another way to see the fixed effects model is by using binary variables. So the equation for the fixed effects model becomes:

$Yit = \beta 0 + \beta 1X1,it + \ldots + \beta kXk,it + \gamma 2 E 2 + \ldots + \gamma n E n + uit$ [eq.2]

Where

–Yit is the dependent variable (DV) where i = entity and t = time.

–Xk,it represents independent variables (IV),

–βk is the coefficient for the IVs,

– uit is the error term

–En is the entity n. Since they are binary (dummies) you have n-1 entities included in the model.

– $\gamma 2$ Is the coefficient for the binary repressors (entities)

The random effects model is:

$Yit = \beta Xit + \alpha + (uit + ui)$

– Yit is the dependent variable (DV) where i = entity and t = time.

– Xit represents one independent variable (IV)

– α is the unknown intercept

– uit is the error term

Descriptive Statistics

	Year	Turnover(1)	Financing (2)	Governmental_support_and_policies (3)	Taxes (4)	Basic_education (5)	Post_education (6)
Min	2006	-15.3700	2.160	1.920	1.500	1.480	2.170
1st Qu	2008	-1.1100	2.690	2.683	2.410	1.992	2.752
Median	2010	0.9700	2.730	2.780	2.540	2.120	2.890
Mean	2010	0.4816	2.785	2.802	2.564	2.128	2.892
3rd Qu	2013	3.2500	2.888	2.938	2.720	2.208	3.015
Std Dev		4.91711	0.2923573	0.3119804	0.4350851	0.3037385	0.2859402
Max	2015	15.7000	3.770	3.960	3.700	3.070	3.710

Continuation of Descriptive Statistics

	R.d (7)	Internal_market_dynamics (8)	Internal_market_openness (9)	cultural_and_social_norms (10)	GDP_per_capital (11)	Employment (12)
Min	2.190	1.840	1.920	2.140	32351	55.53
1st Qu	2.572	2.873	2.723	2.670	36441	64.15
Median	2.660	3.040	2.750	2.890	40592	71.31
Mean	2.705	2.984	2.797	2.899	42054	69.58
3rd Qu	2.728	3.047	2.865	3.025	46011	73.57
Std Dev	0.3062937	0.3118345	0.2759363	0.4254911	6729.732	6.191559
Max	3.730	3.920	3.650	4.120	62557	80.20

Correlation Coefficient

	1	2	3	4	5	6	7	8	9	10	11	12
1	1.00											
2	0.12	1.00										
3	0.07	0.60	1.00									
4	0.01	0.50	0.63	1.00								
5	-0.03	0.43	0.25	0.59	1.00							
6	-0.02	0.56	0.50	0.55	0.48	1.00						
7	0.01	0.67	0.59	0.63	0.42	0.61	1.00					
8	0.10	-0.42	-0.21	-0.38	-0.38	-0.52	-0.42	1.00				
9	-0.03	0.60	0.43	0.53	0.71	0.43	0.60	-0.44	1.00			
10	-0.06	0.32	0.12	0.42	0.58	0.31	0.24	-0.12	0.39	1.00		
11	0.11	0.44	0.28	0.51	0.49	0.39	0.52	-0.29	0.43	0.58	1.00	
12	0.10	0.31	0.34	0.64	0.48	0.22	0.39	-0.14	0.40	0.58	0.57	1.00

The above table shows the summary of all the factors which are considered in the research.

Table x

r.d_new	Oneway (individual) effect Within Model	Oneway (individual) effect Random Effect Model (Amemiya's transformation)	Pooling Model
(Intercept)		0.31058204*** (0.01198474)	3.0046e-01*** (1.0832e-02)
governmental_support_and _policies	0.01091746** (0.00380124)	0.01090914** (0.00362893)	1.0607e-02** (3.6448e-03)
post_education	0.00123711 (0.00387672)	0.00318249 (0.00374367)	9.1690e-03* (3.8721e-03)
internal_market_openness	0.01227183** (0.00439171)	0.01219112** (0.00415338)	1.1548e-02** (4.0613e-03)
Financing	0.01649622*** (0.00410108)	0.01614343*** (0.00405445)	1.4502e-02** (4.5339e-03)
Turnover	-0.00018619 (0.00015877)	-0.00016615 (0.00015795)	-9.5977e-05 (1.8239e-04)
Adj. R-Squared	0.43574	0.51033	0.57373
theta		0.5676	

Hausman Test

data: y ~ x

chisq = 15.477, df = 5, p-value = 0.008507

alternative hypothesis: one model is inconsistent

From the Hausman Test above, the appropriate model to be used is the One Way (individual) effect Within Model (Fixed Model)

MODEL WITH DUMMIES

r.d	Oneway (individual) effect Within Model	Oneway (individual) effect Random Effect Model (Amemiya's transformation)	Pooling Model
(Intercept)		-1.5396e-01 3.8586e-01	-1.1049e-01 (4.6878e-01)
governmental_support_and_policies	1.7199e-01* (7.3691e-02)	1.9298e-01** 7.3328e-02	2.2375e-01** (8.0298e-02)
post_education	5.7325e-02 (7.8335e-02)	1.0251e-01 7.6352e-02	1.9297e-01* (9.5114e-02)
internal_market_openness	3.4897e-01*** (8.5494e-02)	3.1042e-01*** 8.4832e-02	2.2503e-01* (9.1789e-02)
Financing	3.5590e-01*** (8.7421e-02)	3.0036e-01*** 7.8848e-02	2.3381e-01* (1.1116e-01)
Turnover	-1.7438e-02** (5.8830e-03)	-3.4795e-03 3.0784e-03	-1.0856e-02 (7.6100e-03)
Adj. R-Squared	0.53554	0.53671	0.60847
theta		0.6924	

HYPOTHESIS	STATUS
Financing	Supported By all the models
Post Education	Supported by just Fixed Effect Model
Internal Market Openness	Supported by all with models

Model:

r.d=1.7199e-01*X1+5.7325e-02*X2+3.4897e-01*X3+3.5590e-01*X4+-1.7438e-02*X4

(7.3691e-02) (7.8335e-02) (8.5494e-02) (8.7421e-02) (5.8830e-03)

governmental_support_and_policies =X1

post_education =X2

internal_market_openness =X3

Financing =X4

Turnover =X5

Hausman Test

data: y ~ x

chisq = 16.617, df = 7, p-value = 0.02004

alternative hypothesis: one model is inconsistent

DISCUSSIONS

The literature brought into light a lot of interesting factors of innovation. In Table x, we used R.D_NEW as our independent variable. the first hypothesis was satisfied with a very strong t-value, which indicated that financing influences innovations.

(Schäfer, D., Stephan, A., Mosquera, J.S. 2017) indicated that family businesses are not innovative because they lack financing. this research finding confirms their findings. This means that for a startup to be innovative, financial support is very relevant. many startups exit the market because of bankruptcy, lack of financing does not help them bring out a new innovative product and services, that means those companies that have the ability to support research activities tends to be the ones always leading the market. this also makes something companies dominate a given market for a longer period of time. Financing can be said to be the pillar behind every successful startup.

The second hypothesis is Innovation is influenced to a certain level by Internal market Openness, this was seen to be positive with the Fixed effect model in table x. this confirms another finding by (Berger, 2010), which stated that openness of the market create competition which intends makes leaders focus much on innovations. as the market is open, it attracts a lot of participants, which create the atmosphere for innovation and development. when there is no competition, leaders becomes reluctant with the creativity. Like the case of Nokia, because there was a high competition on the smartphone market, those companies that still lived in the past were left behind. Facebook is still Facebook after a decade because they understand the competition and always tries to kill the competition, Facebook buying WhatsApp because they realized people were switching their attention to WhatsApp at the time of purchase. Openness keeps good leaders on their toes, which wakes their innovative instincts. competition is good for every economy.

It was realized that turnover did not have any influence on the innovation of startups.

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