

A KAUFFMAN INDEX BASED ASSESSMENT TO MEASURE COWORKING STARTUPS PROJECT'S EFFICIENCY IN 2018

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ABSTRACT

Entrepreneurial activities cannot be rigorously controlled but measuring their efficiency is essential for improvements in decision-making. There are several ways to measure broad range of entrepreneurial activity on national and international level but to measure efficiency of smaller ecosystems such as academic startup mentor programs is still a challenge. We applied The new Kauffman Index that was generally designed for measure entrepreneurial activity on national level to measure startup activities in a university framework. We determined amending factors in order to the RNE, SD and sSA values could be interpreted in a smaller ecosystem too. The present study evaluates 48 academic startups that were registered for the period late 2017-early 2018 in Coworking StartUPS startup mentor project at Universidad Politécnica Salesiana, Ecuador. We were looking for the answer to how many of them have become viable companies in one year. 45,83% of the academic startups have ongoing revenue, being considered as viable startups in this study. The average revenue of the viable startups is 1127 USD per month that is 2,86 times greater than the minimum salary in Ecuador and is 1,87 times greater than the average salary of the capital. Our results seem promising considering that in our study only the viable startups were interpreted as companies for determining RNE and SD, and the total number of graduate students was interpreted as population. Universities are expected to prepare their students for the life after-graduation. Considering the high amount of viable startups having different business areas that are being mentored in the Coworking StartUPS project, it can be concluded that the Universidad Politécnica Salesiana makes great efforts to promote and teach entrepreneurship to its students regardless of the field of expertise.

Keywords: Startup Mentoring, Ecuador, Coworking StartUPS, Universidad Politécnica Salesiana, Kauffman Index.

INTRODUCTION

Entrepreneurship is a decisive and key activity of modern economy. Even though entrepreneurial activities cannot be rigorously managed and completely controlled due to the econom-

ic competition and continuously changing demand-supply, entrepreneurship data and analyses allow for improvements in decision-making in both private and public sectors (Fairlie et al., 2015). Universities, regardless of the field of expertise, are expected to play a key role in promoting and teaching entrepreneurship as for achieving success (Llisterri et al., 2006) and performing self-realization after graduation, both technical and entrepreneurial knowledge have to be utilised (Salgado et al., 2017).

There are several ways to measure broad range of entrepreneurial intention (Liñán et al., 2017) and entrepreneurial activity on national (Fairlie et al., 2014) and on international level (Covin et al., 2017). One of the most comprehensive indicators is The Kauffman Index (Fairlie et al., 2014) considering that it was designed and applied for measuring a broad range of entrepreneurial activity in the United States including national, state and metropolitan levels. The Kauffman Index includes, inter alia, the following indicators: Rate of New Entrepreneurs, Opportunity Share of New Entrepreneurs, Startup Early Job Creation, Startup Early Survival Rate (Kauffman Indicators, 2019). Despite the fact that there are index-based measures of university technology transfer (Kurman, 2011), it should be mentioned that to determine efficiency of smaller ecosystems such as academic startup mentor programs in university frameworks is still a challenge because the effect of these initiatives on the economy is less measurable.

Startup mentoring in Ecuador is receiving increasing attention in the academia due to the significant governmental and private initiatives (Lasio, 2014; Mátyás et al., 2018). One of the most remarkable academic startup mentor projects and entrepreneurship-training strategies in the country is Coworking StartUPS considering the number of its active startups and numerous events aimed at business development. Coworking StartUPS was established in 2015 at the Universidad Politécnica Salesiana (UPS), and is being applied for the university's 3 headquarters (Cuenca, Quito and Guayaquil). The UPS runs a total of 4 coworking places and synchronizes startup mentoring programs in each campus. Working with People (De Los Rios et al., 2016), Project-based learning (Ceca, 2018), Happy Canvas School (The happy canvas school, 2016), Scrum (Scrum, 2018), Resilencia (Manciaux, 2013) and Idea, Design, Prototype, Validation (Milla, 2018) learning and mentoring methods are applied and/or combined in the Coworking StartUPS's project. There are several events in a semester in the university's framework such as meetups, courses and Boot Camps where the innovative students can participate, forming groups and establish academic startups (Mátyás et al., 2018).

In the present study we evaluated the academic startups registered in the last year in Coworking StartUPS according to their viability using Kauffman Index indicators.

METHODS

A total of 48 academic startups are quantified in the present study, that were registered in Coworking StartUPS project at the UPS for the period late 2017-early 2018 and that are still running (in January 2019). We were looking for the answer to how many of them have become viable companies in one year. We considered startups viable that have generated monthly revenue for at least in the last 3 months (between November 2018 and January 2019) (Table 1).

Name of the Startup	Campus	Business area	Registered company (ability to invoice)	Gross monthly income (USD)	Number of founders
ARDSYS	Guayaquil	Robotics	Yes	no ongoing revenue	3
Balero	Guayaquil	Education	Yes	no ongoing revenue	1
Ella SED	Guayaquil	Business consulting	Yes	no ongoing revenue	2
New Glass	Guayaquil	Social enterprise	Yes	4000	4
Wiesner Sweet	Guayaquil	Catering service	Yes	3000	2
GODLA	Guayaquil	Marketing agency	Yes	no ongoing revenue	3
Black Cat	Guayaquil	Marketing agency	Yes	800	5
TIENDA ESQUINA. NET	Guayaquil	E-Commerce	Yes	500	1
ECOODRIM	Guayaquil	Social enterprise	Yes	no ongoing revenue	4
CONEXIÓN PITCH	Guayaquil	Business consulting	Yes	no ongoing revenue	1
LOS LÍDERES	Guayaquil	Business coaching	Yes	4000	7
LITTLE GIFTS	Guayaquil	Gift making	Yes	300	1
COMPRAS GO	Guayaquil	Webshop	No	no ongoing revenue	2
ROTEC	Guayaquil	Education	No	no ongoing revenue	1
ALE GREEN RICE	Guayaquil	Food industry	Yes	100	2
INNOVA	Guayaquil	Robotics	No	no ongoing revenue	5
Healthy Desserts	Guayaquil	Food industry	No	no ongoing revenue	2
BeUPS	Cuenca	Branding	Yes	200	2
Maker	Cuenca	Technology	Yes	300	1
RSide	Cuenca	Education	No	no ongoing revenue	2
Smart Things	Cuenca	Electronic	No	no ongoing revenue	4
DetFug	Cuenca	Electronic	No	no ongoing revenue	4
Cartoon Forms	Cuenca	Mecanic	No	no ongoing revenue	4
Botón De Oro	Cuenca	Heath Care	Yes	100	2
Eon Corp	Cuenca	Electronic	Yes	500	2
Cupcakes On	Cuenca	Bakery	Yes	100	1
Ancestral	Quito	Food industry	Yes	1500	3
Biocomfy	Quito	Healthcare	Yes	150	2
Tigua Pictures	Quito	Handicrafts	Yes	20	2
Fundación Yo Apoyo	Quito	Social enterprise	Yes	30	2
Fundación Apoyando a Ecuador	Quito	Social enterprise	No	no ongoing revenue	2
Moshal	Quito	Food industry	yes	500	4
OMNIAVI	Quito	Wifi marketing	Yes	no ongoing revenue	2
MERMELADAS TOMATE	Quito	Food industry	No	no ongoing revenue	3
INED	Quito	Education	Yes	350	4
Sowing Smoke	Quito	Environment	no	no ongoing revenue	2
River Rock	Quito	Building industry	yes	5000	3
Box Party	Quito	Gift making	yes	500	1
Team E	Quito	Education	yes	500	6

Startup Name	Location	Industry	Revenue Status	Average Revenue	Students
Ferti - Milk	Quito	Environment	no	no ongoing revenue	2
Jorge Valdez	Quito	Business coaching	yes	300	1
Eco - Station	Quito	Environment	no	no ongoing revenue	4
Bio -Duo	Quito	Environment	no	no ongoing revenue	3
Nutri APP	Quito	Nutrition Technol- ogy	no	no ongoing revenue	2
Help - Games	Quito	Technology- Games	no	no ongoing revenue	1
Frezze - Data	Quito	IOT - Technology	no	no ongoing revenue	4
League Zero Gam- ing	Quito	Games - Streaming	no	no ongoing revenue	3
Electro - commerce	Quito	E-Commerce	no	no ongoing revenue	2
Total number of startup founders:					90
Total number of viable startups (having on-going revenue):					22
Total number of viable startup founders:					58
Total number of students in 2017 (active status)					24820
Average total number of graduate students at UPS:					2962

The new Kauffman Index (Fairlie et al., 2014) was applied to measure Rate of New Entrepreneurs (RNE) (Fairlie et al., 2014), Startup Density (SD) and simplified Startup Activity (sSA) (Fairlie et al., 2015). We applied the new and expanded Kauffman Index to measure the effect of the academic entrepreneurial ecosystem on the after graduation in terms of students' self-realization.

The following amending factors were applied in Kauffman Index calculations:

1. To determine RNE and SD, only the viable startups were interpreted as companies; and graduate students were interpreted as population
2. To determine sSA, active students at UPS who did not have startups in 2017 were interpreted as non-entrepreneurs; and startups that were established in 2018 was interpreted as new companies.

To measure RNE, percent of the number of viable startup founders compared to the average number of graduate students per year was calculated as follow:

$$RNE = (x \div n) * 100$$

Where:

x= number of viable startup (having ongoing revenue) founders

n= average number of graduate students per year at UPS.

To measure SD, the total number of viable startups was divided with the average number of graduate students at UPS per year multiplied with 10.000 according to Fairlie et al. (2014).

The sSA is the percent of students at UPS who did not own a business in 2017 and start a business in the following year 2018 with fifteen or more hours worked per week.

Data source: The average number of graduate students per year was calculated from the last five years data for the period 2014-18, provided by Technical Secretary of Statistics (Secretario Técnico de Estadística), UPS; data of the number of registered startups, gross monthly in-

come and number of founders were collected from the Vice President Office of Research (Vicerrectorado de Investigación, Cuenca, UPS).

RESULTS AND DISCUSSION

45,83% of the academic startups at the UPS that were established for the period late 2017-early 2018 have ongoing revenue, being considered as viable startups in this study. The average revenue of the viable startups is 1127 USD per month that is 2,86 times greater than the minimum salary in Ecuador (394 USD as of January 2019) (El Universal, 2018) and 1,87 times greater than the average salary of the capital, Quito (that is roughly 602 USD) (Check in price, 2019). RNE value is 1,96 that stands for the percent of the average total number of graduate students at UPS who established their startups one year ago and run viable businesses. This value is promising, considering that RNE value is 0,3% for the period 1996-2014 in the United States (US). SD value is 742.74 that is five times higher than SD in the US for the period 1977-2012 (Fairlie et al., 2015).

sSA value is 0,36 Figure 1 that is a slightly higher than in the values of Northeast, Midwest and South regions of US and similar to value of West region of US for the period 1996-2008 (Fairlie et al., 2009).

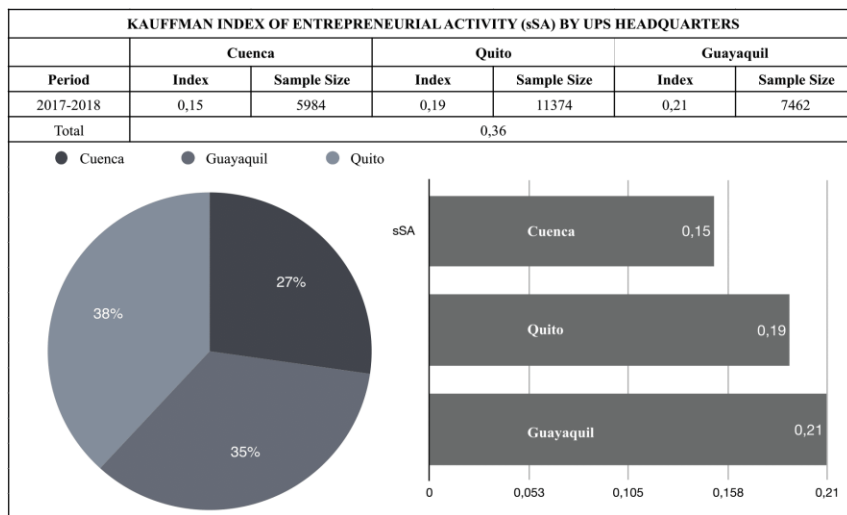


FIGURE 1
SSA INDEX VALUES AND THEIR PERCENTAGE DISTRIBUTION BY UPS HEAD-QUARTERS

Kauffman Index was used to measure efficiency of local academic startup activity considering that this index is internationally recognized that allows for future comparisons; measures broad range of entrepreneurial activity; and is based on indicators (such as RNE, SD or sSA) that can be implemented and interpreted in a university framework too without applying significant amount of amending factors. It should be mentioned that the Kauffman Index (including RNE SD and sSA) was originally designed and applied for measuring entrepreneurial activity in the United States including national, state and metropolitan levels (Fairlie et al., 2014; Fairlie et al., 2013). However, our results seem promising considering that in our study only the viable

startups were interpreted as companies for determining RNE and SD, and the total number of graduate students was interpreted as population.

Regarding the startups which do not generate ongoing revenue yet, we recommend them to revise their business model especially the customer communication part, considering that the successful startups are achieving profit already largely due to their digital marketing campaigns.

CONCLUSION

Using the determined amending factors in this study, our results suggest that Kauffman Index can be utilized for mapping up the efficiency of smaller ecosystems too such as the academic startup mentor projects. It would be worthwhile to pursue more studies with the same amending factors used in our study on other mentoring projects in the country for comparison purposes. The limitation of the study can be summed up as follows: the viable startups were interpreted as companies and graduate students were interpreted as population ergo our study can be used for measuring the effect of the entrepreneurial activity on the university's framework only, and cannot be use for measuring its effect on the economy.

It supposed, universities in general have to prepare their students for the life after-graduation. Considering the high amount of viable startups (45,83% of the academic startups generates higher revenue than the average salary in Ecuador) having different business areas that are being mentored in the Coworking StartUPS project in the last year, it can be concluded that the Universidad Politécnica Salesiana makes great efforts to promote and teach entrepreneurship to its students regardless of the field of expertise.

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