INSTITUTO
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DEGLI STUDI
DI PALERMO

Title: Success factor analysis of startup accelerators: focus on the relations between Corporate, Independent and Public categories

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Master in Management of Services and Technology

Supervisor:
Prof. Giovanni Perrone, Ordinary Professor,
Università degli studi di Palermo

October, 2023

BUSINESS SCHOOL

dipartimento di ingegneria unipa

Department of Marketing, Strategy and Operations

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ABSTRACT

Português:

Esta tese explora o papel dos programas aceleradores de startups, disponíveis para obter acesso, financiamento, mentores, recursos (tangíveis e intangíveis) e redes que podem ajudar a Startup a colocar as suas ideias em prática.

Em particular a minha tese centra-se na comparação e análise dos três diferentes tipos de aceleradores: Corporativo, Independente e Público, para melhor compreender as diferenças que surgiram entre eles em termos de sucesso com todas as startups com que lidam.

- Os programas aceleradores corporativos são aceleradores gerenciados ou patrocinados diretamente por uma ou várias empresas estabelecidas.
- Aceleradores públicos são todos aqueles patrocinados e executados por universidades, centros de pesquisa e governos.
- As aceleradoras independentes nascem como empresas autônomas com o objetivo de apoiar startups emergentes através do conhecimento e das habilidades de seus mentores.

Para conduzir o estudo, um conjunto de dados efetivo de 1.794 aceleradoras de startups foi extraído da Crunchbase, uma plataforma online que coleta informações de negócios. Foram executados três modelos diferentes com três variáveis dependentes diferentes que descrevem o desempenho das aceleradoras: Taxa de sucesso, Número de organizações do portfólio e Número de IPOs de saída.

Os resultados obtidos estão em linha com as expectativas, aliás as aceleradoras Corporativas apresentam melhor desempenho em comparação com as outras duas categorias.

Classificação JEL: M13 Startups D 25 Critérios para Tomada de Decisão sob Risco e Incerteza

Palavras-chave: Startup, Financiamento de Startups, Crescimento de Novas Empresas, Tomada de Decisão

English:

This thesis explores the role of startup accelerators programs, available to get access to, funding, mentors, resources (tangible and intangible), and networks that can help Startups to get their ideas off the ground.

In particular my thesis focuses on the comparison and analysis of the three different kinds of accelerators: Corporate, Independent and Public, for better understand the differences that emerged among them in terms of success with all the startup that they are dealing with.

- Corporate accelerator programs are accelerators managed by or directly sponsored by one or multiple established firms.
- Public accelerators are all those sponsored and carried out by universities, research centers and governments.
- Independent accelerators are born as autonomous companies with the objective of supporting emerging startups through the knowledge and skills of their mentors.

To conduct the study an effective dataset of 1794 startup accelerators was extracted from Crunchbase, an online platform that collects business information. Three different models were run with three different dependent variables describing the performance of the accelerators: Success rate, Number of Portfolio organizations and Number of exit IPO.

The results obtained are in line with expectations, in fact Corporate accelerators have better performance compared to the other two categories.

JEL classification: M13 Startups D 25 Criteria for Decision-Making under Risk and Uncertainty

Keywords: Startup, Startup Financing, New Firm Growth, Decision Making

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1. INTRODUCTION

Startups play a key role in innovation processes (Colombo and Piva, 2008; Davila et al., 2003; Mustar et al., 2008). According to the well-known definition by Steve Blank (2010) a startup is a company, a partnership or temporary organization designed to search for a repeatable and scalable business model. Through the startup phase, new ideas are brought to the market and transformed in economically sustainable enterprises. New firms are artefacts for transforming entrepreneurial judgement into profit (Spender, 2014).

Historically, nascent firms relied on traditional sources of funding such as bootstrapping, family and friends, angel investors, and venture capitalists (Falbe et al., 2011)

Very often, however due to their smallness, startups suffer a structural lack of tangible and intangible resources (Wymer and Regan, 2005). The lack of financial and human resources hinders the development of new innovation processes. One possible decision that startups can make regarding a possible process of improvement and support in terms of both tangible and intangible resources is to participate in acceleration programmes.

Thanks to this programs Startups get access to, funding, mentors, resources (tangible and intangible), and networks that can help them to get their ideas off the ground; they also could benefit from working with other startups in a collaborative environment, sharing experiences and ideas.

Start-ups who have been supported through accelerators have an approximately 23% higher survival rate than other new businesses. In fact, they are now considered a very effective way of providing support to startups, with the number of startups relying on these programmes increasing year by year (Heiko Butz, Matthias Jan Mrozewski 2021).

Clearly, not all startups have the same goals, so it may be difficult to adopt a term of comparison between all startups, but one thing is certain if a startup finds it necessary or at least enters the world of accelerators, it is really aiming at scaling up its business, so if a startup manages to enter the market and coexist with it, this is certainly a sign of a level breakthrough.

This thesis focuses on the performance of accelerators intended as the achievement of the objectives set before the participation in the program by startups.

To conduct the study an effective database was built using Crunchbase, an online platform that collects business information. A final dataset ,of 1794 startup accelerators, was extracted after cleaning and arranging it, but above all various manually researched information was added, to make it suitable for the study.

Due to the large amount, data collection process has been performed in collaboration with some colleagues.

Furthermore, a classification of all the accelerators was carried out, in order to understand whether and how diverse accelerators are characterized by different performance.

In particular my thesis focuses on the comparison and analysis of the three different kinds of accelerators (i.e., *Corporate, Independent and Public*) to understand the differences that emerged among them in terms of success with all the startup that they are dealing with.

To find out a result, an econometric analysis was conducted using the software STATA, in fact, three different models were run with three different dependent variables describing the performance of the accelerators. The results obtained are in line with expectations, in fact Corporate accelerators have better performance compared to the other two categories.

The thesis consists of four main chapters and each in turn is divided into topics. Chapter 1 presents a literature review, concerning the emergence of startup accelerators, how they have effectively become part of the startup world and how they influence the success or otherwise of startups. Furthermore, the classification into the three macro-groups, is presented and described. Chapter 2 provides a description of the methodology used to collect and analyse the data, with a subsequent detailed explanation of the variables chosen and used during the regressions. Subsequently, Chapter 3 reports the results of the regression analysis for all three chosen dependent variables. Finally, the last chapter reports the managerial implications, also the limitations of this study and finally some possible future research. The expectations of this thesis is to identify which are the factors that influence (both positively and negatively) the performance of the accelerators, having as a reference the comparison between the three macro-areas.

2. LITERATURE REVIEW

This section will address four main topics: the first is the idea of open innovation to which the startup world has increasingly opened up over the years, afterwards there will be a clear and exhaustive description of startup accelerators, furthermore some definitions regarding accelerators, evolving over the years, their applications and developments. Subsequently, we will move on to an accelerations' classification trying to give an explanation for each of the different categories, clarifying the organizational and structural differences.

2.1 Startup and open innovation

Startup ecosystems emerged during the last decade, providing entrepreneurial firms with multiple opportunities to receive support for growth. In this regard, accelerator programs play an important role as they promise to help startups overcome their liabilities and gain "traction through deep mentor engagement, rapid iteration cycles, and fundraising preparation".

These programs offer systematic and professional assistance by not only providing tangible resources such as funds or office space, but also by offering know-how, mentoring, and feedback from experienced entrepreneurs, business angels, coaches, and corporate executives (Hochberg, 2016). During the last few years, the success stories of well-known companies that participated in accelerators (e.g., Airbnb, Dropbox) amplified interest in these programs, especially from established firms. It is not surprising that corporations have started offering their own accelerator programs.

Openness to external knowledge sources and creation of business relationships for innovation have been recognised as two crucial factors for overcoming such limitations in the early stages of a firm's development (Carlsson and Corvello, 2011; Kask and Linton, 2013; Eftekhari and Bogers, 2015). The open innovation paradigm (Chesbrough, 2003) represents a valuable perspective for firms to open up their innovation process, leveraging both internal and external sources of knowledge and widening the potential to realise new business opportunities (Chesbrough and Rosenbloom, 2002).

Despite their potential, many new firms fail in the early stages of their life (Dahl and Reichstein, 2007) and few grow to medium size (Kirchhoff et al., 2013). Different factors have been studied to explain the survival or failure of startups (Phillips et al., 1989; Shane, 2001).

In particular, the normally small size and the newness of startups entail a limited scope for investing in research and development processes (de Jong and Freel, 2010) and a lack of resources for structuring normal operative activities (Dahlander and Gann, 2010; Grimaldi et al., 2013).

Statistics suggest that the business mortality of startups can be around 70% in the first five years, depending on the specific industry in question (Gruber and Enkel, 2006). Failure for a startup means closing down (Bruno et al., 1992), divesting through sell-off to another corporation or to individuals (Bruno et al., 1992), or not achieving a worthwhile return on the investments (Crowne, 2002).

2.2 Accelerators

Accelerators are a recent and rising phenomenon, driven by the changing economics of early-stage startups, especially tech ones, which benefit from a dramatic decrease in the costs of experimentation (Pauwels et al., 2015). Accelerators derive many of their characteristics from business incubators, focussing on firms at the earliest stage of development and providing them with entrepreneurial support services, but their programmes have distinguishing characteristics (Miller and Bound, 2011; Cohen and Hochberg, 2014; Pauwels et al., 2015). They provide a time-limited and intense mentorship and education programme, allowing entrepreneurs to focus their attention and to reduce dependence on the seed accelerators, thus leading to quicker growth or quicker failure – which can be beneficial in moving to a higher value opportunity (Cohen and Hochberg, 2014). The application process is worldwide, open and highly competitive, and it focusses on small teams – with technical background (Christiansen, 2009) – that are further involved in classes or batches of startups. Moreover, they provide pre-seed investment, in exchange for equity stakes in participating ventures.

Unlike incubators, accelerators take in companies that already have their own business model. Through the accelerator, therefore, the company is not born, but grows to succeed in the market. The motivations of the founders of accelerators are completely different from founders of other early-stage assistance programmes. For example, incubators are typically started by local, regional, or state government entities including economic development offices or universities to promote entrepreneurship (Katz & Green, 2009; Qian et al., 2011; University of Michigan, 1997). In most cases the goal of an incubator is to create jobs and economic activity inside a specific geographical area (Katz & Green, 2009; Qian, et al., 2011; University of

Michigan, 1997). In contrast, accelerators are motivated to provide assistance to startups because they believe that the business concept is viable, the accelerator is personally interested in the idea, or likes the entrepreneur team. For example, Techstars stated that they fund ideas that they have an interest in, have excellent potential to scale, or have promising market niches such as medical devices or mobile applications.

Startups can apply for the accelerator programme through the accelerator's web portal. During this phase, applicants are asked to provide specific details about their business, the sector in which they operate and information about the candidate team by answering a long list of pre-defined questions. This information is used by the accelerator managers to profile candidates, based on the answers to the questions administered during the application phase.

Accelerators emphasize that they will only accept concepts for which they can add value. As a consequence, they may reject good ideas because they do not believe that they can assist the venture. Lastly, accelerators look to invest along certain themes or within certain key industries. If an idea does not fit into an accelerator' s theme, the venture will not be funded even though it has potential.

2.3 Accelerators Classifications

There have been several attempts to classify the accelerators, starting from the type of programme, the duration of the programme, the number of participants, however it is not easy to establish a few groups which can include all types of accelerators.

A classification that allows us to consider all types of accelerators present in the world without exclusion is the one based on who sponsors and proposes the program, in fact the classification has three macro-groups: Corporate, Independent and Public.

Starting with the first group, Corporate accelerator program are accelerators managed by or directly sponsored by one or multiple established firms. They are becoming an integral part of startup ecosystems and an important startup engagement vehicle for established firms (Sandra-Luisa Moschner, Alexander A. Fink, Stefan Kurpjuweit, Stephan M. Wagner , Cornelius Herstatt 2019).

A precondition for an effective corporate accelerator is identifying and recruiting the right teams to accelerate. With the rapid growth of accelerators, it becomes increasingly difficult to attract the best teams. Clearly, an accelerator that wastes startups' time will soon find it difficult to attract new teams and top talent. Corporations need to build and leverage their network to

identify many interesting startups that respond to the call for applications. Chances to select top teams increase with the number and quality of applications. Most corporate accelerators culminate in a demo day when founders pitch their businesses to large audiences of potential investors, media, and company representatives (Kohler 2016).

From a company perspective, teams ideally advance into pilot projects, partnerships, or acquisitions. While relationship building happens during the program, execution usually occurs after the completion. However, when opportunity throughput increases, new bottlenecks arise in terms of finding organizational homes within the company. If there is no match between the company and startups, organizations should nonetheless maintain meaningful interactions beyond the program duration for possible future collaborations. Partnering with other organizations is one path for leading accelerators to scale their programmes. Coca-Cola and Orange, for instance, bring in additional corporate partners to expand partnership opportunities for participating startups (Kohler 2016).

Figure 1: A possible corporate accelerations classification thanks to - Sandra-Luisa Moschner, Alexander A. Fink, Stefan Kurpjuweit, Stephan M. Wagner, Cornelius Herstatt

	In-house accelerator	Hybrid accelerator	Powered by accelerator	Consortium accelerator
Advantages	• Strong link to corporate and its brand • More influence on startups and the program setup • Integration of existing business unit challenges • Internal staff can quickly learn to deal with startups • Easier internal corporate networking • Corporate brand attracts startups	• Strong link to corporate and its brand • More influence on startups and the program setup • Pushes internal projects • Integration of existing business unit challenges • Internal staff can quickly learn to deal with startups • Easier internal corporate networking • Corporate brand attracts startups • Cultural exchange between external startups and internal staff	• Well-known programs with a high market reputation are highly attractive for startups • Program is independent of the corporate, therefore not bound to internal policies and inertia • Extensive expertise with startup development, due to experience, specialization, and global spread • Integrated into existing entrepreneurial ecosystem and linked to investors • Programs work efficiently due to the market pressure and experience	• Information and best practice exchange between corporates regarding collaborations with startups • Fast setup and configuration time, due to existing program structures and ecosystem • Low entry and exit barriers for corporates (i.e., a company can easily join and leave this corporate accelerator model) • Accelerator can act more independently (i.e., not strictly bound to internal policies) • Extensive expertise with startup development • Startups can benefit from several companies as potential partners and support from an independent entity • Programs work efficiently, due to market pressure and experience
Disadvantages	• Requires substantial corporate investments • High risk of establishing an accelerator that may have to be shut down if it fails, with potentially high loss of resources • Long setup time for the corporate accelerator program and ecosystem • Exclusive link to only one corporate often not attractive for startups • Often not attractive for startups due to the risk of corporate structures hampering and decelerating startup's development	• Requires substantial corporate investments • High risk of establishing an accelerator that may have to be shut down if it fails, with potentially high loss of resources • Long setup time for the corporate accelerator program and ecosystem • Exclusive link to only one corporate often not attractive for startups • Often not attractive for startups due to the risk of corporate structures hampering and decelerating startup's development • Risk of external startups' dissatisfaction due to subordinate support in comparison to internal projects	• Acceptance and implementation throughout the corporate more difficult due to the external entity • Risk of a high loss of (financial) resources in case of failure • Less control of the program structure and startups • Only accessible for selected firms, due to, inter alia, high participation fees	• Less control of the program setup • No direct link to corporate and its brand • Integration of business units more difficult • Acceptance and implementation throughout the corporate more difficult due to the external entity

The Figure 1 shows the possible classification regards Corporate accelerator, where basically are divided in 4 categories "we cluster these models based on the number of participating companies (single vs. multiple) and the accelerator's management structure (corporate internal vs. corporate independent). We also developed a common analysis pattern to ensure comparability and illustrate each corporate accelerator model according to the

corporation's motives and program characteristics (i.e., their search scope, financing, equity, and location)".

As for the second group, i.e. the one made up of public companies, all those accelerators sponsored and carried out by universities, research centres and government are included in this group.

Finally, the last classification includes the independent accelerators, they are born as autonomous companies with the objective of supporting emerging startups through the knowledge and skills of their mentors; they are all those accelerators that are not born within a corporate context, as in the case of corporate accelerators, but are precisely independent of any existing company operating in the market.

The commercial success of accelerated companies is not always guaranteed; this depends on several factors. While accelerators have multiplied rapidly and startups are flocking to such programmes, research on this new organisational form is still emerging.

It is important to note that much of the research conducted so far treats accelerators as largely homogeneous in their business model and has only considered the potential treatment effect on one or two dimensions. This ignores the significant variation of accelerators across multiple design characteristics, variation that is arguably salient both for understanding their impact on and between startups, and their differentiated role in the ecosystems in which they operate.

3. Methodology

In this chapter, in the first section, the procedure carried out for building the database used in the study during this thesis is retraced and the description of the data contained therein.

Subsequently, the second section of this chapter explains how the database has been expanded and modified. Finally, the variables that will be used in the models are described.

3.1 Data Collection

The main source of data used for this study is Crunchbase, a company that provides business information on private and public companies, a true platform that contains a considerable amount of information needed for our study, in fact it is one of the most widely used platforms for data research in the industry. Its content includes information on investments and financing, founding members and individuals in leadership positions, mergers and acquisitions and trends. The entire data collection process was carried out in collaboration with two other colleagues.

Assuming that the study's focus is on all startup accelerator programmes, an initial skimming of the data to be imported was to go to the section "investors", and once in this macro-area we selected the "accelerators" filter.

The research returned a total of 3,533 results, this first selection included all types of programmes, from online to onsite, from for-profit to non-profit, an extensive variety, without any classification.

In addition to the list of accelerators, the platform provides a lot of other information, contained within the numerous columns present when viewing the database, in fact there were 124 columns.

In each column there was a brief description about what that specific column was about, moving from a qualitative description of the typology of accelerators, going to quantitative information like the Number of investments done or the Number of portfolio organizations.

However, the platform does not allow you to download more than 1000 values in the same download, therefore we proceeded to a download by filters, trying not to have repetitions, in fact thanks to the possibility of placing certain filters, it was possible to download all the data without problems and import them in Excel, so in this way we had the ability to make changes quickly and effectively; however, such tool had limitations regarding the completeness of the

data, in fact for not all the different columns there were data, reducing the possibility of including all observations in the models.

In order to look for additional data for our study, my colleagues and I began an extensive research through public channels in order to extrapolate as much data as possible for proving us a better view. In fact, we identified 12 variables that could give us the opportunity to extend our study and get a clearer picture in terms of performance. The research was carried out by extrapolating as much data as possible from sources on the web, in particular by searching the official websites of the accelerators, or in others related with them.

Of the 3533 starting accelerators, only of 1794 we were able to find satisfactory data or at least one single value.

Once we had found the first data referring to the variables added to the initial Crunchbase database we moved on to a classification based on the three geographical categories of our study, in facts we moved on searching for each accelerator and insert it in one of the three classification groups in order to be able to carry out the analysis, trying to find differences or at least trying to compare them. The first category included all those accelerators present in the United States of America, the second category all those accelerators present in Europe and the last one is Rest of the world. And as a final step, we have classified our accelerators into three main categories: Corporate, Independent and Public.

3.2 Variables

Once in possession of the complete database from Crunchbase, other variables were added, especially with reference to the study that was to be carried out.

Table 1 shows the description for each new variable added.

Number of acelerator Program	Number of different types of acceleration programs that are made available by the company in the current year (2023).

Success Rate	Intended as the percentage of startups that have successfully completed the acceleration process of the company and are still active (number of startups that have passed the seed phase out of number of total startups that have participated to the programs made available by the company).
Number of Sectors	Number of sectors on which the company's acceleration programs are focused as well as the characteristic sectors that startups must be part of in order to participate in the acceleration programs.
Fee (Yes=1 and No=0)	Boolean variable that indicates whether the company requires a registration fee or a payment to start if it wants to become part of the acceleration program.
Participants teams per program	Average value of the number of teams that can participate in each acceleration program provided by the company (arithmetic average between the maximum and minimum number of accepted teams).
Minimum Amount of seed money	Minimum value of funds disbursed by the company among all acceleration programs.
Average Amount of seed money	Average value of funds disbursed by the company among all acceleration programs.
Maximum Amount of seed money	Maximum value of funds disbursed by the company among all acceleration programs.
Start-ups accelerated	Corresponding link to the complete list of start-ups that have successfully passed the acceleration process.
Equity Minimum Value	Minimum equity value, required by the company to the startup, by contract to participate in the acceleration program.

Equity Average Value	Average equity value, required by the company to the startup, by contract to participate in the acceleration program.
Equity Maximum Value	Maximum equity value, required by the company to the startup, by contract to participate in the acceleration program.

Now we move on to some graphical representations of the data found.

Figure 2 Participant teams per program

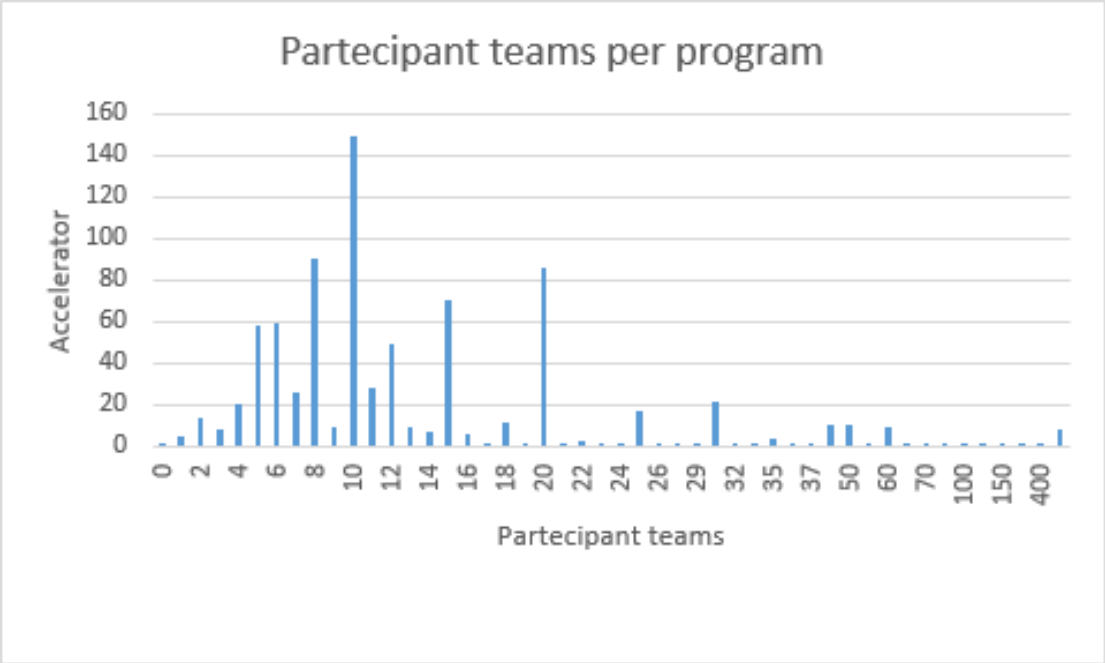


Figure 2 shows that the number of participants varies quite a bit, but we can see that it is concentrated between 6 and 14, with a peak in 20. This is because being intensive programmes where both the startup and the accelerator must give their best in a short time, many accelerators decide to create programmes with low numbers as this is often considered a strength. Our intention is to try to understand how much this really affects the final performance.

Figure 3 Number of sectors

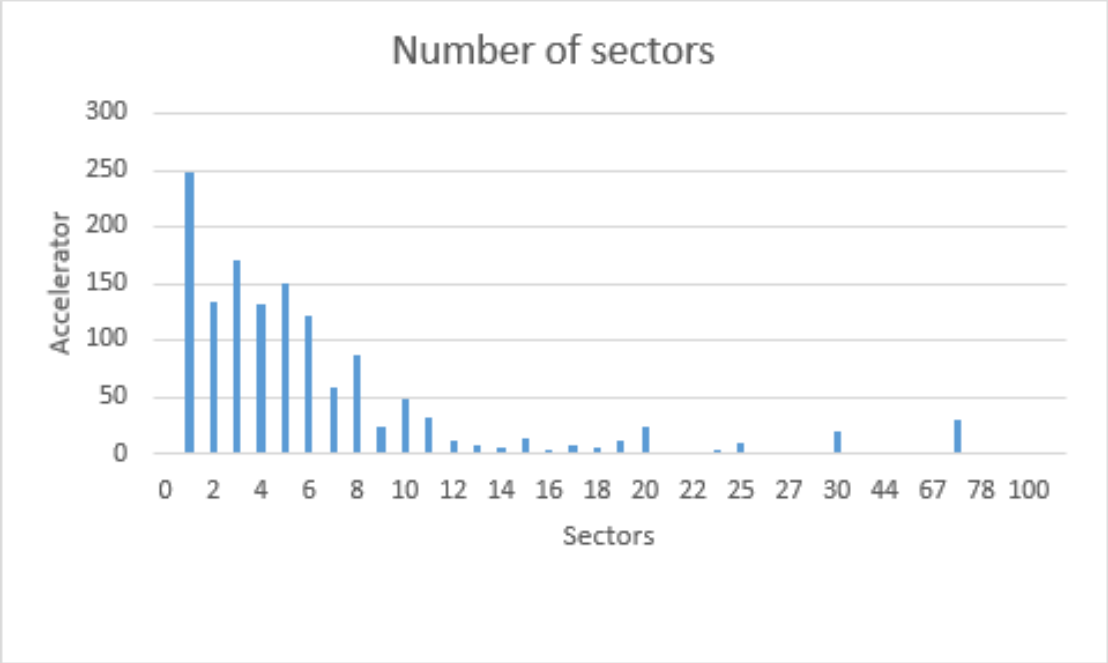


Figure 3 shows the number of sectors in which the startups are part, with which the accelerator comes into contact during its programmes, reflects low values except in very few cases.

Figure 4 Success rate

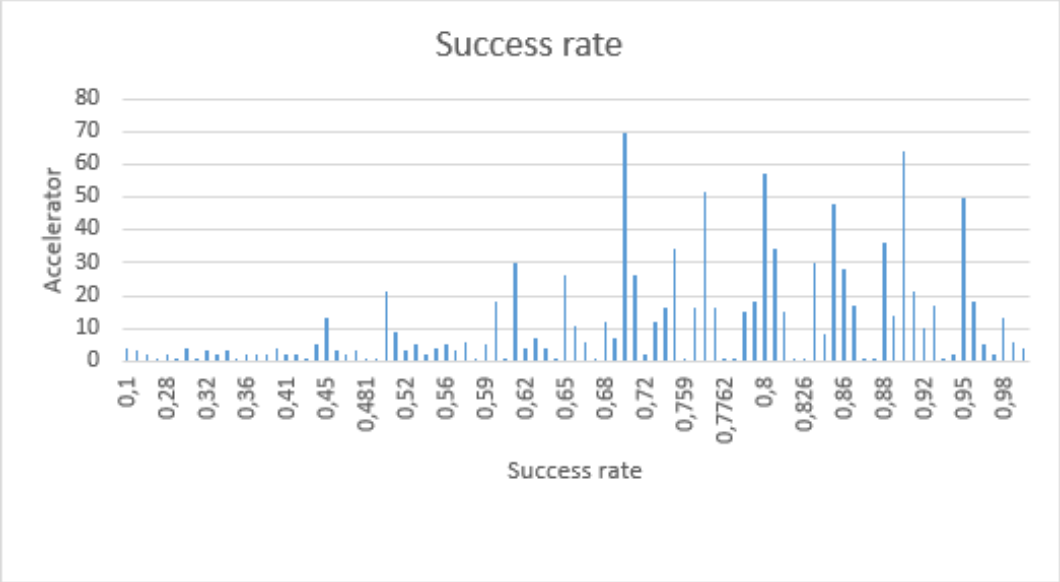


Figure 4 shows the success rate values, from here it can be seen that almost all values exceed 60%, with some peaks around 70% and 80%, in fact in very few cases a value below 50% can be seen.

Figure 5 Duration in weeks

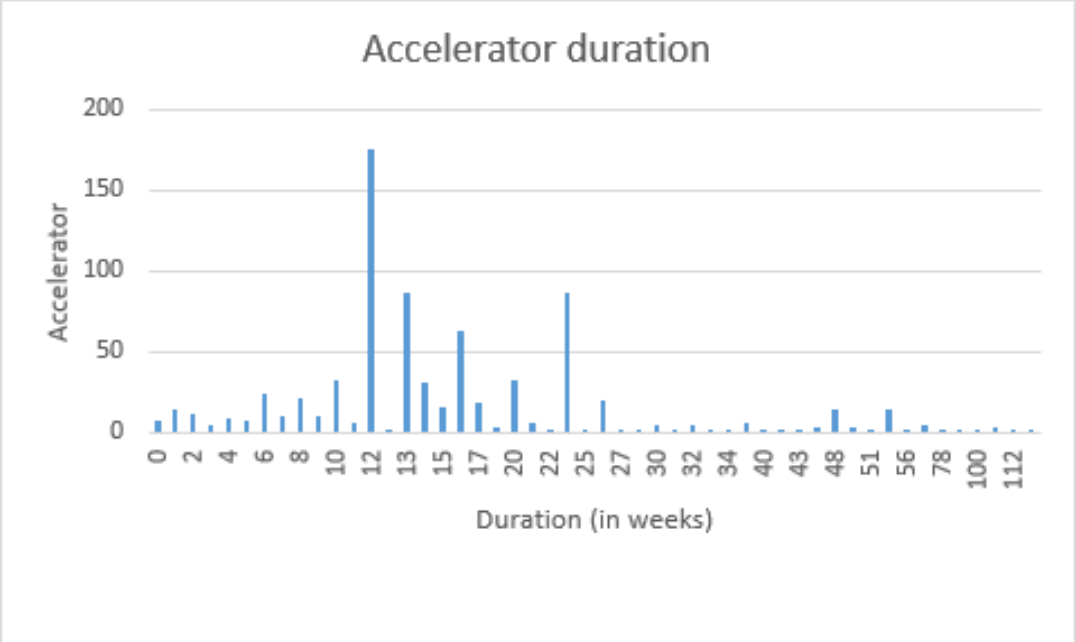


Figure 5 shows the results of the duration in terms of weeks of the accelerator programme, the data presents a peak at 12 weeks.

In order to carry out the classification between Corporate, Independent and Public , my colleagues and I set out to search for all the accelerators again so that we could give a clear classification in three macro groups in order to be able to make a reliable one. This second research was carried out in all those sources that had been used to collect the first data.

Before importing the data, however, decisions had to be made about which variables to insert, which were the dependent variables, which were the independent and finally the control variables.

In our case, a dependent variable reflects the performance trend of the accelerators since the intent of our study is to try to understand how the performance of the accelerators is influenced by various factors and how these factors can positively or negatively influence them, however having a focus on the comparison between the three categories.

However, STATA software requires some modelling within the database in order to be able to perform a correct model and study, in fact, the software does not read any string data, therefore it was necessary to transform all non-numerical data. Furthermore, the software does not read the commas, but very importantly, in the event of missing data in a certain variable, that observation for that model is automatically excluded, therefore clearly the number of data

present in our database is of fundamental importance since at the moment whereby inserting more variables within the model, the number of observations decreases, this does not allow us to create models with many variables.

3.3 Models Variables

The variables included in the models are the following:

nportorg (Number of portfolio organizations)

Corresponds to the number of organizations that the accelerator has in its porfolio after its period of operation.

nofinv (Number of Investments)

Corresponds to the number of investments made by the accelerator during its period of operation.

usa (United States of America)

Corresponds to the geographical classification and can only take on two values: 0-1.

It takes the value 1 if it is within the classification, otherwise it takes the value 0."

europe (Europe)

Corresponds to the geographical classification and can only take on two values: 0-1.

It takes the value 1 if it is within the classification, otherwise it takes the value 0."

restoftheworld (Rest of the world)

Corresponds to the geographical classification and can only take on two values: 0-1.

It takes the value 1 if it is within the classification, otherwise it takes the value 0."

Profitnoprofit (Profit or no profit)

Corresponds to the variable describing whether the programme is "For profit" or not; it can only take on two values: 0-1. In particular 1 if is yes otherwise o if is "No profit"

nofempl (Number of employees)

Corresponds to the number of employees within the accelerator.

nexipo (Number of exit IPO)

Corresponds to the number of start-ups that go to IPO after the acceleration programme

onlonsite (Online or On-site)

Corresponds to the variable describing whether the programme is carried out in presence or not; it can only take on two values: 0-1. In particular 1 for On-site and 0 for Online

investstage (Investment stage)

Corresponds to the number of stages in which the accelerator actively participates during the process of a starup

weeks (Number of weeks)

Refers to the number of weeks corresponding to the acceleration programme

nofprogram (Number of program)

Corresponds to the number of programmes offered by the accelerator

succrate (Success rate)

Intended as the percentage of start-ups that have successfully completed the acceleration process of the company and are still active (number of start-ups that have passed the seed phase out of number of total start-ups that have participated to the programs made available by the company).

nofsectors (Number of Sectors)

Number of sectors on which the company's acceleration programs are focused as well as the characteristic sectors that start-ups must be part of in order to participate in the acceleration programs.

feeyes1andno0 (Fee Yes=1 and No=0)

Corresponds to the variable describing the presence or absence of a fee to be paid in order to participate in the acceleration programme, it can only take on two values; 0-1.

It takes the value 1 if it is included in the classification and therefore there is a fee to pay, otherwise it takes the value 0."

partteamsxprogram (Participants teams per program)

Average value of the number of teams that can participate in each acceleration program provided by the company (arithmetic average between the maximum and minimum number of accepted teams).

avseedmoney (Average Amount of seed money)

Average value of funds disbursed by the company among all acceleration programs.

equityav (Equity Average Value)

Average equity value, required by the company to the start-up, by contract to participate in the acceleration program.

corporate (Corporate)

Corresponds to the independent variable, can only take two values; 0-1.

It will take on the value 1 when within classification, otherwise it will take on the value 0"

ind_01 (Independent)

Corresponds to the independent variable, can only take two values; 0-1.

It will take on the value 1 when within classification, otherwise it will take on the value 0"

pub_01 (Public)

Corresponds to the independent variable, can only take two values; 0-1.

It will take on the value 1 when within classification, otherwise it will take on the value 0"

age (Age)

Corresponds to the period of activity, i.e. how many years that particular accelerator has been in operation

3.3.1 Dependent Variables

Three dependent variables were chosen, therefore three variables that reflect the performance of the accelerator in their trend, because the increase corresponds to an increase in the performance of that specific accelerator, conversely a decrease in the value of that variable corresponds to a decrease in performance. The three variables chosen are the following:

- Success rate
- Number of Portfolio organizations
- Number of exit IPO

Starting from the first, success rate which corresponds to a value sought directly on the official sites of the accelerators or on connected sites, is a figure that is presented in the form of a percentage or the success rate of that specific accelerator, understood as the success rate of startups after participating in the acceleration program.

However, the situation is different in the case of the other two dependent variables chosen, in fact they are variables that reflect objective data reported numerically. The second corresponds to the number of organizations within the accelerator portfolio. This was intended as a performance symptom since if an accelerator has a higher value, it means that it has performed better because.

The third and last dependent variable chosen was number of exit IPO intended as the number of startups that entered in IPO after participating in the acceleration program. This is a symptom of a program that has managed to expand, improve and increase the performance of that startup; therefore it is a variable that closely reflects the performance of the accelerator.

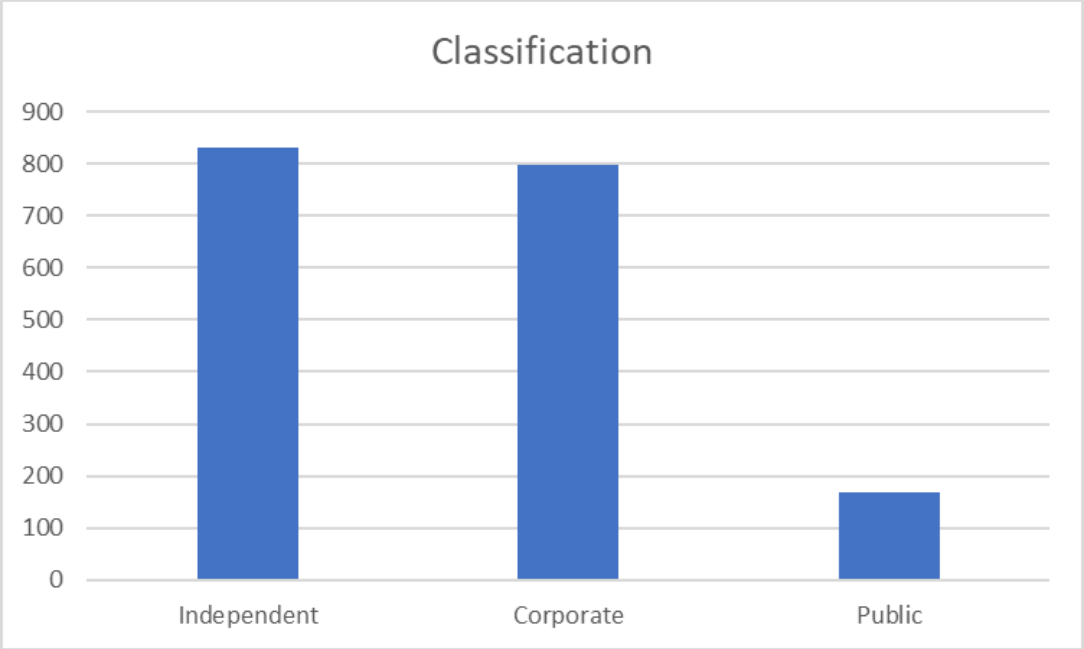
3.3.2 Independent Variables

As far as the independent variables are concerned, these are our three types of accelerators:

- Corporate
- Independent
- Public

Figure 6 shows the clear difference in terms of the number of accelerators between Corporate and Independent, which have more or less the same number of accelerators, while Public accelerators are fewer.

Figure 6 Accelerator classifications



3.3.3 Control Variables

All the remaining variables belong to the category control variables:

- equityav (Equity Average Value)
- avseedmoney (Average Amount of seed money)
- partteamsxprogram (Participants teams per program)

- nofsectors (Number of Sectors)
- nofprogram (Number of program)
- weeks (Number of weeks)
- investstage (Investment stage)
- onlonsite (Online or On-site)
- nofempl (Number of employees)
- nofinv (Number of Investments)
- usa (United States of America)
- europe (Europe)
- restoftheworld (Rest of the world)
- Profitnoprofit (Profit or no profit)
- age (Age)
- feeyes1andno0 (Fee Yes=1 and No=0)

The variable Investment stage reflects the number of stages in which the accelerator actively participates during its programs.

An aspect that should not be underestimated is the presence or absence of a fee to be paid in order to participate in the acceleration programs.

In some cases, in order to participate in the acceleration program, there is an enrolment fee, i.e., an entrance fee to the program. We must try to understand if the presence of a fee to pay, therefore a monetary outlay, is a symptom of a greater performance by our acceleration program or vice versa, if the possibility of participating in the program through a more restricted selection process gives the possibility of performing better than with a less selective process?

Another important aspect is the number of startups within the program, defined as the number of participants per program, in fact very often some programs have a higher number than others and this can certainly lead to a greater network and therefore a possibility of relating to other startups, create connections, create interactions, and learn and see how other startups and other entrepreneurs face your same situation and your same problems. At the same time, however, the high number could lead to a decrease in the level that the accelerator can provide to the startup. So, it is crucial to understand how this can affect accelerator performance.

As far as the Average seed money and Equity average are concerned, these are values entered in our model in order to see, as far as the former is concerned, whether the amount of money that is allocated and provided to the startup can actually have a fundamental impact on the performance.

Average Equity, on the other hand, shows the startup's equity percentages that are retained by the accelerator in order to provide the service, however not all accelerators provide for equity.

As regards the Number of programs, it means the number of programs made available by the accelerator. So for the final study, 1794 accelerators were entered, containing at least one value in those variables.

Regarding the changes made to the dataset to be imported, the main changes were:

- Transformation into var dummy -- online on site.
- Transformation into var dummy for – profit/non-profit.
- Transformation into var dummy for the geographical distribution.
- Removal of all commas and strings.

Once the dataset had been created with the necessary modifications, it was imported into the STATA software, in order to start the analysis.

4. Analysis

4.1 Descriptive Statistics

In this chapter I report the results obtained through the analysis. It was decided to use the multipurpose statistical package called STATA, used to explore, summarize, and study the dataset. STATA is one of the most used tools in social science research and business schools. From this point on, the study with my colleagues was different so I continued individually.

The descriptive statistics of the variables are reported in the first paragraph of this chapter and the correlation analysis between the variables addressed is shown in the second paragraph. The third paragraph concludes with a report and discussion of the regression models' findings.

The decision was made to consider three dependent variables, three independent variables and 16 control variables.

Number of exit IPO and Number of portfolio organisations represent objective values reported by Crunchbase. While Success rate is not always an objective value, as it is very often found to be expressed directly by the accelerator and therefore may have been modified in its favour.

The descriptive statistics of the previously defined variables are necessary to interpret the data of the selected sample. The table below presents the descriptive statistics, in which mean, median, standard deviation, variance, number of observations, range, min and max are highlighted. The descriptive statistics of the variables used in the study are essential to understand and interpret the result.

Table 2 Descriptive Statistic

Variable	Obs	Mean	Std. Dev.	Min	Max
nportorg	1155	42.607	189.348	0	3616
nofinv	1154	45.016	205.173	0	4561
usa	1794	.345	.476	0	1
europe	1794	.294	.456	0	1
restoftheworld	1794	.361	.48	0	1
profitnoprofit	311	.871	.335	0	1
nofempl	1206	133.234	738.987	10	10000
nexipo	490	8.869	33.221	1	452
onlonsite	679	.722	.449	0	1
investstage	1049	1.788	1.097	1	10
weeks	717	17.509	14.615	1	144
nofprogram	1753	2.881	8.429	1	221
succrate	972	76.126	16.017	10	100
nofsectors	1258	6.432	8.228	0	102
feeyes1andno0	1544	.227	.419	0	1
partteamsxprogram	839	13.963	17.954	1	400
avseedmoney	1466	190752.29	923319.51	0	27500000
equityav	1246	3.494	6.557	0	105
corporate	1794	.444	.497	0	1
ind 01	1794	.463	.499	0	1
pub 01	1794	.093	.291	0	1
age	1358	9.973	5.939	2	100

Table 2 shows a descriptive statistic in order to make some structural changes, because if the standard deviation deviates from the mean by more than one unit of magnitude is better to make changes in order to create more reliable models. For this reason, additional variables were created from these in order to overcome this problem, we switched the value with ln variable.

Generate lnnofempl= ln(1+nofempl)

This is an example of the command performed in STATA.

As we can see from Table 2 for some variables the number of data found is decidedly greater than for others, only in the case of the two classifications, we have found all the observations, therefore 1794, while instead for all the other variables we have a lower number.

4.2 Correlation Matrix

To evaluate the relationship between variables and to exclude potential multicollinearity problems, I performed a correlation analysis. The table below shows the values of the correlation coefficients between the variables considered in the study.

Table 3 Correlation Matrix (1)

Variables	-1	-2	-3	-4	-5	-6	-7	-8	-9	-10	-11	-12	-13
(1) nportorg	1.000												
(2) nofinv	0.998	1.000											
(3) usa	0.529	0.572	1.000										
(4) europe	-0.453	-0.425	-0.408	1.000									
(5) restoftheworld	-0.159	-0.225	-0.667	-0.408	1.000								
(6) profitnoprofit	0.159	0.225	0.667	0.408	-1.000	1.000							
(7) nofempl	-0.962	-0.977	-0.612	0.250	0.408	-0.408	1.000						
(8) nexipo	-0.409	-0.392	0.396	-0.431	-0.044	0.044	0.431	1.000					
(9) onlonsite	-0.415	-0.450	-0.167	-0.612	0.667	-0.667	0.612	0.704	1.000				
(10) investstage	-0.129	-0.171	-0.295	-0.309	0.547	-0.547	0.309	0.022	0.505	1.000			
(11) weeks	-0.139	-0.180	-0.468	-0.299	0.712	-0.712	0.287	0.093	0.478	-0.182	1.000		
(12) nofprogram	-0.334	-0.313	-0.452	0.982	-0.350	0.350	0.151	-0.587	-0.679	-0.239	-0.313	1.000	
(13) succrate	-0.867	-0.896	-0.718	0.135	0.608	-0.608	0.954	0.352	0.669	0.256	0.552	0.055	1.000
(14) nofsectors	0.940	0.952	0.490	-0.129	-0.385	0.385	-0.986	-0.573	-0.700	-0.301	-0.290	-0.013	-0.935
(15) feeyes1andno(	-0.132	-0.165	-0.408	-0.250	0.612	-0.612	0.250	0.108	0.408	-0.309	0.991	-0.277	0.511
(16) partteamsxpro	0.843	0.876	0.873	-0.318	-0.613	0.613	-0.918	-0.086	-0.490	-0.326	-0.457	-0.278	-0.956
(17) avseedmoney	-0.404	-0.366	-0.204	0.953	-0.574	0.574	0.181	-0.338	-0.630	-0.201	-0.567	0.930	-0.010
(18) equityav	-0.009	0.049	0.292	0.749	-0.904	0.904	-0.260	-0.253	-0.824	-0.551	-0.647	0.715	-0.442
(19) corporate	0.415	0.450	0.167	0.612	-0.667	0.667	-0.612	-0.704	-1.000	-0.505	-0.478	0.679	-0.669
(20) ind_01	-0.415	-0.450	-0.167	-0.612	0.667	-0.667	0.612	0.704	1.000	0.505	0.478	-0.679	0.669
(21) pub_01	.	.	.	.	.	.	.	.	.	.	.	.	.
(22) age	-0.029	-0.061	-0.301	-0.343	0.581	-0.581	0.153	0.134	0.405	-0.333	0.980	-0.368	0.420

Table 4 Correlation Matrix (2)

	-14	-15	-16	-17	-18	-19	-20	-21	-22
(14) nofsectors	1.000								
(15) feeyes1andno0	-0.257	1.000							
(16) partteamsxpro~m	0.853	-0.404	1.000						
(17) avseedmoney	-0.082	-0.522	-0.165	1.000					
(18) equityav	0.307	-0.553	0.345	0.839	1.000				
(19) corporate	0.700	-0.408	0.490	0.630	0.824	1.000			
(20) ind_01	-0.700	0.408	-0.490	-0.630	-0.824	-1.000	1.000		
(21) pub_01	.	.	.	.	.	.	.	.	
(22) age	-0.174	0.992	-0.294	-0.601	-0.570	-0.405	0.405	.	1.000

Table 3 shows all the correlations between the variables that will be used in the models, let's pay attention and focus on those two variables that show a correlation >0.7, starting from Number of Investments and Number of Portfolio organizations. I will then proceed with only the second variables the correlation is >0,7.

4.3 Obtained results

In this paragraph, the results of the statistical analysis are reported, as regards the command performed in STATA for the two count variables, it was nbreg, i.e. the negative binomial. A

count variable is a variable that counts the number of arrivals, so in this case it corresponds to the two variables Number of portfolio organizations and Number of exit IPO, while as regards Success rate, being a continuous variable, was used the command regress. Firstly, I performed the model only with the control variables and then with the independent variables in order to read the table clearly, it is necessary to check if the number of p-value is less than 0.1, because if is lower it means that the variable has a significant effect on the dependent variable, otherwise it will not be significant.

If the variable is significant, it is necessary to check the value of the coefficient, if the effect is positive or negative respects to the dependent variable, since this means that if that particular significant variable increases, the dependent variable will increase, vice versa the dependent variable will decrease if the coefficient is negative.

4.3.1 Number of portfolio organizations

The first model reported is the one with the dependent variable Number of portfolio organizations.

Table 5 Result of the regression with Number of portfolio organization (1)

nportorg	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
age	.091	.019	4.72	0	.053	.129	***
usa	.386	.15	2.57	.01	.092	.68	**
europe	-.302	.156	-1.93	.053	-.608	.004	*
feeyes1andno0	-.321	.192	-1.67	.094	-.697	.055	*
lnnofempl	.352	.051	6.88	0	.252	.453	***
equityav	-.016	.019	-0.83	.406	-.052	.021	
lnavseedmoney	.019	.018	1.01	.314	-.018	.055	
investstage	.204	.067	3.04	.002	.072	.335	***
Constant	1.267	.28	4.53	0	.719	1.815	***
Constant	.336	.064	.b	.b	.211	.462	

Mean dependent var	75.381	SD dependent var	277.224
Pseudo r-squared	0.056	Number of obs	391
Chi-square	221.857	Prob > chi2	0.000
Akaike crit. (AIC)	3772.414	Bayesian crit. (BIC)	3812.101

*** *p<.01, ** p<.05, * p<.1*

In this first study, Table 4 shows that the number of observations is 391, compared to the starting value of 1794, this means that for 391 accelerators there is the presence of all the values for those variables in the model.

In this case we can see that the control variable age has significance influence and by checking our coefficient we can see that is positive, so this means that our model is telling us that if the age of our accelerator increases, our value of the dependent variable increase, this reflects a lot on the concept of experience in that particular field, so if an accelerator is performing programs since many years, it has an higher presence of organizations in its portfolio.

The two control variables USA and Europe, we must remember that our baseline is the Rest of the world, since all the accelerators are part of a single group among the three, therefore the significance is with respect to the baseline.

In our case we can see that USA and Europe both have significant values, but they have opposite effects compared to the baseline.

As far as the following variables are concerned, we can see that Fee has a negative coefficient, instead number of employees has a positive one, therefore this means that the size of the accelerator influences positively our dependent variable, vice versa the presence of a fee in the program decreases the dep. variable, this is a very important result.

Because in those programs without Fee, the entry selection is more difficult, this could mean that in those programs in which startups participate without a monetary outlay and therefore simply by passing the selection step the quality of the startups is superior and therefore the portfolio becomes larger as there is greater interest.

While Equity Av. Money and Average seed money have no significance values, and finally the number of invest stages has a positive significance.

Now let's move on the models in which the independent variables are added in order to identify a possible relation between these three variables.

Table 6 Result of the regression with Number of portfolio organization (2)

nportorg	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
age	.09	.019	4.71	0	.052	.127	***
usa	.411	.148	2.77	.006	.12	.701	***
europe	-.281	.154	-1.82	.068	-.584	.021	*
feeyes1andno0	-.354	.188	-1.89	.059	-.722	.014	*
lnnofempl	.331	.05	6.60	0	.232	.429	***
equityav	-.011	.019	-0.58	.565	-.049	.027	
lnavseedmoney	.016	.018	0.88	.377	-.02	.052	
investstage	.201	.065	3.10	.002	.074	.328	***
pub_01	-.066	.217	-0.30	.761	-.491	.359	
ind_01	-.518	.126	-4.10	0	-.766	-.27	***
Constant	1.562	.286	5.46	0	1.001	2.122	***
Constant	.302	.064	.b	.b	.176	.428	

Mean dependent var	75.381	SD dependent var	277.224
Pseudo r-squared	0.060	Number of obs	391
Chi-square	238.635	Prob > chi2	0.000
Akaike crit. (AIC)	3759.635	Bayesian crit. (BIC)	3807.260

*** *p<.01, ** p<.05, * p<.1*

Table 6 shows that the variable Independent has a negative significant p-value, instead Public is not significant. Our baseline is Corporate, because is omitted from the model, it means that if an accelerator is sponsored by an established firm the possibility of having more organizations in their portfolio is greater.

4.3.2 Number of exit IPO

The second model reported is the one with the dependent variable Number of exit IPO.

Table 7 Result of the regression with Number of exit IPO (1)

nexipo	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
age	.13	.023	5.62	0	.085	.175	***
usa	.789	.177	4.46	0	.442	1.136	***
europe	-.113	.201	-0.56	.574	-.507	.281	
feeyes1andno0	-.605	.246	-2.46	.014	-1.087	-.123	**
lnnofempl	.344	.05	6.85	0	.246	.442	***
equityav	-.026	.015	-1.76	.078	-.054	.003	*
lnavseedmoney	.004	.022	0.20	.843	-.038	.046	
investstage	.122	.077	1.58	.113	-.029	.274	
Constant	-1.115	.371	-3.01	.003	-1.841	-.388	***
Constant	-.152	.104	.b	.b	-.357	.052	

Mean dependent var	12.962	SD dependent var	48.000
Pseudo r-squared	0.140	Number of obs	211
Chi-square	202.394	Prob > chi2	0.000
Akaike crit. (AIC)	1266.220	Bayesian crit. (BIC)	1299.738

*** *p<.01, ** p<.05, * p<.1*

As far as the second model is concerned Number of exit IPO, therefore the number of startups which, after the acceleration program, enter in IPO. Table 6 that the number of observations is slightly lower than in the previous model, certainly because our dependent variable has a lower number of data than the previous one, however this is also a variable taken from the initial database of Crunchbase. We immediately realize that age also here has a positive significance therefore the age of our accelerator positively influences the number of companies that went in IPO after the acceleration program, this could give importance to the fact that if an accelerator has more experience, the possibility of providing the information and preparation necessary to enter in IPO is higher. Also, here USA has a significant and positive value, however Europe is not significance compared to the Rest of the world. In this case we note that the control variable Fee is significant and negative, therefore it is confirmed once again as the presence of a tax to be paid means that the startups participating in the accelerator does not t have the same ease of going into IPO and penetrate the market. We have the same results for the variable Number of employee and Average seed money, but for not for Average equity, because is significant and negative, so it means that a higher equity value decreases the number of startups that enter in IPO. As for Investment stage, we can see that is almost significant and it has a positive coefficient.

Now let's move on the models in which the independent variables are added in order to identify a possible relation between these three variables.

Table 8 Result of the regression with Number of exit IPO (2)

nexipo	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
age	.128	.023	5.53	0	.082	.173	***
usa	.79	.177	4.46	0	.443	1.137	***
europe	-.115	.203	-0.57	.571	-.512	.283	
feeyes1andno0	-.576	.244	-2.36	.018	-1.054	-.097	**
lnnofempl	.341	.05	6.81	0	.243	.44	***
equityav	-.026	.015	-1.75	.079	-.055	.003	*
lnavseedmoney	.003	.021	0.13	.896	-.039	.045	
investstage	.122	.076	1.61	.108	-.027	.27	
pub_01	-.418	.241	-1.74	.083	-.89	.054	*
ind_01	-.201	.158	-1.27	.203	-.51	.108	
Constant	-.957	.381	-2.51	.012	-1.704	-.21	**
Constant	-.171	.105	.b	.b	-.377	.035	

Mean dependent var	12.962	SD dependent var	48.000
Pseudo r-squared	0.142	Number of obs	211
Chi-square	206.116	Prob > chi2	0.000
Akaike crit. (AIC)	1266.498	Bayesian crit. (BIC)	1306.720

*** $p<.01$, ** $p<.05$, * $p<.1$

Table 8 shows that the variable Public has a significant p-value and the coefficient is negative, instead Independent is not significant. Our baseline is always Corporate, because is omitted from the model, it means that if an accelerator is sponsored by an established firm is easier for a startup to enter in IPO.

4.3.3 Success rate

The third model reported is the one with the dependent variable Success rate.

Table 9 Result of the regression with Success rate (1)

succrate	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
age	.235	.234	1.00	.316	-.225	.695	
usa	-4.048	2.419	-1.67	.095	-8.809	.714	*
europe	.138	2.53	0.05	.957	-4.843	5.119	
feeyes1andno0	-5.157	3.285	-1.57	.118	-11.623	1.309	
lnnofempl	-.302	.918	-0.33	.742	-2.109	1.504	
equityav	-.12	.183	-0.66	.51	-.48	.239	
lnavseedmoney	.258	.291	0.89	.375	-.314	.831	
investstage	.559	.9	0.62	.535	-1.213	2.331	
Constant	75.007	4.91	15.28	0	65.341	84.673	***

Mean dependent var	76.690	SD dependent var	16.806
R-squared	0.044	Number of obs	290
F-test	1.621	Prob > F	0.118
Akaike crit. (AIC)	2463.515	Bayesian crit. (BIC)	2496.544

*** *p<.01*, ** *p<.05*, * *p<.1*

Table 9 shows the last model with the continuous variable, we can see that the number of observations rises slightly and is 290, we remember that success rate values were very often taken from the accelerator's websites directly and may not be real as described. We can see that the only significant value is USA and in this case the coefficient is even negative, completely opposite to the value that was noted in the two previous models. We can also consider significant the variable Fee because it has an almost 0,1 p-value and this is in line with the two previous models.

Now let's move on the models in which the independent variables are added in order to identify a possible relation between these three variables.

Table 10 Result of the regression with Success rate (2)

succrate	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
age	.253	.236	1.08	.283	-.21	.717	
usa	-4.063	2.425	-1.68	.095	-8.837	.71	*
europe	.19	2.537	0.07	.94	-4.805	5.185	
feeyes1andno0	-5.334	3.301	-1.62	.107	-11.832	1.163	
lnnofempl	-.353	.925	-0.38	.703	-2.174	1.468	
equityav	-.122	.184	-0.66	.51	-.484	.241	
lnavseedmoney	.243	.292	0.83	.406	-.332	.818	
investstage	.523	.904	0.58	.563	-1.256	2.302	
pub_01	-2.779	3.457	-0.80	.422	-9.583	4.025	
ind_01	-.407	2.103	-0.19	.847	-4.548	3.734	
Constant	75.688	5.101	14.84	0	65.646	85.729	***

Mean dependent var	76.690	SD dependent var	16.806
R-squared	0.046	Number of obs	290
F-test	1.355	Prob > F	0.201
Akaike crit. (AIC)	2466.841	Bayesian crit. (BIC)	2507.210

*** *p<.01, ** p<.05, * p<.1*

Table 10 shows the last model in which the continuous variable is reported together with the independent variables, we note that in terms of significance there is no relations between the independent variables, and most likely this result is linked to the fact that success rate variable does not fully reflect reality, since in the two previous models a relationship was found, therefore given that both count variables reflect a significance influence on the performance, we would have expected a different result in this last model.

5. Discussion and Conclusions

As far as the acquisition process that has led to the following results is concerned, one must always be careful as many data have been taken directly from the pages and sites of the accelerators, therefore it is very often possible that they are the result of not entirely reliable interpretations, in particular all those values that cannot be confirmed with objective data.

Having taken most of the data from the Crunchbase platform we do not know if these have been updated with the latest results or if there has been a substantial change in the last period, moreover it must be emphasized that the number of observations in the different models is lower than the entirety of the dataset created, because it is very complex to find updated and reliable data.

One aspect stands out a lot after this study, the presence of a fee to pay is significantly negative with respect to the dependent, this may be connected to the fact that many accelerators have a very rigid selection process, so in order to participate in a specific program a startup needs some references and some steps to go through, so very often these are fairly consolidated startups and initiatives.

The presence of established companies behind an accelerator is certainly an extra point in terms of evaluation by the startup before sending the application to a program, given that nowadays corporates are increasingly interested in the world of startups having to do with innovativeness that represents the future. Established companies cannot miss the opportunity to maintain their portfolio with the possibility to create a disruptive company able to penetrate the market and replace the incumbent.

Independent accelerators concentrate all their resources on these programs, even though they do not have a consolidated companies behind them, which in any case represent a guarantee, they have experience and they can easily be considered worthy as Corporate accelerators.

Furthermore, it would be very interesting in the future try to understand the impact of the Online/on site or Profit/No profit variables and all those that are not included in the models, since due to the large number of data not found, it was not possible to make a complete model with all the variables.

With reference to the differences between the three groups of accelerators, it should be emphasized that significant results are found only thanks to the two dependent variables count,

this can be interpreted as a sign of unreliability of the variable success rate or instead given that this is a variable more qualitative is better to be performed with different variables in its model.

It would be very interesting to continue a more in-depth study with a smaller number of accelerators in order to be able to take into consideration more specific data, in order to be able to confirm what was noted in this study. Surely there is to consider the continuous and ever-increasing number of these programs given the increasingly high demand from startups, as the positive effects are well known and objective, therefore one should always update one's database in order to also have the possibility to compare the results year by year in order to ascertain a more performing common methodology.

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